

## External Experts Feedback

The Experts are requested to provide their assessment on the following dimensions:

1. Vision of the department and suggestions for future growth, both short and long term.
2. Quality (depth, breadth, relevance, adequacy, methodology, logical progression, link to industry/research, novelty) of academic programme and teaching.
3. Level of Research: Breadth, width, impact, relevance, uniqueness, leadership, national/international stature/reputation.
4. Facilities: Infrastructure, machines, teaching labs, research labs, staff quality log book, student/scholar participation, modernity and status compared to best international facilities.
5. Output: quality/quantity of publications, patents, UG/PG/PhD thesis, books, reports.
6. General reputation (of department) teaching, faculty, students, alumni, contribution to industry, nation projects.
7. Level of collaboration: national and international.
8. Strengths and Weaknesses – faculty, students, labs, infrastructure.
9. Suggestions for future growth of the department: short-term/long-term.

The feedback will be in **two parts**:

The **1<sup>st</sup> Part** will be in the form of score sheet on several parameters and feedback sheets on individual, while in the **2<sup>nd</sup> Part**, the experts will provide a detailed qualitative report on the above dimensions including suggestions for improvements.

## External Expert's Report (1<sup>st</sup> Part)

Name of the Department	PETROLEUM ENGG.
Name and address of the institution	IIT (ISM) DHANBAD
Dates of the visit	1-2 NOV., 2022
Name, designation, and affiliation of programme Expert	Prof. Anindya Sarkar, Dept. of Geology & Geophysics/centre of Pet. Engg. IIT, Kharagpur - 721302, W.B.


### Score Sheet

- On each of the following parameters, a grading as per the given scale (1 = Poor, 2 = Average, 3 = Good, 4 = Very Good, 5 = Excellent).
- The Expert may choose any score in between 1 – 5.
- Attribute are indication for the areas of evaluation or assessment.
- Feedback (in terms of score) from the Experts will be shared with the Department without disclosing the identity of the Expert Member.

No.	Parameter	Attributers	Score Scale
1	Teaching programme	Regularity, methods, lecture plan, Syllabus, Teaching aids and Supplements, Reference materials, Pace of teaching, Mentoring/ Authoring, Numerical/ Analytical problems, Research (thesis/non-thesis) component, Scope for academic rehabilitation for weaker students, Pace of learning.	4.5
2	Academic curriculum	Breadth, Depth, Relevance to research/industry, contemporary/modern, logical progression, Number and variety of electives, innovative components, New/pioneering courses/ Flexibility in terms of minor/double major/dual degree.	4.5
3	Laboratory/experiments, Assignment and exercise	Design and quality of experiments, Relevance, Theory and introduction lectures, Level of student participation (hands-on training) Grading, Standard of machines/equipment, Model experiments, Report writing/submission mechanism, Evaluation process, Attendance level	5

4	Learning methodology aids	Books, Reference, Library, Slides, Tutor, Question Paper, Tutorials, Type of assignments, Computer/net/video library/web-based aids, Archives for reference, Aid for slow paced learning, Scope for improving communication skills.	4
5	Grading/ evaluation system	Realistic or irrational, Paper checking/sharing, Awareness Grading process and transparency, Record keeping, Uniformity (year to year; teacher to teacher), Assignment quality and frequency, Tutor support, Student feedback system, Stress on attendance	5
6	Faculty quality	Academic credentials, Teaching experience, Research output, Age/competence profile, Articulation, Thesis and project supervision records, Peer recognition and awards, National/International stature, Vision and Philosophy, Office and laboratory space management, Reputation among students/scholars/colleagues	4
7	Research contribution	Quality, Quantity, Impact, Perception, Patent, Novelty, Standard of facility, Research plan/vision, Translational research, Creation of faculty company (start-up), industrial collaboration.	4
8	Sponsored Research	Quantum, Source and type of funding, Level of support provided to students and infrastructures, Uniqueness of facility created, Regularity and continuity, Creation of national facility	4.5
9	Industrial consultancy project/ EDP courses/ Outreach programmes	Quantum, source and type of funding, level of support provided to students and infrastructures, uniqueness of facility created.	4
10	Collaboration Within or Outside IIT(ISM) Dhanbad	Number, type and quality of collaboration with academia/R&D/ Industry at national or international level, Project funding (joint), Organization of meeting/conference, Joint supervision of students/ projects/ thesis, Special (executive) courses for industry Level and Impact of output from collaboration.	3.5
11	International Component and connection	Number/type/frequency of international students, scholars, Visitors and projects, Collaboration, Exchange program, international events organized, MoU/MoA, Foreign visits of IIT(ISM) students/scholars, faculty members, International Mobility/Projects/Fellowships.	3.5
12	Ambience/ Atmosphere in the department	Levels and effectiveness or collective initiatives, Publicity and information materials, Teacher-student relationship, Scholar-Supervisor relationship, Overall ambience of the department.	4
13	Infrastructure (General)	Classroom, Seminar halls, Laboratories, Workshops, Faculty offices, Research Scholar offices/space, Laboratory Safety	4.5

