course description

Fly to Italy

این فایل به منظور کمک به متقاضیان تحصیل در کشور ایتالیا توسط گروه فلای تو ایتالی به صورت رایگان تهیه شده است لطفا از خرید این فایل خودداری فرمایید.

اسفاده از این فایل در صفحات مجازی و وبسایت ها **با ذکر نام تهییه کننده** بلا مانع است.

معرفی فلای تو ایتالی

سلام ...!
تیم فلای تو ایتالی متشکل از چند دانشجو که فعالیت خودمون را از ماه بهمن سال **1401** آغاز کردیم و هدف تیم ما این است که به شما کمک کنیم تا بتوانید به صورت مستقل و بدون نیاز به مشاوران مهاجرتی برای دانشگاه های ایتالیا اپلای کنید و پذیرش بگیرید . با توجه به اینکه بسیاری از موسسه های مهاجرتی هزینه های بالایی را برای اخذ پذیرش از دانشگاه های ایتالیا از دانشجو دریافت میکنند ، ما تصمیم گرفتیم با تلاش و تجربه خود به دانشجو ها کمک کنیم که بدون هزینه اضافه کار های مهاجرتی خودشون را انجام بدهند .
در این راستا در طی سال های گذشته ویدئو های مختلفی را برای نحوه اپلای کردن دانشگاه های ایتالیا ضبط و منتشر کردیم تا به دانشجویان کمکی کرده باشیم تا بتوانند در این مسیر با کمترین هزینه از دانشگاه های ایتالیا پذیرش بگیرند .

پس اگر سوال یا نیاز به راهنمایی در زمینه مهاجرت تحصیلی به کشور ایتالیا داشتید ، با ما همراه باشید و سوالات خودتون را از ما بپرسید . ما در کنار شما خواهیم بود و شما را همراهی خواهیم کرد .

مدیریت **fly to italy**

طریق استفاده از فایل

برای استفاده از این فایل ، صفحات بعد را کپی گرفته و به دانشگاه مبدا ببرید و تاییدات لازم را بگیرید

Course Description

Bachelor of Science in Petroleum Engineering

University of Tehran

Course Title	Credits	Hour		Description
		Theoretical	Practical	
General Courses				
Islamic Knowledge I	2	34		A review on the Islamic thoughts, beliefs and values.
Islamic Knowledge II	2	34		A review on the lives of the prophets and Islam's Imams.
Islamic Education & Ethics	2	34		Instructions on how to have a better life and future, and how to interact positively in the society.
History of Islam	2	34		History of early Islamic civilization and how Islamic culture was shaped through the time.
Islamic Revolution	2	34		History of Iran, before and after the procedure of Islamic revolution. Brief review on the events during the revolution procedure.
Thematic Interpretation of the Quran	2	34		A review on the doctrine and content of holy Quran and Nahjolbalaghe.
Physical Education I	1		34	Physical education and training, including stretch exercises, running, etc.
Physical Education II	1		34	Being trained professionally in the chosen favorite sport.
English Language	3	51		A review on the English grammar, English vocabulary and reading skills.
Persian Language	3	51		A review on the prominent proses and poems of the Persian literature through the history of Iran.
Basic Courses				
Calculus I	3	51		Mathematical principles such as Cartesian coordinates, polar coordinate system, complex numbers, derivatives, physical and geometric applications of derivatives, limits, integral, techniques of integration, applications of integration, series, sequences, polynomial and rational functions, exponential and logarithmic functions, applications of the exponential and logarithmic functions.
Calculus II	3	51		Advanced principles of mathematics and instructions for solving equations: Parametric equations and polar coordinates, vectors in 2- and 3-dimensional Euclidean spaces, vector calculus, matrix arithmetic and determinants, linear transformations, basic linear algebra, differential equations, multivariable functions, partial derivatives, multiple integrals. Theorems of Green, Gauss (Divergence), and Stokes, cylindrical and spherical coordinates.
Differential Equations	3	51		Principles of differential equations, different ways of solving equations: First-order ordinary differential equations, second-order ordinary differential equations; series solutions of ordinary differential equations, homogeneous ordinary differential equations, variation of parameters, method of undetermined coefficients, Bessel functions, gamma function, Legendre polynomials, systems of differential equations, Laplace transform, and its applications.
Engineering Mathematics	3	51		-Fourier series and integrals, Fourier transform -Partial differential equations -Analytic Functions, conformal mapping, and different integrals
Physics I	3	51		Measurement, Motion in two and three dimensions, forces and Newton's laws and its application, momentum, systems of particles, rotational kinetics, rotational dynamics, angular momentum, work and kinetic energy, potentialenergy, conservation of energy, gravitation, Temperature, molecular properties of gasses, first law of thermodynamics, entropy and second law of thermodynamics.
Physics Lab. I	1		34	Implementing theoretical principles of mechanical physics and thermal physics.
Physics II	3	51		Electric charge and Coulomb's law, the electric field, Gauss' law, Electric Potential Energy and Potential, the electric properties of materials, Capacitance and Capacitors, DC Circuits, the magnetic field and magnetic field of a current, Faraday's law in induction, magnetic properties of materials, inductance, AC circuits, Ampere's law.

