



# ADITYA ENGINEERING COLLEGE

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Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Program Name : B.Tech. in Petroleum Technology

## Syllabus Revision for the Academic Year 2021-2022

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
1	I	201HS1T01	Communicative English	0
2	I	201BS1T01	Differential equations and Linear algebra	0
3	I	201BS1T02	Engineering Physics	0
4	I	201ES1T03	Essential Electrical and Electronics Engineering	0
5	I	201ES1T05	Engineering Graphics	0
6	I	201HS1L01	Communicative English Lab	0
7	I	201BS1L01	Engineering Physics Lab	0
8	I	201ES1L03	Essential Electrical and Electronics Engineering Lab	0
9	I	201MC1T01	Environmental Science	0
10	II	201BS2T05	Partial Differential Equations and Vector Calculus	0
11	II	201BS2T08	Chemistry of Materials	0
12	II	201ES2T06	Engineering Mechanics	0
13	II	201ES2T08	Programming for Problem Solving Using C	0
14	II	201ES2L07	Engineering Workshop	0
15	II	201ES2L12	Computer Aided Drafting Lab	0
16	II	201HS2L02	Professional Communications Skills Lab	0
17	II	201BS2L05	Engineering Chemistry Lab	0
18	II	201ES2L10	Programming for Problem Solving Using C Lab	0
19	II	201MC2T02	Constitution of India	0
20	III	201BS3T14	Numerical Methods and integral transforms	0
21	III	201PT3T01	Principles of Geology for Petroleum Engineers	0
22	III	201PT3T02	Material Balance and Energy	0
23	III	201PT3T03	Petroleum Exploration	0
24	III	201PT3T04	Fluid Mechanics for Petroleum Engineers	0
25	III	201PT3L01	Principles of Geology for Petroleum Engineers Lab	0
26	III	201PT3L02	Fluid Mechanics for Petroleum Engineers Lab	0
27	III	201PT3L03	Mathematical Methods Lab	0
28	III	201SC3L10	Skill oriented course -Industry Exploration Project	100
29	IV	201ES4T20	Mechanical and Materials Science and Engineering	0
30	IV	201BS4T17	Complex Variables and Statistical Methods	0
31	IV	201PT4T05	Petroleum Geology	0
32	IV	201PT4T06	Heat Transfer Operations	0
33	IV	201HS4T06	Management and Organizational Behavior	0
34	IV	201ES4L16	Mechanical and Materials Science and Engineering Lab	0
35	IV	201PT4L04	Heat Transfer Operations Lab	0
36	IV	201PT4L05	Petroleum Geology Lab	0
37	IV	201SC4L21	Python Programming	0
38	V	191PT5T08	Instrumentation and Process Control	0
39	V	191PT5T09	Well Logging and Mud Logging	38
40	V	191PT5T10	Drilling Technology	0
41	V	191PT5T11	Thermodynamics for Petroleum Engineers	0
42	V	191PT5E03	Well Engineering and Design	0
43	V	191PT5E02	Pipeline Engineering	0
44	V	191PT5E01	Natural Gas Engineering and Processing	100