14	Student quality (UG/PG)	Academic background and progress, Level of motivation and interest in core subjects, Depth of understanding, Interests and hobbies, Discipline, Future ambition, Communication and comprehension skills, Degree of satisfaction about academic and extra-academic standards.	4
15	Student quality (PhD Scholar)	Level of understanding in core area, Exposure in core specialization, Quality and quantity of research output, Average time for PhD, Motivation and interest, Discipline, Articulation (Communication skill), Ambition, Awareness, National/International exposure, Leadership quality.	4
16	Employability of students and scholars	Companies, Statistics, Student or employer feedback, Salary/perks level, Pattern of employment or placement, Job distribution among UG/PG/PhD students, Relation between elective/training and employment, Relation between academic performance and employment.	UG   5 PG/PhD   3.5
17	Number, location, sector and professional success profile of alumni, Contribution	Number, location, sector and professional success profile of alumni, Contribution of alumni to his/her profession and society, Alumni-IIT(ISM) link/bond, Participation in or contribution to alma mater, Alumni feedback, Famous alumni and their profile.	3.5
18	Scientific or Engineering contribution to National/Society	Quality of academic (non-degree) programs, Short courses, Training, Refresher courses, Societal projects, Large/mega project (product/process), Contribution to strategic sectors (Nuclear/Defence/Space/Energy), Partnership with industry (private/public sector), Quality and reputation of alumni, Academic contributions and impact (publications, book, patents, products).	4
19	Overall Reputation and Standing (national)	General impression about this Department in the country (teaching, research, faculty, staff, students, alumni, research/academic output, peer recognition, technical expertise, infrastructure, Atmosphere and Vision	4.5
20	Overall Reputation and Standing (International)	General impression about this Department: Teaching, Research, Faculty, Staff, Students, Alumni, Research/Academic output, Peer recognition, Technical expertise Infrastructure, Atmosphere and Vision.	3.8
<b>Overall feedback and suggestions</b>		The dept. is doing excellent at undergraduate level. However, at masters and research level and international visibility need lot of improvement.	

  
 Name and Signature of the Expert  
 (ANINDYA SARKAR)

## External Expert's Report (2<sup>nd</sup> Part)

Name of the Department	PETROLEUM ENGG.
Name and address of the institution	IIT (ISM) DHANBAD
Dates of the visit	1-2 NOV. 2022
Name, designation, and affiliation of programme Expert	PROF. ANINDYA SARKAR, DEPT. OF GEOLOGY & GEOPHYSICS / CENTRE OF PET. ENGS., IIT KHARAGPUR, 721302, WB

Strengths	Teaching and infrastructure are excellent at UG level. Excellent facilities for reservoir characterisation & EOR. Excellent publication record in high IF journals.
Weaknesses	Research output appears to be skewed across the faculty members. Despite a v. good research output, many programs appear to be disconnected from real field/industry applications. Alumni network is underutilised. Research areas too appeared to be skewed. Drilling/production, Geology/Geophysics need greater emphasis.
Suggestions for improvements	Dept. should provide some minimum space to younger faculties. Also the younger faculty teaching load should be lowered for doing more research. A formal mentoring mechanism to younger faculty should be in place especially for promoting projects or balancing teaching load.
Additional remarks, if any	The dept. should start programs on unconventional like Shale Gas or energy transitions with specific focus and roadmaps.

*Anindya Sarkar*

Name and Signature of the Expert

(ANINDYA SARKAR)

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## External Expert's Report (1<sup>st</sup> Part)

Name of the Department	Petroleum Engineering
Name and address of the institution	IIT (ISM) - Dhanbad
Dates of the visit	1-2 Nov 2022
Name, designation, and affiliation of programme Expert	Prof G. SURESH KUMAR, Petroleum Engineering, IIT-Madras

### Score Sheet

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3	Laboratory/experiments, Assignment and exercise	Design and quality of experiments, Relevance, Theory and introduction lectures, Level of student participation (hands-on training) Grading, Standard of machines/equipment, Model experiments, Report writing/submission mechanism, Evaluation process, Attendance level	5

