



## **Self-Assessment Report (SAR)**

**Undergraduate Engineering Programs**

**B. Tech (Chemical Engineering)**

**Graduate Attributes and Professional Competencies Version 4.0  
(GAPC V4.0)**

**(TIER-I Institutions)**

**Submitted by:**



**DEPARTMENT OF CHEMICAL ENGINEERING  
SCHOOL OF ENGINEERING AND TECHNOLOGY  
GANDHI INSTITUTE OF ENGINEERING AND  
TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR  
(GIET UNIVERSITY)**

**(Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and  
Approved by AICTE, ICAR, INC, DSIR, New Delhi)**

**Gunupur - 765022, Dist.- Rayagada, Odisha, INDIA**

**[www.giet.edu](http://www.giet.edu)**

**Submitted to:**

## **National Board of Accreditation**

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**(APRIL 2025)**

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**PART A: Institutional Information****1. Name and Address of the Institution:**

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur  
 (GIET University)  
 At: Gobriguda, Po: Kharling, Taluk: Gunupur,  
 Gunupur, Dist.: Rayagada, Odisha, 765022

**2. Type of the Institution: (Tick the applicable choice)**

Institute of National Importance	<input type="checkbox"/>
Deemed to be University	<input type="checkbox"/>
University	<input checked="" type="checkbox"/>
Autonomous	<input type="checkbox"/>
Non-Autonomous (Affiliated)	<input type="checkbox"/>
Any Other (Please specify*)	<input type="checkbox"/>

\*Provide Details: [State Private University](#)

Note:

- ❖ In case of Autonomous Institute/Deemed University, mention the year of grant of status by the authority. In case of autonomous institution, mention also the duration of status.
- ❖ In case of University Constituent Institution, please indicate the academic autonomy status of the Institution as defined in 12th Plan guidelines of UGC. Institute should apply for Tier 1 only when fully academically autonomous.

**3. Year of Establishment of the Institution: 1997****4. Ownership Status: (Tick the applicable choice)**

Central Government	<input type="checkbox"/>
State Government	<input type="checkbox"/>
Grant-in-Aid	<input checked="" type="checkbox"/>

Self-financing Trust

Any Other (Please specify\*)

\*Provide Details: Vidya Bharati Educational Trust

**5. Name and Address of the Affiliating University (if any):**

**6. Other Academic Institutions Run by Trust/Society/etc., if any:**

**Table No. A6:** List of all Institutions running under the same trust/society.

S. N.	Name of the Institution(s)	Year of Establishment	Programs of Study	Location
-	-	-	-	-

**7. Details of all the Programs Being Offered by the Institution:**

**Table No. A7:** Details of all the programs being offered by the Institution.

S. N.	Program Name	Year of start	Sanctioned Intake	Increase/decrease in intake, if any	Year of increase/decrease	AICTE/Approval details	Accreditation Status*	No. of times program accredited
1	Diploma (Civil Engineering)	2023	60	No	NA	File No.: Eastern/1-36589679860/2023/EOA Date: 18-Jun-2023	Not eligible for accreditation	0
2	Diploma (Electrical Engineering)	2023	12	No	NA	File No.: Eastern/1-36589679860/2023/EOA Date: 18-Jun-2023	Not eligible for accreditation	0
3	Diploma (Mechanical Engineering)	2023	120	No	NA	File No.: Eastern/1-36589679860/2023/EOA Date: 18-Jun-2023	Not eligible for accreditation	0
4	B. Tech (Chemical Engineering)	1997	40	30	2019	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Granted accreditation for 2/3 years for the period (Academic Years 2014-15 to 2021-22, i.e., up to 30-06-2022)	3

5	B. Tech (Computer Science and Engineering)	19 97	40	240	2019	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Granted accreditation for 2/3 years for the period (Academic Years 2023-24 to 2025-26, i.e., up to 30-06-2026)	3
6	B. Tech (Mechanical Engineering)	19 97	60	60	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Granted accreditation for 2/3 years for the period (Academic Years 2023-24 to 2025-26, i.e., up to 30-06-2026)	4
7	B. Tech (Electronics and Communication Engineering)	20 00	60	120	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Granted accreditation for 2/3 years for the period (Academic Years 2019-20 to 2024-25, i.e., up to 30-06-2025)	1
8	B. Tech (Biotechnology)	20 04	30	60	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Granted accreditation for 2/3 years for the period (Academic Years 2019-20 to 2024-25, i.e., up to 30-	1

							06-2025)	
9	B. Tech (Electrical and Electronics Engineering)	20 07	60	60	2019	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Granted accreditation for 2/3 years for the period (Academic Years 2018-19 to 2024-25, i.e., up to 30-06-2025)	1
10	B. Tech (Electrical Engineering)	20 08	60	30	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Eligible but not applied	0
11	B. Tech (Civil Engineering)	20 09	60	60	2019	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
12	B. Tech (Agricultural Engineering)	20 19	60	No	NA	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
13	B. Tech (Computer Science and Technology)	20 19	120	60	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Eligible but not applied	0
14	B. Tech (Petrochemical and Petroleum Refinery Engineering)	20 19	30	No	NA	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
15	B. Tech (Computer Science and Engineering)	20 21	60	No	NA	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1	Not eligible for accreditation	0

	g (Artificial Intelligenc e and Machine Learning))					Date: 04-Aug- 2021		
1 6	B. Tech (Computer Science and Engineerin g (Data Science))	20 21	60	No	NA	File No.: Eastern/1- 9319432457 /2021/EOA/Corri gendum-1 Date: 04-Aug- 2021	Not eligible for accreditat ion	0
1 7	B. Tech (Computer Science and Engineerin g (Internet of Things))	20 21	60	No	NA	File No.: Eastern/1- 9319432457 /2021/EOA/Corri gendum-1 Date: 04-Aug- 2021	Not eligible for accreditat ion	0
1 8	B. Tech (Electroni cs Engineerin g (VLSI Design and Technolog y))	20 23	60	No	NA	File No.: Eastern/1- 36589679860/202 3/EOA Date: 18-Jun- 2023	Not eligible for accreditat ion	0
1 9	M. Tech (Computer Science and Engineerin g)	20 04	18	No	NA	File No.: PG/ORI/M.TECH .2004/CSE-0036 Date: 28-Jun- 2024	Eligible but not applied	0
2 0	M. Tech (Electroni cs and Commun ication Engineerin g)	20 06	18	No	NA	File No.: 760-82- 217(E)/ET/97 Date: 26-Jun- 2006	Eligible but not applied	0
2 1	M. Tech (Power Electronics )	20 09	18	No	NA	File No.: AICTE/E&T/EN GG/ LATEST_ APPROVAL/ORI /2009-10 Date: 21-Jul-2009	Eligible but not applied	0
2 2	M. Tech (Heat Power and	20 10	18	No	NA	File No.: Eastern Region/1- 7537381/2010/EO	Eligible but not applied	0

	Thermal Engineering)					A Date: 23-Aug-2010		
23	M. Tech (Machine Design)	2010	18	No	NA	File No.: Eastern Region/1-7537381/2010/EOA Date: 23-Aug-2010	Eligible but not applied	0
24	M. Tech (Structural Engineering)	2013	18	No	NA	File No.: Eastern/1-142171932/2013/EOA Date: 19-Mar-2013	Eligible but not applied	0
25	M. Tech (Biotechnology)	2019	18	No	NA	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
26	M. Tech (Chemical Engineering)	2019	18	No	NA	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
27	M. Tech (Manufacturing Technology)	2019	18	No	NA	File No.: Eastern/2019-20/1-4561768721 Date: 30-Apr-2019	Eligible but not applied	0
28	M. Tech (Construction Technology and Management)	2021	18	No	NA	File No.: Eastern/1-9319432457/2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Eligible but not applied	0
29	M. Tech (Electronics and Communication Engineering (VLSI Design))	2023	18	No	NA	File No.: Eastern/1-36589679860/2023/EOA Date: 18-Jun-2023	Not eligible for accreditation	0
30	MBA (General Management)	2001	60	120	2006	File No.: OR-01/MAP-MBA/2000 Date: 16-Jun-2006	Applying first time	0

3 1	Master of Computer Applications	20 19	60	120	2021	File No.: Eastern/1-9319432457 /2021/EOA/Corrigendum-1 Date: 04-Aug-2021	Eligible but not applied	0
3 2	Bachelor of Hotel Management and Catering Technology	20 24	60	No	NA	File No.: Eastern/1-43658032219/2024/EOA Date: 08-May-2024	Not eligible for accreditation	0
3 3	Bachelor of Business Administration (BBA)	20 16	60	No	NA	File No.: Eastern/2024-25/1-44661481044 Date: 09-Oct-2024	NA	NA
3 4	Bachelor of Computer Applications (BCA)	20 20	40	No	NA	File No.: Eastern/2024-25/1-44661481044 Date: 09-Oct-2024	NA	NA

Add rows as needed

\*Write applicable one:

- ❖ Applying first time
- ❖ Granted accreditation for 2/3 years for the period (specify period)
- ❖ Granted accreditation for 5/6 years for the period (specify period)
- ❖ Not accredited (specify visit dates, year).
- ❖ Withdrawn (specify visit dates, year)
- ❖ Not eligible for accreditation.
- ❖ Eligible but not applied.

**8. Programs to be Considered for Accreditation vide this Application:**

**Table No. A8.1:** List of programs to be considered for accreditation.

S. N.	Name of the Department	Name of the Program
1	Biotechnology	B. Tech (Biotechnology)
2	Chemical Engineering	B. Tech (Chemical Engineering)
3	Electrical Engineering	B. Tech (Electrical and Electronics Engineering)
4	Electronics and Communication Engineering	B. Tech (Electronics and Communication Engineering)
5	Management	MBA (General Management)

**Note:**

- ❖ Keep a list of programs applying for NBA accreditation through this application.

**Table No. A8.2:** Allied Department(s) to the Department of the programs considered for accreditation as above.

S. N.	Name of the Department (in table no. A8.1)	Name of allied Departments/Cluster (for table no. A8.1)
1	Chemical Engineering	Petrochem and Petroleum Refinery Engineering
2	Electrical Engineering	Electrical and Electronics Engineering
3	Electronics and Communication Engineering	Electronics Engineering (VLSI Design and Technology)

**Note:**

- ❖ Keep a list of all allied departments/cluster programs with respect to Table No. A8.1.
- ❖ See the Allied Departments/Cluster programs information in Annexure-III.

**9. Total Number of Faculty Members in Various Departments:**

**Table No. A9:** No. of faculty members in various departments.

S. N.	Name of the Department	Number of faculty members in the Department (UG and PG)		
		CAY 2024-25	CAYm1 2023-24	CAYm2 2022-23

		No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members
1	Basic Science and Humanities	10	12	36	58	9	14	36	59	8	14	35	57
2	Agricultural Engineering	1	1	10	12	1	1	11	13	1	1	11	13
3	Biotechnology	3	3	10	16	2	3	9	14	1	3	8	12
4	Chemical Engineering	1	4	10	15	1	4	10	15	1	4	10	15
5	Civil Engineering	4	4	10	18	4	4	11	19	4	4	11	19
6	Computer Science and Engineering	8	20	70	98	9	23	61	93	10	18	56	84
7	Electrical Engineering	3	4	19	26	3	4	19	26	4	4	18	26
8	Electronics and Communication Engineering	4	12	20	36	5	13	17	35	5	10	22	37
9	Mechanical Engineering	5	7	10	22	5	8	13	26	5	8	18	31

S. N.	Name of the Department	Number of faculty members in the Department (UG and PG)											
		CAY 2024-25				CAYm1 2023-24				CAYm2 2022-23			
		No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members
1	Management Studies	5	10	15	30	5	9	15	29	4	9	14	27
2	Computer Science and Applications	1	1	20	22	1	1	19	21	1	1	19	21

**Note:**

All the faculty whether regular or contractual (except part-time or hourly based), will be considered. All regular faculty members shall meet the AICTE qualifications and experience requirements.

The contractual faculty appointed with any terminology whatsoever, who have taught for 2 consecutive semesters with or without break between the 2 semesters in corresponding academic year on full-time basis shall be considered for the purpose of calculation in the faculty student ratio. However, following will be ensured in case of contractual faculty:

1. Shall have the AICTE prescribed qualifications and experience.
2. Shall be appointed on full time basis and worked for consecutive two semesters with or without break between the 2 semesters during the particular academic year under consideration.
3. Should have gone through an appropriate process of selection and the records of the same shall be made available to the visiting team during NBA visit.

A. Faculty members in the Department who do not have teaching, or practical loads, will not be counted.

B. Director/ Principal/ Dean/ other academic/administrative posts, who has teaching/ practical load in the Department will be counted.

C. Visiting faculty/adjunct faculty, who are working on hourly based faculty will not be counted.

CAY = Current Academic Year

CAYm1 = Current Academic Year Minus 1 = Current Assessment Year

CAYm2 = Current Academic Year Minus 2 = Current Assessment Year Minus 1.

#### **10. Total Number of Engineering Students in Various Departments:**

**Table No. A.10:** No. of engineering students in various departments.

S. N.	Name of the Department	Number of engineering students in the Department (UG and PG)		
		CAY 2024-25	CAYm1 2023-24	CAYm2 2022-23
1	Basic Science and Humanities	1020	1050	990
2	Agricultural Engineering	180	180	180
3	Biotechnology	219	189	157
4	Chemical Engineering	221	222	222
5	Civil Engineering	270	270	270
6	Computer Science and Engineering	1530	1418	1296
7	Electrical Engineering	331	362	397

8	Electronics and Communication Engineering	514	494	529
9	Mechanical Engineering	306	372	438

**Note:**

In case the institution is running programs other than engineering programs (UG and PG), a separate table giving similar details is to be included.

S. N.	Name of the Department	Number of engineering students in the Department (UG and PG)		
		CAY 2024-25	CAYm1 2023-24	CAYm2 2022-23
1	Management Studies	420	420	420
2	Computer Science and Applications	360	360	360

**11. Vision of the Institution:**

To be a **renowned and globally recognized university** giving importance to **academic excellence with the latest technology, research, innovation, and entrepreneurial attitude.**

**12. Mission of the Institution:**

- To create an innovative and committed workforce to cater to the societal, environmental, and economic needs of the nation.
- To promote education and research globally at par with international standards.
- To prepare future leaders with the latest skills befitting to become entrepreneurs or employable.
- To support and uplift the meritorious students of this tribal area to represent as ambassadors in all forums as a part of our social responsibility.

**13. Contact Information of the Head of the Institution and NBA Coordinator:****A. Head of the Institution**

❖ Name: Dr. N. V. Jagannadha Rao  
 ❖ Designation: Registrar

- ❖ Mobile Number: (+91) 9437044170, 9668259219
- ❖ Email id: [registrar@giet.edu](mailto:registrar@giet.edu)

**B. NBA Coordinator:**

- ❖ Name: Dr. Ajit Kumar Patro
- ❖ Designation: Asst. Registrar (Academics)
- ❖ Mobile Number: (+91) 9437723635, 7008168454
- ❖ Email id: [asst.registrar\\_acad@giet.edu](mailto:asst.registrar_acad@giet.edu)

**PART B: Criteria Summary****Name of the Program: B. Tech (Chemical Engineering)****Title of the Degree: B. Tech**

<b>Criteria No.</b>	<b>Name of the Criteria</b>	<b>Marks/ Weightage</b>
<b>Program Level Criteria</b>		
<b>1</b>	Outcome-Based Curriculum	120
<b>2</b>	Outcome-Based Teaching Learning	120
<b>3</b>	Outcome-Based Assessment	120
<b>4</b>	Students' Performance	120
<b>5</b>	Faculty Information	100
<b>6</b>	Faculty Contributions	120
<b>7</b>	Facilities and Technical Support	100
<b>8</b>	Continuous Improvement	80
<b>Institution Level Criteria</b>		
<b>9</b>	Student Support and Governance	120
	<b>Total Marks/Weights</b>	<b>1000</b>

**Criterion 1: Outcome-based Curriculum (120)****1.1. Vision, Mission and Program Educational Objectives (PEOs) (35)****1.1.1. State the Vision and Mission of the Institute and the Department (05)****Institute Vision and Mission****Vision of Institute**

To be a renowned and Globally Recognized University giving importance to academic excellence with latest technology, Research, Innovation and Entrepreneurial Attitude.

**Mission of Institute**

- To create innovative and committed work force to cater to the societal, environmental and economic needs of the Nation.
- To promote Education and Research Globally at par with the international standards.
- To prepare the future leaders with latest skills befitting to become Entrepreneurs or Employable.
- To support and uplift the meritorious students of this Tribal Area to represent as an Ambassador in all forums as a part of our social responsibility.

**Department Vision and Mission****Vision of Department:**

To cultivate skilled and innovative chemical engineers through excellence in education, research, and entrepreneurial development, empowering them to tackle the challenges of a dynamic and globalized world.

**Mission of Department:**

- To equip students with the knowledge, skills, and ethical mindset necessary to become responsible professionals who can effectively apply critical and innovative thinking to solve professional challenges.
- To nurture capable citizens who are empowered to use their education and skills to address and solve pressing social problems.
- To foster interdisciplinary research that advances the field of chemical engineering and meets the broader needs of society.
- To produce highly qualified, innovative chemical engineers with entrepreneurial skills and leadership qualities, preparing them to address complex problems in both industry and society.

## **Consistency of Department Vision and Mission with Institute Vision and Mission**

The Department of Chemical Engineering shows **strong and direct alignment** with the Vision and Mission of the Institute through shared themes like:

- **Academic and research excellence**
- **Entrepreneurship and innovation**
- **Leadership and employability**
- **Societal impact and responsibility**

**Table 1.1.1.1: Alignment of Departmental Vision and Mission with Institute Vision and Mission**

<b>Institute Vision</b>	<b>Department Vision</b>	<b>Common Key Words / Phrases</b>	<b>Consistency Remarks</b>
To be a renowned and Globally Recognized University giving importance to academic excellence with latest technology, Research, Innovation and Entrepreneurial Attitude.	To cultivate skilled and innovative chemical engineers through excellence in education, research, and entrepreneurial development.	-Academic excellence - Research - Innovation - Entrepreneurial attitude - Globalized world	Direct alignment in focus on education, research, innovation, and entrepreneurship. Contributes to global recognition through quality output.
<b>Institute Mission</b>	<b>Department Mission</b>	<b>Common Key Words / Phrases</b>	<b>Consistency Remarks</b>
To create innovative and committed workforce to cater to the societal, environmental and economic needs of the Nation."	To equip students with the knowledge, skills, and ethical mind-set necessary to become responsible professionals..." "To nurture capable citizens... to address and solve pressing social problems."	- Innovative workforce - Committed professionals - Societal and environmental needs - Ethical mind-set	The Department aims to build an innovative, ethical, and socially responsible workforce that addresses national needs, directly supporting the Institute's mission.
To promote Education and Research Globally at par with the international standards."	To foster interdisciplinary research that advances the field of chemical engineering and meets the broader needs of society."	- Research - Global perspective - Interdisciplinary approach - Advancement	The Department's focus on interdisciplinary and societal research complements the Institute's global outlook and commitment to international research standards
To prepare the future	To produce highly	- Leadership	The Department prioritizes

leaders with latest skills befitting to become Entrepreneurs or Employable	qualified, innovative chemical engineers with entrepreneurial skills and leadership qualities..."	- Entrepreneurial skills - Employability - Skill development	entrepreneurship, leadership, and employability, fully in line with the Institute's focus on preparing future-ready graduates.
To support and uplift the meritorious students of this Tribal Area to represent as an Ambassador in all forums as a part of our social responsibility	To nurture capable citizens who are empowered to use their education and skills to address and solve pressing social problems	- Social responsibility - Empowerment - Upliftment - Societal contribution	Partial match – The Department expresses commitment to solving social problems, aligning with the idea of social responsibility. However, it could better reflect the focus on uplifting tribal/meritorious students as stated in the Institute Mission.

### 1.1.2. State PEOs of the Program (05)

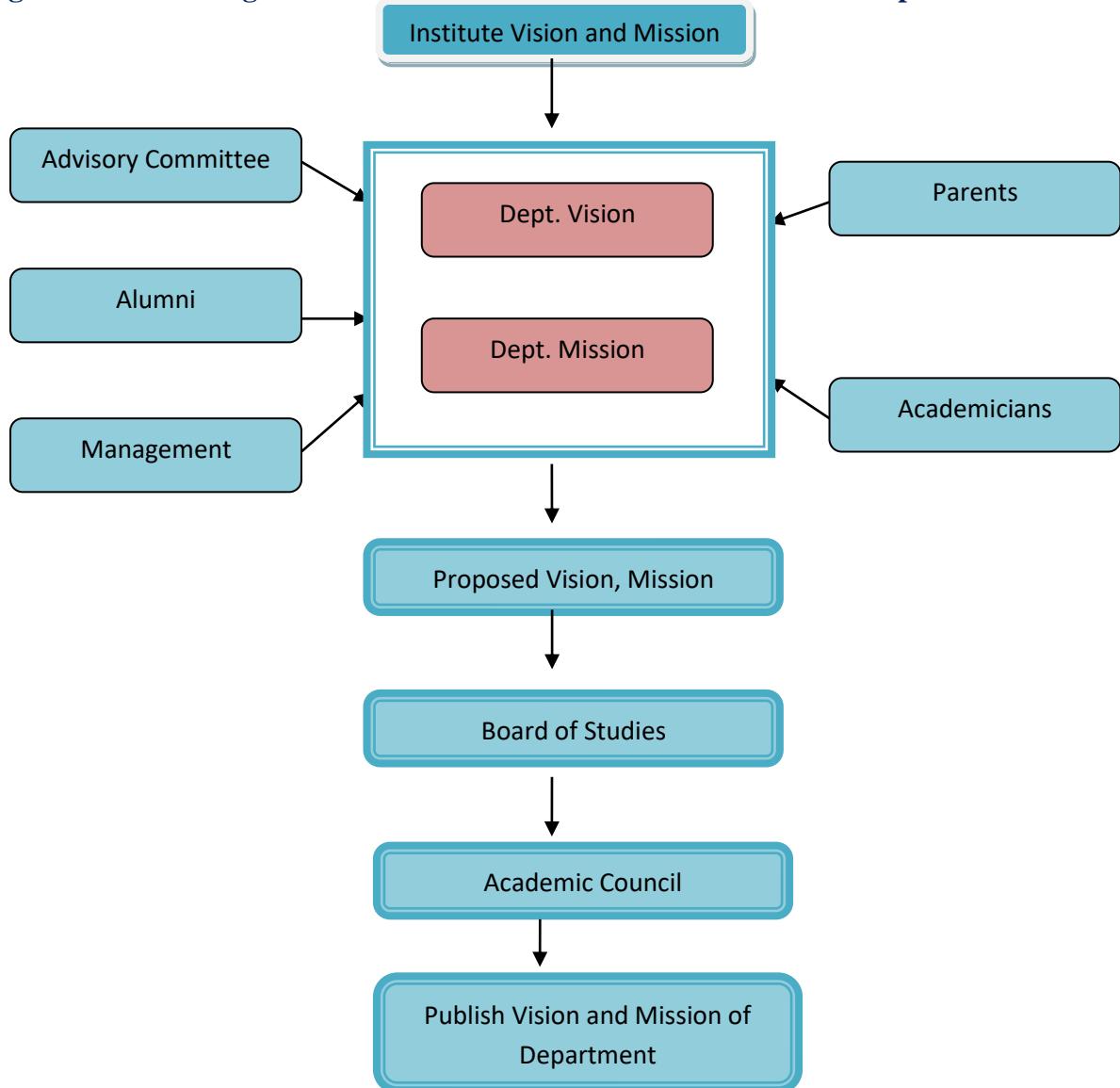
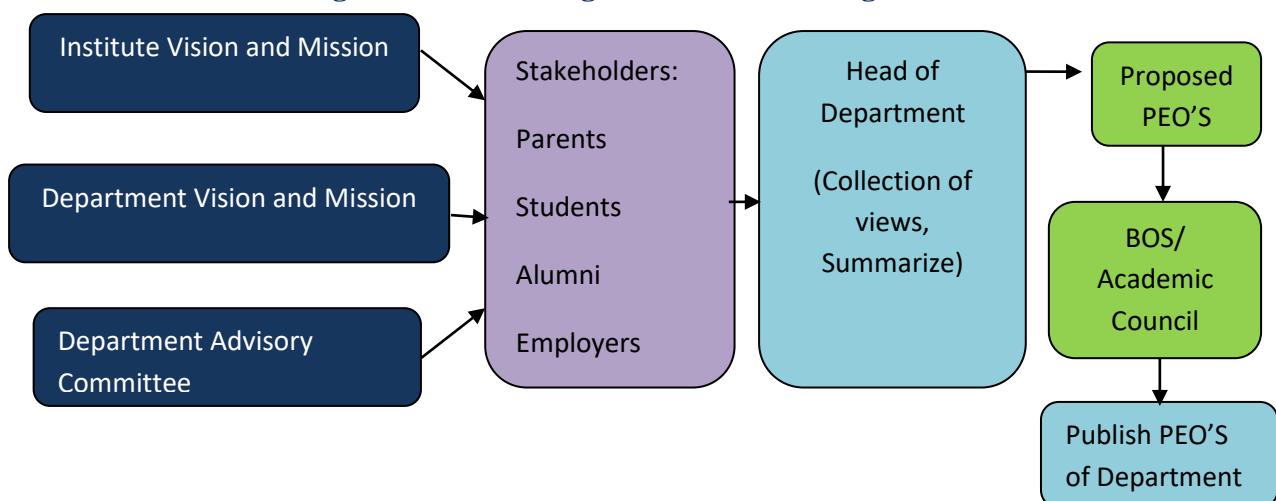
**PEO1:** To produce highly qualified, well-rounded, and motivated graduates with a strong foundation in Chemical Engineering, equipped to pursue successful careers as professional chemical engineers in the Chemical and Allied Industries.

**PEO2:** To produce graduates well-prepared to pursue postgraduate studies and research in emerging and allied fields of Chemical Engineering.

**PEO3:** To provide students with opportunities to work in multidisciplinary teams, fostering the development of professional integrity, ethical values, and leadership skills.

### 1.1.3. Process of Defining Vision, Mission and PEOs (10)

- ✓ The process of defining **Vision, Mission, and Program Educational Objectives (PEOs)** typically involves multiple steps to ensure they align with the institution's values, stakeholders' expectations, and educational goals. The following steps are adopted for establishing the Vision and Mission of the department.
- ✓ The vision and mission of the institute involves the development of human resource with the enhancement of knowledge, research potential and responsibilities for fulfilling the societal needs. All these factors are meticulously included in the vision and mission of the department.
- ✓ The vision, mission and PEOs are established through continuous interaction with stakeholders of the programme.
- ✓ The HOD with the active participation of faculty members and based on the continuous feedback from stakeholders (Advisory Committee, Senior Faculty Members, Parents, Alumni, Employers and Academician) develops the vision and mission statement of the department in alignment with Vision and Mission of the Institute. These statements are discussed further among faculty members before finalization.
- ✓ The new vision and mission statements are sent to the Board of Studies for approval.
- ✓ Finally, the Vision and Mission are approved by the Academic Council and the Board of Governor.

**Fig. 1.1.1: Consulting Process for defining Vision and Mission of the Department****Fig. 1.1.2: Consulting Process for defining PEO's**

#### 1.1.4. Dissemination of Vision, Mission and PEOs (05)

The Vision, Mission, and PEOs are prominently displayed on the institution's homepage [www.giet.edu](http://www.giet.edu) under the tab of department. These program details are published on specific program pages, often under the "Programs" or "Academics" section. Faculty and staff are involved to define the mission and vision statements. This ensures they are not only aware of these principles but also incorporate them into their daily work. The banners with the Vision, Mission, and PEOs are displayed in class rooms, Laboratories, conference hall, department library, and staff rooms.

External stakeholders such as community members, funding agencies, and prospective partners are introduced to the institution's goals through public outreach events, open houses, and collaboration with industry bodies or professional associations.

Vision and Mission are also disseminated to all the stakeholders of the programmes through faculty meetings, student awareness workshops, student induction programmes and organization of conferences, workshops, seminars, etc.

**Table 1.1.4.1: Locations where the Vision, Mission and PEOs are published**

Sl. No.	Location/Register	Institute		Department		
		Vision	Mission	Vision	Mission	PEOs
1	Institute Website	Y	Y	Y	Y	Y
2	Head of Department Room	Y	Y	Y	Y	Y
3	Notice Board	Y	Y	Y	Y	Y
4	Departmental Seminar Room	Y	Y	Y	Y	Y
5	Student Observation Record	Y	Y	Y	Y	Y
6	Faculty Room	Y	Y	Y	Y	Y
7	Laboratories	Y	Y	Y	Y	Y
8	Departmental Library	Y	Y	Y	Y	Y
9	Course Diary/Attendance Register	Y	Y	Y	Y	Y
10	Course Files	Y	Y	Y	Y	Y
11	Lab Manual	Y	Y	Y	Y	Y
12	Course Plan/Attendance Register	Y	Y	Y	Y	Y

### 1.1.5. Mapping of PEOs with Mission (10)

**Table 1.1.5.1: PEOs mapping with Mission**

PEO Statements	M1	M2	M3	M4
<b>PEO1:</b> To produce highly qualified, well-rounded, and motivated graduates with a strong foundation in Chemical Engineering, equipped to pursue successful careers as professional chemical engineers in the Chemical and Allied Industries.	3	3	2	2
<b>PEO2:</b> To produce graduates well-prepared to pursue postgraduate studies and research in emerging and allied fields of Chemical Engineering.	3	2	3	2
<b>PEO3:</b> To provide students with opportunities to work in multidisciplinary teams, fostering the development of professional integrity, ethical values, and leadership skills.	3	3	2	3

### Consistency/Justification of Correlation Parameters between PEOs and Mission Statements

**Table 1.1.5.2: Justification of PEOs with Mission**

PEO \ Mission	Rating	Justification
<b>PEO1 – M1</b>	3	M1 focuses on providing quality education in Chemical Engineering; PEO1 aligns strongly by aiming to produce technically competent graduates.
<b>PEO1 – M2</b>	3	M2 emphasizes skill development PEO1 ensures graduates are well-rounded and career-ready.
<b>PEO1 – M3</b>	2	M3 addresses societal contributions PEO1 moderately supports this by producing industry-ready professionals.
<b>PEO1 – M4</b>	2	M4 includes lifelong learning PEO1 moderately supports it through foundational knowledge for career growth.
<b>PEO2 – M1</b>	3	M1 promotes foundational education PEO2 builds on this by preparing students for advanced studies and research.
<b>PEO2 – M2</b>	2	M2 supports research skills PEO2 aligns moderately by encouraging postgraduate pursuits.
<b>PEO2 – M3</b>	3	M3 involves interdisciplinary problem-solving PEO2 directly supports this through research focus.
<b>PEO2 – M4</b>	2	M4 promotes innovation and continuous learning PEO2 encourages lifelong research and academic involvement.
<b>PEO3 – M1</b>	3	M1 emphasizes holistic development PEO3 directly contributes by fostering teamwork and leadership.
<b>PEO3 – M2</b>	3	M2 supports soft skills and ethics PEO3 aligns strongly through multidisciplinary exposure and value-based learning.
<b>PEO3 – M3</b>	2	M3 relates to societal needs

		PEO3 moderately contributes through leadership and integrity in team environments.
<b>PEO3 – M4</b>	3	M4 highlights ethical practices and leadership PEO3 strongly aligns by embedding these in student experiences.

Consistency and justification of above mapping of the matrix can be explained by the involvement of academic factors and the support of administrative systems:

#### **Involvement of academic factors in achievement of the PEOs:**

- Core courses to improve the fundamental concepts of science and Chemical Engineering.
- Elective courses in diverse fields to enhance the knowledge in specific area of Chemical Engineering and its allied fields.
- Humanities courses to understand the ethical and moral values.
- Laboratory courses to deepen the practical knowledge.
- Participation to seminars to enhance the communication skills.
- Project work for developing creative thinking and strategic planning to solve the technical problems.
- Grand viva to assess the knowledge gathered during their graduate programme.

#### **Support of administrative systems:**

- The department organizes seminar/invited talks on advanced chemical engineering areas through the seminar coordinator from the department.
- Faculty members monitor the progress at regular intervals through mentoring and take necessary actions for the improvement if required.
- Collection of students' feedback on particular course and do the needful improvement if required.
- Strict action against those who do not comply with the rules and regulations, which results in maintaining in a nice manner, the ethical/moral behaviour in class rooms exam halls.
- The department motivates students to become member of students' chapter of a professional body. The main objective of the students' chapter is to conduct the activities of technical, educational and social interests involving actively budding chemical engineers.
- The student's chapter encourages students for attending technical competitions, conferences etc.

## **1.2. Curriculum Structure and Features (30)**

### **1.2.1. State the Process for Developing/Revising the Program Curriculum (10)**

The Department of Chemical Engineering follows a systematic and iterative approach to maintain a dynamic and globally competitive curriculum that aligns with academic standards

and industry demands. The curriculum is revised time to time requirement to help students to be industry ready.

The process flow for Curriculum Design is as follows:

- **Formation of the Departmental Committee:** The HOD along with all faculty members frames the outline of the curriculum based on norms of AICTE and referring to the curriculum of premier institutions like NITs, IITs, foreign universities etc. Based on Institute/Department mission and vision, and the NBA / AICTE guidelines the department formulates its PSOs. The course outcomes of all the courses of the curriculum are planned according to the POs and PSOs. Then, the syllabi of various courses are framed.
- **Stakeholder Engagement and Feedback Collection:** The feedback of the curriculum is obtained from various stakeholders such as academicians, industrial experts, alumni, parents, faculty and students.
- **Alignment with Outcome-Based Education (OBE):** The curriculum is presented in Program Assessment Committee and Department Advisory Committee and the necessary changes are incorporated.
- **Review and Approval Process:** The curriculum is submitted to the Board of Studies (BOS) meeting. The recommendations and modifications suggested by BOS members are incorporated in curriculum and forwarded to the Academic Council. After the approval from Academic Council (AC), the curriculum is finalized. The curriculum is implemented and the impact is considered for further implementations

This structured process ensures ongoing enhancements by:

- Regular curriculum reviews based on assessment outcomes
- Industry-academia collaboration for real-world relevance
- Faculty development programs to integrate modern teaching techniques
- Student performance monitoring to refine course effectiveness

Fig. 1.1.3: Board of Studies Notification

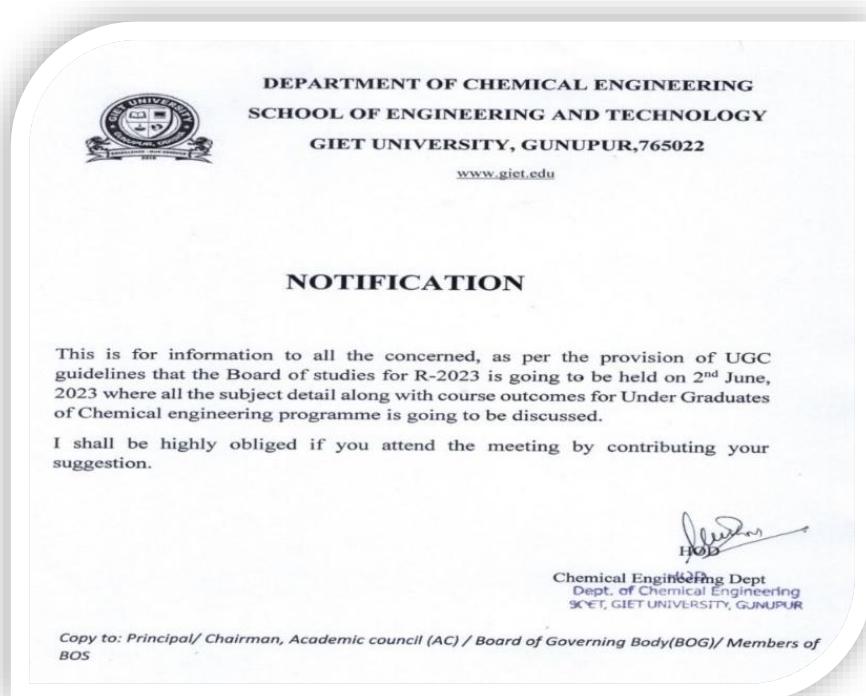


Fig. 1.1.4: Academic Council Meet Notification



## 1.2.2. Curriculum Structure (10)

The curriculum structure of the **Bachelor of Chemical Engineering** program at **GIET University** follows the guidelines set by **AICTE** and are structured over a period of **8 semesters (4 years)**. The university has implemented its curriculum under different regulations, specifically **Regulation-19 (R-19)** and **Regulation-23 (R-23)**. The detailed semester-wise course structure and subjects are outlined in the respective regulation tables.

**Table No.1.2.2.1: Details of various courses presented in terms of teaching and learning scheme for Regulation-23 (R-23)**

Sl. No.	Course Code	Course Titles	Teaching & Learning Scheme					
			Classroom Instruction (CI) (in hours per semester)	Lab Instruction (LI) (in hours per semester)	Term Work (TW) and Self Learning (SL) (TW+SL) (in hours per semester)	Total no. of Hours per semester	Total Credits (C)* (Total Hours/30)	
			L	T	P	SL/TW		
1	C101	Engineering Mathematics-I	45	15	0	60	120	4
2	C102	Engineering Chemistry	45	0	0	45	90	3
3	C103	Elements of Mechanical Engineering	45	15	0	60	120	4
4	C104	Programming for Problem Solving	45	0	0	45	90	3
5	C105	Communicative English and Soft Skills	30	0	0	30	60	2
6	C106	Dietetics & Nutrition	15	0	0	15	30	1
7	C107	Engineering Chemistry Laboratory	0	0	15	15	30	1
8	C108	Programming for Problem Solving Laboratory	0	0	15	15	30	1
9	C109	Communicative English and Soft Skills Laboratory	0	0	10	20	30	1
10	C110	Engineering Workshop	0	0	30	30	60	2
11	C111	Engineering Mathematics - II	45	15	0	60	120	4
12	C112	Engineering Physics	30	0	0	30	60	2
13	C113	Basic Electrical and Electronics Engineering	45	0	0	45	90	3
14	C114	Data Structures and Algorithms	45	0	0	45	90	3
15	C115	Human Values and Professional Ethics	15	0	0	15	30	1
16	C116	Communicative English and Technical Communication	30	0	0	30	60	2
17	C117	Engineering Physics Lab	0	0	15	15	30	1
18	C118	Data Structures and Algorithms Lab	0	0	30	30	60	2
19	C119	Basic Electrical and Electronics Engineering Lab	0	0	15	15	30	1

20	C120	Engineering Graphics and Design	15	0	15	30	60	2
21	C121	Communicative English and Technical Communication Lab	0	0	15	15	30	1
22	C201	Engineering Mathematics-III	50	20	0	50	120	4
23	C202	Object Oriented Programming using Java	40	0	0	50	90	3
24	C203	Heat Transfer	50	0	0	40	90	3
25	C204	Fluid Mechanics	50	0	0	40	90	3
26	C205	Chemical Process Calculation	50	0	0	40	90	3
27	C206	Intermediate communication skills and critical thinking	15	0	0	15	30	1
28	C207	Object Oriented Programming Using Java Lab	0	0	10	20	30	1
29	C208	Heat Transfer Lab	0	0	10	20	30	1
30	C209	Fluid Mechanics Lab	0	0	10	20	30	1
31	C210	Intermediate communication skills and critical thinking Lab	0	0	10	20	30	1
32	C211	Summer Internship-I	0	0	0	30	30	1
33	C212	Data Base Management System	40	0	0	50	90	3
34	C213	Chemical Engineering Thermodynamics	50	0	0	40	90	3
35	C214	Mass Transfer-I	50	0	0	40	90	3
36	C215	Mechanical Operations	50	0	0	40	90	3
37	C216	Numerical Methods in Chemical Engineering	45	0	0	45	90	3
38	C217	Advanced Communication skills and Professional Ethics	20	0	0	10	30	1
39	C218	Thermo physical Lab	0	0	10	20	30	1
40	C219	Mass Transfer-I Lab	0	0	10	20	30	1
41	C220	Mechanical Operations Lab	0	0	10	20	30	1
42	C221	Advanced Communication skills and Professional Ethics Lab	0	0	10	20	30	1
43	C222	Mini Project - I	0	0	15	15	30	1
44	C301	Chemical Process Technology	50	0	0	40	90	3
45	C302	Chemical Reaction Engineering- I	50	0	0	40	90	3
46	C303	Mass Transfer-II	50	0	0	40	90	3
47	C304	Computational Fluid Dynamics	50	0	0	40	90	3
		Biochemical Engineering						
		Process utility and Industrial Safety						
		Multicomponent Distillation						
48	C305	Open Elective – 1(MS)	45	0	0	45	90	3
49	C306	Organizational Behavior	40	0	0	20	60	2

50	C307	Chemical Process Technology Lab	0	0	20	10	30	1
51	C308	Chemical Reaction Engineering- I Lab	0	0	15	15	30	1
52	C309	Mass Transfer-II Lab	0	0	15	15	30	1
53	C310	Summer Internship-II	0	0	0	30	30	1
54	C311	Mini Project-II	0	0	40	20	60	2
55	C312	Process Equipment Design	50	0	0	40	90	3
56	C313	Process Control	50	0	0	40	90	3
57	C314	Chemical Reaction Engineering- II	50	0	0	40	90	3
58	C315	Fluidization Engineering	50	0	0	40	90	3
		Mineral Process Engineering						
		Fuel and Energy Technology						
		Fertilizer Technology						
		Polymer Technology						
59	C316	Open Elective – 2(OE)	45	0	0	45	90	3
60	C317	Engineering Economics and Costing	40	0	0	20	60	2
61	C318	Process Equipment Design Lab	0	0	10	20	30	1
62	C319	Process Control Lab	0	0	10	20	30	1
63	C320	Mini Project-III	0	0	30	30	60	2
64	C401	Transport Phenomenon	45	0	0	45	90	3
65	C402	Process Modelling and Simulation	45	0	0	45	90	3
66	C403	Petroleum Refinery Engineering	45	0	0	45	90	3
67	C404	Interfacial Engineering	45	0	0	45	90	3
		Process Instrumentation						
		Plant Safety and Risk Analysis						
		Sustainability Engineering						
		Modern Separation Technique						
68	C405	Open Elective – 3(IE)	45	0	0	45	90	3
69	C406	Technical Seminar	0	0	0	30	30	1
70	C407	Summer Internship	0	0	0	30	30	1
71	C408	Major Project Work-I	0	0	40	50	90	3
72	C409	Safety in Chemical Industries	40	0	0	50	90	3
		Pollution and its control						
		Physical and Analytical Chemistry						
		Water Conservation and Management						
73	C410	Integrated Solid Waste Management	40	0	0	50	90	3
		Treatment of Industrial effluent						
		Green Technology						
		Coal processing technology						
74	C411	Open Elective – 5(CPT)	40	0	0	50	90	3
75	C412	Major Project Work-II & Dissertation	0	0	40	50	90	3
76	C413	Technical Seminar	0	0	10	20	30	1
<b>Total Credit</b>							<b>164</b>	

**Table No.1.2.2.2: Details of various courses presented in terms of teaching and learning scheme for Regulation-19 (R-19)**

Sl. No.	Course Code	Course Titles	Teaching & Learning Scheme			Total Credits
			Classroom Instruction (CI)		Lab Instruction (LI)	
			L	T	P	
1	C101	Engineering Mathematics-I	50	16	0	4
2	C102	Engineering Physics	50	0	0	3
3	C103	Basic Electrical and Electronics Engineering	48	16	0	4
4	C104	Programming for Problem Solving	40	0	0	2
5	C105	Communicative English and Soft Skills	40	0	0	2
6	C106	Engineering Physics Lab	0	0	16	1
7	C107	Basic Electrical and Electronics Engineering Lab	0	0	16	1
8	C108	Programming for Problem Solving Lab	0	0	16	1
9	C109	Communicative English and Soft Skills Lab	0	0	16	1
10	C110	Engineering Graphics & Design	0	0	32	2
11	C111	Engineering Mathematics-II	48	16	0	4
12	C112	Engineering Chemistry	50	0	0	3
13	C113	Basics of Mechanics	48	16	0	4
14	C114	Data Structure and Algorithms	40	0	0	2
15	C115	Communicative English and Technical Communication	40	0	0	2
16	C116	Engineering Chemistry Lab	0	0	16	1
17	C117	Data Structure and Algorithms Lab	0	0	32	2

18	C118	Communicative English and Technical Communication Lab	0	0	16	1
19	C119	Engineering Workshop	0	0	32	2
20	C201	Engineering Mathematics-III	48	16	0	4
21	C202	Object Oriented Programming	50	0	0	3
22	C203	Heat Transfer	50	0	0	3
23	C204	Fluid Mechanics	50	0	0	3
24	C205	Chemical Process Calculation	50	0	0	3
25	C206	Organizational Behaviour	48	0	0	2
26	C207	Object Oriented Programming Using Java Lab	0	0	16	1
27	C208	Heat Transfer Lab	0	0	16	1
28	C209	Fluid Mechanics Lab	0	0	16	1
29	C210	Summer Industry Internship	0	0	10	1
30	C211	Material Science	50	0	0	3
31	C212	Chemical Engineering Thermodynamics	50	0	0	3
32	C213	Mass Transfer-I	50	0	0	3
33	C214	Mechanical Operations	50	0	0	3
34	C215	Numerical Methods in Chemical Engineering	50	0	0	3
35	C216	Engineering Economics and Costing	48	0	0	2
36	C217	Material Testing Lab	0	0	16	1
37	C218	Thermo physical Lab	0	0	16	1
38	C219	Mass Transfer-I Lab	0	0	16	1
39	C220	Mechanical Operations Lab	0	0	16	1
40	C221	Project	0	0	20	1

41	C301	Chemical Process Technology	50	0	0	3
42	C302	Chemical Reaction Engineering- I	50	0	0	3
43	C303	Transport Phenomenon	50	0	0	3
44	C304	Mass Transfer-II	50	0	0	3
45	C305	Process utility and Industrial Safety	50	0	0	3
46	C306	Process Instrumentation	50	0	0	3
47	C307	Human Value & Professional Ethics	48	0	0	2
48	C308	Chemical Process Technology Lab	0	0	16	1
49	C309	Chemical Reaction Engineering- I Lab	0	0	16	1
50	C310	Mass Transfer-II Lab	0	0	16	1
51	C311	Summer Industry Internship	0	0	10	1
52	C312	Minor Project-I	0	0	40	2
53	C313	Process Equipment Design	50	0	0	3
54	C314	Process Control	50	0	0	3
55	C315	Chemical Reaction Engineering- II	50	0	0	3
56	C316	Process Modelling and Simulation	50	0	0	3
57	C317	Fuel and Energy Technology	50	0	0	3
58	C318	Optimization in Engineering	50	0	0	3
59	C319	Dietetics and Nutrition	48	0	0	2
60	C320	Process Equipment Design Lab	0	0	16	1
61	C321	Process Control Lab	0	0	16	1
62	C322	Minor Project-I	0	0	40	2
63	C401	Modern Separation Technique	50	0	0	3
64	C402	Integrated Solid Waste Management	50	0	0	3
65	C403	Industrial Engineering	50	0	0	3
66	C404	Entrepreneurship Development	50	0	0	3

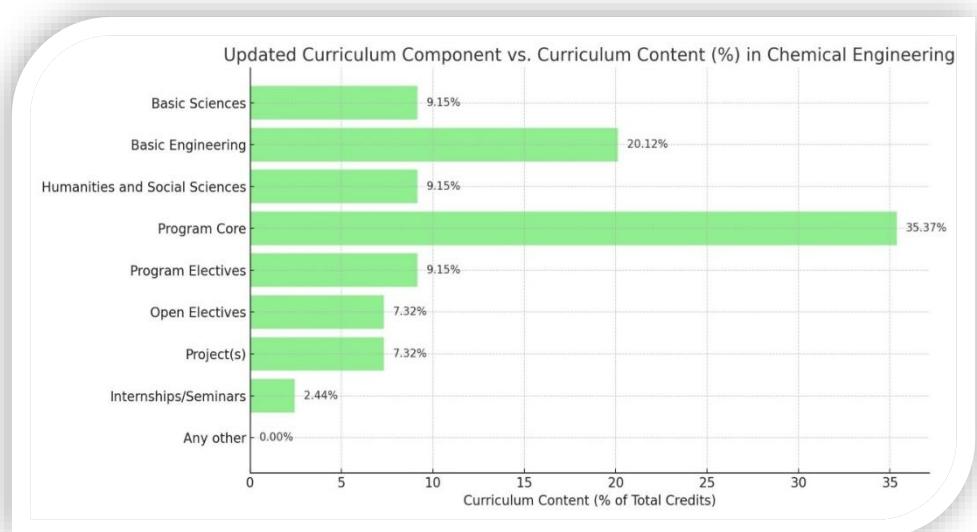
67	C405	Summer Industry Internship	0	0	10	1
68	C406	Major Project Work-I	0	0	50	3
69	C407	Pollution and its control	50	0	0	3
70	C408	Petroleum Refinery Engineering	50	0	0	3
71	C409	Biochemical Engineering	50	0	0	3
72	C410	Major Project Work-II & Dissertation	0	0	50	3
<b>Total Credit</b>						<b>164</b>

### 1.2.3. Components of Curriculum (05)

**Table No.1.2.3.1: Program curriculum grouping based on curriculum components for Regulation-23 (R-23)**

Curriculum Component	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total number of credits
<b>Basic Sciences</b>	9.15	450	15
<b>Basic Engineering</b>	20.12	990	33
<b>Humanities and Social Sciences</b>	9.15	450	15
<b>Program Core</b>	35.37	1740	58
<b>Program Electives</b>	9.15	450	15
<b>Open Electives</b>	7.32	360	12
<b>Project(s)</b>	7.32	360	12
<b>Internships/Seminars</b>	2.44	120	4
<b>Any other (Please specify)</b>	0.00	0	0
<b>Total number of Credits:</b>			<b>164</b>

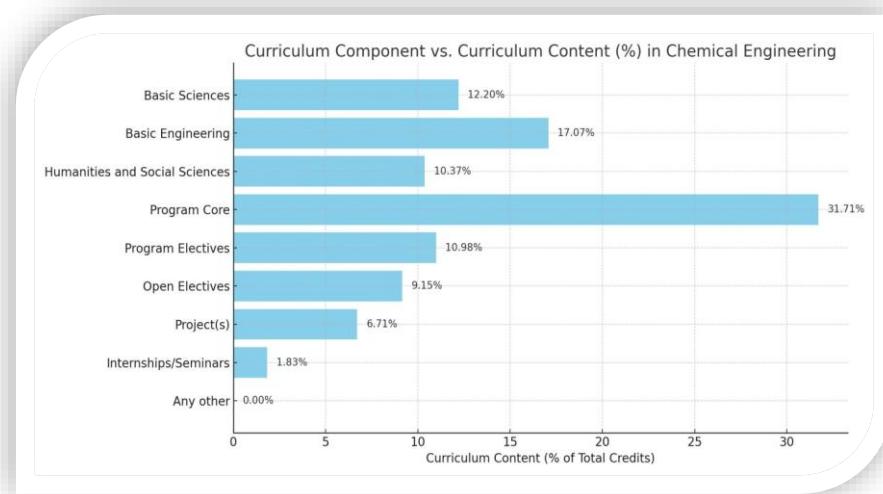
**Fig. 1.1.4: Program curriculum-curriculum components Chart for Regulation-23 (R-23)**



**Table No.1.2.3.1: Program curriculum grouping based on curriculum components for Regulation-19 (R-19)**

Curriculum Component	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total number of credits
<b>Basic Sciences</b>	12.20	600	20
<b>Basic Engineering</b>	17.07	840	28
<b>Humanities and Social Sciences</b>	10.37	510	17
<b>Program Core</b>	31.71	1560	52
<b>Program Electives</b>	10.98	540	18
<b>Open Electives</b>	9.15	450	15
<b>Project(s)</b>	6.71	330	11
<b>Internships/Seminars</b>	1.83	90	3
<b>Any other (Please specify)</b>	0.00	0	0
<b>Total number of Credits:</b>			<b>164</b>

**Fig. 1.1.5: Program curriculum-curriculum components Chart for Regulation-19 (R-19)**



#### 1.2.4. Strategies for Education Reforms (05)

The Chemical Engineering curriculum is evolving to align with modern educational reforms, supporting:

- Flexibility in learning paths and credit mobility
- Industry-relevant skill development
- Interdisciplinary and multidisciplinary competence
- Recognition of diverse learning backgrounds

This shift reflects the progressive implementation of NEP 2020 principles, making the program more inclusive, dynamic, and future-ready. To modernize Chemical Engineering Domain, reforms should align with multidisciplinary and interdisciplinary approaches, technology integration, and flexible learning structures. The following strategies outline key plans for implementing these reforms:

**Table No.1.2.4.1: Educational Reform and Impact Analysis in Chemical Engineering**

**Curriculum**

Educational Reform	Implementation in Chemical Engineering Curriculum	Key Features / Examples	Impact / Alignment
Multidisciplinary Approach	Elective courses offered from other departments such as Mechanical, Electrical, Computer Science, and Management.	<ul style="list-style-type: none"> <li>- Open electives in AI/ML, Environmental Science, Industrial Management.</li> <li>- Humanities and social science courses included in syllabus.</li> </ul>	Enhances holistic knowledge and broadens career options, encourages cross-domain applications.
Interdisciplinary Approach	Integration of subjects that combine chemical engineering with fields like biotechnology, materials science, data science, and sustainability.	<ul style="list-style-type: none"> <li>- Courses like Biochemical Engineering, Green Technology, Process Modelling &amp; Simulation.</li> </ul>	Promotes innovation and complex problem-solving using knowledge from multiple domains.
Skill-Based Courses	Inclusion of practical and industry-oriented courses focusing on core and emerging technologies.	<ul style="list-style-type: none"> <li>- Process design labs</li> <li>- Industrial automation</li> <li>- Certification in Aspen HYSYS, MATLAB, Safety &amp; HAZOP</li> </ul>	Builds hands-on experience, improves employability and industry readiness.
Project-Based and Experiential Learning	Final year projects, industry internships, and lab-based courses.	<ul style="list-style-type: none"> <li>- Capstone projects</li> <li>- Industry-sponsored mini-projects</li> <li>- Site visits &amp; practical training</li> </ul>	Encourages real-world application, critical thinking, and team collaboration.

### 1.3. PO, PSO and their Mapping with Courses (20)

#### 1.3.1. POs and PSOs:

##### Program Outcomes (POs):

**PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

**PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4).

**PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5).

**PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

**PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6).

**PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

**PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9).

**PO8: Individual and Collaborative Teamwork:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

**PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective

reports and design documentation, make effective presentations considering cultural, language, and learning differences.

**PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

**PO11: Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8).

### Program Specific Outcomes (PSO):

**PSO1:** Apply professional engineering knowledge to identify, analyze, and solve problems in chemical and allied fields, utilizing principles of Chemical Engineering and interdisciplinary skills

**PSO2:** Design eco-friendly chemical process systems with safety measures, using modern tools individually or in teams.

**PSO3:** Practicing engineering with professional ethics for the benefit of society with proper communication to the community.

### 1.3.2. Mapping between the Courses and POs/PSOs (15):

Each course is mapped to relevant **POs** (which are generic competencies like problem-solving, ethics, teamwork, communication, etc.) and **PSOs** (which are domain-specific competencies). This mapping helps in assessing how well a course contributes to achieving the overall educational objectives of the program.

The mapping is typically represented in a **matrix format**, where each course is assigned a contribution level (Low, Medium, High) to different POs/PSOs based on the course content and learning objectives.

This structured approach ensures:

- Effective curriculum design and outcome-based education (OBE) implementation

- Continuous improvement in teaching-learning processes

**Table No.1.3.2.1: Connection of courses with POs/PSOs for Regulation-23 (R-23)**

Sl. No.	Course Code	Course Title	POs	PSOs
1	C101	Engineering Mathematics-I	PO1, PO2, PO4, PO10	PSO1
2	C102	Engineering Chemistry	PO1, PO3, PO6, PO11	PSO2
3	C103	Elements of Mechanical Engineering	PO1, PO2, PO4, PO10	PSO1
4	C104	Programming for Problem Solving	PO4, PO5, PO10	PSO1
5	C105	Communicative English and Soft Skills	PO1, PO2, PO3, PO9, PO10	
6	C106	Dietetics & Nutrition	PO6, PO8	
7	C107	Engineering Chemistry Lab	PO1, PO2, PO4	PSO2
8	C108	Programming for Problem Solving Lab	PO5, PO6, PO9	PSO1
9	C109	Communicative English and Soft Skills Lab	PO1, PO3, PO9	
10	C110	Engineering Workshop	PO3, PO4, PO10	PSO1
11	C111	Engineering Mathematics - II	PO1, PO2, PO4, PO10	PSO1
12	C112	Engineering Physics	PO1, PO3, PO4	PSO2
13	C113	Basic Electrical and Electronics Engineering	PO1, PO2, PO4, PO5	PSO1
14	C114	Data Structures and Algorithms	PO2, PO5	PSO1
15	C115	Human Values and Professional Ethics	PO3, PO6, PO7, PO8	
16	C116	Communicative English and Technical Communication	PO1, PO3, PO9	
17	C117	Engineering Physics Lab	PO1, PO2, PO4	PSO2
18	C118	Data Structures and Algorithms Lab	PO2, PO5	PSO1
19	C119	Basic Electrical and Electronics Engineering Lab	PO2, PO3, PO4	PSO1
20	C120	Engineering Graphics and Design	PO1, PO3, PO4	PSO2
21	C121	Communicative English and Technical Communication Lab	PO3, PO9	
22	C201	Engineering Mathematics-III	PO1, PO2, PO10, PO11	PSO1
23	C202	Object Oriented Programming using Java	PO1, PO5, PO6	PSO1
24	C203	Heat Transfer	PO1, PO2, PO3, PO4, PO6	PSO2
25	C204	Fluid Mechanics	PO1, PO2, PO3, PO5	PSO1
26	C205	Chemical Process Calculation	PO1, PO2	PSO1
27	C206	Intermediate Communication Skills and Critical Thinking	PO3, PO6	
28	C207	Object Oriented Programming Using Java Lab	PO3, PO5, PO6	PSO1
29	C208	Heat Transfer Lab	PO1, PO4	PSO1

30	C209	Fluid Mechanics Lab	PO1, PO4	PSO1
31	C210	Intermediate Communication Skills and Critical Thinking Lab	PO3, PO6, PO7	
32	C211	Summer Internship-I	PO6, PO7, PO9	
33	C212	Data Base Management System	PO5, PO6	PSO1
34	C213	Chemical Engineering Thermodynamics	PO1, PO2, PO3, PO4	PSO2
35	C214	Mass Transfer-I	PO1, PO2, PO3, PO4, PO5, PO11	PSO2
36	C215	Mechanical Operations	PO1, PO2, PO3, PO5, PO6	PSO1
37	C216	Numerical Methods in Chemical Engineering	PO1, PO2, PO4, PO10, PO11	PSO1
38	C217	Advanced Communication Skills and Professional Ethics	PO7, PO8	
39	C218	Thermo physical Lab	PO1, PO2, PO4	PSO1
40	C219	Mass Transfer-I Lab	PO1, PO3, PO4, PO6	PSO1
41	C220	Mechanical Operations Lab	PO1, PO2, PO4	PSO1
42	C221	Advanced Communication Skills and Professional Ethics Lab	PO7, PO8	
43	C222	Mini Project - I	PO2, PO5, PO6, PO7, PO8, PO9	
44	C301	Chemical Process Technology	PO1, PO3, PO5, PO6, PO11	PSO2
45	C302	Chemical Reaction Engineering- I	PO1, PO2, PO3, PO4, PO5, PO6	PSO2
46	C303	Mass Transfer-II	PO1, PO2, PO3, PO4, PO5	PSO2
47	C304	Computational Fluid Dynamics Biochemical Engineering Process utility and Industrial Safety Multicomponent Distillation	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO11, PO12	PSO2
48	C305	Open Elective – 1 (MS)	PO1, PO2, PO6	
49	C306	Organizational Behavior	PO6, PO7, PO8	
50	C307	Chemical Process Technology Lab	PO1, PO2, PO4	PSO2
51	C308	Chemical Reaction Engineering- I Lab	PO1, PO3, PO4	PSO2
52	C309	Mass Transfer-II Lab	PO1, PO2, PO3, PO4, PO6, PO11	PSO2
53	C310	Summer Internship-II	PO6, PO7, PO9	
54	C311	Mini Project-II	PO2, PO5, PO6, PO7, PO8, PO9	
55	C312	Process Equipment Design	PO3, PO5	PSO2
56	C313	Process Control	PO2, PO4	PSO3
57	C314	Chemical Reaction Engineering- II	PO1, PO2, PO3, PO4, PO5, PO6	PSO2
58	C315	Fluidization Engineering Mineral Process Engineering	PO1, PO2, PO4, PO5	PSO2

		Fuel and Energy Technology		
		Fertilizer Technology		
		Polymer Technology		
59	C316	Open Elective – 2 (OE)	PO6	
60	C317	Engineering Economics and Costing	PO6, PO7, PO8, PO10	
61	C318	Process Equipment Design Lab	PO1, PO3, PO4	PSO2
62	C319	Process Control Lab	PO1, PO2, PO3, PO4, PO6, PO11	PSO3
63	C320	Mini Project-III	PO2, PO5, PO6, PO7, PO8, PO9	
64	C401	Transport Phenomenon	PO1, PO2, PO3, PO4, PO5, PO6, PO11	PSO2
65	C402	Process Modelling and Simulation	PO1, PO2, PO3, PO4, PO5, PO6, PO11	PSO2
66	C403	Petroleum Refinery Engineering	PO1, PO2, PO5, PO8	PSO2
67	C404	Interfacial Engineering	PO5, PO8	PSO3
		Process Instrumentation		
		Plant Safety and Risk Analysis		
		Sustainability Engineering		
		Modern Separation Technique		
68	C405	Open Elective – 3 (IE)	PO2, PO5, PO6	
69	C406	Technical Seminar	PO1, PO2, PO10, PO12	
70	C407	Summer Internship	PO6, PO7, PO9, PO11	
71	C408	Major Project Work-I	PO1, PO2, PO4, PO5, PO6, PO7, PO9, PO10, PO11	
72	C409	Safety in Chemical Industries	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8	PSO3
73	C410	Integrated Solid Waste Management	PO1, PO2, PO3, PO4, PO5, PO6, PO7	PSO2
74	C411	Open Elective – 5 (CPT)	PO1, PO3, PO5, PO6	
75	C412	Major Project Work-II & Dissertation	PO1, PO2, PO4, PO5, PO6, PO7, PO9, PO10, PO11	
76	C413	Technical Seminar	PO1, PO2, PO10, PO11	

Table No.1.3.2.2: Connection of courses with POs/PSOs for Regulation-19 (R-19)

Sl. No.	Course Code	Course Title	POs	PSOs
1	C101	Engineering Mathematics-I	PO1, PO2	PSO1
2	C102	Engineering Physics	PO1, PO5	PSO2
3	C103	Basic Electrical and Electronics Engineering	PO1, PO4	PSO1
4	C104	Programming for Problem Solving	PO6, PO7	PSO1
5	C105	Communicative English and Soft Skills	PO3, PO9	

6	C106	Engineering Physics Lab	PO4	PSO2
7	C107	Basic Electrical and Electronics Engineering Lab	PO4	PSO1
8	C108	Programming for Problem Solving Lab	PO6, PO9	PSO1
9	C109	Communicative English and Soft Skills Lab	PO3, PO9	
10	C110	Engineering Graphics & Design	PO3	PSO1
11	C111	Engineering Mathematics-II	PO1, PO2	PSO1
12	C112	Engineering Chemistry	PO1, PO5	PSO2
13	C113	Basics of Mechanics	PO1, PO2	PSO1
14	C114	Data Structure and Algorithms	PO5	PSO1
15	C115	Communicative English and Technical Communication	PO3, PO9	
16	C116	Engineering Chemistry Lab	PO4	PSO2
17	C117	Data Structure and Algorithms Lab	PO5	PSO1
18	C118	Communicative English and Technical Communication Lab	PO3, PO9	
19	C119	Engineering Workshop	PO4	PSO1
20	C201	Engineering Mathematics-III	PO1, PO2	PSO1
21	C202	Object Oriented Programming	PO6	PSO1
22	C203	Heat Transfer	PO1, PO2, PO3	PSO1
23	C204	Fluid Mechanics	PO1, PO2, PO3	PSO1
24	C205	Chemical Process Calculation	PO1, PO2, PO4	PSO1
25	C206	Organizational Behaviour	PO7, PO8	
26	C207	Object Oriented Programming Using Java Lab	PO1, PO6	PSO1
27	C208	Heat Transfer Lab	PO1, PO2, PO3	PSO1
28	C209	Fluid Mechanics Lab	PO1, PO2, PO3	PSO1
29	C210	Summer Industry Internship	PO1, PO9, PO12	
30	C211	Material Science	PO1, PO2, PO7	PSO1
31	C212	Chemical Engineering Thermodynamics	PO1, PO2, PO4	PSO1
32	C213	Mass Transfer-I	PO1, PO2, PO4, PO5	PSO1
33	C214	Mechanical Operations	PO1, PO2, PO4	PSO1
34	C215	Numerical Methods in Chemical Engineering	PO1, PO2, PO4, PO5	PSO1
35	C216	Engineering Economics and Costing	PO5, PO6, PO7, PO8, PO11	
36	C217	Material Testing Lab	PO1, PO2, PO4	PSO1
37	C218	Thermo physical Lab	PO1, PO3, PO4	PSO1
38	C219	Mass Transfer-I Lab	PO1, PO2, PO3, PO4	PSO1

39	C220	Mechanical Operations Lab	PO1, PO2, PO4	PSO1
40	C221	Project	PO1, PO2, PO9	
41	C301	Chemical Process Technology	PO1, PO2, PO6, PO7	PSO2
42	C302	Chemical Reaction Engineering-I	PO1, PO2, PO3, PO8	PSO2
43	C303	Transport Phenomenon	PO1, PO2, PO4, PO5	PSO2
44	C304	Mass Transfer-II	PO1, PO2, PO3	PSO2
45	C305	Process Utility and Industrial Safety	PO7, PO8, PO12	
46	C306	Process Instrumentation	PO1, PO5, PO12	PSO2
47	C307	Human Value & Professional Ethics	PO6, PO8, PO10	
48	C308	Chemical Process Technology Lab	PO1, PO2, PO4	PSO2
49	C309	Chemical Reaction Engineering-I Lab	PO1, PO3, PO4	PSO2
50	C310	Mass Transfer-II Lab	PO1, PO4, PO5	PSO2
51	C311	Summer Industry Internship	PO1, PO9, PO12	
52	C312	Minor Project-I	PO1, PO2, PO9	
53	C313	Process Equipment Design	PO3, PO5	PSO2
54	C314	Process Control	PO2, PO4, PO5	PSO2
55	C315	Chemical Reaction Engineering-II	PO1, PO2, PO4	PSO2
56	C316	Process Modelling and Simulation	PO1, PO3, PO5	PSO2
57	C317	Fuel and Energy Technology	PO1, PO7	PSO2
58	C318	Optimization in Engineering	PO1, PO2	PSO1
59	C319	Dietetics and Nutrition	PO6, PO7, PO8	
60	C320	Process Equipment Design Lab	PO1, PO2, PO4	PSO2
61	C321	Process Control Lab	PO1, PO3, PO4	PSO2
62	C322	Minor Project-I	PO1, PO2, PO9	
63	C401	Modern Separation Technique	PO1, PO2, PO5	PSO2
64	C402	Integrated Solid Waste Management	PO5, PO6, PO8	
65	C403	Industrial Engineering	PO3, PO6, PO10	
66	C404	Entrepreneurship Development	PO6, PO7, PO8, PO10,	

			PO11, PO12	
67	C405	Summer Industry Internship	PO1, PO9, PO12	
68	C406	Major Project Work-I	PO9, PO12	
69	C407	Pollution and its control	PO7, PO8	PSO1
70	C408	Petroleum Refinery Engineering	PO1, PO2, PO5	PSO2
71	C409	Biochemical Engineering	PO1, PO2, PO4	PSO2
72	C410	Major Project Work-II & Dissertation	PO3, PO4, PO9, PO11, PO12	

## 1.4. Course Outcomes and Course Articulation Matrix (30)

### 1.4.1. Course Outcome (Semester Wise) (15)

**Table No. 1.4.1.1: Course outcomes for Regulation-23 (R-23)**

<b>Semester No:</b>	1 <sup>st</sup> Semester		
<b>Course Title:</b>	Engineering Mathematics-I	<b>Course Code:</b>	C101
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Analyze functions of multiple variables, their limits, continuity, and differentiation, including Euler's theorem and Taylor's theorem. Apply techniques to find maxima and minima of functions of two variables.		
CO2	Apply applications such as electrical circuits and to solve first-order and first-degree ordinary differential equations.		
CO3	Understand and solve linear differential equations of higher order using different techniques, including Euler-Cauchy equations, undetermined coefficients, and variation of parameters. Apply these to real-world problems.		
CO4	Expand functions into Fourier series and apply the concept to periodic functions, even and odd functions, and half-range expansions.		
CO5	Understand and work with different types of matrices, eigenvalues, eigenvectors, and the Cayley-Hamilton theorem. Solve systems of linear equations and apply concepts of orthogonal, unitary, Hermitian, and skew-Hermitian matrices.		
CO6	Analyze quadratic forms, transform them into canonical forms, and apply similarity transformations to matrices for practical applications in engineering and science.		

<b>Semester No:</b>	1 <sup>st</sup> Semester		
<b>Course Title:</b>	Engineering Chemistry	<b>Course Code:</b>	C102
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Apply the principles of atomic and molecular structure, including quantum mechanics and molecular orbital theory		
CO2	Investigate water treatment techniques for domestic and industrial		

	purposes.
CO3	Analyze boiler feed water problems such as scale formation, sludge formation, and caustic embrittlement and their prevention methods.
CO4	Describe electrochemical principles, including electrode potentials, electrochemical cells and buffer solutions
CO5	Identify types of corrosion and methods for corrosion control and prevention.
CO6	Describe the classification, properties, and applications of various polymers, including applications in modern technology.

<b>Semester No:</b>	2 <sup>nd</sup> Semester		
<b>Course Title:</b>	Engineering Mathematics-II	<b>Course Code:</b>	C111
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Formulate and solve partial differential equations to model and analyse engineering phenomena like waves, heat, and fluid flow.		
CO2	Examine sequences and series for their behaviour, and apply power series techniques to resolve engineering differential equations.		
CO3	Utilize Laplace Transforms to simplify analysis and solve equations in systems like circuits and dynamic processes.		
CO4	Evaluate multiple integrals and employ vector calculus concepts to address engineering challenges in field analysis and design.		
CO5	Compute line, surface, and volume integrals, and apply fundamental theorems to solve problems in fluid and energy systems.		
CO6	Integrate mathematical tools and demonstrate proficiency in solving complex, real-world engineering challenges.		

