

PROFORMA OF ASSESSMENT

1. Name of the Department: Chemical Engineering

2. Reviewers (Name, Designation & Address) :

Prof. H.R Ghatak, HOD (Chemical Engineering), SLIET
Prof. S.M Ahuja, Faculty (Chemical Engineering), SLIET
Prof. Avinash Thakur, Associate Dean (AP), SLIET
Prof. R.K Yadav, Faculty (Mechanical department), SLIET
Prof. Sanjeev Bansal, Faculty (M&H), SLIET
Prof. Ajay Bansal, External Expert, Dept. of Chemical Engineering, NIT Jalandhar.

3. Date of Review: 12/11/2024

NOTE:

- i. Please grade in the box provided for the following parameters in the range of 1-10, with ten being the highest.
- ii. Leave 'blank' for 'No Comment'.
- iii. Kindly give your opinion on the strength and weaknesses of the Department and your suggestions for future growth.


A. ACADEMICS

A.1	ICD Programme	Score	
		Self-assessment	Expert assessment
1	Curriculum (Structure, Course Syllabi, Flexibility), Theory/ practical (contents/ratio).	8	8
2	Equivalence and Relevance of curriculum at the national level	10	10
3	Formal Academic Load on Students [Teaching, Laboratory/Practical, Projects(minor/major)]	10	10
4	Evaluation Process (Continuing Evaluation and End-Term Evaluation)	10	10
5	Tour/Training/Industrial visits/Internship opportunities provided during the year	7	7
6	Effectiveness of Assisted Learning, Tutorial System for ICD Students/ Seminars (Refer Course File)	8	8
7	Faculty Mentoring/Faculty Advisor System for Students/Class of Students	10	8
8	Practical activities, non-academic and related to a specific trade for skill development and <i>developing expertise in a particular group of techniques.</i>	10	10

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9	Linkage of ICD programs to outcome-based vocational education (Industry linkage)	6	6
10	Availability of workshop-type lab/laboratory for providing hands-on training to the students for skill development	10	10
Total Score (out of 100)		89	87

A.2	UG Programme	Score	
		Self-assessment	Expert assessment
1.	Curriculum (Structure, Course syllabi, Flexibility, Choice based credit system)	10	10
2.	Status of study material developed by faculty for students	10	10
3.	Relevance of contents of courses taught to the students and scope of improvement (revision of syllabus, the addition of new experiments)	6	6
4.	Formal academic load on students [Teaching, Laboratory/Practical, Projects(minor/major)]	10	10
5.	Modern teaching methods in practice other than the conventional methods E-Assisted Learning (i) Availability of Library Resources (ii) Multi-Media Assisted Teaching	8	8
6.	Evaluation Process (Continuing Evaluation and End-Term Evaluation) (i) Theory and tutorial (ii) Practical (case studies)	10	10
7.	Faculty-Student Interaction (Whether any slot is fixed for the students to interact with a teacher after classes/labs)	10	10
8.	Tour/Training/Industrial visits/Internship opportunities	8	8
9.	(a) Effectiveness of Assisted Learning in Tutorial classes/seminars for Students	6	6
	(b) Faculty Mentoring/Faculty Advisor System for Students/Class of Students	2	2
10.	Placement %age/higher studies options (last three years)	8	8
Total Score (out of 100)		88	88



