

CHOICE BASED CREDIT SYSTEM

(Applicable to all students registering from the academic year 2021-22 onwards)

Department of Petroleum Engineering

B.E Petroleum Engineering

Curriculum

ACADEMY OF MARITIME EDUCATION AND TRAINING (AMET)

DECLARED AS DEEMED TO BE UNIVERSITY

135, EAST COAST ROAD

KANATHUR, CHENNAI-603112



AMET
ACADEMY OF MARITIME EDUCATION AND TRAINING
DEEMED TO BE UNIVERSITY
(Under Section 3 of UGC Act 1956)

Vision and Mission of the Institution

Vision

To sustain identity as a World Class Leader in Maritime Education and empower learners with wholesome knowledge through progressive innovation in training, research and development which will render students a unique learning experience and a transformation impact on the Global Society.

Mission

AMET will strive continuously to

- ❖ Impart value-based higher education and technical knowledge with uncompromising strides of an outstanding quality.
- ❖ Emerge as a Centre of Excellence inculcating skill development in recent technologies in accordance with industrial trends.
- ❖ Create World class research capabilities on par with the finest in the world and broaden student's horizons beyond classroom education.
- ❖ Nurture talent and entrepreneurship to enable all round personality development among students.
- ❖ Empower students across socio economic strata
- ❖ Make a positive difference to society through technical education.

Vision and Mission of the Department

Vision

To upgrade the quality of our curriculum, pedagogy and outstanding in research in order to achieve the status of one of the top-ranking institutions offering Petroleum Engineering across the globe.

Mission

- ❖ To provide a source of effective value based and technically advanced curriculum that address various petroleum engineering sector.
- ❖ To produce and disseminate world-class, cutting edge research that shapes the way the industry needs in all aspects incorporating opportunities for developing technologies and innovation.
- ❖ To provide knowledge on the challenges involved in exploration, production and exploitation of petroleum resources that shaped the industry.
- ❖ To produce world-class, socially responsible with creative leadership for future oil and gas engineer.
- ❖ To prepare students with educational opportunity belonging to all socio-economic environment.
- ❖ To engage meaningfully with Petroleum production and marketing strategy.

Program Educational Objectives (PEOs)

Program Educational Objectives (PEOs) are established by means of a consultation process. PEOs are specific statements outlining the career and educational milestones that the students will accomplish within three to five years of the graduation year.

The Petroleum Engineering Program graduates will

PEO1:

Become successful Petroleum Engineers with quality knowledge and essential skills as per the industry needs.

PEO2:

Pursue higher education and engage in cutting edge research to offer solutions to complicated field programs.

PEO3: Demonstrate high standard of ethical conduct, positive attitude and social responsibilities.

PROGRAM OUTCOMES (PO's)

PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	Problem Analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	Design/Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6	The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO 11	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO 12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO'S)

PSOs	Description
PSO1	Analyze, design, operate, maintenance and evaluate various components, methods and systems using state-of-art technology in Petroleum Exploration and Exploitation.
PSO2	Effectively practice as professional engineers, managers, and leaders in the onshore and offshore workstations and/or a wide variety of other fields as Petroleum Engineers globally.

PEO / PO Mapping:

PROGRAM EDUCATIONAL OBJECTIVES	PROGRAM OUTCOMES											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
PEO01	√	√	√	√		√			√	√	√	√
PEO02	√	√		√	√	√	√	√	√	√		√
PEO03			√	√		√	√	√	√		√	√



CBCS CURRICULUM (2020-21)
DEPARTMENT OF PETROLEUM ENGINEERING
CURRICULUM FOR B.E. Petroleum Engineering
ACADEMIC YEAR - 2021-2022

SEMESTER I

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1	UELEC01	Humanities and Social Science including Management Courses	Technical English	2	2	0	0	2
2	UEPHC01	Basic Science Course	Engineering Physics-I	3	3	0	0	3
3	UEMTC01	Basic Science Course	Engineering Mathematics-I	4	3	1	0	4
4	UEEE01	Engineering Science Course	Basic Electrical Engineering	4	3	1	0	4
5	UEMDC01	Mandatory Course 1	Universal Human Values I - Induction program	3 weeks	-	-	-	-
PRACTICAL								
6	UELECPA	Humanities and Social Science including Management Courses	Communication Skills Laboratory - I	2	0	0	2	1
7	UEEECPA	Engineering Science Course	Basic Electrical Engineering Laboratory	2	0	0	2	1
8	UEMCCPA	Engineering Science Course	Engineering Graphics	5	1	0	4	3
9	UEWSCPA	Engineering Science Course	Work Shop Practices	4	0	0	4	2
TOTAL				26	12	2	12	20