<b>Semester No:</b>	2 <sup>nd</sup> Semester		
<b>Course Title:</b>	Engineering Physics	<b>Course Code:</b>	C112
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Understand the fundamental concepts of oscillatory motion and analyze simple harmonic motion in various physical systems.		
CO2	Explore the principles and characteristics of wave mechanics including interference, diffraction, and polarization of waves.		
CO3	Describe the working principle of lasers and analyze the conditions for lasing action.		
CO4	Explain the structure and function of optoelectronic devices and their role in modern communication systems.		
CO5	Understand the basic concepts of crystal structures and classify materials based on crystal symmetry and bonding.		
CO6	Apply the principles of X-ray diffraction to determine crystal structures and interpret Bragg's law.		

<b>Semester No:</b>	3 <sup>rd</sup> Semester		
<b>Course Title:</b>	Heat Transfer	<b>Course Code:</b>	C203
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain the basic concepts and laws of the three modes of heat transfer		
CO2	Apply analytical techniques to the solution of conduction heat-transfer problems		
CO3	Calculate heat transfer coefficients for forced and natural convection.		
CO4	Make use of empirical equations to solve forced and natural convection heat-transfer problems		
CO5	Able to do preliminary design calculations for double pipe and shell & tube heat Exchangers and evaporator		
CO6	Solve simple radiation heat transfer problems		

<b>Semester No:</b>	3 <sup>rd</sup> Semester		
<b>Course Title:</b>	Fluid Mechanics	<b>Course Code:</b>	C204
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Rephrase the basic principles of fluid mechanics		
CO2	Evaluate pressure measuring devices and decanters using the principles of fluid statics.		
CO3	Analyze fluid flow problems with the application of the momentum and energy equations		
CO4	Describe dimensionless groups using dimensional analysis.		
CO5	Explain the pipe flows, mixing processes & fluid machinery		
CO6	Compare and distinguish fluid particle systems and equipment and conveying system		

<b>Semester No:</b>	4 <sup>th</sup> Semester		
<b>Course Title:</b>	Chemical Engineering Thermodynamics	<b>Course Code:</b>	C213
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Apply the first and second laws of thermodynamics to chemical processes.		
CO2	Compute the properties of ideal and real gas mixtures		
CO3	Estimate thermodynamic properties of substances in gas and liquid states		
CO4	Estimate heat and work requirements for industrial processes		
CO5	Explain the vapor-liquid equilibrium for a system		

<b>CO6</b>	Explain the chemical reaction equilibrium for a system		
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<b>Semester No:</b>	4 <sup>th</sup> Semester		
<b>Course Title:</b>	Mechanical Operations	<b>Course Code:</b>	C215
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Understand and apply the basic methods of characterization of particles and bulk solids.		
CO2	Analyze and evaluate the technology of mechanical processing of solid material in order to achieve defined characteristics.		
CO3	Describe the operation, as well as constriction and exploitation characteristics of machines for mechanical operations.		
CO4	Illustrate the usage of wide specter and sources of information as well as individual and team work.		
CO5	Demonstrate agitation and mixing processes		
CO6	Describe different conveyors and transportation devices for handling of materials.		

<b>Semester No:</b>	5 <sup>th</sup> Semester		
<b>Course Title:</b>	Chemical Process Technology	<b>Course Code:</b>	C301
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Relate the manufacturing of various inorganic and organic chemicals		
CO2	Interpret the process flow diagram and various process parameters		
CO3	Analyze the various solve engineering problems during production		
CO4	Elaborate the modified process to be adopted in the process industry.		
CO5	Understanding of production methods and various problems and troubleshooting of the process associated with process industries.		
CO6	Evaluate the effect of process conditions on conversion and economics of the plant, various problems and troubleshooting of the process		

<b>Semester No:</b>	5 <sup>th</sup> Semester		
<b>Course Title:</b>	Mass Transfer-II	<b>Course Code:</b>	C303
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Understanding fundamentals of some major Mass transfer operations like adsorption, drying		
CO2	Analyze the situations where liquid-liquid extraction might be preferred to distillation leaching.		
CO3	Development the idea of design processes for cooling tower, fixed-bed adsorption.		
CO4	Building foundation for process intensification and innovations for novel systems of mass transfer.		

CO5	Understand the uses and application of leaching.	
CO6	Know about the fundamental of Crystallization.	

<b>Semester No:</b>	6 <sup>th</sup> Semester	
<b>Course Title:</b>	Process Equipment Design	<b>Course Code:</b> C312
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>	
CO1	Identify equipment and process involved in process flow diagrams.	
CO2	Develop a model from process utilizing flow diagrams.	
CO3	Explain the different control strategies employed in the process from the instrumentation diagrams	
CO4	Design and draw fabrication diagrams by scaling	
CO5	Know about different supports for vessels	
CO6	Know about the selection of reactors and their design	

<b>Semester No:</b>	6 <sup>th</sup> Semester	
<b>Course Title:</b>	Chemical Reaction Engineering- II	<b>Course Code:</b> C314
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>	
CO1	Explain various non-idealities in reactor behavior and distinguish between various RTD curves.	
CO2	Develop rate laws for heterogeneous reactions.	
CO3	Estimate the effects of diffusion, mass and heat transfer in catalyst pellet on reaction rate and predict the performance in porous heterogeneous catalysis	
CO4	Develop the rate-controlling model for heterogeneous non-catalytic reactions	
CO5	Know about the experimental methods for kinetics	
CO6	Knowing the mechanism of rate controlling the reaction	

<b>Semester No:</b>	7 <sup>th</sup> Semester	
<b>Course Title:</b>	Transport Phenomenon	<b>Course Code:</b> C401
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>	
CO1	Understanding of transport processes.	
CO2	Ability to do heat, mass and momentum transfer analysis.	
CO3	Ability to analyze industrial problems along with appropriate boundary conditions.	
CO4	Ability to develop steady and time dependent solutions along with their limitations.	
CO5	Ability to develop laminar flow behavior	

CO6	Ability to develop turbulent flow behavior
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<b>Semester No:</b>	7 <sup>th</sup> Semester		
<b>Course Title:</b>	Process Modelling And Simulation	<b>Course Code:</b>	C402
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Describe the stages involved in the development of a process model.		
CO2	Create a chemical engineering problem as a mathematical model from basic engineering principles.		
CO3	Explain the appropriate numerical solutions to be used in solving the models		
CO4	Explain the mathematical model of reactors		
CO5	Explain the mathematical model of mass & heat transfer equipment		
CO6	Classify various simulation tools for solving the chemical engineering models developed.		

<b>Semester No:</b>	8 <sup>th</sup> Semester		
<b>Course Title:</b>	Pollution And Its Control	<b>Course Code:</b>	C409
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain about the different types of solid waste		
CO2	Understand the various collection and disposal method		
CO3	Apply the knowledge to utilize solid waste in different way.		
CO4	Develop new method for degradation process of solid waste		
CO5	Development of methods to dispose hazardous waste		
CO6	Learn about the sustainability of industry and environment		

<b>Semester No:</b>	8 <sup>th</sup> Semester		
<b>Course Title:</b>	Integrated Solid Waste Management	<b>Course Code:</b>	C410
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain about the different types of solid waste		
CO2	Understand the various collection and disposal method		
CO3	Apply the knowledge to utilize solid waste in different way.		
CO4	Develop new method for degradation process of solid waste		
CO5	Regulatory processes for hazardous waste		
CO6	Know about the different methods of treatment of hazardous waste		

**Table No. 1.4.1.1: Course outcomes for Regulation-19 (R-19)**

<b>Semester No:</b>	1 <sup>st</sup> Semester		
<b>Course Title:</b>	Engineering Mathematics-I	<b>Course Code:</b>	C101
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Implement the engineering problems using the concept of Partial differentiation and series and to understand its application.		
CO2	Solve the initial value and boundary value problem of ODE related to Electrical circuit.		
CO3	Execute the technique of Fourier series for applying in Engineering applications.		
CO4	Find the Eigen value and vector of a matrix by using properties of linear algebra		

<b>Semester No:</b>	1 <sup>st</sup> Semester		
<b>Course Title:</b>	Engineering Physics	<b>Course Code:</b>	C102
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Understand and analyze the concept of oscillation and wave mechanics.		
CO2	Describe the principle of lasing and optoelectronics devices in communication system.		
CO3	Explain the ideas of crystal structure, crystal diffraction and classification of materials.		
CO4	Interpret the fundamentals of electromagnetism and deduce the electromagnetic wave equations.		

<b>Semester No:</b>	2 <sup>nd</sup> Semester		
<b>Course Title:</b>	Engineering Chemistry	<b>Course Code:</b>	C112
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Analyze microscopic chemistry in terms of atomic and molecular orbital and Explain the ranges of the electromagnetic spectrum by electronic transition		
CO2	Identify water treatment techniques for domestic and industrial purposes		
CO3	Compare types of corrosion, and it's control measures.		
CO4	Understand various types of polymers, their preparation along with applications		

<b>Semester No:</b>	2 <sup>nd</sup> Semester		
<b>Course Title:</b>	Basics of Mechanics	<b>Course Code:</b>	C113
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		

CO1	Determine the resultant force and moment for given force system.		
CO2	Evaluate the forces in members of trusses, frames and problems related to friction.		
CO3	Analyze the properties of surface in relation to centroid and moment of inertia		
CO4	Adapt the laws of motion, kinematics of motion and their interrelationship		

<b>Semester No:</b>	3 <sup>rd</sup> Semester		
<b>Course Title:</b>	Heat Transfer	<b>Course Code:</b>	C203
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain the basic concepts and laws of the three modes of heat transfer		
CO2	Apply analytical techniques to the solution of conduction heat-transfer problems		
CO3	Make use of empirical equations to solve forced and natural convection heat-transfer problems		
CO4	Solve simple radiation heat transfer problems		

<b>Semester No:</b>	3 <sup>rd</sup> Semester		
<b>Course Title:</b>	Fluid Mechanics	<b>Course Code:</b>	C204
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Rephrase the basic principles of fluid mechanics		
CO2	Analyze fluid flow problems with the application of the momentum and energy equations		
CO3	Explain the pipe flows, mixing processes & fluid machinery		
CO4	Compare and distinguish fluid particle systems and equipment and conveying system		

<b>Semester No:</b>	4 <sup>th</sup> Semester		
<b>Course Title:</b>	Chemical Engineering Thermodynamics	<b>Course Code:</b>	C212
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Apply fundamental concepts of thermodynamics to engineering applications Determine thermodynamic efficiency of various energy related processes		
CO2	Estimate thermodynamic properties of substances in gas and liquid states		
CO3	Explain the vapor-liquid equilibrium for a system		
CO4	Explain the chemical reaction equilibrium for a system		

<b>Semester No:</b>	4 <sup>th</sup> Semester		
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<b>Course Title:</b>	Mass Transfer-I	<b>Course Code:</b>	C213
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	To demonstrate about the diffusion process		
CO2	Familiar with special distillation techniques such as steam distillation and azeotropic distillation		
CO3	Distinguish the mechanism of absorption, distillation and humidification		
CO4	Design the distillation column, absorption tower		

<b>Semester No:</b>	5 <sup>th</sup> Semester		
<b>Course Title:</b>	Chemical Process Technology	<b>Course Code:</b>	C301
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Relate the manufacturing of various inorganic and organic chemicals		
CO2	Interpret the process flow diagram and various process parameters		
CO3	Analyze the various solve engineering problems during production		
CO4	Elaborate the modified process to be adopted in the process industry.		

<b>Semester No:</b>	5 <sup>th</sup> Semester		
<b>Course Title:</b>	Chemical Reaction Engineering- I	<b>Course Code:</b>	C302
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Know the basic knowledge about chemical reactions and development of rate laws for homogeneous reactions.		
CO2	Design and analysis of ideal reactors for single and complex reactions		
CO3	Determine optimal ideal reactor design for multiple reactions for yield or selectivity		
CO4	Predict reactor performance when for non-isothermal reactor.		

<b>Semester No:</b>	6 <sup>th</sup> Semester		
<b>Course Title:</b>	Process Equipment Design	<b>Course Code:</b>	C313
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Identify equipment and process involved in process flow diagrams.		
CO2	Develop a model from process utilizing flow diagrams.		
CO3	Explain the different control strategies employed in the process from the instrumentation diagrams		
CO4	Design and draw fabrication diagrams by scaling		

<b>Semester No:</b>	6 <sup>th</sup> Semester		
<b>Course Title:</b>	Process Control	<b>Course Code:</b>	C314
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Describe the stages involved in the development of a process model.		
CO2	Create a chemical engineering problem as a mathematical model from basic engineering principles.		
CO3	Explain the appropriate numerical solutions to be used in solving the models		
CO4	Classify various simulation tools for solving the chemical engineering models developed.		

<b>Semester No:</b>	7 <sup>th</sup> Semester		
<b>Course Title:</b>	Modern Separation Technique	<b>Course Code:</b>	C401
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain about Types of membrane available in details.		
CO2	Describe the various filtration processes.		
CO3	Illustrate the idea about electric field separation process		
CO4	Develop a separation technique in terms of modelling.		

<b>Semester No:</b>	7 <sup>th</sup> Semester		
<b>Course Title:</b>	Integrated Solid Waste Management	<b>Course Code:</b>	C402
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain about the different types of solid waste		
CO2	Understand the various collection and disposal method		
CO3	Apply the knowledge to utilize solid waste in different way.		
CO4	Develop new method for degradation process of solid waste		

<b>Semester No:</b>	8 <sup>th</sup> Semester		
<b>Course Title:</b>	Pollution and its control	<b>Course Code:</b>	C407
<b>Course Outcome No.</b>	<b>Course Outcome Statement</b>		
CO1	Explain about the different types of solid waste		
CO2	Understand the various collection and disposal method		
CO3	Apply the knowledge to utilize solid waste in different way		
CO4	Develop new method for degradation process of solid waste		

<b>Semester No:</b>	8 <sup>th</sup> Semester	
<b>Course Title:</b>	Petroleum Refinery Engineering	<b>Course Code:</b> C408
<b>Course Outcome No.</b>	Course Outcome Statement	
CO1	Describe the petroleum industry scenario worldwide.	
CO2	Explain the different refining processes.	
CO3	Develop knowledge of safety and pollution control in the refining industries.	
CO4	Illustrate the suitable refining technology for maximizing the gasoline yield.	

### 1.4.2. Course Articulation Matrix (15)

Structure of a Course Articulation Matrix

The matrix typically consists of:

1. Courses – Listed in rows (e.g., Course Code & Name).
2. Program Outcomes (POs) – General outcomes defined by accreditation bodies (e.g., knowledge, ethics, teamwork).
3. Program-Specific Outcomes (PSOs) – Outcomes specific to the discipline.
4. Contribution Levels – Represented as Low (1), Medium (2), High (3) or as checkmarks.

**Table No.1.4.2.1: Course articulation matrix for Regulation-23 (R-23)**

Course Name: Engineering Mathematics-I

Course Code: C101

Course Outcomes (COs) code & Statement	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O- 4	P O -5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O- 1	PS O- 2	PS O- 3	
CO1	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO6	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-

Course Name: Engineering Chemistry

Course Code: C203

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O- 4	P O- 5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O- 1	PS O- 2	PS O- 3	
CO1	3	2	1	-	-	1	-	-	-	-	1	-	-	-	-
CO2	2	2	2	-	-	2	-	-	-	-	2	-	-	-	-
CO3	3	3	2	-	-	1	-	-	-	-	2	-	-	-	-
CO4	2	3	2	-	-	1	-	-	-	-	1	-	-	-	-
CO5	3	1	1	-	-	1	-	-	-	-	2	-	-	-	-
CO6	3	2	1	-	-	2	-	-	-	-	2	-	-	-	-

Course Name: Engineering Mathematics-II

Course Code: C111

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O- 4	P O- 5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O- 1	PS O- 2	PS O- 3	
CO1	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO4	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO6	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-

Course Name: Engineering Physics

Course Code: C112

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O- 4	P O- 5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O- 1	PS O- 2	PS O- 3	
CO1	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	-	2	-	-	-	-	-	-	-	-	-	-
CO4	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-

CO6	3	2	-	-	-	-	-	-	-	-	-	-	-	-
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Course Name: Heat Transfer

Course Code: C203

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O -5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	2	1	-	-	-	-	-	-	-	-	2	2	-	1	
CO2	2	2	2	1	-	-	-	-	-	-	-	2	1	-	
CO3	2	2	1	-	-	-	-	-	-	-	-	1	-	1	
CO4	1	-	-	-	-	-	-	-	-	-	-	2	1	1	
CO5	2	2	1	-	-	-	-	-	-	-	-	1	2	-	
CO6	2	-	1	2	-	-	-	-	-	-	-	2	-	-	

Course Name: Fluid Mechanics

Course Code: C204

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O-1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	3	2	-	-	-	-	-	-	-	-	-	3	-	1	
CO2	2	3	-	-	-	-	-	-	-	-	-	2	1	2	
CO3	2	3	2	-	-	-	-	-	-	-	-	1	2	1	
CO4	2	3	1	-	-	-	-	-	-	-	-	2	-	-	
CO5	2	3	-	-	-	-	-	-	-	-	-	2	-	1	
CO6	3	2	2	-	-	-	-	-	-	-	-	3	1	-	

Course Name: Chemical Engineering Thermodynamics

Course Code: C213

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	3	3	-	-	-	-	-	-	-	-	-	3	1	1	
CO2	3	3	-	-	-	-	-	-	-	-	-	2	-	-	
CO3	2	2	2	1	-	-	-	-	-	-	-	1	1	-	

<b>CO4</b>	1	-	-	-	-	-	-	-	-	-	-	-	2	1	<b>1</b>
<b>CO5</b>	2	1	-	-	-	-	-	-	-	-	-	-	2	1	-
<b>CO6</b>	<b>1</b>	<b>3</b>	-	<b>2</b>	-	-	-	-	-	-	-	-	<b>2</b>	-	<b>1</b>

**Course Name: Mechanical Operations**

**Course Code: C215**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
<b>CO1</b>	3	3	2	1	1	1	-	-	-	-	-	3	2	<b>1</b>	
<b>CO2</b>	3	3	2	1	1	1	-	-	-	-	-	1	1	<b>1</b>	
<b>CO3</b>	3	3	2	1	1	1	-	-	-	-	-	1	1	-	
<b>CO4</b>	3	3	2	1	1	1	-	-	-	-	-	-	-	-	
<b>CO5</b>	3	3	2	1	1	1	-	-	-	-	-	1	-	<b>1</b>	
<b>CO6</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	-	-	-	-	-	-	<b>1</b>	-	

**Course Name: Chemical Process Technology**

**Course Code: C301**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
<b>CO1</b>	3	1	-	-	-	-	-	-	-	-	1	3	2	<b>1</b>	
<b>CO2</b>	2	2	1	-			3	-	-	-	-	2	1	<b>1</b>	
<b>CO3</b>	2	2	1	1	-	-	-	-	-	-	-	1	2	-	
<b>CO4</b>	1	-	-	-	-	-	-	-	-	-	-	1	1	-	
<b>CO5</b>	2	2	1	1	-	-	-	-	-	-	-	2	2	<b>1</b>	
<b>CO6</b>	<b>1</b>	-	-	-	-	-	-	-	-	-	-	<b>1</b>	-	-	

**Course Name: Mass Transfer-II**

**Course Code: C303**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	

		2	3			6	7	8	9					
<b>CO1</b>	2	1	-	-	-	-	-	-	-	2	1	1	<b>1</b>	
<b>CO2</b>	2	2	1	1	-	-	3	-	-	-	2	-	<b>1</b>	
<b>CO3</b>	2	2	1	-	-	-	-	-	-	-	2	1	-	
<b>CO4</b>	1	-	-	-	-	-	-	-	-	-	1	-	-	
<b>CO5</b>	2	1	-	-	-	-	-	-	-	2	2	-	<b>1</b>	
<b>CO6</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	-	-	<b>3</b>	-	-	-	<b>1</b>	-	-	-

Course Name: Process Equipment Design

Course Code: C312

Course Outcomes (COs) code & Statement	Program Outcomes(POs)											Program Specific Outcomes (PSOs)		
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PSO-1	PSO-2	PSO-3
	-1	-2	-3	-	-	-6	-7	-8	-9	-	-	-	-	-
<b>CO1</b>	2	1	-	1	-	-	-	-	-	-	2	2	2	<b>1</b>
<b>CO2</b>	1	2	1	1	-	-	3	-	-	-	-	2	3	<b>1</b>
<b>CO3</b>	1	2	1	2	-	-	-	-	-	-	-	1	2	-
<b>CO4</b>	1	-	-	-	-	-	-	-	-	-	-	2	3	-
<b>CO5</b>	-	-	2	1	-	-	2	-	-	-	-	2	2	<b>1</b>
<b>CO6</b>	<b>1</b>	-	<b>2</b>	<b>1</b>	-	-	-	-	-	-	-	<b>1</b>	<b>2</b>	-

Course Name: Chemical Reaction Engineering- II

Course Code: C314

Course Outcomes (COs) code & Statement	Program Outcomes(POs)											Program Specific Outcomes(PSOs)		
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PSO-1	PSO-2	PSO-3
	-1	-2	-3	-	-	-6	-7	-8	-9	-	-	-	-	-
<b>CO1</b>	3	1	-	-	-	-	-	-	-	-	-	2	-	<b>1</b>
<b>CO2</b>	1	3	2	-	-	-	-	-	-	-	-	2	-	-
<b>CO3</b>	2	1	3	-	-	-	-	-	-	-	-	1	-	<b>1</b>
<b>CO4</b>	-	1	-	3	-	-	-	-	-	-	-	2	-	<b>1</b>
<b>CO5</b>	1	-	2	-	-	1	-	-	-	-	-	-	2	-
<b>CO6</b>	-	-	<b>1</b>	<b>2</b>	-	-	<b>1</b>	-	-	-	-	-	<b>2</b>	-

Course Name: Transport Phenomenon

Course

Code: C401

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes(PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	2	1	0			-	-	-	-	-	-	-	2		1
CO2	2	3				-	-	-	-	-	-	-	2		-
CO3	2	2	3	-	-	-	-	1	-	-	-	-	1		1
CO4	1	2	-	-	1	-	-	-	-	-	-	-	2		1
CO5	1	1	3										2	2	-
CO6	1		2			2						1	2		-

**Course Name: Process Modeling and Simulation**  
**Code: C402**

Course

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes(PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	2	1	0	-	-	-	-	-	-	-	-	-	2	2	1
CO2	2	2		-	-	-	-	-	-	-	-	-	2	1	-
CO3	1	2	3	-	-	-	-	-	-	-	-	-	1		1
CO4	2	1	2	2	-	-	-	-	-	-	-	-	2		1
CO5	2	2	2	1	-	-	-	-	-	-	-	-	2	2	-
CO6	2	1	3		-	-	-	-	-	-	-	-	1	1	-

**Course Name: Pollution and its control**      **Course Code: C409**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes(PSOs)		
	P O -1	P O -2	P O -3	P O-4	P O-5	P O -6	P O -7	P O -8	P O -9	P O -10	P O -11	PS O-1	PS O-2	PS O-3	
CO1	1	-	1	-	-	2	1	-	-	-	-	-	2		1
CO2	1	2	1	-	-	-	-	-	-	-	-	-	2	2	-
CO3	-	-	1	1	-	-	2	-	-	-	-	-	1	2	1
CO4	-	2	1	-	-	1	1	-	-	-	-	-	2	1	1

CO5	1	-	1	-	-	-	-	-	-	-	-	1	-	-
CO6	1	1	-	-	-	-	2	-	-	-	-	2	-	-

Course Name: Integrated Solid Waste Management

Course

Code: C410

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes(PSOs)		
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	PS O-1	PS O-2	PS O-3	
CO1	-	-	2	-	-	2	1	-	-	-	-	1		1	
CO2	-	-	1	-	-	2	3	-	-	-	-	2		-	
CO3	-	-	1	-	-	2	2	-	-	-	-	1		1	
CO4	-	-	1	-	-	1	1	-	-	-	-	2	1	2	
CO5	1	-	1	-	-	-	2	-	-	-	-	1	2	2	
CO6	1	1	-	-	-	-	2	-	-	-	-	2		-	

Table No.1.4.2.2: Course articulation matrix for Regulation-19 (R-19)

Course Name: Engineering Mathematics-I  
Course Code: C101

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	1	2	-	-	-	-	-	-	-	-	-	-	1	1
CO2	2	3	-	-	-	-	-	-	-	-	-	-	-	2
CO3	1	3	-	-	-	-	-	-	-	-	-	-	1	2
CO4	2	3	-	-	-	-	-	-	-	-	-	-	2	-

Course Name: Engineering Physics  
Course Code: C102

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	-	3	2	-	-	-	-	-	-	-	-	-	2	1

CO2	-	-	-	-	3	-	1	-	-	-	-	-	-	-	3
CO3	-	3	-	-	1	-	-	-	-	-	-	-	-	1	2
CO4	3		2	-	-	-	-	-	-	-	-	-	1	-	-

Course Name: Engineering Chemistry

Course Code: C112

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2	
CO1	3	2	2	2	-	2	3	-	-	-	-	-	2	1	
CO2	3	3	1	2	-	2	3	-	-	-	-	-	-	-	
CO3	3	3	2	1	-	2	3	-	-	-	-	-	1	2	
CO4	3	3	2	1	-	2	3	-	-	-	-	-	1	-	

Course Name: Basics of Mechanics

Course Code: C113

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2	
CO1	3	2	-	-	-	-	-	-	-	-	-	-	2	2	
CO2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	
CO3	3	3	-	-	-	-	-	-	-	-	-	-	1	1	
CO4	2	3	-	-	-	-	-	-	-	-	-	-	1	-	

Course Name: Heat Transfer

Course Code: C203

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2	
CO1	2	1	-	-	-	-	-	-	-	-	2	-	1	-	
CO2	2	2	1	1	-	-	3	-	-	-	-	-	2	-	
CO3	2	2	1	-	-	-	-	-	-	-	-	-	1	-	
CO4	1	-	-	-	-	-	-	-	-	-	-	-	2	-	

Course Name: Fluid Mechanics

Course Code: C204

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P-O-1	P-O-2	P-O-3	P-O-4	P-O-5	P-O-6	P-O-7	P-O-8	P-O-9	P-O-10	P-O-11	P-O-12	PS-O-1	PS-O-2	
CO1	3	2	-	-	-	-	-	-	-	-	-	-	3	2	
CO2	2	3	-	-	-	-	-	-	-	-	-	-	2	1	
CO3	2	3	-	-	-	-	-	-	-	-	-	-	1	2	
CO4	3	2	-	-	-	-	-	-	-	-	-	-	2	1	

## Course Name: Chemical Engineering Thermodynamics

## Course Code: C212

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P-O-1	P-O-2	P-O-3	P-O-4	P-O-5	P-O-6	P-O-7	P-O-8	P-O-9	P-O-10	P-O-11	P-O-12	PS-O-1	PS-O-2	
CO1	3	3	-	-	-	-	-	-	-	-	-	-	3	1	
CO2	3	3	-	-	-	-	-	-	-	-	-	-	2	1	
CO3	2	2	2	1	-	-	-	-	-	-	-	-	1	-	
CO4	1	-	-	-	-	-	-	-	-	-	-	-	2	2	

## Course Name: Mass Transfer-I

## Course Code: C213

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P-O-1	P-O-2	P-O-3	P-O-4	P-O-5	P-O-6	P-O-7	P-O-8	P-O-9	P-O-10	P-O-11	P-O-12	PS-O-1	PS-O-2	
CO1	2	1	-	-	-	-	-	-	-	-	2	-	1	1	
CO2	2	2	1	1	-	-	3	-	-	-	-	-	1	1	
CO3	2	2	1	-	-	-	-	-	-	-	-	-	-	2	
CO4	1	-	-	-	-	-	-	-	-	-	-	-	1	1	

## Course Name: Chemical Process Technology

## Course Code: C301

Course Outcomes (COs) code & Statement	Program Outcomes(POs)													Program Specific Outcomes (PSOs)	
	P-O-1	P-O-2	P-O-3	P-O-4	P-O-5	P-O-6	P-O-7	P-O-8	P-O-9	P-O-10	P-O-11	P-O-12	PS-O-1	PS-O-2	
CO1	3	1	-	-	-	-	-	-	-	-	1	-	1	2	

CO2	2	2	1	-	-	-	3	-	-	-	-	-	1	1
CO3	2	2	1	1	-	-	-	-	-	-	-	-	-	2
CO4	1	-	-	-	-	-	-	-	-	-	-	-	1	1

**Course Name: Chemical Reaction Engineering- I      Course Code: C302**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	3	1	-	-	-	-	-	-	-	-	-	-	2	1
CO2	1	3	2	-	-	-	-	-	-	-	-	-	2	1
CO3	2	1	3	-	-	-	-	-	-	-	-	-	1	-
CO4	-	1	-	3	-	-	-	-	-	-	-	-	2	1

**Course Name: Process Equipment Design**

**Course**

**Code: C313**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	2	1	-	1	-	-	-	-	-	-	2	-	2	1
CO2	1	2	1	1	-	-	3	-	-	-	-	-	2	-
CO3	1	2	1	2	-	-	-	-	-	-	-	-	1	1
CO4	1	-	-	-	-	-	-	-	-	-	-	-	2	-

**Course Name: Process Control**

**Course Code: C314**

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	3	2	-	-	2	-	-	-	-	-	-	-	2	1
CO2	1	1	1	-	2	-	-	-	-	-	-	-	2	1
CO3	2	2	1	-	2	-	-	-	-	-	-	-	1	-
CO4	1	-	-	-	-	-	-	-	-	-	-	-	2	1

**Course Name: Modern Separation Technique**

## Course

Code: C401

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	2	1	-	-	-	-	-	-	-	-	3	-	2	1
CO2	1	1	2	2	-	-	2	-	-	-	-	-	1	1
CO3	2	2	1	-	-	-	-	-	-	-	-	-	1	-
CO4	1	-	-	-	-	-	-	-	-	-	-	-	2	1

Course Name: Integrated Solid Waste Management

## Course

Code: C402

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	-	-	2	-	-	2	1	-	-	-	-	-	1	-
CO2	-	-	1	-	-	2	3	-	-	-	-	-	2	1
CO3	-	-	1	-	-	2	2	-	-	-	-	-	1	-
CO4	-	-	1	-	-	1	1	-	-	-	-	-	2	1

Course Name: Pollution and its control

## Course

Code: C407

Course Outcomes (COs) code & Statement	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	2	-	-	-	-	1	-	-	-	-	-	-	2	-
CO2	2	3	2	-	-	3	-	-	-	-	-	-	1	2
CO3	2	1	2	-	-	2	2	-	-	-	-	-	1	-
CO4	1	-	2	-	-	-	-	-	-	-	-	-	2	-

Course Name: Petroleum Refinery Engineering

## Course

Code: C408

Course Outcomes (COs) code & Statement	Program Outcomes(POs)												Program Specific Outcomes (PSOs)	
	P O-1	P O-2	P O-3	P O-4	P O-5	P O-6	P O-7	P O-8	P O-9	P O-10	P O-11	P O-12	PS O-1	PS O-2
CO1	2	-	1	-	-	1	-	-	-	-	-	-	2	1
CO2	2	-	2	-	-	3	-	-	-	-	-	-	1	-
CO3	1	-	1	-	-	2	2	-	-	-	-	-	1	-
CO4	1	-	2	-	-	-	-	-	-	-	-	-	2	1

## 1.5. Program Articulation Matrix (05):

**Table No.1.5.1: Program articulation matrix for Regulation-23 (R-23)**

Course Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO11	PO12	PSO 1	PSO 2	PSO 3
C101	Engineering Mathematics-I	3	3	2.67												
C102	Engineering Chemistry	2.67	2.17	1.50				1.33					1.67			
C111	Engineering Mathematics-II	3	3	2.33												
C112	Engineering Physics	3	2					2.5								
C203	Heat Transfer	1.83	1.75	1.25	1.50								2	1.67	1.33	1.00
C204	Fluid Mechanics	2.33	2.67	1.67										2.17	1.33	1.25
C213	Chemical Engineering Thermodynamics	2	2.4	2	1.5									2.00	1.00	1.00
C215	Mechanical Operations	3	3	2	1	1	1							1.50	1.25	1.00
C301	Chemical Process Technology	1.83	1.75	1	1				3				1	1.67	1.60	1.00
C303	Mass Transfer-II	1.83	1.6	1	1				3				2	1.50	1.00	1.00
C312	Process Equipment Design	1.2	1.67	1.5	1.2				2.5				2	1.67	2.33	1.00
C314	Chemical Reaction Engineering- II	1.75	1.5	2	2.5			1	1					1.75	2.00	1.00
C401	Transport Phenomenon	1.5	1.83	2			1	2	1					1.67	2.00	1.00
C402	Process Modelling and Simulation	1.83	1.5	2	1.5									1.67	1.50	1.00
C409	Pollution and its control	1.00	1.67	1	1			1.5	1.5					1.67	1.67	1.00

C410	Integrated Solid Waste Management	1	1	1.2			1.75						1.50	1.50	1.50
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**Table No.1.5.2: Program articulation matrix for Regulation-19 (R-19)**

Course Code	Course Name	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO 1 2	PSO 1	PSO 2
C101	Engineering Mathematics-I	1.5	2.75											1.33	1.67
C102	Engineering Physics	3	3	2		2			1					1.33	2.00
C112	Engineering Chemistry	3	2.75	1.75	1.5			2	3					1.33	1.50
C113	Basics of Mechanics	2.5	2.75											1.33	1.50
C203	Heat Transfer	1.75	1.25	0.5	1				3			2		1.5	
C204	Fluid Mechanics	2.5	2.5											2.00	1.50
C212	Chemical Engineering Thermodynamics	2.25	2.67	2	1									2.00	1.33
C213	Mass Transfer-I	1.75	1.67	1	1				3			2		1.00	1.25
C301	Chemical Process Technology	2	1.67	1	1				3			1		1.00	1.50
C302	Chemical Reaction Engineering- I	2	1.5	2.5	3									1.75	1.00
C313	Process Equipment Design	1.25	1.67	1	1.33				3			2		1.75	1.00
C314	Process Control	1.75	1.67	1		2								1.75	1.00
C401	Modern Separation Technique	1.5	1.33	1.5	2			2				3		1.50	1.00
C402	Integrated Solid Waste Management			1.25				1.75	1.75					1.50	1.00
C407	Pollution and its control	1.75	2	2				2	2				1.5	1.67	1.50
C408	Petroleum Refinery Engineering	1.5		1.5				2	2					1.50	1.00

**Criterion 2: Outcome-Based Teaching Learning (120)****2.1. Describe Processes Followed to Ensure Quality of Teaching & Learning (20)****A. Processes followed to improve the teaching quality**

- **Academic Planning:** The department prepares its academic calendar in advance, aligned with the college calendar, covering key activities like internal tests, quizzes, assessments, proctor meetings, parent-teacher meetings, assignments, and lab exams.
- **Early Preparation:** Subjects are allotted before the semester starts. Faculty prepare lesson plans, course materials, and lecture notes in both soft and hard copies.
- **Innovative Teaching Methods:** Along with traditional teaching, faculty use PPTs, videos, real-world examples, collaborative learning, and shortcut methods to explain concepts effectively.
- **Outcome-Based Education (OBE):** Faculty design lesson plans based on OBE principles, including COs, CO-PO mapping, and use tools like flipped classrooms, quizzes, and presentations for assessment.
- **Student Engagement:** Students actively participate in class activities and are encouraged to take MOOC/NPTEL courses, submit assignments, give presentations, and join group discussions to enhance knowledge and communication skills.
- **Continuous Improvement:** The academic calendar is reviewed by the HOD and senior faculty to include activities that bridge curriculum gaps.
- **Resource Preparation:** Faculty prepare video lectures, presentations, and arrange guest talks as per university guidelines.
- **Assignments:** Regular assignments are given to improve student performance, in line with the department schedule.

**Table No.2.1.1: Maintenance of Course files /Documentation Checklist for Academic Audit**



**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR (GIET UNIVERSITY)**  
 (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSIR, New Delhi)

**Gunupur - 765022, Dist. - Rayagada, Odisha, India**  
[www.giet.edu](http://www.giet.edu)

**School Of Engineering and Technology**  
**DEPARTMENT OF CHEMICAL ENGINEERING**

**COURSE FILE**

Sl. No.	Document Title	Purpose / Use	Remarks
1	Department Vision, Mission, PEOs, POs, PSOs	Vision aligned curriculum and outcome objectives	
2	Syllabus with CEOs and COs	For curriculum mapping and course outcome tracking	
3	Roll List	Student identification and attendance tracking	
4	Class & Individual Time Table	Schedule for classroom and faculty load management	
5	Lesson Plan & Progress	Teaching plan and its implementation status	
6	Teaching Notes	Instructor-prepared notes for teaching delivery	
7	Assignment Question Papers	Continuous internal assessment documentation	
8	Descriptive Question Bank	For internal exam preparation and CO mapping	
9	Objective Question Bank	For MCQ-based assessment or VSTs	
10	Sample Assignment Answer Scripts	For quality review of student submissions	
11	Class Test Exam Questions & Marks	Very Short Test records	
12	Cycle Test Papers with Scheme of Valuation and Key	Evaluation transparency and academic audit purpose	
13	Sample Cycle Test Exam Answer Scripts	For evaluating fairness and marking accuracy	
14	Sample Tutorial Sheets	For weekly practice and concept reinforcement	
15	Topics Beyond Syllabus	To showcase curriculum enrichment	
16	Previous University Exam Papers	Reference for course depth and CO relevance	
17	Cycle Test Exam Marks	Continuous assessment tracking	
18	University Sending Marks	Final grades sent to the university	
19	Result Analysis	Evaluation of academic performance and learning outcome	
20	Result Analysis (After Remedial)	Improvement tracking after weak student support	
21	CO Assessment Sheet	Course Outcome evaluation and mapping	
22	CO-PO and PSO Mapping	Outcome-based education tracking and curriculum justification	

Table No.2.1.2: Sample Course Plan during Academic Planning

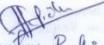
<b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR (GIET UNIVERSITY)</b> (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, IITB, INC, DSIIR, New Delhi) Gunupur - 765022, Dist.- Rayagada, Odisha, India <a href="http://www.giet.edu">www.giet.edu</a> School Of Engineering and Technology DEPARTMENT OF CHEMICAL ENGINEERING <b>COURSE PLAN</b>																						
<b>Name of the faculty</b> Dr. Suman Mishra <b>B.Tech. 2<sup>nd</sup>Yr. III Sem. Sec.: A</b> <table border="1"> <tr> <td rowspan="2"><b>Designation</b></td><td rowspan="2"><b>Associate- Professor</b></td><td><b>Internal Marks</b></td><td><b>40</b></td><td><b>% weightage for CO Attainment</b></td><td><b>30</b></td><td rowspan="2"><b>External Marks</b></td><td rowspan="2"><b>60</b></td><td rowspan="2"><b>Number of Class Tests: 02</b></td><td rowspan="2"><b>Number of Cycle Tests: 02</b></td></tr> <tr> <td></td><td></td><td></td></tr> </table>										<b>Designation</b>	<b>Associate- Professor</b>	<b>Internal Marks</b>	<b>40</b>	<b>% weightage for CO Attainment</b>	<b>30</b>	<b>External Marks</b>	<b>60</b>	<b>Number of Class Tests: 02</b>	<b>Number of Cycle Tests: 02</b>			
<b>Designation</b>	<b>Associate- Professor</b>	<b>Internal Marks</b>	<b>40</b>	<b>% weightage for CO Attainment</b>	<b>30</b>	<b>External Marks</b>	<b>60</b>	<b>Number of Class Tests: 02</b>	<b>Number of Cycle Tests: 02</b>													
<b>Course Name/ Course Code</b>	<b>Fluid Mechanics</b>	<b>Credit</b>	<b>L: 3</b>	<b>T: 0</b>	<b>P: 0</b>																	
<b>Date of Commencement</b>	19.04.2025	<b>Closing Date</b>	04.04.2025	<b>Number of Assignments: 04</b>		<b>Number of Class Tests: 02</b>		<b>Number of Cycle Tests: 02</b>														
<b>Week No.</b>	<b>No. of Classes</b>	<b>Lecturer No.</b>	<b>Hrs(s)</b>	<b>Detail Description of Topics/Subtopics</b>		<b>Mode of Teaching</b>	<b>CO</b>	<b>BT L</b>														
				<b>Unit - I</b>																		
1	4	Lecture- 01	01	Unit-I: Introduction of FM & HM: Scope of fluid mechanics and its development as a discipline, CO for fluid mechanics		Chalk & Board	CO1	K2														
		Lecture- 02	01	Physical property of Fluid: Density, specific gravity, specific weight, specific volume		Chalk & Board	CO1	K1, K2														
		Lecture- 03	01	Viscosity and Problems related to Viscosity		Chalk & Board	CO1	K1, K2														
		Lecture- 04	01	Surface tension and capillarity and related Problems		Chalk & Board	CO1	K1, K2, K3														
2	1	Lecture- 05	01	Compressibility and bulk modulus, Fluid classification		Chalk & Board	CO1	K1, K2														
		Lecture- 06	01	Fluid statics - Pressure, Pascal's Law		Chalk & Board	CO1	K1, K2														
		Lecture- 07	01	Pressure variation for incompressible fluid, Problem solved		Chalk & Board	CO1	K2, K3														
		Lecture- 08	01	Absolute, gauge pressure, absolute pressure, gauge pressure and vacuum pressure and related problems		Chalk & Board	CO1	K1, K2, K3														
3	4	Lecture- 09	01	Measurement of Pressure, Manometer, Simple manometer		Chalk & Board	CO1	K1, K2, K3														
		Lecture- 10	01	Piezometer, U-tube Manometer, Problem Solved		Chalk & Board	CO1	K1, K2														
		Lecture- 11	01	Single Column Manometer, Problem Solved		Chalk & Board	CO1	K1, K2														
		Lecture- 12	01	Differential Manometer, Problem Solved		Chalk & Board	CO1	K2, K3														
				<b>Unit - II</b>																		
5	4	Lecture- 13	01	Hydrostatic pressure on submerged surface, force on a horizontal submerged plane, force on a vertical submerged plane		Chalk & Board	CO1	K1, K2														
		Lecture- 14	01	Force on a vertical submerged plane surface and related problems		Chalk & Board	CO1	K1, K2														
		Lecture- 15	01	Buoyancy and floatation, Archimedes' principle, stability of immersed and floating bodies		Chalk & Board	CO1	K1, K2, K3														
		Lecture- 16	01	Determination of metacentric height and related problems		Chalk & Board	CO1	K2, K3														
		Lecture- 17	01	Related problems		Chalk & Board	CO1	K2, K3														
				<b>Unit - III</b>																		
6	4	Lecture- 18	01	Unit-III: Hydrodynamics - Introduction, description of fluid flow, classification of fluid flow		Chalk & Board	CO2	K1, K2														
		Lecture- 19	01	Reynolds number, flow rate and continuity equation, Related problems		Chalk & Board	CO2	K1, K2														
		Lecture- 20	01	Acceleration of fluid particles, Related problems		Chalk & Board	CO4	K1, K2, K3														
		Lecture- 21	01	Differential equation of continuity, Related problems		Chalk & Board	CO4	K2, K3														
7	4	Lecture- 22	01	Mathematical definitions of irrotational and rotational motion.		Chalk & Board	CO4	K2, K3														
		Lecture- 23	01	Related problems		Chalk & Board	CO4	K2, K3														
		Lecture- 24	01	Circulation, potential function and stream function, Flow net		Chalk & Board	CO3	K2, K3														
		Lecture- 25	01	Types of fluid motion and related problems		Chalk & Board	CO3	K2, K3														
				<b>Unit - III</b>																		
8	4	Lecture- 26	01	Class Test- 01																		
		Lecture- 27	01	Unit-III: Fluid dynamics - Introduction, Euler's equation along a streamline, energy equation, Bernoulli's equation		Chalk & Board	CO2	K1, K2														
		Lecture- 28	01	Related problems		Chalk & Board	CO2	K1, K2														
		Lecture- 29	01	Venturiometer and Related problems		Chalk & Board	CO2	K1, K2														
9	1	Lecture- 30	01	Related problems		Chalk & Board	CO2	K1, K2														
		Lecture- 31	01	Orifice meter and Related problems		Chalk & Board	CO2	K2, K3														
		Lecture- 32	01	Related problems		Chalk & Board	CO2	K2														
		Lecture- 33	01	Application to siphon, pitot tube		Chalk & Board	CO3	K2, K3														
10	3	Lecture- 34	01	Related problems		Chalk & Board	CO3	K2														
				<b>Unit - IV</b>																		
		Lecture- 35	01	Flow through pipes: Major and minor energy losses		Chalk & Board	CO2	K2														
		Lecture- 36	01	Related problems		Chalk & Board	CO2	K2														
12	2	Lecture- 37	01	Hydraulic gradient and total energy lines and Related problems		Chalk & Board	CO2	K2														
		Lecture- 38	01	pipes in series and parallel and Related problems		Chalk & Board	CO2	K2, K3														
		Lecture- 39	01	Equivalent pipes, water hammer in pipes		Chalk & Board	CO2	K2, K3														
				<b>Unit - IV</b>																		
13	4	Lecture- 40	01	Unit-IV: Impact jet, force exerted by the jet on a stationary plate, force exerted by the jet on a movable plate		Chalk & Board	CO5	K2, K3														
		Lecture- 41	01	Related problems		Chalk & Board	CO5	K2, K3														
		Lecture- 42	01	Hydraulic turbine Introduction		Chalk & Board	CO5	K2, K3														
		Lecture- 43	01	Classification, Impulse and Reaction turbine, Velocity triangle and work done derivation		Chalk & Board	CO5	K2, K3														
14	4	Lecture- 44	01	Design of Pelton wheel, Related problems		Chalk & Board	CO5	K1, K2, K4														
		Lecture- 45	01	Related problems		Chalk & Board	CO5	K2, K3														
		Lecture- 46	01	Inward and Outward flow reaction turbine, Francis and Kaplan Turbine		Chalk & Board	CO5	K1, K2														
		Lecture- 47	01	Related Problem		Chalk & Board	CO5	K2, K3														
15	4	Lecture- 48	01	Velocity triangle and efficiencies		Chalk & Board	CO5	K2, K3														
		Lecture- 49	01	Performance curve, Function of draft tube and casing cavitation		Chalk & Board	CO5	K2, K3														
		Lecture- 50	01	Unit-V: Centrifugal Pump: constructional features, vane shape, Velocity triangles		Chalk & Board	CO6	K2, K3														
		Lecture- 51	01	Efficiencies, Pump Characteristic, NPSH and Cavitation		Chalk & Board	CO6	K2, K3														
				<b>Unit - V</b>																		
16	4	Lecture- 52	01	Positive displacement pumps: Reciprocating Pump, Working principle, Discharge, work done and power requirement		Chalk & Board	CO6	K1, K2														
		Lecture- 53	01	Slip, Indicator diagram, related problems		Chalk & Board	CO6	K2, K3														
		Lecture- 54	01	Hydraulic Machines: Hydraulic press, hydraulic accumulator, hydraulic intensifier		Chalk & Board	CO6	K2, K3														
		Lecture- 55	01	Hydraulics, hydraulic crane, hydraulic jack, hydraulic lift, hydraulic ram		Chalk & Board	CO6	K1, K2														
17	4	Lecture- 56	01	Fluid couplings, fluid torque converter and air lift pump		Chalk & Board	CO6	K1, K2														
		Lecture- 57	01	Class Test- 02																		
		Lecture- 58	01	Revision 1																		
		Lecture- 59	01	Revision2																		
		<b>Course Faculty</b>		<b>Course Coordinator</b> (If Applicable)		<b>HoD</b>		<b>Dean of School</b>														

Fig. 2.1.1: CO, PO &amp; PSO of Course during Academic Planning

 <p><b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b>  <b>(GIET UNIVERSITY)</b>          (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSIIR, New Delhi)</p> <p>Gunupur - 765022, Dist. - Rayagada, Odisha, India</p> <p>CHEMICAL ENGINEERING DEPARTMENT</p> <p>CO-PO &amp; PSO of the Course plan</p> <p>Name of the Faculty: Dr. Radha Krishna Padi</p> <p>Program and Branch: B.tech , chemical engineering</p> <p>Semester &amp; Section: 5<sup>th</sup>, A</p> <p>Course Name &amp; Code: Chemical Process Technology . BPECH5010</p> <p>Academic Year: 2023-2024</p> <p>Credits of the course: 3</p>		
Sl. No.	Description of the Questionnaire	Remark
1	The teaching syllabus is under which Regulation of University?	R 19
2	Have you prepared the detailed lecture schedule of the subject of the concern semester? [Yes/No]:	Yes
3	Have you prepared study material of the allotted? YES/NO	Yes
4	Have you prepared Question bank along with COs-POs? [YES/NO]	Yes
5	Have you referred the prescribed text books/reference books of the subject and find out their availability at department/library? [YES/NO]	Yes
6	Have you collected previous question papers of the subject (last three years)	Yes
7	Is your subject is associated with lab classes. YES/NO If YES, identify at least two lab experiments beyond the prescribed lab syllabus. ↳ Preparation of Biodiesel from Vegetable oil. ↳ Determination of Total Hardness of Water (EDTA Titration)	
8	Which teaching aids you will be used in the class room while teaching a) Lecture notes b) PPTs c) Handouts d) Charts e) Videos/ animations etc., f) demo models g) Live demonstrations h) Field visits	

10	Mention names & addresses of two industry experts in your subject with the proposed dates of their visits during the semester/year: 1. Mr. Biswa Bhushan Behera , JK Paper mill 2. Mr. Savan Kumar Aditya Birla Chemical, Ganjam
11	Have you analyzed your allotted subject with respect to other reputed Indian Institutes/ Foreign Universities? What were your observations? Mention your view: Yes. Indian Institute like :- IIT Bombay, IIT Madras & IIT Mumbai Observations - (i) Detailed process flow Diagram & block diagrams Foreign Universities - (i) MIT, UC Berkeley & TU Delft Observations - (a) Strong emphasis on Sustainability & green design (b) Encouraged Project-based learning with Mini projects
12	Have you identified any curricular-gaps in your allotted subjects which need any pre-requisites and co-requisites? Pre-requisites → Fluid Mechanical Engg., Mass Transfer, Heat Transfer, Chemistry Basics, Stoichiometry Co-requisites → Reactor Engg., Process Safety
13	Mention name of the two industries related to your allotted Subject located within India/abroad: 1. Reliance Industries Ltd - Jamnagar, Gujarat 2. Indian Oil Corporation Ltd - Panipat, Gujarat 3. Exxon Mobil - USA 4. Royal Dutch Shell - Netherland /UK
14	Mention two web courses related to your concerned Subject: 1. NPTEL course - Chemical Process Technology 2. Coursera course - Industrial Biotechnology
15	Corrective measures to be taken to enhance the pass percentage of the subject: 1. Strengthen conceptual Understanding 2. Relate expt directly to classroom theory to increase retention 3. Use of Digital tools & LMS (NPTEL, ppn) 4. Offer remedial/tutorial classes for students scoring below average

Signature of the faculty:   
Name: Dr. Radha Krishna Padi

## B. Use of Various instructional methods and pedagogical initiatives:

**Lecture Method and Interactive Learning:** Faculty members use chalk and board as well as audio-visual aids to deliver lectures. Students are encouraged to ask questions and clarify doubts during the class itself. To make the sessions more engaging, teachers use models, charts, and pictures to support the teaching process.

**Project-Based Learning:** Students are assigned project work starting from the 3rd semester, which continues until the 8th semester. The project topics are selected based on current subject trends and their relevance to society. Faculty members guide students throughout the project. Specific time slots are allocated in the timetable to monitor progress. Students may also carry out their projects in reputed institutions or research organizations if selected.

**Computer-Assisted Learning:** The department adopts ICT-based teaching and learning methods. It is equipped with sufficient computers, printers, LCD projectors, and relevant software, which are effectively used to support classroom teaching.

**Fig. 2.1.2: Block name: RDB, Room No.: Smart Class Room-1**

**SMART Classroom:** To support students with different learning abilities, faculty members use SMART classrooms for selected topics and interactive sessions. LCD projectors and subject-related videos (like NPTEL) are used to make learning easier and more effective.

**Fig. 2.1.3: Block name: RDB, Room No. Smart Class Room - 2**

**MOOC (Massive Online Open Courses):** MOOCs are online courses with open access, handled by external experts. They provide lectures, videos, study materials, and interactive forums. The department assigns a faculty coordinator for each course. Required infrastructure like internet, computers, and projectors is provided by the college.

### C. Academic Calendar of University:

The academic calendar is prepared by different school then approved by university as per the academic activity, by keeping view of the first and last working days of the semester. It includes the semester activities like starting date of instruction, date of registration, class test and date of completion of evaluation, publication of result, date of lab viva and date of

closing of semester instruction. The commencement of next semester classes is also mentioned in the academic calendar so that students can attend the first class of the semester without fail. However, the dates for internal assessment tests are mentioned in the departmental calendar.

**Fig. 2.1.3: University Academic Calendar**

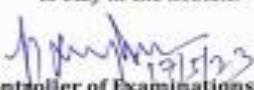
**GIET UNIVERSITY, GUNUPUR, ODISHA**  
**Academic Calendar for Odd Semester 2023-24**

**B. Tech - V & VII Semester**

Sl. No.	Event	Date(s)
1	Commencement of Classes	01.07.2023
2	Registration @ ₹ 1000 towards Registration Fee	01.07.2023 to 15.07.2023
3	Project Allocation	17.07.2023
4	Project Review I	21.08.2023 to 23.08.2023
5	<b>Cycle Test - I (Two Subjects Per Day)</b>	<b>28.08.2023 to 30.08.2023</b>
6	Date of Completion of Central Evaluation	04.09.2023
7	Publication/Circulation of Cycle Test - I Marks	05.09.2023
8	Sending of Cycle Test-I Marks to Parents	06.09.2023
9	Project Review II	28.09.2023 to 30.09.2023
10	Form Fill-up @ ₹ 1000 towards Form Fill-up Fee	02.11.2023 to 04.11.2023
11	<b>Cycle Test - II (Two Subjects Per Day)</b>	<b>09.11.2023 to 11.11.2023</b>
12	Date of Completion of Central Evaluation	16.11.2023
13	Publication/Circulation of Cycle Test - II Marks	17.11.2023
14	Sending of Cycle Test- II Marks to Parents	18.11.2023
15	Practical/Sessional Examinations and Project Submission	13.11.2023 to 18.11.2023
16	Closing of Odd Semester Classes 2023-24	18.11.2023
17	Final Sending of Internal Marks to CoE	25.11.2023
18	<b>Semester End Examinations</b>	<b>25.11.2023 to 08.12.2023</b>
19	Publication of Results of Semester End Examinations	30.12.2023
20	Commencement of Classes for Even Semester 2023-24	09.12.2023

**NOTE:**

- ❖ At least 1 Class Test is to be conducted at the department level before Cycle Tests.
- ❖ At least 2 Assignments per subject are to be submitted by the students.
- ❖ Non-registered students will not be permitted to attend the classes and not be allowed to stay in the hostels.



Controller of Examinations



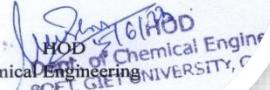
Dean SoET



Registrar

**Fig. 2.1.4: Departmental Academic Calendar****Gandhi Institute of Engineering & Technology University, Gunupur, Odisha****Chemical Engineering (School of Engineering & Technology)****Academic Calendar for Odd Semester, 2023-24**

Sl. No.	Event	Date
1	Commencement of Classes	01/07/2023
2	Project Allocation	17/07/2023
3	Assignment 1	25/07/2023
4	Class Test 1	07/08/2023 to 10/08/2023
5	Assignment 2	16/08/2023
6	Project Review 1	21/08/2023 (7 <sup>th</sup> Semester) 22/08/2023 (5 <sup>th</sup> Semester) 23/08/2023 (3 <sup>rd</sup> Semester)
7	Cycle Test 1	28/08/2023 to 30/08/2023
8	Result of Cycle test 1 (To be Displayed in Notice board & to be sent to parents)	06/09/2023
9	Assignment 3	15/09/2023
10	Project Review 2	28/09/2023 (7 <sup>th</sup> Semester) 29/09/2023 (5 <sup>th</sup> Semester) 30/09/2023 (3 <sup>rd</sup> Semester)
11	Class Test 2	16/10/2023 to 20/10/2023
12	Puja vacation	22/10/2023 to 28/10/2023
	Assignment 4	01/11/2023
13	Cycle Test 2	09/11/2023 to 11/11/2023
14	Result of Cycle test 2 (To be Displayed in Notice board & to be sent to parents)	17/11/2023
15	Practical Examination	14/11/2023 (5 <sup>th</sup> Semester) 15/11/2023 (3 <sup>rd</sup> Semester)
16	Project Viva voce	16/11/2023 (7 <sup>th</sup> Semester) 17/11/2023 (5 <sup>th</sup> Semester) 18/11/2023 (3 <sup>rd</sup> Semester)
17	Last Day of Odd Semester	18/11/2023
18	End semester Exam	25/11/2023 to 08/12/2023

  
 HOD  
 Head of Chemical Engineering  
 SoET, GIET University, G

**D. Methodologies to support weak students and encourage bright students:**

**Table No.2.1.3: Guidelines to Identify weak students**

Guideline	Description
<b>Regular monitoring of student progress by proctors</b>	Proctors conduct regular meetings with students.
<b>Proctor Schedule</b>	Prepared and displayed on the notice board.
<b>Score less than 60% in any subject</b>	Student is identified by the proctor.
<b>Identified as underperforming</b>	Counselled by the HOD and senior faculty.
<b>Attendance below 75%</b>	Student is counselled regularly.
<b>Score below 60% in three or more subjects and attendance below 75%</b>	Student is considered academically weak.
<b>Identified as academically weak</b>	Parents are informed by the proctor.

**Table No.2.1.4: Guidelines to Identify Bright students**

Guideline	Description
<b>Academic result</b>	Students secured First Class with Distinction (FCD) in the Semester exams is identified as bright student.
<b>Felicitation of Bright students</b>	A function is arranged at the department to felicitate the bright students. An appreciation certificate and Memento are distributed to motivate the bright students, as well as other students.
<b>Encouragement to bright students</b>	They are encouraged to participate in inter-college and national/international competitions etc.
<b>Top three students of each class</b>	Awarded with mementos
<b>Students securing ranks at University Level</b>	Distribution of Gold Medals

**Fig. 2.1.4: Notice for slow learner and fast learner Identification**

**Fig. 2.1.5: Circular for slow learner and fast learner Identification**

**Gandhi Institute of Engineering & Technology University, Gunupur, Odisha**  
**Chemical Engineering (School of Engineering & Technology)**

**Circular**

Ref. No: 176 / Chem / SoET . Date: 12/09/2023

**Kind Attention: All faculty members**

As per the circular issued by IQAC Co-ordinator, and as per the University policy and SOP to cater to differential learning needs of the students, learning levels of admitted students of the B. Tech in Chemical Engineering are identified as slow learners and advance learners.

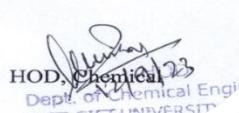
Course coordinators of respective courses are required to organize interventional measures as per policy and SOP to help slow learners and advance learners to improve their performance and submit the action taken report at the end of the semester to the department committee.

The list of slow learners and advance learners is attached:

CC: Registrar, Dean SoET, Controller of Examination

**Attachments:**

University Policy and SOP  
 Academic Calendar  
 Letter from IQAC  
 Slow learners and advance learners list



HOD, Chemical Engineering  
 Dept. of Chemical Engineering  
 SoET, GIET UNIVERSITY

**Fig. 2.1.6: Sample copy of slow learner and fast learner List**

<b>Gandhi Institute of Engineering &amp; Technology University, Gunupur, Odisha</b>																																																																																																																				
<b>Chemical Engineering (School of Engineering &amp; Technology)</b>																																																																																																																				
<b><u>List of slow learners &amp; advance Learner</u></b>																																																																																																																				
<p>In the 7<sup>th</sup>, 5<sup>th</sup> &amp; 3<sup>rd</sup> semester of the programme, the slow learner and advance learner are identified solely based on aggregate percent of marks obtained in the previous highest qualifying exam.</p>																																																																																																																				
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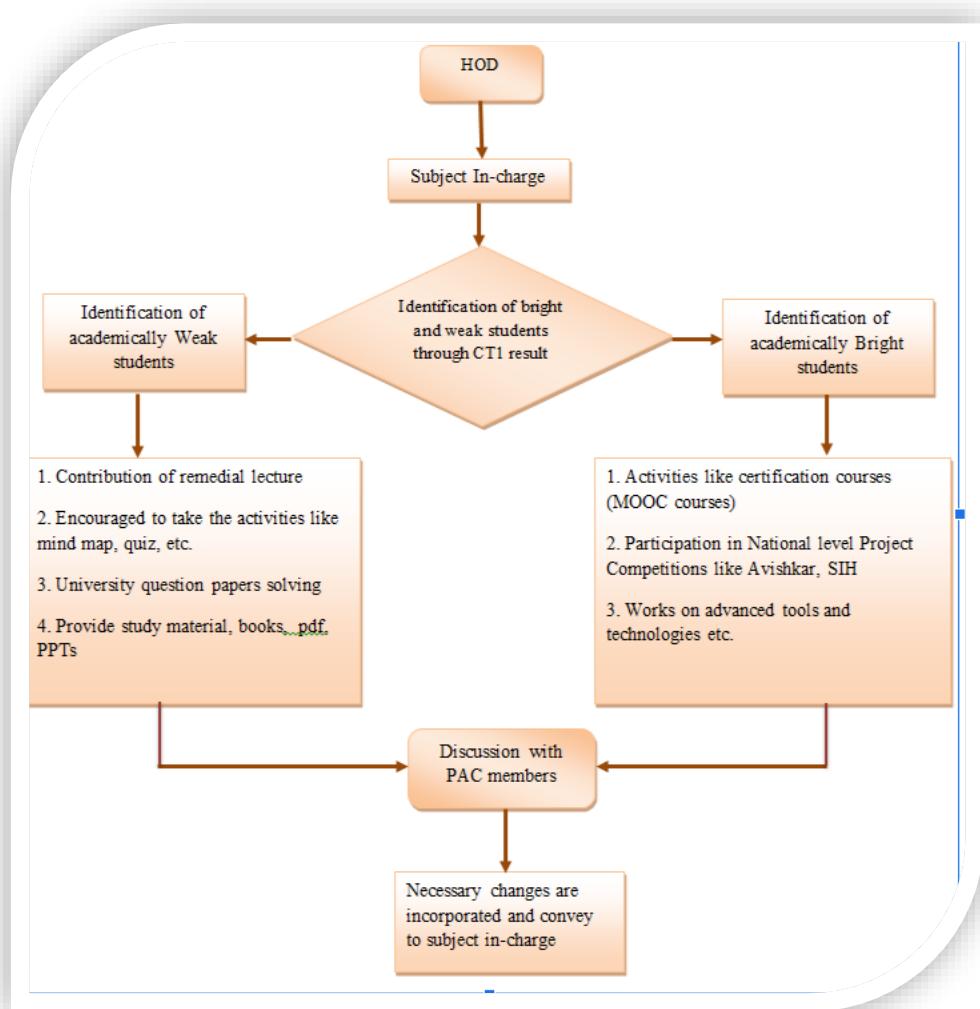
  
**HOD, Chemical Engineering**  
 Dept. of Chemical Engineering  
 SoET, GIET UNIVERSITY, GUNUPUR

**Table No.2.1.5: Mentoring System for slow learner**

Identification	Actions taken
<b>Students scoring less than 60% of marks in Internal Assessment</b>	<ol style="list-style-type: none"> <li>1. Student counsellor follows their progress regularly and advises them to attend all classes without fail, to make up the attendance up to the mark.</li> <li>2. The same is intimated to their parents and ask them to discuss with their wards regarding poor performance.</li> <li>3. Conduction of extra classes for them.</li> </ol>
<b>Students who fail in semester exams</b>	Conduction of extra classes to those who failed in previous semester subjects.

**Fig. 2.1.7: Mentor –Mentee Counselling system and recorded in ERP**

Roll No	Student Name	Program	Branch	Semester	Section	Contact No	Action
22CH001	OMKAR SAHOO	BTech	Chemical Engg	6	A	6371383238	Action
22CH002	SANGITA NAIK	BTech	Chemical Engg	6	A	8117099797	Action
22CH003	SURATHA NAIK	BTech	Chemical Engg	6	A	7077257734	Action
22CH005	KARUNAKAR NAYAK	BTech	Chemical Engg	6	A	7750976199	Action
22CH006	NIKHIL CHANDRA NAYAK	BTech	Chemical Engg	6	A	6370419941	Action
22CH007	GOURANGA NAIK	BTech	Chemical Engg	6	A	7991003560	Action
22CH031	LIPUNI KUMARI NAYAK	BTech	Chemical Engg	6	A	9861347720	Action
22CH032	RAKESH SWAIN	BTech	Chemical Engg	6	A	8260525638	Action
22CH033	SWAPNARANI PATRO	BTech	Chemical Engg	6	A	8688239680	Action
22CH034	SUSMITA DALAI	BTech	Chemical Engg	6	A	7684042201	Action

**Fig. 2.1.8: Process for Encouraging Bright Students and Assisting Weak Students**

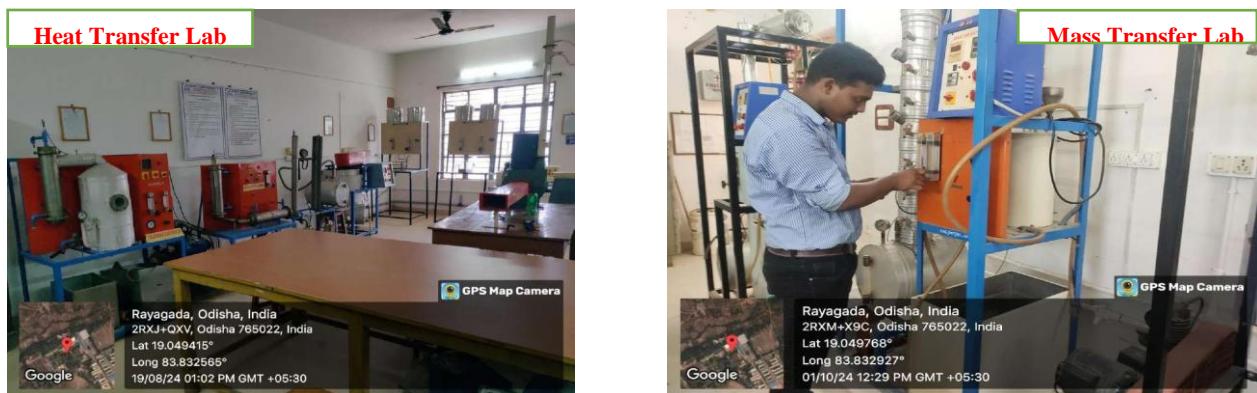
### E. Quality of classroom teaching:

1. Faculty use computers, smart boards, LCDs, and course videos for effective teaching.
2. Internet access is available for both students and faculty.
3. Online resources like NPTEL and other platforms are used to enhance teaching quality.
4. Online journals are referred to stay updated with the latest topics.
5. Lesson plans for all courses are prepared in advance, approved by the HOD, and shared with students at the start of the semester

**Fig. 2.1.9: Class Room**

### F. Conduct of Experiments:

As per the curriculum, 2 periods of a lab class are allotted in the time table. The lab classes are allotted from 1<sup>st</sup> to 7<sup>th</sup> Semester of the programme. Students are carrying out extra experiments for a subject, beyond the specified no. of experiments prescribed by the University. All laboratories of the department are well equipped. A lab manual having procedures of all the experiments conducted in the specific laboratory is available for the students. The lab manual is revised from time to time by the concerned faculty to incorporate the latest procedures available for an experiment. The lab record of each student is verified by the concerned faculty on the same day of lab class and assessment is done on that day.

**Fig. 2.1.10: Laboratory Facility**

## **G. Continuous Assessment in laboratory:**

Continuous assessment system is also implemented for assessment of laboratory work. The assessment is done on the basis of submission of laboratory records, understanding of the experiment through oral viva voce questions and participation in carrying out the experiment. Neatness of the laboratory record is also given weightage during the assessment.

**Fig. 2.1.11: Sample copy of Internal Evaluation of Laboratory**

Name of the Faculty		LAB Name & Code											
Branch	Semester	Section		Group No.									
Academic Year		With Effect From		LAB Conducted									
Sl. No.	Roll No.	Regd. No.	Name of the Student	Number of LAB Classes								Total	
				PA	1	G 2	G 3	G 4	G 5	G 6	G TA		
1													
2													
3													
4													
5													
6													
7													
8													
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23													
24													
25													
26													
27													
28													
29													
30													
Number of Absentees													
Number of Present													
Date													
Signature													

Academic Register (V-  
GIETU - Gunupur

#### **H. Student feedback of teaching learning process and actions taken:**

Students submit online feedback twice a semester based on clarity, interest, and understanding of the subject. A faculty member scoring below 80% is called by the HOD for discussion. HOD counsels faculty with low scores or negative comments to help them improve. Training and orientation programs are organized to enhance teaching skills. Faculty are encouraged to attend FDPs and programs from reputed institutes for continuous improvement. A sample of the feedback form is given below.

**Fig. 2.1.12: Student Feedback**

<b>GIET UNIVERSITY GUNUPUR</b> <b>HUMAN RESOURCES DEPARTMENT</b>								
DATE OF FEED BACK		A	Excellent	Very Good	Good	Fair	Poor	
Teacher is punctual and regular								
Level of preparation in the subject								
Teacher speaks clearly and audibly								
Teacher uses Black/White Board ,Power point Presentation and other online tools properly								
Teacher provides examples of concept /Principle								
Teacher answers the questions and clarifies the doubts on the subject								
Teacher makes the class interesting , interactive and simulates interest on the subject								
Teacher maintains discipline in the class								
Teacher offers assistance and counselling as and when needed								
Teacher is impartial to all the students								
NO. OF STUDENT		TOTAL	0.00					
COMMENTS								

## 2.2. Quality of Student Major Project (25)

### Project Identification:

- Students are allowed to form groups which consist of minimum 2 members to maximum of 4 members. If the students are not able to frame the group, then the project coordinator will help them to frame the group.
- Students are allowed to choose the areas in which they are interested to carry out the projects. Based on the student's area of interest, they will be allotted a faculty member to supervise the project.
- Students are encouraged to design the project work based on literature available under the guidance of a faculty member. If they are not able to come out with the experiment design, then the faculty member will help the students for execution of the project work.

### Continuous monitoring:

- ✓ Students have to submit the synopsis of the project work before proceeding to the internal guide (Project supervisor).
- ✓ The project supervisor will give suggestions towards the improvement of the synopsis.