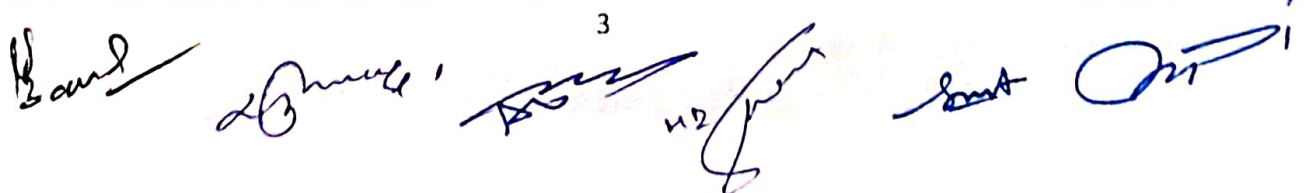
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A.3	PG Programme (Separate for each programme)	Score	
		Self-assessment	Expert assessment
1.	Curriculum (Structure, Course Syllabi, Flexibility)		NA*
2.	Formal Academic Load on Students [Teaching, Laboratory/Practical, Projects(minor/major)]		
3.	Evaluation Process (Continuing Evaluation and End-Term Evaluation)		
4.	Relevance of contents of courses taught to the students and scope of improvement		
5.	Modern teaching methods in practice other than the conventional method E-Assisted Learning i. Availability of Library Resources and Major Search Engines (like Scopus, Web of Science) ii. Multimedia Assisted Teaching		
6.	Technical Societies/ Colloquium for Students i. Departmental Society ii. Student Chapter(s) of Professional Societies		
7.	Tour/Training/Industrial visits/Internship opportunities		
8.	Collaboration with other departments (within the institute)		
9.	Faculty Mentoring/Faculty Advisor System for Students/Class of Students		
10.	Monitoring and continuous evaluation of the project work assigned to the students (a mechanism)		
Total Score (out of 100)		NA	

*The committee could not evaluate this component as there was no enrolled student during the academic Year (2023-24).

A.4	Doctoral (PhD.) Programmes	Score	
		Self-assessment	Expert assessment
1.	Intake of PhD. Students	4	4
2.	Admission Process	10	10
3.	Pre-Ph.D. Courses and Evaluation Process	10	10
4.	Breadth and Depth of Knowledge of Students	4	4
5.	Seminar/ Presentations and Technical Communication	10	10
6.	Research Facilities available in the Department	6	6
7.	Average No. of Research Students/Faculty	2	2
8.	Average No. of Research Papers of Ph. D. Students (Indexed Journals)	1	1

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9.	Average Duration to Complete PhD (years)	NA	NA
10.	Participation of Research Scholars in Conferences/Workshops	2	2
	Total Score (out of 90*)	49	49

*Committee could not evaluate for point no. 9 as no student completed Ph.D. during the academic year (2023-24)

B RESEARCH		Score	
B.1	Research and Industrial collaboration	Self-assessment	Expert assessment
1.	Research Ambience in the Department	7	7
2.	Research Awareness among Doctoral Students	2	2
3.	Thrust areas of research in the department	10	10
4.	Quality of Research	7	7
5.	Collaborations with other departments (within the institute) and national and international levels.	10	10
6.	Impact and Quality of Publications	10	10
7.	Relevance of Research to Knowledge Generation and Social Relevance	8	8
8.	Student Exposure to Attending Quality Conferences/Symposia	10	0
9.	Inter-departmental collaborations	10	10
10.	Industry/externally funded sponsored research (Numbers and amount)	6	6
	Total Score (out of 100)	80	70

General Comments on,

1. Plan of action of the department for the next five years (given NEP 2020)

a) Action Plan (Academic Standard)

- Starting new UG & PG Programs in thrust areas in line with NEP 2020.
- Encourage for completion of online credit course through SWAYAM platform upto 40 % of the total courses being offered in a particular program in a particular semester.
- Industry institute linkage
- Industry and government sponsored projects.
- Content delivery in Hindi/ Bilingual.
- Centre for Green technology for Interdisciplinary teaching and research.

b) Action Plan (Student Mentoring)

- Help the students to lower stress and build confidence through effective counselling.

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- Small group of students are allotted to each faculty for counselling under the Tutor-guardian system of the institute. Students can approach them for any sort of problems (personal or professional).
- Impart career guidance through an interpersonal engagement by sharing experience and expertise.
- Constructive interaction with a mentor and participation in collective activities.

c) Short term goals

- To enhance student intake in the PG program of the department.
- To submit more research project proposals for funding.
- To organise expert talks from eminent personalities.
- To organise talks from alumni established in Chemical Engineering fields.

d) Long term goals

- To accomplish consultancy services through industries/research organizations.
- To procure specialized/high-end equipment for Chemical Engineering Labs
- To upgrade laboratories and teaching- learning infrastructure.