*L- Lecture; T-Tutorial; P-Practical; C-Credit



SEMESTER II

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	UECHC01	Basic Science Course	Engineering Chemistry	4	4	0	0	4
2.	UEPHC02	Basic Science Course	Engineering Physics-II	2	2	0	0	2
3.	UEMTC02	Basic Science Course	Engineering Mathematics-II	4	3	1	0	4
4.	UEITC01	Engineering Science Course	Python for problem solving	3	3	0	0	3
5	UEMDC02	Mandatory Course 2	Environmental Sciences	2	2	0	0	0
6	UEMDC03	Mandatory Course 3	Gender sensitivity	2	2	0	0	0
PRACTICAL								
7	UELECPB	Humanities and Social Science including Management Courses	Communication Skills Laboratory - II	2	0	0	2	1
8	UEPHCPA	Basic Science Course	Engineering Physics Laboratory	2	0	0	2	1
9	UECHCPA	Basic Science Course	Engineering Chemistry Laboratory	2	0	0	2	1
10	UEITCPA	Engineering Science Course	Python Programming Lab	2	0	0	2	1
TOTAL				25	16	1	8	17



SEMESTER III

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	UE1MTC3	Basic Science Course	Engineering Mathematics-III	4	3	1	0	4
2.	UEMCC01	Engineering Science Course	Engineering Mechanics	3	3	0	0	3
3.	UEPE301	Professional Core Course 1	Petroleum Geology	3	3	0	0	3
4.	UEPE302	Professional Core Course 2	Principles of Petroleum Engineering	3	3	0	0	3
5.	UEPE303	Professional Core Course 3	Fluid Mechanics for Reservoir Fluids	3	3	0	0	3
6.	UEPE304	Professional Core Course 4	Petroleum Geophysics	3	3	0	0	3
7.	UEMTC03	Mandatory Course 4	Constitution of India	2	-	-	-	-
8.	UEVCC02	Employment Opportunity Course	Value Added Training Program-I	2	-	-	2	-
9.	UEVCC03	Industrial Visit	Industrial Visit-I	-	-	-	-	-
PRACTICAL								
10.	UEPE3PA	Professional Lab Course 1	Petroleum Geology Lab	2	0	0	2	1
11.	UEPE3PB	Professional Lab Course 2	Fluid Mechanics – Petroleum Lab	2	0	0	2	1
12.	UEEE3PC	Engineering Science Course	Electrical Workshop Practices	2	0	0	2	1
13.	UE1LECD	Humanities and Social Science including Management Courses	Interpersonal Communication	2	0	0	2	1
TOTAL				31	18	1	10	23



SEMESTER IV

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	MTECC01	Basic Science Course	Mathematical foundation for Data science and AI	2	2	0	0	2
3	UEMTC05	Humanities and Social Science including Management Courses	Professional Ethics and Human Values	3	3	0	0	3
4	UEPE401	Professional Core Course 5	Drilling Operations & Equipment	3	3	0	0	3
5.	UEPE402	Professional Core Course 6	Drilling Fluids & Cementation	3	3	0	0	3
6	UEPE403	Professional Core Course 7	Reservoir Engineering-I	3	3	0	0	3
7	UEPE404	Professional Core Course 8	Petroleum Engineering Thermodynamics	3	3	0	0	3
8		Open Elective Course 1	OEC 1	3	3	0	0	3
9	UEMTC04	Mandatory Course 5	Essence of Indian Knowledge Tradition	2	2	0	0	0
10	UEVCC04	Employment Opportunity Course	Value Added Training Program-II	2	0	0	2	0
11	UEVCC05	Industrial Visit	Industrial Visit - II	0	0	0	0	0
PRACTICAL								
12	UEPE4PA	Professional Lab Course 3	Reservoir Engineering Laboratory	2	0	0	2	1
13	UEPE4PB	Professional Lab Course 4	Drilling Fluids Laboratory	2	0	0	2	1
14	UE1LECE	Humanities and Social Science including Management Courses	Professional Communication	2	0	0	2	1
TOTAL				30	22	0	8	23



