



ADITYA ENGINEERING COLLEGE

An Autonomous Institution

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Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

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Department of Petroleum Technology

B.Tech - AR17 - Course Articulation Matrix

Note: Correlation Levels are 1 or 2 or 3. Where 1- Slight(Low), 2 - Moderate(Medium), 3 - Substantial (High).

CO Statements		POs												PSOs	
I SEM															
Course Code	171HS1T01 - English - I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Summarize how Gandhi grew in introspection and the conditions to achieve a higher quality of life, strength and sovereignty of a developed nation.	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO2	Identify that all men can come together and avert the peril.	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO3	Comprehend texts from a literary perspective and familiarise the students with Figures of Speech.	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO4	Explain the characteristic traits of renowned scientists who contributed enormously to the scientific advancement of India.	-	-	-	-	-	-	-	-	-	3	-	-	-	-
CO5	Demonstrate Writing and basic concepts of Grammar skills.	-	-	-	-	-	-	-	-	-	3	-	-	-	-
Course Code	171BS1T01 - Mathematics - I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Associate linear differential equations of first order to various physical problems involving differential equations of first order	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Solve linear differential equations of higher order.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Solve linear systems of equations using the concept of rank, Gauss elimination, Gauss seidal method.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Find the eigen values and eigen vectors.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Associate the concepts of Partial Differentiation to maxima and minima of functions of several variables and to Partial differential equations.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	171HS1T02 - Environmental Studies	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Identify the need for protecting the producers and consumers in various ecosystems and their role in the food web.	-	-	-	-	-	3	2	-	-	-	-	1	-	-
CO2	Outline the natural resources and their importance for the sustenance of the life.	-	-	-	-	-	3	2	-	-	-	-	1	-	-

	CO Statements	POs												PSOs	
CO3	List out the biodiversity of India, threats and its conservation methods.	-	-	-	-	-	3	2	-	-	-	-	1	-	-
CO4	Illustrate various attributes of the pollution, impacts and measures to control the pollution along with waste management practices. Summarize the legislations of India in environmental protection.	-	-	-	-	-	3	2	-	-	-	-	1	-	-
CO5	Describe social issues both rural and urban environment to combat the challenges. Explains the population growth and its implications	-	-	-	-	-	3	2	-	-	-	-	1	-	-
Course Code	171BS1T03 - Engineering Chemistry	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain polymeric materials their uses and moulding techniques of plastics.	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	Classify solid, liquid and gaseous fuels.	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	Explain about batteries, corrosion and their control methods.	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO4	Explain Nano materials, Super Conductors, Semi Conductors and Liquid Crystals.	3	-	-	-	-	-	-	-	-	-	-	-	1	-
CO5	Summarize water purification techniques and boiler troubles.	2	-	-	-	-	-	-	-	-	-	-	-	1	-
Course Code	171ES1T02 Engineering Mechanics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Determine the resultant force and moment for a given force system.	3	2	1	-	-	-	-	-	-	-	-	-	-	-
CO2	Explain the concept of friction.	2	1	1	-	-	-	-	-	-	-	-	-	-	-
CO3	Calculate the forces in planar and spatial systems.	3	2	1	-	-	-	-	-	-	-	-	-	-	-
CO4	Locate centroid of composite areas and centre of gravity of composite bodies.	1	1	1	-	-	-	-	-	-	-	-	-	-	-
CO5	Calculate the moment of inertia of composite areas and rigid bodies.	3	2	1	-	-	-	-	-	-	-	-	-	-	-
CO6	Apply the concepts of kinematics, kinetics, work - energy and impulse - momentum methods to particle motion.	3	2	1	-	-	-	-	-	-	-	-	-	-	-
Course Code	171ES1T01 - Computer Programming	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply Fundamental concepts of C for mathematical and scientific problems	1	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Use Control Structures and Arrays in solving complex problems.	1	2	2	3	-	-	-	-	-	-	-	-	-	-
CO3	Develop modular programs to solve problems using control structures, Arrays and strings.	1	3	2	2	-	-	-	-	-	-	-	-	-	-
CO4	Demonstrate the pointers concept for allocating and deallocating memory dynamically.	1	2	2	3	-	-	-	-	-	-	-	-	-	-
CO5	Solve real world problems using the concept of file, structures and unions.	1	2	2	2	-	-	-	-	-	-	-	-	-	-
Course Code	171HS1L01 - English Communication Skills Lab - I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Make use of the concepts to communicate confidently and competently in English Language in all spheres.	-	-	-	-	1	-	-	-	-	3	-	1	-	-