2. **Significant achievements of the department (faculty/Staff/Students):**

- 57 Percent of Final year UG students were successfully placed which is **Highest in the Institute.**
- Prof. H.R Ghatak has been listed among the top 2% of the scientist list by Stanford University.
- Mayank Kumar (GCT- 2030002) got 84th All India Rank in GATE-2024 and got placed in IOCL.
- The department has been awarded NBA accreditation for three years. **(2024-2027)**
- The department has contributed to the accreditation of the institute by NAAC for five years (2023 – 2028) with a grade A.

3. **The placement record of the department (Last three years)**

2021-22 (UG):

No. of placement (in-campus)	24
No. of placement (Higher Studies)	2
No. of placement (Total inclusive of Campus, higher studies & other)	36

2022-23 (UG):

No. of placement (in-campus)	33
No. of placement (Higher Studies)	03
No. of placement (Total inclusive of Campus, higher studies & other)	47

2023-24 (UG):

No. of placement (in-campus)	29
No. of placement (Higher Studies)	02

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No. of placement (Total inclusive of Campus, higher studies & other)	36
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4. Scope for training faculty/staff to further strengthen the teaching-learning process for strengthening the curriculum with the addition of new courses relevant at the National and International levels:

All faculty and staff members are encouraged to attend the training program regularly. In addition, many faculty members have recently enrolled in AICTE-approved comprehensive teacher training programs.

5. Effective/Continuous monitoring of faculty/staff in delivering the course contents (at departmental level) to enhance the teaching-learning process:

(i) To implement it in the Chemical engineering department, faculty members regularly invite suggestions regarding revisions in the syllabus, CO-PO mapping, attainment, etc. Also, changes suggested by the students, if any, are also taken into consideration. Based on the suggestions received, matters are discussed in the DAAC meeting, and minutes are recorded and forwarded for further review by the Board of Studies.

(ii) At the end of the semester, feedback is taken from the students for continuous up gradation of the teaching-learning process.

6. Technical Societies/ Colloquium for Students

(i) Association of Chemical Technocrats

(ii) Indian Institute of Chemical Engineers- Students' Chapter

(iii) Longowal SLIET Students' Chapter (Chemical), Institution of Engineers (India)

7. Scope of improvement in the presenting teaching-learning process

The rapid changes and increased complexity of today's world present new challenges and put new demands on our education system. There has generally been a growing awareness of the necessity to change and improve the preparation of students for productive functioning in the continually changing and highly demanding environment. In confronting this challenge, it is necessary to consider the complexity of the education system itself and the multitude of problems that need to be addressed.

- Adapting teaching to different student characteristics by using the diverse methods of teaching. Adaptation to the ability levels, patterns of different abilities, learning styles, personality characteristics and cultural backgrounds.
- Integrating the curriculum by developing interdisciplinary curriculum units that enable students to acquire knowledge from different disciplines through a unifying theme while having the opportunity to contribute in different and special ways to the objectives of the integrated units

8. The skill and expertise of the faculty/Technical staff in the department (specific)

To better align with today's research scenario, different specific research groups in the department are focusing on the department's research output.

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Research Group(s)/Interdisciplinary groups(s)	
Research Groups (Broad Area of Research)	Name of Faculty/RS Involved
Environment Engineering and Energy Conversion	Dr Pushpa Jha, Professor, CHE Dr H.R.Ghatak, Professor, CHE Dr S M Ahuja, Professor, CHE Dr Avinash Thakur, Professor, CHE Dr Gulshan Kumar Jawa, Associate Professor, CHE Dr Bhajan Dass, Guest Faculty, CHE Dr Vinod Meena, Assistant Professor CHE Mr Akash Sood, Research Scholar, CHE Ms Purtika, Research Scholar, CHE Mr Gaurav Singh, Research Scholar, CHE Mr Pratyush Upadyay, Research Scholar, CHE Mr Abhay Kumar, Research Scholar, CHE
Polymer Engineering and Technology Biopolymers, Drug delivery	Dr Kamlesh Kumari, Professor, CHE Dr Dheeraj Sud, Prof. Chemistry Dr H.K. Chopra, Prof. Chemistry, Dr. P P Kundu, Prof. IIT Roorkee, Dr. Nikhil Prakash Saxena, Assistant Professor, CHE Dr Amit Rai, Assistant professor, CHE Dr Pawan Kumar, Sr. Tech.,CHE Dr Navneet Kaur, Chandigarh University Dr. Subita Bhagat, AP, CHE
Process Modelling and Simulation,	Dr Avinash Thakur, Prof. CHE Dr Nikhil Prakash Saxena, Asso. Professor, CHE Dr Amit Rai, Assistant Professor, CHE Dr Subita Bhagat, Assistant professor, CHE
Bio-refinery, paper making and Electrochemical treatment of waste water and bio-refinery	Dr Pushpa Jha, Professor, CHE Dr H. R. Ghatak, Professor, CHE Dr A.S.K. Sinha, Asso. Professor, CHE Dr Kamlesh Prashad, Professor. FET Dr Vinod Meena, Assistant Professor, CHE Mr Gaurav Singh, Research Scholar, CHE Mr Pratyush Upadyay, Research Scholar, CHE
Biochemical Engineering	Dr Avinsah Thakur, Professor, CHE Dr P. S. Panesar, Prof., FET Dr Anil Kumar, Guest Faculty, CHE