*G. Suresh Kumar*  
21 Nov / 2022  
Prof G. Suresh Kumar

4	Learning methodology aids	Books, Reference, Library, Slides, Tutor, Question Paper, Tutorials, Type of assignments, Computer/net/video library/web-based aids, Archives for reference, Aid for slow paced learning, Scope for improving communication skills.	4
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7	Research contribution	Quality, Quantity, Impact, Perception, Patent, Novelty, Standard of facility, Research plan/vision, Translational research, Creation of faculty company (start-up), industrial collaboration.	4
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9	Industrial consultancy project/ EDP courses/ Outreach programmes	Quantum, source and type of funding, level of support provided to students and infrastructures, uniqueness of facility created.	4
10	Collaboration Within or Outside IIT(ISM) Dhanbad	Number, type and quality of collaboration with academia/R&D/ Industry at national or international level, Project funding (joint), Organization of meeting/conference, Joint supervision of students/ projects/ thesis, Special (executive) courses for industry Level and Impact of output from collaboration.	3.5
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Working  
 2/10/22  
 (Prof. G. Suresh Kumar)



14	Student quality (UG/PG)	Academic background and progress, Level of motivation and interest in core subjects, Depth of understanding, Interests and hobbies, Discipline, Future ambition, Communication and comprehension skills, Degree of satisfaction about academic and extra-academic standards.	4
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19	Overall Reputation and Standing (national)	General impression about this Department in the country (teaching, research, faculty, staff, students, alumni, research/academic output, peer recognition, technical expertise, infrastructure, Atmosphere and Vision	4.5
20	Overall Reputation and Standing (International)	General impression about this Department: Teaching, Research, Faculty, Staff, Students, Alumni, Research/Academic output, Peer recognition, Technical expertise Infrastructure, Atmosphere and Vision.	3.5
Overall feedback and suggestions		At the BTech level, the PE programme is doing an Excellent job. At the Ph.D level, the PE programme requires more visibility.	

Name and Signature of the Expert

(Prof G. Suresh Kumar)

*G. Suresh Kumar*  
21/Nov/22

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## External Expert's Report (1<sup>st</sup> Part)

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Name and address of the institution	IIT (ISM) DHANBAD
Dates of the visit	01/11/2022 to 02/11/2022
Name, designation, and affiliation of programme Expert	Dr. Anugrah Singh, Professor, Department of Chemical Engg., IIT Guwahati

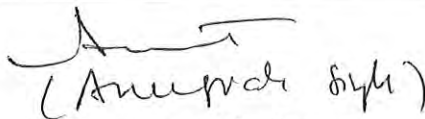
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4	Learning methodology aids	Books, Reference, Library, Slides, Tutor, Question Paper, Tutorials, Type of assignments, Computer/net/video library/web-based aids, Archives for reference, Aid for slow paced learning, Scope for improving communication skills.	4.0
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13	Infrastructure (General)	Classroom, Seminar halls, Laboratories, Workshops, Faculty offices, Research Scholar offices/space, Laboratory Safety	4.3

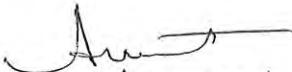
14	Student quality (UG/PG)	Academic background and progress, Level of motivation and interest in core subjects, Depth of understanding, Interests and hobbies, Discipline, Future ambition, Communication and comprehension skills, Degree of satisfaction about academic and extra-academic standards.	4.0
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19	Overall Reputation and Standing (national)	General impression about this Department in the country (teaching, research, faculty, staff, students, alumni, research/academic output, peer recognition, technical expertise, infrastructure, Atmosphere and Vision	4.4
20	Overall Reputation and Standing (International)	General impression about this Department: Teaching, Research, Faculty, Staff, Students, Alumni, Research/Academic output, Peer recognition, Technical expertise Infrastructure, Atmosphere and Vision.	3.5
Overall feedback and suggestions		UG program is very good and the department has good laboratory facilities. The PG program needs to be strengthened with more collaboration with IIT(ISM) and international institutes. Department needs more staff to run the laboratory.	

  
 (Anupam Singh)  
 Name and Signature of the Expert

## External Expert's Report (2<sup>nd</sup> Part)

Name of the Department	PETROLEUM ENGINEERING
Name and address of the institution	IIT (ISM) Dhanbad
Dates of the visit	01/11/2022 & 02/11/2022
Name, designation, and affiliation of programme Expert	Dr. Anugrah Singh, Professor, Department of Chemical Engineering, IIT Guwahati

Strengths	Excellent QA program and Alumni profile Very good infrastructure for teaching & research in Engineering Very good research publications
Weaknesses	Research output of some faculty are inadequate Research collaboration within IIT (ISM) and other institutes are low Alumni networking is underutilized Research in new & important areas of petroleum engineering needs to be increased.
Suggestions for improvements	More number of visiting / Adjunct / Honorary faculty may be appointed Department may give minimum space to junior faculty to set up laboratory. Faculty should develop NPTEL / MOOCs Courses. Mentoring of younger faculty to increase their efficiency.
Additional remarks, if any	The department should be prepared to handle changes in energy industry in view of energy transition but maintaining their core strength.

  
 (Anugrah Singh)  
 Name and Signature of the Expert