	CO Statements	POs												PSOs		
CO3	Determine the bending and shear stresses in beams of various cross sections.	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Compute longitudinal, hoop stresses for cylindrical shells and the parameters of power transmission systems.	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Describe the different types of boilers and the performance of the compressors.	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	Explain the working principle and performance of Internal Combustion Engines.	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	17IHS2L02 - English Communication Skills Lab - II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Make effective use of Body language in all situations and contexts to enhance effective communication in all aspects.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	
CO2	Identify communicative competency to respond to others in different situations.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	
CO3	Make use of effective delivery strategies to select, compile and synthesize information for oral presentation.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	
CO4	Demonstrate in mock interviews, group discussion and public speaking.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	
CO5	Illustrate interpersonal skills using English language confidently and effectively for personal and professional growth.	-	-	-	-	-	-	-	-	-	3	-	2	-	-	
Course Code	17IBS2L02 - Engineering Physics Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Use spectrometer, polarimeter, travelling microscope for making measurements.	3	2	-	-	-	-	-	-	2	-	-	1	-	-	
CO2	Determine energy gap of a semiconductor, draw characteristic curves to estimate thermal coefficient of a thermistor, zener diode.	2	2	-	-	-	-	-	-	2	-	-	1	-	-	
CO3	Determine the rigidity and determine frequency of an unknown electric vibrator.	3	1	-	-	-	-	-	-	2	-	-	1	-	-	
CO4	Determine wavelength of unknown source, the width of narrow slits, spacing Between close rulings using lasers and appreciate the accuracy in measurements.	3	2	-	-	-	-	-	-	2	-	-	1	-	-	
CO5	Verify magnetic field along the axis of a circular coil.	3	2	-	-	-	-	-	-	2	-	-	1	-	-	
Course Code	17IES2L02 - Engineering Workshop and IT Workshop	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Prepare carpentry, fitting joints as per the given requirement using Carpentry and Fitting tools	2	1	-	-	-	-	-	-	1	-	-	-	-	-	
CO2	Convert the metal rods and sheets into final shape using black smithy and tin smithy tools	2	1	-	-	-	-	-	-	1	-	-	-	-	-	
CO3	Prepare the circuit for house wiring applications	2	1	-	-	-	-	-	-	1	-	-	-	-	-	

	CO Statements	POs												PSOs		
CO4	Calculate the energy balances with reactive and non-reactive process systems	3	2	-	-	-	-	-	-	-	-	-	-	-	2	-
CO5	Solve combustion calculations and thermal efficiency calculations	2	2	-	-	-	-	-	-	-	-	-	-	-	3	-
Course Code	17IES3T05 - Basic Electrical and Electronics Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Analyze the various electrical networks.	3	3	-	-	-	-	-	-	-	-	-	-	1	-	
CO2	Explain the operation of DC Machines.	2	-	-	-	-	-	3	-	-	-	-	-	1	-	
CO3	Examine the performance of single-phase transformers.	3	-	2	-	-	-	-	-	-	-	-	-	1	-	
CO4	Compare the operation of 3-phase alternators and 3-phase induction motors.	2	1	-	-	-	-	-	-	-	-	-	-	1	-	
CO5	Distinguish the operation of half wave and full wave bridge rectifiers.	3	3	2	2	-	-	2	-	-	-	-	-	1	-	
Course Code	17IES3L09 - Basic Engineering Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Illustrate the efficiency of a DC machine as motor and generator.	3	-	1	-	-	-	-	-	-	-	-	-	-	1	
CO2	Analyze the performance of a 3-Phase induction motor and DC Shunts motor by conducting direct test	3	-	1	-	-	-	-	-	-	-	-	-	-	1	
CO3	Employ Synchronous impedance method to Pre-determine the regulation of an alternator	2	-	2	-	-	-	-	-	-	-	-	-	-	1	
CO4	Demonstrate mould making process for casting process and sand preparation methods	3	-	1	-	-	-	-	-	-	-	-	-	-	1	
CO5	Determine Performance characteristic curves and efficiencies of different hydraulic turbines	3	-	1	-	-	-	-	-	-	-	-	-	-	1	
CO6	Determine the performance of various types of IC Engines.	3	-	1	-	-	-	-	-	-	-	-	-	-	1	
Course Code	17IES3L10 - Geology and Surveying Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Make use of the maps to estimate reservoir area and thickness and draw litho - stratigraphy columns	3	-	-	-	-	-	-	-	2	2	-	1	-	1	
CO2	Construct Geological map, strike, dip at any chosen location/ different geological locations and do sampling for paleontological studies at any location	3	-	-	-	-	-	-	-	2	2	-	1	-	1	
CO3	Estimate the levels of existing ground with the help of auto level.	3	-	-	-	-	-	-	-	2	2	-	1	-	1	
CO4	Solve height and distances problems using different principles.	3	-	-	-	-	-	-	-	2	2	-	1	-	1	
CO5	Calculate areas and distances by total station.	3	-	-	-	-	-	-	-	2	2	-	1	-	1	
Course Code	17IHS3A10 - Employability Skills - I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Explain the number and letter series and analogies in different models	1	-	-	-	-	-	-	-	-	-	-	1	-	-	
CO2	Demonstrate processes of coding & decoding and direction test	1	-	-	-	-	-	-	-	-	1	-	1	-	-	
CO3	Demonstrate the basic grammatical skills using articles and prepositions	-	-	-	-	-	-	-	-	-	1	-	1	-	-	
CO4	Use tenses, voice types and conversion rules to deliver an effective speech	-	-	-	-	-	-	-	-	-	1	-	1	-	-	
CO5	Demonstrate creative speaking abilities using all forms of sentences	-	-	-	-	-	-	-	-	-	1	-	1	-	-	