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S.No	Semester	Course Code	Course Name	% of content revised for the existing year
45	V	191CE5001	Basic Concrete Technology	100
46	V	191EE5001	Electrical Safety	100
47	V	191EE5002	Electrical Materials	100
48	V	191EE5003	Basic Electrical Measurements	100
49	V	191ME5001	Renewable Energy Sources	100
50	V	191ME5002	Fundamentals of Mechanical Engineering	100
51	V	191ME5003	Supply Chain Management	100
52	V	191ME5004	3D Printing	100
53	V	191ME5005	Entrepreneurship Development and Incubation	100
54	V	191EC5001	Signals & Systems	100
55	V	191EC5002	Digital Electronics and Logic Design	100
56	V	191EC5003	Semi conductor devices	100
57	V	191CS5001	Data Structures	100
58	V	191CS5002	Object Oriented Programming through C++	100
59	V	191CS5003	Java Programming	100
60	V	191CS5004	R Programming	100
61	V	191IT5001	Data Base Management Systems	100
62	V	191IT5002	Computer Graphics	100
63	V	191MI5001	Overview of Mining	100
64	V	191PT5001	Process Intensification in Petroleum Industry	0
65	V	191PT5002	Fundamentals of Petroleum Industry	0
66	V	191AG5001	Basic Crop Production Practices	100
67	V	191PT5L04	Drilling Fluids Lab	0
68	V	191PT5L05	Instrumentation, Process Dynamics and Control Lab	0
69	V	191ES5T16	Employability Skills – III	0
70	V	191PR5P01	Socially Relevant Project	100
71	VI	191PT6T12	Petroleum Refinery and Petrochemical Engineering	0
72	VI	191PT6T13	Petroleum Production Engineering	0
73	VI	191PT6T14	Petroleum Reservoir Engineering-I	0
74	VI	191PT6E06	Well Completions, Testing and Services	0
75	VI	191PT6E05	Operational and Maintenance of Pipelines	100
76	VI	191PT6E04	Fundamentals of Liquefied Natural gas	20
77	VI	191PT6E09	Unconventional Hydrocarbon Resources	100
78	VI	191PT6E08	Storage and Transportation of Crude oil and Natural gas	0
79	VI	191PT6E07	Advanced Separation Techniques	100
80	VI	191CE6O02	Disaster Management	0
81	VI	191EE6O04	Energy Audit and Conservation Management	100
82	VI	191EE6O05	Non Conventional Energy resources	100
83	VI	191EE6O06	Instrumentation	100
84	VI	191ME6O06	Solar Energy Utilisation	100
85	VI	191ME6O07	Basic Thermodynamics and Heat Transfer	100
86	VI	191ME6O08	Introduction to Hydraulics and Pneumatics	100
87	VI	191ME6O09	3D Printing	100
88	VI	191ME6O06	Robotics	100
89	VI	191ME6O09	Management Science	100
90	VI	191ME6O12	Entrepreneurship Development and Incubation	100
91	VI	191ME6O07	Biomedical Instrumentation	100
92	VI	191ME6O08	ECAD Tools	100
93	VI	191CS6O05	Python Programming	100

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S.No	Semester	Course Code	Course Name	% of content revised for the existing year
94	VI	191CS6006	Operating Systems	100
95	VI	191CS6007	Web Technologies	100
96	VI	191CS6008	Cyber Security	100
97	VI	191CS6009	AR / VR	100
98	VI	191IT6003	Computer Organization	100
99	VI	191IT6004	AI Tools & Techniques	100
100	VI	191IT6005	Robotic Process Automation	100
101	VI	191MI6002	Industrial Safety Practices	100
102	VI	191MI6003	Electrical Equipment's in Mines	100
103	VI	191PT6003	Unconventional Hydrocarbon Resources	100
104	VI	191PT6004	Asset Management	100
105	VI	191PT6L06	Petroleum Reservoir Engineering Lab	0
106	VI	191PT6L07	Petroleum Analysis Lab	0
107	VI	191ES6T17	Employability Skills - IV	0
108	VII	171PT7T15	Integrated Asset Management and Petroleum Economics	0
109	VII	171PT7T16	Petroleum Reservoir Engineering - II	0
110	VII	171PT7T17	IOR and EOR Techniques	0
111	VII	171PT7T18	Oil and Gas Processing Plant Design	0
112	VII	171PT7E10	Coal Bed Methane	0
113	VII	171PT7E11	Offshore Engineering	0
114	VII	171PT7E12	Petroleum Corrosion Technology	0
115	VII	171PT7E13	Shale Gas Reservoir Engineering	0
116	VII	171PT7E14	Subsea Engineering	0
117	VII	171PT7E15	Reservoir Modeling and Simulation	0
118	VII	171PT7L07	Petroleum Equipment Design and Simulation Lab	0
119	VII	171PT7L08	Petroleum Reservoir Engineering Lab	0
120	VII	171HS7A04	Managerial Economics and Financial Analysis	0
121	VII	171PT7P01	Industry Oriented (Internship) Minor Project	0
122	VIII	171PT8E16	HSE and FE in Petroleum Industry	0
123	VIII	171PT8E17	Reliability and Risk Management in Petroleum Operations	0
124	VIII	171PT8E18	Deep Sea Production Systems	0
125	VIII	171PT8O01	Green Technologies	0
126	VIII	171PT8O02	Non-Conventional Sources of Energy	0
127	VIII	171PT8O03	Alternative Energy Sources for Automobiles	0
128	VIII	171PT8O04	Waste Water Treatment	0
129	VIII	171PT8O05	Computational Fluid Dynamics	0
130	VIII	171PT8O06	Process Intensification in Petroleum Industry	0
131	VIII	171EC8O02	Disaster Management	0
132	VIII	171PT8P02	Major Project	0

Total number of courses in the academic year 2021-2022	= 131
Number of courses having revision in syllabus content >= 20% in the academic year 2021-2022	= 52
Percentage of syllabus revision carried out in the academic year 2021-2022 = $(52/131) \times 100$	= 38.93%

  
Program Coordinator

  
Head of the Department  
Department of Petroleum Technology,  
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## Department of Petroleum Technology

Date: 02-05-2022

### Minutes of the VIII meeting of BOS scheduled on 29-04-2022

The VIII meeting of the BOS (Board of Studies) of PT was held on 29-04-2022 at 10:00 AM in the Ajivika Conference Hall, Bill Gates Bhavan, AEC. Dr. R. Giri Prasad, chairperson presided over the meeting.

