



15-07-2021

Minutes of the Board of Studies Meeting

B.Tech in Petroleum Engineering

Minutes of Board of Studies (BOS) meeting of B. Tech Petroleum Engineering program held on 15-07-2021 at office Head of the department, Department of Chemical Engineering, Vignan's University, Vadlamudi. All the external members attended through online zoom meeting.

Agenda of the meeting:

1. To discuss and finalize the structure and detailed syllabus for B. Tech Petroleum Engineering program applicable from 2021-22 admitted batch

The following members were part of the meeting

S. No	Name	Members	Signature
1.	Dr. Ramesh Naidu, Associate Professor and Head, Department of Chemical Engineering	Chairman, BOS	
2.	Prof. Dr. KEKA OJHA, Professor & Associate Dean (Acad-UG) Department of Petroleum Engineering Indian Institute of Technology (ISM), Dhanbad	Invited member	
3.	Prof. K. V. Rao, Programme Academic Advisor, JNTU Kakinada.	Invited member	
4.	Mr. G J Rajbob, General Manager (Geophysics-Wells) – The Head, Well Logging Department. (EOA), ONGC (Retired)	Invited member	
5.	Sri. CVG Krishna, Retried General Manager Oil India & Adjunct Professor, JNTU Kakinada	Invited member	
6.	Sri. Prathamesh S, Assistant Professor, Department of Chemical Engineering, VFSTR, Vadlamudi.	Internal Member	
7.	Sri. Sree Harsha V, Assistant Professor, Department of Chemical Engineering, VFSTR, Vadlamudi	Internal Member	
8.	Sri. Raghavendra M, Assistant Professor, Department of Chemical Engineering, VFSTR, Vadlamudi	Internal Member	



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Minutes of the BOS Meeting

1. The chairman wished and welcomed all the members of BOS.
2. The chairman emphasized broad objectives of the proposed changes in the course structure of B. Tech Petroleum Engineering like,
 - a. In 1st year 2nd semester, Fundamentals of Geology removed and merged with Petroleum Geology subject in the 2nd year 1st semester. In place of FG, Basics of Electrical, Electronics and Mechanics subject added
 - b. In 1st year 2nd semester Probability and Statistics subject is added which was shifted from 2nd year 1st semester.
 - c. Petroleum Exploration subject is shifted in place of Probability and Statistics in the 2nd year 1st semester
 - d. In 2nd year 1st semester Chemical Process Calculation course is removed and Momentum Transfer subject is added
 - e. In Drilling Technology subject, casing design chapter is included and shifted
 - f. Petroleum Reservoir-I is shifted to 2-2, and lab component is added
 - g. Well logging and Formation Evaluation subject is also shifted to 2-2, in order to maintain the continuity
 - h. In 3rd year 1st Semester, Petroleum Reservoir Engineering-II subject is included which is shifted from 3-2. Further Petroleum Production Engineering split into PPE-I and PPE-2 included in the ongoing (3-1) and the next semester (3-2).
 - i. PPE-1 is added in place of Instrumentation and Process Control which was removed to accommodate more core subjects.
 - j. Petroleum Engineering Thermodynamics is added in place of Well Logging and Formation Evaluation which was already shifted to 2-2.
 - k. Petroleum Production Engineering-2 included in place of Petroleum Production Operations
 - l. Surface Production Operations and Enhanced Oil recovery Methods are shifted from 4-1 to 3-2 in order to accommodate software courses



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- m. In 4th year 1st semester Petroleum Engineering Equipment Design is removed and in place of that Oil and Gas Well Testing course is added in order to give more importance to core subjects.
 - n. Health Safety and Environment course name is changed to Health Safety Practices in Petroleum Industry
3. The chairman also explained in detail about the suggestions and comments collected from various stakeholders.
 4. The members of the BOS thoroughly looked at the proposals of the Department of Chemical Engineering in the light of suggestions made by experts and recommended a new course structure for B. Tech Petroleum Engineering program.