- ✓ Then the students carry out their project work at the department under direct supervision of the guide.
- ✓ If the students are allowed to do their project work at industry, he/she should keep one of the faculty member as internal guide and industry personnel as an external guide for the project.
- ✓ Every month, the students should present their progress of the project work in front of the project review committee.
- ✓ The project review committee will give suggestions if needed to the students on their project so that they can complete their smoothly and in a better manner.

### **A. Project Evaluation:**

The project evaluation is done both by Internal and External evaluation process. The total marks of the project are divided into 2 parts such as one third of the total marks to be evaluated by internal faculties including project supervisor and remaining two thirds of the total marks to be evaluated by external examiner. The Internal Evaluation shall be made on the basis of two presentations delivered by the group on their topics before the internal evaluation committee constituted by the programme coordinator. For later evaluation process, the external examiner is invited from reputed Engineering colleges of Odisha or out of Odisha. The Project group should give a presentation of their project before a committee at the end semester for evaluation purpose. The evaluation committee consists of an external examiner, Head of the Department and Supervisor of the Project. The evaluation of project work shall be done at 4th year before the commencement of end semester examination.

The detail schedule of project work of the students is given below.

**Table No.2.2.1: Project work Schedule**

Timeline	Task	Particulars
<b>7th Semester</b>		
2nd Week	Call for project batch and guide allotment	<p>Students are invited to prepare their batch and get it registered with the project coordinator of the department. They will receive project batch identification number which is used as reference throughout the academic year.</p> <p>With respect to the areas of interest of each guide the batches will assign to a guide.</p>

5th Week	Call for Project Titles	Students are instructed to submit the title of the project in consultation with their respective guide in a given proforma to the project coordinator.
12th Week	Synopsis submission	The student submitting project titles are pre-evaluated by a team of faculty.
14th Week	Project title finalization and Abstract submission	The submitted project titles are reviewed by a committee consisting of Project coordinator, Head of the department and some senior faculties.
<b>8th Semester</b>		
4th Week	First Review	Students are instructed to submit Software requirement specification and give a PowerPoint presentation for the project. (Evaluation phase I by a team of faculty)
8th Week	Second Review	Students are instructed to submit Design document of the project and give a PowerPoint presentation for the project. (Evaluation phase II by a team of faculty)
12th Week	Final Demonstration	Students are instructed to submit complete project report will university compliances and give a PowerPoint presentation for the project. (Evaluation phase III by a team of faculty)
14th Week	Project internal marks announcement	The marks for the project work is announced and processed according to the university regulations.

## **B. Types and relevance of the projects and their contribution towards attainment of PO's.**

The topics of project work have been chosen based on the curriculum gap and after completion of the project they are mapped with POs and PSOs.

Each project work is evaluated by internal committee of the department at regular intervals and is graded according to their project quality. If necessary, the work is modified towards attainment of PO's.

**Table No.2.2.2: Major project identification with Guides**

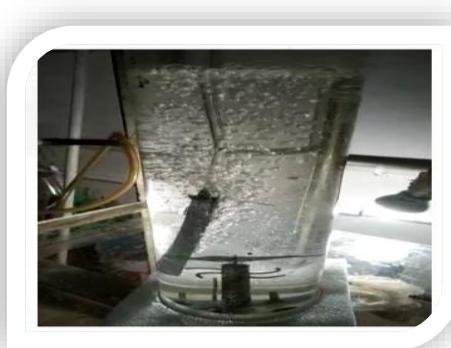
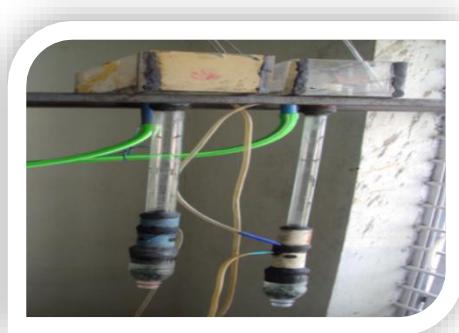
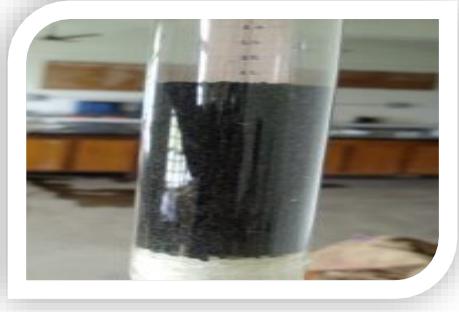
Academic Year	Guide Name	Major Project (4 <sup>th</sup> Year)	Type of Project	Relevance	Environment, sustainability, safety, ethics and cost	POs/PSOs
2023-2024	Dr. Suman Mishra	Removal of organic compound from dairy waste using activated charcoal	Environmentally Sustainable	Involves designing systems to treat industrial waste.	Environment, sustainability, ethics	PO1, PO3, PO4, PO5, PO7, PO9, PO10, PSO1, PSO2
	Dr. Santosh Kumar Bindhani	Thermophysical properties of binary liquid mixture	Research-Based	Studies the solubility of compounds in solvents at different temperatures and pressures	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Radha Krushna Padhi	Optimization and development of microbial pre-treatment process for effective delignification of lignocellulosic biomass for biofuel	Industry-Oriented	Focuses on improving existing chemical processes for efficiency.	Environment, sustainability, ethics, cost	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
	Dr. Deepak Kumar Samal	Dynamics of Pressure Swing Rotating Bubble Cap	Industry-Oriented	Examines fluid flow and its impact on process design and operation.	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Uma Sankar Behera	Study of thermal & structural properties of polystyrene	Research-Based	Explores the application of nanomaterials in chemical	Ethics, cost	PO1, PO2, PO4, PO5, PO9,

2022-23		(Cu-Cr) ion nano composite prepared by mold blending method		processes.		PO10, PSO1, PSO2
	Dr. Sibakrishna Pedina	Production of Geopolymer	Research-Based	Examines various techniques for processing polymers, such as extrusion or injection molding.	Environment, safety, ethics, cost	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
	Dr. Suman Mishra	Design of a Treatment Plant for Dairy Wastewater Using Adsorption	Industry-Oriented	Involves designing systems to treat industrial waste.	Environment, sustainability, safety, ethics, cost	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
	Dr. Santosh Kumar Bindhani	Measurement & prediction of viscosity, ultrasonic velocity of binary liquid mixture	Research-Based	Studies the solubility of compounds in solvents at different temperatures and pressures	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Radha Krushna Padhi	Production of bioethanol from vegetable waste	Environmentally Sustainable	Investigates renewable energy sources or technologies.	Environment, sustainability, ethics, cost	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
	Dr. Deepak Kumar Samal	Degree of mixing in a PSRBC bubble column	Industry-Oriented	Examines fluid flow and its impact on process design and operation.	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Uma Sankar Behera	Preparation of phenyl from acid slurry and	Environmentally Sustainable	Investigates renewable energy	Environment, sustainability, ethics	PO1, PO2, PO3,

2021-22		its characteristic studies		sources or technologies.		PO4, PO5, PO7, PO9, PO10, PO11, PSO1, PSO2
	Dr. Kelothu Suresh	Study of the rheological properties of polystyrene of cu-cr ion nano composite synthesis by solvent blending method	Research-Based	Explores the application of nanomaterials in chemical processes.	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Suman Mishra	Sanitary wastewater treatment using microbes	Environmentally Sustainable	Involves designing systems to treat industrial waste.	environment, sustainability, ethics	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
	Dr. Santosh Kumar Bindhani	Volumetric properties of binary liquid mixture	Research-Based	Studies the solubility of compounds in solvents at different temperatures and pressures	Ethics, cost	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PSO1, PSO2
	Dr. Radha Krushna Padhi	Eco-friendly Paint and Dye Preparation	Environmentally Sustainable	Investigates renewable energy sources or technologies.	Environment, sustainability, ethics	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Deepak Kumar Samal	Performance study of semi fluidized bed reactor for second order liquid phase reaction	Industry-Oriented	Examines fluid flow and its impact on process design and operation.	Safety, ethics and cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1,

					PSO2
Dr. Uma Sankar Behera	Biomass utilization	Socially Relevant	Investigates renewable energy sources or technologies.	Environment, sustainability, safety, ethics	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PSO1, PSO2
Dr. Sibakrishna Pedina	Production and Characterization of Biodiesel from Waste Cooking Oil	Environmentally Sustainable	Investigates renewable energy sources or technologies.	Environment, sustainability, ethics	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO12, PSO1, PSO2
Dr. Daisy Das	Dairy wastewater treatment using biosorbent	Environmentally Sustainable	Involves designing systems to treat industrial waste.	Environment, sustainability, ethics	PO1, PO2, PO3, PO4, PO7, PO9, PO10, PSO1, PSO2
Mr. Sitaram Rai	Conversion of Agricultural Waste to Activated Carbon for Water Purification	Entrepreneurial	Develops advanced methods for purifying water.	Environment, sustainability, ethics, cost	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO11, PSO1, PSO2
Dr. Uttam Kumar Sahu	Removal of Organic Pollutants from Dairy Wastewater Using Activated Carbon Derived from Coconut	Environmentally Sustainable	Involves designing systems to treat industrial waste.	Environment, sustainability, ethics	PO1, PO2, PO3, PO4, PO6, PO7, PO9, PO10, PO12,

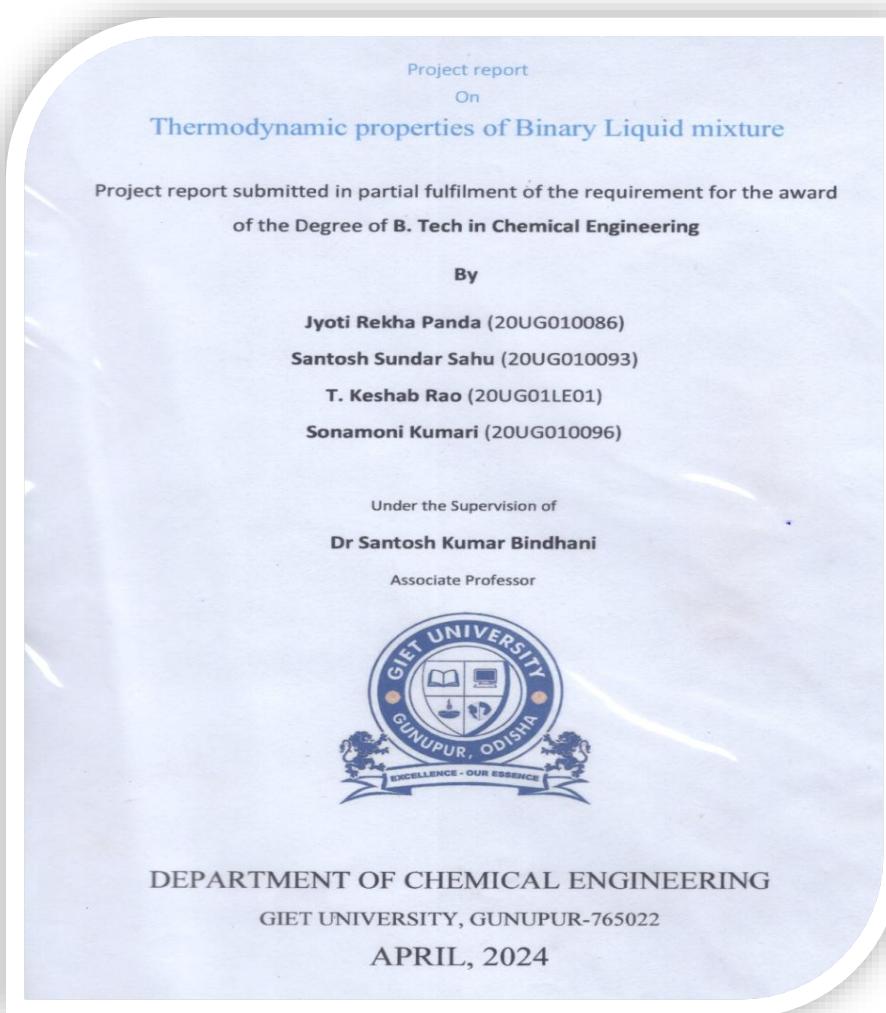
		Shell				PSO1, PSO2
	Dr. Pranita Dash	Study of Thermal Stability and Structural Properties of Polymer-Based Nano Composites	Research-Based	Explores the application of nanomaterials in chemical processes.	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2
	Dr. Kelothu Suresh	Development of LDH-Based Nanocomposites for Heavy Metal Adsorption	Research-Based	Explores the application of nanomaterials in chemical processes.	Ethics, cost	PO1, PO2, PO4, PO5, PO9, PO10, PSO1, PSO2

**Fig. 2.2.1: Bioreactor Design****Fig. 2.2.2: Fluidized bed design****Fig. 2.2.3: Dairy wastewater treatment Plant****Fig. 2.2.4: Adsorption Tower**

### C. Process for monitoring and evaluation:

- Project students should meet their respective guide once in a day and explain their progress regarding their project work.
- They should submit their project progress report once in a week to their respective guide so that the project work goes in a right direction.
- The project guides shall evaluate the project report submitted by their students and advise them to carry out further work.
- Project guide spends enough time with his team to enable them to complete the project work successfully.

**Fig. 2.2.5: Sample Project report**



#### **D. Process to assess individual and team performance:**

- The progress of all projects allotted to the students is evaluated one in a month. Project progress of a group is evaluated based on their project presentations before the evaluation committee which consists of respective guide, senior faculty members and Head of the department.
- The project seminar should be presented by all the project team members on their progress of project work.
- Each student in a project team has to explain his own contribution towards the project work so that individual skills of each team member is assessed.
- In this manner the project work of the students is regularly monitored, as a result the project work is completed successfully with active involvement of all the students of a project team.

#### **E. Quality of completed projects:**

- Final project work is evaluated by a team consisting of HOD, senior faculty members and their respective guide.
- The projects are evaluated and are awarded with internal assessment marks and are graded according to the project contribution towards attainment of PO's and PSO's.

Apart from projects based on Curriculum, students are also encouraged to carry out the projects based on the following criteria:

**CEP Project:** Each student shall be a part of “Community education project” in 6th semester. ‘GIET Community Education Project’ (GIET- CEP) intends to reach to the rural communities through the outreach programme in the field of education, community development and business incubation. This project will be a partnership between GIET and local government/private entities. This project aims to expose the students and faculty members to rural environment and to enhance the students’ understanding of the rural living conditions. This activity motivates the students to service rural communities after their graduation.

**IIC Project:** [Industry – Institute collaborative]: Industry-Institute collaborative Project is carried out as summer internship Project in 7th semester of the Program. Industry personnel visit the Institute frequently and discuss the problems the industry facing and such problem are given to the students as their project work.

### Working Prototypes and Enhancing the Relevance of Projects:

The best projects identified from the project exhibition will be sent to different colleges/institute for participation in exhibition. The department will encourage the best projects to file patent. The internal guide will help the students to publish their work in national/international conferences and journals. The best project of the department will be awarded with cash prize and also supported with department funding.

**Table No.2.2.3: The Funded Students Project Details**

S.N.	Technical area of the project	Funding agency	Funded amount in INR	Outcome
1	Production of Bio ethanol from vegetable wastes.	Department funding	20,000 /-	Developed and promoted as start-up model
2	Degree of mixing in a PSRBC bubble column	Department funding	20,000 /-	Developed
3	Bioreactor	Department funding	50,000 /-	Work is under progress
4	Eco- friendly Paint and Dye Preparation	Department funding	30,000 /-	Work is under progress

The project work is allotted to the students with a view of

- The project work is to be carried out based on latest developments in the relevant field.
- The project work should help the students to learn the technique of literature survey and for design of new experiments to work with.
- The project work helps the students to identify the problems and to design the experiments to solve those problems.
- The project work enables the students to acquire knowledge to analyse and solve the given problem.

### 2.3. Internship/Industrial Training (10)

The students are encouraged to take up internship programs during their semester break. Faculty members give their guidelines, suggestions and scope and contact details for internship to the students. They also help the students by interacting with the industrial experts; provide the students with recommendation letters and other necessary supports. The alumni coordinator constantly interacts with alumni those who are working in different industries and put a request to provide necessary guidelines and support to the students.

The process of internship or industrial training is multifaceted and highly collaborative. It bridges the gap between academic theories and real-world application, while simultaneously enhancing technical, professional, and soft skills. The structured approach—from pre-internship training to post-internship evaluation—ensures that both students and industry partners benefit from this important educational experience.

By integrating clear guidelines, rigorous preparation, real-time mentoring, and comprehensive evaluation, educational institutions aim to achieve high standards of learning and professional development that align with Program Outcomes (POs) and PSOs.

**Table No.2.3.1: Internship Process**

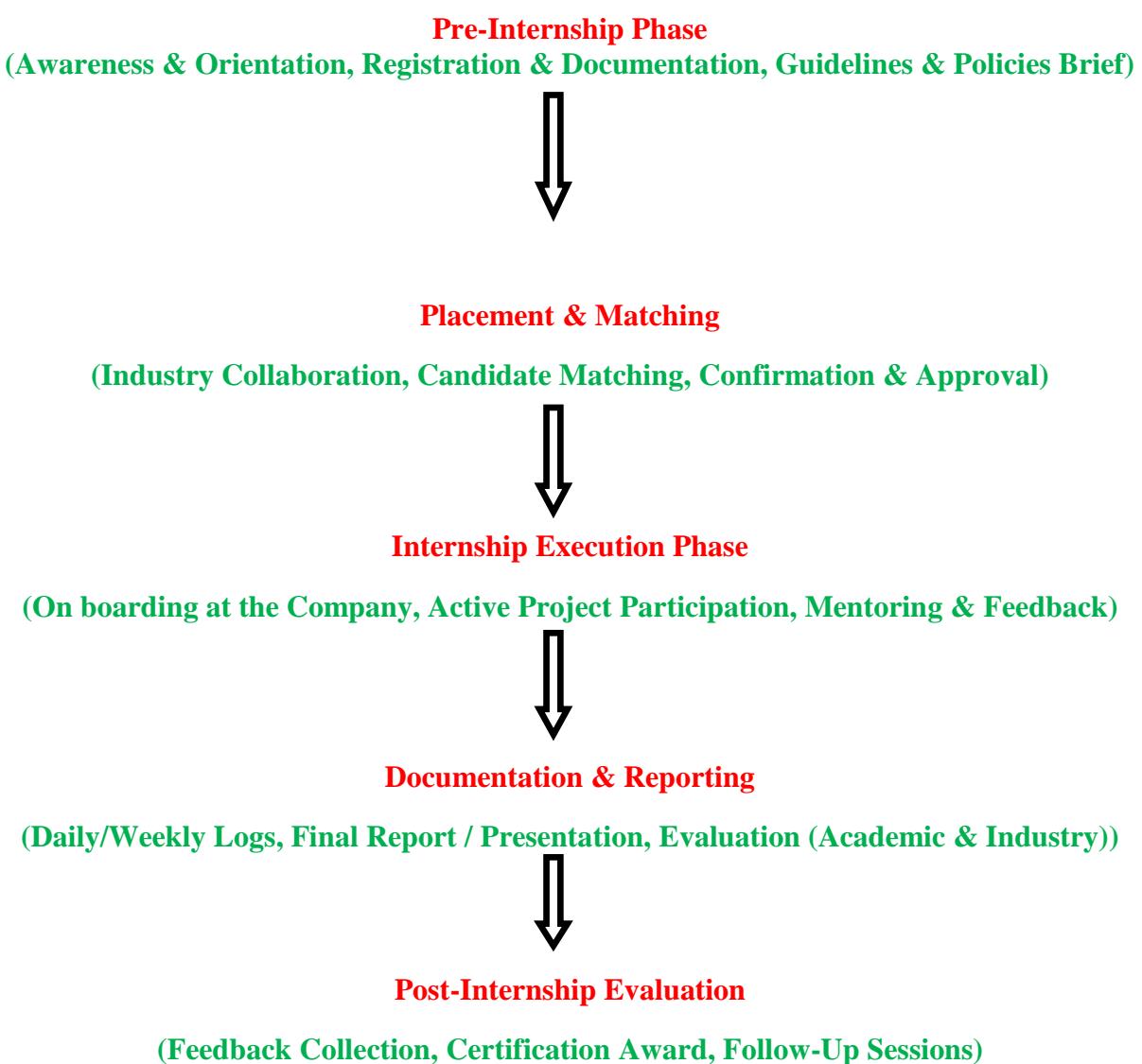
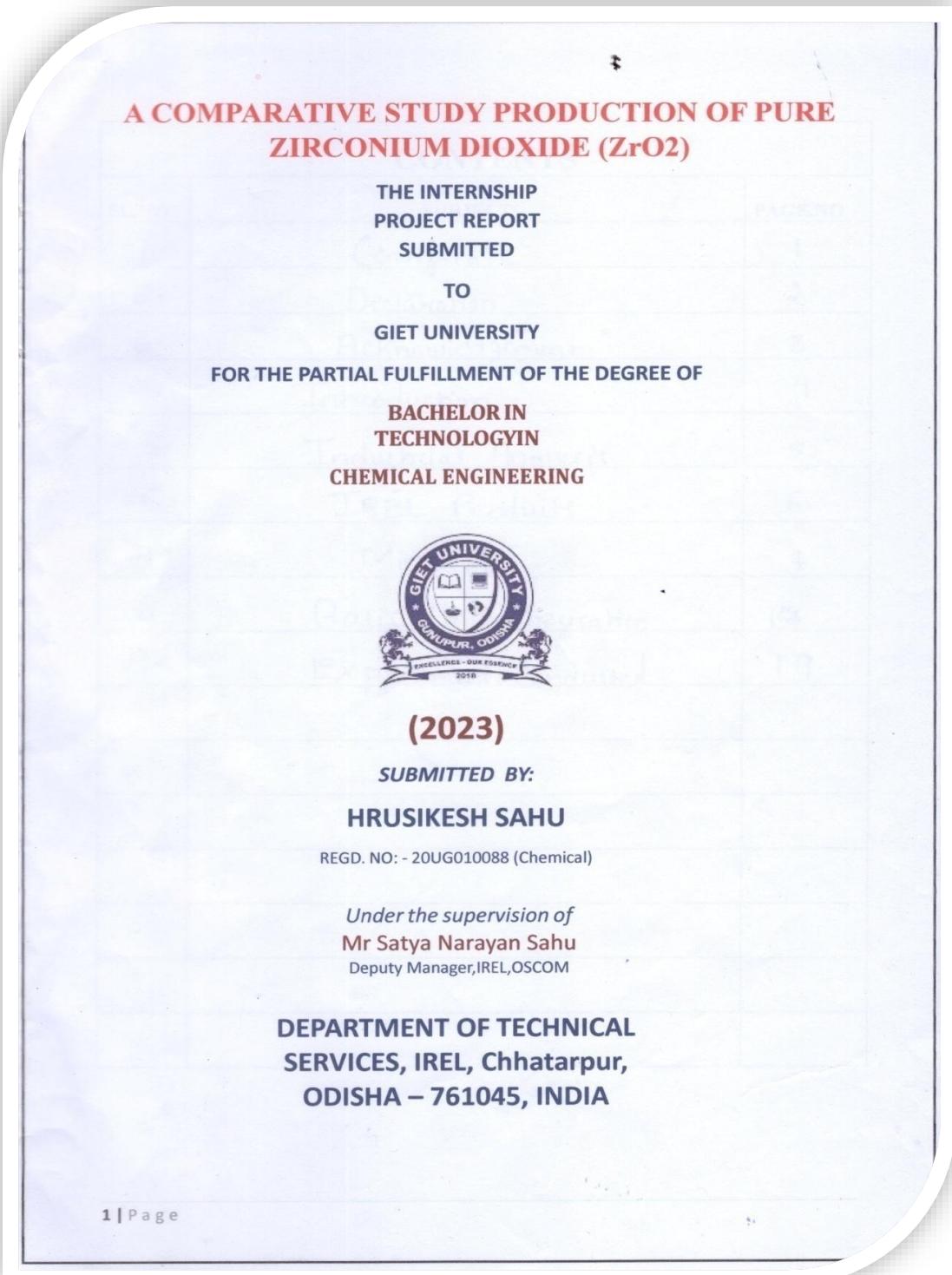


Fig. 2.3.1: Sample of Permission letter for Training



Fig. 2.3.2: Sample of Training certificate



**Fig. 2.3.3: Sample of Training report**

**Table No.2.3.2: Mapping of Industrial training/internships with POs and PSOs**

S.N	Roll No.	Name of the Student	Industry/Institute	Days	Mapped POs
1	21CHE001	Vedant Patra	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
2	21CHE002	Rohanjeet Thatoi	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
3	21CHE003	Ashrujit Swain	SAIL, Rourkela Steel Plant	30	PO2, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
4	21CHE004	Priyanshu Bharati	SAIL, Rourkela Steel Plant	30	PO1, PO2, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
5	21CHE005	Sajen Naik	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
6	21CHE007	Chinmaya R. Choudhury	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
7	21CHE008	Saroj K. Satapathy	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
8	21CHE010	Smruti R. Behera	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
9	21CHE011	Damberudhar Majhi	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
10	21CHE012	Amisha P. Rout	SAIL, Rourkela Steel Plant	30	PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
11	21CHE013	Shreya Das	SAIL, Rourkela Steel Plant	30	PO3, PO4, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
12	21CHE014	Sasala Uday Kiran	JK Paper Mills	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
13	21CHE015	Abhisek Nanda	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
14	21CHE016	Rahul Mohapatra	SAIL, Rourkela Steel Plant	30	PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
15	21CHE017	Mitali Tanty	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
16	21CHE018	Aman Kumar	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
17	21CHE019	Jyotirmayi Sadangi	IFFCO Paradeep Unit	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
18	21CHE020	Naidu Ankita	SAIL, Rourkela Steel Plant	30	PO3, PO4, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
19	22CHE001	Omkar Sahoo	Brand Steel & Power Pvt Ltd	30	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
20	22CHE002	Sangita Naik	Utkal Alumina, Tikiri	30	PO2, PO3, PO6, PO7, PO8, PO10, PSO1, PSO2
21	22CHE004	Suratha Naik	Utkal Alumina, Tikiri	30	PO2, PO3, PO6, PO7, PO8, PO10, PSO1, PSO2
22	22CHE005	Karunakar Nayak	Utkal Alumina, Tikiri	30	PO2, PO4, PO6, PO7, PO8, PO10, PSO1, PSO2
23	22CHE006	Nikhil C. Nayak	Nalco Aluminium Co. Ltd, Damanjodi	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
24	22CHE007	Gourango Naik	Utkal Alumina, Tikiri	30	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
25	22CHE008	Lipuni Kumari Nayak	Grasim Industries Ltd	30	PO1, PO2, PO3, PO5, PO6, PO9, PO10, PSO1, PSO2
26	22CHE009	Rakesh Swain	Brand Steel & Power Pvt Ltd	30	PO2, PO3, PO5, PO6, PO7,

					PO9, PO10, PSO1, PSO2, PSO1, PSO2
27	22CHE010	Swapnarani Patro	Grasim Industries Ltd	30	PO2, PO3, PO5, PO6, PO9, PO10, PSO1, PSO2
28	22CHE011	Susmita Dalai	Indian Oil Corporation Ltd	30	PO1, PO2, PO5, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
29	22CHE012	Prajnyaparmita Swain	Grasim Industries Ltd	30	PO1, PO2, PO3, PO5, PO6, PO9, PO10, PSO1, PSO2
30	22CHE013	Raja Lenka	Indian Oil Corporation Ltd	30	PO1, PO2, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
31	22CHE014	Silpa Samita Swain	Grasim Industries Ltd	30	PO2, PO3, PO5, PO6, PO9, PO10, PSO1, PSO2
32	22CHE015	Kandregula Sekhar	Grasim Industries Ltd	30	PO2, PO3, PO5, PO6, PO9, PO10, PSO1, PSO2
33	22CHE016	N Hari Ajay Prasanth	Indian Oil Corporation Ltd	30	PO1, PO2, PO5, PO6, PO7, PO8, PO10, PSO1, PSO2
34	22CHE017	Kosuru Raj Kumar	Utkal Alumina, Tikiri	30	PO2, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
35	22CHE018	Bisetty Lokesh	Brand Steel & Power Pvt Ltd	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10, PSO1, PSO2
36	22CHE019	Yellapantula P. Krishna	Brand Steel & Power Pvt Ltd	30	PO2, PO3, PO5, PO6, PO7, PO9, PO10
37	22CHE020	Gorli Siva	Utkal Alumina, Tikiri	30	PO2, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2
38	22CHE021	Susanta R. Choudhury	Utkal Alumina, Tikiri	30	PO2, PO6, PO7, PO8, PO9, PO10, PSO1, PSO2

## 2.4. Seminar and Mini Projects (10)

The Department selects a senior faculty member as a Seminar coordinator who along with other faculty would assess the Technical seminar presentations by students. He/She would ensure that the students choose advanced concepts in Chemical Engineering and allied research areas with a lot of relevance and applicability.

- One seminar per student would be conducted as per the schedule mentioned prior in Time Table and Department Calendar of events.
- Seminar coordinators follow rubrics, which is set by the department for evaluation of seminar
- Seminar coordinators will conduct one seminar per student. It will be evaluated by the seminar coordinator and marks will be submitted to the Department.

**Table No.2.4.1: Mapping of Seminar with POs and PSOs**

Academic Year	Roll No.	Student's Name	Topic of Seminar	POs/PSOs
2023-24	20CHE001	Jyoti Rekha Panda	Settling characteristics of iron ore slurry	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
	20CHE002	Dhananjay Barik	Hydrocracking for Diesel Production	PO1, PO4, PO6, PO7, PO8, PO10, PSO1
	20CHE003	Hrusikesh Sahoo	Aromatics Production from Naphtha	PO1, PO4, PO6, PO7, PO8, PO10, PSO1
	20CHE005	Akash Choubey	Solar Thermal Power Generation Systems	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE006	Giridhar Naik	Biogas Production from Organic Waste	PO1, PO2, PO4, PO5, PO7, PO10, PSO1, PSO2
	20CHE007	Aviskar Dash	Fire and Explosion Hazard Mitigation	PO1, PO2, PO3, PO4, PO6, PO7, PO10, PSO1
	20CHE008	Santosh Sundar Sahu	Autoclave reactor	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO10, PO11, PSO1
	20CHE009	Soumyakanta Das	Particle Size Distribution Control in Powder Processes	PO1, PO2, PO3, PO4, PO7, PO8, PO10, PSO1
	20CHE010	Sibananda Parichha	Heat Integration in Distillation Columns	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO10, PSO1, PSO2
	20CHE011	Sonamoni Kumari	Batch Process Optimization in Chemical Production	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO10, PO11, PSO1, PSO2
	20CHE012	Pradeep Kumar Hikaka	Soil Remediation Techniques	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO10, PSO1
	20CHE014	Pappu Kumar	Settling characteristics of iron ore slurry	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE015	Trayambak Rath	Bioreactor Design for Cell Culture	PO1, PO2, PO3, PO4,

	20CHE01 6	Soumitra Subudhi	Dynamic simulation and control of chemical reactors.	PO6, PO7, PO8, PO10, PSO1
	20CHE01 9	Rahul Kumar Tiwari	Design optimization of heat exchangers.	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PO11, PSO1
	20CHE02 0	Debidatta Samantaray	Development of sustainable packaging materials.	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO9, PO10, PSO1, PSO2
	20CHE02 1	Subham Subudhi	Production of biofuels from renewable resources.	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO10, PO11, PO12, PSO1
	20CHE02 2	Smruti Ranjan Barik	Rainwater harvesting for industrial use.	PO1, PO2, PO3, PO4, PO5, PO7, PO9, PO10, PO11, PO12, PSO1
	20CHE02 3	Ashutosh Patnaik	Nanotechnology applications in drug delivery.	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE02 4	Sumit Ku Barik	3D printing in pharmaceutical manufacturing.	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE02 5	Ashutosh Parimanik	Internet of Things (IoT) in smart chemical manufacturing.	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE02 6	T Kesaba Rao	Carbon Capture and Storage	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	20CHE02 7	Gaddam Venkatesh	Geothermal Energy Extraction Optimization	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE00 1	Ashwin Kumar Swain	Geothermal Energy Extraction Optimization	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE00 2	Anil Kumar Sahoo	Tidal Energy Harvesting Systems	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE00 3	Aditya Narayan Barik	Carbon Capture and Storage	PO1, PO2, PO3, PO4,

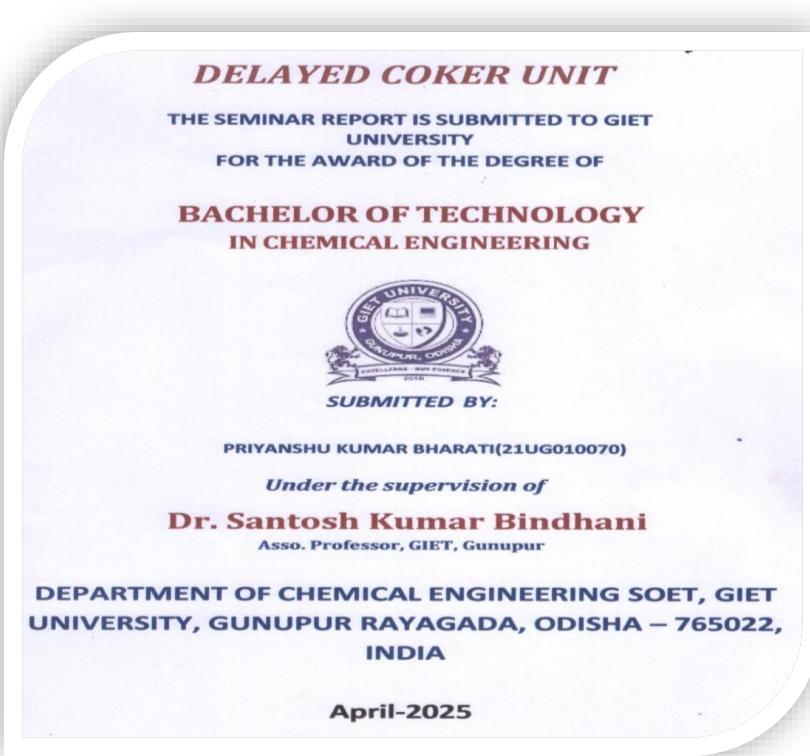
			PO5, PO7, PO10, PSO1
19CHE00 4	Rahul Bhoi	Nanomaterials in Drug Delivery	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE00 5	Madhusmita Swain	Biodegradable Plastics: Production and Applications	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE00 6	Ankesh Kumar Panda	Composite Materials for Structural Engineering	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE00 7	Prabin Prakash Nayak	Continuous Flow Reactor Design	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE00 8	Debajit Swain	Batch Process Optimization in Chemical Production	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO9, PO10, PO11, PSO1
19CHE00 9	Sambit Kumar Patnaik	Carbon Capture and Storage	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE01 0	Avisek Dash	Petroleum Fuel Testing	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE01 1	Bhabagраhi Sahoo	Waste Minimization in Chemical Plants	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO10, PSO1
19CHE01 2	Mahesh Ratna Choudhury	Air Quality Monitoring and Control	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE01 3	Sarthak Mishra	Greenhouse Gas Emission Reduction	PO1, PO2, PO3, PO4, PO6, PO7, PO10, PSO1, PSO2
19CHE01 4	Sagar Sutar	Fermentation Process Optimization	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
19CHE01 5	Satya Narayan Sabat	Fluidized Bed Reactor Design	PO1, PO2, PO3, PO4, PO7, PO8, PO10, PSO1, PSO2
19CHE01 6	Summit Sourav Dash	Crude Oil Refining: Process Optimization	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1

2021-22	19CHE01 7	Sambit Mohanty	Petrochemical Plant Safety Analysis	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE01 8	Abani Kumar Samal	Advanced Bioenergy Conversion Technologies	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE01 9	Anupam Biswas	Hazard Identification and Analysis in Chemical Plants	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE02 0	Aatharam Regmi Jaisi	Process Safety Management Systems	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE02 1	Sirivella Vijay Kumar	Hydropower Optimization Techniques	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE03 1	Sanaboyina Ravikanth	3D Printing in Pharmaceutical Manufacturing	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE03 2	Karpur Acharya	Sulphuric acid Production	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	19CHE03 3	Peruri Manohar	Design of Thickener	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
2021-22	18CHE01	Jay Prakash Samal	Solar insect robot	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE02	Kiran Kumar Acharya	solar power refrigerator	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE03	Ashish Kumar Giri	Bio-Oxidation-chemical Industry	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE04	Anubhav Kara	Extraction of Aluminium	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE05	Soumitra Kumar Sahoo	Recycling of Paper	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE06	Aakash Aditya	Solar Distillation	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE07	Shruti Smaranika	Polymer Processing	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1

18CHE08	Suvendu Sekhar Sasmal	Hydrolysis of Carbon Dioxide gas	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE09	Saurav Das	Environmental Impact of Geothermal Energy: Sustainable Energy Production	PO1, PO2, PO4, PO6, PO7, PO10, PSO1
18CHE10	Akash Kumar Naik	Water Content Measurement in Petroleum Fuels: Methods and Challenges	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1, PSO2
18CHE11	Simran Das	Nutrient Removal in Wastewater Treatment: Nitrogen and Phosphorus Removal Technologies	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1
18CHE12	Satya Prakash Choudhury	Advanced Membrane Separation in Biofuel Purification	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1
18CHE13	Biswajit Dash	Biogas Production	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE14	Anurodh Ku Chowdhury	Manufacturing of Soap	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE15	Somdev Barad	Manufacturing & Process of Paints	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE16	Partha Sarathi S. Pradhan	Coal bed Methane	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE17	Bhanu Ranjan	Solid waste management	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE18	Niranjan Murmu	Microbial enhanced oil recovery	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE19	Subhanarayan Swain	Settling Characteristics of Iron ore tailing	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE20	Ankit Mallick	Used of Plastic Waste in Road Construction	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE21	Amisha Sahu	Chloro alkali Production	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE22	Gyan Jeet Behera	Sulphuric acid Production	PO1, PO2, PO3, PO4, PO5, PO7,

			PO10, PSO1
18CHE23	Anikam Ashutosh	Petroleum Fuel Testing	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE24	Tejraj Sahu	Recycling of lubricant oil	PO1, PO2, PO4, PO6, PO7, PO10, PSO1
18CHE25	Satyajit Panda	Process Intensification for Sustainable Manufacturing	PO1, PO2, PO4, PO6, PO7, PO10, PSO1
18CHE26	Bankim Saha	Coal Carbonization	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE27	Mayank Jain	Solar reactor	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE28	Pavan Kumar Sahukar	Chemical Perspective on Vermi-Composting: Process Optimization and Environmental Benefits	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO10, PSO1, PSO2
18CHE29	Navneet Murmu	Design of Thickener	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1, PSO2
18CHE30	Anmol Kumar Abhay	PVC Cement Technology	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE31	Jagamohan Gouda	Soda ash production & its Packaging	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE32	Prajnananda Mishra	Manufacturing of Sulphuric Acid	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE33	Sasmita Madkami	Perfume Manufacturing from Essential Oil	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE34	Arya Kumar Jnanendra Pratihari	Manufacturing of Iodised salt	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
18CHE35	Aditya Narayan Sehti	Nano-Catalysts for Enhanced Reaction Efficiency in Chemical Processes	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1
18CHE36	Trilochana Sahu	Application of Solar Pumps in Chemical Process Industries for Sustainable Utility Operations	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PSO1

	18CHE37	Pabitra Kumar Das	Citric acid from Molasses	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE38	Pratapneni Bharat Kumar	Optimization of Froth Flotation Parameters for Enhanced Mineral Recovery	PO1, PO2, PO3, PO4, PO5, PO7, PO8, PO10, PSO1, PSO2
	18CHE39	Rupesh Kumar Sethi	Desalination of Industrial Wastewater by RO	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE40	Ujjwal Kumar	Composite Material	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1
	18CHE41	Visyaraju Sujan Raju	Process Intensification in Chemical Manufacturing	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1, PSO2
	18CHE42	Braja Kishore Behera	Membrane Technology for Gas Separation	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PSO1
	18CHE43	P. Khagaraju Reddy	Processing of Polymeric Material	PO1, PO2, PO3, PO4, PO5, PO7, PO10, PSO1

**Fig. 2.4.1: Sample of Seminar report**

**Table No.2.4.2: Mapping of the mini/micro project and their contribution with POs and PSOs**

Academic Year	Guide Name	Product based Project	POs/PSOs
2023-2024	Mr. Sitaram Rai	Preparation of Homemade Aloe Vera shampoo	PO1, PO2, PO6, PO7, PO10, PO11, PO12, PSO1
	Mrs. Adyasha Swain Mohapatra	Commercial production of liquid hand wash	PO1, PO2, PO6, PO7, PO10, PO8, PO11, PO12, PSO1
	Santanu Kumar Sahu	Preparation of green manure	PO1, PO2, PO6, PO7, PO10, PO11, PSO1
	P V S S Ramalingeswar	Preparation of plywood	PO1, PO2, PO6, PO7, PO8, PO10, PO11, PSO1
	Mrs. Pushpa Kumari	Production of neem phenyl	PO1, PO2, PO6, PO7, PO10, PO11, PSO1
2022-23	P V S S Ramalingeswar	Preparation of pigments	PO1, PO2, PO3, PO10, PO5, PO11, PSO1, PSO2
	Mr. Sitaram Rai	Making of a water filter	PO1, PO2, PO4, PO6, PO10, PO11, PSO1, PSO2
	Ms. Sonali Monalisha Mallick	Preparation of activated carbon	PO1, PO2, PO6, PO7, PO10, PO11, PO12, PSO1, PSO2
	Santanu Kumar Sahu	Green liquid mosquito repellent	PO1, PO2, PO6, PO7, PO10, PO11, PSO1
	Dr. Daisy Das	Preparation of orange jelly	PO1, PO2, PO6, PO7, PO8, PO10, PO11, PSO1
	Dr. Sibakrishna Pedina	Commercial production of tooth paste	PO1, PO2, PO6, PO10, PO11, PO12, PSO1
2021-22	Mrs. Pushpa Kumari	Manufacture of perfume	PO1, PO2, PO6, PO8, PO10, PO11, PSO1
	Dr. Pranita Dash	Acrylic paint manufacturing	PO1, PO2, PO6, PO10, PO11, PO12, PSO1
	Ms. Sonali Monalisha Mallick	Soap and detergent manufacturing	PO1, PO2, PO6, PO7, PO10, PO11, PSO1
	Dr. Sibakrishna Pedina	Manufacture of homemade biogas generator	PO1, PO2, PO5, PO7, PO10, PO11, PSO1, PSO2
	Dr. Daisy Das	Manufacture of floor cleaner	PO1, PO2, PO5, PO7, PO10, PO11,

	Dr. Uttam Kumar Sahu	Manufacture of mosquito repellent	PSO1 PO1, PO2, PO5, PO7, PO10, PO11, PSO1, PSO2
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**Fig. 2.4.2: Mini Project (Product Based)****Perfume Preparation****Colour Paint Preparation****Soap Preparation****Fruit JAM Preparation****Hand wash****Shampoo****Perfume****Colour Paint**

## 2.5. Case Studies and Real-Life Examples (10)

Case studies and real-life examples are powerful tools in education that help Students Bridge the gap between theory and practice. By analysing real-world scenarios, students develop critical thinking, problem-solving, and decision-making skills.

**Table No.2.5.1: Real-Life Examples in Teaching & their mapping**

Date	Resource Person/Organisation	Topic	Related POs	Related PSOs	Justification
16.02.2024	Mr. Parth Sarkar, Regional Head - TCS	Academic Interface Program	PO1, PO12	PSO1, PSO2	Enhances understanding of academic-industry connections and continuous learning.
03.02.2024	Mr. Radha Krishna Jha, Head HR, JK Paper – Rayagada	Core-Industry and Requirements	PO2, PO3, PO11	PSO1	Industry readiness and design thinking.

16.10.2023	Mr. Javed Khan, VP - HR of Cease Fire, Mumbai	Latest Requirements and FAQs among the Students	PO10, PO12	PSO3	Improves communication and addresses real-world queries.
12.10.2023	Lituja Mishra, Sr. Vice President HR	Best Practices for Learning and Innovations	PO4, PO9, PO12	PSO2, PSO3	Fosters innovative thinking, teamwork, and lifelong learning.
03.10.2023	Mr. Mahesh Kumar, Sr. Project Delivery Manager, Invenio LSI	Industry Requirement	PO1, PO2	PSO1	Provides domain-specific expectations.
04.09.2023	Comviva	Technical Requirements and Preparation Strategies	PO1, PO5, PO12	PSO1, PSO2	Focus on technical depth and tool usage.
31.05.2023	Tata Steel	Awareness Campaign about the AEP Program	PO6, PO11	PSO3	Awareness of professional and ethical responsibilities.
16.05.2023	Highradius Delegates	Student's Interaction Program	PO9, PO10	PSO3	Emphasizes soft skills and collaborative learning.
11.05.2023	Mr. Vijayan Raj Kumar, Director HR – Prodapt	Communication and Learning the New Technologies	PO5, PO10, PO12	PSO2, PSO3	Develops tech adaptation and communication ability.
03.05.2023	Mr. Debashish Ghosh, Sr. VP, Berkadia Services India Pvt. Ltd., Hyderabad	Construction Industry and Student Learnings	PO2, PO3, PO6	PSO1	Practical exposure to real industry settings.
29.04.2023	Mr. Debankur Gosh and Mr. Indrojeet Bhattacharya	Latest Innovations and Student Involvements to Excel Their Career	PO4, PO12	PSO2	Encourages innovative thinking and ongoing development.
27.04.2023	Bharat Block chain Network (BBN)	New Technologies, Untangle Complex Issues	PO5, PO6, PO12	PSO1, PSO2	Promotes understanding of emerging tech and sustainable solutions.
19.04.2023	Wipro Talent Next Web	Future Skill Program of Java	PO1, PO5	PSO1	Skill enhancement in a technical domain.
25.02.2023	Mr. Satyendra Srivastava, Head - HR, M/s PERI India	Technical Knowhow and Human Qualities	PO8, PO9	PSO3	Focus on ethics, emotional intelligence, and soft skills.
26.02.2023	Mr. Tridip Sarma, AVP - HR, M/s Patel Engineering	Emotional and Spiritual Quotient Along with Technological Innovations	PO8, PO12	PSO3	Balances technical and personal development.
27.02.2023	Dr. Jyotirmoy Banerjee, VP - Human Resources	Transforming Young Talents to	PO1, PO11, PO12	PSO1, PSO3	Aids in career preparation and

		Expertise Level			domain expertise.
27.02.2023	Dr. Sarbesh Mishra, Dean - NICMAR University	Job Search in Core Sector Engineering Fields	PO11, PO12	PSO1, PSO3	Offers strategies for core sector placement and growth.

**Table No.2.5.2: Case Studies during Teaching of Core subject & their mapping**

Sl. No.	Core Subject Area	Semester	Case Study	Event/Innovation	Key Takeaways	Mapped PO's/PSO
1	Heat Transfer	3 <sup>rd</sup>	Fukushima Daiichi Disaster (2011) – Japan	Nuclear reactor failure post-tsunami	Emergency cooling, heat transfer, disaster management	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO3
2	LNG (Liquefied Natural Gas) Processing and Transport	4 <sup>th</sup>	Use of VLE data for efficient separation in distillation columns	Phase Equilibria, separation design, Raoult's law, relative volatility	Thermodynamics & Phase Equilibria	PO1, PO2, PO3, PO5, PO6, PO8, PO10, PSO1, PSO2
3	Vapour-Liquid Equilibrium in Distillation Design	4 <sup>th</sup>	Use of VLE data for efficient separation in distillation columns	Phase Equilibria, separation design, Raoult's law, relative volatility	Thermodynamics & Phase Equilibria	PO1, PO2, PO3, PO5, PO9, PO10, PSO1, PSO2
4	Reaction Engineering	5 <sup>th</sup>	Haber-Bosch Process	Industrial ammonia synthesis	Reaction engineering, catalyst development, thermodynamics	PO1, PO2, PO3, PO4, PO8, PO10, PSO2
5	Process Utility and Industrial Safety	5 <sup>th</sup>	Deepwater Horizon Spill (2010) – BP	Offshore oil rig blowout	Real-time monitoring, risk management, systems engineering	PO1, PO2, PO5, PO6, PO7, PSO1, PSO3
6	Chemical Process	5 <sup>th</sup>	Teflon Discovery (1938) – DuPont	PTFE polymer discovery and	Polymer processing,	PO1, PO3, PO4, PSO2

	Technology			commercialization	materials innovation, industrial scaling	
7	Process Control	5 <sup>th</sup>	Three Mile Island Nuclear Incident (1979) – USA	Reactor meltdown due to coolant loss	Human factors, process control, emergency design	PO1, PO2, PO4, PO8
8	Chemical Process Technology	5 <sup>th</sup>	LEGO Group's Bioplastic Innovation	Development of plant-based bricks	Green materials, renewable feedstock, lifecycle analysis	PO1, PO6, PO7
9	Chemical Process Technology	5 <sup>th</sup>	Solvay Process	Industrial sodium carbonate production	Process integration, ammonia recovery, sustainability in classic processes	PO1, PO3, PO4
10	Process Utility and Industrial Safety	5 <sup>th</sup>	Bhopal Gas Tragedy (1984) – Union Carbide, India	MIC gas leak causing mass casualties	Process safety, HAZOP, ethical responsibility, emergency planning	PO1, PO2, PO6, PO7, PO8 ,PSO1, PSO3
11	Process Control	5 <sup>th</sup>	Texas City Refinery Explosion (2005) – BP	Explosion due to operational failures	Alarm management, flare system design, process control	PO1, PO2, PO5, PO6, PO8 ,PSO1, PSO3
12	Fuel and Energy Technology	6 <sup>th</sup>	Algae-Based Biodiesel Pilot Projects	Renewable energy from microalgae	Bio processing, sustainability, lipid extraction	PO1, PO3, PO7, PO10, PSO1, PSO2
13	Fuel and Energy Technology	6 <sup>th</sup>	Plastic Waste to Fuel Initiatives	Chemical recycling of polymers	Pyrolysis, circular economy, waste-to-energy tech	PO1, PO3, PO7, PO8, PO9, PO11, PSO1, PSO2
14	Transport Phenomenon	6 <sup>th</sup>	Chernobyl Disaster (1986) – USSR	Catastrophic nuclear reactor explosion	Safety culture, reactor design flaws, long-term impacts	PO1, PO2, PO6, PO8, PSO1, PSO2

15	Process Design	6 <sup>th</sup>	Tesla Giga factory	Mass production of lithium-ion batteries	Process optimization, sustainability, material handling	PO1, PO3, PO5, PO7, PSO1, PSO2
16	Process Design	6 <sup>th</sup>	Flixborough Explosion (1974) – UK	Cyclohexane vapor explosion	Piping design error, risk assessment, safety valves	PO1, PO2, PO5, PO6, PO8, PSO1, PSO3
17	Environmental Engineering	7 <sup>th</sup>	Carbon Capture at Boundary Dam – Canada	First commercial carbon capture plant	Absorption systems, retrofitting, climate engineering	PO1, PO3, PO6, PO7, PO8, PSO1, PSO3
18	Environmental & Green Chemistry	7 <sup>th</sup>	Montreal Protocol Implementation	Phase-out of ozone-depleting chemicals	Green chemistry, solvent replacement, refrigerant design	PO1, PO6, PO7, PSO1, PSO2
19	Separation Processes & Water Treatment	7 <sup>th</sup>	Reverse Osmosis Desalination Plants – Saudi Arabia & Israel	Freshwater from seawater	Membrane technology, energy recovery, water reuse	PO1, PO2, PO3, PO5, PO7, PSO1, PSO2
20	Environmental Engineering	7 <sup>th</sup>	Exxon Valdez Oil Spill (1989)	Oil tanker spill in Alaska	Environmental clean-up, containment, chemical dispersants	PO1, PO3, PO4, PO6, PO7, PSO1, PSO2, PSO3
21	Biochemical Engineering	8 <sup>th</sup>	Genentech Biologics Production	Scale-up of monoclonal antibody manufacturing	Bioreactor design, purification, GMP compliance	PO1, PO3, PO4, PO5, PSO1, PSO2
22	Biochemical Engineering	8 <sup>th</sup>	Bio ethanol Production in Brazil	Sugarcane to ethanol at industrial scale	Fermentation, distillation, renewable fuels	PO1, PO3, PO6, PO8, PO9, PSO1, PSO2

## 2.6. SWAYAM/NPTEL/MOOC/Self Learning (10)

**Table No.2.6.1: Number of students obtained MOOCs certification mapping with POs and PSOs**

Academic Year	Platform	Course Title	Number of Students Certified	Mapped POs	Mapped PSOs
2023-2024	NPTEL	Aspen plus simulation Software - A Basic course for Beginners	12	PO1, PO3, PO5, PO6, PO7, PO10	PSO1, PSO2
		Waste to Energy Conversion	10	PO1, PO2, PO7, PO8, PO12	PSO1
		Basic Environmental Engineering & pollution abatement	10	PO1, PO2, PO7, PO8, PO12	PSO1
		Electronic waste management- issues & challenges	5	PO1, PO2, PO7, PO10, PO8, PO12	PSO1
		Integrated waste management for a smart city	5	PO1, PO2, PO7, PO8, PO12	PSO1
2022-2023	NPTEL	Chemical Process Safety	25	PO1, PO2, PO4, PO5	PSO1, PSO2
		Integrated waste management for a smart city	20	PO6, PO7, PO8, PO10, PO12	PSO1
		Matlab- based Programming lab in chemical engineering	5	PO1, PO3, PO5, PO6, PO7	PSO1, PSO2
2021-2022	NPTEL	Technologies for clean & Renewable Energy Production	30	PO1, PO2, PO4, PO6, PO7, PO8, PO10, PO11	PSO1, PSO2
		Natural Gas Engineering	20	PO1, PO4, PO5, PO7, PO10	PSO1, PSO2

## 2.7. Solving Complex Engineering Problems Incorporating Sustainability Goals (20)

Sustainability has become a core focus in chemical engineering, with innovative approaches being implemented to reduce environmental impact, improve resource efficiency, and promote circular economy principles. Several green engineering practices have been successfully integrated into chemical industries to achieve these goals.

Overall, these sustainable engineering solutions are transforming chemical manufacturing, ensuring that industries meet environmental regulations, reduce carbon footprints, and contribute to a more sustainable future.

**Table No.2.7.1: List of complex engineering problems from different courses/activities/mini projects, etc. along with the targeted SDGs.**

S. No.	Course / Activity / Mini Project	Complex Engineering Problem	Targeted SDGs
1	Heat Transfer	Design and Optimization of Shell & Tube Heat Exchanger for Energy Efficiency	SDG 7: Affordable and Clean Energy (energy efficiency and reduced fuel consumption) SDG 9: Industry, Innovation, and Infrastructure (innovative heat exchanger designs) SDG 12: Responsible Consumption and Production (minimizing waste and optimizing resource usage)
2	Fuel & Energy Technology	Design of a Biomass Gasifier for Rural Energy Supply	SDG 7: Affordable and Clean Energy SDG 13: Climate Action SDG 9: Industry, Innovation and Infrastructure
3	Process Equipment Design	Design and Scale-Up of a Multi-Effect Evaporator for Wastewater Minimization	SDG 6: Clean Water and Sanitation SDG 7: Affordable and Clean Energy SDG 9: Industry, Innovation, and Infrastructure SDG 12: Responsible Consumption and Production
4	Chemical Engineering Thermodynamics	Design a distillation column to separate ethanol from water with a focus on energy consumption reduction and environmental impact.	SDG 7: Affordable and Clean Energy SDG 12: Responsible Consumption and Production SDG 13: Climate Action
5	Mass Transfer Operations	Design and Optimization of a Solvent Extraction System for separating valuable compounds from wastewater or process streams	SDG 6: Clean Water and Sanitation SDG 9: Industry, Innovation and Infrastructure SDG 12: Responsible Consumption and Production SDG 13: Climate Action (if using green solvents/low-energy processes)
6	Mini Project	Develop and analyze a fluidized bed column for the removal of pollutants (e.g., heavy metals or dyes) from industrial wastewater.	SDG 6: Clean Water and Sanitation SDG 9: Industry, Innovation and Infrastructure SDG 12: Responsible Consumption and Production SDG 13: Climate Action (if integrated with energy-efficient design)
7	Fluid Mechanics Lab	Modelling and optimization of Reynold's Apparatus to Analyze fluid flow characteristics (laminar, transition, turbulent) for different fluids and correlate it with industrial flow behavior.	SDG 9: Industry, Innovation and Infrastructure SDG 6: Clean Water and Sanitation (for efficient fluid transport systems) SDG 12: Responsible Consumption and Production

			(energy-efficient flow design)
8	Integrated Solid Waste Management	Composting and Organic Waste Management	SDG 15: Life on Land SDG 12: Responsible Consumption and Production SDG 13: Climate Action
9	Entrepreneurship Development Activity	Development of a portable water purification device using activated carbon	SDG 6 (Clean Water and Sanitation) SDG 8 (Decent Work and Economic Growth)
10	Final Year Major Project	Enhancement of Distillation Efficiency using Pressure Swing Rotating Bubble Cap	SDG 9: Industry, Innovation, and Infrastructure (advanced distillation technologies) SDG 7: Affordable and Clean Energy (energy savings in separation processes) SDG 12: Responsible Consumption and Production (enhanced energy efficiency and reduced waste)

## 2.8. Steps Taken for Enhancing Industry Institute Partnerships (15)

Department has signed MOUs with different industries/ Organization for the benefit of students and faculty members. Besides that, other activities like

1. Industry Personnel are included as Members of BOS who get involved in Curriculum Development.
2. Industry personnel also provide technical assistance for collaborative projects.
3. Students are sent for Industrial Visits once in a semester.
4. Industrial personnel are regularly invited to deliver expert talks.
5. R&D/Consultancy Assignments from Industries are taken up.
6. Sending students for Industrial Internships.

**Table No.2.8.1: List of Industry Persons as Members of BOS involved in Curriculum Development and expert talks**

Sl. No.	Name of the Expert	Name of the Organization
1	Mayank Jindal	CGM(Manufacturing), JK Paper Mills
2	Mr. Anil Kumar Mishra	Deputy Manager- Poly Propylene Unit, Brahmaputra Cracker and Polymer Limited, Dibrugarh, Assam.
3	Mr. Pawan Tiwary	Operation Officer, HPCL, Patna LPG Unit
4	Mr. Santunu Kumar Pathy	Manager, Utkal Alumina International Ltd., Tikiri
5	Dr. Subas Kumar Mohanty	Q.C Manager, Dr. Reddys Lab, Hyderabad

### Industry personnel provide technical assistance for training programmes

- ✓ All trainings are typically done during the summer internship period.
- ✓ These internships are aligned with the curriculum and industrial training requirements of the Chemical Engineering program.
- ✓ Students gain hands-on experience, exposure to plant operations and real-world understanding of chemical process industries.

**Table No.2.8.2: Industry-Offered Courses/Training for Chemical Engineering Students**

S.N.	Industry/Institute	Type of Training/Course	Duration	No. of Students Trained
1	JK Paper Mills	Industrial Internship	30 Days	25
2	SAIL, Rourkela Steel Plant	Process & Plant Operation Internship	30 Days	15
3	IFFCO, Paradeep Unit	Fertilizer Plant Training	30 Days	15
4	Brand Steel & Power Pvt. Ltd	Steel Plant Training	30 Days	5
5	Utkal Alumina, Tikiri	Alumina Refinery Internship	30 Days	20
6	Nalco Aluminium Company Ltd, Damanjodi	Metallurgical Process Internship	30 Days	10
7	Grasim Industries Ltd	Chemical Manufacturing Training	30 Days	15
8	Indian Oil Corporation Ltd, Paradeep	Petroleum Refinery Training	30 Days	10
9	PPL, Paradeep Unit	Industrial Training in Fertilizer Manufacturing	30 Days	10

**Table No.2.8.3: Student Industrial Visits**

S.No	Date	Name of the Industry	Faculty representative
1	15 <sup>th</sup> Feb, 2024	IMFA, Therubali	Dr. Sibakrishna Pedina Mrs. Adyasha Swain Mohapatra
2	10 <sup>th</sup> Oct., 2023	JK Paper Pvt. Ltd., Rayagada	Dr. Uttam Kumar Sahu Mrs. Pushpa Kumari
3	2 <sup>nd</sup> March, 2023	Utkal Alumina International Ltd., Tikiri	Dr. Kelothu Suresh Dr. Daisy Das
4	11 <sup>th</sup> Oct, 2022	Hygro chemicals, Vishakhapatnam	Mr. P V S S Ramalingeswar Ms. Sonali Monalisha Mallick
5	15 <sup>th</sup> Feb., 2022	Vishnu Chemical, Vishakhapatnam	Dr. Kelothu Suresh Dr. Pranita Dash
6	16 <sup>th</sup> Nov 2021	Hinduja National Power Corporation (HNPCL), Vishakhapatnam	Dr. Deepak Kumar Samal Dr. Suman Mishra

**Fig. 2.8.1: Industrial Tour**

**Hygro chemicals,  
Vishakhapatnam**



**(HNPL), Vishakhapatnam**



**Vishnu Chemical,  
Vishakhapatnam**



**JK Paper Pvt. Ltd., Rayagada**



**IMFA, Therubali**



**Oxypro Chemical, Gunupur**

## Criterion 3: Outcome-Based Assessment (120)

### 3.1. Evaluation of Continuous Assessment: Assignments, Unit Tests, Mid-Term, etc. (10)

One departmental Question Paper Committee is formed. The members of the committee include the HOD, senior faculty, course coordinator and exam in charge. The committee gives approval for the questions prepared for assignment, class test and cycle test. The following format is used.

#### I. Assignments:

- The course co-ordinator is advised to prepare 4 assignments for the respective subject. Assignment questions are prepared by following Bloom's taxonomy with COs.
- Each assignment carries maximum of 25 marks. The date of dispose of Assignment and date of submission of that assignment is announced by the respective course co-ordinator in the class itself.
- The results from assignments should be integrated with the final exam to give a holistic view of the student's performance and understanding throughout the course.
- Assignments can count for **25%** of the internal assessment.

#### II. Class Test:

- The department conducts two class tests 4<sup>th</sup> and 8<sup>th</sup> week respectively.
- Each class test examination covers one fourth of the syllabus.
- The class test is conducted for a maximum of 20 marks.
- The duration of the mid-semester examination is one hour and question paper are set to make the student to learn time management.
- Class test can count for **25%** of the internal assessment.

#### III. Cycle test:

- The duration of the test is one hour fifteen minute.
- Each cycle test examination covers one half of the syllabus.
- Question papers are set as per the University exam pattern so that the student can learn how to manage his time during University examination.
- Cycle test can count for **50%** of the internal assessment.

### Question Papers Preparation:

A Question bank is prepared for each subject by the concerned faculty before the commencement of classes of the semester. While setting the question paper all previous university exam papers are taken into consideration. The mid-sem questions are prepared by taking into account of all chapters of the subjects taught during that period.

The question paper is prepared by following the standards prescribed by Bloom's taxonomy such as analysis of problems, implementation of modern tools, formulation of problems etc.

The questions will be of three categories:

One third of the questions can be answered by average standard students.

- ✓ Another one third of the questions need analysis.
- ✓ Remaining one third of the questions are of high standard and can be answered by bright student only.
- ✓ Each question of a question paper is mapped with CO and PO of the concerned subject.

**Fig. 3.1.1: Instructions and guidelines for Internal Question Paper setting**

  
**GANDHI INSTITUTE OF ENGINEERING AND  
TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR  
(GIET UNIVERSITY)**  
 (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi,  
and Approved by AICTE, ICAR, INC, DSIR, New Delhi)  
**Gunupur - 765022, Dist.- Rayagada, Odisha, India**  
[www.giet.edu](http://www.giet.edu)

**INSTRUCTIONS AND GUIDELINES TO QUESTION PAPER SETTERS OF B.TECH PROGRAMME  
(CYCLE TEST)**

The question paper setters are requested to comply with the following instructions and guidelines while setting the question paper:

1. Confidentiality must be strictly maintained.
2. CO-PO must be mentioned for every question.
3. Prepare the question papers from the prescribed syllabus. The questions in the papers shall be fairly distributed over the whole syllabus and not concentrated on any one or few portions only. Strictly adhere to the model paper enclosed.
4. Avoid ambiguity, repetition of questions, or replication from the model question paper.
5. Strictly adhere to the question paper template while preparing the question paper. Clearly indicate the allotment of marks to each part of the questions.
6. Follow Bloom's Taxonomy action verbs while setting the questions. Weightage for each cognitive domain should be:
  - o Remembering – 30%
  - o Understanding – 30%
  - o Application and Analysis – 30%
  - o Creativity – 10%
7. Prepare the questions in such a way that students can answer the paper within 3 hours. Questions should be of varying difficulty levels:
  - o Easy Questions – 25%
  - o Average Questions – 50%
  - o Difficult Questions – 25%
8. **Question paper Pattern: (Full Marks:30)**  
 PART-A: 5 short answers questions each carrying 2 marks.  
 PART-B: Answer any 2 questions each carrying 10 marks
9. Include diagrams, drawings, or circuit diagrams wherever necessary, and ensure they are properly labelled with clear dimensions.
10. The paper should be typed as per the given format:
  - o Paper size: A4
  - o Font style: Times New Roman
  - o Font size: 12
  - o Line spacing: 1.5
  - o Header portion: Font size 14, bold, and capital letters
  - o Page margins: Left 1.5", Right 1", Top 1", Bottom 1"
11. Avoid abbreviations of all kinds.
12. Prepared the question papers should be sent to: [seequestionpapers@giet.edu](mailto:seequestionpapers@giet.edu).  
 For any clarification, contact the Asst. Controller of Examinations at Mobile: 7205608884,  
 Email: [acoet1@giet.edu](mailto:acoet1@giet.edu)

### III. Evaluation scheme:

After internal assessment test the concerned faculty discusses the answer of the questions in the class so that a student can evaluate himself regarding his performance. Internal assessment is conducted per semester considering the assignment, class test and cycle test marks as per the guidelines of the University. The average marks obtained in a subject by a student is considered for the sending of internal assessment marks to the University. If a candidate remains absent in the tests, a complementary test is conducted at the department to evaluate his performance and the marks obtained in the test are considered are sent to the University.

**Table No.3.1.1: Comparison of Continuous Internal Evaluation under R-19 and R-23**

Regulation-19 (R-19)				Regulation-23 (R-23)			
Evaluation type	Evaluation Tool	Max. Marks	Weightage	Evaluation type	Evaluation Tool	Max. Marks	Weightage
Continuous Internal Evaluation (CIE)	Assignments	20	30%	Continuous Internal Evaluation (CIE)	Assignments	20	40%
	Class Test 1	20			Class test 1	20	
	Class Test 2	20			Class test 2	20	
	Cycle Test 1	30			Cycle test 1	30	
	Cycle Test 2	30			Cycle test 2	30	

**Fig. 3.1.2: Sample Question of Cycle test**

**GIET UNIVERSITY, GUNUPUR - 765022**  
 Cycle Test - I  
 (B. Tech - 6<sup>th</sup> Semester)

Sub. Code: BPCCHE6020 Sub. Name: Process Control  
 (Chemical Engineering) Maximum: 30 Marks

Time: 1hr 15 min

**Answer ALL Questions**  
 The figures in the right-hand margin indicate marks.

**PART - A: (Short Answer Questions) (2 x 5 = 10 Marks)**

Q1. Answer **ALL** questions [CO#] Blooms level

- Define Transportation lag with a suitable example from process control. CO1 2
- List and define different types of forcing functions used in process control. CO1 5
- Explain the concept of a forcing function. Why is it important in process control systems. CO1 5
- Calculate or derive the amplitude ratio for both first-order and second-order control systems given a sinusoidal input. CO2 1
- Analyse the relationship between overshoot and decay ratio in a second-order control system. What does it tell about system behaviour? CO2 4

**PART - B: (Long Answer Questions) (10 x 2 = 20 Marks)**

**Answer ALL questions** Marks [CO#] Blooms level

- A thermometer having first order dynamics is placed in a temperature bath of 45°C & after reaching at steady state, the temperature of the bath is varied in sinusoidal manner about its steady state value of 45°C with amplitude of 15°C. If the period of oscillation is 30sec/cycle & the time constant of it is 10sec. Sketch the response of the thermometer. Determine the maximum & minimum temperature of the thermometer & the phase lag of the system and amplitude ratio. OR 10 CO1 2
- Derive transfer function of U-tube manometer. 5 CO1 3
- Derive the transfer function of Mercury thermometer 5 CO1 3
- The transfer function of second order system is given as:  $G(s) = \frac{10}{1.5s^2 + 2.5s + 6}$ . A step change of magnitude 6 is given in the input variable of the system. Determine overshoot, rise time, period of oscillation, natural period of oscillation, ultimate value of response & maximum value of response. 10 CO2 2

--- End of Paper ---

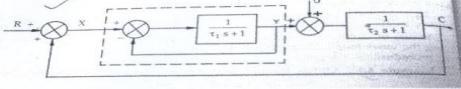
Fig. 3.1.3: Sample Question of Class Test

**GIET UNIVERSITY, GUNUPUR – 765022**  
 Class Test – I  
 (B. Tech –6<sup>th</sup> Semester)  
 Sub. Code: BPCC16040 Sub. Name: Process Control  
 (Chemical Engineering)

Time: 60 min Maximum: 20 Marks  
 Answer any four from the following:- (5\*4=20)  
 Answer any four from the following:- (5\*4=20)

**CO BLOOMS LEVEL**

1. Design the transfer function of U-tube manometer. 1 K1  
 2. Design the transfer function of Mercury thermometer. 1 K1  
 3. A thermometer having first order dynamics is placed in a temperature bath of 45°C & after reaching at steady state, the temperature of the bath is varied in sinusoidal manners about its average temperature of 45°C with amplitude of 15°C. If the period of oscillation is 30sec/cycle & the time constant of it is 10sec. Sketch the response of the thermometer. Determine the maximum & minimum temperature of the thermometer & the phase lag of the system and amplitude ratio 2 K3  
 4. Determine the overall transfer function C/R and also C/U for the given block diagram



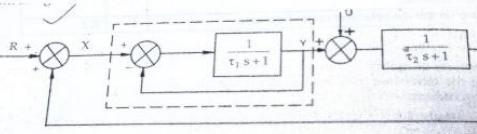
5. State the relationship is between overshoot and decay ratio? 1 K3  
 Define Forcing Function. What are different types of forcing function generally used in process control

\*\*\*END OF PAPER\*\*\*

Fig. 3.1.4: Sample copy of Assignment

**BTECH -CHEMICAL ENGINEERING  
 ASSIGNMENT -PROCESS CONTROL**

	Answer the following questions.	CO	BLOOMS LEVEL
<b>UNIT-1</b>			
1a.	The transfer function of second order system is given as: $G(s) = \frac{Y(s)}{X(s)} = \frac{16}{1.55^2 + 2.45s + 6}$ A step change of magnitude 6 is given in the input variable of the system. Determine overshoot, rise time, period of oscillation, natural period of oscillation, ultimate value of response & maximum value of response.	2	K2
b.	Derive transfer function of U-tube manometer.	1	K1
2.	A thermometer having first order dynamics is placed in a temperature bath of 45°C & after reaching at steady state, the temperature of the bath is varied in sinusoidal manners about its average temperature of 45°C with amplitude of 15°C. If the period of oscillation is 30sec/cycle & the time constant of it is 10sec. Sketch the response of the thermometer. Determine the maximum & minimum temperature of the thermometer & the phase lag of the system and amplitude ratio.	2	K2
3	Derive the transfer function of Mercury thermometer	1	K1
4	In a process consist of non- interacting two tank multicapacity control system in series. The inflow 'q' would be considered as the variable to be controlled. Inflows $q_1$ & $q_2$ considered as load variables. Downstream head at the lower tank is considered constant, 'h' is the head in the upper tank & ' $q_1$ ' & ' $q_2$ ' are the outflows at the upper & the lower tanks respectively. Assume the flow resistance to be linear. Determine the operational equation for the overall system relating $q$ , $q_1$ , $q_2$ & $q_o$ with the time constant $\tau_1$ & $\tau_2$ of the respective tank. Assuming that the inflows $q_1$ & $q_2$ are turned off and allowing a unit step change in the flow rate $q$ . Determine the process response equation.	3	K3
5	The open loop transfer function is given as $G(s) = \frac{K}{s(s+1)(s+2)}$ . Sketch the root locus diagram of the system by indicating the open loop poles, zeroes, breakaway point, asymptotic line, the direction with which the root locus travels. Also determine the value of K for which the system becomes unstable.	2	K2
6	Analyse the effects of different modes of controller with a graphical representation.	4	K4
7	Determine the overall transfer function C/R and also C/U for the given block diagram.	4	K3



**Fig. 3.1.5: Sample copy of Continuous Internal Evaluation**

**Fig. 3.1.5: Sample copy of Cycle test mark for Analysis**

### 3.2. Evaluation of the Semester End Exam (SEE) Question Paper (10)

One University Question Paper Committee is formed. The members of the committee include the COE, HOD, senior faculty, course coordinator, subject expert of BOS, subject faculty and exam in charges. The committee gives approval for the questions prepared for Semester End Exam. The following format is used.