CO Statements		POs												PSOs	
Course Code	171HS3A09 - Professional Ethics and Human Values	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Make use of values, morals and ethics in their day to day life.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO2	Identify what is right and wrong through moral ethics.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO3	Analyze experimental learning while developing the society with ethos.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO4	Apply ethical principles to resolve the problems that arise in work place.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO5	Apply adequate knowledge on global code of conduct.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
IV SEM															
Course Code	171BS4T10 - Probability and Statistics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply various Probability distributions for both discrete and continuous random variables.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Compute men, and variance of sample means with replacement and without replacement.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Apply various test to test the hypothesis concerning mean, Proportion, variance and perform ANOVA test.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Apply the concepts of correlation and regression to the given statistical data.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Examine quality of the product using control charts.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	171PT4T02 - Momentum Transfer	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the basic concepts of dimensional analysis and fluid flow phenomena	2	3	-	2	-	-	-	-	-	-	-	1	-	1
CO2	Solve mass balance in a flowing fluid, continuity, differential momentum balance and mechanical energy equations	2	3	-	2	-	-	-	-	-	-	-	1	-	3
CO3	Classify compressible and incompressible fluids flow in pipes and channels.	2	3	-	2	-	-	-	-	-	-	-	1	-	1
CO4	Solve the drag and drag coefficient, Flow through beds of solids, motion of particles through fluids.	2	3	-	2	-	-	-	-	-	-	-	1	-	1
CO5	Explain the concepts of transportation, metering of fluids and measurement of flowing fluids.	2	3	-	2	-	-	-	-	-	-	-	1	-	2
Course Code	171PT4T03 - Petroleum Geology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Identify different source rocks and choose better one for oil formation.	2	-	-	-	-	-	-	-	-	-	-	3	2	-
CO2	Apply the petro physical properties of reservoir and cap rocks for oil retention.	3	-	-	-	-	-	-	-	-	-	-	3	2	-
CO3	Analyze the different factors for the mechanism of oil migration.	3	-	-	-	-	-	-	-	-	-	-	3	2	-
CO4	Build a geological model for ideal petroleum system	2	-	-	-	-	-	-	-	-	-	-	3	2	-
CO5	Explain the types of sedimentary basins.	3	-	-	-	-	-	-	-	-	-	-	3	2	-

	CO Statements	POs												PSOs	
Course Code	171PT4T04 - Thermodynamics for Petroleum Engineers	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the basic concepts of thermodynamics and first law of thermodynamics.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
CO2	Explain PVT behavior of pure substances and second law of thermodynamics	3	2	-	-	-	-	-	-	-	-	-	2	3	-
CO3	Make use of thermodynamic tables and diagrams for the estimation of thermodynamic properties of fluids.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
CO4	Apply residual and excess Gibbs free energy models for design of oil and natural gas processing systems.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
CO5	Explain the concepts with the help of calculations of VLE, VLLE, SVE and SLE.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
Course Code	171PT4T05 - Process Heat Transfer	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the various modes of heat transfer and the principles involved in them	3	2	-	-	-	-	-	-	-	-	-	2	2	-
CO2	Make use of individual heat transfer coefficients to determine over all heat transfer rate	3	2	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Explain the heat transfer with and without involving phase change	3	2	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Identify the types of heat exchanger equipment and know their intended purpose	1	2	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Demonstrate the effect of material, flow regimes, phase changes etc. on heat transfer rate.	3	2	-	-	-	-	-	-	-	-	-	2	2	-
Course Code	171HS4T05 - Management Science	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply management and motivation theories to renovate the practice of management.	-	-	-	-	-	-	-	-	-	2	-	1	-	2
CO2	Use principles of Statistical Quality Control and Materials management in the design of products and process controls.	1	1	-	-	-	-	-	-	-	3	-	1	-	2
CO3	Appraise the functional management challenges associated with high levels of change in the organizations.	-	-	-	-	-	-	-	-	-	1	-	1	-	2
CO4	Identify activities with their interdependency and use scheduling techniques of project management PERT/CPM.	1	1	-	-	-	-	-	-	-	1	1	1	-	2
CO5	Develop global vision and management skills both at strategic level and interpersonal level.	-	-	-	-	-	-	-	-	-	1	-	1	-	2
Course Code	171PT4L01 - Momentum Transfer Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Identify laminar and turbulent flows in major equipment like Reynolds	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO2	Calculate momentum transfer principles and experimentation methods.	-	-	-	-	-	-	-	-	3	2	-	2	-	2