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Resolutions made after the discussion:

1. Propose and approve course structure for all 4 years of B.Tech. Programme in Petroleum Engineering (Appendix-I).
2. Propose and approve detailed syllabus for the 4 years of B.Tech. Programme in Petroleum Engineering with effect from the academic year 2020-21. The proposed structure and syllabus are applicable for 2021 admitted batch onwards.
3. Stakeholder's feedback is collected, analyzed and given utmost priority while designing the curriculum and their suggestions are implemented
4. The curriculum follows choice-based credit system
5. Major restructuring has taken place in the curriculum towards Project based learning with inclusion of Intradisciplinary, Inter-departmental and Societal centric and industry related projects.
6. Major reformation has taken place in the curriculum by offering new courses and electives such as Programming for Problem Solving, Data Structures, Engineering Chemistry, Probability and Statistics, included in professional core courses wherever it is required and safety, energy and Industrial waste management related courses in professional elective courses.
7. Major restructuring has taken place in the curriculum by introducing new electives such as Industrial Management and Digitization of Oil & Gas Industry also removed Probability and statistics and kept as a regular course in the 1st year 2nd semester etc.
8. The total percentage of syllabus revision for B. Tech Petroleum Engineering Program is 25%.
9. The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development (Appendix II)
10. In the B.Tech. Petroleum Engineering revised regulation R-21, the substantial changes are made in the content of all courses and hence the courses are considered as new courses (Appendix III)

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APPENDIX-I

Course Structure

I year I semester

Course Title	C
Engineering Mathematics - I (D)	4
Engineering Physics (B)	4
Engineering Chemistry	4
Basics of Petroleum Engineering	3
Engineering Graphics & Design	1
Introduction to C Programming	4
Constitution of India	1
Physical Fitness, Sports & Games - I	1
Total	22

I year II semester

Course Title	C
Engineering Mathematics - II (D)	4
Basics of Electrical and Electronics Engineering	4
Programming for Problem Solving	4
English Proficiency and Communication Skills	1
Technical English Communication	3
Environmental Science	1
Workshop	2
Physical Fitness, Sports & Games - II	1
Total	20

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II year I semester

Course Title	C
Petroleum Geology	4
Momentum Transfer	4
Process Heat Transfer	4
Petroleum Exploration	4
Data Structure	3
Life Skills - I	-
Technical Seminar - I	1
Intra-Disciplinary Projects - I	1
Physical Fitness, Sports & Games – III	1
Total	22

II-year II semester

Course Title	C
Petroleum Reservoir Engineering – I	4
Drilling Technology	4
Well Logging and Formation Evaluation	4
Probability and Statistics	4
Open Elective-I	3
Open Elective-II	3
Life Skills - II	1
Technical Seminar - II	1
Intra-Disciplinary Projects - II	1
Total	25

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III year I semester

Course Title	C
Petroleum Production Engineering – I	4
Petroleum Reservoir Engineering – II	4
Petroleum Engineering Thermodynamics	3
Open Elective-III	3
Open Elective-IV	3
Department Elective - I	3
Human Values, Professional Ethics & Gender Equity	2
Soft Skills Laboratory	1
Employability Skills - I	-
Inter-Departmental Projects - I	2
Total	25

III-year II semester

Course Title	C
Petroleum Production Engineering - II	4
Surface Production Operation	4
Enhanced Oil Recovery Methods	4
Professional Communication Laboratory	1
Department Elective - II	3
Open Elective (NPTEL/Swayam)	3
Open Elective-V	3
Employability Skills - II	1
Inter-Departmental Projects - II	2
Modular Course	1
Total	26

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IV year I semester

Course Title	C
Oil and Gas Well Testing	3
Health and Safety Practices in Petroleum Industry	3
Department Elective - III (NPTEL / Swayam)	3
Department Elective - IV (NPTEL / Swayam)	3
Principles of Management and Organizational Behaviour	3
Societal-Centric and Industry Related Projects	3
Total	18