- Two set of question paper is collected for external question setter and one set is prepared by internal question setter.
- Question papers must be meticulously aligned with the syllabus, ensuring coverage of all key topics and learning outcomes.
- The questions will be of three categories:
  - ✓ One third of the questions can be answered by average standard students.
  - ✓ Another one third of the questions need analysis.
  - ✓ Remaining one third of the questions are of high standard and can be answered by bright student only.
  - ✓ Each question of a question paper is mapped with CO and PO of the concerned subject.
  - ✓ Bloom's Taxonomy is followed during preparation of Question.

**Table No.3.2.1: Comparison of Semester End Examination Evaluation under R-19 and R-23**

Regulation-19 (R-19)				Regulation-23 (R-23)			
Evaluation type	Evaluation Tool	Max. Marks	Weightage	Evaluation type	Evaluation Tool	Max. Marks	Weightage
Semester End Examination	End Sem Exam	100	<b>70%</b>	Semester End Examination	End Sem Exam	100	<b>60%</b>

**Fig. 3.2.1: Instructions and guidelines for Semester End Examination Question Paper setting**



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 (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSIR, New Delhi)  
**Gunupur - 765022, Dist.- Rayagada, Odisha, India**  
[www.giet.edu](http://www.giet.edu)

**INSTRUCTIONS AND GUIDELINES TO QUESTION PAPER SETTERS OF B.TECH PROGRAMME**

The question paper setters are requested to comply with the following instructions and guidelines while setting the question paper:

1. Confidentiality must be strictly maintained.
2. Prepare two different sets of question papers from the prescribed syllabus. The questions in the papers shall be fairly distributed over the whole syllabus and not concentrated on any one or few portions only. Strictly adhere to the model paper enclosed.
3. Avoid ambiguity, repetition of questions, or replication from the model question paper.
4. Strictly adhere to the question paper template while preparing the question paper. Clearly indicate the allotment of marks to each part of the questions.
5. Follow Bloom's Taxonomy action verbs while setting the questions. Weightage for each cognitive domain should be:  
 Remembering – 30%, Understanding – 30%, Application and Analysis – 30% Creativity – 10%
6. Prepare the questions in such a way that students can answer the paper within 3 hours. Questions should be of varying difficulty levels:  
 Easy Questions – 25%, Average Questions – 50%, Difficult Questions – 25%
7. The question paper should consist of 05 objective and 10 Subjective questions (2 questions from each unit).
  - o Each question shall carry 15 marks (wherever possible, each question may have 2 or 3 sub-questions).
  - o Candidates have to answer one question from each unit.
  - o Maximum marks for the paper is 70.
8. Include diagrams, drawings, or circuit diagrams wherever necessary, and ensure they are properly labelled with clear dimensions.
9. Clearly indicate on the question paper if any handbook or datasheet is required by the candidate for answering the questions.
10. Ensure the question paper does not contain any objectionable or unlawful content.
11. The paper should be typed as per the given format:
  - Paper size: A4, Font style: Times New Roman, Font size: 12, Line spacing: 1.5
  - Header portion: Font size 14, bold, and capital letters, Page margins: Left 1.5", Right 1", Top 1", Bottom 1".
12. Avoid abbreviations of all kinds.
13. Prepared two sets of question papers should be sent to: [seequestionpapers@giet.edu](mailto:seequestionpapers@giet.edu).  
 For any clarification, contact the Controller of Examinations at Mobile: 7381052121  
 Email: [coe@giet.edu](mailto:coe@giet.edu)

### Fig. 3.2.2: Sample Question of Semester End Exam

Code: RN23BTECH043	Reg. No. _____						
							AY 23
<b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, ODISHA, GUNUPUR (GIET UNIVERSITY)</b>							
B. Tech (Third Semester - Regular) Examinations, November - 2024							
<b>23BCHPC23001 – HEAT TRANSFER</b> (Chemical Engineering)							
Time: 3 hrs							Maximum: 60 Marks
<b>Answer ALL questions</b> (The figures in the right hand margin indicate marks)							
<b>PART – A</b> <span style="float: right;">(2 x 5 = 10 Marks)</span>							
<p><b>Q.1. Answer ALL questions</b></p> <p>a. Define Fourier's law of heat conduction. What are the assumptions made for Fourier's law of heat conduction? <span style="float: right;">CO # CO2 Bloom's Level K1</span></p> <p>b. Why at the critical thickness of insulation the rate of heat transfer is maximum? <span style="float: right;">CO3 K4</span></p> <p>c. A hot fluid enters in a DPHF at 15°C and to be cooled to 94°C by a cold fluid which enters at 38°C and heated to 66°C. Shall they be directed in parallel or counter? <span style="float: right;">CO1 K2</span></p> <p>d. Define Stefan-Boltzmann Law. <span style="float: right;">CO6 K1</span></p> <p>e. Draw a neat sketch for 1-2 parallel counter flow heat exchangers. <span style="float: right;">CO5 K2</span></p>							
<b>PART – B</b> <span style="float: right;">(10 x 5=50 Marks)</span>							
<p><b>Answer ALL the questions</b></p> <p>2. a. Derive the expression for one dimensional steady state heat conduction through a composite cylinder. <span style="float: right;">Marks 5 CO # CO1 Bloom's Level K1</span></p> <p>b. Calculate the rate of heat loss through the vertical walls of a boiler furnace of size 4m by 3 m by 3 m high. The walls are constructed from an inner fire brick wall 25 cm thick of thermal conductivity 0.4 W/mK, a layer of ceramic blanket insulation of thermal conductivity 0.2 W/mK and 8 cm thick, and a steel protective layer of thermal conductivity 55 W/mK and 2 mm thick. The inside temperature of the fire brick layer was measured at 600°C and the temperature of the outside of the insulation 60°C. Also find the interface temperature of layers. <span style="float: right;">5 CO1 K1</span></p> <p style="text-align: center;">(OR)</p> <p>c. Derive the expression for one dimensional steady state heat conduction through a composite sphere. <span style="float: right;">5 CO1 K4</span></p> <p>d. A spherical container of negligible thickness holding a hot fluid at 140°C and having an outer diameter of 0.4 m is insulated with three layers of each 50 mm thick insulation of <math>k_1 = 0.02</math>; <math>k_2 = 0.06</math> and <math>k_3 = 0.16</math> W/mK. (Starting from inside). The outside surface temperature is 30°C. Determine (i) the heat loss, and (ii) Interface temperatures of insulating layers. <span style="float: right;">5 CO2 K3</span></p> <p>3.a. Derive Nusselt equation by Dimensional analysis for free convection heat transfer. <span style="float: right;">6 CO3 K3</span></p> <p>b. Analyze the following dimensionless number and their importance  i. Reynolds Number    ii. Prandtl Number    iii. Nusselt Number <span style="float: right;">4 CO2 K2</span></p> <p style="text-align: center;">(OR)</p> <p>c. Derive Nusselt equation by Dimensional analysis for forced convection heat transfer. <span style="float: right;">6 CO3 K2</span></p> <p>d. Analyze the empirical correlation for long tube in laminar flow and for the for the turbulent flow. <span style="float: right;">4 CO3 K2</span></p>							

**Water flows at the rate of 6.5 kg/min through a double pipe counter flow heat exchanger. Water is heated from 50°C to 7°C by an oil flowing through the tube. The specific heat of the oil is 1.780 kg/K.K. The oil enters at 115°C and leaves at 70°C. The overall heat transfer co-efficient is 340 W/m<sup>2</sup>K. calculate the following**

- Heat exchanger area
- Rate of heat transfer

**(OR)**

- A counter flow double pipe heat exchanger using superheated steam is used to heat water at the rate of 10500 kg/hr. The steam enters the heat exchanger at 180°C and leaves at 130°C. The inlet and exit temperature of water are 30°C and 80°C respectively. If the overall heat transfer coefficient from steam to water is 814 W/m<sup>2</sup>K, calculate the heat transfer area. What would be the increase in area if the fluid flow were parallel?
- What are the various types of baffles used in heat exchangers.

**5.a. Do the Heating area calculation for a Single effect evaporator.**

**b. Analyse the material and energy balance for Multiple effect forward feed arrangement evaporation process.**

**(OR)**

- Differentiate between capacity and economy of an evaporator.
- An evaporator is to be fed with 5000 kg/hr of solution containing 10% solute by weight. The feed at 40°C is to be concentrated to a solution containing 40% by weight of the solute under an absolute pressure of 1.03 kg/cm<sup>2</sup>. Steam is available at an absolute pressure of 1.03 kg/cm<sup>2</sup>. Saturation temperature of the steam is 134°C. The overall heat transfer coefficient is 1500 kcal/hr/m<sup>2</sup>30°C. Calculate Heat transfer area that should be provided.

Temperature °C	Enthalpy, kcal/kg	
	Vapour	Liquid
40	613.5	40.5
100	639.2	100.0
134	651.4	134.4

**6.a. Differentiate between black and grey body.**

- A furnace radiation at 2000K. Treating it as a black body radiation, calculate the
  - Monochromatic radiant flux density at 1 μm wavelength.
  - Wavelength at which emission is maximum and the corresponding radiant flux density
  - Total emissive power
  - Wavelength  $\lambda$  such that emission from 0 to  $\lambda$  is equal to the emission from  $\lambda$  to  $\infty$ .

**(OR)**

- Derive the expression for the rate of heat transfer by radiation within infinite Long parallel plates.
- A sphere of radius 10 mm at a temperature of 600 K, is dipped into the liquid at 300 Kelvin with a convective coefficient of 100 W/m<sup>2</sup>K, find the time required to become temperature of the sphere equals to 500 K. The sphere has,  $c = 375 \text{ J/Kg.K}$ ,  $\rho = 87000 \text{ Kg/m}^3$ ,  $K = 360 \text{ W/m.K}$

--- End of Paper ---

**Fig. 3.2.3: Sample copy of Semester End Exam marks for Analysis**



# GIET UNIVERSITY

Gunupur-765022, Odisha

### EXTERNAL MARKS REPORT

**CourseName** : **B.TECH**  
**Semester** : **V SEMESTER**  
**ExamCode** : **22BCHPE35011**  
**Subject Name** : **Process utility and Industrial Safety**  
**MonthYear** : **NOVEMBER 2024**  
**BundleNo** : **R22PUIS15399**

**Valuator Code** : **9**  
**Valuator Name** : **Mr. Radha krushna Padhi**  
**Valuator Designation** : **Assistant Professor**  
**Valuator Dept Name** : **CHEM**  
**Valuator College Name** : **GANDHI**

SL NO	SCRIPT CODE	T(1)	Total Marks																	
1	333418	2				2	1			9			8	4		4	4	6	7	47.00
2	333420	2	2	1	2	2				4	6	4			5	5		6	5	44.00
3	333421	2	2	2	2	2	7	7				0	5		5	5	6	5		50.00
4	333422	0	2	1	2	2			5	5	5			5	5	5	5		42.00	
5	333423	1	1	2	2	2		2			4				6		4	6		28.00
6	333424	0	0	0	0			0	0		0	0			2	5	0			7.00
7	333425	2	2	2	2	2			10	5	5				5			7	5	45.00
8	333426	2	2	2	2	2			12	6	5			5	5	6	5			54.00
9	333427	2	1	0	2	2	3	5		6	5			5	6	4	4			45.00
10	333428	2	2	0	2	2			9		4			4	0		5	4		34.00
11	333429	2	2	2	2	2			4		2			3	3	5	4			31.00
12	333430	1	2	2	2	1			4	4	4		2		3	4	4			29.00
13	333431	2	2	2	2	5	5			8		7	4		6	6				49.00

Remarks from Valuator:

Valuator Signature

### 3.3. Evaluation of Laboratory Work and Workshop (Continuous and SEE) (10)

The University organizes/encourages inter collegiate contests to encourage students to assess their Practical Knowledge of latest technologies.

The students are divided into groups of 3 number each and asked to perform the experiment. Each group should do the experiment separately and generate their result. If result has not come out of the experiment, then they asked to repeat the same experiment again.

Some experiments are having demo classes only. In those experiments a complete labelled diagram of the experiment or instrument are shown to the students and the detailed working principle is explained at the lab class.

Besides that, students are performing additional experiments related to industry for better understanding of the subject. Viva voce is conducted at the end of each laboratory session to identify degree of understanding of the students with respect to that experiment.

Each lab class is evaluated by the concerned faculties on the same day of experiment for 10 marks. The evaluation is done for a student based on his performance during the entire semester such as marks obtained in all lab classes, marks secured in viva voce and marks for record submission.

#### Assessment Methods

- **Rubric-Based Evaluation** (quantitative & qualitative)
- **Lab Viva Voce** to test theoretical understanding
- **Continuous Lab Performance Evaluation**
- **Final Lab Exam (Practical Demonstration)**

**Table No.3.3.1: Comparison of Laboratory Exam Evaluation under R-19 and R-23**

Regulation-19 (R-19)				Regulation-23 (R-23)			
Component of Evaluation	Term	Marks	Weightage	Component of Evaluation	Term	Marks	Weightage
Internal Lab Test	Continuous Internal Evaluation (CIE)	30	50%	Internal Lab Test	Continuous Internal Evaluation (CIE)	10	50%
Internal Viva		10		Internal Viva		5	
Lab Report		10		Lab Report		5	
Lab Experiment	Semester End Examination (SEE)	30	50%	Lab Experiment	Semester End Examination (SEE)	20	50%
Lab Viva By Expert		20		Lab Viva By Expert		10	
<b>Total</b>		<b>100</b>	<b>100%</b>	<b>Total</b>		<b>50</b>	<b>100%</b>

**Table No.3.3.2a: Rubrics for Laboratory Exam Evaluation**

<b>Marks obtained &gt; cut-off</b>	<b>Scoring System</b>	<b>Rating in 3 scale ( I )</b>
<b>&gt;=70%</b>	Outstanding Performance	<b>3</b>
<b>60%-69%</b>	Good Performance	<b>2</b>
<b>50% - 59%</b>	Satisfactory Performance	<b>1</b>
<b>&lt;50%</b>	Needs Improvement	<b>-</b>

**Table No.3.3.2b: Rubrics for Laboratory Evaluation (Chemical Engineering)**

<b>Criteria</b>	<b>Excellent (10-9)</b>	<b>Good (8-7)</b>	<b>Satisfactory (6-5)</b>	<b>Needs Improvement (&lt;5)</b>	<b>Weightage (%)</b>
<b>Understanding of Concepts</b>	Demonstrates thorough understanding of principles, equations, and industrial relevance	Good understanding with minor conceptual gaps	Basic understanding; struggles with advanced concepts	Limited understanding; major conceptual errors	<b>15%</b>
<b>Experimental Execution</b>	Follows SOPs precisely, operates equipment safely and efficiently	Minor deviations in procedure; maintains safety	Occasional errors in handling equipment and measurements	Significant errors in execution and safety violations	<b>25%</b>
<b>Data Accuracy &amp; Interpretation</b>	Data is accurate; correctly applies chemical engineering calculations	Minor errors in data or calculations	Frequent errors in interpretation and calculations	Major calculation mistakes; incorrect or incomplete data	<b>20%</b>
<b>Report Writing &amp; Documentation</b>	Well-structured report with clear objectives, results, and conclusions; proper citations and diagrams	Report is well-written with minor formatting or content issues	Report lacks clarity, incomplete sections, or minor errors	Poorly structured report; missing key sections or incorrect information	<b>20%</b>
<b>Teamwork &amp; Communication</b>	Effectively collaborates, shares responsibilities, and explains results clearly	Works well in a team; communicates findings with minor gaps	Limited collaboration; basic communication skills	Poor teamwork and unclear communication	<b>10%</b>
<b>Problem-Solving &amp; Innovation</b>	Identifies experimental issues, suggests process	Attempts to troubleshoot minor issues and offers	Basic problem-solving approach; limited	No attempt at problem-solving or improving	<b>10%</b>

	improvements, and relates to industry	reasonable suggestions	innovation	process	
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Table No.3.3.3: Sample Questions for Different Chemical Engineering Labs

A. Heat Transfer Lab	B. Fluid Mechanics Lab
<ol style="list-style-type: none"> <li>Explain the working principle of a shell-and-tube heat exchanger.</li> <li>What is the significance of the overall heat transfer coefficient (U)?</li> <li>How does the effectiveness of a heat exchanger vary with flow arrangement?</li> <li>Why is the logarithmic mean temperature difference (LMTD) used in heat exchanger calculations?</li> </ol>	<ol style="list-style-type: none"> <li>What is the difference between laminar and turbulent flow?</li> <li>How does a Venturi meter work, and what is its application?</li> <li>Explain the Bernoulli equation and its assumptions.</li> <li>Why do we use Reynolds number in fluid flow analysis?</li> </ol>
C. Reaction Engineering Lab	D. Mass Transfer Lab
<ol style="list-style-type: none"> <li>What are the differences between batch, CSTR, and PFR reactors?</li> <li>How do you determine the order of a reaction experimentally?</li> <li>Explain the Arrhenius equation and its significance.</li> <li>What factors affect the rate of a chemical reaction?</li> </ol>	<ol style="list-style-type: none"> <li>Explain the concept of diffusion and mass transfer coefficients.</li> <li>What is the significance of the HTU and NTU method in absorption columns?</li> <li>How does increasing temperature affect gas-liquid mass transfer?</li> <li>Why is the McCabe-Thiele method used in distillation calculations?</li> </ol>

Fig. 3.3.1: Laboratory Evaluation through Rubrics

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR											
GUNUPUR - 765022, Dist. - Rayagada, Odisha, India											
SCHOOL OF ENGINEERING & TECHNOLOGY											
DEPARTMENT OF CHEMICAL ENGINEERING											
EVALUATION RUBRICS FOR LABORATORY											
CRITERIA											
Sl No.	Roll No.	Name of the student	Understanding of Concepts (15)	Experimental Execution (10)	Data Accuracy & Interpretation (15)	Report Writing & Documentation (25)	Teamwork & Communication (15)	Problem-Solving & Innovation (20)	Total Marks (100)	% Secured	Attainment Level
1	20CHE001	GYOTTI REKHA PANDA	14	10	14	24	15	18	77	77	3
2	20CHE002	SHUBHAM BARIK	15	9	15	22	15	17	69	69	2
3	20CHE003	PRU SURESH SHISHOO	12	9	13	22	15	16	71	71	3
4	20CHE004	AKASH CHOURHUT	9	8	10	20	11	15	58	58	1
5	20CHE005	GERIDHAR NAIK	7	8	10	20	11	15	56	56	1
6	20CHE006	AVIKSAR DASH	8	8	11	21	11	15	59	59	1
7	20CHE008	SANTOSH SUNDAR SAHU	13	10	14	24	15	19	76	76	3
8	20CHE009	SOUMYA KANTA DAS	10	7	11	20	13	11	61	61	2
9	20CHE010	SIBANANDA PARICHHA	11	8	10	17	13	15	59	59	1
10	20CHE011	SONAMONI KUMARI	11	10	14	23	10	15	68	68	2
11	20CHE012	PRADEEP KUMAR HIKOKA	10	9	10	21	12	16	62	62	2
12	20CHE014	PAPPI KUMAR	12	10	13	24	14	17	73	73	3
13	20CHE015	TRAYAN BAK RATH	10	7	10	20	11	11	58	58	1
14	20CHE016	DEBENDRA KUMAR DODI	13	10	13	23	15	18	72	72	3
15	20CHE017	RAHUL KUMAR TIWARI	12	10	14	21	13	15	70	70	3
16	20CHE020	DEBIDATTA SAMANTARAY	9	9	12	20	14	13	64	64	2
17	20CHE021	SUBHAM SUBUDHI	11	9	11	22	11	15	64	64	2
18	20CHE022	SM RUTI RANJAN BARIK	10	7	10	23	13	13	63	63	2
19	20CHE023	ASHUTOSH PATTNAIK	11	7	10	21	14	17	63	63	2
20	20CHE024	SUMIT KU BARIK	13	10	11	24	15	18	73	73	3
21	20CHE025	ASHUTOSH PARIMANIK	13	10	13	24	15	13	75	75	3
22	20CHE017	T KESABA RAO	11	9	10	23	10	15	63	63	2
23	20CHE018	GADDAM VENKATESH	7	7	12	20	11	14	57	57	1

No. of students having marks > cut-off	Rating in 3 scale (E)
18	3
58%	2
50% - 60%	1

### 3.4 Evaluation of Industrial Training/Internship (Continuous and SEE)

**Table No.3.4.1: Internship Assessment Rubric with PO Mapping**

S. No.	Assessment Criteria	Max. Marks	Mapped POs	Chemical Engineering Relevance
1	Technical Knowledge Gained	20	PO1, PO2	Application of thermodynamics, unit ops, reaction engineering
2	Application of Engineering Tools	10	PO5	Use of Aspen Plus, MATLAB, ChemCAD, AutoCAD P&ID
3	Problem Solving/Analysis	15	PO2, PO4	Troubleshooting process/plant issues, process optimization
4	Communication Skills	10	PO8, PO10	Report writing, presentation on industrial experience
5	Professional Behaviour	10	PO8, PO9	Adherence to plant discipline, timelines, and industrial culture
6	Teamwork and Collaboration	10	PO9	Working with operations, maintenance, safety teams
7	Safety and Ethics Awareness	10	PO6, PO8	Understanding MSDS, HAZOP, PPEs, plant safety standards
8	Overall Learning Reflection	15	PO12	Self-learning, initiative, connecting theory to practice
	<b>Total</b>	<b>100</b>		

Fig. 3.4.1: Sample of Rubric for Assessment of Internship with PO Mapping

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR													
Gunupur - 765022, Dist:- Rayagada, Odisha, India													
SCHOOL OF ENGINEERING & TECHNOLOGY													
DEPARTMENT OF CHEMICAL ENGINEERING													
EVALUATION RUBRICS FOR INTERNSHIP													CRITERIA
Sl No.	Roll No.	Name of the student	Technical Knowledge Gained (20)	Application of Engineering Tools (10)	Problem Solving/A nalysis (15)	Communication Skills (10)	Professional Behaviour (10)	Teamwork and Collaboration (10)	Safety and Ethics Awareness (10)	Overall Learning Reflection (15)	Total Marks (100)	% Secured	Attainment Level
1	20CHE 001	JYOTTI REKHA PANDA	18	10	14	10	10	10	10	15	97	97	3
2	20CHE 002	DHANANJAY BARIK	17	9	13	10	9	10	9	15	92	92	3
3	20CHE 003	HRUSIKESH SAHOO	18	9	13	9	9	9	9	15	91	91	3
4	20CHE 005	AKASH CHOUBEY	15	8	10	7	8	7	8	11	74	74	2
5	20CHE 006	GIRDHAR NAIK	15	8	10	10	8	10	8	11	80	80	3
6	20CHE 007	AVISKAR DASH	15	8	11	9	8	9	8	11	79	79	2
7	20CHE 008	SANTOSH SUNDAR SAHU	19	10	14	9	10	9	10	15	96	96	3
8	20CHE 009	SOMYAKANTA DAS	11	7	11	8	7	8	7	13	72	72	2
9	20CHE 010	SRIBANANDA PARICHHA	15	8	10	8	8	8	8	13	78	78	2
10	20CHE 011	SONAMONI KUMARI	15	10	14	10	10	10	10	10	89	89	3
11	20CHE 012	PRADEEP KUMAR HIKOKA	16	9	10	9	9	9	9	12	83	83	3
12	20CHE 014	PAPPU KUMAR	17	10	13	9	10	9	10	14	92	92	3
13	20CHE 015	TRAYAMBAK RATH	11	7	10	7	7	7	7	11	67	67	1
14	20CHE 016	SOMUMTRA SUBUDHI	18	10	13	7	10	7	10	13	88	88	3
15	20CHE 019	RAJUL KUMAR TIWARI	15	10	14	9	10	9	10	13	90	90	3
16	20CHE 020	DEBUDATTA SAMANTARAY	13	9	12	10	9	10	9	14	86	86	3
17	20CHE 021	SUBHAM SUBUDHI	15	9	11	7	9	7	9	11	78	78	2
18	20CHE 022	SRUJUTI RANJAN BARIK	13	7	10	10	7	10	7	13	77	77	2
19	20CHE 023	ASHUTOSH PATTNAIK	17	7	10	10	7	10	7	14	82	82	3
20	20CHE 024	SUMIT RU BARIK	18	10	11	7	10	7	10	15	88	88	3
21	20CHE 025	ASHUTOSH PARIMANIK	13	10	13	8	10	8	10	15	87	87	3
22	20CHE 017	T KESABA RAO	15	9	10	10	9	10	9	10	82	82	3
23	20CHE 018	GADDAM VENKATESH	14	7	12	6	7	6	7	11	70	70	2

No. of students having marks > cut-off	Rating in 5 scale (1)
Excellent > 80%	3
Good (70% - 79%)	2
Satisfactory (60% - 69%)	1
Needs Improvement (50% - 59%)	

Table No.3.4.2: Internship PO Mapping

S.N .	Roll. No.	Name of the Student	Industry/Institut e	Possible Exposure	Rubric Criteria	Mappe d POs
1	21CHE00 1	Vedant Patra	JK Paper mills	Pulp & paper processes, process control, plant safety	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
2	21CHE00 2	Rohanjeet Thatoi	JK Paper mills	Pulp & paper processes, process control, plant safety	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
3	21CHE00 3	Ashrujit Swain	SAIL, Rourkela Steel Plant	Metallurgical processes, large-scale operations, safety systems	Technical Knowledge, Problem Solving, Communication	PO2, PO5, PO6, PO7, PO8, PO10
4	21CHE00	Priyanshu	SAIL, Rourkela	Metallurgical	Technical	PO1,

	4	Bharati	Steel Plant	processes, large-scale operations, safety systems	Knowledge, Problem Solving, Communication	PO2, PO5, PO6, PO7, PO8, PO10
5	21CHE005	Sajen Naik	JK Paper mills	Pulp & paper processes, process control, plant safety	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
6	21CHE007	Chinmaya Ratna Choudhury	JK Paper mills	Pulp & paper processes, process control, plant safety	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
7	21CHE008	Saroj Kumar Satapathy	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
8	21CHE010	Smruti Ranjan Behera	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
9	21CHE011	Damberudhar Majhi	JK Paper mills	Pulp & paper processes, process control, plant safety	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
10	21CHE012	Amisha Priyadarshini Rout	SAIL, Rourkela Steel Plant	Metallurgical processes, large-scale operations, safety systems	Technical Knowledge, Problem Solving, Communication	PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PSO1
11	21CHE013	Shreya Das	SAIL, Rourkela Steel Plant	Metallurgical processes, large-scale operations, safety systems	Technical Knowledge, Problem Solving, Communication	PO3, PO4, PO5, PO6, PO7, PO8, PO10
12	21CHE014	Sasala Uday Kiran	JK Paper mills	Pulp & paper processes, process control, plant	Technical Knowledge, Tools, Safety, Teamwork	PO2, PO3, PO5, PO6, PO7,

				safety		PO9, PO10
13	21CHE015	Abhisek Nanda	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
14	21CHE016	Rahul Mohapatra	SAIL, Rourkela Steel Plant	Metallurgical processes, large-scale operations, safety systems	Technical Knowledge, Problem Solving, Communication	PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10
15	21CHE017	Mitali Tanty	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10, PSO1, PSO2
16	21CHE018	Aman Kumar	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
17	21CHE019	Jyotirmayi Sadangi	IFFCO Paradeep Unit	Fertilizer production, reaction engineering, plant layout	Tools, Problem Solving, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
18	21CHE020	Naidu Ankita	SAIL, Rourkela Steel Plant	Metallurgical processes, large-scale operations, safety systems	Technical Knowledge, Problem Solving, Communication	PO3, PO4, PO5, PO6, PO7, PO8, PO10
19	22CHE001	Omkar Sahoo	Brand Steel & Power Pvt Ltd	Power generation, instrumentation, EHS practices	Tools, Safety Awareness, Teamwork	PO1, PO2, PO3, PO5, PO6, PO7, PO9, PO10
20	22CHE002	Sangita Naik	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO2, PO3, PO6, PO7, PO8, PO10
21	22CHE004	Suratha Naik	Utkal Alumina, Tikiri	Alumina refining,	Technical Knowledge,	PO2, PO3, PO6,

				separation techniques	Safety, Learning	PO7, PO8, PO10
22	22CHE005	Karunakar Nayak	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO2, PO4, PO6, PO7, PO8, PO10
23	22CHE006	Nikhil Chandra Nayak	Nalco Aluminium Company Ltd, Damanjodi	Electrolysis, process control, sustainability	Tools, Technical Knowledge, Problem Solving	PO1, PO2, PO6, PO7, PO8, PO10
24	22CHE007	Gourango Naik	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO1, PO2, PO6, PO7, PO8, PO10
25	22CHE008	Lipuni Kumari Nayak	Grasim Industries Ltd	Textile and chemical processes, utilities	Technical Knowledge, Tools, Safety	PO1, PO2, PO3, PO5, PO6, PO9, PO10
26	22CHE009	Rakesh Swain	Brand Steel & Power Pvt Ltd	Power generation, instrumentation, EHS practices	Tools, Safety Awareness, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
27	22CHE010	Swapnarani Patro	Grasim Industries Ltd	Textile and chemical processes, utilities	Technical Knowledge, Tools, Safety	PO2, PO3, PO5, PO6, PO9, PO10
28	22CHE011	Susmita Dalai	Indian Oil Corporation Ltd	Petroleum refining, energy systems, safety culture	Tools, Communication, Safety	PO1, PO2, PO5, PO6, PO7, PO8, PO9, PO10
29	22CHE012	Prajnyaparmita Swain	Grasim Industries Ltd	Textile and chemical processes, utilities	Technical Knowledge, Tools, Safety	PO1, PO2, PO3, PO5, PO6, PO9, PO10
30	22CHE013	Raja Lenka	Indian Oil Corporation Ltd	Petroleum refining, energy	Tools, Communication, Safety	PO1, PO2, PO5, PO6,

				systems, safety culture		PO7, PO8, PO10
31	22CHE014	Silpa Samita Swain	Grasim Industries Ltd	Textile and chemical processes, utilities	Technical Knowledge, Tools, Safety	PO2, PO3, PO5, PO6, PO9, PO10
32	22CHE015	Kandregula Sekhar	Grasim Industries Ltd	Textile and chemical processes, utilities	Technical Knowledge, Tools, Safety	PO2, PO3, PO5, PO6, PO9, PO10
33	22CHE016	N Hari Ajay Prasanth	Indian Oil Corporation Ltd	Petroleum refining, energy systems, safety culture	Tools, Communication, Safety	PO1, PO2, PO5, PO6, PO7, PO8, PO10
34	22CHE017	Kosuru Raj Kumar	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO2, PO6, PO7, PO8, PO9, PO10
35	22CHE018	Bisetty Lokesh	Brand Steel & Power Pvt Ltd	Power generation, instrumentation, EHS practices	Tools, Safety Awareness, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
36	22CHE019	Yellapantula Praveen Krishna	Brand Steel & Power Pvt Ltd	Power generation, instrumentation, EHS practices	Tools, Safety Awareness, Teamwork	PO2, PO3, PO5, PO6, PO7, PO9, PO10
37	22CHE020	Gorli Siva	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO2, PO6, PO7, PO8, PO9, PO10
38	22CHE021	Susanta Ratna Choudhury	Utkal Alumina, Tikiri	Alumina refining, separation techniques	Technical Knowledge, Safety, Learning	PO2, PO6, PO7, PO8, PO9, PO10

### 3.5 Evaluation of Projects

**Table No.3.5.1: Rubric for Project Evaluation**

Sl. No.	Criteria	Excellent (3 )	Good (2 )	Average (1)
1.	Complexity	Addresses a complex, multidisciplinary engineering problem.	Solves a moderately challenging engineering task.	Focuses on a basic or routine task with limited challenge.
2.	Cost Awareness	Includes detailed cost analysis with optimization and justification.	Shows a general understanding of cost and feasibility.	Little or no mention of cost implications or feasibility.
3.	Environmental Relevance	Strong integration of eco-friendly design and practices with measurable impact.	Includes some considerations for environmental impact.	Lacks attention to environmental factors or green practices.
4.	Sustainability	Clearly aligned with long-term sustainable development goals (SDGs).	Mentions or applies some sustainability concepts.	No meaningful integration of sustainability aspects.

Fig. 3.5.1: Sample of Rubric for Project Evaluation

<b>NDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b> <b>Gunupur - 765022, Dist. - Rayagada, Odisha, India</b> <b>SCHOOL OF ENGINEERING &amp; TECHNOLOGY</b> <b>DEPARTMENT OF CHEMICAL ENGINEERING</b> <b>EVALUATION RUBRICS FOR PROJECTS</b>									
			CRITERIA						
Sl No.	Roll No.	Name of the student	Complexity (10)	Cost Awareness (10)	Environmental Relevance (10)	Sustainability (10)	Total Marks (40)	AVERAGE	% Secured
1	20CHE001	JYOTI REKHA PANDA	8	7	9	9	33	8.25	82.5
2	20CHE002	DHANANJAY BARIK	5	5	9	4	23	5.75	57.5
3	20CHE003	HRUSIKESH SAHOO	5	6	8	5	24	6	60
4	20CHE005	AKASH CHOURBAY	4	5	8	7	24	6	60
5	20CHE006	GIRIDHAR NAIK	6	7	8	8	29	7.25	72.5
6	20CHE007	AVISKAR DASH	3	7	6	8	24	6	60
7	20CHE008	SANTOSH SUNDAR SAHU	6	8	6	8	28	7	70
8	20CHE009	SOUMYAKANTA DAS	5	6	5	8	24	6	60
9	20CHE010	SIBANANDA PARICHHA	5	5	7	7	24	6	60
10	20CHE011	SONAMONI KUMARI	6	5	5	4	20	5	50
11	20CHE012	PRADEEP KUMAR HIKOKA	6	5	6	6	23	5.75	57.5
12	20CHE014	PAPPU KUMAR	6	5	6	7	24	6	60
13	20CHE015	TRAYAMBAK RATH	7	7	7	5	26	6.5	65
14	20CHE016	SOUMITRA SUBUDHI	7	9	9	8	33	8.25	82.5
15	20CHE019	RAHUL KUMAR TIWARI	5	8	5	8	26	6.5	65
16	20CHE020	DEBIDATTA SAMANTARAY	5	5	5	6	21	5.25	52.5
17	20CHE021	SUBHAM SUBUDHI	7	6	6	4	23	5.75	57.5
18	20CHE022	SMRUTI RANJAN BARIK	8	9	7	4	28	7	70
19	20CHE023	ASHUTOSH PATTNAIK	8	7	9	5	29	7.25	72.5
20	20CHE024	SUMIT KU BARIK	8	7	4	7	26	6.5	65
21	20CHE025	ASHUTOSH PARIMANIK	6	7	4	7	24	6	60
22	20CHE017	T KESABA RAO	4	6	6	7	23	5.75	57.5
23	20CHE018	GADDAM VENKATESH	4	6	7	3	20	5	50

No. of students having marks > cut-off	Rating in 3 scale (1)
>80%	3
60%-79%	2
50% - 59%	1

### 3.6. Evidence of Addressing Sustainable Development Goals (SDG) (10)

**Table No.3.6.1: Evidence for Addressing SDGs**

S. No.	Course / Activity / Mini Project	Complex Engineering Problem	Evidence for Addressing SDGs
1	Heat Transfer	<b>Design and Optimization of Shell &amp; Tube Heat Exchanger for Energy Efficiency.</b>	In this project, the heat exchanger design aims to <b>optimize energy consumption</b> by using materials with high thermal conductivity and maximizing surface area for heat exchange. By reducing fuel usage and enhancing heat transfer efficiency, this directly supports <b>SDG 7</b> for clean energy. It also contributes to <b>SDG 12</b> as the design minimizes material waste and optimizes resource use. The project also addresses <b>SDG 9</b> by advancing industry-level technologies that can be scaled in the energy sector.
2	Fuel & Energy Technology	<b>Design of a Biomass Gasifier for Rural Energy Supply.</b>	Biomass gasification offers a clean energy solution for rural communities, reducing dependence on fossil fuels. This aligns with <b>SDG 7</b> , providing <b>affordable and clean energy</b> . The technology reduces carbon emissions, contributing to <b>SDG 13</b> (Climate Action). Additionally, using waste agricultural residues as fuel helps promote circular economies and supports <b>SDG 9</b> (Industry, Innovation, and Infrastructure), fostering technological innovation in energy generation.
3	Process Equipment Design	<b>Design and Scale-Up of a Multi-Effect Evaporator for Wastewater Minimization.</b>	The multi-effect evaporator (MEE) improves energy efficiency by using steam multiple times for evaporation, reducing the energy required to treat wastewater. This results in <b>lower energy consumption</b> , supporting <b>SDG 7</b> . Furthermore, the MEE system enhances the treatment of wastewater, addressing <b>SDG 6</b> by ensuring cleaner water. The process itself is scalable and could be implemented in various industries, which aligns with <b>SDG 9</b> . The technology also supports <b>SDG 12</b> by minimizing waste and promoting sustainable production practices.
4	Chemical Engineering Thermodynamics	<b>Design a distillation column to separate ethanol from water with a focus on energy</b>	The design aims to reduce energy consumption in ethanol separation by optimizing column parameters like reflux

		<b>consumption reduction and environmental impact.</b>	rations and utilizing waste heat. By focusing on <b>energy reduction</b> , it supports <b>SDG 7</b> (Affordable and Clean Energy). The project also reduces the environmental impact of ethanol production, contributing to <b>SDG 12</b> (Responsible Consumption and Production) and <b>SDG 13</b> (Climate Action) by lowering greenhouse gas emissions.
5	<b>Mass Transfer Operations</b>	<b>Design and Optimization of a Solvent Extraction System for separating valuable compounds from wastewater.</b>	This project uses green solvents and low-energy processes to separate valuable compounds, reducing the environmental footprint of wastewater treatment. The technology improves water quality, contributing to <b>SDG 6</b> (Clean Water and Sanitation). By using eco-friendly solvents and energy-efficient designs, it also supports <b>SDG 12</b> and <b>SDG 13</b> (Climate Action), reducing chemical waste and energy use.
6	<b>Mini Project</b>	<b>Develop and analyze a fluidized bed column for the removal of pollutants (e.g., heavy metals or dyes).</b>	Fluidized bed columns are energy-efficient systems used for removing pollutants from wastewater. The process can be applied to remove toxic substances such as heavy metals, contributing to cleaner water and ensuring industrial compliance with environmental standards, aligning with <b>SDG 6</b> . By improving the efficiency of the process and reducing the need for chemicals, it also addresses <b>SDG 12</b> . If the system is energy-efficient, it aligns with <b>SDG 13</b> as well.
7	<b>Fluid Mechanics Lab</b>	<b>Modelling and optimization of Reynold's Apparatus to Analyze fluid flow characteristics</b>	This project helps to understand fluid dynamics in various industrial applications, including <b>water treatment</b> and <b>piping systems</b> . By designing and optimizing fluid flow systems, it contributes to <b>SDG 9</b> (Industry, Innovation, and Infrastructure), providing solutions to enhance industrial systems. Efficient fluid flow also helps in reducing <b>energy consumption</b> in water distribution, addressing <b>SDG 6</b> (Clean Water and Sanitation) and <b>SDG 12</b> (Responsible Consumption and Production).
8	<b>Integrated Solid Waste Management</b>	<b>Composting and Organic Waste Management.</b>	Composting organic waste reduces landfill waste and provides an eco-friendly method of producing fertilizers. This process is

			directly linked to <b>SDG 12</b> (Responsible Consumption and Production) by encouraging waste diversion and promoting sustainable consumption practices. Additionally, it supports <b>SDG 13</b> (Climate Action) by reducing methane emissions from landfills, which is a potent greenhouse gas. The project also aligns with <b>SDG 15</b> (Life on Land) by fostering better land management practices.
9	<b>Entrepreneurship Development Activity</b>	<b>Development of a portable water purification device using activated carbon.</b>	This portable device provides a low-cost, sustainable solution to clean drinking water, particularly in rural or disaster-affected areas. The project contributes to <b>SDG 6</b> (Clean Water and Sanitation) by offering an accessible and affordable purification system. By providing an entrepreneurial solution to water access, it also aligns with <b>SDG 8</b> (Decent Work and Economic Growth), promoting economic opportunities through innovation.
10	<b>Final Year Major Project</b>	<b>Enhancement of Distillation Efficiency using Pressure Swing Rotating Bubble Cap.</b>	This project focuses on improving distillation column efficiency, directly reducing the energy required for separation processes. It aligns with <b>SDG 7</b> (Affordable and Clean Energy) by lowering energy consumption in industrial applications. The project enhances <b>industrial processes</b> and infrastructure, supporting <b>SDG 9</b> (Industry, Innovation, and Infrastructure). By improving energy efficiency and reducing waste, it also contributes to <b>SDG 12</b> (Responsible Consumption and Production).

**Fig. 3.6.1: Sample of Complex Engineering Problem Project****Biomass Gasifier****Reynold's Apparatus****Distillation Column Model****PSRBC****PSRBC Bubble column****Absorption Column Model****Shell & Tube Heat Exchanger Model****Shell & Tube Heat Exchanger Fabrication****Solvent Extractor Fabrication**

### 3.7 Attainment of Course Outcomes

**Assessment Parameters:** The performance of a student in each semester shall be evaluated subject-wise with a maximum of 100 marks for theory course and 50 marks for laboratory for R-19.

#### **Theory course:**

**(i) Pattern for Internal Midterm Examinations:** For theory courses of each semester there shall be 2 Cycle test and 2 class test descriptive/objective exams. Each cycle test consists of 75minutes duration for 30marks. Each class test consists of 60minutes duration for 20marks. The exams will be taken for the assessment of internal marks.

#### **CO-wise assessment Rubrics:**

Every internal exam question and every assignment is mapped to a specific CO. Thereafter, a CO-wise cut-off value is taken based on the highest mark secured for that CO and the number of students with their internal mark above the cut-off value is considered for rating the CO attainment.

**Table No.3.7.1: Rubrics for Internal Exam CO attainment**

Marks > cut-off	Rating in 3 scale ( I )
$\geq 70\%$	3
60% -69%	2
50% - 59%	1

#### **(ii) Pattern for External End Examinations:**

There shall be an external examination for every theory course and consists of two parts (part- A and Part-B). The duration of the time for this end examination is 3 hours.

**Assessment Rubrics:** An overall cut-off value is taken for all COs commonly based on the highest mark secured and the number of students with their external mark above the cut-off value is considered for rating all CO attainments.

**Table No.3.7.2: Rubrics for Semester End Exam CO attainment**

Grading System	Rating in 3 point scale
O & E grade	3
A & B	2
C	1

**(iii) Overall Attainment:** The Final CO attainment is calculated by combining the internal attainment and External attainment in a ratio of 30: 70.

**Final Value (V) = 30% of Internal Level (I) + 70% of External Level (E)**

## **2. Laboratory Course:**

**Pattern for Lab Examinations:** For practical subjects, there shall be continuous internal evaluation during the semester for 50 marks. 20 marks for day to day work, 5 for record and 20 marks to be awarded by conducting laboratory test and for 5 marks for Viva-voce.

### **CO-wise assessment Rubrics:**

Every experiment is mapped to a specific CO. Thereafter, a CO-wise cut-off value is taken based on the highest mark secured for that CO and the **number of students** with their internal mark above the cut-off value is considered for rating the CO attainment.

**Table No.3.7.3: Rubrics for Lab Exam CO attainment**

Marks > cut-off	Rating in 3 scale ( I )
$\geq 80\%$	<b>3</b>
70% - 79%	<b>2</b>
60% - 69%	<b>1</b>

### **Performance (Hands-on Lab Work)**

This evaluates the student's ability to understand and use lab equipment correctly, follows procedures accurately, record observations neatly, and presents data effectively through graphs or charts. Safety practices and drawing valid conclusions from the experiment are also key factors.

### **Viva (Oral Evaluation)**

The viva assesses the student's grasp of theoretical concepts, preparation for the experiment, problem-solving skills, and ability to connect lab work with real-life or industrial applications. It also tests how well the student can explain results and handle unexpected issues during the experiment.

**Table No.3.7.4a: Rubrics used for evaluation in every lab session**

Category	Criteria
----------	----------

<b>Performance</b>	Understanding of apparatus/trainer/components
<b>Performance</b>	Proper connectivity
<b>Performance</b>	Observations noted during the lab
<b>Performance</b>	Demonstration in front of evaluator (Readings)
<b>Performance</b>	Lab record maintenance
<b>Performance</b>	Graph/Chart representation and plotting
<b>Performance</b>	Following lab safety rules
<b>Performance</b>	Conclusion of the experiment
<b>Viva</b>	Understanding of theoretical concepts
<b>Viva</b>	Preparation & handling critical situations
<b>Viva</b>	Correlation of theory with lab results
<b>Viva</b>	Troubleshooting capabilities
<b>Viva</b>	Linking lab with real-life/industrial applications

**Table No.3.7.4b: Rubrics used for evaluation in every lab session**

<b>Rubrics</b>	<b>Max. Marks</b>
<b>Understanding of Concepts (15)</b>	15 % of Max. Marks
<b>Experimental Execution (10)</b>	10 % of Max. Marks
<b>Data Accuracy &amp; Interpretation (15)</b>	15 % of Max. Marks
<b>Report Writing &amp; Documentation (25)</b>	25 % of Max. Marks
<b>Teamwork &amp; Communication (15)</b>	15 % of Max. Marks
<b>Problem-Solving &amp; Innovation (20)</b>	20 % of Max. Marks

**EVALUATION RUBRICS FOR LABARATORY****Fig. 3.7.1: Sample of Rubric for Lab Exam Evaluation**

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR											
Gumupur - 765022, Dist. - Rayagada, Odisha, India											
SCHOOL OF ENGINEERING & TECHNOLOGY											
DEPARTMENT OF CHEMICAL ENGINEERING											
EVALUATION RUBRICS FOR LABARATORY											
CRITERIA											
Sl No.	Roll No.	Name of the student	Understanding of Concepts (15)	Experimental Execution (10)	Data Accuracy & Interpretation (15)	Report Writing & Documentation (25)	Teamwork & Communication (15)	Problem Solving & Innovation (20)	Total Marks (100)	% Secured	Attainment Level
1	20CHE001	JYOTI REKHA PANDA	14	16	14	24	15	18	77	77	3
2	20CHE002	DHANANJAY BARIK	10	9	13	22	15	17	69	69	2
3	20CHE003	HRUSIKESH SAHOO	12	9	13	22	15	18	71	71	3
4	20CHE005	AKASH CHOUBEY	9	8	10	20	11	15	58	58	1
5	20CHE006	GIRDHAR NAIK	7	8	10	20	11	15	56	56	1
6	20CHE007	AVISKAR DASH	8	8	11	21	11	15	59	59	1
7	20CHE008	SANTOSH SUNDAR SAHU	13	16	14	24	15	19	76	76	3
8	20CHE009	SOUMYAKANTA DAS	10	7	11	20	13	11	61	61	2
9	20CHE010	SIBANANDA PARICHCHA	11	8	10	17	13	15	59	59	1
10	20CHE011	SONA MONIKUMARI	11	16	14	23	10	15	68	68	2
11	20CHE012	PRADEEP KUMAR HIKOKA	10	9	10	21	12	16	62	62	2
12	20CHE014	PAPPU KUMAR	12	10	13	24	14	17	73	73	3
13	20CHE015	TRAYAMBAK RATH	10	7	10	20	11	11	58	58	1
14	20CHE016	SOUMITRA SUBUDHI	13	10	13	23	13	18	72	72	3
15	20CHE019	RAHUL KUMARTIWARI	12	10	14	21	13	15	70	70	3
16	20CHE020	DEBIDATTA SAMANTARAY	9	9	12	20	14	13	64	64	2
17	20CHE021	SUBHAM SUBUDHI	11	9	11	22	11	15	64	64	2
18	20CHE022	SMRUTI RANJAN BARIK	10	7	10	23	13	13	63	63	2
19	20CHE023	ASHUTOSH PATTNAIK	11	7	10	21	14	17	63	63	2
20	20CHE024	SUMIT KU BARIK	13	10	11	24	15	18	73	73	3
21	20CHE025	ASHUTOSH PARIMANIK	13	10	13	24	15	13	75	75	3
22	20CHE017	T KESABA RAO	11	9	10	23	10	15	63	63	2
23	20CHE018	GADDAM VENKATESH	7	7	12	20	11	14	57	57	1

No. of students having marks > cut-off	Rating in 3 scale (1)
>=70%	3
60% - 69%	2
50% - 59%	1

### 3. Seminar Work Evaluation:

- The Department selects a senior faculty member as a Seminar coordinator who along with other faculty would assess the Technical seminar presentations by students. He/She would ensure that the students choose advanced concepts in Biotechnology and allied research areas with a lot of relevance and applicability.
- One seminar per student in the VIII semester would be conducted as per the schedule mentioned prior in Time Table and Department Calendar of events.
- Seminar coordinators follow rubrics, which is set by the department for evaluation of seminar
- Seminar coordinators will conduct one seminar per student. It will be evaluated by the seminar coordinator and marks will be submitted to the Department.

**Table No.3.7.5: Rubrics used for Seminar Work Evaluation**

Rubrics	Max. Marks
Technical Content & Research Methodology	30 % of Max. Marks

<b>Visual Aids / Slides with Communication</b>	10 % of Max. Marks
<b>Subject Knowledge &amp; Q&amp;A</b>	20 % of Max. Marks
<b>Originality &amp; Critical Thinking</b>	20 % of Max. Marks
<b>Relevance to Chemical Engineering</b>	10 % of Max. Marks
<b>Time Management</b>	10 % of Max. Marks

**Fig. 3.7.1: Sample of Rubric for Seminar Work Evaluation**

DEPARTMENT OF CHEMICAL ENGINEERING EVALUATION RUBRICS FOR SEMINAR												
SINo.	Roll No.	Name of the student	Technical Content & Research Methodology (30)	CRITERIA						Total Marks (100)	% Secured	Course Outcomes
				Visual Aids / Slides with Communication (10)	Subject Knowledge & Q&A (20)	Originality & Critical Thinking (20)	Relevance to Chemical Engineering (10)	Time Management (10)				
1	20CHE001	JYOTI REKHA PANDA	30	9	20	20	10	10	99	99	3	
2	20CHE002	DHANANJAY BARIK	27	4	18	20	9	10	88	88	3	
3	20CHE003	HRUSIKESH SAHOO	27	5	18	18	9	9	86	86	3	
4	20CHE004	AKASH CHOURBEY	24	7	14	14	8	7	74	74	2	
5	20CHE006	GIRIDHAR NAIK	24	8	14	20	8	10	84	84	3	
6	20CHE007	AVISKAR DASH	24	8	20	18	8	9	87	87	3	
7	20CHE008	SANTOSH SUNDAR SAHU	30	8	20	18	10	9	95	95	3	
8	20CHE009	SOUMYAKANTA DAS	21	8	18	16	7	8	78	78	2	
9	20CHE010	SIBANANDA PARICHCHA	24	7	14	16	8	8	77	77	2	
10	20CHE011	SONAMONI KUMARI	30	4	20	20	10	10	94	94	3	
11	20CHE012	PRADEEP KUMAR HIKOKA	27	6	18	18	9	9	87	87	2	
12	20CHE014	PAPPU KUMAR	30	7	18	18	10	9	92	92	3	
13	20CHE015	TRAYAMBAK RATH	21	5	16	14	7	7	70	70	2	
14	20CHE016	SOUMITRA SUBUDHI	30	8	16	14	10	7	85	85	3	
15	20CHE019	RAHUL KUMAR TIWARI	30	8	16	18	10	9	91	91	3	
16	20CHE020	DEBIDATT A SAMANTARAY	27	6	20	20	9	10	92	92	3	
17	20CHE021	SUBHAM SUBUDHI	27	4	14	14	9	7	75	75	2	
18	20CHE022	SMRUTI RANJAN BARIK	21	4	16	20	7	10	78	78	2	
19	20CHE023	ASHUTOSH PATTNAIK	21	5	20	20	7	10	83	83	3	
20	20CHE024	SUMIT KU BARIK	30	7	18	14	10	7	86	86	3	
21	20CHE025	ASHUTOSH PARIMANIK	30	7	20	16	10	8	91	91	3	
22	20CHE017	T KESABA RAO	27	7	14	20	9	10	87	87	3	
23	20CHE018	GADDAM VENKATESH	21	3	20	12	7	6	69	69	1	

No. of students having marks > cut-off	Rating in 4 scale (1)
Excellent > 80%	3
Good (70% - 79%)	2
Satisfactory (60% - 69%)	1
Needs Improvement (50% - 59%)	

#### 4. Project Work Evaluation:

- Project batches are formed as per the instruction given by project coordinators.
- Synopsis will be submitted to the project coordinators for scrutinizing. Project Batches are allotted to the internal guides based on the specialization and competency skills of the faculties.
- Each internal guide will continuously monitor their students on a weekly basis to observe the progress of the work.
- The project guide along with project coordinator conduct 3 project reviews as per the rubrics, which is set by the Department and the submit the Internal Assessment marks to the Head of Department.
- External Project Viva voce is conducted by the panel of examiners deputed by the University.
- Based on the viva voce the marks are awarded to the students and submitted to university.
- The department will encourage students to participate in technical Expo and the project guides motivate and guide the students to publish in standard conference/journal forums.

**Table No.3.7.4: Rubrics used for evaluation of Project work**

Rubrics	Max. Marks
<b>Complexity</b>	25 % of Max. Marks
<b>Cost Awareness</b>	25 % of Max. Marks
<b>Environmental Relevance</b>	25 % of Max. Marks
<b>Sustainability</b>	25 % of Max. Marks

**Fig. 3.7.2: Sample of Rubric for Project Work Evaluation**

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR**  
 Gunupur - 756022, Dist - Rayagada, Odisha, India  
 SCHOOL OF ENGINEERING & TECHNOLOGY  
 DEPARTMENT OF CHEMICAL ENGINEERING  
 EVALUATION RUBRICS FOR PROJECTS

CRITERIA										
Sl. No.	Roll No.	Name of the student	Complexity (10)	Cost Awareness (10)	Environmental Relevance (10)	Sustainability (10)	Total Marks (40)	Average	% Secured	Attainment Level
1	20CHE001	FIOTTI SEKHA PANDA	8	7	9	9	33	8.25	87.5	3
2	20CHE002	DEMANJAY BARIK	5	5	9	4	23	5.75	87.5	1
3	20CHE003	HRUSIKESH SAHOO	5	6	8	5	24	6	60	2
4	20CHE004	AKASH CHOURBEEY	4	5	8	7	24	6	60	2
5	20CHE006	GIRIDHAR NAIK	6	7	8	8	29	7.25	77.5	3
6	20CHE007	AVIKAR DASH	3	7	6	8	24	6	60	2
7	20CHE008	DEEPMALA BARIK S. SAHU	6	4	6	8	26	7	70	3
8	20CHE009	SOLARANKANTA DAS	5	6	5	8	24	6	60	2
9	20CHE010	SIBRAMANDA PARICHHA	5	5	7	7	24	6	60	2
10	20CHE011	SONAMONI KUMARI	6	5	5	4	20	5	50	1
11	20CHE012	PRADEEP KUMAR HIROKA	6	5	6	6	23	5.75	87.5	1
12	20CHE014	PAPPUKUMAR	6	5	6	7	24	6	60	2
13	20CHE015	TRAYANIBAK RATH	7	7	7	5	26	6.5	65	2
14	20CHE016	SOULTRA SUBLIHI	7	9	9	8	33	8.25	87.5	3
15	20CHE017	DEEPMALA BARIK S. SAHU	5	8	5	8	26	6	60	2
16	20CHE020	DEBIDATTASAMANTARAY	5	5	5	6	21	5.25	59.5	1
17	20CHE021	SUBHAM SUBUDHI	7	6	6	4	23	5.75	87.5	1
18	20CHE022	SMRUTI RANJAN BARIK	8	9	7	4	28	7	70	3
19	20CHE023	ASHUTOSH PATTAIK	8	7	9	5	29	7.25	77.5	3
20	20CHE024	SUMIT KU BARIK	8	7	4	7	26	6.5	65	2
21	20CHE025	ASHUTOSH PARMANIK	6	7	4	7	24	6	60	2
22	20CHE017	TRESABA RAO	4	6	6	7	23	5.75	87.5	1
23	20CHE018	GADDAMVENKATESH	4	6	7	3	20	5	50	1

**No. of students having marks > and = R:** Rating in 3 scale (1)

≥ 80%	3
61% - 80%	2
≤ 60%	1

**Table 3.7.5: Assessment Tool used to measure COs**

Assessment type	Tool	Tool Title	Tool Description
<b>Direct Assessment Tools</b>	Assignment		Attainment of Course Outcomes (COs) is measured through questions prepared by faculty to critically test the strength of students. This tool is useful to test the responsiveness of the student in identifying, formulating and solving problems given by the faculty. It also helps to gauge written presentation skills of the students.
	Class Test		This performance assessment tool is used to evaluate the attainment of COs through direct questions related to the specific topics covered during a designated period. Class test is conducted for all the courses which are delivered through lectures and/or tutorials.
	Cycle Test		This performance assessment tool is used to evaluate attainment of COs through direct questions related to the specific topics covered during a designated period. Cycle Tests are conducted for all the courses which are delivered through lectures and/or tutorials.

	Lab Exam	The performance in laboratory is evaluated through appropriate rubrics. The students are tested for their confidence in terms of design of a system and experimentation. Ability of the students to analyze and interpret the results of experiments is continuously evaluated by the faculty during laboratory classes. The strength of the students in using their skills and tools in the laboratory is also evaluated in external laboratory examinations.
	End Sem Exam	This tool examines at all intellectual levels the ability and understanding of the students with respect to the concepts taught and their applicability in solving complex engineering problems. The ability of the students to understand and apply knowledge of mathematics, science and engineering concepts in solving engineering problems is keenly evaluated.
<b>Indirect Assessment Tools</b>	Course End Survey Questionnaire	Towards the end of the course, course-end survey on a 5-point scale is conducted by the faculty member offering the course to obtain student feedback about attainment of Course outcome. Students are required to provide their views on the methods adopted by faculty member for delivering the course content and the assessment tools used for evaluating performance.
	Alumni Survey	Collect variety of information about program Satisfaction and college from the Alumni students
	Exit Feedback	Collect variety of information about program Satisfaction and college from the final year students.
	Employer's Feedback	Collect variety of information about the graduates' skills, capabilities and opportunities.

**Table 3.7.6: Weightage to measure Cos for Assessment tools**

Aspect	R-19	R-23
<b>CO Attainment</b>		
<b>Direct CO Attainment</b>	<b>80%</b>	<b>80%</b>
Internal Assessment	30% (Class Test I & II, Cycle Test I & II, Assignment/Quiz)	40% (Class Test I & II, Cycle Test I & II, Assignment/Quiz)
End Semester Exam	70%	60%
<b>Indirect CO Attainment</b>	<b>20% (Course End Survey, Alumni Survey, Exit Feedback, Employer Feedback)</b>	<b>20% (Course End Survey, Alumni Survey, Exit Feedback, Employer Feedback)</b>

### 3.7.2. Record the Attainment of Course Outcomes of all Courses with Respect to Set Attainment Levels (20)

**Table 3.7.7: Attainment of Course Outcomes of all Courses for R-19**

Course	Subject Name	Attainment Level

C101	Engineering Mathematics-I	2.1
C102	Engineering Physics	1.9
C103	Basic Electrical and Electronics Engineering	1.8
C104	Programming for Problem Solving	1.9
C105	Communicative English and Soft Skills	2.1
C106	Engineering Physics Lab	2.4
C107	Basic Electrical and Electronics Engineering Lab	2.4
C108	Programming for Problem Solving Lab	2.2
C109	Communicative English and Soft Skills Lab	2.4
C110	Engineering Graphics & Design	2.2
C111	Engineering Mathematics-II	2.1
C112	Engineering Chemistry	2.4
C113	Basics of Mechanics	1.9
C114	Data Structure and Algorithms	1.8
C115	Communicative English and Technical Communication	2.7
C116	Engineering Chemistry Lab	2.7
C117	Data Structure and Algorithms Lab	2.4
C118	Communicative English and Technical Communication Lab	2.5
C119	Engineering Workshop	1.9
C201	Engineering Mathematics-III	1.8
C202	Object Oriented Programming	1.7

C203	Heat Transfer	1.9
C204	Fluid Mechanics	2
C205	Chemical Process Calculation	2
C206	Organizational Behavior	2.2
C207	Object Oriented Programming Using Java Lab	2.2
C208	Heat Transfer Lab	2.4
C209	Fluid Mechanics Lab	2.5
C210	Summer Industry Internship	2.4
C211	Material Science	2
C212	Chemical Engineering Thermodynamics	2.2
C213	Mass Transfer-I	2
C214	Mechanical Operations	2.1
C215	Numerical Methods in Chemical Engineering	1.7
C216	Engineering Economics and Costing	2
C217	Material Testing Lab	2.5
C218	Thermo physical Lab	2.4
C219	Mass Transfer-I Lab	2.5
C220	Mechanical Operations Lab	2.6
C221	Project	2.5
C301	Chemical Process Technology	2.4
C302	Chemical Reaction Engineering- I	2.3
C303	Transport Phenomenon	2.2

C304	Mass Transfer-II	2.1
C305	Process utility and Industrial Safety	2
C306	Process Instrumentation	2.2
C307	Human Value & Professional Ethics	2.2
C308	Chemical Process Technology Lab	2.4
C309	Chemical Reaction Engineering- I Lab	2.4
C310	Mass Transfer-II Lab	2.6
C311	Summer Industry Internship	2.4
C312	Minor Project-I	2.3
C313	Process Equipment Design	2.1
C314	Process Control	2
C315	Chemical Reaction Engineering- II	2.1
C316	Process Modelling and Simulation	2
C317	Fuel and Energy Technology	2
C318	Optimization in Engineering	1.6
C319	Dietetics and Nutrition	2
C320	Process Equipment Design Lab	2.4
C321	Process Control Lab	2.4
C322	Minor Project-I	2.5
C401	Modern Separation Technique	2
C402	Integrated Solid Waste Management	2
C403	Industrial Engineering	2

C404	Entrepreneurship Development	2.1
C405	Summer Industry Internship	2.2
C406	Major Project Work-I	2.4
C407	Pollution and its control	2.4
C408	Petroleum Refinery Engineering	2.1
C409	Biochemical Engineering	2
C410	Major Project Work-II & Dissertation	2.5

**Fig. 3.7.4: Sample copy of Direct Course assessment**

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

Department of Chemical Engineering

## Course Assessment

Course Name:		Fluid Mechanics	Faculty Name:		Dr. Suman Mishra	Course Code:		22CHCP32002																																					
		Internal Examination-1												Internal Examination-2																															
Sl. No	REGD NO	ROLL NO	CLASS TEST 1						CYCLE TEST 1						CLASS TEST 2						CYCLE TEST 2						Assignment	TOTAL	Assignment	TOTAL															
			1	2	3	4	5	6	7	TOTAL	1a	1b	1c	1d	2a	2b	3a	3b	TOTAL	1	2	3	4	5	6	7	8	9	10	TOTAL	1a	1b	1c	1d	TOTAL	Assignment	TOTAL	Internal	External	GRADE					
Maximum Marks			2	2	2	2	2	5	5	TOTAL	20	2	2	2	2	2	10	10	10	10	50	30	30	2	2	2	2	2	2	20	20	20	20	20	50	30	37.5	36							
CO			1	1	2	1	1	1	1	TOTAL	1	1	1	2	2	1	1	1	2	TOTAL	1	2	3	4	3	4	4	4	2	2	3	4	4	4	3	3	4	4							
1	22UG010084	22CHE001	2	2	2	1	0	3	1	11	2	2	1	1	0	1	7	7	7	TOTAL	20	26	22	2	2	2	2	1	1	1	2	2	15	2	1	2	2	7	7	21	29	25	B		
2	22UG010085	22CHE002	2	2	1	2	1	4	4	TOTAL	16	2	1	2	2	2	10	10	10	10	29	24	26	1	1	1	2	2	2	1	1	2	2	12	2	1	1	2	2	10	6	24	24	23	B
3	22UG010086	22CHE004	2	2	1	0	2	3	10	TOTAL	2	2	10	6	6	22	27	23	2	2	2	0	1	1	1	2	2	2	1	1	1	8	8	8	21	25	21	23	B						
4	22UG010087	22CHE005	2	1	2	0	2	5	12	TOTAL	2	2	2	2	2	10	4	24	24	23	2	1	1	0	1	1	1	5	2	1	2	2	8	6	6	20	22	B							
5	22UG010088	22CHE006	2	2	1	0	1	2	9	TOTAL	0	1	1	1	1	1	7	11	18	TOTAL	18	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	7	6	16	24	20	C		
6	22UG010089	22CHE007	1	2	1	2	2	2	2	TOTAL	12	2	2	2	2	1	1	4	13	TOTAL	20	2	2	2	2	2	2	2	0	2	18	2	1	2	2	1	8	10	26	22	25	B			
7	22UG010090	22CHE008	2	2	1	0	2	1	2	TOTAL	10	1	1	2	1	2	10	7	25	TOTAL	23	2	0	2	2	2	2	2	16	2	2	2	2	2	2	2	8	8	26	29	27	A			
8	22UG010091	22CHE009	2	2	2	2	4	5	19	TOTAL	2	0	2	2	9	6	23	26	26	TOTAL	0	2	2	2	1	2	2	2	8	8	25	26	24	26	A										
9	22UG010092	22CHE010	0	0	2	1	0	2	3	TOTAL	8	2	0	2	0	9	0	5	18	TOTAL	19	1	2	1	1	1	1	1	6	2	1	1	1	8	5	17	28	20	C						
10	22UG010093	22CHE011	2	1	2	1	0	1	5	TOTAL	12	2	0	2	2	6	14	30	TOTAL	21	1	1	1	2	1	2	1	0	10	2	2	2	1	2	6	8	22.5	27	23	B					
11	22UG010094	22CHE012	0	2	2	1	2	0	1	TOTAL	8	0	2	0	2	4	8	22	TOTAL	15	0	1	1	2	2	1	0	0	1	8	1	2	8	8	19	22	19	C							
12	22UG010095	22CHE013	1	1	0	0	2	2	3	TOTAL	9	2	1	1	1	1	9	6	20	TOTAL	24	0	1	1	1	1	1	1	1	7	1	2	2	8	9	20	24	20	C						
13	22UG010096	22CHE014	2	2	0	2	5	4	15	TOTAL	0	2	2	2	6	5	17	23	TOTAL	21	2	2	1	1	1	1	1	8	2	2	2	2	2	10	8	26	26	23	B						
14	22UG010097	22CHE016	2	1	1	0	2	1	7	TOTAL	0	3	0	6	0	9	2	15	TOTAL	15	0	1	1	1	1	1	1	0	2	1	2	2	6	7	22	18	15	D							
15	22UG010098	22CHE016	0	1	2	1	1	5	9	TOTAL	1	0	0	0	0	4	0	4	11	TOTAL	15	1	1	1	1	1	1	1	1	8	2	1	2	1	2	8	8	24	15	18	D				
16	22UG010099	22CHE017	1	0	0	0	0	1	2	TOTAL	4	0	5	9	4	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	7	13	20	14	F									
17	22UG010100	22CHE018	0	1	0	1	0	1	3	TOTAL	5	2	2	2	2	1	5	8	20	TOTAL	24	19	2	0	1	2	1	1	2	1	12	1	2	2	2	2	8	5	22	21	21	C			
18	22UG010101	22CHE019	1	2	2	1	1	1	2	TOTAL	5	2	1	1	2	5	7	19	23	TOTAL	18	2	1	2	1	1	2	2	13	2	2	2	1	2	5	5	19	19	20	C					
19	22UG010102	22CHE020	2	1	2	0	2	4	5	TOTAL	16	2	1	2	1	5	8	19	25	TOTAL	23	2	1	1	2	1	1	1	1	10	2	1	2	1	2	10	10	28	18	21	C				
20	22UG010103	22CHE021	1	1	2	1	1	1	6	TOTAL	1	2	1	1	6	6	16	25	TOTAL	18	1	1	0	2	2	2	2	8	1	1	1	2	1	10	8	24	20	20	C						
21	22UG010104	22CHE022	0	0	1	0	0	3	4	TOTAL	2	2	2	2	2	2	0	8	24	TOTAL	14	2	2	2	2	2	2	2	2	10	1	2	2	2	6	9	23	21	21	C					
22	22UG010105	22CHE023	2	0	0	0	1	3	TOTAL	0	2	6	0	8	20	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	5	12	25	14	F									
23	22UG01LE03	22CHE031 (L)	1	1	1	0	0	0	0	TOTAL	8	7	15	22	15	0	1	1	2	TOTAL	1	2	1	1	2	1	2	1	2	1	9	8	2	2	2	8	5	19	20	18	D				
24	22UG01LE04	22CHE032 (L)	2	2	2	2	1	5	16	TOTAL	0	1	1	2	9	4	16	24	TOTAL	21	0	1	1	1	1	1	1	2	1	2	1	1	2	2	8	7	24	25	23	B					
25	22UG01LE05	22CHE033(L)	0	0	1	0	1	1	3	TOTAL	7	5	12	25	15	2	0	1	1	TOTAL	2	1	1	1	1	1	1	1	8	1	0	2	2	6	8	19	25	20	C						
Class Average Mark			1.3	1.1	1.4	0.7	1.2	1.9	2.8	TOTAL	14	1.2	1.1	1.5	1.4	6.6	2.7	5.5	3.9	TOTAL	24.3	1.2	1.1	1.3	1.2	1.2	1.5	1.3	1.4	1.1	1.3	1.7	1.3	1.7	1.8	18	7.8	7.0	7.3	6.0	21.3	22.9	17	21.6	D
Student Scored above average mark			13	9	13	12	12	8	13	TOTAL	14	6	6	12	12	10	2	10	8	TOTAL	10	10	6	9	9	3	11	6	7	6	7	17	10	14	13	12	15	2	13	1	13	13	10	12	28
Students attempted the question			25	24	25	22	20	16	24	TOTAL	20	14	18	20	20	21	6	16	11	TOTAL	25	19	22	23	22	9	20	17	12	14	18	23	24	19	17	15	22	3	24	1	25	25	19	25	31
% students scored above average mark			52	38	52	55	60	50	54	TOTAL	70	43	33	60	60	48	33	63	73	TOTAL	40	53	27	39	41	33	55	35	58	43	39	74	42	74	76	80	68	67	54	100	52	52	39	48	90
Attainment level			2	1	2	2	2	1	2	TOTAL	3	1	1	2	2	1	1	2	3	TOTAL	2	1	1	1	1	2	1	1	1	1	3	1	3	3	3	2	2	2	3	2	0	1	3		

**Signature of Faculty**

Fig. 3.7.4: Sample copy of Indirect Course assessment



## Department of Chemical Engineering

INDIRECT COURSE ASSESSMENT

Course Name:	Fluid Mechanics
Faculty Name:	Dr. Suman Mishra
Course Code:	22BCHPC23002

Sl No.	Roll No.	Regd. NO.	CO1	CO2	CO3	CO4
1	22CHE001	22UG010084	2	3	2	3
2	22CHE002	22UG010085	3	4	4	3
3	22CHE004	22UG010086	4	4	4	4
4	22CHE005	22UG010087	3	2	4	2
5	22CHE006	22UG010088	3	4	4	4
6	22CHE007	22UG010089	4	4	4	4
7	22CHE008	22UG010090	3	4	4	4
8	22CHE009	22UG010091	4	4	4	4
9	22CHE010	22UG010092	3	4	4	4
10	22CHE011	22UG010093	4	3	4	4
11	22CHE012	22UG010094	4	3	4	4
12	22CHE013	22UG010095	4	4	4	4
13	22CHE014	22UG010096	3	4	3	3
14	22CHE015	22UG010097	4	4	3	4
15	22CHE016	22UG010098	4	4	4	3
16	22CHE017	22UG010099	3	4	4	4
17	22CHE018	22UG010100	3	3	4	4
18	22CHE019	22UG010101	3	4	4	3
19	22CHE020	22UG010102	4	4	4	4
20	22CHE021	22UG010103	4	3	4	4
21	22CHE022	22UG010104	3	3	4	4
22	22CHE023	22UG010105	3	2	3	2
23	22CHE031 (L)	22UG01LE03	3	3	4	4
24	22CHE032(L)	22UG01LE04	4	4	4	4
25	22CHE033(L)	22UG01LE05	4	4	4	4
		Average	3.44	3.56	3.80	3.64
		Overall Avg.	2.71			

3.65/4
2.74/3

Signature

**3.8 Attainment of Program Outcomes and Program Specific Outcomes**

In Outcome based Education, assessment done through one or more than one processes, carried out by the institution, that identify, collect, and prepare data to evaluate the achievement of programme educational objectives, program outcomes and course objectives and outcomes.