Physics Lab. II	1		34	Implementing theoretical principles of electricity.
General Chemistry I	3	51		Electronic structures of atoms, Atoms properties and Ionic bonding, covalent bonding, geometric structure of molecules and molecular orbital, gases, liquids and solids, solutions.
General Chemistry Lab I	1		34	Selected experiments covering the main subjects of General chemistry.
Organic Chemistry	3	51		An introduction to organic chemistry, focusing primarily on the basic principles to understand the structure and reactivity of organic molecules. Emphasis is on substitution and elimination reactions and chemistry of the carbonyl group. The course also provides an introduction to the chemistry of aromatic compounds.
Organic Chemistry Lab I	1		34	Selected experiments covering the main subjects of Organic Chemistry. Laboratory experiments illustrate properties and preparation of organic compounds.
Computer Programming	3	51		Introducing organization and main parts of computer, machine language and assembly, numeric and non-numeric data representation, algorithms and sub-algorithms and flowchart, basic concepts such as frequency, familiarity with Pascal Programming language: constants and variables, computational and logical phrases, different types of instructions, different types of conditional operations loops, vectors and matrices, subprograms, input and output instructions, common algorithms such as methods of search and arrangement, practical examples of programming.
General Geology	2	34		Survey of physical geology and introduction to historical geology. Elements of crystallography, Mineralogy , petrology, geomorphology, seismology, structural geology, paleontology, historical geology, and plate tectonics.
Principle Courses				
Energy & Mass Balance	4	68		Principles of engineering calculations. the mass balance equation, systems of simultaneous equations, recycle, bypass, purge, properties of gases; liquids; and solids, saturation and equilibriums, partial saturation, the energy balance equation for closed and open systems, calculation of sensible heat, enthalpy change of phase transition and chemical reactions, simultaneous solution of mass and energy balance equations, psychometric chart.
Statics & Strength of Materials	3	51		Review of quantities; vector algebra; Newton's laws and unit systems; Determining resultant of unidirectional forces; equilibrium Laws; free body diagram of forces; moment of force on line and point; internal and external multiply of vectors; force couple; resultant of one system of general force; determining of equivalent for plane force system; system of parallel forces and system of general force; balance equations of rigid bodies and determination of supports force; free body diagram of forces; static equilibrium conditions; statistical uncertainty and constrains components;
Thermodynamics I	3	51		Heat and work, the first law of thermodynamics for closed and open systems, the phase behavior of pure fluids, equations of state, viral and cubic equations of state, generalized equations of state, heat effects, engines and refrigerators, the second law of thermodynamics for closed and open systems, properties of pure fluids.
Fluid Mechanics I	3	51		Foundations of fluid mechanics: -Fluid and flow properties, fluids statics, basic equation of fluid flow (continuity and momentum equations), macroscopic balances, dimensional analysis, boundary layers (laminar- and turbulent flow), fully developed laminar flow. -Shear stress in laminar and turbulent flow, viscous and inviscid flow. -Turbulent flow in pipes and ducts, flow of incompressible non-newtonian fluids in pipes Liquid pumping systems, pump types and features.
Fluid Mechanics Lab	1		34	The fluid mechanics lab is comprised of the following set of experimental rigs: pressure drop in pipes and fittings, fluid flow measurement devices, pumps and cavitation phenomena, fixed and fluidized beds, hydrostatic pressure, drag force, gas viscosity determination, development of velocity profiles in pipes, Bernoulli's principle.
Heat Transfer I	3	51		Physical origins and rate equations of conduction, convection and radiation, conservation energy for a control volume. The heat diffusion equation, boundary and initial conditions, one and two dimensional steady-state conduction, introduction to transient conduction. The velocity and thermal boundary layers, laminar and turbulent flow, internal flow and heat transfer in circular and non-circular channels. Physical considerations of free convection (the governing equations, empirical correlations), combined free and forced convection. Introduction to heat transfer with phase change (boiling and condensation), physical mechanisms, boiling and condensation modes.
Heat Transfer Lab	1		34	A complete review on crude oil distillation, cracking, reforming, isomerization, alkylation, and, sweetening units. Petrochemical industry processes. Related mass and energy balance.
Mass Transfer in Petroleum Engineering	3	51		Fundamentals of mass transfer, molecular diffusion in fluids, mass transfer coefficients, interphase mass transfer, equipment for gas-liquid operations and gas absorption.