CO Statements		POs												PSOs	
CO3	Classify involving Bernoulli's equation for the transport of acidic, alkaline, hydrocarbon and miscellaneous incompressible fluids in pipelines	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO4	Solve pressure drop calculations and energy requirements associated to compressible fluid flow in circular and rectangular ducts	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO5	Apply pressure drop in packed and fluidized beds and prepare reports following accepted writing and graphical techniques	-	-	-	-	-	-	-	-	3	2	-	2	-	2
Course Code	17IPT4L02 - Process Heat Transfer Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Utilize the basics of experimental techniques for heat transfer measurements.	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO2	Demonstrate the heat transfer equipment like heat exchangers	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO3	Analyze process experimental data and obtain correlations to predict heat transfer coefficients for design of heat transfer systems.	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO4	Interpret the experiments at R & D level in the industry	-	-	-	-	-	-	-	-	3	2	-	2	-	2
CO5	Relate the professional and ethical responsibilities in the field of heat transfer.	-	-	-	-	-	-	-	-	3	2	-	2	-	2
Course Code	171HS4A11 - Employability Skills - II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Examine the symbols, notations and venn diagrams	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Use verbal adjectives, degree of comparisons in personality development	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	Solve problems of time & date and puzzles	1	-	-	-	-	-	-	-	-	-	-	1	-	-
CO4	Solve problems of cubes & dice and seating arrangements	-	-	-	-	-	-	-	-	-	1	-	1	-	-
CO5	Use word analogy & paragraph writing for effective communication	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Course Code	171HS4A08 - IPR and Patents	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Compare various types of Intellectual Property rights.	-	-	-	-	-	-	-	3	-	-	-	2	-	-
CO2	Discuss Intellectual Property and infer rights on such Intellectual Property owners	-	-	-	-	-	-	-	3	-	-	-	2	-	-
CO3	Explain the process of patenting	-	-	-	-	-	-	-	3	-	-	-	2	-	-
CO4	Apply for trade marks and trade secrets.	-	-	-	-	-	-	-	3	-	-	-	2	-	-
CO5	Interpret the legal issues on Intellectual Property Rights and cyber laws	-	-	-	-	-	-	-	3	-	-	-	2	-	-
V SEM															
Course Code	171PT5T06 - Process Dynamics and Control	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the process control objectives	-	3	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Explain the processes with appropriate block diagrams	-	3	-	-	-	-	-	-	-	-	-	2	-	2

	CO Statements	POs												PSOs		
CO3	Identify the stability limits of a system using Stability Criterion and Frequency response of a system	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Apply the advance control strategies	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Explain tuning a control loop and explain the characteristics of control valves	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT5T07 - Petroleum Exploration	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Explain different exploration methods for oil exploration	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
CO2	Apply the gravity and magnetic methods for oil exploration	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Make use of seismic methods for oil exploration	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Compare the different geophysical methods	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Explain the various well seismic shootings.	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
Course Code	171PT5T08 - Process Instrumentation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Choose the instrument based on static and dynamic characteristic.	3	-	-	-	-	-	2	-	-	-	-	-	1	-	2
CO2	Categorize the various types of thermometer & composition analysis.	3	-	-	-	-	-	2	-	-	-	-	-	1	-	2
CO3	Distinguish the various types of the instruments for various variables	3	-	-	-	-	-	2	-	-	-	-	-	1	-	2
CO4	Interpret the instrument diagrams, control center on industrial process plants.	3	-	-	-	-	-	2	-	-	-	-	-	1	-	2
CO5	Summarize all the recordings, indicating & signaling instruments, transmission of instruments recording.	3	-	-	-	-	-	2	-	-	-	-	-	1	-	2
Course Code	171PT5T09 - Well Logging and Formation Evaluation	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Illustrate coring, coring analysis and fundamentals of concepts of logging.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Explain the depositional environment of subsurface strata by using the Electrical logs	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Calculate the porosity, permeability, thickness of different layers using the principles of radioactive and sonic logs	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Calculate the amount of fluid saturation around wellbore and flow rates through production logging.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Interpret the given logging data in real world through crossplots, correlation for hydrocarbon reserves estimation.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT5T10 - Drilling Technology	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Apply the concept of a drill string design for drilling.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO2	Apply the concept of hydrostatic pressure, fracture pressure and formation pressure.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO3	Design casing and cementation for a well	3	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO4	Design a well for directional drilling.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO5	Solve well control, stuck pipe and fishing problems.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	3

Course Code	CO Statements	POs												PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
171PT5E01 - Well Engineering and Design (Professional Elective-I)																
CO1	Explain Pore pressure and Fracture pressure	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Solve the Kick tolerance for Kick identification	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Design the Casing for effective well construction	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Solve the Wellbore instability problems	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Calculate the Torque and Drag forces based on Horizontal, Extended, Multilateral and HPHT Wells.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
171PT5E02 - Fundamentals of Liquefied Natural Gas (Professional Elective-I)																
CO1	Explain the LNG value chain.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Classify the different liquefaction technologies of LNG.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Explain the components of LNG receiving terminals.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Summarize LNG storage and transportation facilities.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Identify major equipment and safety aspects of LNG industry.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
171PT5E03 - Pipeline Engineering (Professional Elective-I)																
CO1	Illustrate pipeline route selection and survey operations.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Apply the pipeline mechanical design and pipeline protection.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Summarize the natural gas transmission in pipelines.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Explain the performance of compressors and coolers.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Facilitate the fundamentals of transient analysis.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
171HS5T06 - Employability Skills – III																
CO1	Calculate the L.C.M and H.C.F of numbers	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Solve problems on Numbers & Simple equations	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	Apply different types of models on ratio & proportion, average, ages and percentages	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO4	Apply interviewing skills, Group discussion skills and personal priorities	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
CO5	Apply resume writing skills, e-mail writing & business etiquette	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
171PT5L03 - Instrumentation, Process Dynamics and Control Lab																
CO1	Experiment with the dynamic characteristics of first and second order systems.	2	2	-	-	-	-	-	-	2	2	-	2	-	2	
CO2	Apply the advanced control methods used for complex processes in the industries.	2	2	-	-	-	-	-	-	2	2	-	2	-	2	
CO3	Apply controllers like ON/OFF, P, PI, PD and PID for process systems.	2	2	-	-	-	-	-	-	2	2	-	2	-	2	
CO4	Identify the stability of the system.	2	2	-	-	-	-	-	-	2	2	-	2	-	2	