IV-year II semester

Course Title	C
Internship / Project work	12
Total	12



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Department Elective-I

- Petro Chemicals
- Waste Water & Effluent Treatment Methods
- Energy Engineering
- Material Science and Engineering
- Mathematical Methods & Application to Petroleum Engineering

Department Elective-II

- Industrial Management
- Solid Waste Management
- Fundamentals of LNG
- Natural Gas Processing
- Unconventional Hydrocarbon Resources
- Advanced Polymer Technology

Department Elective-III

- Operations Research
- Fluid Flow Through Porous Media
- Advanced Natural Gas Engineering
- Artificial Lift Techniques
- Pipeline Engineering



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Department Elective-IV

- Digitization of Oil & Gas Industry
- Reservoir Stimulation
- Reservoir Simulation
- Applied Mathematics for Reservoir Engineering
- Petroleum Economics & Asset Management
- Oil & Gas Field Development
- Subsea Operation & Maintenance
- Petroleum Engineering Equipment Design


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APPENDIX - II

List of courses that enable employability or entrepreneurship or skill development in the R-21 B. Tech – Petroleum Engineering

S. No	Semester (Year)	Course Name	Employability/ Entrepreneurship/ Skill development
1.	Semester I (First Year)	Engineering Mathematics - I (D)	Skill development
2.	Semester I (First Year)	Engineering Physics (B)	Skill development
3.	Semester I (First Year)	Engineering Chemistry	Skill development
4.	Semester I (First Year)	Basics of Petroleum Engineering	Employability
5.	Semester I (First Year)	Engineering Graphics & Design	Skill development
6.	Semester I (First Year)	Introduction to C Programming	Skill development
7.	Semester II (First Year)	Engineering Mathematics - II (D)	Skill development
8.	Semester II (First Year)	Basics of Electrical and Electronics Engineering	Skill development
9.	Semester II (First Year)	Programming for Problem Solving	Skill development
10.	Semester II (First Year)	English Proficiency and Communication Skills	Skill development
11.	Semester II (First Year)	Technical English Communication	Skill development
12.	Semester II (First Year)	Environmental Science	Skill development
13.	Semester II (First Year)	Workshop	Skill development
14.	Semester I	Petroleum Geology	Entrepreneurship

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	(Second Year)		
15.	Semester I (Second Year)	Momentum Transfer	Skill development
16.	Semester I (Second Year)	Process Heat Transfer	Skill development
17.	Semester I (Second Year)	Petroleum Exploration	Skill development
18.	Semester I (Second Year)	Data Structure	Skill development
19.	Semester I (Second Year)	Technical Seminar - I	Skill development
20.	Semester I (Second Year)	Intra-Disciplinary Projects - I	Skill development
21.	Semester I (Second Year)	Petroleum Reservoir Engineering – I	Skill development
22.	Semester II (Second Year)	Drilling Technology	Skill development
23.	Semester II (Second Year)	Well Logging and Formation Evaluation	Skill development
24.	Semester II (Second Year)	Probability and Statistics	Skill development
25.	Semester II (Second Year)	Technical Seminar - II	Skill development
26.	Semester II (Second Year)	Intra-Disciplinary Projects - II	Skill development
27.	Semester II (Second Year)	Petroleum Production Engineering – I	Skill development
28.	Semester I (Third Year)	Petroleum Reservoir Engineering – II	Skill development
29.	Semester I (Third Year)	Petroleum Engineering Thermodynamics	Skill development