#### **Agenda 8.1: Welcome address by Chairperson.**

Dr. R. Giri Prasad, BOS chairperson invited the distinguished members of BOS to the VIII BOS Meeting.

#### **Agenda 8.2: Ratification of minutes of the previous Board of Studies meeting**

The BOS members have ratified the points discussed in the previous Board of Studies meeting held on 29/04/2022.

#### **Agenda 8.3: Discussion on proposed AR 20 B. Tech Program – V, VI, VII & VIII Semesters Syllabus and ratification of the same**

The BOS members approved the AR 20 B. Tech (PT) V, VI, VII & VIII Semesters syllabus after making the following changes in the proposed syllabi.

- Suggested to keep "IPC first order and second order systems
- Suggested to add "IPC text latest edition
- Suggested to replace "FIT, special drill fluids in drilling and well completions
- Suggested to replace well logging, mud logging and formation evaluation.
- Suggested to add liquefaction in unit 4 natural gas engineering.
- Suggested to replace "u-5 in reservoir engineering with immiscible displacement topics.
- Suggested to introduce reference text books for IPC labs.
- Suggested to add "developments of an LNG project in unit 1 in FLNG Elective subject, some new text books also referred.
- Suggested to add HSE FE unit 3 modifications and some reference text books suggested.
- Suggested to replace pipe line engineering as basic pipeline engineering.

  
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**Agenda 8.4: Discussion on proposed syllabus for courses in V to VII Semester under AR20 Honors and Minor Degree and ratification of the same.**

The BOS members approved the V, VI, VII & VIII Semester under AR20 Honors and Minor Degree syllabus after making the following changes in the proposed syllabi.

- Suggested to keep “fundamentals of petroleum industry as basic concepts in seismic methods for hydrocarbon exploration.
- Suggested to keep some topics in applied RE & M subject in unit 5 and some latest text are referred.
- Suggested to keep natural gas engineering as mass transfer operations
- Suggested to keep underground coal gasification in tight gas engineering.

**Agenda 8.5: Discussion on the value-added courses to be offered for students and ratification of the same.**

The BOS members approved the list of value-added courses offered to students.

**Agenda 8.6: Discussion on the new courses offered for B. Tech (PT) programs and ratification of the same.**

The BOS members have ratified the new courses offered in B. Tech (PT) programs. The percentage of new courses introduced in the academic year 2021-2022 for B. Tech (PT) is 6.81 %. The list of new courses is enclosed as Annexure-I.

**Agenda 8.7: Discussion on the percentage of syllabus revision done in the B. Tech (PT) program and ratification of the same.**


The BOS members have ratified the B. Tech (PT) and M. Tech (PE) syllabus revision percentage. The percentage of courses revised in this academic year 2021-2022 for B. Tech (PT) is 38.93% and M. Tech (PE) is 3.07 %. The list of courses revised is enclosed as Annexure-II

**Agenda 8.8: Discussion on the courses having focus on employability/entrepreneurship/skill development in B. Tech (PT) and M. Tech (PE) programs and ratification of the same.**

The BOS members have ratified the courses having focus on employability/entrepreneurship/skill development in B. Tech (PT) and M. Tech (PE) programs.

**Agenda 8.9: Discussion on all the programs in which Choice Based Credit System (CBCS)/Elective course system is being implemented and ratification of the same.**

The BOS members have ratified the B. Tech (PT) and M. Tech (PE) Choice Based Credit System (CBCS)/Elective course system.

  
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**Agenda 8.10: Analysis of Feedback on curriculum from stake holders**

The BOS chairperson presented the feedback on curriculum from stake holders. The BOS members noted the same and approved the feedback on curriculum. The Action Taken Report on Stakeholders Feedback is enclosed as Annexure-III.

**Agenda 8.11: Analysis of results of the odd semesters of the academic year 2021-22**

The BOS chairperson presented odd semester pass percentage for the A.Y.2021-2022. The BOS members noted the same and appreciated the faculty.

**Agenda 8.12: Analysis of student's feedback in the odd semesters of the academic year 2021-22**

The BOS Chairperson expressed that the student feedback & action taken report process was initiated at end of each semester.