CO Statements		POs												PSOs	
CO5	Experiment with the types of control valves and the response of U-tube manometer.	2	2	-	-	-	-	-	-	2	2	-	2	-	2
Course Code	171PT5L04 - Drilling Fluids Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply the concepts of mud viscosity and gel strength properties.	2	-	-	-	-	-	-	-	2	2	-	2	-	2
CO2	Apply the knowledge of liquid loss in mud through API filter press.	2	-	-	-	-	-	-	-	2	2	-	2	-	2
CO3	Identify the concepts of solid and liquid content of drilling mud.	2	-	-	-	-	-	-	-	2	2	-	2	-	2
CO4	Identify the effect of temperature and pressure on setting of cement slurry.	2	-	-	-	-	-	-	-	2	2	-	2	-	2
CO5	Experiment with oil-water retort kit	2	-	-	-	-	-	-	-	2	2	-	2	-	2
VI SEM															
Course Code	171PT6T11 - Well Completions, Testing and Services	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Recognize specified equipment for well head installations	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Apply DST/RFT tools to know the initial potential of the wells.	2	-	-	-	-	-	-	-	-	-	-	2	-	3
CO3	Illustrate the equipment for setting in the well for testing & production	3	-	-	-	-	-	-	-	-	-	-	2	-	3
CO4	Identify the logging tool for testing the zone	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Choose good work over operation whenever rigs less operation are required	2	-	-	-	-	-	-	-	-	-	-	2	-	3
Course Code	171PT6T12 - Petroleum Production Engineering	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply Oil and gas properties concept to get production from different types of reservoir based on drive mechanism.	2	3	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Apply the concept of different types of flow to start the production.	2	3	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Design and operate artificial lift on reservoir pressure Depletion.	2	3	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Select appropriate gas lift valve to fulfill the potential compression requirements.	2	3	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Identify different types of well problems during production and solve them to stimulate the productions	2	3	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT6T13 - Petroleum Reservoir Engineering – I	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply basic concepts of reservoir engineering.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Estimate the PVT analysis parameters such as formation volume factor for oil and gas, solution gas ratio.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Apply and estimate the reserves based on General Material Balance Equation.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Evaluate the Permeability and potential, mobility from Darcy Law.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Apply Basic radial Flow differential equation and Well inflow Estimation for Different system of equations.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT6T14 - Surface Production Operations	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the efficient separation of oil and gas.	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Maintain the quality of oil, required by the refineries.	3	-	-	-	-	-	-	-	-	-	-	2	-	2

	CO Statements	POs												PSOs		
CO3	Identify the various control systems fitted on the separators/heater-theaters, so that. Smooth operation of GGS/GCS can be maintained	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Explain the crude oil emulsions produced from various wells and he can treat such crudes to the required oil quality	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Describe the treatment of produced water and disposal of the same as per the norms laid by regulatory authorities	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT6E04 - Petroleum Refining and Petrochemical Engineering (Professional Elective-II)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Identify the types of petroleum feed stocks and products by their properties.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	2
CO2	Make use of process knowledge to solve operational problems and increase the efficiency.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	2
CO3	Apply the knowledge of crucial processes to meet the end product demands.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	2
CO4	Prioritize the demand of various Petrochemicals to optimize the processes.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	2
CO5	Distinguish various petrochemical products and their uses.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	2
Course Code	171PT6E05 - Storage and Transportation of Crude Oil and Natural Gas. (Professional Elective-II)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Explain the physical and transport properties.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Summarize modes of transportation and storage for crude oil and natural gas.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Demonstrate transportation and flow assurance problems in crudeoil pipes.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Illustrate transportation of natural gas in pipelines	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Demonstrate the flow assurance challenges, system design and operability for subsea pipelines.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT6E06 - Reservoir Stimulation (Professional Elective-II)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Outline stimulation treatments and rock mechanics.	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO2	Model Hydraulic fracturing and Fracturing fluid Chemistry.	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Select Fracturing fluid proppant and characterization.	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Expalin fracturing diagnosis using pressure analysis .	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Make use of fracture design and Fracture prediction and Post Treatment	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
Course Code	171PT6E07 - Natural Gas Hydrates (Professional Elective-III)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Explain the necessity of natural gas hydrates, different hydrate types and formers.	3	2	-	-	-	-	-	-	-	-	-	-	2	3	-