Petroleum Geology	3	51		-Introduction: what is petroleum? Economic importance; Geologic factors. Porosity and permeability in sedimentary rocks. Burial Histories; Burial and diagenesis. Paleohydrology in sedimentary basins. Reservoirs and traps. Source Rocks; organic geochemistry of oil and gas. Diagenesis, catagenesis, and metamorphism, thermal markers. -Basin Analysis I: basin formation and types. Sequence stratigraphy and basin analysis. Drilling and geophysical logging methods. -Basin analysis II: primary and secondary migration.
Reservoir Rock Properties	3	51		Fundamental properties of fluid-permeated rocks; porosity, permeability, saturation and electrical properties; properties of porous media with multiple fluid saturations; wettability, capillarity and relative permeability.
Reservoir Rock Properties Lab	1		34	Selected experiments covering the main subjects of Properties of reservoir rocks.
Reservoir Fluid Properties	3	51		The objective of this course is to introduce students to basic reservoir fluid properties. Fluid properties topics include Phase Behavior of Single and Multi Component Systems, Compositional and Black-Oil models, Solution Gas-Oil Ratios, Formation Volume Factor, Compressibility, Density, Viscosity, and Interfacial Tension. The underlying purpose is to be able to prepare the most accurate possible set of values of fluid properties for use in other engineering calculations. An understanding of the advantages of the application of both laboratory data and correlations will be provided. Exercises that utilize actual field and laboratory data are used to illustrate the principles and to ensure understanding of the applications of the procedures. The course also introduces the participants to the evolution of modern computational capabilities that allow engineers to use EOS models to study phenomena such as the development of miscibility during gas injection, compositional gradient and the behavior of near-critical hydrocarbon systems. The participants are encouraged to bring their own PVT laboratory date to discuss in class. One personal computer is provided, at additional cost, for each two participants.
Reservoir Fluid Properties Lab	1		34	Selected experiments covering the main subjects of Properties of reservoir fluids.
Two-Phase Fluid Mechanics	3	51		Principle of two phase flow: the general energy equation, evaluation of friction losses-the friction factor, single phase flow, definition of variables used in two phase flow, modification of the pressure gradient equation, flow patterns including fluid property correlation, Vertical flow, Horizontal flow, and Inclined flow.
Mathematics for Students of Petroleum Engineering	3	51		The consolidation of the methods of mathematics into a form that can be used for setting up and solving petroleum engineering problems. Mathematical formulation of problems corresponding to specific physical situations such as momentum, energy and mass transfer, and chemical reactions. Analytical and numerical techniques for handling the resulting ordinary and partial differential equations and finite difference equations. Recommended background: ordinary differential equations, partial derivatives and vectors, momentum heat and mass transfer.
General Workshop	1		34	Welding, assembling and make tools.
Technical English for Petroleum Engineering	2	34		Petroleum related topics and essays in English is included in this course and it makes the students ready for any oil and gas related expressions and words.
B.Sc. Project in Petroleum Engineering	3			It is supervised by a faculty member, a successful completion of the project leads to a grade from 10 to 20.
Specialized Courses				
Well Testing	3	51		Steady-state, pseudosteady-state, and transient well testing methods to determine well and reservoir parameters used in formation evaluation.
Well Logging	3	51		Principles and operation of gamma ray, self potential, caliper, resistivity (micro and focused), density neutron, sonic, cement bond and variable density, dipmeter and production well logging tools. Interpretation of well log and their crossplotting techniques. Determination of formation properties such as porosity, hydrocarbon saturation, lithology, zone thickness, shaliness, etc. Guidelines to select proper logs in given field conditions.
Structural Geology	3	51		Study of processes and products of rock deformation. This course introduces the techniques of structural geology through a survey of the mechanics of rock deformation, a survey of the features and geometries of faults and folds, and techniques of strain analysis. Regional structural geology and tectonics are introduced. Class lectures are supplemented by lab exercises and demonstrations.