**Agenda 8.13: Any other item with the approval of Chairman**

NIL

**Agenda 8.14: Scheduling of next Board of Studies meeting.**

The next BOS meeting is tentatively scheduled in the month of September, 2022.

**Agenda 8.15: Vote of Thanks**

Dr. R. Giri Prasad, BOS chairperson presented the vote of thanks.

  
BOS Chairperson

Head of the Department  
Department of Petroleum Technology  
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## Department of Petroleum Technology

### Annexure-I

#### List of New Courses in the Academic Year 2021-2022

S. No	Program	Semester	Course Code	Course Name
1.	B. Tech (PT)	III	201SC3L10	Industry Exploration Project
2.	B. Tech (PT)	V	191PR5P02	Socially Relevant Project
3.	B. Tech (PT)	V	191PT5E01	Natural Gas Engineering and Processing
4.	B. Tech (PT)	V	191PT5O02	Fundamentals of Petroleum Industry
5.	B. Tech (PT)	V	191PT6E05	Operational and Maintenance of Pipelines
6.	B. Tech (PT)	V	191PT7E09	Unconventional Hydrocarbon Resources
7.	B. Tech (PT)	V	191PT5O01	Process Intensification in Petroleum Industry
8.	B. Tech (PT)	VI	191PT6E07	Advanced Separation Techniques
9.	B. Tech (PT)	VI	191PT6O03	Unconventional Hydrocarbon Resources
10.	B. Tech (PT)	VI	191PT6O04	Asset Management

BOS Chairperson

Head of the Department  
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## Department Of Petroleum Technology

### Annexure-II

#### List of Courses Revised in the Academic Year 2021-2022

S. No	Program	Semester	Course Code	Course Name
1.	B. Tech (PT)	V	191PT5T09	Well Logging and Mud Logging
2.	B. Tech (PT)	VI	191PT6E04	Fundamentals of Liquefied Natural gas
3.	M. Tech (PE)	I	192PE1E04	Advanced Well Logging Techniques and Well Testing Analysis
4.	M. Tech (PE)	II	192PE2E06	Advanced Well Completions

  
BOS Chairperson

Head of the Department  
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## Department of Petroleum Technology

### Annexure III

#### Action Taken Report on Stakeholders Feedback in the Academic Year 2021-2022

S. No	Agenda Item No.	Stakeholders Recommended	Action Taken
1.	8.4	Suggested to keep transferable and necessary skills with rising demand in all industries.	As suggested and discussion made with members pipeline project management course will be implemented.
2.	8.8	Capability to acquire and apply fundamental principles of engineering is needed.	As per suggestions Internship is made mandatory and thereby the students should take the industry training.
3.	8.8	Suggested to involve advanced topics, Engineers are looking nowadays in the curriculum.	According to the suggestions and discussions made it will be added to the curriculum.
4.	8.8	Capability to acquire and apply fundamental principles of engineering is needed.	As per suggestions Internship is made mandatory and thereby the students should take the industry training.
5.	8.12	Advancements in industries and job opportunities in the core must be known.	As per suggestion, seminars and workshops will be conducted.
6.	8.3	Due to tremendous response in the companies of software courses in the petroleum industry, it is better to get the basic knowledge on application	As suggested, Various modelling software's like CMG, MATLAB, ASPEN HYSIS etc will be included in the curriculum.
7.	8.4	Perception of the need for more topics to be included, as well as the general need for a few topics to be modified.	As per suggestions some topics introduced and removed in core subjects
8.	8.3	Every students to understand the basic principles of engineering and the introduction of biological concepts so that they can effectively interact to concern for providing solutions to the problems related to bio systems.	As suggested, biology for engineers will be introduced into the curriculum.
9.	8.3	It is better student have knowledge on the computer science related subjects during their graduation.	As per the suggestions and discussion made with the experts, BOS and Professionals, Honours and Minor degree programs will be introduced based on the students choice.
10.	8.8	Due to the tremendous growth in the IT industry it is better to get known to programming related subjects.	As per suggestions, SOC (Skill Oriented Course) will be introduced to the curriculum.