	CO Statements	POs												PSOs		
CO2	Apply different hand calculation methods and computer methods for rapid estimation of hydrate formation conditions.	2	2	-	-	-	-	-	-	-	-	-	-	2	3	-
CO3	Outline the design information for battling hydrates using chemicals and the reasons responsible for dehydration of gas.	3	2	-	-	-	-	-	-	-	-	-	-	2	3	-
CO4	Identify the regions of pressure and temperature for combating hydrate formation and the importance of physical properties of design processes.	3	2	-	-	-	-	-	-	-	-	-	-	2	3	-
CO5	Examine the relationship between fluid phase equilibria and hydrate formation and water content of natural gas.	2	2	-	-	-	-	-	-	-	-	-	-	2	3	-
Course Code	171PT6E08 - Natural Gas Engineering (Professional Elective-III)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Study basic fluid phase behavior	3	2	-	-	-	-	-	-	-	-	-	-	2	3	-
CO2	Determine the physical properties of natural gas.	3	2	-	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Explain scientific and engineering principles and their problem in natural gas engineering	3	2	-	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Formulate solution to natural gas engineering problems by scientific and engineering knowledge	3	2	-	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Design and conduct experiment, and interpret and analyze data	3	2	-	-	-	-	-	-	-	-	-	-	2	3	-
Course Code	171PT6E09 - Horizontal Well Technology (Professional Elective-III)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Summarize the overview of horizontal well technology and the use of reservoir engineering concepts useful in horizontal well technology.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Apply analytical steady state solutions for the analysis of horizontal wells and compare the horizontal and fractured vertical wells.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Apply well test analysis procedure in horizontal well to obtain different engineering properties.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Apply pseudo steady state flow concepts to decide the pressure disturbances created by producing well.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Apply the knowledge of water and gas coning in horizontal wells in appropriate way to increase the oil production rate significantly.	3	2	-	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171HS6T07 - Employability skills – IV	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Solve problems on Profit & Loss, Simple Interest & Compound Interest, Time & Work	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO2	Solve problems on Pipes & Cisterns, Time & Distance, Boats & Streams	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	Interpret the data collected for effective presentation	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-

	CO Statements	POs												PSOs	
CO4	Apply processes of Group discussion, Phonetics, Leadership skills in real world	-	-	-	-	-	-	-	-	-	2	-	1	-	-
CO5	Apply principles of Group Dynamics, Interview Skills & Evaluation criteria in organizations	-	-	-	-	-	-	-	-	-	2	-	1	-	-
Course Code	171PT6L05 - Petroleum Analysis Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Recognize specified equipment for testing various samples	-	-	-	-	-	-	-	-	2	2	-	2	3	-
CO2	Apply various apparatus/equipment in determining analyze the various products of petroleum components	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO3	Illustrate the equipment's for different petroleum products	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO4	Identify the physical properties of different petroleum products	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO5	Choose transport properties of different petroleum products	-	-	-	-	-	-	-	-	2	2	-	2	3	-
Course Code	171PT6L06 - Petroleum Reservoir Simulation Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply properties of single-phase fluid, porous media, multidimensional flow in cartesian coordinates, radial, cylindrical coordinates.	-	-	-	-	3	-	-	-	2	2	-	2	-	2
CO2	Calculate flow equations in radial, cylindrical coordinates, block ordering scheme.	-	-	-	-	3	-	-	-	2	2	-	2	-	2
CO3	Apply Reservoir Discretization for transmissibility, symmetry and its use in solving practical problems.	-	-	-	-	3	-	-	-	2	2	-	2	-	2
CO4	Apply Single Block wells, multi-block wells, Practical considerations dealing with modeling and well conditions, pressure dependence of fluid and rock properties.	-	-	-	-	3	-	-	-	2	2	-	2	-	2
CO5	Calculate non-linear terms inflow equations and equations in time.	-	-	-	-	3	-	-	-	2	2	-	2	-	2
VII SEM															
Course Code	171PT7T15 - Integrated Asset Management and Petroleum Economics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Understand the working principles of an oil and gas asset management.	3	-	-	-	-	-	-	-	-	-	2	1	3	-
CO2	Optimize functions of each segment of an asset.	2	-	-	-	-	-	-	-	-	-	2	2	2	-
CO3	Understand the concepts & terminology and develop an interdisciplinary approach for solving everyday problems	3	-	-	-	-	-	-	-	-	-	2	2	2	-
CO4	Recognize inter-relations between Oil industry petroleum sector and its impact on national and global economy.	3	-	-	-	-	-	-	-	-	-	2	2	2	-
CO5	Understand and apply the regulatory framework and related to petroleum industry in the area of licensing and exploration, OALP	2	-	-	-	-	-	-	-	-	-	2	2	3	-
Course Code	171PT7T16 - Petroleum Reservoir Engineering - II	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply Constant Terminal Rate solution of the radial diffusivity equation and its application to oil well testing.	2	3	-	-	-	-	-	-	-	-	-	2	-	2