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30.	Semester I (Third Year)	Department Elective - I	Skill development
31.	Semester I (Third Year)	Human Values, Professional Ethics & Gender Equity	Skill development
32.	Semester I (Third Year)	Employability Skills - I	Skill development
33.	Semester I (Third Year)	Inter-Departmental Projects-I	Skill development
34.	Semester I (Third Year)	Petroleum Production Engineering - II	Skill development
35.	Semester II (Third Year)	Surface Production Operation	Skill development
36.	Semester II (Third Year)	Enhanced Oil Recovery Methods	Skill development
37.	Semester II (Third Year)	Professional Communication Laboratory	Skill development
38.	Semester II (Third Year)	Department Elective - II	Skill development
39.	Semester II (Third Year)	Open Elective (NPTEL/Swayam)	Skill development
40.	Semester II (Third Year)	Employability Skills - II	Skill development
41.	Semester II (Third Year)	Inter-Departmental Projects - II	Skill development
42.	Semester II (Third Year)	Modular Course	Skill development

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43.	Semester II (Third Year)	Oil and Gas Well Testing	Skill development
44.	Semester I (Fourth Year)	Health and Safety Practices in Petroleum Industry	Skill development
45.	Semester I (Fourth Year)	Department Elective - III (NPTEL / Swayam)	Skill development
46.	Semester I (Fourth Year)	Department Elective - IV (NPTEL / Swayam)	Skill development
47.	Semester I (Fourth Year)	Principles of Management and Organizational Behaviour	Skill development
48.	Semester I (Fourth Year)	Societal-Centric and Industry Related Projects	Skill development
49.	Semester II (Fourth Year)	Project work / Internship (Industry Oriented Projects)	Skill development
50.	Department Elective	Petro Chemicals	Skill development
51.	Department Elective	Waste Water & Effluent Treatment Methods	Skill development
52.	Department Elective	Energy Engineering	Skill development
53.	Department Elective	Material Science and Engineering	Skill development
54.	Department Elective	Mathematical Methods & Application to Petroleum Engineering	Skill development
55.	Department Elective	Industrial Management	Skill development
56.	Department Elective	Solid Waste Management	Skill development
57.	Department Elective	Fundamentals of LNG	Skill development
58.	Department Elective	Natural Gas Processing	Skill development

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59.	Department Elective	Unconventional Hydrocarbon Resources	Skill development
60.	Department Elective	Advanced Polymer Technology	Skill development
61.	Department Elective	Operations Research	Skill development
62.	Department Elective	Fluid Flow Through Porous Media	Skill development
63.	Department Elective	Advanced Natural Gas Engineering	Skill development
64.	Department Elective	Artificial Lift Techniques	Skill development
65.	Department Elective	Pipeline Engineering	Skill development
66.	Department Elective	Digitization of Oil & Gas Industry	Skill development
67.	Department Elective	Reservoir Stimulation	Skill development
68.	Department Elective	Reservoir Simulation	Skill development
69.	Department Elective	Applied Mathematics for Reservoir Engineering	Skill development
70.	Department Elective	Petroleum Economics & Asset Management	Skill development
71.	Department Elective	Oil & Gas Field Development	Skill development
72.	Department Elective	Subsea Operation & Maintenance	Skill development
73.	Department Elective	Petroleum Engineering Equipment Design	Skill development


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APPENDIX - III

List of new courses in the R-21

B. Tech – Petroleum Engineering curriculum

S.No.	Core / Elective	Course Name
1.	Core	Petroleum Geology
2.	Core	Momentum transfer
3.	Core	Petroleum Reservoir Engineering-I
4.	Core	Drilling Technology
5.	Core	Well Logging and Formation Evaluation
6.	Core	Petroleum Production Engineering – I
7.	Core	Petroleum Reservoir Engineering-II
8.	Core	Petroleum Production Engineering - II
9.	Core	Enhanced Oil Recovery Methods
10.	Core	Oil and Gas Well Testing
11.	Core	Surface Production Operation
12.	Core	Health and Safety Practices in Petroleum Industry
13.	Department Elective	Industrial Management
14.	Department Elective	Digitization of Oil & Gas Industry
15.	Department Elective	Petroleum Engineering Equipment Design

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