### PO Assessment Tools

Programme Outcomes (POs) and Course Outcomes (COs) are assessed using both direct and indirect methods:

- Direct Methods involve evaluating student performance through tests, exams, presentations, and assignments, offering concrete evidence of learning.
- Indirect Methods include surveys and interviews with stakeholders to gather feedback on students' knowledge and skills.

Since outcomes span multiple courses (core and electives), assessments cover various subjects. For complex outcomes like critical thinking or problem-solving, Criterion-Referenced Rubrics are used. These rubrics, often developed by faculty (sometimes with student input), are shared in advance and used consistently for both formative and summative assessments. Rubrics help track student progress and ensure transparency in evaluation.

### Program Outcome (PO) Assessment Process:

The Department Advisory Committee (DAC), along with program and course coordinators, defines performance indicators and targets for each PO. These indicators are aligned with specific courses. Faculty develop Course Outcomes (COs) based on the POs and use Bloom's Taxonomy to design lectures, tests, and assignments.

Each PO is assessed across multiple courses to ensure comprehensive skill and knowledge development. Faculty set CO targets, analyze student performance, and submit reports with improvement suggestions to the DAC. Assessments include both formative and summative methods.

The DAC reviews course reports and initiates corrective actions if targets are not met. It also designs survey tools for indirect PO assessment (e.g., alumni and employer feedback) and shares them with the Program Assessment Committee (PAC) for distribution.

Assessment data is analyzed by the DAC:

- If targets are met, the outcome is considered attained.
- If not, corrective actions are proposed and reviewed by BOS members and Academic Council.
- Direct PO assessment is conducted every semester.
- Indirect PO assessment is carried out annually.

### **(i) Direct Assessment:**

Course Assessments: Evaluate student performance in exams, assignments, quizzes, and other assessments.

CO Attainment Calculation: Calculate how well each CO was attained based on assessment results.

PO Attainment Calculation: Use the CO-PO mapping matrix and CO attainment levels to determine the extent to which each PO was attained.

### **(ii) Indirect Assessment**

#### **A. Feedback from Students – Semester Survey From**

A questionnaire about the course is prepared by the course coordinator and the program coordinator, and is distributed to students to get their feedback at end of the semester to see whether the POs and PSOs are strongly or loosely attained

Program shall set Program Outcome attainment levels for all POs & PSOs.

(The attainment levels by direct (student performance) and indirect (surveys) are to be presented through Program Level Course – PO & PSO matrix as indicated).

#### **Stakeholder Feedback for effective participation for PO'S and PSO Attainment**

##### **a) Exit Feedback:**

- The Exit Feedback questionnaire is prepared by the Program Assessment Committee in consultation with the Department Advisory Committee.
- The Exit Feedback questionnaire is distributed to the students at the end of every semester.
- The Surveys so gathered are assessed with a rating of 3 for Substantial, 2 for Moderate, and 1 for Slight.

The template for exit survey is given below:

**Fig. 3.8.1: Sample of Exit feedback form**

 <p><b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b>  <b>(GIET UNIVERSITY)</b>          (Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi,          and Approved by AICTE, ICAR, INC, DSIR, New Delhi)  <b>Gunupur - 765022, Dist. Rayagada, Odisha, India</b>  <b>CHEMICAL ENGINEERING DEPARTMENT</b>          Exit Feedback-SURVEY FORM</p>				
<b>Exit Feedback-SURVEY</b>				
<b>Personal Details</b>				
Name: <u>Jyoti Neelka Panda</u> Branch: <u>Chemical Engineering</u> College Roll No. <u>2014EC001</u> Regd. No. <u>2014000086</u> Email ID: <u>pandajyotineelka2000@gmail.com</u>  Permanent Address C/o <u>Rajendra kumar Panda</u> At: <u>Harakpur</u> Po: <u>Malepur</u> Via: <u></u> Dist: <u>Rayagada</u> State: <u>Odisha</u> Pin: <u>756003</u> Parent Email ID: <u>rajendrakumar.panda1974@gmail.com</u>				
Present Address C/o <u>Rajendra kumar Panda</u> At: <u>Rayagada</u> Po: <u>Rayagada</u> Via: <u>RD No 1</u> Dist: <u>Rayagada</u> State: <u>Odisha</u> Pin: <u>756001</u> Phone Number: <u>7006812053</u>				
Please tick the appropriate ratings : 1 = Poor, 2 = Satisfactory, 3 = Excellent				
Sl. No.	<b>Questionnaire</b>	<b>Substantial (3)</b>	<b>Moderate (2)</b>	<b>Slight (1)</b>
<b>1</b>	Apply the knowledge of mathematics, science, engineering fundamentals to solve complex Chemical engineering problems.	<input checked="" type="checkbox"/>		
<b>2</b>	Apply research based knowledge to design and conduct experiments, analyze, synthesize and interpret the data pertaining to Chemical Engineering problems and arrive at valid conclusions.		<input checked="" type="checkbox"/>	
<b>3</b>	Design solutions for Chemical engineering problems and design system components and processes that meet the specified needs with appropriate consideration for public health and safety.	<input checked="" type="checkbox"/>		
<b>4</b>	Function effectively either as a member or a leader in a multi disciplinary activities	<input checked="" type="checkbox"/>		
<b>5</b>	Identify, formulate and analyze problems related to Chemical engineering and substantiate the conclusions	<input checked="" type="checkbox"/>		

using the first principles of sciences and engineering.

6 Develop consciousness of professional, ethical and social responsibilities as experts in the field of Chemical Engineering.

7 Communicate the engineering activities to engineering society for documentation and presentation.

8 The broad education including management & finance necessary to understand the impact of engineering solutions in global, economic, environmental, and societal context

9 Realize the need for lifelong learning and engage them to adopt technological changes in their specialized areas of Chemical engineering.

10 Continuously update their knowledge on contemporary issues.

11 Construct, choose and apply the techniques, resources and modern engineering tools required for Chemical Engineering applications.

12 Qualify in competitive examinations like GATE, IES etc.

*Jyoti Neelka Panda - 9.05.24*  
 Signature with date  
 Name: Jyoti Neelka Panda  
 For office use only:

Overall average:

**Table 3.8.1: Mapping of exit feedback questionnaire with POs & PSOs**

S.N o.	Parameter for evaluation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>1</b>	Apply the knowledge of mathematics, science, engineering fundamentals	3												2	2
<b>2</b>	Apply research based knowledge to design and conduct experiments, analyze, synthesize and interpret the data pertaining to Chemical Engineering problems and		3											2	2

	arrive at valid conclusions.													
3	Design solutions for Chemical engineering problems and design system components and processes that meet the specified needs with appropriate consideration for public health and safety.				3									2
4	Function effectively either as a member or a leader in a multi-disciplinary activities.				3								2	2
5	Identify, formulate and analyze problems related to Chemical engineering and substantiate the conclusions using the first principles of sciences and engineering.					3								2
6	Develop consciousness of professional, ethical and social responsibilities as experts in the field of Chemical Engineering.						3							
7	Communicate the engineering activities to							3					3	

	engineering society for documentation and presentation.													
<b>8</b>	The broad education including management &finance necessary to understand the impact of engineering solutions in global, economic, environmental, and societal context												3	
<b>9</b>	Realize the need for lifelong learning and engage them to adopt technological changes in their specialized areas of Chemical engineering.												3	<b>2</b>
<b>10</b>	Continuously update their knowledge on contemporary issues.												3	<b>3</b> <b>2</b>
<b>11</b>	Construct, choose and apply the techniques, resources and modern engineering tools required for Chemical Engineering applications.												3	<b>2</b>

12	Qualify in competitive examinations like GATE, IES, etc.											3		2
----	--	--	--	--	--	--	--	--	--	--	--	---	--	---

## (b) Alumni Survey:

- The Alumni Survey questionnaire is prepared by the Program Assessment Committee in consultations with the Department Advisory committee.
- The Alumni Survey questionnaire is published in the college website. The Survey is taken during the Alumni Meet held every year.
- The Surveys so gathered is assessed with a rating of 3 for Excellent (E), 2 for Good (G) and 1 for Poor (P).

Fig. 3.8.2: Sample of Alumni Survey form

 <b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR (GIET UNIVERSITY)</b> <small>(Established by Odisha Act 23 of 1995, included in UGC Model-2011 and Approved by AICTE, IIT, IIS, IITB, New Delhi)</small> <b>Gunupur - 765022, Dist - Rayagada, Odisha, India</b> <b>CHEMICAL ENGINEERING DEPARTMENT</b> <b>EMPLOYEE FEEDBACK SURVEY FORM</b>		ALUMNI SURVEY		
		<p>We shall be thankful to and appreciate you, if you can spare some of your valuable time to fill up this feedback form and give us your valuable suggestion for further improvement of the Institution programme. Your valuable input will be of great use to improve the quality of our academic program and enhance the credibility of the Institute.</p> <p>Sincerely Yours, Yours Truly,</p> <p><i>[Signature]</i></p> <p>Please tick the appropriate ratings: 1 = Poor, 2 = Satisfactory 3 = Excellent.</p>		
Sl. No.	Questionnaire	3	2	1
1	Are you pursuing any higher studies?	<p>a. Yes, I have already enrolled for higher studies.</p> <p>b. I want to pursue higher studies in near future.</p> <p>c. I have no plans for further studies.</p>		
2	What is your current career position?	<p>a. I am an entrepreneur and own a business.</p> <p>b. I am employed right now.</p> <p>c. I am trying to get employment.</p> <p>If so, please give details of employment/entrepreneurship details</p>		
3	Have you been working as a consultant adopting any new technologies/Entrepreneur?	<p>a. Yes, I am working as consultant.</p> <p>b. I am employed right now.</p> <p>c. I am trying to get employment.</p>		
4	Are you enthusiastic in learning new technologies in the field of engineering?	<p>a. Yes, I am very comfortable.</p> <p>b. I am comfortable for then 50% part.</p> <p>c. I am not very comfortable.</p>		
5	Are you able to apply knowledge and technical skills so as to carry out tasks engineering related to your studies?			
<p>by the job specifications?</p> <p>a. Yes, It was very satisfying to apply the knowledge and skills.</p> <p>b. I am learning to apply the knowledge and skills.</p> <p>c. I still need to learn a lot on the job.</p>				
6	Are you able to understand the social and global issues to be considered while providing engineering solutions?	<p>a. Yes, I fully understand.</p> <p>b. I partly understand.</p> <p>c. I am trying to understand.</p>		
7	Are there instances when you are able to improve upon the designs that was originally suggested?	<p>a. Many times.</p> <p>b. Few times.</p> <p>c. Waiting for the opportunity.</p>		
8	Are you able to integrate the knowledge acquired to provide optimal solution to the Research-real-time problems?	<p>a. Yes, I am able to integrate the knowledge acquired.</p> <p>b. I am still figuring to come up with solutions.</p> <p>c. I am still learning.</p>		
9	Do you use modern technologies, processes, and software?	<p>a. I always use tools to improve performance.</p> <p>b. Try to use them sometimes.</p> <p>c. I stick to traditional methods.</p>		
10	Are you able to vary communication in your professional transaction?	<p>a. Yes, I can adapt comfortably.</p> <p>b. Yes, I can manage.</p> <p>c. I am trying.</p>		
11	Do you follow professional and ethical code of conduct to perform given tasks?	<p>a. Always.</p> <p>b. Sometimes.</p> <p>c. Never.</p>		
12	Do you participate in collaborative projects / working groups in your workplace to meet common goals?	<p>a. Yes, I am working with different collaborations.</p> <p>b. I am working comfortably with groups towards the project.</p> <p>c. Sometimes.</p>		
13	Do you attend any conferences or seminars in your field to upgrade your skills?	<p>a. Very often.</p> <p>b. Often.</p> <p>c. Once in a while.</p>		
<p>How well did your education prepare you for personal development?</p> <p>a. Well.</p> <p>b. Adequate.</p> <p>c. Not well.</p>				
14	Are you able to integrate engineering and management principles for implementation of the projects?	<p>a. Yes, I was able to integrate the knowledge.</p> <p>b. Sometimes.</p> <p>c. I have difficulty in applying.</p>		
<p><i>[Signature]</i> Date: 15.04.2023    Signature with date:    Name: <i>[Signature]</i> Ram K.    Position: <i>[Signature]</i></p> <p>Overall average:</p>				

**Table 3.8.2: Mapping of Alumni feedback questionnaire with POs & PSOs**

S. N. o.	Parameter for evaluation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	Are you pursuing any higher studies?												2		
2	What is your current career position?						3						2		
3	Have you been working as a consultant adopting any new technologies/Entrepreneur?					3			3						3
4	Are you enthusiastic in learning new technologies in the field of engineering?						2								2
5	Are you able to apply knowledge and technical skills so as to carry out tasks in the engineering field as and when required by the job specifications?	3	2	1	2										2
6	Are you able to understand the social and global issues to be considered while providing engineering solutions?			1				1	2						
7	Are there instances when you are able to Improve upon the design that was originally suggested?			3	3										
8	Are you able to integrate the knowledge acquired to provide optimal solution to the Research/real-time problems?														3
9	Do you use modern technologies, processes, and						3								

	software/tools?												
10	Are you able to vary communication in your professional transaction?									3			
11	Do you follow professional and ethical code of conduct to Performa given task?								3				
12	Do you participate in collaborative projects / working groups in your workplace to meet common goals?								3	2			
13	Do you attend any conferences or seminars in your field to upgrade your skills?										3		
14	How well did your education prepare you for personal development?										2		
15	Are you able to integrate engineering and management principles for implementation of the projects?										3		

### (c) Employer Survey:

- The Employer Survey questionnaire is prepared by the Program Assessment Committee in consultations with the Department Advisory Committee and the Placement Cell Coordinator.
- The Employer Survey questionnaire is published in the college website. The Survey is also taken during the Placement activities held every year.
- The Surveys so gathered is assessed with a rating of 3 for Excellent (E), 2 for Good (G) and 1 for Poor (P).

**Fig. 3.8.3: Sample of Employer Survey form**

 <p><b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b>  <b>(GIET UNIVERSITY)</b>  <small>[Established Odisha Act 27 of 2018, Inducted by UGC, New Delhi, and Approved by AICTE, CAR, INC, CSR, New Delhi]</small></p> <p>Gunupur - 765022, Dist: Rayagada, Odisha, India      CHEMICAL ENGINEERING DEPARTMENT      EMPLOYER FEEDBACK SURVEY FORM      EMPLOYER SURVEY</p> <p>Sir,</p> <p>Our Institute is falling in line with outcome based education in continuity with the international practices (as per Washington Accord). The assessment of the outcome has to be through a survey (such as Graduate survey, Alumni survey, parent feedback, employer survey etc.). The following questions need your valued consideration. Please find some time and send in your answers to the following questions. This report will be kept confidential.</p> <p>Thanking you</p> <p>Please tick the appropriate ratings :      1 = Poor, 2 = Satisfactory, 3 = Excellent</p>		<table border="1"> <tr> <td colspan="3">Professional and ethical responsibility in Professional practice?</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a. They follow very scrupulously.  <input type="checkbox"/> b. They follow.  <input type="checkbox"/> c. In general, they are good.         </td> </tr> <tr> <td>5</td> <td colspan="3">Do you think graduates from GIETU possess the technical knowledge and skill needed to fulfill the job function?</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a. They are excellent in that respect.  <input type="checkbox"/> b. They have sufficient knowledge.  <input type="checkbox"/> c. They need to be trained.         </td> </tr> <tr> <td>6</td> <td colspan="3">Do GIETU graduates exhibit analytical skills?</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a. They can analyze complicated situation.  <input type="checkbox"/> b. They can analyze simple situations.  <input type="checkbox"/> c. They need a little bit of orientation         </td> </tr> <tr> <td>7</td> <td colspan="3">Do GIETU graduates possess the knowledge and skills to devise solutions to unfamiliar problems?</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a. They exhibit innovativeness.  <input type="checkbox"/> b. They give clever solutions sometimes.  <input type="checkbox"/> c. They need a little bit more experience.         </td> </tr> <tr> <td>8</td> <td colspan="3">Did you find GIETU graduates able to learn a new tool or procedure or technique as and when required?</td> </tr> <tr> <td colspan="3"> <input checked="" type="checkbox"/> a. No. They are always eager.  <input type="checkbox"/> b. They are interested in learning.  <input type="checkbox"/> c. When the new technology is tedious, they are reluctant.         </td> </tr> <tr> <td>9</td> <td colspan="3">Are GIETU graduates aware of the importance of social &amp; global aspects</td> </tr> <tr> <td colspan="3"> <input type="checkbox"/> a. Very conscious of social and global aspects.  <input type="checkbox"/> b. Aware of some of these aspects.  <input type="checkbox"/> c. Mostly interested in aspects immediately connected with work.         </td> </tr> <tr> <td>10</td> <td colspan="3">How much are GIETU graduates aware of the effect of their work quality towards safety, society and environment?</td> </tr> <tr> <td colspan="3"> <input checked="" type="checkbox"/> a. They are very much aware.  <input type="checkbox"/> b. They are aware to an extent.  <input type="checkbox"/> c. They will update themselves when needed.         </td> </tr> <tr> <td colspan="5"> <p>II</p> <p>Do GIETU graduates work under stress well and are adaptable to changes in environment?</p> <p><input checked="" type="checkbox"/> a. They respond well.  <input type="checkbox"/> b. They respond moderately.  <input type="checkbox"/> c. They are not adaptable to changes.</p> <p>12</p> <p>Do GIETU graduates perform as individual, in a Team, and exhibit leadership qualities?</p> <p><input checked="" type="checkbox"/> a. They possess leadership skills.  <input checked="" type="checkbox"/> b. They can work well in a group.  <input type="checkbox"/> c. They are excellent workers individually.</p> <p>13</p> <p>Can GIETU graduates vary their approach in Written and verbal communication according to the person or situation?</p> <p><input type="checkbox"/> a. They are very good at it.  <input checked="" type="checkbox"/> b. They can manage.  <input type="checkbox"/> c. They hesitate.</p> <p>14</p> <p>Do you feel graduates from GIETU are able to Plan, organize &amp; complete assigned projects?</p> <p><input checked="" type="checkbox"/> a. They are very organized and effective.  <input type="checkbox"/> b. They can manage.  <input type="checkbox"/> c. They need life skills training.</p> <p>15</p> <p>Do graduates from GIETU upgrade their knowledge to address the contemporary issues?</p> <p><input checked="" type="checkbox"/> a. They always upgrade.  <input type="checkbox"/> b. They learn to an extent.  <input type="checkbox"/> c. Will upgrade when compulsory.</p> <p><i>Signature to 3.8.3</i>      Signature with date      Name: <i>Mayank J. Patel</i>      For office use only:</p> <p>Overall average:</p> </td> </tr> </table>			Professional and ethical responsibility in Professional practice?			<input type="checkbox"/> a. They follow very scrupulously. <input type="checkbox"/> b. They follow. <input type="checkbox"/> c. In general, they are good.			5	Do you think graduates from GIETU possess the technical knowledge and skill needed to fulfill the job function?			<input type="checkbox"/> a. They are excellent in that respect. <input type="checkbox"/> b. They have sufficient knowledge. <input type="checkbox"/> c. They need to be trained.			6	Do GIETU graduates exhibit analytical skills?			<input type="checkbox"/> a. They can analyze complicated situation. <input type="checkbox"/> b. They can analyze simple situations. <input type="checkbox"/> c. They need a little bit of orientation			7	Do GIETU graduates possess the knowledge and skills to devise solutions to unfamiliar problems?			<input type="checkbox"/> a. They exhibit innovativeness. <input type="checkbox"/> b. They give clever solutions sometimes. <input type="checkbox"/> c. They need a little bit more experience.			8	Did you find GIETU graduates able to learn a new tool or procedure or technique as and when required?			<input checked="" type="checkbox"/> a. No. They are always eager. <input type="checkbox"/> b. They are interested in learning. <input type="checkbox"/> c. When the new technology is tedious, they are reluctant.			9	Are GIETU graduates aware of the importance of social & global aspects			<input type="checkbox"/> a. Very conscious of social and global aspects. <input type="checkbox"/> b. Aware of some of these aspects. <input type="checkbox"/> c. Mostly interested in aspects immediately connected with work.			10	How much are GIETU graduates aware of the effect of their work quality towards safety, society and environment?			<input checked="" type="checkbox"/> a. They are very much aware. <input type="checkbox"/> b. They are aware to an extent. <input type="checkbox"/> c. They will update themselves when needed.			<p>II</p> <p>Do GIETU graduates work under stress well and are adaptable to changes in environment?</p> <p><input checked="" type="checkbox"/> a. They respond well.  <input type="checkbox"/> b. They respond moderately.  <input type="checkbox"/> c. They are not adaptable to changes.</p> <p>12</p> <p>Do GIETU graduates perform as individual, in a Team, and exhibit leadership qualities?</p> <p><input checked="" type="checkbox"/> a. They possess leadership skills.  <input checked="" type="checkbox"/> b. They can work well in a group.  <input type="checkbox"/> c. They are excellent workers individually.</p> <p>13</p> <p>Can GIETU graduates vary their approach in Written and verbal communication according to the person or situation?</p> <p><input type="checkbox"/> a. They are very good at it.  <input checked="" type="checkbox"/> b. They can manage.  <input type="checkbox"/> c. They hesitate.</p> <p>14</p> <p>Do you feel graduates from GIETU are able to Plan, organize &amp; complete assigned projects?</p> <p><input checked="" type="checkbox"/> a. They are very organized and effective.  <input type="checkbox"/> b. They can manage.  <input type="checkbox"/> c. They need life skills training.</p> <p>15</p> <p>Do graduates from GIETU upgrade their knowledge to address the contemporary issues?</p> <p><input checked="" type="checkbox"/> a. They always upgrade.  <input type="checkbox"/> b. They learn to an extent.  <input type="checkbox"/> c. Will upgrade when compulsory.</p> <p><i>Signature to 3.8.3</i>      Signature with date      Name: <i>Mayank J. Patel</i>      For office use only:</p> <p>Overall average:</p>				
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**Table 3.8.3: Mapping of Employer feedback questionnaire with POs & PSOs**

S.No.	Parameter for evaluation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
1	Are GIETU Graduates engaged in research and development activities?			1	3								1	
2	Are GIETU graduates in any key positions in your organization?							2	1	3	3	2	1	
3	Do you think GIETU graduates have the ability to work as a freelance consultant?		2				2	2	1	1	3	3	1	
4	Do GIETU graduates have an understanding of Professional and ethical responsibility in Professional practice?						1		3					
5	Do you think graduates from GIETU possess the technical knowledge and skill needed to fulfill the job function?	3	2	2	3	3							3	3
6	Do GIETU graduates exhibit analytical skills?	3	3	3	3								3	
7	Do GIETU graduates possess the knowledge and Skills to devise	3	3		3					3				

	solutions to unfamiliar problems?												
8	Did you find GIETU graduates able to learn a new tool or procedure or technique as and when required?					3							
9	Are GIETU graduates aware of the importance of social & global aspects						3	3					
10	How much are GIETU graduates aware of the effect of their work quality towards safety, society and environment?						3	3					
11	Do GIETU graduates work under stress well and are adaptable to changes in environment?							1		1			
12	Do GIETU graduates perform as individual, in a Team, and exhibit leadership qualities?									3			
13	Can GIETU graduates vary their approach in written and verbal communication according to the person or									3			

	situation?											
14	Do you feel graduates from GIETU are able to Plan, organize & complete assigned projects?									3		3
15	Do graduates from GIETU upgrade their knowledge to address the contemporary issues?											

## (d) Parents Feedback:

Fig. 3.8.4: Sample of Parents feedback form

 <b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR (GIET UNIVERSITY)</b> <small>(Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSC, New Delhi)</small>																																				
<b>Gunupur - 765022, Dist. Rayagada, Odisha, India</b> <b>CHEMICAL ENGINEERING DEPARTMENT</b> <b>PARENTS FEEDBACK SURVEY FORM</b>																																				
<p>We request you to assist us by answering a few questions listed below in connection with our services to your son /daughter /ward studying in our institute. Your feedback would be invaluable to us in improving our teaching processes to serve the needs of our students better.</p>																																				
<p>Name of the parent : <u>Mn. Rajendra Panda, F/o: Jyoti nekha Panda</u>            Class : <u>B. Tech - Chemical Engineering</u>            Regn. No. : <u>20UG010086</u></p>																																				
<p>Please tick the appropriate ratings :</p> <p>1 = Poor, 2 = Satisfactory, 3 = Excellent</p> <table border="1"> <tr> <td>SL. No.</td> <td>Questionnaire</td> <td>3</td> <td>2</td> <td>1</td> </tr> <tr> <td>1</td> <td>How happy are you with the performance of the student?</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Improvement in the student's personality as compared to the same at the time of joining the institute?</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Improvement in the student's communication skills as compared to the same at the time of joining institute?</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>How well did we do in transforming the student into a good and responsible citizen?</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Feedback received by you from the student with regard to teaching.</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>Feedback received by you from the student with regard to extra-curricular activities.</td> <td><input checked="" type="checkbox"/></td> <td></td> <td></td> </tr> </table>		SL. No.	Questionnaire	3	2	1	1	How happy are you with the performance of the student?	<input checked="" type="checkbox"/>			2	Improvement in the student's personality as compared to the same at the time of joining the institute?	<input checked="" type="checkbox"/>			3	Improvement in the student's communication skills as compared to the same at the time of joining institute?	<input checked="" type="checkbox"/>			4	How well did we do in transforming the student into a good and responsible citizen?	<input checked="" type="checkbox"/>			5	Feedback received by you from the student with regard to teaching.	<input checked="" type="checkbox"/>			6	Feedback received by you from the student with regard to extra-curricular activities.	<input checked="" type="checkbox"/>		
SL. No.	Questionnaire	3	2	1																																
1	How happy are you with the performance of the student?	<input checked="" type="checkbox"/>																																		
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3	Improvement in the student's communication skills as compared to the same at the time of joining institute?	<input checked="" type="checkbox"/>																																		
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6	Feedback received by you from the student with regard to extra-curricular activities.	<input checked="" type="checkbox"/>																																		
<p>7 Feedback received by you from the student with regard to laboratory facilities. <input checked="" type="checkbox"/></p> <p>8 Feedback received by you from the student with regard to computer facilities. <input checked="" type="checkbox"/></p> <p>9 Feedback received by you from the student with regard to general infrastructural facilities. <input checked="" type="checkbox"/></p> <p>10 Feedback received by you from the student with regard to hostel facilities (only if applicable). <input checked="" type="checkbox"/></p> <p>11 Feedback received by you from the student with regard to the student's ability to cope with other students. <input checked="" type="checkbox"/></p> <p>12 Feedback received by you from the student with regard to the administration of the institute. <input checked="" type="checkbox"/></p> <p>13 Given the circumstances under which you admitted the student in the institute, your level of satisfaction in realizing your objectives. <input checked="" type="checkbox"/></p> <p>14 How strongly would you consider this institute for admitting another student, if you have to? <input checked="" type="checkbox"/></p>																																				
<p><i>Rajendra Panda - 12.12.2023</i>            Signature with date            Name: <u>Rajendra Kumar Panda</u>            For office use only:</p>																																				
<p>Overall average:</p>																																				

**Table 3.8.5: Mapping of Parents feedback questionnaire with PEOs**

Sl. No.	Parameter for evaluation	PEO1	PEO2	PEO3	PEO4
1	How happy are you with the performance of the student?	1	3	1	1
2	Improvement in the student's personality as compared to the same at the time of joining the institute?	2	1	3	3
3	Improvement in the student's communication skills as compared to the same at the time of joining institute?	2	1	1	3
4	How well did we do in transforming the student into a good and responsible citizen?	1	1	3	1
5	Feedback received by you from the student with regard to teaching.	3	2	2	3
6	Feedback received by you from the student with regard to extra-curricular activities.	3	1	2	3
7	Feedback received by you from the student with regard to laboratory facilities.	3	3	1	2
8	Feedback received by you from the student with regard to computer facilities.	1	2	-	3
9	Feedback received by you from the student with regard to general infrastructural facilities.	3	3		1
10	Feedback received by you from the student with regard to hostel facilities (only if applicable).	3	3		1
11	Feedback received by you from the student with regard to the student's ability to cope with other students.	1		1	2
12	Feedback received by you from the student with regard to the administration of the institute.	1	3		2
13	Given the circumstances under which you admitted the student in the institute, your level of satisfaction in realizing your objectives.	2	1	-	3
14	How strongly would you consider this institute for admitting another student, if you have to?	3		3	2

Fig. 3.8.5: Student's Satisfaction Survey Form

**GIET UNIVERSITY, GUNUPUR**  
**DEPARTMENT OF TRAINING & PLACEMENT**  
**Exit Interview Form**

Personal Details	
Name: Anandha Kumar, Chaudhury Branch: Chemical Engineering College Roll No. 111100101, Reg. No. 10012100078 Email ID: anandha.chaudhury12@gmail.com	
Mobile No.: 9770775350 Father's Mobile No.: 9379770737 Mother's Mobile No.: 7208999207 Home Land Line No.:	
Permanent Address	
C/o R&S SEKHAR, Anandha Kumar, Chaudhury At: Rayagada, Dist: Rayagada Via: Rayagada, Dist: Rayagada State: Odisha, Pin: 756001 Phone Email ID: anandha.chaudhury12@gmail.com	
Present Address	
C/o SoniShree Vihar Kalyan I, Balangir At: Gunupur, Dist: Gunupur Via: Gunupur, Dist: Rayagada State: Odisha, Pin: 765012 Phone Number: 8228940457	
Your Opinion about your department:	
About your teachers:	
About your Mess/Hostel:	
About Canteen:	
About your College Campus:	
About T&P Cell:	
Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Satisfactory <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Satisfactory <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Satisfactory <input checked="" type="checkbox"/> Excellent <input type="checkbox"/> Good <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Excellent <input checked="" type="checkbox"/> Good <input type="checkbox"/> Satisfactory <input type="checkbox"/> Excellent <input type="checkbox"/> Good <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/>	
Are you placed in campus: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes (Name of the company) <input type="checkbox"/> (Evening/ After) <input type="checkbox"/> If No, Where do you propose to go after exams for your placement? _____ Name of the place _____	
If going for higher studies, Give details _____	
Want to be a proud Alumnus: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Your suggestions for betterment: To P. should make an inquiry for technical Students. The food in mess should be improved to the best quality next College should organize the study tour and internship to the students. The College should provide industries training to students. The representation of they should have much more benefit to the students. The facility to give. Date: 01/09/22 Signature: Anandha Kumar, Chaudhury	

Fig. 3.8.6: Alumni Satisfaction Survey Form

**GIET UNIVERSITY**  
**VISITING ALUMNI FEEDBACK**  
**ESSENTIAL DETAILS**

Name: Aatmaram Regmi, Jaisi				
Date of Birth (DD/MM/YY): 01/05/2001 Mobile No.: 9348445250				
Year of Passing out: 2023				
University Registration No.: 1901040018				
Present Organisation: Mendal Pharma				
Designation: Officer				
E-mail ID: regmi.aatmaram201@gmail.com				
Present Address: Gujrat, Bharuch				
Permanent Address: Palhinandan, Nauvalparashi				
Father's Name: Dadhiram Jaisi				
Mobile No.: +91 9847546261				
Mother's Name: Mira Kumari Jaisi				
Mobile No.: +91 9814499370				
Sl. No.	Statement	Agree	Sometimes	Disagree
1	Do you feel proud to be associated with GIETU as Alumni ?	<input checked="" type="checkbox"/>		
2	University organizes various kind of activities for overall development of students ?	<input checked="" type="checkbox"/>		
3	Are you willing to contribute in the development of the University ?	<input checked="" type="checkbox"/>		
4	University handles Alumni's grievance ?	<input checked="" type="checkbox"/>		
5	University is having adequate laboratories and equipment for practical experiences ?	<input checked="" type="checkbox"/>		
6	Is education imparted at GIETU is useful and relevant in your present job ?	<input checked="" type="checkbox"/>		
7	Have you obtained sufficient technical knowledge (both in theory and practical) ?	<input checked="" type="checkbox"/>		

Contd. Pg. 2

Page - 2	
8 Has the T&P Cell provided ample On Campus and Off Campus Placement opportunities ? <input checked="" type="checkbox"/>	
9 Do you like to join the University Alumni Association ? <input checked="" type="checkbox"/>	
10 Is University providing good hospitality as Alumni after passing out ? <input checked="" type="checkbox"/>	
11 Do you receive regular updates from the University through Mails / Calls Etc. ? <input checked="" type="checkbox"/>	
Most Memorable moment in the University: teachers and all other working staff found cooperative of my branch and university too	
Suggestion for improvements: Departments increase a bit laboratory equipment related to industrial.	
University all ok	
30/09/2024 (Date)	
Aatmaram Regmi, Jaisi (Signature)	

**PO attainment:****Table 3.8.6: Overall PO Attainment for the Batch 2020-24**

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>Direct Attainment</b>	<b>2.25</b>	<b>2.12</b>	<b>1.76</b>	<b>2.32</b>	<b>1.58</b>	<b>1.6</b>	<b>1.83</b>	<b>1.38</b>	<b>1.6</b>	<b>2</b>	<b>1.76</b>	<b>1.3</b>
<b>Direct Attainment -80%</b>	1.80	1.70	1.41	1.86	1.26	1.28	1.46	1.10	1.28	1.60	1.41	1.04
<b>Indirect Attainment</b>	2	2	2.8	2.7	2.2	2	2.8	2.7	2.3	2	1.8	2
<b>Indirect Attainment (20%)</b>	0.4	0.4	0.56	0.54	0.44	0.4	0.56	0.54	0.46	0.4	0.36	0.4
<b>Overall Attainment</b>	2.20	2.10	1.97	2.40	1.70	1.68	2.02	1.64	1.74	2.00	1.77	1.44
<b>Overall Attainment (%)</b>	<b>73.33</b>	<b>69.87</b>	<b>65.60</b>	<b>79.87</b>	<b>56.80</b>	<b>56.00</b>	<b>67.47</b>	<b>54.80</b>	<b>58.00</b>	<b>66.67</b>	<b>58.93</b>	<b>48.00</b>
<b>Target</b>	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%

**Table 3.8.7: Overall PO Attainment for the Batch 2019-23**

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
<b>Direct Attainment</b>	2.25	2	2	2.3	1.5	1.6	1.6	1.4	1.5	2	1.5	1.3
<b>Direct Attainment (80%)</b>	1.80	1.60	1.60	1.84	1.20	1.28	1.28	1.12	1.20	1.60	1.20	1.04
<b>Indirect Attainment</b>	2.4	2.9	2.7	2.8	2.4	2.2	2.9	2.6	2.2	2.4	2	2.6
<b>Indirect Attainment (20%)</b>	0.48	0.58	0.54	0.56	0.48	0.44	0.58	0.52	0.44	0.48	0.4	0.52
<b>Overall Attainment</b>	2.28	2.18	2.14	2.40	1.68	1.72	1.86	1.64	1.64	2.08	1.60	1.56
<b>Overall Attainment (%)</b>	<b>76.00</b>	<b>72.67</b>	<b>71.33</b>	<b>80.00</b>	<b>56.00</b>	<b>57.33</b>	<b>62.00</b>	<b>54.67</b>	<b>54.67</b>	<b>69.33</b>	<b>53.33</b>	<b>52.00</b>
<b>Target</b>	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%

**PSO Attainment:****Table 3.8.8: Overall PSO Attainment for the Batch 2020-24**

Attainment	PSO1	PSO2
Direct Attainment (A)	2	1.9
Weightage (80%) – A	1.60	1.52
Indirect Attainment (B)	2.5	2.4
Weightage (20 %) - B	0.5	0.48
Attainment Level = (A+B)	<b>2.1</b>	<b>2.0</b>
Target Level (80%)	<b>70.0%</b>	<b>66.67%</b>

**Table 3.8.9: Overall PSO Attainment for the Batch 2019-23**

Attainment	PSO1	PSO2
Direct Attainment	1.8	1.7
Weightage (80%) – A	1.44	1.36
Indirect Attainment	2.8	2.6
Weightage (20 %) - B	0.56	0.52
Attainment Level = (A+B)	<b>2</b>	<b>1.88</b>
Target Level (80 %)	<b>66.67%</b>	<b>62.67%</b>

**PO Attainment using assessment tools:****Table 3.8.10: PO attainment value using direct assessment tools for R-19**

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101	2	2		2	1.75		1.5					1.75
C102	2	2	2	2	1		2					
C103	3	2.5		2.75								
C104	2		2	2								

<b>C105</b>	2.5	2	2.5					2		2.5		
<b>C106</b>	2			2					1.5	1	2	2
<b>C107</b>	2.5	2		2.5	1.5		2					2
<b>C108</b>	2.2	2.2	2	2.75		1.5	3					
<b>C109</b>	2.25	2	2.5					2		2.5		
<b>C110</b>	1.9	2.2		2								
<b>C111</b>	2.2	2.5	2.5	2.75								
<b>C112</b>	2.2			2.2		1			1.5	2	2	
<b>C113</b>	2.25	2	2.5	2.25	2.75	1.75	2		1.5	2	1.25	
<b>C114</b>	2	2		2.75			2.5		2.25		2.25	
<b>C115</b>	2.2	2	2	2.2				2.1				
<b>C116</b>	2.5	2	2	2.5								
<b>C117</b>	2.5	2	2.75	2.75								
<b>C118</b>	2.2			2.2				1.8	2	2	1.5	1.25
<b>C119</b>	2.4		2	2.4						2.25	2	
<b>C201</b>	2.5	2		2.5								
<b>C202</b>	2.75	2		2.75				1.75				
<b>C203</b>	2.25	2	1.5	2.25								
<b>C204</b>	2	2		2								
<b>C205</b>	2.2			2.2		1.75				2.2		1
<b>C206</b>	2.1					1.75	2.24	2		2		1
<b>C207</b>	2	2.4	1.5	2			2.4				1	
<b>C208</b>	2	2.2	1.5	2			2				1	
<b>C209</b>	2.4	2	1.75	2.4			2				1	
<b>C210</b>	2.2	2.5	2	2.2	-	-	-	-	1.5	-	-	-

<b>C211</b>	2			2		1.85	2			2		1
<b>C212</b>	2			2		1.9	2.5			2		1.1
<b>C213</b>	2	2.2	1.9	2			2				1	
<b>C214</b>	2	2		2.75								
<b>C215</b>	2	2.4	1.5	2.25	2							
<b>C216</b>	2.2	2.5	2	3	1	1.75	1.5	1.5	2			1.5
<b>C217</b>	2.5	2.2	1.25	2.5								
<b>C218</b>	2.5	2	2	2.5			1.5				1.5	
<b>C219</b>	2	2	2	2			1.5				1	
<b>C220</b>	2	2	1.25	2			2		3		1.75	
<b>C221</b>	2.5	2.2	2	2.5			2	1.5			1.5	
<b>C301</b>	2.5	2	2	2.5			2				2	
<b>C302</b>	2	2	1.25	2								
<b>C303</b>	1.75	2.25	2	3								
<b>C304</b>	2.1	2.2	1.75	2.5								
<b>C305</b>	2.4			2.4		2	1.75			2		1.45
<b>C306</b>	2.4	2	1.5		2			1.75				
<b>C307</b>	2.2	2	2	3			1.75		1		1.25	
<b>C308</b>	2.4		1.5	2.4		2	2.2		1			
<b>C309</b>	2.4	2	2	2.4					1			
<b>C310</b>	2			2.5		2	2	1.5	1.25	1.5		1.75
<b>C311</b>	2.4	2.4	2.5	2.4			2.1		3		2	
<b>C312</b>	2.2	2	2.4	2.2								
<b>C313</b>	2		2	2		2	2					
<b>C314</b>	2.4	1.75	2	2.4	2							

C315	2	2.2	1.5				1.5				2.2	
C316	2.4		2.5	2.4			1.25	1.75				
C317	2.2		2	2.8			1.5	2				
C318	2.2	2	2					2			2	
C319	2.2	2	2	2.6						1		
C320	2.2	1.9	2.2	2.5			1.25	2		1		
C321	2	2.2	2	2.8	1.75					2.2		
C322	2.4	2.7	2	2.4				2.2			2.5	
C401	2.4	2.2	2	2.4								
C402	2.4	2	2	2.4	1.2			2				
C403	2.4	1.75	2	2.4				2			2.5	
C404	2	2	2	2.5			1.5	2	1.1		2.5	
C405	2.2	2		2.8					1.25	1.2		
C406	1.8	1.7	2	2.8				2	1.3	2		2.2
C407	1.75	1.75	2	2.8				2			2.2	
C408	2		2	2.5			1.75	2.5				
C409	1.8	2.4	2	2.5				2.25			2	
C410	2.2	2.2	2.5	2.4			1.75	2	1.5	2.8		2

### PSO Attainment

**Table 3.8.11: PSO attainment value using direct assessment tools for R-19**

Course No	Course Name	PSO1	PSO2
C201	Engineering Mathematics-III	2	1
C202	Object Oriented Programming	1.5	0.5
C203	Heat Transfer	1.5	
C204	Fluid Mechanics	1	1
C205	Chemical Process Calculation	2	1
C206	Organizational Behavior	1.5	

C207	Object Oriented Programming Using Java Lab	1.5	2
C208	Heat Transfer Lab	2	1.7
C209	Fluid Mechanics Lab	2	1.5
C210	Summer Industry Internship	1.8	2
C211	Material Science	1.5	1
C212	Chemical Engineering Thermodynamics	1.5	
C213	Mass Transfer-I	1.5	1
C214	Mechanical Operations	1	1
C215	Numerical Methods in Chemical Engineering	2	1.5
C216	Engineering Economics and Costing	1	2
C217	Material Testing Lab	2	1
C218	Thermo physical Lab	1	1
C219	Mass Transfer-I Lab	2	
C220	Mechanical Operations Lab	1	2.5
C221	Project	2	1
C301	Chemical Process Technology	2.5	2
C302	Chemical Reaction Engineering- I	2.4	2
C303	Transport Phenomenon	1.5	2
C304	Mass Transfer-II	1	
C305	Process utility and Industrial Safety	2	1.8
C306	Process Instrumentation	2.2	2
C307	Human Value & Professional Ethics	1.8	1.5
C308	Chemical Process Technology Lab	1.5	1.5
C309	Chemical Reaction Engineering- I Lab	1	1
C310	Mass Transfer-II Lab	2	1
C311	Summer Industry Internship	1.5	
C312	Minor Project-I	1.5	
C313	Process Equipment Design	2	2
C314	Process Control	2	1.5
C315	Chemical Reaction Engineering- II	1.5	2
C316	Process Modelling and Simulation	2	1
C317	Fuel and Energy Technology	1.8	1
C318	Optimization in Engineering	2.5	1.5
C319	Dietetics and Nutrition	1.2	1
C320	Process Equipment Design Lab	1.8	1
C321	Process Control Lab	2	2
C322	Minor Project-I	2	2
C401	Modern Separation Technique	1.2	1.75
C402	Integrated Solid Waste Management	1	1.5
C403	Industrial Engineering	1.8	1
C404	Entrepreneurship Development	2.5	1.5
C405	Summer Industry Internship	1.2	1

C406	Major Project Work-I	1.8	1
C407	Pollution and its control	2	1
C408	Petroleum Refinery Engineering	2.5	2
C409	Biochemical Engineering	2.4	2
C410	Major Project Work-II & Dissertation	1.5	2
<b>Direct Assessment Attainment Level (70%)</b>		<b>1.2</b>	<b>1.1</b>
<b>Indirect Assessment Attainment level (30%)</b>		<b>1.9</b>	<b>1.6</b>
<b>Overall PSO Attainment Level</b>		<b>1.5</b>	<b>1.6</b>
<b>Target PSO Level</b>		<b>1.2</b>	<b>1.4</b>

### Criterion 4: Students' Performance (120)

**Table No. 4A: Admission details for the program excluding those admitted through multiple entry and exit points**

Item	CA Y 2024 -25	CAY m1 2023- 24	CA Ym 202 2- 23	CA Ym 20 21 - 22	CA Ym (L YG ) 2020- 21	CA Ym5 (LY Gm ) 201 9-20	C AY m6 (L YG m2 ) 20 18- 19
N= Sanctioned intake of the program (as per AICTE /Competent authority)	30	30	30	30	30	30	60
N1=Total no. of students admitted in the 1 <sup>st</sup> year minus the no. of students, who migrated to other programs/institutions plus no. of students, who Migrated to this program	20	24	22	20	21	21	42
N2= Number of students admitted in 2 <sup>nd</sup> year in the same batch Via lateral entry including leftover seats	0	2	3	0	2	3	1
N3=Separate division if any	0	0	0	0	0	0	0
N4= Total no. of students admitted in	0	0	0	0	0	0	0
Total number of students admitted in the program (N1+N2+N3+N4)- excluding those admitted through multiple entry and exit	20	26	25	20	23	24	43

points.

**TableNo.4B: Admission details for the program through multiple entry and exit points.**

Item (No. of students admitted/exited through multiple entry and exit points)in the respective batch	CA Y	CAY m1	CAY m2	CAY m3	CAY m4 (LY G)	CAYm 5 (LYG m1)	CAYm 6 (LYG m2)
<b>N5(Multi ple entry)</b>	N52=No. of students admitted in 2 <sup>nd</sup> Year via multiple entry and exit points in same batch	0	0	0	0	0	0
<b>N5=N52 +N53+N 54</b>	N53=No. of students admitted in 3 <sup>rd</sup> year via multiple entry and exit points in same batch	0	0	0	0	0	0
	N54=No. of students admitted in 4 <sup>th</sup> year via multiple entry and exit points in same batch	0	0	0	0	0	0
<b>N5=N52+N53+N54</b>		0	0	0	0	0	0
<b>N6 (Multiple exit)</b>	<b>N61= No. of students exits after 1<sup>st</sup> year via multiple entry and exit Points in same batch</b>	0	0	0	0	0	0
<b>N6=N61+N62+N63</b>	N62= No. of students exit after 2 <sup>nd</sup> year via multiple entry and exit points	0	0	0	0	0	0
	N63= No. of students exit after 3 <sup>rd</sup> year via multiple entry and exit	0	0	0	0	0	0

	Points in same batch							
	<b>N6=N61+N62+N63</b>	0	0	0	0	0	0	0

**Table No. 4C: No. of students graduated within the stipulated period of the program.**

Year of entry	Total no. of students (N1+N2+N3+N4+N5-N6 as Defined above)	Number of students who have successfully graduated in the stipulated period of study [Total of with Backlogs+ without Backlogs]			
		I Year	II Year	III Year	IV Year
CAY(2024-25)	20 (19+0+0+0+0-0)				
CAYm1(23-24)	26 (24+2+0+0+0-0)	24			
CAYm2(22-23)	25(22+3+0+0+0-0)	22	25		
CAYm3(21-22)	20 (20+0+0+0+0-0)	20	20	20	
CAYm(20-21) (LYG)	23(21+2+0+0+0-0)	21	23	23	22
CAYm5(19-20) (LYGm1)	24(21+3+0+0+0-0)	21	24	24	22
CAYm6 (18-19) (LYGm2)	43(42+1+0+0+0-0)	42	43	43	41

#### 4.1. Enrolment Ratio in the First Year (20)

ER Points= 20 \* (Average ER/100)

**Table No. 4.1.1: Student enrolment ratio in the 1<sup>st</sup> year**

Item (Students enrolled in the First Year on average over 3 academic years (CAY, CAYm1 and CAYm2))	CAY (24-25)	CAYm1 (23-24)	CAYm2 (22-23)
N= Sanctioned intake of the program in the 1 <sup>st</sup> year (as per AICTE/Competent authority)	30	30	30
N1=Total no. of students admitted in the 1 <sup>st</sup> year minus the no. of students, who migrated to other programs/institutions plus no. of students, who migrated to this program	20	24	22
N4=Total no. of students admitted in the 1 <sup>st</sup> year via all supernumerary quotas	0	0	0
Enrolment Ratio (ER)=(N1+N4)/N	ER_1= 66.67	ER_2= 80	ER_3= 73.33
Average ER=(ER_1+ER_2+ER_3)/3	73.33		

#### 4.2. Success Rate of the Students in the Stipulated Period of the Program (15)

**Success Rate (SR)** = (No. of students who graduated from the program in the stipulated course duration)/ (No. of students admitted in the 1<sup>st</sup> year of that batch and those actually admitted in the 2<sup>nd</sup> year via lateral entry, plus the number of students admitted through multiple entry (if any) and separate division if applicable, minus the number of students who exited through multiple entry (if any).

Average SR=Mean of SR for the past three batches.

SR Points =1.5\*Average SR/10.

**Table No.4.2.1: The success rate in the stipulated period of a program.**

Item	LYG	LYGm1	LYGm2
A*= (No. of students admitted in the 1 <sup>st</sup> year of that batch and those actually admitted in the 2 <sup>nd</sup> year via lateral entry, plus the number of students admitted through multiple entry (if any) and separate division if applicable, minus the number of students who exited through multiple entry	23	24	43

(if any).			
<b>B=No. of students who graduated from the program in the stipulated course duration</b>	22	23	43
<b>Success Rate(SR)=(B/A)* 100</b>	SR_1=95. 65	SR_2=95.83	SR_3=100
<b>Average SR of three batches((SR_1+SR_2+SR_3)/3)</b>	<b>97.16</b>		

#### 4.3. Academic Performance of the First-Year Students of the Program (10)

**Academic Performance** = Average Academic Performance Index (API), where

API = ((Mean of 1<sup>st</sup> Year Grade Point Average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 1<sup>st</sup> year/10)) \* (Number of successful students/number of students appeared in the examination)

Successful students are those who have to proceed to the 2<sup>nd</sup> year.

**Table No.4.3.1: Academic Performance of the First-Year Students of the Program**

Academic Performance	CAYm1 (23-27)	CAYm2 (22-26)	CAYm3 (21-25)
<b>X=(Mean of 1<sup>st</sup> year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 1<sup>st</sup> year/10)</b>	7.92	7.87	7.45
<b>Y=Total no. of successful students</b>	22	20	19
<b>Z=Total no. of students appeared in the examination</b>	24	22	20
<b>API=X* (Y/Z)</b>	AP1=7.26	AP2=7.15	AP3=7.08
<b>Average API=(AP1+AP2+AP3)/3</b>	<b>7.16</b>		

#### 4.4 Academic Performance of the Second Year Students of the Program (10)

**Academic Performance** = Average Academic Performance Index(API), where

API = ((Mean of 2<sup>nd</sup> Year Grade Point Average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2<sup>nd</sup> Year/10)) \* (Number of successful students/number of students appeared in the examination).

Successful students are those who have proceeded to the 3<sup>rd</sup> year.

**Table No. 4. 4. 1: Academic Performance of the Second Year Students of the Program.**

Academic Performance	CAYm1 (22-26)	CAYm2 (21-25)	CAYm3 (20-24)
X=(Mean of 2 <sup>nd</sup> year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2 <sup>nd</sup> year/10)	8	7.82	7.63
Y=Total no. of successful students	23	19	22
Z=Total no. of students appeared in the examination	25	20	23
API=X* (Y/Z)	AP1=7.36	AP2= 7.43	AP3=7.30
Average API=(AP1+AP2+AP3)/3	<b>7.36</b>		

#### 4.5 Academic Performance of the Third Year Students of the Program (10)

**Academic Performance**=Average Academic Performance Index(API), where

API= ((Mean of 3<sup>rd</sup> Year Grade Point Average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3<sup>rd</sup> Year/10)) \* (Number of successful students/number of students appeared in the examination).

Successful students are those who have proceeded to the 4<sup>th</sup> year.

**Table No.4.5.1: Academic Performance of the Third Year Students of the Program**

Academic Performance	CAYm1 (21-25)	CAYm2 (20-24)	CAYm3 (19-23)
<b>X</b> =(Mean of 3 <sup>rd</sup> year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3 <sup>rd</sup> year/10)	8.4	8.2	8.1
<b>Y</b> =Total no. of successful students	19	22	22
<b>Z</b> =Total no. of students appeared in the examination	20	23	24
<b>API</b> = $X^* (Y/Z)$	AP1=7.98	AP2=7.84	AP3=7.43
<b>Average API</b> = $(AP1+AP2+AP3)/3$	<b>7.75</b>		

#### 4.6 Placement, Higher Studies and Entrepreneurship (30)

Placement index points=0.3\*Average placement index (P).

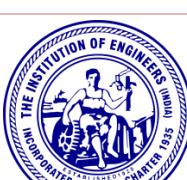
**Table No. 4.6.1: Placement, higher studies, and entrepreneurship details.**

Item	LYG	LYGm1	LYGm2
<b>FS</b> *=Total no. of final year students	23	24	43
<b>X</b> =No. of students placed	21	20	36
<b>Y</b> =No. of students admitted to higher studies	2	3	4
<b>Z</b> =No. of students taking up entrepreneurship	0	01	01
<b>X+Y+Z</b> =	23	24	41
<b>Placement Index (P)</b> = $((X+Y+Z)/FS)*100$	P_1=100	P_2=100	P_3=95.35
<b>Average placement index</b> = $(P_1+P_2+P_3)/3$	<b>98.45</b>		

## 4.7 Professional Activities (25)

### 4.7.1 Professional Societies / Bodies, Chapters, Clubs and Professional Engineering Events Organized (05)

**Table No.4.7.1.1: List of active professional societies / bodies / chapters / clubs**

S.N.	Name of the Professional Societies/Bodies, Chapters, Clubs
1.	<b>ISTE (Indian Society for Technology in Education)</b>
	
2.	<b>IICHE (Indian Institute of Chemical Engineers)</b>
	
3.	<b>CESA (Chemical Engineering Student Association)</b>
	
4.	<b>Institute of Engineers, India (IEI)</b>
	
5.	<b>SARS (Student's Association of Robotics Science)</b>
6.	<b>PDCS CLUB (Personality Development &amp; Communication Skill)</b>

**Table No.4.7.1.2: List of events / programs organized**

S.N.	Name of the Professional Societies/ Bodies/ Chapters/ Clubs	Name of the Event	National/ International level	Date of Event	POs/PSOs
<b>CAYm1 (2023-24)</b>					
1	SARS	Robotics and Industrial Automation	National	4 <sup>th</sup> April, 2024	PO5, PO10, PSO3
2	PDCS	Problem Solving	National	16 <sup>th</sup> April 2024	PO10, PO11, PSO1
3	PDCS	Imaginative Communication	National	5 <sup>th</sup> April 2024	PO10, PO11, PSO1
4	PDCS	Elements of Communication	National	5 <sup>th</sup> March 2024	PO10, PO11, PSO1
5	PDCS	How to represent yourself	National	22 <sup>nd</sup> March 2024	PO10, PO11, PSO1
6	CESA	Carrier advancement	Alumni Talk	13 <sup>th</sup> Jan, 2024	PO1, PO7, PSO1
7	CESA	Chemical Processes with Aspen Plus	International	8 <sup>th</sup> -9 <sup>th</sup> October, 2023	PO4, PO5, PSO2
8	ISTE	National Engineers Day	National	15 <sup>th</sup> Sept, 2023	PO1, PO6, PSO1
9	CESA	Future prospects of Chemical Engineers in current Scenario	Alumni Talk	5 <sup>th</sup> Aug., 2023	PO5, PO8, PSO3
<b>CAYm2 (2022-23)</b>					
1	CESA	Challenges and solutions in Petroleum Industry	National	15 <sup>th</sup> March, 2023	PO3, PO6, PSO2
2	CESA	Environmental Concerns & Challenges for Development	Industrial Talk	10 <sup>th</sup> Jan, 2023	PO3, PO6, PSO3
3	ISTE	Engineers Day celebration	National	15 <sup>th</sup> Sept 2022	PO3, PO6, PSO3
4	CESA	Diversified career options for Chemical Engineers	Alumni Talk	17 <sup>th</sup> Sept., 2022	PO5, PO8, PSO2
5	ISTE	National Engineers Day	National	15 <sup>th</sup> Sept, 2022	PO1, PO6, PSO1
6	CESA	Chemical Process Safety	International	10 <sup>th</sup> Sept, 2022	PO3, PO6, PSO2
7	PDCS	Introductory Session	National	31 <sup>st</sup> March, 2023	PO10, PO11, PSO1
8	PDCS	Advertisement Communication	National	14 <sup>th</sup> April, 2023	PO10, PO11, PSO1
9	PDCS	Represent Yourself	National	18 <sup>th</sup> April,	PO10, PO11,

				2023	PSO1
10	PDCS	Imaginative Communication	National	21 <sup>st</sup> April, 2023	PO10, PO11, PSO1

**CAYm3 (2021-22)**

1	CESA & BIOTECH	Industrial Fermenter Operation	One day Hands on Training Program	1 <sup>st</sup> Feb, 2022	PO2, PO4, PO8, PSO2
2	ISTE	National Engineers Day	National	15 <sup>th</sup> Sept, 2021	PO1, PO6, PSO1
3	PDCS	LCM	National	18 <sup>th</sup> July, 2021	PO10, PO11,
4	PDCS	HCF	National	26 <sup>th</sup> July, 2021	PO10, PO11
5	ISTE	National Engineers Day	National	15 <sup>th</sup> Sept, 2021	PO1, PO6, PSO1
6	PDCS	Basic Tools of photoshop	National	1 <sup>st</sup> Aug, 2021	PO10, PO11
7	PDCS	Basics of Graphic Designing	National	25 <sup>th</sup> July, 2021	PO10, PO11

**Fig. 4.7.1: Inauguration of IIChE Student Chapter**

**Fig. 4.7.2: Engineer's Day Celebration (2024-25)**



**Fig. 4.7.3: Event on National Engineers Day (2023-24)**



Fig. 4.7.4: Banner of Industrial Talk on Chemical processes with Aspen Plus



Fig. 4.7.5: Banner of Challenges and solutions in Petroleum Industry

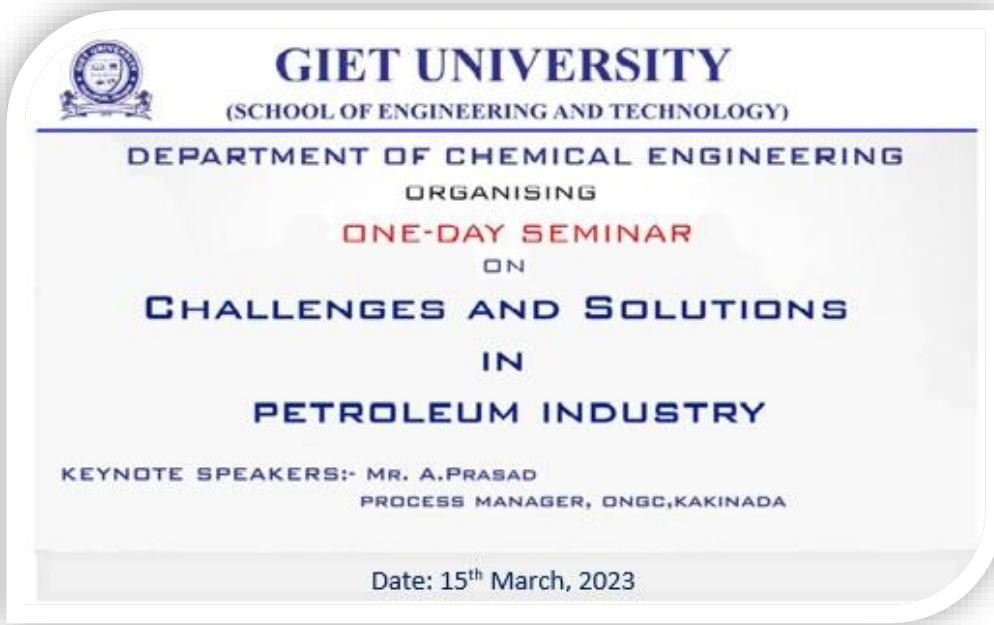


Fig. 4.7.6: Banner of the I2I event Chemical Process Safety



Fig. 4.7.7: One day Hands on Training Program on Industrial Fermenter Operation



Fig. 4.7.8: Banner of Alumni Talk on Carrier advancement



Fig. 4.7.9: Banner of Alumni Talk on Carrier advancement



**Fig. 4.7.10: Banner of Alumni Talk on Diversified Career options for Chemical Engineers**

#### 4.7.2 Student's Participations in Professional Events (10)

**Table No. 4.7.2.1: List of students participated in professional events.**

S. N.	Name	Name of the Event	State/ National/ International level	Date of Event	Name of the award If any
<b>CAYm1 (2023-24)</b>					
1	Omkar Sahoo	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
2	Suratha Naik	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
3	Karunakar Nayak	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
4	Nikhil Chandra Nayak	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
5	Vedant Patra	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
6	Rohanjeet Thatoi	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
7	Ashrujit Swain	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	

8	Sajen Naik	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
9	Chinmaya Ratna Choudhury	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
10	Saroj Kumar Satapathy	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
11	Smruti Ranjan Behera	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
12	Damberudhar Majhi	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
13	Amisha Priyadarshini Rout	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
14	Sasala Uday Kiran	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
15	Soumitra Sududhi	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
16	Akash Choubey	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
17	Pappu Kumar	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
18	Pradeep Kumar Hikaka	Safety & Environment for Chemical Industry	ICC & ICT, Mumbai	6 <sup>th</sup> – 7 <sup>th</sup> March, 2024	
19	Amisha Priyadarshini Rout	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	
20	Suratha Naik	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	
21	Karunakar Nayak	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	
22	Nikhil Chandra Nayak	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	
23	Gourango Naik	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	
24	Lipuni Kumari Nayak	MSME Conclave Industry-Academia meet-2023	ACIC, GIET University, Gunupur	31 <sup>st</sup> Aug., 2023	

**CAYm2 (2022-23)**

1	Soumitra Subudhi	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
2	Akash Choubey	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
3	Santosh Sundar Sahu	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
4	Jyoti Rekha Panda	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
5	Hrusikesh Sahoo	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
6	Sibananda Parichha	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	
7	Sonamoni Kumari	Seminar on waste water characterization	IIPE, Vishakhapatnam	10 <sup>th</sup> -11 <sup>th</sup> April, 2023	

8	Amisha Priyadarshini Rout	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
9	Shreya Das	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
10	Abhisek Nanda	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
11	Rahul Mohapatra	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
12	Mitali Tanty	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
13	Aman Kumar	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
14	Jyotirmayi Sadangi	I/P Awareness programme	Intellectual Property (NIPAM), India	15 <sup>th</sup> March, 2023	
15	Amisha Priyadarshini Rout	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	
16	Vedant Patra	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	
17	Rohanjeet Thatoi	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	
18	Ashrujit Swain	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	
19	Priyanshu Bharati	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	
20	Smruti Ranjan Behera	Latest research in Nano-Composite	Educare, Taiwan	16 <sup>th</sup> Oct., 2022	

**CAYm3 (2021-22)**

1	Ayan Ahmad	Webinar	Taiwan focused consultancy	24 <sup>th</sup> Feb, 2022	
2	Sanaboyina Ravikanth	Webinar	Taiwan focused consultancy	24 <sup>th</sup> Feb, 2022	
3	Prabin Prakash Nayak	Webinar	Taiwan focused consultancy	24 <sup>th</sup> Feb, 2022	
4	Md Shahrukh	Webinar	Taiwan focused consultancy	24 <sup>th</sup> Feb, 2022	
5	Madhusmita Swain	Webinar	Taiwan focused consultancy	24 <sup>th</sup> Feb, 2022	
6	Anupam Biswas	Quiz	Dr. Dypatil Institute of Engg. Management And	12 <sup>th</sup> March, 2022	

			Research		
7	Prabin Prakash Nayak	Quiz	Dr. Dypatil Institute of Engg. Management And Research	12 <sup>th</sup> March, 2022	
8	Sajen Naik	Quiz	Dr. Dypatil Institute of Engg. Management And Research	12 <sup>th</sup> March, 2022	
9	Avisek Dash	Quiz	Dr. Dypatil Institute of Engg. Management And Research	12 <sup>th</sup> March, 2022	
10	Bhabagrahi Sahoo	Quiz	Dr. Dypatil Institute of Engg. Management And Research	12 <sup>th</sup> March, 2022	
11	Prabin Prakash Nayak	Nptel Certificataion	IIT, Guwahati	Jan-April, 2022	
12	Abani Kumar Samal	Nptel Certificataion	IIT, Guwahati	Jan-April, 2022	
13	Anupam Biswas	Aspen plus	IIT, Guwahati	Jan-April, 2022	
14	Aatharam Regmi Jaisi	Aspen plus	IIT, Guwahati	Jan-April, 2022	
15	Shruti smaranika	ISO certification course	IIChE	Jan, 2022	

#### 4.7.3 Publication of Journals, Magazines, Newsletters, etc. in the Department (05)

**Table No.4.7.3.1: List of students involved in publication of journals, magazines, and newsletters, etc. in the Department.**

S.N .	Name of Journal, Magazine, Newsletter	Name of the Editor	Name of the Student & Semester	No. of Issues	Hardcopy / Soft copy
CAYm1					

1	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Jyoti Rekha Panda, Dhananjay Barik	Issue-1	Hardcopy
2	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Hrusikesh Sahoo, Akash Choubey	Issue-2	Hardcopy
3	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Giridhar Naik, Aviskar Dash	Issue-3	Hardcopy
4	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Santosh Sundar Sahu, Soumyakanta Das	Issue-4	Hardcopy
5	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Sibananda Parichha, Sonamoni Kumari	Issue-5	Hardcopy
6	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Pradeep Kumar Hikoka, Pappu Kumar	Issue-6	Hardcopy
7	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Soumitra Subudhi, Trayambak Rath	Issue-7	Hardcopy
8	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Jessica Samal, Rozina Paikray	Issue-8	Hardcopy
9	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Deepak Samal, Manas Ranjan Khadia	Issue-9	Hardcopy
10	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Goutam Jha, Chetansi Patel	Issue-10	Hardcopy
11	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Arpita Sahu, T Kesaba Rao	Issue-11	Hardcopy
12	ALKEMY-Hall Of Fame	Dr. Uttam Kumar Sahu	Gaddam Venkatesh, T Kesaba Rao	Issue-12	Hardcopy

**CAYm2**

1	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Anil Kumar Sahoo, Ashwin Kumar Swain	Issue-1	Hardcopy
2	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Rahul Bhoi, Aditya Narayan Barik	Issue-2	Hardcopy
3	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Ankesh Kumar Panda, Madhusmita Swain	Issue-3	Hardcopy
4	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Debajit Swain, Prabin Prakash Nayak	Issue-4	Hardcopy
5	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Sambit Kumar Patnaik	Issue-5	Hardcopy
6	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Avisek Dash, Bhabagraghi Sahoo	Issue-6	Hardcopy
7	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Mahesh Ratna Choudhury, Sarthak Mishra	Issue-7	Hardcopy
8	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Satya Narayan Sabat, Sagar Sutar	Issue-8	Hardcopy
9	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Sambit Mohanty, Summit Sourav Dash	Issue-9	Hardcopy
10	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Karpur Acharya, Peruri Manohar	Issue-10	Hardcopy
11	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Sanaboyina Ravikanth, Sirivella Vijay Kumar	Issue-11	Hardcopy

12	ALKEMY-Hall Of Fame	Dr. Pedina Sibakrishna	Abani Kumar Samal, Anupam Biswas	Issue-12	Hardcopy
<b>CAYm3</b>					
1	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Jay Prakash Samal, Kiran Kumar Acharya	Issue-1	Hardcopy
2	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Ashish Kumar Giri, Anubhav Kara	Issue-2	Hardcopy
3	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Soumitra Kumar Sahoo, Aakash Aditya	Issue-3	Hardcopy
4	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Shruti Smaranika, Suvendu Sekhar Sasimal	Issue-4	Hardcopy
5	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Akash Kumar Naik, Simran Das	Issue-5	Hardcopy
6	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Satya Prakash Choudhury, Biswajit Dash	Issue-6	Hardcopy
7	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Anurodh Ku Chowdhury, Partha Sarathi S. Pradhan	Issue-7	Hardcopy
8	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Saurav Das	Issue-8	Hardcopy
9	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Somdev Barad	Issue-9	Hardcopy
10	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Tejraj Sahu	Issue-10	Hardcopy
11	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Pavan Kumar Sahukar	Issue-11	Hardcopy
12	ALKEMY-Hall Of Fame	Dr. Uma Sankar Behera	Braja Kishore Behera, P. Khagaraju Reddy	Issue-12	Hardcopy

### About the Wall Magazine

**ALKEMY – Hall of Fame** is the official monthly wall magazine of the **Department of Chemical Engineering, GIET University, Gunupur Odisha** rooted in the spirit of "ALCHEMY". ALKEMY symbolizes transformation, innovation, and the continuous quest for knowledge-values at the core of chemical engineering.