SEMESTER V

S. No	Course code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	UEPE501	Professional Core Course 9	Enhanced oil Recovery	3	3	0	0	3
2.	UEPE502	Professional Core Course 10	Production Operation & Equipment	4	3	1	0	4
3.	UEPE503	Professional Core Course 11	Reservoir Engineering - II	3	3	0	0	3
4.	UEPEC02	Engineering Science Course	Heat & Mass Transfer	3	3	0	0	3
5.		Professional Elective Course 1	PEC 1	3	3	0	0	3
6.		Open Elective Course 2	OEC 2	3	3	0	0	3
7.	UEVCC05	Mandatory Course - 3	Indian Constitution	2	2	0	0	0
8.	UEVCC08	Employment Opportunity Course	Value Added Training Program-III	-	-	-	-	-
9.	UEVCC09	Industrial Visit	Industrial Visit - III	-	-	-	-	-
PRACTICAL								
10.	UEPE5PA	Professional Lab Course 5	Production Engineering Laboratory	2	0	0	2	1
11.	UEPE5PB	Professional Lab Course 6	Heat & Mass Transfer Laboratory	2	0	0	2	1
12.	UEPE5PC	Internship	Internship - 1	0	0	0	0	1
TOTAL				25	20	1	4	22



SEMESTER VI

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	UEPE601	Professional Core Course 12	Well Design & Completion	3	3	0	0	3
2.	UEPE602	Professional Core Course 13	Formation Evaluation	3	3	0	0	3
3.	UEPE 603	Professional Core Course 14	Field development plan	3	3	0	0	3
3.	UEITC03	Engineering Science Course	Artificial Intelligence	3	3	0	0	3
4.		Professional Elective Course 2	PEC 2	3	3	0	0	3
5.		Professional Elective Course 3	PEC 3	3	3	0	0	3
6.		Open Elective Course 3	OEC 3	3	3	0	0	3
7.	UEVCC11	Employment Opportunity Course	Professional Development Programme-I	2	2	0	0	0
8.	UEVCC12	Employment Opportunity Course	Value Added Training Program-IV	2	-	-	2	-
9.	UEVCC13	Industrial Visit	Industrial Visit-IV	-	-	-	-	-
PRACTICAL								
9.	UEPE6PA	Professional Lab Course 7	Petroleum Testing Laboratory	2	0	0	2	1
10.	UEPE6PB	Professional Lab Course 8	Formation Evaluation Laboratory	2	0	0	2	1
11.	UEPE6PC	Project	Mini project	4	0	0	4	2
TOTAL				33	23	0	10	25



**CBCS CURRICULUM (2020-21)
SEMESTER VII**

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.	UEPE701	Professional Core Course 14	Offshore Drilling Technology	3	3	1	0	3
2.	UEPE702	Professional Core Course 15	Well Testing	3	3	0	0	3
3	UEPE703	Professional Core Course 16	Petroleum Economics	3	3	0	0	3
4		Open Elective Course 4	OEC 4	3	3	0	0	3
5		Professional Elective Course 4	PEC 4	3	3	0	0	3
6.	UEVCC10	Employment Opportunity Course	Professional Development Programme - II	2	2	0	0	0
7.	UEVCC11	Employment Opportunity Course	Value Added Training Program-V	2	-	-	2	-
8.	UEVCC12	Industrial Visit	Industrial Visit-V	-	-	-	-	-
PRACTICAL								
9.	UEPE7PA	Professional Lab Course 8	Drilling Simulator & Software Laboratory	2	0	0	2	1
10	UEPE7PB	Project	Project Work – Phase 1	6	0	0	6	3
11	UEPE7PC	Internship	Internship - 2	0	0	0	0	1
TOTAL				27	17	0	10	20



CBCS CURRICULUM (2020-21)
SEMESTER VIII

S. No	Course Code	Category	Course Title	Contact Hours	L	T	P	C
THEORY								
1.		Professional Elective Course 5	PEC 5	3	3	0	0	3
2.		Professional Elective Course 6	PEC 6	3	3	0	0	3
3.	UEVCC13	Industrial Visit	Industrial Visit - VI	-	-	-	-	-
PRACTICAL								
4.	UEPE8PA	Project	Project Work - Phase 2	14	0	0	14	7
TOTAL				20	6	0	14	13