  
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11.	8.3	A clear understanding on the material must be known to perform research.	As per suggestion received, introduction about exploration project will be introduced.
12.	8.12	It is better that students have knowledge on the cutting edge technologies.	According to the suggestion received, it will be introduced to the curriculum based on the discussions made.
13.	8.3	Better to perform real time applications for better employment.	As per suggestions it will be planned to discuss with the m .tech coordinator and project guides for the implementation of experimental and analytical projects.
14.	8.8	Due to the tremendous growth in the IT industry it is better to get known to programming related subjects.	As per suggestions, and discussions SOC (Skill Oriented Course) implemented
15.	8.4	Capability to acquire and apply fundamental principles of engineering is needed.	As per suggestions Internship is made mandatory and thereby the students should take the industry training for project.
16.	8.4	Due to tremendous response in the companies of software courses in the petroleum industry , it is better to get the basic knowledge on application.	As suggested, Various modelling software's like MATLAB already included in the curriculum.
17.	8.3	For better placement in the core companies problem solving skills and performance need to be enhanced.	As per feedback, AICTE and college will implement to get the access of PARAKH -SLAP to practise online exams for job.

  
BOS Chairperson

Head of the Department  
Department of Petroleum Technology  
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## Department of Agricultural Engineering

Date: 03-05-2022

### Minutes of the VIII meeting of BOS scheduled on 25-04-2022 and 30-04-2022

The VIII BOS meeting of Agricultural Engineering was virtually held in Microsoft Teams on 25-04-2022 and 30-04-2022 at 9.30 AM. Dr. N.V. Gowtham Deekshithulu, Chairperson presided over the meeting.

#### Agenda 8.1: Welcome address by chairperson BOS.

Dr. N.V. Gowtham Deekshithulu, Chairperson of BOS, invited all the distinguished members of BOS to the VIII BOS meeting.

#### Agenda 8.2: Ratification of minutes of VII BOS meeting.

The BOS members accepted and ratified the minutes of VII BOS meeting unanimously.

#### Agenda 8.3.: Discussion on proposed AR20 B. Tech Program – V, VI, VII & VIII semesters syllabus and ratification of the same.

The BOS members approved the AR20 B.Tech. (Ag.E) V, VI, VII and VIII semesters syllabus after making the following changes in the proposed syllabi.

1. Suggested to change CO's, add topics on creep, epicyclic gear train, speed of governors, coefficient of fluctuation of speed and energy, design of flywheel and add textbook in Theory of Machines.
2. Suggested to add minor changes in COB's, CO's and add direct and indirect methods of stream flow measurements, Simple storm and complex storm and Unit hydrograph derivation in Watershed Hydrology.
3. Suggested to add Modified Penman Monteith Method in Evapotranspiration estimation methods, List of irrigation water control & diversion structures instead of irrigation structures and add new text books and remove topics of Lacey's and Kennedy's theory in design of irrigation canal capacity in Irrigation and Drainage Engineering.
4. Suggested to improve COB's, CO's and to add head loss calculation of the sprinkler and drip irrigation system topics in Sprinkler and Micro Irrigation Systems.

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5. Suggested to add mean areal rainfall measurement topic instead of rainfall measurement and shift exercise on unit hydrograph lab from augmented experiments to main list of experiments in Watershed Hydrology Lab.
6. Suggested to change CO5 in Irrigation and Drainage Engineering Lab.
7. Suggested a minor change in CO's and add term tillage implements instead of tillage implement, levelers instead of levelled, combine harvester instead of combine, types of threshers and losses and troubleshooting in Farm Machinery and Equipment.
8. Suggested to add splash erosion, roughness coefficient instead of roughness and add a book from reference books to textbooks in Soil and Water Conservation Engineering.
9. Suggested to add methods of drying topic in Post Harvest Engineering of Cereals, Pulses and Oil Seeds.
10. Suggested to add wider and narrow tools topic in Mechanics of Tillage and Traction.
11. Suggested to add a minor change in COB and add planning of warabandhi irrigation system, Water control and diversion structures topics in Management of Canal Irrigation System.
12. Suggested to change COB1 and CO1 and add CIP principals- techniques, FSSAI standards and regulations for dairy products topics in Dairy and Food Engineering.
13. Suggested to add Short-term harvesting techniques - contour bunds, semicircular hoop, trapezoidal bunds, graded bunds, rock catchment and ground catchment, Design of Gabion structures, drop inlet spillway- design criteria topics in Water Harvesting and Soil Conservation Structures.
14. Suggested to change Wastewater treatment and management course title as Agricultural Structures and Protected Cultivation.
15. Suggested to add combine harvester instead of combine and add experiment on land levelling using the laser guided land leveler in augmented experiments list in Farm Machinery and Equipment Lab.
16. Suggested to add visit to watershed project for studying erosion control and water conservation measures in list of experiments and move Study of rainfall simulator for erosion assessment to list of augmented experiments and add Field Manual on Watershed Management in Soil and Water Conversation Engineering Lab.

  
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