This wall magazine is designed exclusively for the students and faculty of the department, serving as a creative and informative platform to share, celebrate, and inspire.

## Purpose and Vision

The wall magazine serves as a dynamic platform to:

- Highlight student and faculty achievements in academics, research, and extracurricular activities.
- Foster creativity through articles, artwork, and design contributions.
- Encourage collaboration and community spirit within the department.
- Provide updates on departmental events, seminars, and initiatives.

## Features

**ALKEMY – Hall of Fame** typically includes:

- Profiles of distinguished alumni and faculty members.
- Student-written articles on recent advancements in chemical engineering.
- Creative pieces like poems, sketches, and photographs.
- Information on upcoming events, workshops, and conferences

## Contribution and Participation

All members of the department are encouraged to contribute to the magazine. Submissions can range from technical articles and research summaries to creative works and event reports. A dedicated editorial team curates the content to ensure quality and relevance.

**ALKEMY – Hall of Fame** is more than just a display; it's a testament to the department's commitment to excellence, creativity, and community engagement.

**Fig. 4.7.10: Sample copy of ALKEMY – Hall of Fame**

**ALKEMY**  
(A Hall of Fame)

**Jyoti Rekha panda**  
(BTECH CHEMICAL ENGG-7TH SEMESTER)

**ARTICLE:**

**Advanced Process Control in Multi-Component Systems**

In the world of chemical engineering, we rarely deal with simple, single-component systems. Real industrial processes—like distillation, extraction, and reactors—involve **multiple interacting components**, often with complex dynamics. That's where Advanced Process Control (APC) steps in.

**Advanced Process Control (APC)** is an enhanced method of controlling chemical processes that goes beyond traditional model control. It is especially suited in **multi-component systems**, where multiple variables are interdependent, and a change in one variable can affect others. APC uses **mathematical models**, **real-time data**, and **optimization algorithms** to ensure the system operates efficiently and safely. In processes like **distillation columns** or **chemical reactors**, APC offers a much more effective way to handle complexity and maintain stability.

One of the core techniques in APC is **Model Predictive Control (MPC)**. MPC predicts the behavior of the system and makes proactive adjustments. **Multi-variable control** is another key feature that allows APC to control several inputs and outputs at once, even if they are not directly related. It also includes **constraint handling**, meaning it can keep the process within safety and performance limits. **adaptive control** is another optimization, which continuously adjusts the process to improve efficiency, energy use, and product quality.

**Why is APC Important in Multi-Component Systems?**

In multi-component systems, changes in one part can affect others unpredictably. For example:

- In a **distillation column** separating 5 components, adjusting the reflux ratio affects **all product purities**.
- In a **reactor**, controlling temperature may impact not only conversion but also **selectivity** and **by-product formation**.

*"The goal of control engineering is to make the dynamic behavior of a system meet desired specifications despite disturbances and uncertainty."*

**Conclusion:**

For students, understanding APC is important because it represents the future of chemical process control. It combines process knowledge with **data analytics** and **systems thinking**, giving engineers an edge in modern industries. **Remember**, APC is ideal for systems where **multiple variables interact**, and traditional methods can't keep up.

**4.7.4 Student Publications (05)****Table No. 4.7.4.1: List of student publications.**

S. N.	Name of the Student & Semester	Name of the Publisher	Name of the Journal/ Conference, etc.	Volume No. & Issue No.	Name of the Award if any
<b>CAYm1 (2023-24)</b>					
1	Chinmaya Ratna Choudhury	GIET University Journal	GIET University Journal: Engineering, Science, Agriculture & Management	volume 4, Issue No.1	
2	Saroj Kumar Satapathy	GIET University Journal	GIET University Journal: Engineering, Science, Agriculture & Management	volume 4, Issue No.1	
<b>CAYm2 (2022-23)</b>					
1	Hrusikesh Sahoo 5th Sem	SPAST	National Conference On Advancement In Green Energy Production, Environmental Hazard Reduction and Its Sustainability (AGEPEHRS, 2022)		
2	Dhananjay Barik 5th Sem	SPAST	National Conference On Advancement In Green Energy Production, Environmental Hazard Reduction and Its Sustainability (AGEPEHRS, 2022)		
3	Anupam Biswas 7th Sem	SPAST	National Conference On Advancement In Green Energy Production, Environmental Hazard Reduction and Its Sustainability (AGEPEHRS, 2022)		
4	Summit Sourav Dash 7th Sem	SPAST	National Conference On Advancement In Green Energy Production, Environmental Hazard Reduction and Its Sustainability (AGEPEHRS, 2022)		
<b>CAYm3 (2021-22)</b>					

1	Anupam Biswas	Sami Publishing Company	Journal Of Chemical Review	290 306.2021	
2	Karpur Acharya	Dogo Rangsang Research Society	D.R S. Research Journal	June 2021,114-120	
3	Sagar Sutar	Dogo Rangsang Research Society	D.R S. Research Journal	June 2021,114-120	

## Criterion5: Faculty Information (100)

TableNo.5A: Faculty details

Sl. No.	Name of the Faculty	PAN No.	APAAAR faculty ID*(if any)	Highest degree	University	Area of Specialization	Date of Joining in this Institution	Experience in years in current institute	Designation at Time Joining in this Institution	Present Designation	The date on which Designated as Professor/Associate Professor if any	Nature of Association (Regular/Contractual/Part time or Lecturer, Locally)	If contractual mention Fulltime or (Part time or Lecturer, Locally)	Currently Associated(Y/N)	Date of Leaving if any (Incase Currently Associated is "No")
1	Dr. Santosh Kumar Bindhani	AI RP B4 76 8P		PhD	Biju Patnak University of Technology Rourkela Odisha	Thermodynamics	26-07-2007	18	Asso. Prof	Professor	01-07-2019	Regular		YES	
2	Dr. Radha Krushna Padhi	AR XP P8 81 1E		PhD	Utkal University, Vani Bihari, Bhubaneswar	Fluidization Engineering	03-01-2006	19	Asst. Prof	Associate Professor	01-05-2019	Regular		YES	
3	Dr. Suman Mishra	A U AP M 31 73 C		PhD	Sambalpur University, Jyoti Bihar, Burla	Waste water treatment	09-04-2006	19	Asst. Prof	Associate Professor	08-06-2020	Regular		YES	

4	Dr. Uttam Kumar Sahu	G M FP S5 41 5G		PhD	National Institute of Technology, Rourkela	Nano materials	20-06-2021	4	Asst. Prof	Associate Professor	01-07-2024	Regular		YES
5	Dr. Siba Krishna Pedina	CE XP P6 40 4E		PhD	National Institute of Technology, Rourkela	Advanced Oxidation process	07-04-2011	14	Asst. Prof	Associate Professor	16-06-2024	Regular		YES
6	Dr. Pranita Dash	A OT PD 60 43 B		PhD	CSIR-Institute of Minerals and Materials Technology, Bhubaneswar	Graphene Characterization	07-04-2020	5	Asst. Prof	Assistant Professor		Regular		YES
7	Dr. Daisy Das	A UL PD 19 73 A		PhD	Indian Institute of Technology (Indian School of Mines, Dhanbad)	Waste water treatment	12-01-2021	4	Asst. Prof	Assistant Professor		Regular		YES

8	Mrs. Priyanka Sahu	G G NP S4 10 4L		M. Tech	GIET University, Gunupur	Chemical Technology	24-06-2024	4	Asst. Prof	Assistant Professor					YES
9	Ms. Sonali Monalisha Mallick	BC SP M 75 47 K		M. Tech	GIET University, Gunupur	Fuel Technology	01-09-2021	1	Asst. Prof	Assistant Professor					YES
10	Mrs. PushpaKumari	B QZ PK 18 69 H		M. Tech	GIET University, Gunupur	Mass Transfer	16-10-2021	4	Asst. Prof	Assistant Professor					YES
11	Mrs. Adyasha Swain Mohapatra	FZ AP M 92 12 G		M. Tech	GIET University, Gunupur	Adsorption Process	05-06-2023	4	Asst. Prof	Assistant Professor					YES
12	Mr. Kiran Kumar Acharaya	D XP PA 47 48 J		M. Tech	GIET University, Gunupur	Polymer Technology	01-07-2024	1	Asst. Prof	Assistant Professor					YES
13	Poduri V S S Ramal	D CF PP		M. Tech	GIET University,	Chemical Tech	24-06-2022	3	Asst. Prof	Assistant					YES

	inges war	34 01 Q			Gunup ur	nolog y				nt Prof es so r				
1 4	Vema koti Jaahn awwie	BR PP J7 39 7J		M. Tech	GIET Univer sity, Gunup ur	Wate r and waste water treat ment	15- 07- 2024	1	Asst. Prof	As sis ta nt Pr of es so r				YE S
1 5	Mr. Shant anu Kuma r Sahu	DS RP S1 50 4K		M.Tech	Biju Patnai k Univer sity of Techn ology Rourke la Odisha	Nano Tech nolog y	01- 07- 2021	4	Asst. Prof	As sis ta nt Pr of es so r				YE S
1 6	Dr. Deepa k Kuma r Samal	B VS PS 51 04 F		PhD	Biju Patnai k Univer sity of Techn ology Rourke la Odisha	Semi - Fluid izatio n Engi neeri ng	07- 06- 2006	19	Asst. Prof	As so cia te Pr of es so r	01-07- 2019			NO 14-05- 2024

1 7	Dr. Uma sankar Behera	A O UP B0 26 4K		PhD	Indian Institute of Technology, Madras	Petro leum Engi neeri ng Progr amme	01-09-2012	13	Asst. Prof	Asso ciate Prof esso r	05-07-2022			N O	24-06-2024
1 8	Mr. Sitaram Rai	BL NP R9 18 1G		M.Tech	Biju Patnai k University of Technology Rourkela Odisha	Fuel Technology	05-05-2017	8	Asst. Prof	As sis ta nt Prof esso r				N O	15-04-2024
1 9	Dr. Kelot hu Suresh	A V XP K4 01 5D		PhD	Indian Institute of Technology, Guwahati	Nano Com posites	20-07-2018	7	Asst. Prof	As sis ta nt Prof esso r				N O	05-05-2023

### 5.1. Student-Faculty Ratio (30)

TableNo.5.1.2: Student-faculty ratio

Year	CAY	CAYm1	CAYm2
<b>UG1.B</b>	30+2=32	30+3=33	30+0=30
<b>UG1.C</b>	30+3=33	30+0=30	30+3=33
<b>UG1.D</b>	30+0=30	30+3=33	30+3=33
<b>UG1</b>	95	96	96
<b>UG2.B</b>	30+0=30	30+0 = 30	30+0 = 30
<b>UG2.C</b>	30+0 = 30	30+0 = 30	30+0 = 30
<b>UG2.D</b>	30+0 = 30	30+0 = 30	30+0 = 30
<b>UGn</b>	90	90	90
<b>PG1.A</b>	18	18	18

<b>PG1.B</b>	18	18	18
<b>PG1</b>	36	36	36
<b>DS=Total number of students in all UG and</b>	221	222	222
<b>AS=Total number of students of all UG and PG departments</b>	.....	.....	.....
<b>S=Total no. of students in the Department (DS) and allied Departments(AS)</b>	221	222	222
<b>DF=Total no. of faculty members in the Department</b>	15	15	15
<b>AF= Total no. of faculty members in the allied Departments</b>	.....	.....	.....
<b>F=Total no. of faculty members in the Department (DF) and allied Departments (AF)</b>	15	15	15
<b>FF=The faculty members in F who have a 100% teaching load in the first-year courses</b>	.....	.....	.....
Student	SFR1=221/15=14.73	SFR2=222/15=14.80	SFR3=222/15=14.80
<b>Average SFR for 3 years</b>	<b>Average</b> <b>SFR=(14.73+14.80+14.80)/3=14.77</b>		

## 5.2. Faculty Qualification (25)

Table No.5.2.1: Faculty qualification

Year	X	Y	RF	FQI= 2.5 * [(10X +4Y)/RF]
CAY (24-25)	7	8	11.05	23.07
CAYm1(23-24)	9	6	11.1	25.67
CAYm2(22-23)	10	5	11.1	25.67
<b>Average Assessment</b>			<b>24.8</b>	

## 5.3. Faculty Cadre Proportion (25)

Table No.5.3.1: Faculty cadre proportion details

Year	Professors		Associate Professors		Assistant Professors	
	Required Faculty(R F1)	Available Faculty(A F1)	Required Faculty(R F2)	Available Faculty(A F2)	Required Faculty(R F3)	Available Faculty(A F3)
CAY	1	1	3	4	8	10
CAYm 1	1	1	3	6	8	8

<b>CAYm 2</b>	1	1	3	6	8	8
<b>Average Numbers</b>	<b>RF1=1</b>	<b>AF1=1</b>	<b>RF2=3</b>	<b>AF2=5.3</b>	<b>RF3=8</b>	<b>AF3=8.66</b>

Faculty Cadre Proportion Marks = 31.5

#### 5.4. Visiting/Adjunct Faculty/Professor of Practice (10)

**Table No. 5.4.1: List of visiting/adjunct faculty/professor of practice and their teaching and practical loads**

S.N.	Name of the Person	Designation &Organization	Name of the Course	No. of hours handled
<b>CAYm1</b>				
1	Mr. Chinmaya Prasad Lenka	Process Engineering Dept. Sadara Chemical Company.	Aspen Plus and CFD	24 hours
2	Mr. Ripu Kumar Sahu	Regional Officer, State Pollution Control Board	Environmental Engineering	16 Hours
3	Mr. Ashman Pattnaik	DGM,TCE	Process Integration	16 hours
<b>Total no. of hours:</b>				<b>56 hours</b>
<b>CAYm2</b>				
1	Mr.Santunu Kumar Pathy	Manager	Alumina Refinery and Process Plant Design	18 hours
2	Mr. Chinmaya Prasad Lenka	Lead, Process Engineering Dept. Sadara Chemical Company.	Aspen and CFD	18 Hours
<b>Total no. of hours:</b>				<b>36 hours</b>
<b>CAYm3</b>				

1	Mr.Santunu Kumar Pathy	Manager	Alumina Refinery and Process Plant Design	18 hours
2	Mr. Ripu Kumar Sahu	Regional Officer, State Pollution Control Board	Environmental Engineering	18 hours
<b>Total no. of hours:</b>				<b>36 hours</b>

### 5.5. Faculty Retention (10)

**TableNo.5.5.1: Faculty retention ratio**

Item	CAYm1	CAYm2	CAYm3
<b>RF=No. of required faculty in the Department including allied Departments to adhere to the 20:1 Student- Faculty ratio, with calculations based on both student numbers and faculty requirements as per section 5.1 of SAR; (RF=S/20).</b>	221/20=11.05	222/20=11.1	222/20=11.1
<b>AF=The no. of available faculty members in the Department including allied Departments</b>	15	15	15
<b>A= The no. of faculty members at the current institute with less than 1 year of experience (A in AF)</b>	3	2	6
<b>B= The no. of faculty members at the current institute with more than 1 year and less than 2 years of experience (B in AF)</b>	2	5	1
<b>C= The no. of faculty members at the current institute with more than 2 years and less than 3 years of Experience (C in AF)</b>	6	1	0
<b>D=The no. of faculty members at the current institute With more than 3 years and less than 4 years of experience (D in AF)</b>	1	0	0
<b>E= The no. of faculty members at the current institute with more than 4 years of experience (E in AF)</b>	4	7	8

<b>FR=(((A*0) + (B*1) +(C*2) +(D*3) +(E*4))/RF) *2.50 (points limited to 10)</b>	7.45	7.75	7.42
<b>Average FR=((FR_1+FR_2+FR_3)/3) (marks limited to 10)</b>	<b>7.54</b>		

**Criterion 6: Faculty Contribution (120)****6.1. Professional Development Activities (60)****6.1.1. Memberships in Profession Societies at National/International Levels (05)****Table No. 6.1.1.1: List of faculty members and their memberships**

S. N.	Name	Name of the Professional Society /Body at National and International Level	Name
1	Dr. Santosh Kumar Bindhani	Indian Society for Technical Education Computer Society of India Institute of Engineers (India) Indian Institute of Chemical Engineers	Life Member Life Member Member Member
2	Dr. Radha Krushna Padhi	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member
3	Dr. Suman Mishra	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member
4	Dr. Uttam Kumar Sahu	Institute of Engineers (India)	Member
5	Dr. Siba Krishna Pedina	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member
6	Dr. Pranita Dash	Institute of Engineers (India) Indian institute of chemical engineers Indian institute of mineral engineers	Associate Member Life Member Life Member
7	Dr. Daisy Das	Indian institute of mineral engineers	Life Member
8	Mrs. Adyasha Swain Mohapatra	Indian institute of mineral engineers	Life Member
9	Dr. Deepak Kumar Samal	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member
10	Dr. Uma Sankar Behera	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member
11	Mr. Sitaram Rai	Institute of Engineers (India)	Member
12	Dr. Kelothu Suresh	Indian Society for Technical Education Computer Society of India Institute of Engineers (India)	Life Member Life Member Member

### 6.1.2. Faculty as Resource Persons or Participants in STTPs/FDPs (10)

#### 6.1.2.1. Faculty as Resource Persons in STTPs/FDPs (05)

**Table No. 6.1.2.1.1: List of faculty members as resource person in STTP/FDP events.**

S.N.	Name of the Faculty as Resource Person	Name	Date	Location	Organized by
<b>CAYm1(23-24)</b>					
1	Dr. Santosh Kumar Bindhani	Faculty Orientation On Human Values	27.05.2024 to 01.06.2024	GIET University, Gunupur	Dept. of BSH, GIET University
2	Dr. Radha Krushna Padhi	Faculty Orientation On Human Values	27.05.2024 to 01.06.2024	GIET University, Gunupur	Dept. of BSH, GIET University
<b>CAYm2(22-23)</b>					
1	Dr. Deepak Kumar Samal	Faculty Development Programme On Environmental Impact Assessment Strategies	11.07.2022 to 15.07.2022	GIET University, Gunupur	Dept. Of Civil, GIET University
2	Dr. Suman Mishra	Faculty Development Programme On Environmental Impact Assessment Strategies	11.07.2022 to 15.07.2022	GIET University, Gunupur	Dept. Of Civil, GIET University
3	Dr. Radha Krushna Padhi	Faculty Development Programme On Environmental Impact Assessment Strategies	11.07.2022 to 15.07.2022	GIET University, Gunupur	Dept. Of Civil, GIET University
<b>CAYm3(21-22)</b>					
1	Dr. Radha Krushna Padhi	Sustainable Nanotechnologies	14.10. 2022	GMRIT, Rajam	GMRIT, Rajam

#### 6.1.2.2. Faculty Members' Participation in STTPs/FDPs (05)

**TableNo.6.1.2.2.1: List of faculty members participated in STTP/FDP events.**

S.N.	Name of the Faculty as Resource Person or Participant	Max. 5 per Faculty		
		CAYm1(23-24)	CAYm2(22-23)	CAYm3(21-22)
1	Dr. Santosh Kumar Bindhani	5	5	5
2	Dr. Radha Krushna Padhi	5	5	5

3	Dr. Suman Mishra	5	5	5
4	Dr. Uttam Kumar Sahu	5	5	5
5	Dr. Siba Krishna Pedina	5	5	5
6	Dr. Pranita Dash	5	5	5
7	Dr. Daisy Das	5	5	0
8	Mrs. Priyanka Sahu	0	0	0
9	Ms. SonaliMonalishaMallick	5	5	5
10	Mrs. PushpaKumari	5	5	5
11	Mrs. Adyasha Swain Mohapatra	5	0	0
12	Mr. Kiran Kumar Acharya	0	0	0
13	Poduri V S S Ramalingeswar	5	3	0
14	Vemakoti Jaahnawwie	0	0	0
15	Mr. Shantanu Kumar Sahu	3	3	5
16	Dr. Deepak Kumar Samal	5	5	5
17	Dr. Uma Sankar Behera	5	5	5
18	Mr. Sitaram Rai	5	5	5
19	Dr. Kelothu Suresh	0	5	5
Sum		73	71	65
RDF=Number of faculty required to comply with the		11.01	11.1	11.1
Assessment Points (AP)= (Sum/(0.5* RDF)) (Pointslimitedto5foreachassessment year)		13.27	12.79	11.71
Average (Markslimitedto5overtheassessment period)		<b>12.59</b>		

### 6.1.3. Faculty Contribution in Development of SWAYAM MOOCs and other E-Content (05)

**Table No. 6.1.3.1: List of faculty members developed MOOC course for the past 3 years.**

S.N.	Name of the Faculty	Name of the Course Developed and available online on Swayam platform by your Department faculty

### 6.1.4. Faculty Certification of MOOCs through SWAYAM, etc. (10)

**Table No. 6.1.4.1: List of faculty members obtained certification of MOOCs for the past 3 years.**

S.N.	Name of the Faculty	Name of Course Passed	Course Offered by (Agency)	Grade obtained if any
1	Dr. Santosh Kumar Bindhani	Waste to Energy Conversion	NPTEL online certification	Elite (2023-24)
		Basic Principle and Calculation in Chemical Engineering	NPTEL online certification	Elite(2021-22)
2	Dr. Radha Krushna Padhi	Natural Gas Engineering	NPTEL online certification	(2021-22)
		Chemical Process Safety	NPTEL online certification	(2022-23)
3	Dr. Suman Mishra	Waste to Energy Conversion	NPTEL online certification	Elite (2023-24) Top 2% Topper
		Air pollution and Control	NPTEL online certification	Elite(2021-22)
4	Dr. Uttam Kumar Sahu	Technologies for clean and Renewable Energy Production	NPTEL online certification	Elite (2021-22)
		Chemical Process Safety	NPTEL online certification	(2022-23)
5	Dr. Siba Krishna Pedina	Waste to Energy Conversion	NPTEL online certification	Elite (2023-24)
6	Dr. Pranita Dash	Chemical Process Safety	NPTEL online certification	(2022-23)
		Air pollution and Control	NPTEL online certification	Elite(2021-22)
7	Dr. Daisy Das	Aspen Plus® Simulation Software - A Basic	NPTEL online certification	Elite(2023-24)

8	Ms. Sonali Monalisha Mallick	Upstream LNG Technology	NPTEL online certification	(2021-22)
9	Mrs. PushpaKumari	Upstream LNG Technology	NPTEL online certification	(2021-22)
10	Mrs. Adyasha Swain Mohapatra	Aspen Plus® Simulation Software - A Basic	NPTEL online certification	Elite(2023-24)
11	Mr. Shantanu Kumar Sahu	Technologies for clean and Renewable Energy Production	NPTEL online certification	Elite (2021-22)
12	Dr. Deepak Kumar Samal	Natural Gas Engineering	NPTEL online certification	(2021-22)
13	Dr. Uma Sankar Behera	Natural Gas Engineering	NPTEL online certification	(2021-22)
14	Mr. Sitaram Rai	Technologies for clean and Renewable Energy Production	NPTEL online certification	Elite (2021-22)
15	Dr. Kelothu Suresh	Upstream LNG Technology	NPTEL online certification	(2021-22)

### 6.1.5. FDP/STTP Organized by the Department (10)

**Table No. 6.1.5.1: List of FDPs/STPs organized by Department for the past 3 years.**

S.N.	Name of the Program	Date of the Program	Duration of the Program	Name of the Speaker & Designation and	No. of People Attended
<b>CAYm1</b>					
1					
<b>CAYm2</b>					
1	FDP	14.11.2022 to 19.11.2022	6 Days (Engineering and innovations through advanced technology) (EITAT- 2022)	1.Dr. Ranjan Ku. Swain, Principal P.M.E.C (Autonomous), Berhampur, Odisha, India 2.Prof. S K Garg Former Pro Vice Chancellor Delhi Technological University, India	40
<b>CAYm3</b>					
1	FDP	11.04.2022 to 16.04.2022	5 Days	1. Dr. Srinivas Sethi, Professor 2. Dr. Pankaj K Sah 3. Dr. Y. Ravi Kumar	50

### 6.1.6. Faculty Support in Student Innovative Projects (10)

**Table No. 6.1.6.1: List of faculty members involved in student innovative projects.**

S. N.	Name of the Faculty	Name of the Event	Date of Event	Place of Event	Website Link if any
<b>CAYm1</b>					
1	Dr. S. K. Bindhani	Shrujan 2.0	10 <sup>th</sup> to 12 <sup>th</sup> February, 2024	GIET University, Gunupur	<a href="https://www.giet.edu/events/shrujan-2-0/">https://www.giet.edu/events/shrujan-2-0/</a>
2	Dr. R. K. Padhi	AVYAKT 3.0	17 <sup>th</sup> -18 <sup>th</sup> Nov, 2023	GIET University, Gunupur	<a href="https://www.giet.edu/media-coverage/avyakt-3-0/">https://www.giet.edu/media-coverage/avyakt-3-0/</a>
<b>CAYm2</b>					
1	Dr. S. K. Bindhani	Shrujan 1.0	25 <sup>th</sup> to 27 <sup>th</sup> February, 2023.	GIET University, Gunupur	<a href="https://www.giet.edu/events/shrujan-1-0/">https://www.giet.edu/events/shrujan-1-0/</a>
2	Dr. D. K. Samal	AVYAKT 2.0	2 <sup>nd</sup> to 4 <sup>th</sup> November, 2022.	GIET University, Gunupur	<a href="https://www.giet.edu/events/avyakt-2-0-a-techno-cultural-fest/">https://www.giet.edu/events/avyakt-2-0-a-techno-cultural-fest/</a>
<b>CAYm3</b>					
1					

### 6.1.7. Faculty Internship/Training/Collaboration with Industry (10)

**Table No. 6.1.7.1: Faculty internship/training/collaboration details**

S.N.	Name of the Faculty	Name of the Internship/Training/Collaboration	Name of the Company & Place	Duration	Outcomes of Internship/Training/Collaboration
1	Dr. Radha Krushna Padhi	MOU -Student Exchange Programme	TCET, Mumbai	3 year (April 2024 to April 2027)	Student Exchange and Faculty Exchange Programme
2	Dr. Santosh Kumar Bindhani	Design and Development of Plant Utilities/optimization of Process Parameter	Kalinga Bio Ferti-Chem Pvt. Limited, Bhubaneswar	3 year (2021-2024)	Process optimization
3	Dr. Suman Mishra	Design and Development of Plant Utilities/optimization of Process Parameter	Kalinga Bio Ferti-Chem Pvt. Limited, Bhubaneswar	3 year (2024-2027)	Process optimization

4	Dr. Uttam Kumar Sahu	Process Optimization Techniques	Biswanath Chemicals, Gunupur	3 year (2021-2024)	Product Development
5	Dr. Siba Krishna Pedina	Process Optimization Techniques	Biswanath Chemicals, Gunupur	3 year (2024-2027)	Product Development

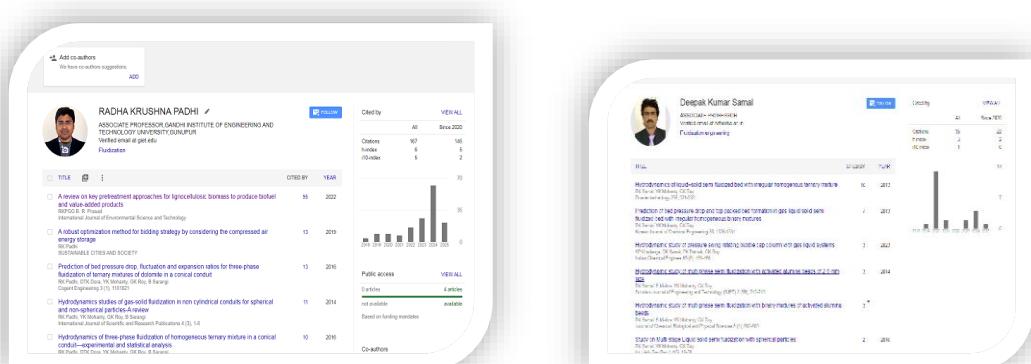
## 6.2. Research and Development Activities (60)

### 6.2.1. Academic Research (10)

TableNo.6.2.1.1: Faculty publication details

S.N.	Item	CAYm1	CAYm2	CAYm3
1	No. of peer reviewed journal papers published	15	10	4
2	No. of peer reviewed conference papers published	3	1	1
3	No. of books/book chapters published	2	0	0

Fig.6.2.1.: Google scholar details of Faculty



SANTOSH KUMAR BINDHANI

Title	Category	Impact Factor
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Development of a novel technique for the synthesis of biological polyesters	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016
Effect of temperature and concentration of density gradient and organic solvents on the per cent ion deprotection of poly(2-hydroxyethyl methacrylate)	Chemistry	2016

SUMAN MISHRA

Title	Category	Impact Factor
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Heterogeneity study of mud, coke ash and bottom ash from incinerated sludge	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Heterogeneity study of mud, coke ash and bottom ash from incinerated sludge	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016
Isolation of <i>Ustilago maydis</i> using Adhesive from Solid Waste	Chemistry	2016

Bar chart showing the distribution of publications by year:

Year	Citations	Impact Factor
2016	1	3.5
2016	2	6.0
2016	3	8.0
2016	4	7.0
2016	5	8.0
2016	6	8.0
2016	7	8.0
2016	8	8.0
2016	9	8.0
2016	10	8.0



**Pedula Sibkrishna**  
Research Scholar M.Tech  
Written review or article  
major area research: Radiation engineering, solid waste management

Group by

All	New (6)
CBEST	1
Project	1
Review	1

Profile Research Interests Data Following

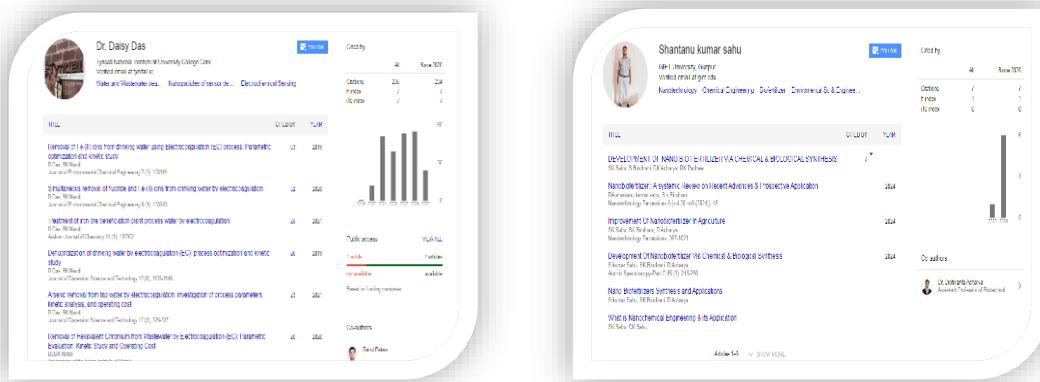
Profile Research Interests Data Following



**Kelothu Suresh**  
Research Scholar/Teaching Assistant  
Fees

25.4 Research Interests Data 276 Citations 10% Index

Profile Research Interests Data Following

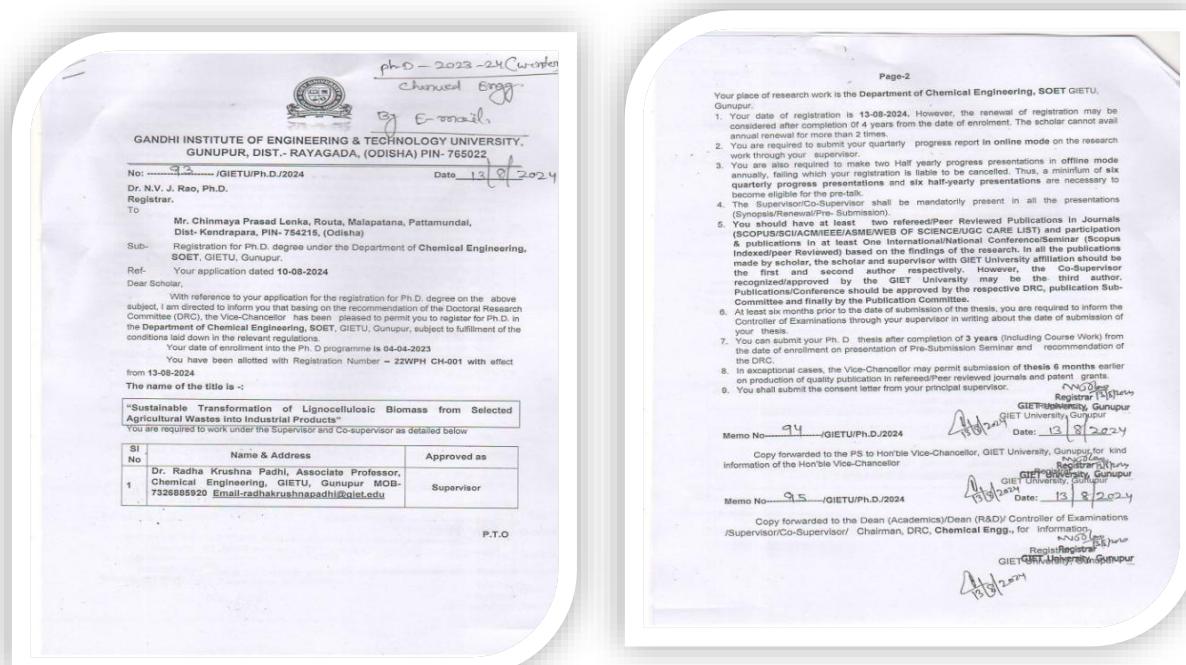


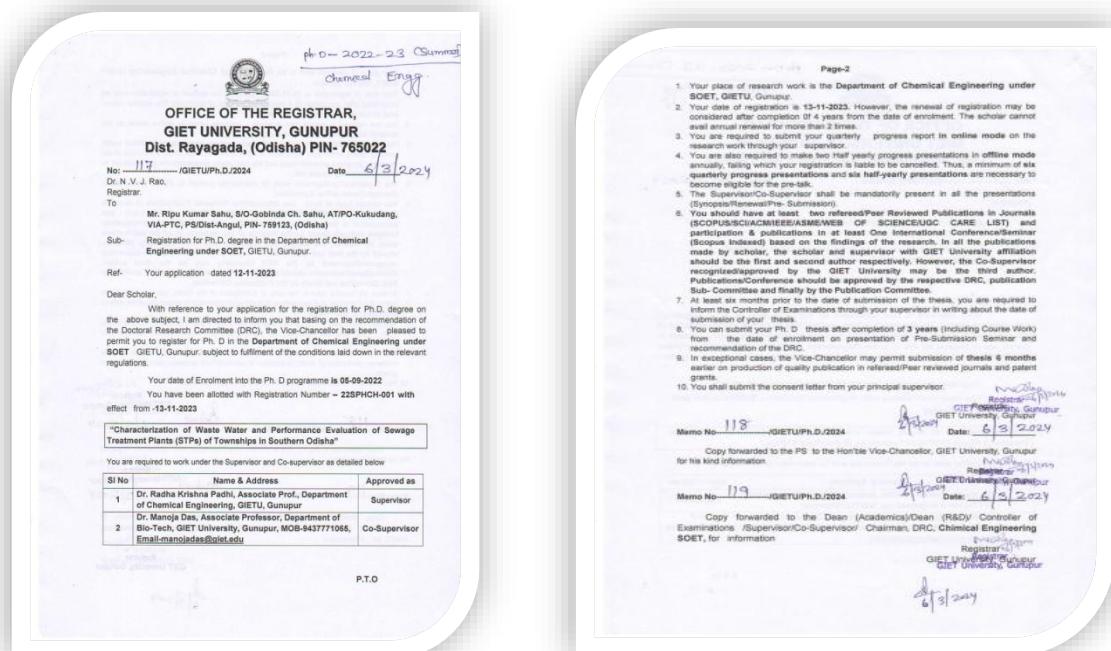
## 6.2.2. Ph.D. Student Details (05)

Table No. 6.2.2.1: Ph.D. details.

S.N.	Item	CAYm1	CAYm2	CAYm3
1	No. of students enrolled for Ph.D. in the Department	0	2	1
2	No. of Ph.D. students graduated in the Department	0	0	0

Fig.6.2.2.: Sample copy of PhD Scholar Registration





### 6.2.3. Development Activities (10)

S.N.	Name of the Faculty	Name of the Patent/Model Developed in Laboratory	Academic Year	Outcomes of
1	Dr. Santosh Kumar Bindhani	Bio-Paint preparation and natural dye extraction method	2023-2024	Patent -Published
2	Dr. Radha Krushna Padhi	Shell and Tube Heat Exchangers	2023-2024	Model -Developed
3	Dr. Santosh Kumar Bindhani	Extraction Unit	2023-2024	Model -Developed
4	Dr. Radha Krushna Padhi	Integrated Petroleum Refinery Unit	2022-2023	Model -Developed
5	Dr. Suman Mishra	Dairy Waste water Treatment	2022-2023	Model -Developed
6	Dr. Uttam Kumar Sahu	Adsorption Kinetics Model	2022-2023	Model -Developed
7	Dr. Suman Mishra	Process Equipments	2022-2023	Model -Developed
8	Dr. Siba Krishna Pedina	Design and Development of Shell and Tube Heat Exchanger	2022-2023	Model -Developed

9	Dr. Deepak Kumar Samal	Transient Heat Transfer Observation Apparatus (Thtoa)-Patent	2021-2022	Patent -Published
10	Dr. Deepak Kumar Samal	PSRBC Bubble Column-Model Developed	2021-2022	Model -Developed
11	Dr. Deepak Kumar Samal	Rate of Steam Condensation Observation Apparatus (RSCOA)- Patent	2021-2022	Patent -Published

#### 6.2.4. Sponsored Research Project (15)

**Table No. 6.2.4.1: List of sponsored research projects received from external agencies.**

S. N.	PI name	Co-PI Name Name s if any	Name of the Dept., project is sanctioned	Project title*	Name agenc y	Duration of the proje ct	Amo unt (Lac s)
<b>CAYm1</b>							
1	Dr.S. K.Bin dhani	Dr.D.K. Samal	Chemical Engineering Dept.,SOET,GIET University	Absorption of Organic Matter from JKPM Effluent in Three phase Fluidized Bed Using an Industrial Waste	JKPAPER Limited	1 year	2.00
<b>Amount received (Rs.)</b>							<b>1.5</b>
<b>CAYm2</b>							
2	Dr.S. K.Bin dhani	Dr.D.K. Samal	Chemical Engineering Dept.,SOET,GIET University	Absorption of Organic Matter from JKPM Effluent in Two phase Fluidized Bed Using an Industrial Waste	JKPAPER Limited	1 year	1.50
<b>Amount received (Rs.)</b>							<b>1.50</b>
<b>CAYm3</b>							
3	Dr.S. K.Bin dhani	Dr.R.k. Bindha ni	Chemical Engineering Dept.,SOET,GIET University	Development and Characterization of Efficient Microbial Consortia for Bio-Fertilizer Production	Kalinga bio ferti-chem pvt. Limited	1 year	1.50
<b>Amount received (Rs.)</b>							<b>1.50</b>
<b>Total Amount (Lacs)Received for the Past 3 Years</b>							<b>5.0</b>

**6.2.5. Consultancy Work (15)****Table No. 6.2.5.1: List of consultancy projects received from external agencies**

S . N .	PI name	Co-PI names if any	Name	Project title*	Name of the Funding agency	Duration of the project	Amount (Lacs )
<b>CAYm1</b>							
1	Dr. S. K. Bindhani		Chemical Engineering Department, GIET University, Gunupur	Design and Development of Heat Exchanger, Evaporator/Plant Utilities/optimization of Process Parameter	KALINGA BIO FERTI-CHEM PVT. Limited	2 Year	2.0
Amount received(Rs.)							2.0
<b>CAYm2</b>							
1	Dr. R. K. Padhi		Chemical Engineering Department, GIET University, Gunupur	Design and Development of Cooling Tower/Dryer	KALINGA BIO FERTI-CHEM PVT. Limited		2.0
Amount received(Rs.)							2.0
<b>CAYm3</b>							
1	Dr. Suman Mishra		Chemical Engineering Department, GIET University, Gunupur	Waste Utilization and Effluent treatment Plant	KALINGA BIO FERTI-CHEM PVT. Limited		1.0
Amount received(Rs.)							1.0
<b>Total amount(Lacs) received for the past 3 years</b>							5.0

**6.2.6. Institution Seed Money or Internal Research Grant to its Faculty for Research Work (05)****Table No. 6.2.6.1: List of faculty members received seed money or internal research grant from the institution.**

S.N.	Faculty name	Project title/ le/ Support for Activity	Duration	Amount (Lacs)	Amount Utilized (Lacs)	Outcomes of the project
<b>CAYm1</b>						
1	Dr. Uttam Kumar Sahu	Magnetic composite for waste water	2 year	2.80	2.80	Publication/ Model Development

		treatment of heavy metal removal				
2	Dr. Siba Krishna Pedina	Hydrodynamics of a three-phase annular fluidized bed photocatalytic reactor	2 year	1.50	1.50	Publication/ Model Development
<b>Amount received (Rs.)</b>				<b>4.30</b>		
<b>CAYm2</b>						
1	Dr. Santosh Kumar Bindhani	Eco-Friendly Bio-Paints: Preparation and Natural Dye Extraction Methods	2 year	2.20	2.20	Prototype/ Patent/ PhD
2	Dr. Deepak Kumar Samal	Design and Performance Analysis of Partially Stirred Reactor Bubble Columns (PSRBC)	2 year	2.60	2.60	Prototype/ Patent/ PhD
<b>Amount received (Rs.)</b>				<b>4.80</b>		
<b>CAYm3</b>						
1	Dr. Radha Krushna Padhi	Design and Performance Analysis of Shell and Tube Heat Exchangers	2 year	2.40	2.40	Prototype/ PhD
2	Dr. Deepak Kumar Samal	Transient Heat Transfer Observation Apparatus	2 year	1.85	1.85	Publication/ Model Development
<b>Amount received (Rs.)</b>				<b>4.25</b>		
<b>Total amount (Lacs) received for the past 3 years</b>				<b>13.35</b>		

**Criterion7: Facilities and Technical Support (100)****7.1. Adequate and Well-Equipped Laboratories and Technical Manpower (40)****Table No.7.1.1: List of laboratories and technical manpower**

S. N .	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the major equipment	Weekly utilization status (all the Courses for which the lab is utilized)	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1.	Fluid Mechanics Lab	4	Reynold's Apparatus , Bernoulli's Apparatus , Venturi & Orifice meter, Notch.	Odd & Even Sem, (Shared lab with Mech, Civil, & Biotech)	Mr. Ram a Chandra Mis hra	Skilled Asst.	ITI(Welder)
2.	Mechanical Operation Lab	4	Jaw And Bowl Classifier, Plate and Frame Filter Press	Even Sem	Mr. Nilakantha Sabar	Lab Asst.	Diploma (Fire and Safety)
3.	Thermophysical Lab	4	VLE, Density meter, Refractometer	Even Sem, Project work	Mr. Nilakantha Sabar	Lab Asst.	Diploma (Fire and Safety)
4.	Chemical Technology Lab	4	pH meter, Water bath, Burette and Pipettes, Titration Setup, weighing machine	Odd sem	Mr. Sushant Kumar Patnaik	Lab Asst.	BSc (Chemistry)

5.	Heat Transfer Lab	4	Double Pipe Heat Exchanger, Jacketed Vessel, Calendria Evaporator, Pin Fin Tutor. Emissivity Apparatus	Odd sem (Shared with Mech & Biotech in Even Sem)	Mr. Rama Chandra Mishra	Skilled Asst.	ITI(Welder)
6.	Chemical Reaction Engg. Lab	4	CSTR, PFR, Batch Reactor	Odd sem Project work	Mr. Nilakantha Sabar	Lab Asst.	Diploma (Fire and Safety)
7.	Process Control Lab	4	Temp. Controller, Pressure Controller, Interacting and Non-interacting Systems	Even Sem Project work	Mr. Sambr a Sabar	Skilled Asst.	+2 Arts, DDUJKY Skill Development
8.	Mass Transfer-I Lab	4	Bubble Cap Distillation Unit, Packed Bed Distillation, Wetted Wall Column, Simple distillation, Steam Distillation	Even Sem	Mr. Susan t Kumar Patnak	Lab Asst.	BA, ITI with Apprentice , NALCO
9.	Mass Transfer-II Lab	4	Rotary Drier, Drum Dryer, Extraction Unit, Leaching Unit, Swanson-walker Crystallizer	Odd Sem	Mr. Susan t Kumar Patnak	Lab Asst.	BA, ITI with Apprentice , NALCO
10.	Process Design Lab	4	AutoCAD, MATLAB, ANSYS	Even Sem, Project work	Mr. Rama	Skilled Asst.	ITI(Welder)

			14, Aspen		Chandr a Mis hra		
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## 7.2. Additional Facilities Created for Improving the Quality of Learning Experience in Laboratories (20)

Two Research and Development laboratories have been established at the department for research project work. The equipments of these laboratories are purchased from non-recurring budget of the external funding agencies like NALCO, Shyam-Ferro Alloys Ltd., DST and AICTE. These laboratories are available for both faculties and students to carryout project work, research work, consultancy work etc. The detail equipments available at both the laboratories are given below:

**Table No.7.2.1: List of additional facilities**

S. N.	Name of the Facility	Details	Purpose for creating facility	Utilization	Relevance to POs/PSOs
1.	Fluidization Lab	Two phase fluidized bed reactor, Three phase Fluidized bed reactor, PSRBC Bubble Column Reactor	Utilization of maximum liquid volume for gas-liquid contact in batch and continuous bubble column which enhance the mass transfer, with Pressure Swing Rotating Bubble Cap (PSRBC) in Comparison to Fixed Spargers.	During Lab and Project work	PO1, PO2, PO3, PO4, PO7, PO8, PO11, PSO1, PSO2
2.	Fuel Technology Lab	Engler's Viscometer, Orsat Analyzer, Pensky Marten Flash Point Apparatus, Cleveland Flash Point	The lab enables students to bridge the gap between theoretical concepts and real-world application, fostering innovation in	During Lab and Project work	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO12, PSO1, PSO2

		Apparatus	energy and fuel technologies like Understanding Fuel Properties and Composition, Development of Efficient Combustion Technologies, Fuel Testing and Quality Control & Environmental and Emission Control		
3.	Water Quality Testing Lab	BOD bottle, pHmeter, Conductivity meter, DO measuring Device, Turbidity Meter, Refractometer, Titration Set-Up, Incubator, Water Bath, Glassware (Beakers, Flasks, Pipettes)	It Enhances hands-on skills and technical proficiency, supports environmental sustainability and public health protection, Builds interdisciplinary knowledge combining chemistry, biology, and engineering and prepares students for roles in industry, research, government, and consultancy.	During Project work	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO9, PSO1

### 7.3 Maintenance of Laboratories and Overall Ambiance (10)

#### Laboratory Facilities and Maintenance

The Department of Chemical Engineering is equipped with state-of-the-art laboratories that are maintained by experienced faculty and well-trained technical staff. Each laboratory is assigned a dedicated Faculty In-charge, supported by a Lab Assistant, to ensure smooth and uninterrupted operation of all lab activities throughout the academic year. Their collective efforts enable students to effectively carry out their practicals, experiments, and project work. Faculty members and technical staff are committed to extending support even beyond regular working hours to facilitate the teaching-learning process.

#### Key Features and Maintenance Practices:

- The department has well-furnished laboratories, equipped with modern instruments to meet the requirements of the Chemical Engineering curriculum.
- Skilled technical staffs are available for the regular maintenance and servicing of all equipment.
- Preventive servicing of laboratory instruments is conducted at the beginning of each academic year.
- Calibration of instruments is carried out as and when required to ensure accuracy in experimental results.
- Laboratories are designed with adequate ventilation and lighting to maintain a safe and comfortable working environment.
- All equipment is systematically arranged with ample spacing, allowing multiple students to work simultaneously around each setup.
- Individual seating arrangements with chairs and desks are provided for students during lab sessions.
- Laboratory manuals are available to guide students through experiments and standard procedures.
- Each laboratory is equipped with cupboards for safe and organized storage of glassware and apparatus.
- Labs are provided with whiteboards, blackboards, internet access, and computers to aid teaching and presentations.

- Exclusive R&D laboratories are available for students to undertake their mini and major project works.
- The department is powered by a 250 KVA generator and a 7.5 KVA UPS system (240V DC) with battery backup to ensure uninterrupted power supply during lab sessions.
- Monthly maintenance schedules are followed diligently, with additional checks conducted as necessary during lab operations.
- Upon installation of new equipment, training is provided to both faculty and technical staff for effective operation and upkeep.
- Air circulation systems are properly maintained to ensure safety during chemical experiments.
- Window curtains are installed for light control and improved visibility.
- Each laboratory includes both blackboards and whiteboards for instructional use.

These well-structured and maintained laboratory facilities contribute significantly to quality education and research in the field of Chemical Engineering.

**Fig.7.3.1.: Laboratory Facilities and Maintenance**



## LABORATORY FACILITIES AND MAINTENANCE

### OVERVIEW

The Department of Chemical Engineering is equipped with experienced faculty and well-trained technical staff. Each laboratory is assigned a dedicated Faculty and assistants ensure smooth and uninterrupted operation of lab activities throughout the academic year – and the faculty and technical staff extending support beyond working hours to

### OVERVIEW

The department houses well-furnished laboratories aligned with the Chemical Engineering curriculum.

- Skilled technical staff are available for maintenance and servicing of eq..
- Instrument servicing at the start of each academic year.
- Calibration of instruments done as needed for accurate results.
- Exclusive R&D laboratories available for students mini and major project works

### KEY FEATURES

- The department houses well-furnished laboratories aligned with Chemical Engineering curriculum.
- Skilled technical staff are conducted at the start of each academic year.
- Calibration of instruments is done as secure results,
- Laboratories. have adequate ventilation and lighting
- Equipment is systematically arranged with ample spacing for multiple students around each setup.
- Individual seating arrangements with chairs and desks for students during lab sessions,
- Laboratory ,manuals, available for students in each laboratory.
- Cupboards for storage of glassware and apparatus.
- Exclusive R&D laboratories available for students, mini a major project works.

**Maintenance of Laboratory Equipment – Chemical Engineering Laboratories**

- Regular check-up of each equipment is carried out at the end of each experiment to ensure proper functioning and safety.
- Breakdown and repair registers are maintained for each piece of equipment in the Chemical Engineering laboratories.
- Minor repairs of instruments are usually handled by the lab assistant and faculty members of the Chemical Engineering department.
- Stock registers for each Chemical Engineering laboratory are maintained and duly verified by the Programme Coordinator at the beginning of each academic session.
- Maintenance of computers used in the Chemical Engineering labs is managed by the IT and Computer Department.
- Major repairs and servicing are outsourced as per the standard procedures of the institute.

Fig.7.3.1.: Sample copy of Laboratory Maintenance

<p style="text-align: center;"> <b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b>  <b>CHEMICAL ENGINEERING DEPT</b>          (Established Under Odisha Act 23 of 2018, Included by UGC-New Delhi, and Approved by AICTE, ICAR, INC, DSR, New Delhi)          Gunupur - 765022, Dist:- Rayagada, Odisha, India  <a href="http://www.giet.edu">www.giet.edu</a>  <b>Laboratory Maintenance</b> </p>																																		
<p><b>1. General Information</b></p> <table border="1"> <thead> <tr> <th>Laboratory Name</th> <th>Date of Entry</th> <th>Equipment ID/Name</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="vertical-align: top; text-align: center;"> <b>Mechanical Operation Laboratory</b> </td> <td>20-06-24</td> <td>Ball mill</td> </tr> <tr> <td>20-06-24</td> <td>Roll crusher</td> </tr> <tr> <td>20-06-24</td> <td>Block Jaw crusher</td> </tr> <tr> <td>20-06-24</td> <td>Wifley Table</td> </tr> <tr> <td>20-06-24</td> <td>Hammer Mill</td> </tr> <tr> <td>20-06-24</td> <td>Vibratory Scale</td> </tr> </tbody> </table>							Laboratory Name	Date of Entry	Equipment ID/Name	<b>Mechanical Operation Laboratory</b>	20-06-24	Ball mill	20-06-24	Roll crusher	20-06-24	Block Jaw crusher	20-06-24	Wifley Table	20-06-24	Hammer Mill	20-06-24	Vibratory Scale												
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<p><b>6. Summary and Recommendations</b></p> <ul style="list-style-type: none"> <li>General Condition of Equipment: [Good/Fair/Poor] <input checked="" type="checkbox"/></li> <li>Upcoming Maintenance Needs: [List of Upcoming Tasks/Check-ups] <input checked="" type="checkbox"/></li> <li>Recommendations: [Any recommended actions or improvements] - Greasing is required</li> </ul>																																		
<p><b>7. Signatures</b></p> <ul style="list-style-type: none"> <li>Lab Coordinator/Faculty Member: </li> <li>Verified by HOD:  HOD Dept. of Chemical Engineering GIET, GIET University, Gunupur</li> </ul>																																		

## Overall Ambiance

- All laboratories are equipped with the necessary equipment to meet the requirements of the curriculum.
- Laboratory manuals are prepared by the concerned faculty and made available to students in each laboratory.
- Laboratories are well-furnished, providing adequate seating arrangements and required equipment for students.
- Laboratories are accessible to students not only during working hours but also beyond, to accommodate project work and extra study time.
- All laboratories are equipped with fans and tube lights, with air conditioning provided in labs where necessary.
- Backup power supply provisions are available for R&D laboratories to ensure uninterrupted operations.

## POLICY DOCUMENT:

### Fig.7.3.2.: Sample copy of Policy Document

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR**



**POLICY DOCUMENT**

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR-765022**

**MAINTENANCE POLICY**

**GIET University, Gunupur**

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR-765022**

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**MAINTENANCE POLICY**

**GIET University, Gunupur**

**MAINTENANCE POLICY**

**GIET University, Gunupur**

## 7.4. Safety Measures in Laboratories (10)

Laboratories, especially in chemical engineering, are equipped with a wide range of instruments and materials, which introduces a variety of potential safety hazards. This is why understanding and practicing lab safety is not just recommended—it is essential. When something goes wrong in a laboratory setting, it doesn't just disrupt an experiment. It can affect entire student project timelines, damage valuable equipment, and, most importantly, cause harm to individuals working in the lab.

Every student must become familiar with the equipment and layout of the lab they are working in, even if they are not using all the tools themselves. Being aware of your surroundings and understanding what others—your peers, co-workers, or lab partners—are doing is equally important to maintain a safe environment.

By gaining a solid understanding of the laboratory environment and strictly following all prescribed safety protocols, students can actively help prevent or reduce the likelihood of hazards. It is also critical that students are trained in the appropriate emergency procedures, so they can respond quickly and correctly in the event of an accident.

While laboratories are designed with safety measures in place, accidents can still occur. Being informed, alert, and prepared ensures a safer learning and research environment for everyone.

**Fig.7.3.3.: Sample copy of Laboratory Safety measures**



**BASIC RULES IN CHEMICAL ENGINEERING LABORATORY**

1. Always Wear Appropriate Personal Protective Equipment (PPE) Lab coat, safety goggles, gloves, and covered shoes mandatory at all times.
2. Know the Location of Safety Equipment Familiarize with all positions of fire extinguishers, eye washstations, first aid kits, emergency exits, and safety showers.
3. No Food or Drinks in the Lab Eating, drinking or storing food unless press. chemical contamination.
4. Read and Understand Experiment Procedures Review the lab manual or instructions thoroughly before starting any experiment.
5. Avoid Direct Contact with Chemicals Use tongs, scales, or pipettes. Wash hands soaps, or pipettes. Wear covered shoes after handling gloves.
6. Report Accidents Immediately Inform the lab instructor or supervisor in case of any accident, spill, or equipment malfunction.
7. Keep Your Work Area Clean and Organized Clutter-free benches help reduce the chance in contamination, and accidents.
8. Handle Equipment with Care Use all apparatus according to guidelines and do not tamper with lab instruments.
12. Never Inhale or Taste Chemicals Always waft vapors toward you nose if instructed to smell.
13. Follow Electrical Safety Guidelines Ensure hands are dry before handling electrical equipment and equipment.

**Safety Measures in Chemical Engineering Laboratories**



**DEPARTMENT OF CHEMICAL ENGINEERING**

**Basic Safety Measures**

1. Personal Protective Equipment (PPE): Always wear appropriate PPE, in lab: safety goggles, Gloves, closed-toe shoes.
2. Familiarization with Equipment Know how to operate action of lab equipment will not telac the location of emergency equipment site aid kits.
3. Chemical Handling and Storage Check labels before entering gloes ad ventilation.
4. Proper Ventilation Use fume hood while ensuring good ventilation.
5. Waste Disposal Dispose of chemical waste encong to the guidelines, use safe containers for others and freds, sparks
6. Fire Safety Know the locations of fire extinguishers merre the exits. Hot oil spills, sparks or heat all extinguishing equip.
7. Spill Control Be waiting for accidents and spills, knowing the location and use of your closed-to discharge spills
8. Electrical Safety

The following safety measures are followed at different laboratories of the programme:

**Table No.7.4.1: List of various safety measures in laboratories**

Sl. No.	Name of the Laboratory	Specific Safety Measures
1	Mass Transfer-I Lab	<ul style="list-style-type: none"> <li>• Ensure proper functioning of packed/plate columns before use</li> <li>• Wear covered shoes and lab coats</li> <li>• Avoid direct contact with solvents</li> <li>• Maintain clear walkways</li> </ul>
2	Chemical Reaction Engineering Lab	<ul style="list-style-type: none"> <li>• Use gloves and safety goggles while handling catalysts and chemicals</li> <li>• Conduct all reactions in designated fume hoods</li> <li>• Check glassware for cracks before use</li> <li>• Wear covered shoes and lab coats</li> </ul>
3	Mechanical Operation Lab	<ul style="list-style-type: none"> <li>• Ensure safety guards are in place for crushers, grinders, and sieve shakers</li> <li>• Avoid loose clothing near rotating equipment</li> <li>• Wear covered shoes and dust masks when required</li> </ul>
4	Chemical Technology / Fuel Technology Lab	<ul style="list-style-type: none"> <li>• Store flammable chemicals in flame-proof cabinets</li> <li>• Handle fuels and acids with gloves and face shields</li> <li>• Use fume hoods during chemical mixing</li> <li>• Wear covered shoes and lab coats</li> </ul>
5	Heat Transfer Lab	<ul style="list-style-type: none"> <li>• Allow equipment (e.g., heat exchangers) to cool before maintenance</li> <li>• Do not touch hot surfaces directly</li> <li>• Use thermal gloves if needed</li> <li>• Wear covered shoes</li> </ul>
6	Process Control Lab	<ul style="list-style-type: none"> <li>• Check power supplies and wiring connections before starting the experiment</li> <li>• Do not tamper with control panels</li> <li>• Use dry hands while handling electrical instruments</li> <li>• Wear covered shoes</li> </ul>
7	R&D Lab	<ul style="list-style-type: none"> <li>• Follow all standard operating procedures for new experiments</li> <li>• Use PPE (gloves, goggles, lab coat) at all times</li> <li>• Ensure proper chemical labeling and storage</li> <li>• Handle glassware and equipment with care</li> </ul>

## 7.5. Project Laboratory/Research Laboratory/Centre of Excellence (20)

Two R & D laboratories have been setup to carry out project work and research activity to gain knowledge in emerging areas of chemical Engineering used in industries for product development.

**Table No.7.5.1: List of project laboratory/research laboratory/Centre of Excellence**

S.N.	Name of the Laboratory	Utilization	Relevance to POs/PSOs
1.	R & D laboratories	Research work and project work	PO1, PO2, PO4, PO5, PO12, PSO1, PSO2
2.	Centre of Excellence	Consultancy & project work, Entrepreneurial activities	PO3, PO6, PO7, PO9, PO11, PSO1, PSO2
3.	Project works	Inter-disciplinary project work	PO2, PO3, PO8, PO10, PO12, PSO1, PSO2

### 1. R & D laboratories:

The department has established two R & D laboratories apart from curriculum laboratories for undergraduate students. The laboratories are equipped with the instruments like Fluidization column, Potentiostat, PSRBC, Digital Balance, UV- Vis Spectrophotometer, Viscometer, and Mixture Grinder. The aims of establishment of R & D laboratories are to provide extra facilities to the students to carry out their project works. Back-up power supply is provided for R & D laboratories and it is open for beyond the working hours. So students can utilize the facilities for longer period in a day.

**Fig. 7.5.1: PSRBC (Sparger Design)**

**Fig. 7.5.2: PSRBC Bubble Column****Fig. 7.5.3: RSCOA**

**Fig. 7.5.4: Dairy Waste Water Treatment**

### 2. Centre of Excellence

A Center of Excellence (CoE) is generally a physical or virtual center of research which concentrates on existing capacity and resources to enable researchers to collaborate across disciplines and institutions, for projects that are locally relevant and internationally challenging. These projects help enhancing the pursuit of excellence in research and capacity development. These centers promote multi-disciplinary academic as well as practice-oriented research and encourage the formation of strong research groups to help recognizing true excellence in research and having high impact on various stakeholders. The Centre of Excellence for bio fertilizer production has been started in the year 2017. We try to integrate the efforts of chemist, biologist and engineers working with different aspects of bio fertilizer at this center to produce different types of products.

### 3. Project works:

The project work is given to the students on new and emerging areas of biotechnology, multidisciplinary areas and basic research relevant to societal development. To trigger an R&D culture in the institution including at the department encouragements are given for collaborative and sponsored research, publications in reputed national/international journals and conferences, patents, innovations, commercialization of products. To imbibe the interest on project and recent areas of research students are sent to different national repute institutes

to take training at least for 10 days in lower semesters of the departments. The major areas where the students are carry out their project works includes environmental engineering, Biotechnology, Fluidization, Wastewater treatment, production of bio fuel etc. For in house project work, students carry out experiments with existing laboratory facilities available at the department and in case of requirement the samples are sent to the outside repute organizations for testing/analysis purposes with prior permission of the concerned organization.

**Fig. 7.5.4: Entrepreneurial activities**

**Criterion 8: Continuous Improvement****8. 1. Actions Taken Based on the Results of Evaluation of the COs, POs, and PSOs (40)****8.1.1. Actions Taken Based on the Results of Evaluation of the COs Attainment (20)**

**Table No.8.1.1: Course-wise CO Attainment Analysis Comparing Target and Actual Levels with Identified Gaps and Remedial Actions**

Course Code	Subject Name	Target level	Attainment Level	Identified Gaps	Actions Taken
C101	Engineering Mathematics-I	2.4	2.1	Insufficient conceptual clarity and application in problem-solving.	Conducted remedial sessions and provided additional problem-solving assignments.
C102	Engineering Physics	2	1.9	Challenges in applying theoretical principles to practical problems	Organized concept-based lectures and interactive demonstrations
C103	Basic Electrical and Electronics Engineering	2	1.8	Lack of foundational understanding in circuit analysis and components.	Conducted tutorial sessions and introduced simulation tools.
C104	Programming for Problem Solving	2	1.9	Difficulty in programming logic and algorithm development.	Implemented regular coding practice sessions and lab exercises.
C105	Communicative English and Soft Skills	2	2.1	Target Achieved.	
C106	Engineering Physics Lab	2	2.4	Target Achieved.	
C107	Basic Electrical and Electronics Engineering Lab	2.4	2.4	Target Achieved.	
C108	Programming for Problem Solving Lab	2	2.2	Target Achieved.	

C109	Communicative English and Soft Skills Lab	2	2.4	Target Achieved.	
C110	Engineering Graphics & Design	2	2.2	Target Achieved.	
C111	Engineering Mathematics-II	2.4	2.1	Limited understanding of advanced calculus and differential equations.	Additional lectures and weekly problem-solving assignments were arranged.
C112	Engineering Chemistry	2.4	2.4	Target Achieved.	
C113	Basics of Mechanics	2	1.9	Difficulty in applying mechanical principles to engineering problems.	Peer learning sessions and multimedia resources were introduced.
C114	Data Structure and Algorithms	2	1.8	Inadequate practical exposure to data structure implementation.	Conducted hands-on lab exercises and mini-projects.
C115	Communicative English and Technical Communication	2.4	2.7	Target Achieved.	
C116	Engineering Chemistry Lab	2.4	2.7	Target Achieved.	
C117	Data Structure and Algorithms Lab	2	2.4	Target Achieved.	
C118	Communicative English and Technical Communication Lab	2.4	2.5	Target Achieved.	
C119	Engineering Workshop	2	1.9	Limited hands-on practice with tools and machinery.	Extended lab hours and introduced structured task-based practice.
C201	Engineering Mathematics-	2	1.8	Lack of clarity in numerical	Organized focused tutorial

	III			methods and transforms.	sessions and regular assessments.
C202	Object Oriented Programming	2	1.7	Difficulty in understanding and applying OOP concepts.	Introduced practical projects and live coding demonstrations.
C203	Heat Transfer	2.4	1.9	Poor understanding of heat transfer mechanisms and analysis.	Included problem-solving workshops and software simulations.
C204	Fluid Mechanics	2.4	2	Inadequate grasp of fluid dynamics and flow analysis.	Conducted application-based lectures and lab simulations.
C205	Chemical Process Calculation	2	2	Target Achieved.	
C206	Organizational Behavior	2.4	2.2	Lack of engagement with behavioural theories and workplace applications.	Used activity-based learning and real-life case discussions.
C207	Object Oriented Programming Using Java Lab	2.4	2.2	Limited ability to apply OOP concepts in practical scenarios.	Arranged guided lab sessions and peer programming support.
C208	Heat Transfer Lab	2.4	2.4	Target Achieved.	
C209	Fluid Mechanics Lab	2.4	2.5	Target Achieved.	
C210	Summer Industry Internship	2.4	2.4	Target Achieved.	
C211	Material Science	2	2	Target Achieved.	
C212	Chemical Engineering Thermodynamics	2.4	2.2	Difficulty in integrating thermodynamic principles into real	Conducted additional tutorials and application-based

				systems.	assignments.
C213	Mass Transfer-I	2.4	2	Inadequate understanding of mass transfer principles and operations.	Included real-world examples and increased problem-solving sessions.
C214	Mechanical Operations	2.4	2.1	Limited clarity on equipment functions and operational principles.	Provided additional lab demonstrations and videos of equipment in use.
C215	Numerical Methods in Chemical Engineering	2	1.7	Difficulty in applying numerical techniques using computational tools.	Introduced MATLAB/Excel-based workshops and step-by-step problem solving.
C216	Engineering Economics and Costing	2	2	Target Achieved.	
C217	Material Testing Lab	2.4	2.5	Target Achieved.	
C218	Thermo physical Lab	2.4	2.4	Target Achieved.	
C219	Mass Transfer-I Lab	2.4	2.5	Target Achieved.	
C220	Mechanical Operations Lab	2.4	2.6	Target Achieved.	
C221	Project	2.4	2.5	Target Achieved.	
C301	Chemical Process Technology	2.4	2.4	Target Achieved.	
C302	Chemical Reaction Engineering- I	2.4	2.3	Weak application of reaction kinetics in reactor design.	Weekly tutorials with focus on design case studies were conducted.
C303	Transport Phenomenon	2.4	2.2	Challenges in conceptualizing momentum, heat, and mass transport	Conducted integrated learning modules with simulation

				correlations.	support.
C304	Mass Transfer-II	2.4	2.1	Poor understanding of separation processes and design parameters.	Supplemented with process modelling software and design tasks.
C305	Process utility and Industrial Safety	2	2	Target Achieved.	
C306	Process Instrumentation	2	2.2	Target Achieved.	
C307	Human Value & Professional Ethics	2	2.2	Target Achieved.	
C308	Chemical Process Technology Lab	2.4	2.4	Target Achieved.	
C309	Chemical Reaction Engineering- I Lab	2.4	2.4	Target Achieved.	
C310	Mass Transfer-II Lab	2.4	2.6	Target Achieved.	
C311	Summer Industry Internship	2.4	2.4	Target Achieved.	
C312	Minor Project-I	2.4	2.3	Gaps in design thinking and project documentation.	Faculty mentorship and interim evaluations were strengthened.
C313	Process Equipment Design	2	2.1	Target Achieved.	
C314	Process Control	2.4	2	Difficulty in understanding control mechanisms and instrumentation.	Introduced practical control experiments and simulation tools.
C315	Chemical Reaction Engineering- II	2.4	2.1	Weak application of reaction kinetics in	Weekly tutorials with focus on design case studies

				reactor design.	were conducted.
C316	Process Modelling and Simulation	2	2	Target Achieved.	
C317	Fuel and Energy Technology	2	2	Target Achieved.	
C318	Optimization in Engineering	2	1.6	Poor understanding of optimization models and solution techniques.	Implemented software-based learning using Excel Solver and Python tools.
C319	Dietetics and Nutrition	2	2	Target Achieved.	
C320	Process Equipment Design Lab	2.4	2.4	Target Achieved.	
C321	Process Control Lab	2.4	2.4	Target Achieved.	
C322	Minor Project-I	2.4	2.5	Target Achieved.	
C401	Modern Separation Technique	2	2	Target Achieved.	
C402	Integrated Solid Waste Management	2	2	Target Achieved.	
C403	Industrial Engineering	2	2	Target Achieved.	
C404	Entrepreneurship Development	2.4	2.1	Inadequate understanding of start-up frameworks and business modelling.	Conducted workshops on Business Model Canvas and entrepreneurial thinking.
C405	Summer Industry Internship	2.4	2.2	Weak report writing and limited learning documentation from internships.	Introduced internship presentation and evaluation rubrics.
C406	Major Project Work-I	2.4	2.4	Target Achieved.	