1. **Strengthening laboratory infrastructure (adding new pieces of equipment and using the present facility for optimum use):**

- Refrigerated Centrifuge (Innovative Engineers Ambala cantt.) of Rs. 1,87,989/-
- Ultrasonic Probe Sonicator (Ultra Autosonic, India) of Rs. 1,26,000/-
- COD analyser & Digesting Unit (Perfect Enterprises) of Rs. 3,85,000/-
- Handheld TDS meter (NK Enterprises Chandigarh) of Rs. 2400/

10. Any other point: N/A

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C. Departmental Infrastructure

C.1	Departmental resources	Score	
		Self-assessment	Expert assessment
1	Adequacy of Classrooms and Multi-Media Facility	8	8
2	Availability of Laboratories	6	6
3	Availability of Conference/Seminar Room, etc	6	6
4	Availability of Seating Space for Faculty and Research Students	6	6
5	Availability of Internet Services in Research Labs and Classrooms	8	8
6	Departmental Library and E-Resources	6	6
7	Computing Facilities and Software	6	6
8	Adequacy of Offices and Furnishing for Faculty	5	5
9	Faculty- Student Ratio	6	6
10	Support Staff (Technical/Administrative) Adequacy	6	6
Total Score (out of 100)		63	63

SWOT analysis by the department:

Strengths:

1. There is a significant contribution of the faculty of the Dept. of Chemical Engineering at the Institute level in various capacities.
2. The Dept. of Chemical Engineering has experienced, dedicated, and highly qualified faculty in specialized areas.
3. All the programmes have a contemporary curriculum as per guidelines by AICTE etc.
4. There is optimum utilization of existing laboratories and facilities.
5. The department has good interactions with the outer world.
6. There is a nominal fee structure for all programmes of the department.

Weaknesses:

1. Limited interaction with Industry for accessing Industrial needs and carrying out industry-specific research and consultancy projects.
2. Lack of running informal courses.
3. The master's program is not running for the last couple of years, resulting in a significantly lower number of research scholars.
4. Inadequate civil infrastructure.

Opportunities:

1. To start new interdisciplinary courses in line with NEP-2020.
2. To modernise and upgrade laboratory and other infrastructure facilities for regular academic and research activities.
3. Establishment of Centre for Green Technology.
4. To enhance interaction with industry and academia.

Challenges:

1. Locational disadvantage.
2. Lack of enrolment in PG programs.

Suggestions for improvement:

1. Regular faculty and staff against vacant positions must be appointed.
2. Start new courses: a) Integrated Bachelor's and Master's programme, b) Interdisciplinary

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Bachelor's and Master's programme
 3 New (/Extension) Building (Labs/ seminar halls/ classrooms/ innovation centre, workshop, a technology incubator, pilot plant, faculty rooms, girls' Common room, more extensive departmental library with digital facilities etc.) for realising the current and future vision of the department in line with NEP-2020.