CO Statements		POs												PSOs	
Course Code	171PT7E11 - Offshore Engineering (Professional Elective-IV)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Identify types of offshore structures and recommend a specific offshore structure for a given site condition and requirements of the platform.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Estimate water particles kinematics using linear airy's wave theory and estimate maximum wave force.	2	2	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Identify different types of loads to increase the strength of offshore structures.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Do analysis and design of fixed offshore structures.	3	2	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Design the floating platform and install different offshore structures.	2	2	-	-	-	-	-	-	-	-	-	2	-	2
Course Code	171PT7E12 - Petroleum Corrosion Technology (Professional Elective-IV)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Study the basics of corrosion, factors effecting corrosion techniques.	3	-	-	-	-	-	-	-	-	-	-	2	3	-
CO2	Analyze Protective coating, type of coating, pipeline coatings.	2	-	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Explain the importance of cathodic protection, principle, criteria and significance of protective coating.	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Describe various principles/ involved in Chemical treatment and control of corrosion environment.	3	-	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Apply concepts of Corrosion Detection & Control Monitoring, Inspection of Surface Equipment.	2	-	-	-	-	-	-	-	-	-	-	2	3	-
Course Code	171PT7E13 - Shale Gas Reservoir Engineering (Professional Elective-V)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Illustrate the basic concepts of the different aspects of shale gas reservoirs such as Organicgeo-chemistry, mineralogy, petrophysical properties, geomechanics, reservoir engineering.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
CO2	Develop the map shale gas pockets in sedimentary basins.	2	1	-	-	-	-	-	-	-	-	-	2	3	-
CO3	Demonstrate the production mechanisms to Extract shale gas.	-	3	-	-	-	-	-	-	-	-	-	2	3	-
CO4	Solve environmental issues and challenges such as high water demands and ground water contamination risks posed by hydro-fracturing fluids and waste.	-	3	-	-	-	-	-	-	-	-	-	2	1	-
CO5	Explain these problems during the exploration of shale gas reservoirs.	3	2	-	-	-	-	-	-	-	-	-	2	3	-
Course Code	171PT7E14 - Subsea Engineering (Professional Elective-V)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain Overall View of subsea engineering.	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO2	Explain the Subsea Distribution System.	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO3	Identification and monitoring of Subsea Control.	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO4	Studies on Subsea Power Supply, Subsea systems engineering.	3	-	-	-	-	-	-	-	-	-	-	2	-	2
CO5	Understanding the Hydrates, Wax and Asphaltenes.	3	-	-	-	-	-	-	-	-	-	-	2	-	2

CO Statements		POs												PSOs	
Course Code	171PT7E15 - Reservoir Modeling and Simulation (Professional Elective-V)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain simulation on simulation by mathematical approach and engineering approach.	2	3	-	-	-	-	-	-	-	-	-	2	2	-
CO2	Explain modelling of Single phase fluid equation in multidimensional domain, CVFD terminology.	2	3	-	-	-	-	-	-	-	-	-	2	2	-
CO3	Apply concepts of Simulation with block centered grid and point distributed grid.	2	3	-	-	-	-	-	-	-	-	-	2	2	-
CO4	Apply Well representation in simulators.	2	3	-	-	-	-	-	-	-	-	-	2	2	-
CO5	Apply design To help the students to design Considerations in linearization of flow equation.	2	3	-	-	-	-	-	-	-	-	-	2	2	-
Course Code	171PT7L07 - Petroleum Equipment Design and Simulation Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Design and simulation of the two-phase, three phase separators and compressors.	-	-	-	-	2	-	-	-	2	2	-	1	-	2
CO2	Design and simulation of absorber-stripper unit for removal of CO2 and H2S from natural gas.	-	-	-	-	2	-	-	-	2	2	-	1	-	2
CO3	Size /rate the pipeline & pumping systems for liquid pumping & simulate water hammer conditions.	-	-	-	-	2	-	-	-	2	2	-	1	-	2
CO4	Design and simulation of flash vaporization units.	-	-	-	-	2	-	-	-	2	2	-	1	-	2
CO5	Generating sized equipment data sheets as per the industry standards with required information for detailed design / manufacture	-	-	-	-	2	-	-	-	2	2	-	1	-	2
Course Code	171PT7L08 - Petroleum Reservoir Engineering Lab	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Identify kind of flow (steady-state, unsteady-state or transient)	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO2	Calculate and analyze porosity, permeability and pore distribution of a reservoir rock sample.	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO3	Classify involving Darcy fluid flow equation for in a reservoir.	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO4	Solve the type of permeability when two fluid flows.	-	-	-	-	-	-	-	-	2	2	-	2	2	-
CO5	Apply the experiment value to real life to get favorable outcome in reservoir engineering problem.	-	-	-	-	-	-	-	-	2	2	-	2	2	-
Course Code	171HS7A04 - Managerial Economics and Financial Analysis	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the Managerial Economic concepts for decision making and forward planning.	-	-	-	-	-	-	-	2	-	-	-	-	-	-
CO2	Illustrate the law of demand and its exceptions, to use different forecasting methods for predicting demand for various products and services	-	-	-	-	-	-	-	-	-	3	-	-	-	-