C407	Pollution and its control	2.4	2.4	Target Achieved.	
C408	Petroleum Refinery Engineering	2.4	2.1	Difficulty in understanding process flows and refinery operations.	Visual process maps and refinery simulation videos were introduced.
C409	Biochemical Engineering	2	2	Target Achieved.	
C410	Major Project Work-II & Dissertation	2.4	2.5	Target Achieved.	

### 8.1.2. Actions taken based on the results of evaluation of each of the POs & PSOs (20)

Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels. Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years.

Examples of analysis and proposed action

Sample 1-Course outcomes for a laboratory course did not measure up, as some of the lab equipment did not have the capability to do the needful (e.g., single trace oscilloscopes available where dual trace would have been better, or, non-availability of some important support software etc.). Action Taken-Equipment up-gradation was carried out (with details of up-gradation)

Sample 2-In a course on EM theory student performance has been consistently low with respect to some COs. Analysis of answer scripts and discussions with the students revealed that this could be attributed to a weaker course on vector calculus.

Action taken-revision of the course syllabus was carried out (instructor/text book changed too has been changed, when deemed appropriate).

Sample 3-In a course that had group projects it was determined that the expectations from this course about PO3 (like: “to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations”) were not realized as there were no discussions about these aspects while planning and execution of the

project. Action Taken-Project planning, monitoring and evaluation included in rubrics related to these aspects.

**Table No.8.1.2: POs Attainment Levels and Actions for improvement – 2023-24**

POs	Target Level	Attainment Level	Observations	Action Taken
<b>PO1: Engineering knowledge</b>				
PO1	2.4	2.20	Weak application of core concepts, limited use of tools like Aspen/HYSYS	<ul style="list-style-type: none"> <li>For further enhancement the department has organized guest lectures and workshops</li> <li>Introduced pilot-scale equipment</li> </ul>
<b>PO2: Problem analysis</b>				
PO2	2.4	2.1	Students showed slight difficulty in breaking down and analyzing complex engineering problems independently.	<ul style="list-style-type: none"> <li>Incorporated case-based and real-world problems in class and assessments.</li> <li>Conducted focused tutorials on analytical problem-solving.</li> <li>Organized expert sessions on structured analysis techniques.</li> <li>Promoted peer learning through collaborative tasks.</li> </ul>
<b>PO3: Design/development of solutions</b>				
PO3	2.4	1.97	The attainment level indicates a significant gap in students' ability to design and develop engineering solutions that meet specified needs, considering public health, safety, and	<ul style="list-style-type: none"> <li>Introduced more hands-on design projects in courses to strengthen students' ability to create solutions.</li> <li>Organized design thinking workshops to improve solution development skills.</li> <li>Increased emphasis on sustainability and safety considerations in design assignments and assessments.</li> <li>Incorporated industry collaboration and internships for practical</li> </ul>

			environmental factors.	exposure to real-world design challenges.
<b>PO4: Conduct investigations of complex problems</b>				
PO4	2.4	2.4	Target level is attained	<ul style="list-style-type: none"> <li>Subsequent coaching classes were conducted beyond the regular planned classes.</li> <li>Real case studies have been assigned through various mini projects and workshops</li> </ul>
<b>PO5: Modern tool usage</b>				
PO5	2.4	1.7	Students showed insufficient proficiency with modern tools and technologies essential for engineering tasks.	<ul style="list-style-type: none"> <li>Conducted tool-specific training (e.g., MATLAB, Hysys, Aspen Plus).</li> <li>Integrated modern tools into coursework and assignments.</li> <li>Arranged guest lectures by industry experts on tool applications.</li> <li>Increased lab sessions focusing on tool usage in real-world scenarios.</li> </ul>
<b>PO6: The engineer and society</b>				
PO6	2.4	1.68	Students showed limited understanding of the societal, health, safety, legal, and cultural issues relevant to professional engineering practice.	<ul style="list-style-type: none"> <li>Introduced case studies related to engineering ethics, public safety, and societal impact in coursework.</li> <li>Conducted seminars and guest talks on real-life engineering decisions affecting society.</li> <li>Encouraged student participation in community</li> </ul>

				outreach and social impact projects.
<b>PO7: Environment and sustainability</b>				
PO7	2.4	2.02	Students exhibited limited understanding of environmental issues and the integration of sustainable practices in engineering solutions.	<ul style="list-style-type: none"> <li>• Incorporated environmental impact assessments into project evaluations and coursework.</li> <li>• Hosted expert talks and seminars on climate-conscious design and sustainable engineering practices.</li> <li>• Organized industrial visits to facilities implementing eco-friendly technologies.</li> <li>• Assigned mini-projects focused on renewable energy, waste reduction, and sustainability.</li> <li>• Encouraged active involvement in environmental clubs, green initiatives, and community outreach focused on sustainability.</li> </ul>
<b>PO8: Ethics</b>				
PO8	2.4	1.64	Students showed limited understanding and application of professional ethics and ethical decision-making in	<ul style="list-style-type: none"> <li>• Imparted 2 credit course on Human value and Ethics</li> <li>• The department is trying to achieve the target level.</li> </ul>

			engineering.	
<b>PO9: Individual and team work</b>				
PO9	2.4	1.74	Students exhibited challenges in team collaboration and maintaining individual accountability within group projects.	<ul style="list-style-type: none"> <li>Increased the number of team-based projects with clear role distribution and accountability.</li> <li>Implemented peer assessments to evaluate individual contributions.</li> <li>Organized workshops on teamwork, including conflict resolution and effective communication.</li> <li>Encouraged interdisciplinary collaborations to improve diverse team dynamics.</li> </ul>
<b>PO10: Communication</b>				
PO10	2.4	2.0	Students showed difficulty in effectively conveying technical information both verbally and in writing.	<ul style="list-style-type: none"> <li>Classes related to communication skills were conducted by Training and Placement cell of the college.</li> <li>Seminars related to latest engineering topics were conducted pertaining to respective subjects.</li> </ul>
<b>PO11: Project management and finance</b>				
PO11	2.4	1.77	Students demonstrated limited understanding of project planning, budgeting, and	<ul style="list-style-type: none"> <li>Introduced mini-projects with basic budgeting and scheduling components.</li> <li>Conducted workshops on project management tools like MS Project and Gantt</li> </ul>

			resource management in engineering contexts.	<ul style="list-style-type: none"> <li>charts.</li> <li>Integrated case studies on real-world engineering project planning and cost control.</li> <li>Included finance basics and resource allocation topics in relevant subjects.</li> </ul>
<b>PO12: Life-long learning</b>				
PO12	2.4	1.44	Students showed limited engagement in activities promoting continuous learning and skill development beyond the academic curriculum.	<ul style="list-style-type: none"> <li>Remedial classes have been conducted for lower graduate subjects and COs are redefined by keeping in view of the lifelong learning.</li> <li>NPTEL courses are made available for the above subjects.</li> <li>Expert lectures conducted on future scope of chemical Engineering and various job opportunities in India and abroad.</li> </ul>

**Table No.8.1.3: PSOs Attainment Levels and Actions for improvement – 2023-24**

PSOs	Target Level	Attainment Level	Observations	Action Taken
<b>PSO-1</b>	2.4	2.1	Students demonstrated limited ability to integrate chemical engineering principles with interdisciplinary skills for solving real-world problems.	<ul style="list-style-type: none"> <li>Introduced interdisciplinary mini-projects focused on real industrial challenges.</li> <li>Conducted problem-solving workshops using case studies from chemical and allied industries.</li> <li>Provided training on</li> </ul>

				simulation tools like Aspen Plus, MATLAB, and HYSYS.
<b>PSO-2</b>	2.4	2	Students showed limited ability to design sustainable and safe chemical processes using modern tools, both individually and in teams.	<ul style="list-style-type: none"> <li>• Introduced design-based projects focusing on sustainability and safety compliance.</li> <li>• Conducted software training (e.g., Aspen Plus, AutoCAD, DWSIM) for process modelling and design.</li> <li>• Integrated case studies on green chemical technologies and safety practices.</li> <li>• Promoted team-based design assignments to simulate real industrial design environments.</li> <li>• Organized safety drills and workshops on hazard analysis (HAZOP, FMEA).</li> </ul>

## 8.2. Academic Audit and actions taken thereof during the period of Assessment (10)

### ACADEMIC AUDITING

The process of Academic Auditing intends to monitor and enhance the quality of education through proper guidelines for both teaching faculty and students, so as to ensure best qualified engineers/researchers should graduate from the Institution.

#### OBJECTIVES:

- (i) To ensure academic accountability.
- (ii) To define quality of each component of the program and to ensure quality of technical education throughout the system.
- (iii) To safeguard functionalities of technical education.
- (iv) To define effectiveness of teaching – learning process and to devise methodology to confirm maximum output from faculty members as well as students.

Internal audit committees have been formed, comprising of a Registrar as the Chairperson, and two internal experts, apart from IQAC representative. Departments are asked to prepare and maintain documents containing pertinent data, which are verified by the audit team periodically, following a preannounced schedule. An audit report, with comments and recommendations, is filed by the audit team, with steps for mid-course correction. An action taken report is to be filed by the departments, indicating the compliance or deviations, if any.

Academic audit and actions taken are carried out with the help of following different components

1. Course file evaluation
2. Lectures/ Lab evaluation
3. Faculty development program (FDP)
4. Review

Faculty members are assessed again at the end of the semester for any improvement in their performance with respect to their teaching efficiency. This assessment helps to compare their performance at the beginning of the semester with that of, at the end of the semester.

**Actions taken:**

- Faculty members have to follow the suggestions given by the academic committee to fill the gaps if any in their teaching methodology and to ensure high quality instruction.
- Faculty members have to follow the teaching methodology which should be understandable to all categories of students in a class. They are instructed to complete the syllabus in time as per the proposed lesson plan prepared at the beginning of the semester.
- The faculty members are asked for course completion status at the end of every month and if any shortfall regarding course completion is found, they should go for extra classes to complete the course in time.
- Regular result analysis of internal assessment examinations of all the subjects is made and the concerned faculties are advised to take necessary actions if any discrepancies are found in the result. Extra classes for the weak students are conducted separately to make them cope up with other students.

- Faculty members are advised to attend FDPs which is required for the overall development of teaching skills in terms of communication, methodology of teaching and research activity.
- The academic audit is carried out at the beginning of the semester when the faculty members are all set with their course files.
- Student feedback is taken twice in a semester for each subject to assess the reachability of the teaching by the concerned subject teacher. The feedback is collected confidentially in the absence of the subject teacher to avoid biasness.
- FDPs for communication skills and on teaching-learning methodology for the faculties are regularly carried out at the college by training and placement department. Besides that, Technical FDPs, expert lectures, seminars etc. are conducted at department level at least once in a semester.

**Table No.8.2.1: Academic Audit Conduct Mechanism**

<p><b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR</b></p>  <p><b>Academic Administrative Audit (AAA)</b></p> <p>GIET University Campus Gunupur, At – Gobriguda, Po- Kharling, Dist. - Rayagada, Odisha -India, 765022, 06857-250170, 06857-250172</p>	<p><b>OFFICE OF THE REGISTRAR GIET UNIVERSITY</b></p> <p>Gunupur-765022, Dist. Rayagada, Odisha, India</p> <p>Ref. No. 46 /Reg/GIETU Date: 21-02-2024</p> <p><b>CIRCULAR</b></p> <p>This is for all concerned that the department review meeting shall be held as per the schedule given below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><b>DATE</b></th><th style="text-align: center;"><b>SCHOOL</b></th><th style="text-align: center;"><b>DEPARTMENT</b></th></tr> </thead> <tbody> <tr> <td style="text-align: center;">11-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Biotechnology</td></tr> <tr> <td style="text-align: center;">12-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Electronics and Communication Engineering</td></tr> <tr> <td style="text-align: center;">13-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Electrical Engineering/Electrical and Electronics Engineering</td></tr> <tr> <td style="text-align: center;">14-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Civil Engineering</td></tr> <tr> <td style="text-align: center;">15-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Chemical Engineering</td></tr> <tr> <td style="text-align: center;">16-03-24</td><td style="text-align: center;">SCHOOL OF SCIENCES</td><td style="text-align: center;">BCA &amp; MCA</td></tr> <tr> <td style="text-align: center;">18-03-24</td><td style="text-align: center;">SCHOOL OF MANAGEMENT STUDIES</td><td style="text-align: center;">BBA and MBA</td></tr> <tr> <td style="text-align: center;">19-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY/ SOS</td><td style="text-align: center;">Basic Science and Humanities &amp; SOS</td></tr> <tr> <td style="text-align: center;">20-03-24</td><td style="text-align: center;">SCHOOL OF AGRICULTURE</td><td style="text-align: center;">B.Sc (HONS) AGRICULTURE</td></tr> <tr> <td style="text-align: center;">21-03-24</td><td style="text-align: center;">SCHOOL OF NURSING</td><td style="text-align: center;">B.Sc. NURSING</td></tr> <tr> <td style="text-align: center;">22-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Computer Science and Engineering</td></tr> <tr> <td style="text-align: center;">23-03-24</td><td style="text-align: center;">SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td style="text-align: center;">Mechanical Engineering</td></tr> </tbody> </table> <p>All Deans / HoDs and Staff members are advised to keep all related documents updated which are to be submitted during the review meeting for verification including course files.</p> <p><i>[Signature]</i> Registrar GIET UNIVERSITY GUNUPUR</p> <p>Memo No. 47 /GIETU/2024</p> <p><b>Copy to:</b></p> <ol style="list-style-type: none"> <li>1. President / Vice President for kind information.</li> <li>2. Director General / Vice Chancellor for kind information.</li> <li>3. Dean (Academic) / Dean (R&amp;D) / Dean (SoET) / Dean (SoMS) / HoD- PG / Coaches (School of Sciences) / HoDs of all Departments for information and necessary action.</li> <li>4. All Ph.D. and M.Tech Coordinator for information and necessary action.</li> <li>5. IQAC for information and necessary action.</li> <li>6. Guard file for record.</li> </ol>	<b>DATE</b>	<b>SCHOOL</b>	<b>DEPARTMENT</b>	11-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Biotechnology	12-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Electronics and Communication Engineering	13-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Electrical Engineering/Electrical and Electronics Engineering	14-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Civil Engineering	15-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Chemical Engineering	16-03-24	SCHOOL OF SCIENCES	BCA & MCA	18-03-24	SCHOOL OF MANAGEMENT STUDIES	BBA and MBA	19-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY/ SOS	Basic Science and Humanities & SOS	20-03-24	SCHOOL OF AGRICULTURE	B.Sc (HONS) AGRICULTURE	21-03-24	SCHOOL OF NURSING	B.Sc. NURSING	22-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Computer Science and Engineering	23-03-24	SCHOOL OF ENGINEERING & TECHNOLOGY	Mechanical Engineering
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Rayagada, Odisha, India</p> <p>Ref. No. <u>2046</u> Date: 02/09/2021</p> <p style="text-align: center;"><b>CIRCULAR</b></p> <p>This is for information of all concerned that department review meeting for the month of January - August 2021 shall be held as per schedule given below.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th>DATE</th> <th>NAME OF THE SCHOOL</th> <th>DEPARTMENT</th> </tr> <tr><td>16/09/2021</td><td>SCHOOL OF SCIENCES</td><td>ALL PG (M.Sc) COURSES</td></tr> <tr><td>17/09/2021</td><td>SCHOOL OF AGRICULTURE</td><td>B.SC AGRICULTURE</td></tr> <tr><td>18/09/2021</td><td>SCHOOL OF MANAGEMENT STUDIES</td><td>MBA/BBA</td></tr> <tr><td>20/09/2021</td><td></td><td>BSH</td></tr> <tr><td>21/09/2021</td><td></td><td>CSE &amp; CST</td></tr> <tr><td>22/09/2021</td><td></td><td>EE &amp; EEE</td></tr> <tr><td>23/09/2021</td><td></td><td>ECE</td></tr> <tr><td>24/09/2021</td><td>SCHOOL OF ENGINEERING &amp; TECHNOLOGY</td><td>MECHANICAL/ AGRICULTURE BIOTECH/ CHEMICAL/ CIVIL</td></tr> <tr><td>25/09/2021</td><td></td><td>DEPARTMENTS WITH M.Tech COURSES (All M.Tech Coordinators)</td></tr> <tr><td>27/09/2021</td><td></td><td>All PhD Co-ordinators</td></tr> <tr><td>28/09/2021</td><td></td><td></td></tr> </table> <p>All HODs/ Deans and Staff members are advised to keep all registers, files and related documents updated which are to be submitted during the review meeting for verification.</p> <p style="text-align: center;"><i>[Signature]</i> Registrar GIET UNIVERSITY GUNUPUR</p> <p>Memo No. <u>2047</u> /GIETU/2021</p> <p><b>Copy to:</b></p> <ol style="list-style-type: none"> <li>President/Vice President for kind information.</li> <li>Director General/Vice Chancellor for kind information.</li> <li>Dean (Academic) / Dean (R&amp;D) / Dean (SoET) / Dean (SoA) / Dean (SMS) / HOD- PG Courses (School of Sciences) / HoDs of all Departments (School of Engineering)</li> <li>IQAC for information and necessary action</li> <li>Guard file for record.</li> </ol>	DATE	NAME OF THE SCHOOL	DEPARTMENT	16/09/2021	SCHOOL OF SCIENCES	ALL PG (M.Sc) COURSES	17/09/2021	SCHOOL OF AGRICULTURE	B.SC AGRICULTURE	18/09/2021	SCHOOL OF MANAGEMENT STUDIES	MBA/BBA	20/09/2021		BSH	21/09/2021		CSE & CST	22/09/2021		EE & EEE	23/09/2021		ECE	24/09/2021	SCHOOL OF ENGINEERING & TECHNOLOGY	MECHANICAL/ AGRICULTURE BIOTECH/ CHEMICAL/ CIVIL	25/09/2021		DEPARTMENTS WITH M.Tech COURSES (All M.Tech Coordinators)	27/09/2021		All PhD Co-ordinators	28/09/2021		
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## ASSESSMENT CRITERIA

**Table No.8.2.2: Monthly Appraisal Form**

<p style="text-align: center;"><i>GJETU/HB/2024/Monthly Self-Assessment Form_ Faculty</i></p> <p style="text-align: center;"><b>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR (GIET UNIVERSITY)</b> (Established Vide Odisha Act 23 of 2016, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSIR, New Delhi)</p> <p style="text-align: center;">Gunupur - 765022, Dist. Rayagada, Odisha, India www.giet.edu</p> <p style="text-align: center;">SCHOOL OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF CHEMICAL ENGINEERING</p> <p style="text-align: center;">Faculty Self-Assessment for the Month of FEB / 2025</p> <p><b>01. General Information:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>(a) Emp. Code</td> <td>:009</td> </tr> <tr> <td>(b) Name in full</td> <td>:RADHAKRUSHNA PADHI (in block letters)</td> </tr> <tr> <td>(c) Department</td> <td>: CHEMICAL</td> </tr> <tr> <td>(d) Vidwan ID</td> <td>: 103175</td> </tr> </table> <p><b>02. Academic Qualifications:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Qualification</th> <th>Year of passing</th> <th>Institution</th> </tr> <tr> <td>UG:</td> <td>2005</td> <td>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, GUNUPUR</td> </tr> <tr> <td>PG:</td> <td>2008</td> <td>GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, GUNUPUR</td> </tr> <tr> <td>PhD:</td> <td>2020</td> <td>UTKAL UNIVERSITY,BBSR.</td> </tr> </table> <p>(a) Additional Qualifications : LM-ISTE,M-IELLM-ISTE Fellowships/Membership/certificate courses</p> <p>(b) Area of specialization, if any : Fluidization Engineering</p> <p>(c) Date of Joining : 01.03.2006</p> <p>(d) Present designation and date of Appointment to that designation : Associate Professor</p> <p>(e) Last Increment Effectuated Date : 01.08.2024</p> <p><b>03. Experience :</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>(a) Industrial experience if any</td> <td>:1</td> </tr> <tr> <td>(b) Teaching experience total</td> <td>:18</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Name of the college</th> <th>From (Date/Month/Year)</th> <th>To (Date/Month/Year)</th> <th>Experience in years</th> </tr> <tr> <td>GIET University</td> <td>01.03.2006</td> <td>01.10.2024</td> <td>18.7 Yr</td> </tr> <tr> <td>Other Colleges / Organizations</td> <td>01.06.2005</td> <td>28.02.2006</td> <td>0.9</td> </tr> </table>	(a) Emp. Code	:009	(b) Name in full	:RADHAKRUSHNA PADHI (in block letters)	(c) Department	: CHEMICAL	(d) Vidwan ID	: 103175	Qualification	Year of passing	Institution	UG:	2005	GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, GUNUPUR	PG:	2008	GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, GUNUPUR	PhD:	2020	UTKAL UNIVERSITY,BBSR.	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Student feedback: (Theory subjects only)</b> - 20 M</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>No.</th> <th>Year-Sem-Branche-Sec</th> <th>Subject Name</th> <th>No. of students</th> <th>Percentage</th> <th>Average %</th> <th>Self Assessment Marks</th> </tr> </thead> <tbody> <tr><td>1</td><td>2<sup>nd</sup>4<sup>th</sup></td><td>MECHANICAL OPERATIONS</td><td>5</td><td>100</td><td></td><td></td></tr> <tr><td>2</td><td>2<sup>nd</sup>4<sup>th</sup></td><td>UPE</td><td>57</td><td>100</td><td></td><td></td></tr> <tr><td>3</td><td>3<sup>rd</sup>6<sup>th</sup></td><td>FET</td><td>12</td><td>100</td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> <p><b>A2. 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Research Publications and Academic Contributions: – 10 M</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>For research grants</p> </td> <td style="width: 50%; vertical-align: top;"> <p>For grants</p> </td> </tr> </table>	4											5											6											7											8											S. No	Program	Duration	Date & Place	Organized by	Achievement	1	FDP	5 Days	20 <sup>th</sup> Jan-24 <sup>th</sup> Jan 2025	GIET UNIVERSITY	SUCCESSFUL Y COMPLETED	Sl. No	Name of the patent (National / International)	Name of the Principal Investigator	My role in patent (Author, 1st, 2nd, 3rd, 4th etc.)	Date of application / publication granted	Published status with file No. (Applied/Pending)	Obtained Self-Assessment Marks (Maximum Marks 10)	1	National	Dr Ravvi Kota	2nd	7/3/2025	Published	10	2									For 1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup> author role	For Publication	For other roles	For Publication = 2	For grant & commercialization = 5			For grant & commercialization = 10					Sl. No	Title of the proposal with file No.	Funding agency	Name of the faculty applied as PI	My role PI / Co-PI	Applied / sanctioned	Applied Date	Present status	Obtained Self-Assessment Marks (Maximum Marks 10)	1									2									<p>For research grants</p>	<p>For grants</p>
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*GIETU/HR/2024/Monthly Self-Assessment Form - Faculty*

S. No	Type of Research Papers	No. of Papers	Maximum Self-Assessment Marks	Obtained Self-Assessment Marks (Maximum Marks 10)
1	1 Scopus/SCI indexed papers/Chapters/Book	1	10	
2	2 National International Journals/Non Paid		07	
3	3 Reputed conference Papers		05	
4	4 Journal/Conference Papers		05	
5	5 No Journal / Conference Papers		00	

**B4. a) Scopus/SCI indexed Journals papers:**

S. No	Journal details and title with Page No's	ISSN/ SCOPUS No.	Whether peer reviewed impact factor, if any	Specify Author 1/ Author 2 / Author 3
1	GIETU JOURNAL	2583-5955		Author 3

**B4. b) National /International Journals (Non Paid):**

S. No	Journal details and title with Page No's	ISSN/ SCOPUS No.	Whether peer reviewed impact factor, if any	Specify Author 1/ Author 2 / Author 3
1				

**B4. c) Reputed Conference Papers:**

S. No	Title with Page No's	International / National Conference	Details of Conference	Specify Author 1/ Author 2 / Author 3
1				

**B4. d) Journal / Conference Papers:**

S. No	Title with Page No's	International / National Journals Conference	Details of Journal / Conference	Specify Author 1/ Author 2 / Author 3
1				

**B5. Proctoring Students Average Value additions: – 10 M**

S. No	No of students allotted for proctoring	Year-Sem-Batch-Sec	No of students participated in Paper presentations/Posters presentations/Technical exhibitions etc outside the campus (A)	No of students won prizes (B)	percentage (B/A)*100	Average %	Self-Assessment Marks
1	16	3 <sup>RD</sup> Y.E.A.R- 5 <sup>th</sup> -chem	16	0	0		

<div style="text-align: center; margin-bottom: 10px;"> <i>GIETU/HR/2024/Monthly Self-Assessment Form_Faculty</i> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td></td><td></td><td></td><td></td><td></td><td style="text-align: center; vertical-align: top;">For Faculty Participation = 5 For visiting prize = 5 Nil = 0</td></tr> </table> <p>* 06 different students in a semester to be participated</p> <p><b>Staff Appraisal – Points Earned:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="4" style="width: 15%; text-align: center; vertical-align: top;">PART A</td> <td>Students feedback % (20M)</td> <td></td> </tr> <tr> <td>Subjects Average Pass % (20M)</td> <td></td> </tr> <tr> <td>Average Academic Class % (10M)</td> <td></td> </tr> <tr> <td>Sum of A</td> <td></td> </tr> <tr> <td rowspan="5" style="width: 15%; text-align: center; vertical-align: top;">PART B</td> <td>Workshops/ STTP/ FDP/ Online course (10M)</td> <td></td> </tr> <tr> <td>Patents / Trademarks /Design etc., applied / Published / Granted (10M)</td> <td></td> </tr> <tr> <td>Details of research project proposals sent/ongoing for grants / sanctions &amp; grants obtained. 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No	Type of consultancy work (Academic/Industrial)	Name of the consultancy project	Date & Duration	Total cost of the project	Revenue generated (In INR)	1						2						3						S. No	Name of the Organisation	Nature of linkages	No. of faculty /students benefited	Date	Duration	1						2						3						S. No	Name of the Organisation visited	Students got exposed to which area of their study	No. of faculty /students benefited	Date of Visit	Remarks	1	IMFA, THERUBALI	FOR STUDY TOUR	2 Faculty 15 students	3/1/25	1 Days	2	JK PAPER MILL LTD	FOR STUDY TOUR	2 Faculty 15 students	4/1/25	1 Days	3						CL	AL	OD	Any other Leave	1.5	0	0	
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**B4. c) Reputed Conference Papers:**

S. No	Title with Page No's	International/ National Conference	Details of Conference	Specify Author 1/ Author 2 / Author 3
1				
2				

**B4. d) Journal / Conference Papers:**

S. No	Title with Page No's	International/ National Journals Conference	Details of Journal / Conference	Specify Author 1/ Author 2 / Author 3
1				
2				

**B5. Proctoring Students Average Value additions:**

- 10 M

S. No	No. of students allotted for proctoring	Year-Sem- Branch-Sec	No. of students participated in Paper presentations/Poster presentations/Industrial exhibitions etc outside the campus (A)	No. of students won prizes (B)	percentage (B/A)*100	Average %	Self-Assessment Marks
1	7	3 <sup>RD</sup> -6 <sup>TH</sup>	3	0	0	0	5
2							
3							
4							
5							

\* 06 different students in a semester to be participated

**Staff Appraisal – Points Earned:**

PART A	Students feedback % (20M)	
	Subjects Average Pass % (20M)	
	Average Academic Class % (10M)	
PART B	Sum of A	
	Workshops/ STTP/ FDP/ Online course (10M)	
	Patents / Trademarks / Design etc., applied Published / Granted (10M)	
	Details of research project proposals sent/ongoing for grants / sanctions & grants obtained (10M)	
	Research Publications and Academic Contributions (10M)	
TOTAL SUM (A+B)	Proctoring Students Average Value additions % (10M)	
	Sum of B	
	Total out of (100 M)	

**PART - C**

**C1. Ph.D. Guidance: (Ph. D holders only)**

S. No	Name of the Scholar	Area of Research	Ph. D Registration No	Status
1	Mr B. Ravi Prasad	Biotechnology(Biomass)	19SPHBT002	PhD AWARDED
2	Mr Ritu Kumar Sahu	Chemical/Waste Water Treatment	22SPHCH001	Registration Seminar Completed
3	Mr. Aswam Prasad Patnaik	Chemical/Aerogel Techniques	21WPHCH001	Registration Seminar Completed
4	Mr Chinnaya Prasad Lenika	Chemical/Waste Water Treatment	22SPHCH001	Registration Seminar Completed
5	Basavswara Rao Bavareddi	Chemistry(NanoTechnology)	23SPHCH001	Enrolled
6	Medicharla Venkata Lakshmi	Chemistry(NanoTechnology)	23SPHCH002	Enrolled
7	ISWARYA Lakshmi Bandaru	Chemistry	23WPHCHE003	Enrolled
8	Saikrishna Loddu	Chemistry	23WPHCHE004	Enrolled

**C2. Details of any consultancy work / extension activity undertaken: (Enclose Copy as proof)**

S. No	Type of consultancy work (Academic/Industrial)	Name of the consultancy project	Date & Duration	Total cost of the project	Revenue generated (In INR)
1					
2					
3					

**C3. Linkages/ MoUs with institutions/industries for internship on-the job Training, project work, sharing of research facilities etc.**

S. No	Name of the Organisation	Nature of linkages	No. of faculty /students benefited	Date	Duration
1	Thakur college of engineering and technology,Mum ba	Student exchange program		30/04/2024	3 year
2					
3					

**C4. Industrial Visits Arranged for the Students**

S. No	Name of the Organisation visited	Students got exposed to which area of their study	No. of faculty /students benefited	Date of Visit	Remarks
1	NIT,Hamirpur	Himachalpradesh-Odisha Student Exchange	1	01/04/2024	Under EBSB programme to HimachalPradesh
2					
3					

**C5. Number of Leaves availed:**

CL	AL	OD	Any other Leave
15		10	

**C6. Additional responsibilities in the Department / University:**

S. No	Responsibility	Assigned by	Duration	Outcome
1	Overall Coordinator-1 <sup>ST</sup> CONVOCATION GIET UNIVERSITY,2024	Registrar	1 day	Successfully completed
2	Co convener-Shravan 2.0	Registrar	3 day	Successfully completed
3	Convener-G 20 event	Registrar	30Days	Successfully completed
4	Convenor-Cultural Committee	Registrar	1 year	Successfully completed
5	Member-IQAC Committee	Registrar	1 year	Successfully completed
6				

Date:

Signature of Faculty

Note: Faculty members are required to share the soft copy of the filled form along with the supporting documents to their concerned HoD / Dean of School / Principal / HR

### 8.3. Improvement in Faculty Qualification/Contribution (15)

**Table No.8.3.1: Improvement in qualification and publications**

Item	CAYm1	CAYm2	CAYm3
No. of faculty members with Ph.D. degree	9	10	10
No. of publications in peer reviewed journals	15	10	4
No. of publications in conferences	3	1	1

### 8.4 Improvement in Academic Performance (10)

**Table No.8.4.1: Improvement in academic performance**

Item	CAYm1	CAYm2	CAYm3
Academic Performance Index(API)of the First- Year Students in the Program (Refer to section 4.3)	7.26	7.15	7.08
Academic Performance Index of the Second-Year Students in the Program (Refer to section 4.4)	7.36	7.43	7.3
Academic Performance Index of the Third Year Students in the Program (Refer to section 4.5)	7.98	7.84	7.43

## Criterion 9: Student Support System and Governance (120)

### 9.1. First-Year Student-Faculty Ratio (FYSFR) (05)

(Data for first-year courses to calculate the FYSFR)

Table No. 9.1.1: FYSFR details

Year	Sanctioned intake of all UG programs (S4)	No. of required faculty (RF4 = S4/20)	No. of faculty members in Basic Science Courses & Humanities and Social Sciences including Management courses (NS1)	No. of faculty members in Engineering Science Courses (NS2)	Percentage = No. of faculty members $((NS1 \times 0.8) + (NS2 \times 0.2)) / (No. of required faculty (RF4))$ ; Percentage = $((NS1 * 0.8) + (NS2 * 0.2)) / RF$
CAY 2024-25	1020	51	58	20	$((58 \times 0.8) + (20 \times 0.2)) / 51 = 98.82\%$
CAYm1 2023-24	1050	53	59	21	$((59 \times 0.8) + (21 \times 0.2)) / 53 = 96.98\%$
CAYm2 2022-23	990	50	57	19	$((57 \times 0.8) + (19 \times 0.2)) / 50 = 98.80\%$
<b>Average Percentage</b>					<b>98.20%</b>

**Note:**

- > 90% of faculty members; 05 marks.
- > 80% to < 90 of faculty members; 04 marks.
- > 70% to < 80 of faculty members; 03 marks.
- > 60% to < 70 of faculty members; 02 marks.
- > 50% to < 60 of faculty members; 01 mark.
- < 50% of faculty members; 00 mark.

### 9.2. Mentoring System (05)

(Type of mentoring: Professional guidance/career advancement/course work specific/laboratory specific/all-round development. Number of faculty mentors: Number of students per mentor: Frequency of meeting:

The institution should report the details of the mentoring system, its implementation and effectiveness through impact studies, services both online and physical, and the mentoring of seniors (final year students) to juniors (freshmen) if any, etc.).

**Type of Mentoring:**

All-round development (academic guidance, career counselling, course-specific, laboratory-specific, emotional and psychological support)

**Number of Faculty Mentors:**  
ratio

Sufficient to maintain a 1:20 mentor-mentee

**Number of Students per Mentor:** 20

**Frequency of Meetings:** Regularly scheduled one-on-one sessions (minimum once a month) and additional meetings as required

**Mode of Mentoring:** Both physical and online platforms

**Peer Mentoring:** Final-year students mentor junior students as part of departmental clubs and student chapters

#### **A. Mentoring System - Implementation**

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) has implemented a structured and comprehensive mentor-mentee system that plays a pivotal role in the academic and emotional well-being of its students. The system is institutionalized as follows:

- **Mentor/Proctor Allotment:** Every student is assigned a faculty mentor/proctor at the beginning of the academic year. Each mentor/proctor is responsible for guiding up to 20 students, ensuring individual attention and support.
- **Structured Mentoring:** Mentors/proctors meet with students regularly to track their progress in academics, attendance, co-curricular, and extracurricular activities. These sessions are recorded through the institutional ERP system.
- **Monitoring by Coordinators or Supervisors:** A **Mentor Coordinator/Proctor Supervisor** is appointed in each department to monitor, support, and facilitate the mentoring process at the departmental level. To ensure consistency and overall quality, a **Chief Proctor Supervisor** oversees the activities of all departmental proctor supervisors and ensures that the mentoring framework is uniformly and effectively implemented across the university.
- **ERP-Based Documentation:** Performance tracking and mentoring feedback are documented through ERP, ensuring transparency and continuity.
- **Parental Engagement:** Periodic parent–mentor/proctor meetings are held to discuss student progress. Mentors/proctors maintain direct communication with parents, sharing updates and addressing concerns.

Three navigation tabs are visible at the top: 'Add Proctor Cycle', 'Add Proctor Meet As Per Proctor Cycle' (which is the active tab), 'Add Proctor Meet Without Proctor Cycle', and 'View Proctor Meet'.

Below the tabs, there are input fields for 'Roll Number' and 'Student Name', and date pickers for 'From Date \*' (08-Apr-2023) and 'To Date \*' (14-Apr-2023). A 'View Details' button is located to the right of the date fields.

Two checkboxes are present: 'Pending Proctor Meet.' and 'Proctor Meet Completed.'

Download buttons for 'Excel', 'PDF', and 'Print' are available. A 'Search:' input field is also present.

A table displays the following data:

Roll No	Student Name	Semester	Contact No	Schedule Date	Schedule Time	Action
22CSE420	SASWAT RANJAN PANDA	1	7327975292	11-Apr-2023	9:23 AM	Action ▾

Below the table, it says 'Showing 1 to 1 of 1 entries' and includes 'Previous' and 'Next' buttons.

**Figure No. 9.2.1:** Proctor-student meet: View student as per cycle plan.

The 'Proctor Meet' dialog box contains the following fields:

- Name:** SASWAT RANJAN PANDA
- RollNo:** 22CSE420
- Proctor Meet Date:** 11-Apr-2023
- From Time:** --:-- --
- To Time:** --:-- --
- Supervisor Attention:** No
- Proctor Review:** (A large text area for notes)

At the bottom of the dialog are 'Close' and 'Save' buttons.

The background of the page shows the same 'View Proctor Meet' interface as Figure 9.2.1, with the 'Action' column for the student entry highlighted.

**Figure No. 9.2.2:** Proctor-student interaction details.

Roll NO	Student Name	Proctor Name	Supervisor Name	Meet Date	Meet Time	Proctor Note	Student Note
21PGPH015	DEEPTIMAYEE SOBOR	Dr. Tapan Kumar Pattnaik	Mrs. Sagarika Satapathy	13-Feb-2023	10:55 AM	Suggested to attend the classes regularly and prepare well for the exam.	
21PGPH018	GANGADHAR RANA	Dr. Tapan Kumar Pattnaik	Mrs. Sagarika Satapathy	14-Feb-2023	10:00 AM	Advised appear all the exam, and participate in all academic program including project.	
21PGPH019	SOUMYA SUCHARITA BEHERA	Dr. Tapan Kumar Pattnaik	Mrs. Sagarika Satapathy	14-Feb-2023	10:00 AM	Discussed about the attendance, project, class performance.	
21PGPH020	Sunaina Pattnaik	Dr. Tapan Kumar Pattnaik	Mrs. Sagarika Satapathy	15-Feb-2023	6:00 AM	Interacted about the project work, paper work, Shrujan and attendance	
21PGPH021	ASIT KUMAR DASGUPTA	Dr. Tapan Kumar Pattnaik	Mrs. Sagarika Satapathy	15-Feb-2023	6:00 AM	Suggested to attend the classes regularly to get required attendance %	

**Figure No. 9.2.3:** View student interaction details with a proctor.

## B. Effectiveness of the Mentoring System

The mentoring system has demonstrated significant positive outcomes in terms of both academic success and personal development:

- Academic Support:** Mentors/proctors guide students in understanding course content, improving attendance, and aligning their learning goals with long-term career objectives. Students with poor attendance or academic struggles receive timely intervention and counselling.
- Psychological & Emotional Well-being:** Faculty mentors/proctors act as trusted confidants, creating a secure environment for students to discuss personal and academic issues. This has helped reduce stress and improve emotional resilience among students.
- Career Advancement & Skill Development:** Mentors/proctors actively encourage participation in value-added programs such as workshops, conferences, training programs, and industry exposure opportunities.
- Student Feedback & Outcome:** Impact studies through feedback mechanisms show a high level of student satisfaction, improved academic performance, and increased involvement in institutional activities.
- Peer Mentoring:** Senior students (especially final-year) provide informal mentoring to their juniors through department clubs and student chapters, helping create a collaborative and inclusive learning environment.
- Holistic Growth:** The mentor-mentee relationship fosters a culture of openness, trust, and mutual respect, contributing to the overall development of students—academically, emotionally, and professionally.

GIET University's dedication to student-centric education is demonstrated by this strong mentoring program. It guarantees that students have the self-assurance and life skills needed to succeed in both their personal and professional lives, in addition to the academic information they need.

### **9.3. Feedback Analysis (10)**

#### **9.3.1. Feedback on Teaching and Learning Process and Corrective Measures Taken, if any (05)**

(Provide details of the feedback collection process on TLP, average percentage of students who participate; Specify the feedback analysis process; Basis of reward/ corrective measures during the assessment period. Specify the number of corrective measures taken. Exhibit the details of analysis done.)

#### **A. Feedback Questionnaire Used**

The feedback on the Teaching and Learning Process (TLP) is collected using a well-structured questionnaire comprising both quantitative ratings and qualitative comments. The questionnaire is designed to evaluate the following parameters:

- Teaching Effectiveness and Engagement
- Curriculum Relevance and Industry Alignment
- Practical Knowledge and Skill Development
- Availability and Use of Learning Resources
- Responsiveness and Support from Faculty
- Effectiveness of Student Support Services

Sample Feedback form is attached below:



**GIET UNIVERSITY GUNUPUR**  
**HUMAN RESOURCES DEPARTMENT**



## INDUSTRY FEEDBACK FORM- GIET UNIVESITY

We shall very much appreciate and be grateful to you if you can spare some of your valuable time to fill up this feedback form. It will help us to improve the University further and give you better employees in future.

Tick the number that best describes your level of satisfaction at each question:

**1 - Far from Satisfied 2 - Not satisfied 3 – Satisfied 4 – Happy 5 - Very Happy**

<b>How satisfied are you with the student/s work performance in each of these areas:</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. General communication skills					
2. Developing practical solutions to work place problems					
3. Working as part of a team					
4. Creative in response to workplace challenges					
5. Their planning and organization skills					
6. Self-motivated and taking on appropriate level of responsibility					
7. Open to new ideas and learning new techniques					
8. Using technology and workplace equipment					
9. Ability to contribute to the goal of the organization					
10. Technical knowledge/skill					
11. Ability to manage/leadership qualities					
12. Innovativeness, creativity					
13. Relationship with seniors/peers/subordinates					
14. Involvement in social activities	2018				
15. Ability to take up extra responsibility					
16. Obligation to work beyond schedule if required					

Please write Comments/Suggestions to improve Academics/Curriculum and Ambience of the University

Name:

Mobile No:

Designation:

Email:

Organization Name:

Location:

Signature

## B. Methodology for Feedback Analysis and Its Effectiveness

## Modes of Collection:

- Online Platforms: Google Forms deployed by the HR Department after one month from the commencement of classes.
- Direct Interaction: Feedback is also gathered orally during mentoring sessions, alumni meetups, and discussions with industry experts.

## Stakeholders Involved:

- Students with  $\geq 80\%$  attendance
- Employers (via placement feedback)
- Alumni and Industry Representatives (during interactions)

## Frequency:

- Once per semester
- Additional feedback during project evaluations, internships, and industrial visits

## Participation Statistics:

Academic Year	Total Students	Feedback Received	Participation (%)
2023–24	3640	2912	80
2022–23	2935	2377	81
2021–22	2475	2128	86

## Efforts to Improve Participation:

- Awareness campaigns conducted by class teachers and proctors

## Analysis Methodology:

- Consolidation and graphical representation of data using MS Excel

## Categorization of feedback:

- Positive Feedback: Best practices to be continued
- Areas for Improvement: Moderate issues needing attention
- Critical Concerns: Immediate interventions required

The systematic analysis enables informed decision-making and timely interventions, leading to enhanced teaching outcomes and student satisfaction.

### C. Record of Corrective Measures Taken and Impact

Based on the feedback, the institution has implemented several corrective and improvement measures, including:

#### 1. Faculty Development Programs (FDPs):

- Sessions on Outcome-Based Education (OBE), digital tools, and innovative pedagogies
- Conducted 12 FDPs in the last three years

2. Curriculum and Content Revisions:
  - Integrated emerging topics such as AI, Data Analytics, Sustainability
  - Introduced industry-aligned electives
3. Learning Support Enhancements:
  - Encouraged MOOCs via NPTEL, SWAYAM, Coursera
  - Offered credit transfers for certified online courses
4. Academic Support for Weak Students:
  - Conducted remedial and bridge courses
  - Personal mentoring by faculty members
5. Industry Integration:
  - Increased project-based learning
  - Facilitated internships and industrial visits
6. Infrastructure Improvements:
  - Upgraded smart classrooms and laboratory equipment
  - Expanded digital library access and study spaces
7. Faculty Accountability:
  - Faculty receiving <80% satisfaction in feedback were counselled and asked for action plans for improvement
  - Monitored progress in the following semester

Conducted workshops for quality Improvement of Faculty Members



### 9.3.2. Feedback on Academic Facilities (05)

(Provide details of the feedback collection process on facilities, its analysis and corrective actions taken during the assessment period.)

#### A. Feedback Questionnaire Used

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) utilizes a comprehensive feedback mechanism to gather insights on academic and associated facilities. Feedback is collected through:

- **Online:** Google Forms distributed to final year students and alumni.
- **Offline:** Printed forms administered to students during department events.
- **Direct Interactions:** Verbal feedback through student council meetings, mentor-mentee sessions, and departmental reviews.

The feedback questionnaire includes parameters such as:

- Quality of teaching and departmental engagement
- Laboratory facilities
- Library resources
- Hostel and canteen amenities
- Campus safety and cleanliness
- ICT facilities and infrastructure

*Sample feedback forms:*

	<b>GIET UNIVERSITY</b>			
<b>VISITING ALUMNI FEEDBACK</b>				
<b>ESSENTIAL DETAILS</b>				
Name				
Date of Birth (DD/MM/YY)	_____ / _____ / _____	Mobile No.		
Year of Passing out		Department		
University Registration No.		Roll No.		
Present Organisation		Designation		
E-mail ID :				
Present Address :				
Permanent Address :				
Father's Name :		Mobile No.		
Mother's Name :		Mobile No.		
Sl. No.	Statement	Agree	Sometimes	Disagree
1	Do you feel proud to be associated with GIETU as Alumni ?			
2	University organizes various kind of activities for overall development of students ?			
3	Are you willing to contribute in the development of the University ?			
4	University handles Alumni's grievance ?			
5	University is having adequate laboratories and equipment for practical experiences ?			
6	Is education imparted at GIETU is useful and relevant in your present job ?			
7	Have you obtained sufficient technical knowledge (both in theory and practical) ?			

Contd. Pg. 2..

Page - 2

8	Has the T&P Cell provided ample On Campus and Off Campus Placement opportunities ?			
9	Do you like to join the University Alumni Association ?			
10	Is University providing good hospitality as Alumni after passing out ?			
11	Do you receive regular updates from the University through Mails / Calls Etc. ?			

### Most Memorable moment in the University:

---



---



---

### Suggestion for improvements:

Departments \_\_\_\_\_

---



---



---

University \_\_\_\_\_



(Date)

(Signature)

## B. Frequency of Feedback Collection and Analysis

Feedback is collected throughout the academic year, with additional focus during:

- End-of-semester reviews
- Post-facility upgrades (e.g., new labs, library systems)
- Special events such as workshops and seminars

### Analysis Process:

- Data is compiled by the Feedback Analysis Committee.
- Responses are categorized into:
  - Positive feedback (highlighting institutional strengths)
  - Areas needing improvement (triggering corrective actions)

### C. Record of Corrective Measures Taken

Feedback has been crucial in identifying improvement areas, leading to significant corrective actions. The institution maintains a record of issues, actions taken, and outcomes, as summarized below:

Identified Issue	Corrective Action Taken	Outcome
Projector malfunctions in classrooms	Installed new projectors	Improved classroom engagement
Insufficient computers in Lab	Procured more than 300 new computers; upgraded software over last 3 years	Enhanced practical learning sessions
Poor Wi-Fi in hostels	Increased bandwidth; installed additional routers	Better internet access and speed
Inadequate library resources	Added books, digital journals; introduced IP-based intranet journal access	Broader academic resource access
Infrastructure complaints (washrooms, lighting)	Renovated washrooms, improved ventilation, added lighting fixtures	Safer and more comfortable learning spaces

This structured approach ensures continuous enhancement of academic facilities, based on regular, inclusive feedback and timely interventions.

### 9.4. Training and Placement Support (10)

(Provide details of the training and placement supports, calendar of scheduled training, career guidance and effectiveness of career guidance, industry interaction exclusively for pre-placement/internship/placement/counselling and support for higher study, etc.)

**Gandhi Institute of Engineering and Technology University (GIET University), Gunupur, Odisha**, has a well-established and dedicated **Training and Placement Cell (T&P Cell)** aimed at enhancing students' employability, preparing them for industry, and supporting them in achieving their career goals. The T&P Cell serves as a vital link between students and recruiters, offering a comprehensive set of services including technical training, soft skills development, career guidance, placement assistance, and support for higher education.

## A. Facilities of Training and Placement Cell

The T&P Cell is supported by modern infrastructure and resources, ensuring seamless execution of training and placement activities:

- A dedicated Training and Placement Office with full-time staff.
- Multiple auditoriums equipped with audio-visual facilities:
  - 1 auditorium with 800 seating capacity
  - 3 auditoriums with 450 seating capacity
  - 4 auditoriums with 200 seating capacity
- Designated interview cabins and group discussion rooms.
- Computer laboratories with internet access for placement-related activities such as online assessments.
- Centralized student database with full access for recruiters and staff.

## B. Adequate Staff

The T&P Cell is managed by a competent and experienced team comprising:

- A full-time Training and Placement Officer (TPO) with extensive industry experience.
- Departmental faculty coordinators.
- Administrative staff for logistical and communication support.
- Student volunteers for smooth coordination of training sessions and placement drives.

Team Members:

Sl. No.	Officers Name	Designation
1	Dr. N. V. Jagannadha Rao	Placement Advisor
2	Dr. Jyotirmaya Mishra	Prof- In charge, Training and Placement
3	Dr. Sumita Padhi	Deputy Manager – Corporate Relations
4	Mr. Sanjay Kumar Gouda	Placement Officer
5	Mr. B K Karan	Placement Officer
6	Mr. Mohammed Kashif Ahmed	Placement Officer
7	Mr. Manoj Kumar Pradhan	Placement Officer
8	Mr. Sunil Kumar Nanda	Placement Officer
9	Ms. Renuka Mandal	Junior Placement Officer
10	Mr. Rajiv Lochan Padhi	Senior Manager
11	Mr. Sarita Rani Satapathy	Alumni Officer
12	Mr. Preetam Majhi	Placement Executive

## C. Pre-placement Training Activities

The T&P Cell organizes regular pre-placement training sessions to prepare students for recruitment processes. Activities include:

- **Aptitude & Reasoning Training:** Conducted by expert trainers from 3rd year onwards to enhance analytical and problem-solving skills.
- **Soft Skills & Communication:** Personality development, presentation skills, group discussion, and interview skills are emphasized from the 2nd year.
- **Technical Training:** Department-specific training sessions, coding bootcamps, and workshops in collaboration with industry partners.
- **Mock Interviews and Resume Building:** Sessions by HR professionals to simulate real interview scenarios and refine CVs.

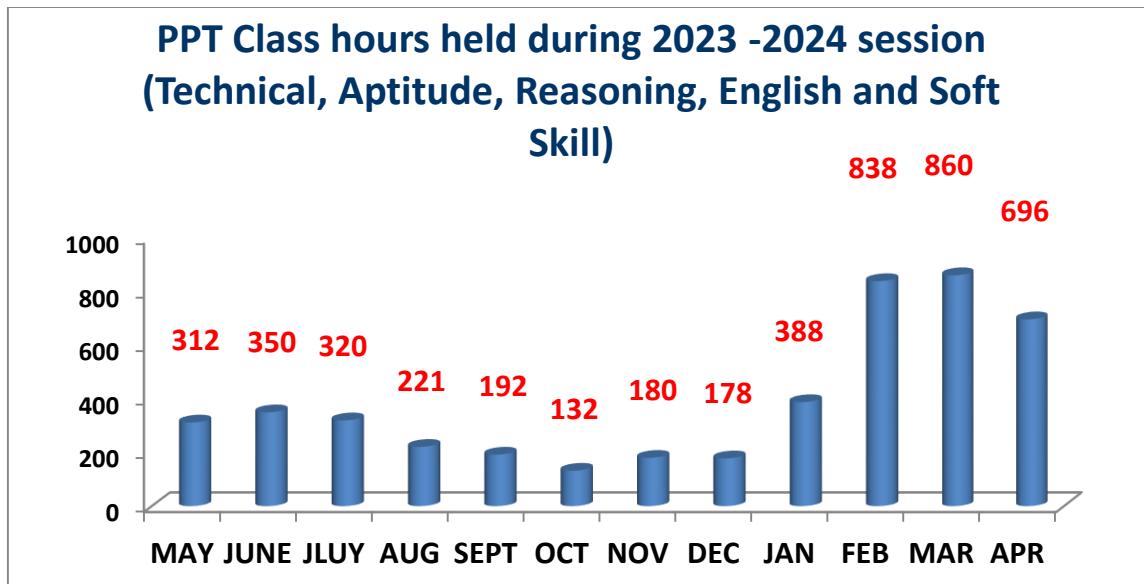
A well-structured Training Calendar is followed, which aligns with academic schedules and upcoming placement seasons.

Training Calendar:

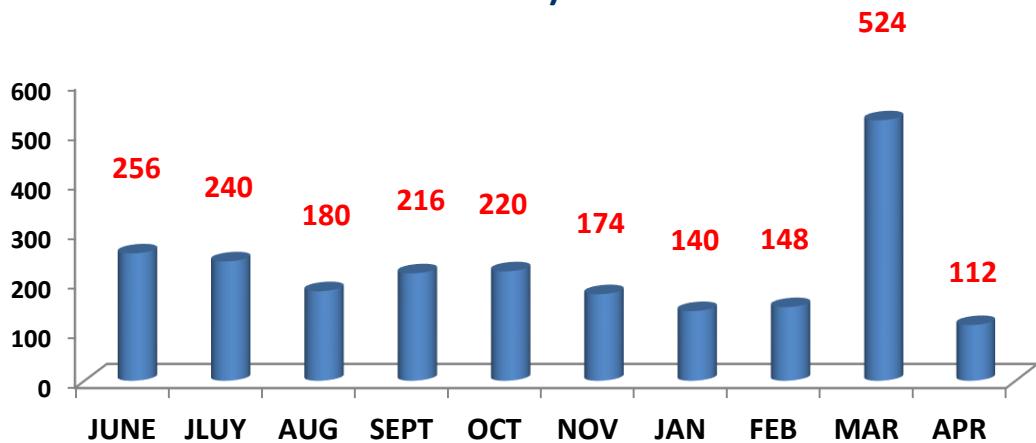
- Placement Cycle: August to April
- Training Periods: June – November and January – April

Pre-Placement Training Hours Delivered:

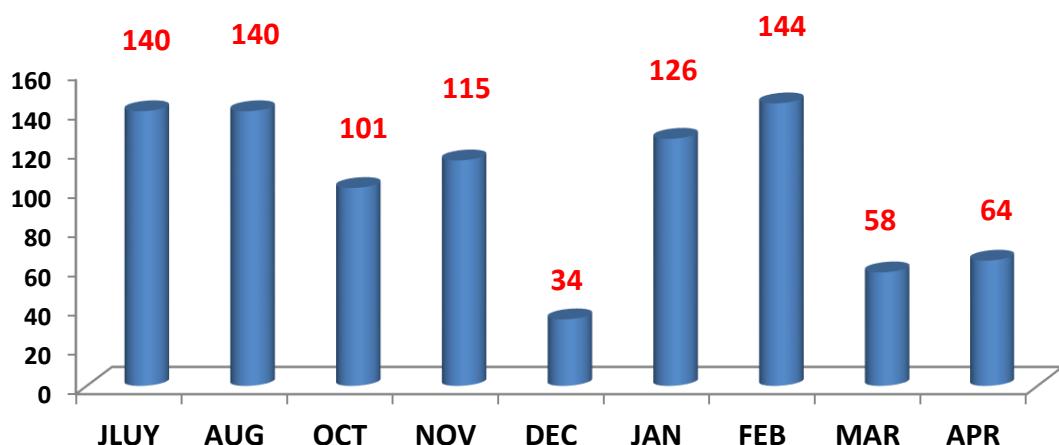
Year	Duration	Total Hours Delivered
2023-24	06.06.2023- 12.11.2023	1885
	18.01.2024- 08.04.2024	2782
2022-23	06.06.2022- 12.11.2022	1286
	18.01.2023- 08.04.2023	924
2021-22	05.07.2021- 15.12.2021	922
	10.01.2022- 09.04.2022	392



**PPT Class hours held during 2022 -2023 session  
(Technical, Aptitude, Reasoning, English and Soft Skill)**



**PPT Class hours held during 2021 -2022 session  
(Technical, Aptitude, Reasoning, English and Soft Skill)**

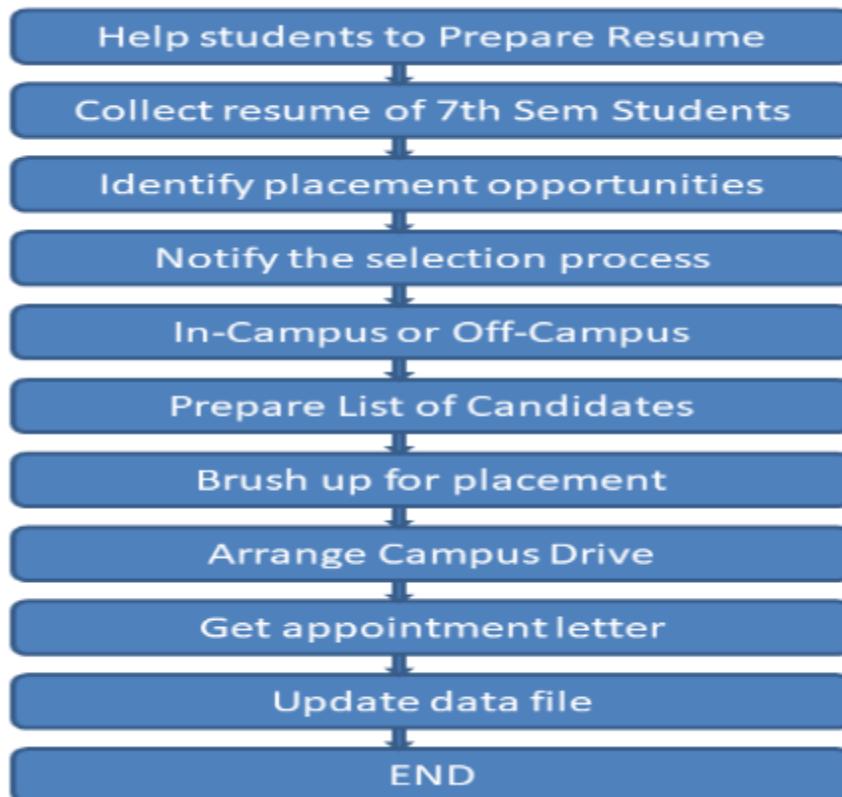


**TRAINING PROCESS CHART**

Sl No	Year	Training Activities	Training Agency
1	1st Year	Communicative English	External Experts
		Personality Development techniques	External Experts
2	2nd Year	Business English Communication (BEC Vantage)	British Council, Kolkata
		Accent Training	Internal Faculty

		Oracle (SQL / PL SQL) Technology	Internal Faculty
		Summer Training	Visit to Industries
3	3rd Year	Pre Placement Training - Arithmetic, Reasoning, General English	External Experts
		PPT - C, C++, DS, JAVA, DBMS, Linux & OS	Internal Faculty
		GD /PI Techniques, Technology training- Angular React, Node JS, JAVA/ J2EE, Power Builder	External Experts
		Campus Oriented Brush up Sessions	Industry HRs & Experts
		Mock Test / Very Similar Test	Online Web Portal
		Campus Connect Program	Infosys
4	4th Year	Training GAP Analysis	T & P Cell
		Company specifics FAQs - Discussion	External Experts
		HR Meet and Interaction session	Industry Experts
		Recruitment Drives Starts	TCS, Tech Mahindra etc.

### THE PLACEMENT PROCESS CHART



### D. Career Guidance and Effectiveness

Career counselling is an integral part of the student support system. Activities include:

- **Individual Counselling Sessions:** Provided by faculty mentors and external counsellors to guide students on career options.
- **Workshops/Seminars:** Focused on career opportunities, resume building, interview techniques.
- **Entrepreneurship Support:** Collaboration with the institution's incubation centre to encourage start-up ideas and innovation.

Feedback is regularly collected from students and recruiters to assess and improve the effectiveness of career guidance initiatives.

### **E. Industry Interaction**

To bridge the academia-industry gap, the university encourages strong engagement with industries:

- **Guest Lectures and Expert Talks:** Regularly organized from industry leaders and alumni to share insights on current trends and employability skills.
- **HR Meets and Industry Advisory Sessions:** Annual T&P conclaves with participation from industry leaders, HR managers, and alumni to forecast industry hiring trends.
- **Internship Opportunities:** Facilitated through MoUs with reputed companies to ensure pre-placement exposure.
- **Industry Visits:** Organized to offer real-time exposure to industrial work environments and processes.

### **F. Support for Higher Studies**

GIET University provides dedicated support for students aspiring for higher education:

- Counselling for Higher Education: One-on-one guidance by faculty and external experts regarding courses, institutions, and countries.
- Preparation Support: Coaching sessions for GATE, GRE, TOEFL, IELTS, and other competitive exams.
- Seminars/Webinars: Regularly organized with alumni and academic counsellors to provide insights into study options in India and abroad.
- Library and Digital Resources: Access to preparatory material, past question papers, and online platforms for self-learning.

This comprehensive, structured, and consistent support system helps GIET University students become industry-ready professionals and achieve commendable placements and admissions in top institutions.

## **9.5. Start-up and Entrepreneurship Activities (05)**

(Describe the initiatives, facilities created/utilization and their effectiveness in encouraging students for innovation, entrepreneurship, incubation and start-up. Also, provide the list of beneficiaries.)

The Entrepreneurship Cell / Incubation Cell at ACIC GIETU Foundation consists of the following key components:

### **ACIC (Atal Community Innovation Center - GIETU Foundation)**

- A start-up incubator supporting innovation, entrepreneurship, and skill development.
- Provides mentorship, funding, training, and networking opportunities.
- Supported by Start-up India Seed Fund Scheme (SISFS) and industry-academia partnerships.

### **E-YUVA BIRAC**

- A biotech-focused incubation program funded by BIRAC (Biotechnology Industry Research Assistance Council).
- Supports start-ups in health-tech, bio-engineering, waste-to-energy, and agricultural bio-innovation.
- Provides financial assistance, mentorship, and research infrastructure.

### **IncubateX**

- A specialized incubator supporting textile-based innovations and sustainable manufacturing solutions.
- Focuses on eco-friendly materials, smart textiles, and innovative production techniques.
- Encourages entrepreneurs in the textile and fashion-tech industry.

### **Key Events & Training Programs Conducted**

The following events and training programs have significantly contributed to building entrepreneurial capacity among students:

- **Entrepreneurship Development Program (EDP):** 12-day mentorship-driven start up program with DIC Rayagada and ACIC experts.
- **IDE Boot Camp (AICTE & MIC):** Innovation and design thinking boot camp at Visakhapatnam and Sambalpur.
- **PROGATI (in collaboration with IIT Ropar):** Start-up networking and funding facilitation program.
- **Skill Development Workshop (IIT TIHAN, Hyderabad):** Training on Secure Robotics & Machine Learning (Jan 6–11, 2025).
- **World Wildlife Week:** Awareness drive aligned with SDGs, focusing on biodiversity and sustainability.
- **Catalyst Innovation Fellowship (CIF) Review Meetings:** Periodic reviews to ensure progress and mentorship for fellows.
- **E-YUVA Biotech Innovation Events:** Domain-specific support for biotech start-ups.

### **Start-ups & Innovations Supported**

### Catalyst Innovation Fellowship (CIF):

- **Total Fellows Selected:** 3 (2 active, 1 exited)
- **Community Innovator Fellowship (ACIC):**
  1. **Dr. Golmei Langangmeilu** – *Project:* Low-Cost Cotton Biochar Production & Validation.
  2. **Mr. Hemant Kumar Sahoo** – *Project:* Integrated Green Building Design & Construction.

### E-YUVA BIRAC Start-ups:

- Focused on biotech innovations in healthcare, bio-engineering, waste management, and agriculture.
- Startups funded and mentored under the E-YUVA program.

### Start-up India Seed Fund Scheme (SISFS):

- Multiple early-stage startups incubated and supported with financial aid, mentorship, and product development facilities.
- Planned expansion includes **on boarding 5 new CIF fellows.**

### Funding & Financial Assistance

- ₹1.6 lakh sanctioned per CIF fellow for prototype development.
- SISFS-backed funding provided to eligible start-ups.
- BIRAC grants for biotech-based ventures.
- Collaborative industry-academic funding in deep-tech and sustainability domains.

### Student Participation and Beneficiaries

- **73 student groups** engaged in **MSME 4.0** entrepreneurial activities.
- **83 students** participated in the **IDE Bootcamp** program.
- **120 students** expressed active interest in **prototype/model design and development.**

Sl. No.	Description	Name	Date
1	Outreach Events	Narasinghamunda	20.01.2022
		Regada	15.02.2022
		Gadiakhola	25.04.2022
		Pagadabili	27.12.2023
		Bijayapur	27.12.2023
		Entimunigaon	24.01.2024
		Jagannathpur	29.01.2024
		Khalagumuda	29.01.2024
		Pradhaniguda	16.02.2024
		Oxypyro Pvt. Ltd, Bikrampur	17.01.2025
2	Ideathons	CAMPUS AMBASSADOR with SELCO	09.11.2023

		Foundation	
		StartUp Odisha Yatra 3.0 Boot Camp	14.11.2023
		"SEARCH OF WISDOM" with SELCO Foundation	29.11.2023
		HACK THE HARVEST	20.04.2024
		World Entrepreneurship Day	23.08.2024
		MSME HACKATHON 4.0	29.10.2024 & 30.10.2024
		Pravesh 1.0	27.01.2025
3	Intellectual property Events	World Intellectual Property Day	27.04.2024
4	Capacity Building Programs	Womens' Entrepreneurship Summit- 2023	25.11.2023
		Validictory Function of project "SOCH" based on G20 Nations	02.12.2023
		National Startup Day	16.01.2024
		Innovation Talk Series	02.03.2024
		Rayagada Food Processing Conclave	19.07.2024
		World Youth Skills Day	23.07.2024
		Utkarsh Odisha Conclave 2025	09.01.2025
		3D Printing Workshop	12.08.2023
5	Workshop & Training	National Science Day	28.02.2024
		Workshop on 3D Printing	04.03.2024 to 09.03.2024
		New Ideas and Opportunities for Food Processing Sector in Odisha	29.04.2024 to 30.04.2024
		Subham Bio CNG Pvt. Ltd.	25.02.2023 to 24.02.2024
6	Incubated Startup	Analytics Drift	21.12.2022 to 20.12.2023
		Orifebtextile India private limited	22.12.2022 to 21.12.2023
		Azeedo	6.11.2022 to 05.11.2023
		Fingerprint Digital Media	22.12.2022 to 21.12.2023
		Focalpreneur Technologies & Services Pvt. Ltd.	11.12.2024 to 10.12.2026
		ECHRA Innovations Pvt. Ltd.	08.01.2025 to 07.01.2026
		Biomexia Healthcare Pvt. Ltd.	25.11.2024 to 24.11.2026
		Olemus Bioteck Pvt. Ltd.	28.02.2024 to 27.02.2025
		Purewatt Renewables Pvt. Ltd.	08.04.2024 to 07.04.2025

## 9.6. Governance and Transparency (25)

### 9.6.1. Availability of the Institutional Strategic Plan and its Effective Implementation and Monitoring (10)

(Provide details of the Institute's strategic plan or Institutional Development Plan (IDP), its approval by the competent authority, and its implementation.)

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) has a well-defined **Institutional Strategic Plan/Institutional Development Plan (IDP)** that outlines its vision, mission, core values, long-term goals, and strategic objectives. The plan has been developed through extensive consultation with stakeholders, including faculty members, students, administrative staff, alumni, and industry partners.

The Strategic Plan focuses on key areas such as:

- Academic Excellence and Curriculum Development
- Research and Innovation
- Infrastructure and Resource Development
- Student Support and Skill Development
- Community Engagement and Social Responsibility
- Governance and Administrative Efficiency

#### 1. Approval by the Competent Authority:

The Institutional Strategic Plan was formally approved by the **Board of Governors/Academic Council** in February 2019. The approval process included:

- Presentation of the draft plan
- Review by the Internal Quality Assurance Cell (IQAC)
- Incorporation of feedback from stakeholders
- Final ratification by the governing body

#### 2. Implementation Mechanism:

To ensure effective implementation, the institution has established a **Strategic Plan Implementation Committee (SPIC)** or equivalent body. Each strategic objective is broken down into actionable goals with defined timelines and responsible units. The implementation is carried out through:

- Annual operational plans
- Departmental and unit-level targets
- Allocation of budgetary resources
- Training and capacity-building programs
- Integration with the institution's Performance-Based Appraisal System

#### 3. Monitoring and Evaluation:

A robust **Monitoring and Evaluation (M&E) framework** has been put in place to track progress. This includes:

- Periodic review meetings (quarterly/bi-annual)
- KPI-based performance measurement
- Internal audits and progress reports
- Feedback loops involving all stakeholders
- Mid-term and end-term reviews of the Strategic Plan

The Internal Quality Assurance Cell (IQAC) plays a central role in monitoring the progress and making necessary adjustments to align with emerging challenges and opportunities.

#### **4. Outcome and Impact:**

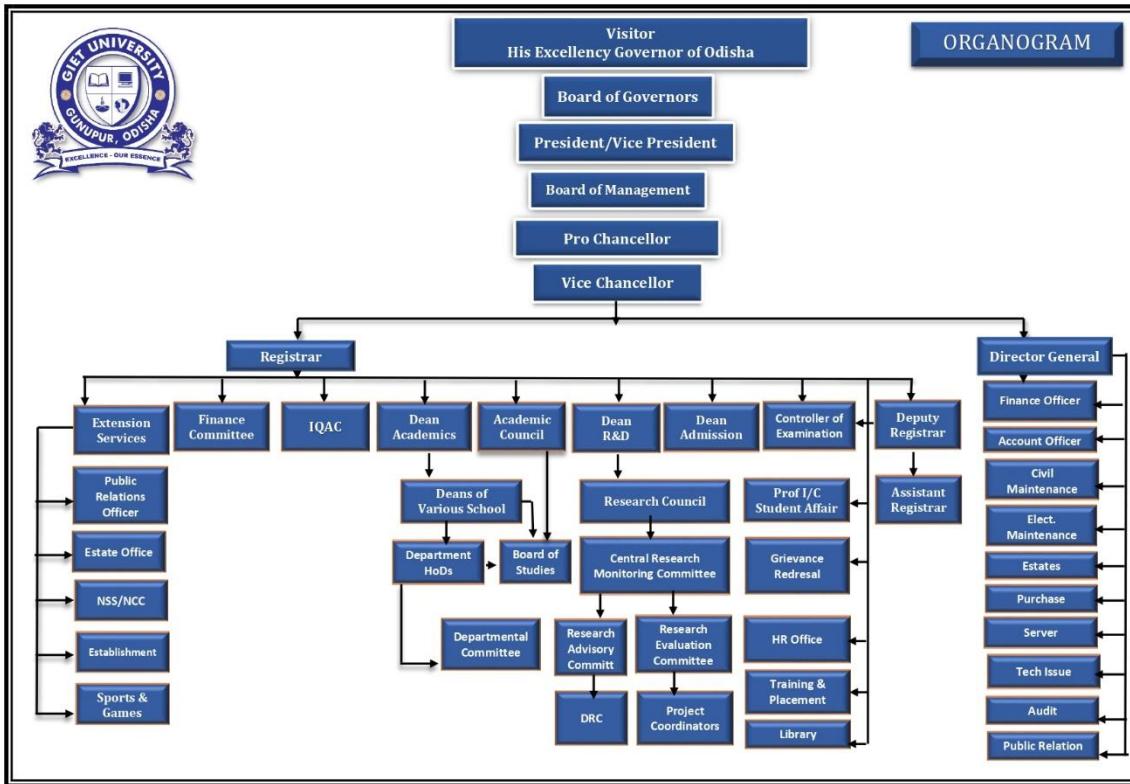
As a result of the Strategic Plan implementation, the institution has seen measurable improvements in academic outcomes, research productivity, student placements, accreditation achievements, and stakeholder satisfaction.