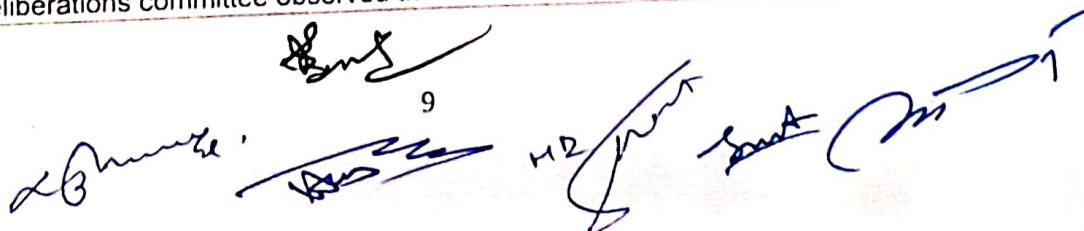
D. Outcomes

D.1	Placement/ higher studies/ Publications/ Consultancy, PhD awarded etc.	Score	
		Self-assessment	Expert assessment
1	i. Placements for ICD ii. Placement of B.Tech iii. Placement of master's Student iv. Placement of Ph.D. Students	5	5
2	Average No. of Ph.Ds Awarded per Year	0	0
3	Publications per Faculty in Indexed Journals/Year (Average of last three years)	8	8
4	Average Citations per Faculty/Year (Last-Three Years) (Web of Science/Scopus)	10	10
5	Recognitions; Awards (National/International) to Faculty/Students	2	2
6	Consultancy and Externally Funded Projects	6	6
7	No. of PhD graduates who took Academics as a Career (Last 5 Years)	4	4
8	Students offered higher studies	2	2
9	No. of qualified students NET/GATE/CAT etc (State/Central Civil Services)	4	4
10	Entrepreneurship	0	0
	Total Score (out of 100)	41	41

Comments & Suggestions for Improvement

1. Faculty members should put effort into consultancy.
2. Faculty members should submit research projects at least one per year/faculty member
3. Industry institute linkage to be strengthened.
4. More Industrial tours for students be organized
5. Practical related to case studies to be incorporated.
6. Efforts should be made towards running the PG program.
7. Students should be guided to clearing GATE, Opting for higher studies & entrepreneurship etc.
8. PhD students in the final year must be encouraged to write project proposals based on their research work and the future path of the research work and the advisor may submit such proposals to funding agencies.
9. Faculty must attempt to write more review articles on latest global thrust topics which will improve the citation index per faculty quickly.
10. During its deliberations committee observed the need for revision of rubrics.

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SANT LONGOWAL INSTITUTE OF ENGINEERING & TECHNOLOGY

(Deemed-To-Be-University)

LONOGOWAL-148106

ACADEMIC AUDIT (2023-2024)

SUMMARY SHEET

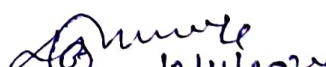
1.	Name of the Department	Chemical Engineering
2.	Committee Members	<ol style="list-style-type: none"> 1. Prof. H.R Ghatak, HOD (Chemical Engineering), SLIET 2. Prof. Avinash Thakur, Associate Dean (AP) 3. Prof. S.M Ahuja, Faculty (Chemical Engineering), SLIET 4. Prof. R.K Yadav, Faculty (Mechanical department), SLIET 5. Prof. Sanjeev Bansal, Faculty (M&H), SLIET 6. Prof. Ajay Bansal, External Expert, Dept. of Chemical Engineering, NIT Jalandhar..
3.	Date of Meeting	11/03/2024

Score Summary							
Academics (A)				Research (Max Score 100)	Departmental Infrastructure (Max Score 100)	Outcome (Max Score 100)	Total Score (590)
ICD Programme (Max Score 100)	UG Programme (Max Score 100)	PG Programme (Max Score 100) (Average of all PG programs)	Doctoral Programme (Max Score 90)				
(A.1)	(A.2)	(A.3)	(A.4)	(B)	(C)	(D)	(A+B+C+D)
87	88	NA	49	70	63	41	398

Note: 1. Marks mentioned above are the average of the marks given by the experts.
2. If marks have not been allotted for some attributes by the experts, the total score can be scaled to maximum marks.

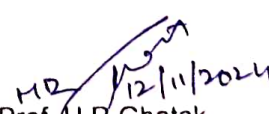

12/11/2024
Prof. S.M Ahuja


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(HOD,ChE)