Reservoir Engineering I	3	51		Estimation of hydrocarbon pore volume and recovery factor. Classification of oil reservoirs. Reservoir performance prediction for solution gas drive, water drive, gas-cap drive, drainage and combination drive reservoirs using material balance approach. Water influx theory. Water and gas coning in oil producing formations. Characterization of fractured reservoirs. Decline Curve Analysis.
Reservoir Engineering II	3	51		Properties of reservoir fluids and rocks, volumetric estimation, the material balance equation and applications, Secondary and tertiary oil recovery process.
Production Engineering I	3	51		Artificial lift, and nodal analysis, drill stem test, bring in, cleaning up, perforation, bottom hole & surface pressure survey, logging, plug setting, chech and remove obstruction, acidizing & fracturing, injectivity test, well killing, bottom hole and surface sampling, caliper survey, well testing, inhibition, X-mass tree(well head facilities),production facilities, separator capacity, capacity and GOR test, Oil and Gas measurements, acid stimulation and fracture job design.
Production Engineering II	3	51		Single and multi-phase flow, inflow performance, choke performance, Orifice size calculations.
Drilling Engineering I	3	51		This course will expose participants to terminology, concepts, processes, and equipment used to drill oil and gas wells. The planning process followed by drilling engineers is covered to the extent that participants will understand the process and be able to initiate a well plan and well design. Non-complex calculations and basic problems are included so that participants will do and see how this is done by the drilling engineer. This class will serve to introduce the entry level drilling engineer to the drilling engineering profession. Participants will be able to identify rig components, make simple rig sizing calculations, describe basic drilling fluids, drillbit selection concepts, directional drilling plans and tools used in this technology. Additionally some cost estimating processes, fundamentals of well control, drilling tool selection and the important standards used in the drilling industry.
Drilling Engineering Lab I	1		34	Selected experiments covering the main subjects of Drilling engineering. Survey Drilling Rig.
Drilling Engineering II	3	51		The course provides the students with the basic principles, concepts and models used in drilling engineering to solve problems encountered in a well being drilled. The important concepts are developed from fundamental scientific principles and illustrated with examples. The relation between the fluid properties and the subsurface hydraulic forces present in the well is acquainted for the turbulent flow in pipe and annuli, the surge pressures due to vertical pipe movement, and the jet bit nozzle size selection. Casing design criteria and special design considerations are introduced. Reasons for directional drilling, planning and calculating the directional well trajectory, direction measurements, principles of BHA, and deviation control are provided. Coiled tubing drilling applications and principles of underbalanced drilling are examined.
Enhanced Oil Recovery	3	51		-General EOR - Reservoir Engineering: Definition of Reserves, Environmental and Economics Aspects of EOR Methods, Displacement Fundamentals, Reservoir Engineering Concepts for EOR, Introduction to Enhanced Oil Recovery Methods (EOR), Factors Affecting Oil Recovery, Comparative Performance of Different EOR Methods, Screening Criteria and Technical Constraints. -Definitions: Mobility Ratios, Sweeping Efficiencies, Recovery Efficiencies, Trapped Oil Saturation, Phase Behavior and Fluid Properties.
Elective Courses				
Reservoir Evaluation Using Appraisal Well	2	34		Definition of Reservoirs, Method of estimating and evaluating reservoir, Important for evaluating reservoirs, Source of information for evaluating reservoirs, Statistical method, Volumetric method, Material balance method, Z curve method, Comparison of various methods, Factors affecting the accuracy of each method, Reservoirs need to periodically evaluate.
Principles of Exploratory Geophysics	3	51		- The Earth as a planet The solar system The dynamic Earth - Gravity and the figure of the Earth The Earth's size and shape Gravitation Earth's rotation The Earth's figure and gravity Gravity anomalies Interpretation of gravity anomalies - Geomagnetism and paleomagnetism Historical introduction

				The physics of magnetism Rock magnetism Geomagnetism Magnetic surveying - Seismology and the internal structure of the Earth Introduction Elasticity theory Seismic waves The seismograph Earthquake seismology Seismic wave propagation Internal structure of the Earth Seismic Reflection
Reservoir Simulation	3	51		This course is designed to give an introduction to the fundamental and practical aspects of modern reservoir simulation. Particular emphasis is placed upon the available data and its integration into a data set that reflects a coherent model of the reservoir. These aspects are reinforced with small practical examples run by groups of the course participants.
Special Topics in Oil, Gas, and Petrochemical Industries	3	51		Recent literature on petroleum production practice and petroleum and geosystems engineering problems. May be repeated for credit when the topics vary.
Industrial Management	2	34		This course emphasis management-oriented coursework in areas such as accounting and business operations. Students explore production practices and learn to oversee personnel as well as increase their knowledge in order to expand their careers.
Internship Course				
Practical Training	2		320	Working for 320 hours in a company with related field of the major, which is specialized to make students ready for work and gain experimental experience, with completion of a report and final presentation.