Supporting documents such as the Strategic Plan document, minutes of approval meetings, implementation progress reports, and performance dashboards are maintained and available for verification.

#### **9.6.2. Governing Body, Administrative Setup, Functions of Various Bodies, Service Rules, Recruitment Procedures and Promotion Policies (10)**

(Provide details of statutory and non-statutory administrative committees like the Governing body, Academic Council/ Senate, Grievance redressal Committee, IQAC, Anti-Ragging committee, Disciplinary committee in place; Internal Complaints Committee (Women harassment mitigation committee), etc., provide the approval of these committees along with details of members, the meetings details (meeting notice, agenda, minutes, action taken, etc. The service rules, policies and procedures; year of publication are to be listed.)

##### **A. Administrative Setup**



## B. Statutory and Non-Statutory Administrative Committees

### Statutory Administrative Committees (Governed by regulatory bodies like UGC, AICTE, etc.)

Committee	Purpose / Function / Role	Meeting Frequency
<b>Board of Governors (BoG)</b>	Highest decision-making body; sets vision, policy, governance and overall development strategy.	Quarterly / As needed
<b>Board of Management (BoM)</b>	Executes BoG policies; oversees administration, finance, and HR.	Quarterly
<b>Academic Council</b>	Decides academic policies, curricula, and academic planning.	At least twice a year
<b>Finance Committee</b>	Reviews budgets, financial planning, and expenditure.	Quarterly / Biannually
<b>Planning and Monitoring Board (PMB)</b>	Plans academic and infrastructure growth; monitors implementation.	Quarterly
<b>Board of Studies (BoS)</b>	Designs curriculum, recommends syllabus and course structure.	Biannually / As needed
<b>Internal Quality Assurance Cell (IQAC)</b>	Ensures continuous improvement in academic and administrative performance.	Quarterly
<b>Academic Audit Committee</b>	Reviews academic performance and quality assurance.	Annually

<b>Institutional Ethics Committee</b>	Approves research ethics; ensures compliance with ethical standards.	Quarterly / As needed
<b>Internal Complaint Committee (ICC)</b>	Addresses sexual harassment complaints; ensures a safe working environment.	Quarterly / As required
<b>Grievance Redressal Committee</b>	Handles staff and student grievances impartially.	Monthly / As needed
<b>Anti-Ragging Committee</b>	Prevents and addresses ragging cases in campus.	Quarterly / As required
<b>SC/ST/OBC Cell</b>	Ensures equal opportunity and grievance redressal for reserved categories.	Quarterly / As needed
<b>Right to Information (RTI) Committee</b>	Handles applications under the Right to Information Act.	Monthly / As required

#### **Non-Statutory Administrative Committees**

<b>Committee</b>	<b>Purpose / Function / Role</b>	<b>Meeting Frequency</b>
<b>Curriculum Development Committee</b>	Designs and reviews curriculum and pedagogy innovations.	Semester-wise / As needed
<b>Faculty Development Committee</b>	Plans training, FDPs, workshops for faculty upskilling.	Quarterly / As needed
<b>Feedback and Stakeholder Committee</b>	Collects and analyzes feedback from students, alumni, employers, and faculty for improvement.	Semester-wise
<b>Research Advisory Committee</b>	Provides strategic guidance on research priorities, policies, and quality enhancement.	Biannually / As needed
<b>Research and Development (R&amp;D) Cell</b>	Promotes research activities, funding, and publications.	Monthly / As required
<b>Intellectual Property Rights (IPR) Cell</b>	Encourages patents, copyrights, and innovation protection.	Quarterly / As needed
<b>Entrepreneurship Development Cell (EDC)</b>	Encourages student startups and entrepreneurship initiatives.	Monthly
<b>Innovation and Incubation Cell</b>	Supports prototyping, startup incubation, and innovation.	Monthly
<b>Training and Placement Cell</b>	Facilitates internships, placements, industry training.	Monthly / As needed
<b>Institute Industry Cell</b>	Strengthens collaboration with industries for internships, projects, and lectures.	Quarterly
<b>Career Guidance and Counselling Cell</b>	Guides students on career choices and mental well-being.	Monthly
<b>E-Governance / Digital Transformation Committee</b>	Oversees digital infrastructure and automation.	Quarterly / As required
<b>Website/IT Management</b>	Manages institutional website updates, digital	Monthly / As

<b>Committee</b>	content, hosting, and IT infrastructure.	needed
<b>Editorial/Publication Committee</b>	Oversees newsletters, journals, research proceedings, and other official publications.	Quarterly / As needed
<b>Admission Committee</b>	Manages admission processes, counseling, and criteria.	Admission Season (Annually)
<b>International Relations / Foreign Students Cell</b>	Supports foreign students and global academic collaborations.	Monthly / As needed
<b>Examination Committee</b>	Plans and conducts exams, manages results and evaluation.	Monthly / Per exam cycle
<b>Library Committee</b>	Enhances library resources, policies, and infrastructure.	Quarterly
<b>Students Welfare Committee</b>	Ensures student support services, health, welfare, and well-being.	Monthly
<b>Disciplinary Committee</b>	Maintains discipline, investigates misconduct, and enforces code of conduct.	Monthly / As needed
<b>Mentorship and Counseling Committee</b>	Provides academic and personal mentoring to students.	Monthly / Semester-wise
<b>Green Campus/Sustainability Committee</b>	Implements eco-friendly initiatives, monitors waste management, energy, and water conservation.	Quarterly / As needed
<b>Cultural Committee</b>	Organizes cultural events, fests, and celebrations.	Monthly / Event-based
<b>Sports Committee</b>	Promotes sports activities, events, and fitness.	Monthly / Event-based
<b>NSS/NCC Unit</b>	Manages community service, national cadet corps programs.	Monthly / Event-driven
<b>Alumni Association/Cell</b>	Engages alumni for networking, mentorship, and contributions.	Biannually / Annually
<b>Faculty Club</b>	Promotes faculty bonding, cultural events, and recreation.	Monthly / Quarterly

### Board of Governors

The Board of Governors shall consist of the following members, namely:-

<b>a)</b>	The President	Dr. Satya Prakash Panda Chairman, Vidya Bharati Educational Trust, Gunupur ( <i>Ex officio</i> Chairman)
<b>b)</b>	The Vice-President	Dr. Chandra Dhwaj Panda Secretary, Vidya Bharati Educational Trust, Gunupur
<b>c)</b>	The Vice-Chancellor	Prof. (Dr.) A. V. N. L. Sharma

d)	Three persons nominated by the Trust	1. Smt. Pratima Panda 2. Smt. Basanta Manjari Panda 3. Dr. Jagadish Panda
e)	Two experts nominated by the State Government	Prof. (Dr.) Chittaranjan Mohanty Principal, Parala Maharaja Engineering College, Berhampur, Odisha Prof. (Dr.) Sudeep Kumar Chand Professor, Department of Civil Engineering, Indira Gandhi Institute of Technology, Sarang, Dhenkanal, Odisha
f)	One member of the Odisha Legislative Assembly nominated by the Speaker in consultation with the leader of the House and the leader of opposition	Smt. Latika Pradhan Hon'ble MLA, Odisha Legislative Assembly, Bhubaneswar
g)	The Secretary to Government, Skill Development and Technical Education Department	Member <i>ex officio</i>
h)	Two Deans of the University by rotation, to be nominated by the President in consultation with the Vice-President	1. Dean, School of Engineering and Technology 2. Dean, School of Management Studies
i)	One Expert of Finance to be nominated by the President in consultation with the Vice-President	Mr. Sanat Kumar Pattanayak Chartered Accountant, Bhubaneswar
j)	Registrar of the University	Dr. N. V. Jagannadha Rao ( <i>Ex officio</i> Secretary)

### Board of Management

The Board of Management shall consist of the following members, namely:-

a)	The Vice-Chancellor of the University	Prof. (Dr.) A. V. N. L. Sharma ( <i>Ex officio</i> Chairman)
b)	The Registrar of the University	Dr. N. V. Jagannadha Rao ( <i>Ex officio</i> Secretary)
c)	The Finance Officer of the University	Mr. Sanat Kumar Pattanayak
d)	Two members of the Board of Governors, nominated by the Sponsoring Body	1. Dr. Satya Prakash Panda 2. Dr. Chandra Dhwaj Panda
e)	Three Deans of the University	1. Dean, School of Engineering and Technology 2. Dean, School of Sciences 3. Dean, School of Management

		Studies
f)	Two senior Professors of the University	1. Dean Academics
		2. Dean R&D

### Academic Council

The Academic Council shall consist of the following members, namely:-

	Internal Members	
1.	Prof. (Dr.) A. V. N. L. Sharma Vice-Chancellor	<i>Ex officio</i> Chairman
2.	Dr. N. V. Jagannadha Rao Registrar	<i>Ex officio</i> Secretary
3.	Dr. P. Vijayakumar Controller of Examinations	Member
4.	Dr. G. R. K. D. Satya Prasad Director, R&D and HoD, EE & EEE, SoET	Member
5.	Dr. Dulu Patnaik Dean, SoET	Member
6.	Dr. V. S. Devadas Dean, SoA	Member
7.	Ms. Chanchal Kumari Principal, SoN	Member
8.	Dr. Satya Narayan Das Deputy Dean Academics and HoD, CSA, SoS	Member
9.	Dr. K. Murali Gopal Deputy Dean, Computational Sciences, SoET	Member
10.	Mr. Sibo Prasad Tripathy Deputy Registrar	Member
11.	Dr. Prativa Kar HoD, BSH, SoET	Member
12.	Dr. Manoja Das HoD, BT, SoET	Member
13.	Dr. Suman Mishra HoD, CHE, SoET	Member
14.	Dr. Ashis Kumar Samal HoD, CE, SoET	Member
15.	Dr. Bibhu Prasad HoD, ECE, SoET	Member
16.	Dr. Kali Charan Rath HoD, ME, SoET	Member
17.	Dr. Sachikanta Dash	Member

	HoD, CSE (2021-2025 Batch), SoET	
18.	Dr. Premansu Sekhara Rath HoD, CSE (2022-2026 Batch), SoET	Member
19.	Dr. D. Anil Kumar HoD, CSE (2023-2027 Batch), SoET	Member
20.	Dr. Saumendra Das HoD, SoMS	Member
21.	Dr. B. Rabi Prasad HoD, SoS	Member
22.	Dr. Sadananda Sahoo HoD, SoHSS	Member
23.	Dr. Jyotirmaya Mishra Professor I/C, T&P Cell	Member
24.	Mr. Ashok Kumar Mishra Associate Dean (Administration), SoA	Member
25.	Dr. Ajit Kumar Patro Asst. Registrar (Academics)	Member
26.	Mr. Shakti Prasanna Khadanga Asst. Registrar (IQAC)	Member
27.	Mr. Satya Narayan Sahu Asst. Controller of Examinations	Member
<b>External Members</b>		
1.	Mr. Ramesh Naidu Director, Invenio Business Solutions Pvt. Ltd., Hyderabad, Telangana	Member
2.	Prof. (Dr.) Siba Sankar Mahapatra Professor, Department of Mechanical Engineering, National Institute of Technology, Rourkela, Odisha	Member
3.	Prof. (Dr.) Siba Kumar Udgata Professor, School of Computer and Information Sciences, University of Hyderabad, Hyderabad, Telangana	Member
4.	Prof. (Dr.) Sarbesh Mishra Professor and Dean - Executive Education, Placements & Industry Engagements, NICMAR University of Construction Studies, Hyderabad, Telangana	Member
5.	Prof. (Dr.) Jaydev Rana Professor, Department of Mechanical Engineering, Veer Surendra Sai University of Technology, Burla, Odisha	Member
6.	Dr. Jami Sagar Prusty, MBBS, MS, Ph.D. Professor and Head, Department of Anatomy, M.K.C.G. Medical College, Berhampur, Odisha	Member
7.	Dr. Lalita Mohan Garnayak	Member

	Director of Research, Central Agricultural University, Imphal, Manipur (Former Dean, PGF-com-DRI Professor and Head, Department of Agronomy, CoA, OUAT, Bhubaneswar)	
8.	Dr. S. Satapathy Principal Scientist (Agricultural Entomology), In-Charge, Division of Crop Protection ICAR-Central Research Institute for Jute and Allied Fibres (ICAR-CRIJAF) Nilgunj, West Bengal	Member

### Finance Committee

The Finance Committee shall consist of the following members, namely:-

<b>a)</b>	The Vice-Chancellor of the University	Prof. (Dr.) A. V. N. L. Sharma ( <i>Ex officio</i> Chairman)
<b>b)</b>	The Registrar of the University	Dr. N. V. Jagannadha Rao ( <i>Ex officio</i> Secretary)
<b>c)</b>	The Finance Officer	Mr. Sanat Kumar Pattanayak Chartered Accountant, Bhubaneswar
<b>d)</b>	Such other members as may be nominated by the Board of Governors	Dr. Satya Prakash Panda President, GIET University Dr. Chandra Dhwaj Panda Vice-President, GIET University Dr. Jagadish Panda Director General, GIET University Mr. Sarat Chandra Panda Accounts Officer, GIET University

### Grievance Redressal Committee (GRC)

Sl. No.	Name	Designation	Position
1	Dr. N. V. Jagannadha Rao	Registrar	Chairperson
2	Dr. P. Vijayakumar	Controller of Examinations	Member
3	Prof. (Dr.) Chittaranjan Mohanty	Principal, Parala Maharaja Engineering College, Berhampur, Odisha	Member
4	Dr. Ranjeet Kumar Panigrahi	Professor I/C, Student Affairs and Grievance Cell	Member
5	Dr. Ashima Sindhu Mohanty	Assistant Professor, Dept. of ECE, SoET	Member
6	Mr. Santosh Kumar Tripathy	Assistant Professor, Dept. of ME, SoET	Member

<b>Internal Quality Assurance Cell (IQAC)</b>	
The composition of the IQAC is as follows:	
<b>Chairperson</b>	
Prof. (Dr.) A. V. N. L. Sharma	Vice-Chancellor
<b>Administrative Officers</b>	
Dr. N. V. Jagannadha Rao	Registrar
Dr. Dulu Patnaik	Dean SoET
Dr. G. R. K. D. Satya Prasad	Director (Research & Development)
Dr. P. Vijayakumar	Controller of Examinations
Dr. Ranjeet Kumar Panigrahi	Professor I/c Student Affairs and Grievance Cell
<b>Management Member</b>	
Dr. Jagadish Panda	Director-General
<b>One of the Senior Teachers as the Coordinator of the IQAC</b>	
Mr. Shakti Prasanna Khadanga	Assistant Professor, Dept. of ME, SoET
<b>One of the Senior Teachers as the Co-coordinator of the IQAC</b>	
Dr. Ajit Kumar Patro	Associate Professor, Dept. of ECE, SoET
<b>External Experts</b>	
Prof. (Dr.) Sarbesh Mishra	Professor and Dean - Executive Education, Placements & Industry Engagements, NICMAR University of Construction Studies, Hyderabad, Telangana
<b>Senior Teachers as Members</b>	
Dr. Laxmipriya Parida	Assistant Professor, Dept. of BSH, SoET
Dr. B. Rabi Prasad	Assistant Professor, Dept. of BT, SoET
Dr. Radha Krushna Padhi	Associate Professor, Dept. of CHE, SoET
Ms. Niharika Patel	Assistant Professor, Dept. of CE, SoET
Dr. Bidush Kumar Sahoo	Associate Professor, Dept. of CSE, SoET
Mr. Bhabani Sankar Panda	Assistant Professor, Dept. of CSE, SoET
Dr. Srikant Misra	Associate Professor, Dept. of EE, SoET
Dr. Ranjita Rout	Assistant Professor, Dept. of ECE, SoET
Dr. Sasank Shekhar Panda	Assistant Professor, Dept. of ME, SoET
Dr. Jnana Raghavendra I	Associate Professor, SoMS
Dr. Biplab Kumar Rath	Associate Professor, SoS
Dr. Bhramara Bar Biswal	Assistant Professor, Dept. of CSA, SoS
Dr. Rajeswari Das	Assistant Professor, SoAg
Mr. Kotha Ratan Kumar	Assistant Professor, SoN
<b>Industrial Nominee</b>	
Mr. Tridip Sarma	AGM, Patel Engineering Ltd., Mumbai,

	Maharashtra
<b>Local Society Nominee</b>	
Mr. K P Bebara	Agriculturalist & Environmentalist
<b>Alumni Nominee</b>	
Mr. Julen Mohanty	Sr. Director, CTS
<b>Student Members</b>	
Mr. Ayush Sharma	Student
Ms. Rupali Panda	Student

<b>Anti-Ragging Committee</b>			
<b>Sl. No.</b>	<b>Name</b>	<b>Designation</b>	<b>Position</b>
1	Dr. N. V. Jagannadha Rao	Registrar	Convener
2	Dr. Ranjeet Kumar Panigrahi	Professor I/C, Student Affairs & Grievance Cell	Co-Convener
3	Mr. Ajay Barik	SDPO, Gunupur	Member
4	Dr. G. R. K. D. Satya Prasad	Director, R&D and HoD, EE & EEE, SoET	Member
5	Dr. Dulu Patnaik	Professor and Dean, SoET	Member
6	Dr. V. S. Devadas	Professor and Dean, SoA	Member
7	Dr. Satya Narayan Das	Deputy Dean Academics and HoD, CSA, SoS	Member
8	Dr. K. Murali Gopal	Deputy Dean, Computational Sciences, SoET	Member
9	Dr. Prativa Kar	Associate Professor and HoD, BSH, SoET	Member
10	Dr. Manoja Das	Associate Professor and HoD, BT, SoET	Member
11	Dr. Suman Mishra	Associate Professor and HoD, CHE, SoET	Member
12	Dr. Ashis Kumar Samal	Associate Professor and HoD, CE, SoET	Member
13	Dr. Bibhu Prasad	Associate Professor and HoD, ECE, SoET	Member
14	Dr. Kali Charan Rath	Associate Professor and HoD, ME, SoET	Member
15	Dr. Sachikanta Dash	Associate Professor and HoD, CSE (2021-2025 Batch), SoET	Member
16	Dr. Premansu Sekhara Rath	Associate Professor and HoD, CSE (2022-2026 Batch), SoET	Member
17	Dr. D. Anil Kumar	Associate Professor and HoD, CSE (2023-2027 Batch), SoET	Member
18	Dr. Saumendra Das	Associate Professor and HoD, SoMS	Member

19	Dr. B. Rabi Prasad	Associate Professor and HoD, SoS	Member
20	Dr. Jyotirmaya Mishra	Professor I/C, T&P Cell	Member
21	Mr. Ashok Kumar Mishra	Associate Dean (Administration), SoA	Member
22	Dr. Rinni Swain	Associate Professor, SoA	Member
23	Mrs. K. Jayashree	Professor, SoN	Member
24	Mr. Kotha Ratan Kumar	Assistant Professor, SoN	Member
25	Mr. Rabindra Kumar Panda	Sports Officer	Member
26	Mr. Raghunath Panda	HR Officer	Member
27	Mr. Sunkari Sibajee	Law Officer	Member
28	Mr. Durga Prasad Rath	SEO	Member
29	Mr. Kali Prasad Pattanaik	Warden (Campus Hostels)	Member
30	Mr. Ashok Kumar Mohapatra	Warden (Town Hostels)	Member
31	Mr. Maheswar Mohapatra	Parent	Member

#### Disciplinary Committee

Sl. No.	Name	Designation	Position
1	Dr. Srikant Misra	Associate Professor, Dept. of EE, SoET	Convener
2	Mr. Nalinikanta Panda	Assistant Professor, Dept. of ME, SoET	Co-convener
3	Dr. Tapas Ranjan Panigrahi	Assistant Professor, Dept. of BSH, SoET	Member
4	Dr. Prakash Ranjan Sahoo	Assistant Professor, Dept. of CE, SoET	Member
5	Mr. Santosh Kumar Panda	Assistant Professor, Dept. of CSE, SoET	Member
6	Mrs. Archana Patnaik	Assistant Professor, Dept. of CSE, SoET	Member
7	Mr. Balaram Das	Assistant Professor, Dept. of EE, SoET	Member
8	Mrs. Swati Gouda	Assistant Professor, Dept. of EE, SoET	Member
9	Mr. Biswa Mohan Panda	Assistant Professor, Dept. of ECE, SoET	Member
10	Ms. Sandhyarani Swain	Teaching Assistant, Dept. of ECE, SoET	Member
11	Dr. Smruti Rekha Sahoo	Assistant Professor, SoMS	Member
12	Mr. Girija Sankar Pradhan	Assistant Professor, SoMS	Member
13	Dr. Swastik Behera	Assistant Professor, Dept. of LS, SoS	Member

14	Mrs. Priyanka Sahu	Assistant Professor, Dept. of CHEM, SoS	Member
15	Ms. Lipsa Mishra	Assistant Professor, Dept. of CSA, SoS	Member
16	Mrs. Sucharita Panda	Assistant Professor, SoA	Member
17	Dr. Prateek Ranjan Behera	Assistant Professor, SoA	Member
18	Ms. T. Priyanka	Assistant Professor, SoN	Member
19	Mr. Siddharth Sahoo	Tutor, SoN	Member

#### Internal Complaints Committee (ICC)

Sl. No.	Name	Designation	Position
1	Dr. Prativa Kar	Associate Professor and HoD, Dept. of BSH, SoET	Convener
2	Dr. Suman Mishra	Associate Professor and HoD, Dept. of CHE, SoET	Member
3	Dr. Rinny Swain	Associate Professor, SoA	Member
4	Dr. Rashmita Panigrahi	Assistant Professor, Dept. of CSE, SoET	Member
5	Ms. Ghanistha Prusty	Assistant Professor, Dept. of LS, SoS	Member
6	Dr. Ranjita Rout	Assistant Professor, Dept. of ECE, SoET	Member
7	Mrs. Manasi Choudhury	Asst. HR Officer	Member
8	Mrs. Sujata Mishra	Office Assistant	Member
9	Dr. Ranjeet Kumar Panigrahi	Professor I/C, Student Affairs and Grievance Cell	Member
10	Mr. Uttam Kumar Sahoo	IIC, Gunupur	Member
11	Mr. Kali Prasad Pattanaik	Warden	Member
12	Mr. Sunkari Sibajee	Law Officer	Member
13	Mr. Durga Prasad Rath	NGO Swabalamban	Member
14	Mr. Saroj Sathpathy	Student	Member
15	Ms. Divya Bharati Kerketa	Student	Member
16	Ms. Bhawani Sahu	Student	Member

#### SC/ST/OBC Cell

Sl. No.	Name	Designation	Position
1	Dr. Nilambar Sethi	Associate Professor, Dept. of CSE, SoET	Convener
2	Dr. Bibhu Prasad	Assistant Professor, Dept. of ECE, SoET	Member

3	Mr. B. Vikram Anand	Assistant Professor, Dept. of EE, SoET	Member
4	Mr. P. Sudheer Babu	Assistant Professor, Dept. of CSE, SoET	Member
5	Ms. Manaswini Nagabansa	Assistant Professor, Dept. of CSA, SoS	Member
6	Mr. Dara Venugopal	Assistant Professor, Dept. of BSH, SoET	Member
7	Dr. Tarapatla Lokeshwara Rao	Associate Professor, SoMS	Member
8	Mr. R. Chandramohan	Assistant Professor, Dept. of CSE, SoET	Member
9	Ms. T. Priyanka	Assistant Professor, SoN	Member
10	Ms. Renuka Mandal	Assistant Professor, Dept. of BSH, SoET	Member

### 9.6.3. Transparency (05)

(Information on policies, rules, processes, delegation of financial powers, faculty, students, etc., and dissemination of this information to stakeholders should be made available on the Institute's website. Agendas and minutes of the Governing Body, Academic Council, and Senate are also required to be uploaded on the Institute's website. Additionally, state the extent of awareness among the stakeholders.)

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) is committed to upholding the highest standards of transparency in its governance, academic, and administrative functions. The following measures are in place to ensure that all stakeholders have easy access to critical information:

#### A. Mandatory Disclosure as per UGC/AICTE/AISHE on the Institute Website

GIET University strictly adheres to the guidelines laid down by statutory bodies such as UGC, AICTE, and AISHE. All mandatory disclosures, including institutional data, faculty details, program offerings, student intake, infrastructure, and financial information, are regularly updated and made available on the official Institute website. These disclosures comply with the formats and timelines specified by the respective authorities.

#### B. Availability of Policies, Rules, and Processes on the Institute's Website

All GIET University policies - including academic regulations, examination rules, grievance redressal mechanisms, financial delegation powers, and administrative procedures are accessible through the Institute's website. These documents are updated periodically to reflect changes and improvements and are structured for ease of understanding by students, faculty, parents, and other stakeholders.

Additionally, agendas and minutes of key decision-making bodies such as the Board of Governors, Board of Management, Academic Council, Board of Studies, and

Finance Committee are published on the website to promote institutional transparency and accountability.

### **Awareness Among Stakeholders**

Stakeholders are made aware of these resources through orientation programs, newsletters, emails, regular meetings, and announcements. Feedback from faculty, students, and parents indicates a high level of awareness and satisfaction regarding the transparency and availability of institutional information.

### **9.7. Budget Allocation, Utilization, and Public Accounting at Institute Level (12)**

(Provide a summary of the financial year's budget and actual expenditure incurred exclusively for the institution in the three financial years: CFYm1, CFYm2, and CFYm3. If the management oversees multiple Institutions, exclusive audited records for each Institute must be provided and made available on the Institute's website. The budget should be approved by the Institute BoG/GB/GC before the start of the financial year.)

CFY=Current Financial Year.

CFYm1=Current Financial Year Minus 1.

CFYm2=Current Financial Year Minus 2.

CFYm3=Current Financial Year Minus 3.

#### **For CFYm1 [2023-24]**

**Table No. 9.7.1:** Summary of budget and actual expenditure incurred at Institute level for CFY m1 [2023-24].

<b>Total Income in the CFYm1 [2023-24]:</b> <b>₹ 1,27,03,06,936</b>				<b>Actual expenditure in the CFYm1 [2023-24]</b>	<b>Total Student s in the institut e</b>	<b>Expenditur e per student in CFYm1 [2023-24]:</b>
<b>Fee</b>	<b>Govt.</b>	<b>Grant(s)</b>	<b>Other Sources (Rent/ Interest/ Consultanc y/ Misc./ Funds from Trust A/C)</b>			
₹ 1,01,85,46,47 7	₹ 2,45,04,04 1	₹ 25,00,00 0	₹ 22,47,56,41 8	₹ 1,29,05,49,41 2	3,432	₹ 94,000

#### **For CFYm2 [2022-23]**

**Table No. 9.7.2:** Summary of budget and actual expenditure incurred at Institute level for CFY m1 [2022-23].

Total Income in the CFYm1 [2022-23]: ₹ 1,42,56,10,396				Actual expenditure in the CFYm1 [2022-23]	Total Students in the institute	Expenditure per student in CFYm1 [2022-23]:
Fee	Govt.	Grant(s)	Other Sources (Rent/Interest/Consultancy/ Misc./ Funds from Trust A/C)			
₹ 1,04,02,93,200	48,17,500	20,00,000	₹ 37,84,99,696	₹ 1,32,70,35,602	3,813	₹ 87,000

### For CFYm3 [2021-22]

**Table No. 9.7.3:** Summary of budget and actual expenditure incurred at Institute level for CFY m1 [2021-22].

Total Income in the CFYm1 [2021-22]: ₹ 1,02,24,29,006				Actual expenditure in the CFYm1 [2021-22]	Total Students in the institute	Expenditure per student in CFYm1 [2021-22]:
Fee	Govt.	Grant(s)	Other Sources (Rent/Interest/Consultancy / Misc./ Funds from Trust A/C)			
₹ 77,92,45,380	2,02,81,912	22,00,000	₹ 22,07,01,714	₹ 98,27,01,194	3,193	₹ 77,000

### Note:

- ❖ Audited statements for CFYm1, CFYm2, and CFYm3 are to be uploaded on the website.

**Table No. 9.7.2:** Budget and actual expenditure incurred at Institute level.

Items	Budget ed in CFY 2024-25	Actual expense s in CFY 2024-25 (till 19- Apr-	Budget ed in CFYm1 2023-24	Actual Expens es in CFYm1 2023-24	Budget ed in CFYm2 2022-23	Actual Expenses in CFYm2 2022-23	Budget ed in CFYm 3 2021- 22	Actual Expen ses in CFYm 3 2021- 22

		2025)						
Infrastructure Built-Up	₹ 18,00,00,000	₹ 17,96,84,562	₹ 17,80,00,000	₹ 17,85,83,755	₹ 17,00,00,000	₹ 15,98,02,552	₹ 14,00,00,000	₹ 13,29,73,621
Library	₹ 1,80,00,000	₹ 1,74,56,845	₹ 1,75,00,000	₹ 1,75,94,212	₹ 1,65,00,000	₹ 1,65,14,702	₹ 14,00,00,000	₹ 1,36,87,960
Laboratory equipment	₹ 7,85,00,000	₹ 7,87,12,968	₹ 7,60,00,000	₹ 7,58,59,941	₹ 7,10,00,000	₹ 7,04,57,118	₹ 4,00,00,000	₹ 3,98,12,746
Teaching and non-teaching staff salary	₹ 57,00,00,000	₹ 54,18,19,856	₹ 56,50,00,000	₹ 53,57,68,609	₹ 54,00,00,000	₹ 51,49,79,902	₹ 44,00,00,000	₹ 43,72,59,068
Outreach Programs	₹ 11,00,00,000	₹ 10,87,54,633	₹ 10,00,00,000	₹ 10,37,23,924	₹ 9,75,00,000	₹ 9,65,28,283	₹ 6,75,00,000	₹ 6,86,76,182
R&D	₹ 1,00,00,000	₹ 98,78,653	₹ 1,00,00,000	₹ 93,16,403	₹ 1,00,00,000	₹ 98,31,601	₹ 96,00,00,000	₹ 93,27,389
Training, Placement and Industry linkage	₹ 1,25,00,000	₹ 1,21,14,728	₹ 1,00,00,000	₹ 1,02,80,615	₹ 1,55,00,000	₹ 1,54,95,447	₹ 1,45,00,000	₹ 1,41,49,260
SDGs	₹ 1,95,00,000	₹ 1,94,52,628	₹ 1,90,00,000	₹ 1,66,52,968	₹ 1,90,00,000	₹ 1,87,85,011	₹ 1,85,00,000	₹ 1,39,69,631
Entrepreneurship	₹ 1,00,00,000	₹ 98,47,546	₹ 95,00,000	₹ 90,95,173	₹ 85,00,000	₹ 84,15,484	₹ 80,00,00,000	₹ 79,14,546
Others, (Repair maint./ fees /other capital assets /student expenditure	₹ 22,50,00,000	₹ 22,87,35,442	₹ 23,50,00,000	₹ 21,53,40,665	₹ 27,20,00,000	₹ 27,02,03,514	₹ 24,00,00,000	₹ 21,08,05,608

Total Amount	₹ 1,23,35,00,000	₹ 1,20,64,57,861	₹ 1,22,00,00,000	₹ 1,17,22,16,265	₹ 1,22,00,00,000	₹ 1,18,10,13,614	₹ 97,95,00,000	₹ 94,85,76,011
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### 9.8. Program Specific Budget Allocation, Utilization (08)

(Total budget at program level: CFYm1, CFYm2 & CFYm3  
CFY=Current Financial Year.

CFYm1=Current Financial Year Minus 1.

CFYm2=Current Financial Year Minus 2.

CFYm3=Current Financial Year Minus 3.)

For CFYm1 (Similar table to be prepared for CFYm2 and CFYm3)

**Table No. 9.8.1:** Summary of budget and actual expenditure incurred at program level.

Total Budget in CFYm1:		Actual expenditure in CFYm1:		Total No. of students in CFYm1:	
Demanded	Actual Allocated	Actual Expenditure	% Spent	Expenditure per student	
6,500,000.00	6,214,780.00	5,704,112.00	91.78%	92,000.00	
Total Budget in CFYm2:		Actual expenditure in CFYm2:		Total No. of students in CFYm2:	
7,000,000.00	6,874,800.00	6,698,895.00	97.44%	87,000.00	
Total Budget in CFYm3:		Actual expenditure in CFYm3:		Total No. of students in CFYm3:	
<b>6,600,000.00</b>	6,465,000.00	6,131,977.00	94.84	84,000.00	

Note: Justification and process of budgeting to be listed.

**Table No. 9.8.2:** Budget and actual expenditure incurred at program level.

Items	Budgeted in CFY	Actual expenses in CFY	Budgeted in CFYm1	Actual Expenses in CFYm1	Budgeted in CFYm2	Actual Expenses in CFYm2	Budgeted in CFYm3	Actual Expenses in CFYm3
Laboratory equipment	8,50,000	8,49,525	7,80,000	7,84,659	6,50,000	6,36,256	6,00,000	5,74,689
Software	2,00,000	1,88,800	2,00,000	1,81,720	1,80,000	1,71,100	1,50,000	1,53,400
SDGs	3,25,000	2,72,924	3,00,000	2,54,233	2,50,000	2,47,558	2,00,000	1,96,578
Support for faculty development	3,00,000	2,89,423	2,75,000	2,69,542	2,50,000	2,51,280	2,00,000	1,84,952
R & D	3,00,000	2,89,150	2,75,000	2,78,132	2,70,000	2,47,988	2,00,000	1,69,184
Industrial								

Training, Industry expert, Internship	3,50,000	3,44,552	3,30,000	3,32,480	3,00,000	2,89,852	2,80,000	2,73,112
Miscellaneous expenses *	7,50,000	7,27,456	6,50,000	6,32,457	6,00,000	6,15,932	5,00,000	5,18,218
<b>Total amount</b>	<b>30,75,000</b>	<b>29,61,830</b>	<b>28,10,000</b>	<b>27,33,223</b>	<b>25,00,000</b>	<b>24,59,966</b>	<b>21,30,000</b>	<b>20,70,133</b>

\* Items to be mentioned.

## 9.9. Quality of Learning Resources (Hard/Soft) (05)

(Provide details of available learning resources, including e-resources (books and journals), as well as information on the accessibility of these resources to students. Additionally, describe the support provided to students for self-learning activities.)

GIET University offers a comprehensive array of learning resources, both in hard and soft formats, to support students' academic and self-learning needs.

### A. Availability of Relevant E-Learning Resources of the Program

GIET University provides access to a wide range of e-learning resources relevant to the program. These include:

- **E-books and online journals** through subscriptions to databases such as **Science Direct, NPTEL etc.**
- course materials, recorded lectures, assignments, and quizzes for all subjects are being hosted in the University Website.
- Access to **virtual labs**, simulation software, and subject-specific tools (e.g., MATLAB, AutoCAD, Python IDEs, etc.), depending on the discipline.
- **Digital library services** allow students to access thousands of academic titles across disciplines.

### B. Accessibility of Learning Resources to Students

Students have 24/7 access to all digital learning resources through institutional login credentials. Key features include:

- **Remote access** to e-resources via the institution's digital portal, allowing learning from anywhere.
- A well-equipped **central library** with high-speed internet, e-reading terminals, and dedicated support for accessing e-journals and databases.
- **Departmental resource centres** provide subject-specific books, project reports, and software tools.
- **Orientation sessions and workshops** are regularly conducted to train students in utilizing e-resources effectively.
- **Mentoring and faculty support** are available for guiding students in self-learning and research activities.

GIET University ensures that students from all backgrounds can easily access and effectively use learning materials, fostering a strong self-learning culture.

Timing of the library	ROUND THE CLOCK (24 × 7)
Total Area of Library	1206 Sq.mt.
Two Reading Halls with Seating Capacity	1000
Number of Books (Textbook and Reference)	81629
Number of Titles	13224
Number of Back Volume	3107
Number of CDs & DVDs	4667
Number of Periodicals- Hard Copies (Magazines)	28
Number of Periodicals- Hard Copies Journals (National and International)	61
Number of E-Journals Subscribed including WoS	1118 from 04 Publishers
Number of Newspapers	17
Number of NPTEL Web and Video Materials	576
Library Software	Koha Open LMS-21.05.03.001
Plagiarism Software	Turnitin
e-library (e-book, NPTEL, Remote Access)	KNIMBUS ( <a href="https://new.knimbus.com">https://new.knimbus.com</a> )
Total Number of Library Staff	15
Technical Staff	4
Library Membership	DELNET and National Digital Library (NDL)
Computerization for searching and indexing	Yes
Reproductive Facilities	Yes (Photocopy, Spiral, Lamination)

## 9.10. E-Governance (05)

(E-governance initiatives, sustainable practices in academic and learning management, campus-wide computing resources, and their accessibility and availability to support academic and professional activities for students and faculty.)

GIET University actively promotes **e-governance** as a vital enabler of transparency, efficiency, and accessibility in academic and administrative functions. A combination of digital infrastructure, policy implementation, and stakeholder engagement ensures that governance processes are streamlined and inclusive.

## **E-Governance Initiatives**

Key administrative and academic operations are digitized using robust **Enterprise Resource Planning (ERP)** systems. These platforms manage everything from admissions, examinations, attendance, and performance tracking to finance and human resource management. Online grievance redressal systems and e-feedback portals encourage transparency and student participation.

## **Sustainable Practices in Academic and Learning Management**

To ensure environmental responsibility and reduce paper-based processes, the institution has adopted e-notices, and online application systems for certificates, leaves, and internal communication. Course materials, syllabi, and learning resources are shared online to reduce the need for printing. Virtual classrooms and blended learning approaches are encouraged, supporting both synchronous and asynchronous learning.

## **Campus-wide Computing Resources**

GIET University maintains a comprehensive digital infrastructure, including high-speed internet connectivity across the campus, computer laboratories with modern hardware, and access to licensed software for specialized disciplines. Faculty and students benefit from institutional subscriptions to e-journals, databases, and online libraries (e.g., SWAYAM-NPTEL).

## **Accessibility and Availability**

To promote inclusive education, computing resources are made available through extended lab hours, remote access tools, and centralized helpdesk services. Tech support teams ensure regular maintenance and troubleshooting. E-resources are accessible via institutional credentials, allowing students and faculty to use them off-campus as well. Awareness and training sessions are conducted to improve digital literacy and maximize resource utilization.

### **9.11. Initiatives and Implementation of Sustainable Development Goals (SDGs) (10)**

(Provide details of initiatives taken towards implementation of SDG specifically on green energy, waste management, preserving water, net zero, quality education, reuse, recycle, less use to renewables, etc. Provide evidence on implementation (projects assigned, R & D activities, entrepreneurial activities, outreach programs, etc.)

GIET University has actively undertaken several initiatives aligned with the United Nations Sustainable Development Goals (SDGs), focusing on environmental sustainability, quality education, and responsible consumption. Key initiatives include:

#### **1. Green Energy (SDG 7 - Affordable and Clean Energy)**

- **Solar Power Installation:** Solar panels with a capacity of **500 kW** have been installed on campus rooftops to meet part of the institution's energy needs.
- **Energy Efficiency:** LED lighting systems and smart energy meters have been deployed across departments to reduce electricity consumption.
- **R&D in Renewable Energy:** Faculty and student research projects have focused on solar energy optimization, energy storage solutions, and hybrid renewable energy systems.

## 2. Waste Management (SDG 12 - Responsible Consumption and Production)

- **Solid Waste Segregation:** Implementation of a three-bin system for waste segregation (organic, recyclable, and landfill waste).
- **Composting Units:** Organic waste is processed in on-campus composting units and used as manure for campus landscaping.
- **E-Waste Disposal Drives:** Adopted Solid waste and bio-waste disposal mechanism
- **Recycling Paper and Plastic:** Use of recycled paper for internal printing and promoting the reduction of single-use plastics.

## 3. Preserving Water (SDG 6 - Clean Water and Sanitation)

- **Rainwater Harvesting:** Installation of rainwater harvesting pits to recharge groundwater and reduce surface runoff.
- **Low-Flow Fixtures:** Use of water-efficient taps and dual-flush systems in washrooms to minimize water wastage.
- **Awareness Programs:** Periodic campaigns and workshops to promote water conservation practices among students and staff.

## 4. Net Zero Commitment (SDG 13 - Climate Action)

- **Tree Plantation Drives:** Regular plantation drives are conducted to increase green cover and carbon sequestration.
- **Green Campus Certification:** Steps have been initiated towards attaining Green Campus Certification by implementing sustainable practices.

## 5. Quality Education (SDG 4 - Quality Education)

- **Curriculum Integration:** Courses on environmental studies, sustainable development, and green technologies are incorporated across programs.
- **SDG Awareness Workshops:** Regular seminars and webinars are conducted to sensitize students about the importance and implementation of SDGs.
- **Innovation & Incubation:** Support to student-led start-ups and projects related to sustainability through incubation centres.

## 6. Circular Economy Initiatives: Reuse, Recycle, Reduce, Renewables

- **Upcycling Initiatives:** Student clubs are encouraged to design products from waste materials (e.g., eco-bricks, art from scrap).

- **Minimal Paper Usage:** Promotion of digital documentation and e-governance systems to reduce paper use.
- **Reuse Drives:** Organization of donation drives for books, clothes, and stationery.

## 7. Community Outreach Programs

- **Village Adoption Program:** Sustainable development models implemented in adopted villages - such as solar street lighting, sanitation awareness, and water conservation.
- **Entrepreneurial Projects:** Student-led initiatives such as biodegradable product development, solar-powered devices, and low-cost water filters.





## 9.12. Innovative Educational Initiatives and Implementation (05)

(Provide details of initiatives taken towards mobility of students, implementation of academic bank of credits, and support for holistic education including human values, multidisciplinary/interdisciplinary curriculum/programs, initiatives on Indian Knowledge System, Contribution towards and implementation of teaching in Indian language, etc. Policies on inclusivity and equity and their implementation, support for economically, socially and physically challenged students. Action plan and its implementation for slow learners.)

GIET University has undertaken several forward-thinking initiatives aligned with the National Education Policy (NEP) 2020 to enhance educational quality, inclusivity,

and flexibility. These initiatives focus on promoting student mobility, interdisciplinary learning, inclusivity, and cultural integration, while also supporting slow learners and marginalized communities.

### 1. Student Mobility and Academic Bank of Credits (ABC)

- GIET University has registered with the **Academic Bank of Credits** (ABC) platform to facilitate student mobility across higher education institutions. Students are encouraged to earn and deposit credits in the ABC, promoting lifelong learning and flexibility in academic pursuits.
- The Choice-Based Credit System (CBCS) is fully implemented, allowing horizontal and vertical academic mobility.

### 2. Holistic Education and Human Values

- Value-added courses focusing on **ethics, empathy, leadership, and environmental consciousness, Human Values etc.** are embedded into the curriculum to promote holistic development.
- Regular workshops, seminars, and guest lectures on **emotional intelligence, mindfulness, and social responsibility** are conducted for both students and faculty.

### 3. Multidisciplinary and Interdisciplinary Programs

- GIET University has introduced **interdisciplinary elective courses** allowing students to choose subjects across departments.
- Projects and assignments often involve **cross-disciplinary collaboration**, encouraging students to integrate knowledge and skills from multiple domains.

### 4. Indian Knowledge Systems (IKS) and Language Promotion

- Courses and awareness programs on **Indian Knowledge Systems** including Yoga, Essence of Indian Traditional Knowledge, Constitution of India etc. are offered.
- **Teaching in Indian languages** has been encouraged; select programs offer **bilingual instruction (English and regional language)** to support regional learners.
- Cultural events, workshops, and national festivals are celebrated to sensitize students about Indian heritage.

### 5. Policies on Inclusivity and Equity

- GIET University ensures **equitable access to quality education** through transparent admission policies and merit-cum-means scholarships.
- Support systems such as **Remedial Coaching, Equal Opportunity Cell, and Women Empowerment Cell** are actively functioning.
- Regular sensitization programs on **gender, caste, and disability rights** are conducted to foster an inclusive campus culture.

### 6. Support for Economically, Socially, and Physically Challenged Students

- Fee concessions, scholarships, and financial aid are provided to economically weaker sections.
- The campus infrastructure is **differently-abled friendly** with ramps, lifts, and accessible restrooms.
- A **Student Counselling Centre** provides academic and emotional support.
- Dedicated faculty mentors are assigned to guide and support socially disadvantaged students.

## 7. Action Plan for Slow Learners

A structured intervention system is in place, which includes:

- **Bridge courses and foundation classes** at the beginning of each academic session.
- **Remedial classes, peer tutoring, and mentoring** throughout the semester.
- **Continuous assessment and feedback** mechanisms to track progress.
- **Customized learning materials and one-on-one sessions** for targeted support.

### 9.13. Faculty Performance Appraisal and Development System (FPADS) (10)

(Faculty members of Higher Educational Institutions today have to perform a variety of tasks pertaining to diverse roles. In addition to instruction, faculty members need to innovate and conduct research for their self-renewal, keep abreast of changes in technology, and develop expertise for the effective implementation of curricula. They are also expected to provide services to the industry and community to understand and contribute to solving real-life problems in industry. Another role involves shouldering administrative responsibilities and cooperating with other faculty, heads of departments, and the head of the institute. An effective performance appraisal system for faculty is vital for optimizing the contribution of individual faculty to institutional performance.

The assessment is based on a well-defined system for faculty appraisal for all the assessment years and its implementation and effectiveness.)

The Faculty Performance Appraisal and Development System (FPADS) at Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) is designed to assess and enhance faculty members' contributions in teaching, research, innovation, curriculum development, industry and community engagement, and administration. This system ensures continuous professional growth and aligns faculty performance with institutional goals.

#### 1. Objectives of FPADS

- To evaluate faculty performance systematically based on predefined parameters.
- To promote faculty development through training and research opportunities.
- To maintain transparency in the appraisal process and encourage self-improvement.

- To enhance institutional excellence through continuous faculty growth.

## 2. Appraisal Parameters

Faculty performance is assessed based on the following key parameters:

- Teaching & Learning
- Research & Publications
- Industry Interaction & Consultancy
- Administrative & Institutional Responsibilities
- Professional Development

## 3. Implementation of FPADS

### 3.1. Data Collection & Evaluation

- Faculty members submit a Self-Appraisal Report with supporting documents.
- Department Heads and Academic Committees review performance.
- Student feedback is considered as part of the teaching evaluation process.

### 3.2 Performance Review Meetings

- A review committee evaluates the compiled appraisal data.
- Faculty members receive feedback and guidance for improvement.
- Performance outcomes are linked to increment, promotions and incentives.

## 4. Effectiveness of FPADS

### 4.1. Performance Improvement Trends

- A 20% increase in faculty research publications has been recorded over the past three years.
- There is a marked rise in faculty participation in Faculty Development Programmes (FDPs) and workshops, enhancing pedagogical skills.
- Orientation classes are conducted before each semester, during which faculty members deliver demonstration classes on the subjects assigned for the upcoming semester.

### 4.2. Transparency and Feedback Mechanism

- Faculty members are granted access to their detailed performance reports.
- Regular feedback sessions help refine the appraisal process and support professional development.

The FPADS at GIET University plays a crucial role in fostering a culture of accountability, continuous learning, and excellence among faculty members, thereby contributing significantly to the university's academic and institutional growth.



**GANDHI INSTITUTE OF ENGINEERING AND  
TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR  
(GIET UNIVERSITY)**

(Established Vide Odisha Act 23 of 2018, Included by UGC, New Delhi, and Approved by AICTE, ICAR, INC, DSIR, New Delhi)

Gunupur - 765022, Dist.- Rayagada, Odisha, INDIA

[www.giet.edu](http://www.giet.edu)

**SCHOOL OF ENGINEERING AND TECHNOLOGY (SoET)**

**FACULTY SELF ASSESSMENT FOR THE ACADEMIC YEAR:**

**01. General Information:**

(a) Emp. Code :  
 (b) Name in full :  
 (in block letters)  
 (c) Department :

**02. Academic Qualifications:**

Qualification	Year of passing	Institution

(a) Additional Qualifications / Fellowships / Memberships / Certificate courses :  
 (b) Area of specialization, if any :  
 (c) Date of Joining :  
 (d) Present designation and Date of appointment to that designation :  
 (e) Last Increment Effected Date :

**03. Experience :**

(a) Industrial experience if any :  
 (b) Teaching experience total :

Name of the college	From (Date/Month/Year)	To (Date/Month/Year)	Experience in years
GIET University			
Other Colleges / Organizations			

**PART - A**

**A1. Student feedback (Theory subjects only):**

- 20 M

S. No	Year-Sem-Branch-Sec	Subject Name	No. of students	Percentage	Average %	Self-Assessment Marks
1						
2						
3						
4						

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5						>=90 & <100 = 20
6						>=80 & <90 = 15
7						>=70 & <80 = 10
8						>=60 & <70 = 05

**A2. Subjects Average Pass Percentage:**

- 20 M

S. No	Subject Name	Year-Sem-Branch-Sec	No. of students appeared (A)	Passed (B)	Pass Percentage (B/A*100)	Average %	Self-Assessment Marks
1						>=90 & <100 = 20 >= 80 & <90 = 15 >=70 & <80 = 10 >=60 & <70 = 05	
2							
3							
4							
5							
6							
7							
8							

**A3. Average Academic Classes (Theory only):**

- 10 M

S. No	Subject Name	Year-Sem-Branch-Sec	No. of periods as per lesson plan (A)	No. of periods conducted (B)	Percentage of classes taken in allotted subjects (B/A*100)	Average %	Self-Assessment Marks
1						>=100 = 10 >=90 & <100 = 7 >=80 & <90 = 3 <80 = 0	
2							
3							
4							
5							
6							
7							
8							

**PART - B****B1. Workshops, Teaching-Learning-Evaluation Technology Programs, Faculty Development Programs, STTP (Short term training programs) attended, Online Certificate courses:**

- 10 M

S. No	Program	Duration	Date & Place	Organized by	Achievement
1					
2					
3					
4					
5					

\*Two per year out of which one should be at a venue above 200 Kms from the University preferably NITs/Reputed Universities/IITs (MOOCs/SWAYAM/NPTEL in case of online certification)

**B2. Patents / Trademarks / Design etc., Applied / Published / Granted:**

- 10 M

S. No	Name of the patent (National / International)	Name of the Principal Investigator	My role in patent (2nd, 3rd, 4th etc.,)	Date of application / publication / granted	Published status with file No. (Applied / Published) OR If Commercialized fund generated (Rs/-)	Obtained Self-Assessment Marks (Maximum Marks 10)
1						

2						
3						
4						
For 1 <sup>st</sup> and 2 <sup>nd</sup> author role For Publication = 5 For grant & commercialization = 10				For other roles For Publication = 2 For grant & commercialization = 5		

**B3. Details of research project proposals sent / ongoing for grants / sanctions & grants obtained:**  
(Enclose Copy as proof) - 10 M

S. No	Title of the proposal with file No.	Funding agency	Name of the faculty applied as PI	My role PI / CO-PI	Applied / sanctioned amount	Applied Date	Present status	Obtained Self-Assessment Marks (Maximum Marks 10)
1								
2								
3								
4								
For sanction of grants for more than Rs.50 Lakhs = 10 For sanction of grants for between Rs. 30 Lakhs to Rs. 50 Lakhs = 8 For sanction of grants for between Rs. 20 Lakhs to Rs. 30 Lakhs = 5 For sanction of grants for less than Rs.30 Lakhs = 3 <b>(Only for research grants)</b>				For sanction of grants for more than Rs.50 Lakhs = 8 For sanction of grants for between Rs. 30 Lakhs to Rs. 50 Lakhs = 5 For sanction of grants for between Rs. 20 Lakhs to Rs. 30 Lakhs = 3 For sanction of grants for less than Rs.30 Lakhs = 2 <b>[Type of grants: MODROBS / Conference / Seminar / Infrastructure based]</b>				

**B4. Research Publications and Academic Contributions:** - 10 M

S. No	Type of Research Papers	No. of Papers	Maximum Self-Assessment Marks	Obtained Self-Assessment Marks (Maximum Marks 10)
1	1 Scopus/SCI indexed papers/Chapters/Book		10 M	
2	1 National/International Journals (Non-Paid)		07 M	
3	1 Reputed Conference Papers		05 M	
4	1 Journal/Conference Papers		05 M	
5	No Journal / Conference Papers		0 M	

**B4. a) Scopus/SCI indexed Journals Papers:**

S. No	Journal details and title with Page No's	ISSN/ SCOPUS No.	Whether peer reviewed impact Factor, if any	Specify Author 1 / Author 2 / Author 3
1				
2				
3				
4				

**B4. b) National /International Journals (Non-Paid) Papers:**

S. No	Journal details and title with Page No's	ISSN/ SCOPUS No.	Whether peer reviewed impact Factor, if any	Specify Author 1 / Author 2 / Author 3
1				
2				
3				
4				

**B4. c) Reputed Conference Papers:**

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S. No	Title with Page No's	International/National Conference	Details of Conference	Specify Author 1 / Author 2 / Author 3
1				
2				
3				

**B4. d) Journal / Conference Papers:**

S. No	Title with Page No's	International/National Journal/Conference	Details of Journal / Conference	Specify Author 1 / Author 2 / Author 3
1				
2				
3				

**B5. Proctoring Students Average Value additions:****- 10 M**

S. No	No. of students allotted for proctoring	Year-Sem-Branch-Sec	No. of students participated in Paper presentations/Posters presentations/Technical exhibitions etc. outside the campus (A)	No. of students won prizes (B)	Percentage (B/A) *100	Average %	Self-Assessment Marks
1							
2							
3							
4							For Merely Participation = 5 For winning prize = 5 Nil = 0

**\*06 different students in a semester to be participated****Staff Appraisal – Points Earned:**

<b>PART A</b>	Students feedback % (20M)	
	Subjects Average Pass % (20M)	
	Average Academic Class % (10M)	
	Sum of A	
<b>PART B</b>	Workshops / STTP / FDP / Online Course (10M)	
	Patents / Trademarks /Design etc., Applied / Published / Granted (10M)	
	Details of research project proposals sent/ongoing for grants / sanctions & grants obtained. (10M)	
	Research Publications and Academic Contributions (10M)	
	Proctoring Students Average Value additions % (10M)	
	Sum of B	
<b>TOTAL SUM (A +B)</b>	Total out of (100 M)	

**PART - C****C1. Ph.D. Guidance: (Ph. D holders only)**

S. No	Name of the Scholar	Area of Research	Ph.D. Registration No	Status
1				
2				
3				
4				
5				

**C2. Details of any consultancy work / extension activity undertaken: (Enclose copy as proof)**

S. No	Type of consultancy work (Academic/Industrial)	Name of the consultancy project	Date & Duration	Total cost of the project	Revenue generated (In INR)
1					
2					
3					

**C3. Linkages/MoUs with institutions/industries for internship on-the job training, project work, sharing of research facilities etc.:**

S. No	Name of the Organisation	Nature of linkages	No. of faculty /students benefited	Date	Duration
1					
2					
3					

**C4. Industrial Visits Arranged for the Students:**

S. No	Name of the Organisation visited	Students got exposed to which area of their study	No. of faculty /students benefited	Date of visit	Remarks
1					
2					
3					
4					

**C5. Additional responsibilities in the Department / University:**

S. No	Responsibility	Assigned by	Duration	Outcome
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Date:

Signature of Faculty

**Performance Based Appraisal – Points Earned**

PART A	Students feedback % (20M)	
	Subjects Average Pass % (20M)	
	Average Academic Class % (10M)	
	Sum of A	
PART B	Workshops/ STTP/ FDP/Online course (10M)	
	Patents / Trademarks / Design etc., Applied / Published / Granted (10M)	
	Details of research project proposals sent/ongoing for grants / sanctions & grants obtained. (10M)	
	Research Publications and Academic Contributions (10M)	
	Proctoring Students Average Value additions % (10M)	
	Sum of B	
<b>TOTAL SUM (A +B)</b>	<b>Total out of (100 M)</b>	

**Remarks of the HoD:****Signature****Remarks of the Dean / Principal:****Signature**

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## 9.14. Outreach Activities (05)

(Provide details of outreach activities such as community service, Unnat Bharat Abhiyan, social internship and society connect activities undertaken by the students and their achievements.)

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University) places a strong emphasis on community engagement and social responsibility through a wide range of outreach programs. These activities aim to foster holistic development among students while making a meaningful impact on society. The following outreach initiatives were undertaken:

### **Community Service Initiatives:**

Students actively participated in cleanliness drives, blood donation camps, tree plantation programs, and awareness campaigns related to health, hygiene, and education. These activities were conducted in collaboration with local NGOs and municipal bodies. Over 500 students participated, contributing more than 3,000 hours of service collectively.

### **Unnat Bharat Abhiyan (UBA):**

Under the UBA initiative, the institution adopted five villages in the surrounding region. Regular surveys and need assessments were conducted, leading to the implementation of solutions such as solar-powered street lighting, awareness sessions on digital literacy, and health check-up camps. The initiative fostered a strong connection between the students and rural communities, encouraging sustainable rural development.

### **Social Internships:**

GIET University's NSS students actively interact with the elderly at nearby assisted living facilities as part of their social internship. The goal of this program is to help kids develop empathy, compassion, and social responsibility. Students perform health and wellness awareness classes, plan cultural and recreational events, help with everyday chores, and spend quality time with the residents while they are there. In addition to giving seniors happiness and company, these exchanges give students important insights into the needs and lives of senior persons, which motivates them to make constructive contributions to the community.

### **Society Connect Programs:**

GIET University's National Service Scheme (NSS) division is essential in encouraging students' civic engagement and social responsibility. It actively engages in a range of extension and outreach initiatives all year long. Important programs include the Spandan Program, Special Camps, Winter Camps in the chosen

communities, Swachh Bharat Abhiyan, and Health Awareness Campaigns. These programs address significant societal concerns while attempting to inculcate in pupils a sense of civic responsibility, compassion, and leadership. The NSS unit assists students develop into responsible, compassionate citizens while also improving society through these initiatives.

### **Faculty Mentorship:**

Each outreach group was assigned faculty mentors to ensure structured planning, execution, and reflection on learning outcomes.

### **Society Connect Activities Undertaken by the Students:**

Number of extension and outreach programs conducted by the institution through organised forums like NSS/NCC with involvement of community year wise during the last four years are

<b>Sl. no.</b>	<b>Name of the activity</b>	<b>Organising unit/Forum/ collaborating agency</b>	<b>Date of the activity</b>	<b>Number of students participated in such activities</b>
1	Observation of National Girl Child Day in Regeda	NSS	24.01.2021	150
2	Organised a Marathon based on the observation Fit India Program	NSS	02.10.2021	150
3	Organised a camp on “Har Ghar Tiranga”	NSS	11.08.2021	150
4	Observation of Swami Vivekananda Jayanti	NSS	12.01.2021	80
5	Road Safety week	NSS	13.01.2021	50
6	Appreciation to COVID-19 Warriors	NSS	14.02.2021	10
7	Observation of International Yoga Day	NSS	21.06.2021	Planation of 50 Neem plants with 60 students
8	Observation of Fit India Movement	NSS	29.08.2021	Cyclothon with help of 30 students
9	Swachha Bharat Program	NSS	22.08.2021	100
10	Awareness program on World AIDS day	NSS	01.12.2021	100

11	Observation of World Environment Day	NSS	05.06.2022	60
12	Bahuda Car Festival	NSS	09.07.2022	90
13	Skill Development Programme: Sankalp India	NSS	03.08.2022	60
14	Organised a camp on “Har Ghar Tiranga”	NSS	13.08.2022	150
15	Children's Day celebration	NSS	14.11.2022	50
16	Community Reach Programme at Ghannantari Village Regarding New Farming Technology	School of Agriculture with Shubham Bio CNG	17.11.2022	30
17	Sri Gundicha Car Festival	NSS	22.07.2022	90
18	Road Safety Week	NSS	15.01.2022	65
19	Organization of Blood Donation Camp	NSS	23.01.2022	121 Blood Unit
20	Awareness Program on World Cancer Day	NSS	04.02.2022	30
21	Shiva Ratri Camp at Shiv Temple in Sefali Hill	NSS	01.03.2022	100
22	Swabhalamban Programme: Regular Driving Training Programme	GIET University	15.03.2022	10
23	Sri Gundicha Car Festival	NSS	01.07.2022	90
24	Bahuda Car Festival	NSS	29.07.2022	95
25	Observation of National Girl Child Day	NSS	24.01.2022	100
26	Tree Plantation Programme	NSS/NCC	07.07.2022	95
27	Observation of Van Mahostav week	NSS	05.07.2022	90
28	Spandan Program on National Daughter's Day	NSS	22.09.2023	42
29	Spandan Program on Gandhi Jayanti	NSS	02.10.2022	45
30	Observation of World Mental Health Day	NSS	13.10.2022	20
31	Special Camp: Free Medical Checkup	NSS	10.12.2022	40
32	Village Survey Camp for awareness of Hygiene and Cleanliness in village Regeda	NSS	05.11.2023	36
33	Swachha Bharat Abhiyan on birth day of Rani Laxmi Bai	NSS	19.11.2023	40
34	Blood Donation Camp	NSS	22.03.2023	20
35	Swabhalamban Programme: Regular Driving Training Programme	GIET University	15.03.2023	15 untrained people
36	Winter Special Camp	NSS	06.01.2023	50

37	Special Camp	NSS	10.01.2023	55
38	Girl Children Awareness Programme	NSS	15.01.2023	46
39	Road Safety week	NSS	16.01.2023	55
40	Blood Donation Program On Netaji Subhas Chandra Jayanti	NSS	23.01.2023	45
41	Beti Bachao Beti Padao: Observation of National Girl Child Day	NSS	24.01.2023	50
42	Celebration of Matrys Day	NSS	30.01.2023	60
43	Awareness Program on world Cancer Day	School of Nursing	04.02.2023	50
44	Shiva Ratri Camp at Shiv Temple at Sefali Hill	NSS	18.02.2023	100
45	Workshop on Self Defence on occasion of International Women's Day	NSS	08.03.2023	40
46	Family Survey on Poshan Abhiyan on Rastriya Poshan Maah	NSS	14.03.2023	78
47	Spandan Program	NSS	30.03.2023	70
48	Awareness Program on World Water Day	NSS	22.03.2023	49
49	Awareness Programme on TB Day	NSS	24.03.2023	35
50	Distribution of Butter Milk on Rama Navami	NSS	30.03.2023	80
51	Observation of World Environment Day	NSS	05.06.2023	100
52	Van Mohachav Program in the vacant area of the main road	NSS	07.07.2023	100
53	International Youth Day	NCC	12.08.2023	60
54	Nutrition Awareness Program on Malnutrition Day	NSS	18.09.2023	38
55	Blood Donation Camp On World Heart Day	NSS	29.09.2023	50
56	Plantation Program on Gandhi Jayanti	NSS	02.10.2023	70
57	Observation of Constitution Day	NSS	26.11.2023	30
58	Lunger on the eve of GIET Foundation Day	NSS	27.12.2023	150
59	Monitoring and Evaluating Cauliflower harvest using INM in Progressive Farmer of Bijaypur Village	School of Agriculture with ACIC	27.12.2023	46
60	Children's Day Celebration at Orphanage	NSS	14.11.2023	80
61	Awareness on safety and the laws against sexual harassment of girls program organized	NSS	15.01.2023	60

62	Swachha Bharat Abhiyan	NSS	26.10.2023	58
63	Training of Mushroom Production at Bijipur village Mohana Gajapati District	NSS	16.11.2023	42 Farmers
64	Swachha Bharat Abhiyan on birth day of Rani Laxmi Bai	NSS	19.11.2023	45
65	Observation of “Anti Tobacco Day”	NSS	31.05.2023	70
66	Organized a Swachha Bharat Program	NSS	26.11.2023	60
67	Diagnostic field visit to a Progressive Farmer	NSS	19.09.2023	65
68	Skill Development of farm Women on Mushroom production	NSS	24.11.2023	25 Farm women with 30 students
69	NSS camp at Rath Yatra for distribution of Curd Water	NSS	20.06.2023	48
70	Organization of blood donation camp	NSS	23.01.2023	40
71	Independence Day Celebration	NCC	15.08.2023	45
72	Plantation programme on the occasion of National Unity Day	NSS	31.10.2023	
73	Observation of World AIDS Day	School of Nursing	01.12.2023	50
74	Mega Blood donation camp	NSS	23.01.2024	150
75	Swabhalamban Programme: Regular Driving Training Programme	GIET University	14.02.2024	10
76	Butter milk distribution in Pakhala Diwas	NSS	20.03.2024	69
77	Swachha Bharat Program at Badaguda	NSS	23.03.2024	10
78	NSS Spl Camp	NSS	24.03.2024	60
79	Awareness programme on World Tuberculosis Day	NSS	29.03.2024	55
80	Monitoring Harvest of Tomato of progressive farmer	ACIC & School of Agriculture	25.01.2024	1 progressive farmer with 6 students
81	Republic Day Camp	NCC	26.01.2024	3
82	Household Survey in Badaguda Adopted village	NSS	25.03.2024	50
83	Shiva Ratri Camp at Shiv Temple in Sefali Hill	NSS	08.03.2024	100
84	Mushroom Training programme to female farmers	NSS	11.03.2024	20 farmers and 15 students
85	Monitoring Harvest of Tomato at Bijayapur Village	School of Agriculture	12.04.2024	4 farmers and 4 students
86	Diagnostic Field visit in Pandrajholi village	School of Agriculture	27.02.2024	3 farmers with 15 students

87	Free Medical Camp at Badaguda	NSS	27.03.2024	50
88	Road Safety week	NSS	14.01.2024	60
89	Encouraging Farm Women for Mushroom cultivation	School of Agriculture	17.01.2024	20 Farm Women with 20 students
90	Blood Donation Program On World Blood Donor Day	NSS	14.06.2024	60
91	Spandan Programme on Guru Purnima	NSS	21.07.2024	50
92	Observation of “Bond of Protection” on the occasion of Rakshya Bandhan at Orphanage	NSS	19.08.2024	55
93	Organisation of an awareness program for village people to save themselves and others from sudden fire caught	NSS	28.03.2024	70
94	Agricultural camp to educate students and local farmers on sustainable farming practices, soil health and modern agricultural techniques	NSS	29.03.2024	50
95	NSS camp at Rath Yatra for distribution of Curd Water	NSS	07.07.2024	150
96	Blood Donation Camp on Utkal Diwas	NSS	01.04.2024	44
97	Rally on World Health Day	NSS	07.04.2024	55
98	Mini Blood Donation Camp	NSS	12.04.2024	54
99	Encouraged a progressive farmer K. Shiv Kumar for scaling up his Horti-based Farm	School of Agriculture	12.04.2024	1 Farmer with 10 students
100	Butter milk distribution on Pana sankranti	NSS	13.04.2024	48
101	Night Meeting conducted in Village Karama for forming Krushak Sangha	School of Agriculture	15.04.2024	16 farmers with 10 students
102	Swachha Bharat Abhiyan	NSS	03.05.2024	45
103	Providing awareness regarding Vermicompost and Vermiwash.	School of Agriculture	15.05.2024	8 farmers with 30 students
104	Survey Programme conducted on household consumer expenditure	NSS	15.05.2024	50 volunteers
105	NSS camp at Bahuda Yatra for distribution of Curd Water	NSS	15.07.2024	150
106	Mega Blood Donation camp coordination with National Thalasemia Forum, Odisha and Civil Supply Department, Gunupur	NSS	04.08.2024	80
107	Blood Donation Camp	NSS	08.08.2024	52
108	Spandan Program	NSS	30.03.2024	50

109	Conduct of Awareness program to avoid Sunstroke at Regeda village	NSS	24.03.2024	70
110	Blood Donation on Blood Cancer Day	NSS	28.05.2024	48
111	Van Mahotsav Programme	NSS	04.07.2024	55
112	Spandan Programme on Guru Purnima	NSS	21.07.2024	50
113	Kargil Diwas Celebration	NCC	25.07.2024	30
114	Khelo India Campaign	NSS, NCC	01.08.2024	80
115	Rally on Anti-ragging Day	NSS, NCC	12.08.2024	50 NSS and 25 NCC
116	Kousal Bharat Abhiyan	NSS	17.08.2024	35 NSS Volunteers
117	Bond of protection on the occasion of Rakshya Bandhan	NSS	19.08.2024	59 NSS volunteers
118	Sticky trap demonstration	School of Agriculture	29.08.2024	20 students and 10 farmers
119	Farmer Interaction to mitigate agricultural problems	School of Agriculture	29.08.2024	20 students and 8 farmers
120	Farmer Interaction to mitigate agricultural problems	School of Agriculture	04.09.2024	20 students and 9 farmers
121	Mega Blood Donation Camp	NSS	24.09.2024	50 NSS volunteers and 602 unit of blood collected
122	Organised Plantation program on the theme of "Ek Ped Maa Ki Naam"	NSS	17.09.2024	40 NSS volunteers
123	Organised Mega Tree Plantation Program (200 saplings are planted)	NSS	18.09.2024	100 NSS Volunteers
124	Observation of Gandhi Jayanti and Conducted one Swachh Bharat Program in the Campus	NSS	02.10.2024	25 NSS volunteers
125	Swachh Bharat Program at Jagannath Temple, Gunupur	NSS	27.10.2024	50 NSS Volunteers
126	Observation of Patha Utsav at Sub-Collector Office	NSS	29.10.2024	50 NSS Volunteers

These outreach activities have not only enhanced students' understanding of social challenges but also instilled values of empathy, leadership, and civic responsibility.



2023- NSS Unit of GIET University, Gunupur has received appreciation from Blood Bank, Rayagada, Berhampur, Parlakhemundi and Srikakulam for major contribution



NSS Unit of GIET University, Gunupur has got District Green Champion award for the year 2023



Inauguration of Winter Camp (Female Volunteers)



Inauguration of Winter Camp (Male Volunteers)





**Van Mohachav Program in the vacant area of the main road, Gunupur on 07.07.2023**

**Annexure I: Knowledge and Attitude Profile (WK)**

WK1: A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.

WK2: Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.

WK3: A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, reuse of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.

WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.

WK8: Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.

WK9: Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

**Annexure-II: Program Outcomes (POs)**

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

**PART C: Declaration by the Institution****Declaration**

The head of the institution needs to make a declaration as per the format given below:

I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications, and NBA expert visit guidelines in force as on date and the institute shall fully abide by them.

It is submitted that the information provided in this Self-Assessment Report is factually correct. I understand and agree that appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during the pre-visit, visit, post-visit, and subsequent to the grant of accreditation.



Dr. N. V. Jagannadha Rao

Registrar, GIET University



Signature & Name

Date: 19-Apr-2025

Head of the Institution with seal

Place: Gunupur