CO Statements		POs												PSOs		
CO3	Identify the cost behavior, costs useful for managerial decision making and Break Even Point (BEP) of an enterprise.	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-
CO4	Outline the different types of business organizations along with basic knowledge on business cycle.	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
CO5	Make use of the process & principles of accounting and prepare Journal, Ledger, Trial Balance, Trading A/c., Profit & Loss A/c. and Balance Sheet of an enterprise.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO6	Utilize various techniques on investment project proposals with the help of capital budgeting techniques for decision making.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Course Code	17IPT7P01 - Industry Oriented (Internship) Minor Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Outline the working environment and professional ethics in an industry	-	-	-	-	-	-	-	2	-	-	-	3	-	-	
CO2	Relate with real time tools used in industries	2	-	-	-	2	-	-	-	-	-	-	-	2	-	
CO3	Apply respective domain knowledge to understand an industrial process	3	-	-	-	-	3	3	-	-	-	-	-	3	-	
CO4	Utilize an industrial process involved in delivering/developing a final service/product for project building.	-	2	-	-	-	-	3	-	-	-	3	-	-	2	
CO5	Analyze the relevance of their course curriculum with that used in industries.	-	3	-	-	-	-	-	-	-	3	-	-	-	-	
VIII SEM																
Course Code	17IPT8E16 - HSE and FE in Petroleum Industry (Professional Elective-VI)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Explain the environmental issues in drilling and production operations.	2	-	-	-	-	-	3	-	-	-	-	1	2	-	
CO2	Summarize impacts of petroleum industry wastes and waste treatment methods.	2	-	-	-	-	-	3	-	-	-	-	1	2	-	
CO3	Demonstrate the oil mines regulations in various petroleum industry operations.	2	-	-	-	-	-	3	-	-	-	-	1	2	-	
CO4	Make use of the hazop study concepts for safe practices in Petroleum industry.	2	-	-	-	-	-	3	-	-	-	-	1	2	-	
CO5	Illustrate the fire triangle, different methods of suppression of hydrocarbon fires.	2	-	-	-	-	-	3	-	-	-	-	1	2	-	
Course Code	17IPT8E17 - Reliability and Risk Management in Petroleum Operations (Professional Elective-VI)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	Identify the risk, assess the risk, plan of action, monitor and manage.	3	-	-	-	-	-	-	-	-	-	2	1	2	-	
CO2	Study the important of risk management.	3	-	-	-	-	-	-	-	-	-	2	1	2	-	
CO3	Explain the vulnerability, risk evaluation and risk assessment.	3	-	-	-	-	-	-	-	-	-	2	1	2	-	
CO4	Apply the risk rating to different types of risk.	-	2	-	-	-	-	-	-	-	-	2	1	2	-	
CO5	Explain emergency action when there is an uneventful situation.	-	2	-	-	-	-	-	-	-	-	2	1	2	-	

	CO Statements	POs												PSOs	
Course Code	171PT8004 - Waste Water Treatment (Open Elective)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Summarize the importance of sanitation.	2	-	-	-	-	-	3	-	-	-	-	-	-	-
CO2	Find the rate of sewage flow.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO3	Identify the various characteristics of sewage.	2	-	-	-	-	-	3	-	-	-	-	-	-	-
CO4	Outline various wastewater treatment technologies.	2	-	-	-	-	-	3	-	-	-	-	-	-	-
CO5	Explain the different treated effluent disposal methods.	2	-	-	-	-	-	3	-	-	-	-	-	-	-
Course Code	171PT8005 - Computational Fluid Dynamics (Open Elective)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply finite difference method and finite volume method for practical applications.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Apply software tools available for arriving at some problems of interest.	2	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Distinguish different flow regimes while performing numerical analysis.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Apply source and vortex panel method of inviscid flow to practical problems.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Apply arrive at pressure and flow distribution for complicated flow systems.	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	171PT8006 - Process Intensification in Petroleum Industry (Open Elective)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Apply the basic principles and mechanisms that are responsible for process intensification.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	Analyze various modifications to process equipment and designs with which process intensification becomes a reality in unit operations and unit processes.	2	2	-	-	-	-	-	-	-	-	-	-	-	-
CO3	Analyze various case studies available in petrochemical, fine chemical, bioprocesses and carbon capture.	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO4	Explain application of solar energy in offshore oil and gas operations	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO5	Correlate textbook reported methodologies with Computational Fluid Dynamics and experimental process intensification.	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Course Code	171EC8002 - Disaster Management (Open Elective)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Explain the basics of disaster management and their mitigation measures.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO2	Interpret the disaster vulnerability conditions of India.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO3	Choose the means of preparedness measures against disaster.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO4	Illustrate the impact of hazards on structures.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
CO5	Outline the various rehabilitation programmes to be adopted.	2	-	-	-	-	-	2	-	-	-	-	-	-	-
Course Code	171PT8P02 - Major Project	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Demonstrate management skills required for project development	-	-	-	-	-	-	-	-	-	-	2	-	-	2
CO2	Illustrate the problem statement and scope of the project clearly.	-	1	-	-	-	-	3	3	-	-	-	-	-	2

	CO Statements	POs											PSOs		
CO3	Make use of a proper methodology in solving problems related to a project.	3	2	-	-	3	-	-	-	-	-	-	-	3	2
CO4	Analyze data into meaningful information for a project using relevant tools.	-	-	-	2	-	3	-	-	-	-	-	-	-	3
CO5	Adapt to work independently and ethically to effectively present the results in written and oral formats.	-	-	-	-	-	-	-	3	3	3	3	3	-	2