List of professional elective courses (PEC) offered by the Department

Sl. No.	Course Code	Title of the PEC	Contact Hours	L	T	P	C
PEC1							
1	UEPEP01	Petroleum Geochemistry	3	3	0	0	3
2	UEPEP02	Well Control Methods	3	3	0	0	3
3	UEPEP03	Production Engineering	3	3	0	0	3
4	UEPEP19	Well Planning & Design	3	3	0	0	3
PEC2							
1	UEPEP04	Well Completion Techniques	3	3	0	0	3
2	UEPEP05	Natural Gas Engineering	3	3	0	0	3
3	UEPEP06	Offshore Structures & Design	3	3	0	0	3
4	UEPEP20	Renewable Energy Resources	3	3	0	0	3
PEC3							
1	UEPEP07	Subsurface Maps for Exploration & Exploitation	3	3	0	0	3
2	UEPEP08	Oil & Gas Management	3	3	0	0	3
3	UEPEP09	Petrochemical & Refining Engineering	3	3	0	0	3
4	UEPEP21	Drilling Technology	3	3	0	0	3
PEC4							
1	UEPEP10	Unconventional Oil & Gas Resources	3	3	0	0	3
2	UEPEP11	Advanced Drilling Techniques	3	3	0	0	3
3	UEPEP12	Hydrocarbon Processing & Plant Engineering	3	3	0	0	3
4	UEPEP22	Disaster Management	3	3	0	0	3
PEC5							
1	UEPEP13	Workover Operation	3	3	0	0	3
2	UEPEP14	Reservoir Modeling & Simulation	3	3	0	0	3
3	UEPEP15	Well Services & Stimulation	3	3	0	0	3
4	UEPEP23	Reservoir Management	3	3	0	0	3
PEC 6							
1	UEPEP16	Field Development Plan	3	3	0	0	3
2	UEPEP17	Oil Well Drilling Operations	3	3	0	0	3
3	UEPEP18	Petroleum Storage, Handling & Transportation	3	3	0	0	3
4	UEPEP24	HSE & Hazards Concern in Petroleum Industry	3	3	0	0	3



List of open elective courses (OEC) offered by Department of Petroleum Engineering

IV Sem

Sl. No.	Course Code	Title of the OEC1	Contact Hours	L	T	P	C
1	UEPEO01	Introduction to Oil & Gas Exploration	3	3	0	0	3
2	UEPEO02	Principles of Petroleum Engineering	3	3	0	0	3
3	UEPEO09	Petroleum Storage, Transportation and Marketing	3	3	0	0	3

V Sem

Sl.No.	Course Code	Title of the OEC2	Contact Hours	L	T	P	C
1	UEPEO03	Oil & Gas Processing Technology	3	3	0	0	3
2	UEPEO04	Petroleum Refining Technology	3	3	0	0	3
3	UEPEO10	Petroleum Geoscience	3	3	0	0	3

VI Sem

Sl.No.	Course Code	Title of the OEC3	Contact Hours	L	T	P	C
1	UEPEO05	Offshore Oil & Gas Operations	3	3	0	0	3
2	UEPEO06	Disaster Management	3	3	0	0	3
3	UEPEO11	Drilling Technology	3	3	0	0	3

VII Sem

Sl.No.	Course Code	Title of the OEC4	Contact Hours	L	T	P	C
1	UEPEO07	Petroleum Hazards and Risks	3	3	0	0	3
2	UEPEO08	Unconventional Oil & Gas Resources	3	3	0	0	3
3	UEPEO12	Oil & Gas Management	3	3	0	0	3



CBCS CURRICULUM (2020-21)
AMET CURRICULUM – CREDIT SHARE

Semester	Contact Hours	Lecture	Tutorial	Practical	Credits
Semester 1	26	12	2	12	20
Semester 2	25	16	1	8	17
Semester 3	31	18	1	10	23
Semester 4	30	22	0	8	23
Semester 5	25	18	1	6	22
Semester 6	33	23	0	10	25
Semester 7	27	17	0	10	20
Semester 8	20	6	0	14	13
Total	217	132	5	78	163

Distribution of Credits

Humanities	Basic Science	Engineering Science	Professional Core	Professional Elective	Open Elective	Project /Internship	Total
12	25	30	53	18	12	13	163

