الجامعة الإماراتية الدولية

كلية الهندسة وتكنولوجيا المعلومات

برنامج هندسة النفط والغاز

وصف المقررات الدراسية

Courses Description

حداثة وتميز

المستـــــــــــــــــوى الاول

الفصل الدراسي الأول

C.H.	L.	T.	P.	لغة عربية I (UNI 103) Arabic Language I
2	2			

يهدف هذا المقرر إلى تزويد الطلبة بالمهارات اللغوية التي يحتاجونها في حياتهم العلمية والعملية، ويتناول مهارات الاستماع والقراءة والتحدث والكتابة، وأهم الأسس النحوية والإملائية. وتركز موضوعاته على الدور الوظيفي لهذه المهارات من دون الدخول في تفاصيل القضايا النحوية واللغوية، فاهتم بمرتكزات كل مهارة، وتدريب الطلاب على اكتسابها بما يمكنهم من استخدامها استخداما يخلو من الأخطاء اللغوية والنحوية والإملائية.

C.H.	L.	T.	P.	لغة انجليزية I (UNI 105) English Language I
2	2			

This course is a skill-based course that focuses on elementary skills of listening, speaking, reading and writing. The course is a pre-requisite for the English 102. It develops students' language skills and competencies by exposing them to a variety of short general and academic contexts at the beginner level. In addition, the course builds the students' basic vocabulary and grammar structures that enable them to communicate orally and in writing in limited contexts. Interactive exercises and tasks will be encouraged in order to strengthen students' confidence in using English.

C.H.	L.	T.	P.	الثقافة الإسلامية (UNI101) Islamic Culture
2	2			

C.H.	L.	T.	P.	الصراع العربي الإسرائيلي (UNI107) Arabic Israeli Conflict
2	2			

C.H.	L.	T.	P.	مقدمة في الحاسوب (UNI109) Introduction to Computer
3	2		2	

The aim of this course is to give student the fundamentals of computer. It focuses on introduction to computer topics with an emphasis on learning about computer, operating systems, application software, Internet, and applying software using MS Office. The course helps student to learn about the importance of computers and how to use computers.

C.H.	L.	T.	P.	رياضيات I (EIT111) Mathematics I

This course aims to get students acquainted with basic concepts of differential calculus and its various applications in science and engineering. Course topics cover real numbers, inequalities, absolute value, exponential and logarithmic functions, limits and continuity, differentiation rules, derivatives of trigonometric functions and their inverses and the derivatives of exponential and logarithmic functions. The course focuses as well on the applications of differential calculus including: curve sketching, relative and absolute extrema, Rolle's theorem, mean-value theorem, related rates, applied maximum and minimum problems, applications in business and economics., applications of exponential and logarithmic functions.

C.H.	L.	T.	P.	فيزياء هندسية (BIO121) Engineering Physics

Engineering physics is both a foundation and a framework for most of the branches of engineering. The main objective of this course is to provide students with fundamental concepts/theories and skills in physics that offer them a solid base for studying various engineering disciplines. Course topics will include units and dimensions, vectors analysis, linear, curvilinear and rotational motions, Newton's mechanic and it applications, fluids, work-energy principles, wave principles, the properties of matter such as elasticity, viscosity and continuity, heat transfer as well as the essential electrical concepts and laws. The course will include laboratory experiments that emphasize problem-solving, laboratory investigation and applications.

C.H.	L.	T.	P.	الرسم هندسي (CIV125) Engineering Drawing
3	1		4	

This course introduces students to engineering drawings and the required skills for communicating information through engineering drawings. Students learn the techniques of graphical communication and standard practices of manual technical drawing. Course topics include: geometric construction, methods of projection, free hand sketching, dimensioning and orthogonal projection, missing views, pictorial projection and sectional viewing. In addition, students will be introduced to the use of computer aided drafting tools. They will be taught the basic skills necessary to complete dimensioned drawings in AutoCAD including setting up a drawing, basic lines and coordinates, geometric shapes, layering, editing commands, dimensioning, hatching and plotting to scale.

الفصل الدراسي الثاني

C.H.	L.	T.	P.	الثقافة الوطنية (UNI102) National Culture
2	2			

C.H.	L.	T.	P.	لغة انجليزية II (UNI 106) English Language II
2	2			

This course builds on what students have learned in English 101. It provides more practice and learning experiences for students to develop their elementary skills of listening, speaking, reading and writing. In addition, the course builds the students' ability in the language use through equipping them with a wide range of vocabulary, grammatical structures and expressions relevant to general and academic contexts by exposing them to a variety of short general and academic texts and conversations at the elementary level. More learner-centered activities will be emphasized to enhance students' independent learning.

C.H.	L.	T.	P.	لغة عربية II (UNI 104)
2	2			Arabic Language II

يتناول هذا المقرر مهارات الكتابة الإبداعية والوظيفية بهدف تعميق قدرات الطلاب على الكتابة وطرائق استخدامها في حياتهم العلمية والعملية، من خلال التعليم والتدريب على تجاوز المشكلات الكتابية في بيئة تعمل على تنمية التفكير الناقد وأساليب الإبداع، وما ينبغي أن يتحقق من دقة التعبير الكتابي وأساليبه على المستويين الوظيفي والإبداعي، ويساعد على اكتساب المعرفة وبناء الوعي الثقافي بأهمية الكتابة الصحيحة وتنمية مهاراتها.

C.H.	L.	T.	P.	رياضيات II (EIT112)
3	2	2		Mathematics II

This course aims to get students acquainted with basic concepts of definite and indefinite integrals and to assist them in using various techniques to evaluate integrals, and realize integration applications in life. Course topics include: integration of elementary functions, definite integrals: sigma notation – fundamental theorem of calculus – properties of definite integrals – the mean value theorem for integrals, integration techniques: integration by parts – integration by partial fractions – trigonometric substitution – integrating power of trigonometric functions, numerical integration: trapezoidal rule and Simpson's rule. In addition, applications of integration in engineering and physics are introduced such as the calculation of: area, volume, arc length, centre of mass, moments, …etc.

C.H.	L.	T.	P.	كيمياء هندسية (OGE122)
3	2		2	Engineering Chemistry

This course aims to provide students of the basic concepts in engineering chemistry through exploring the core fundamentals of chemistry and its wide-range applications in social and industrial fields. The course topics that covered including: An introduction to the structures, properties, of matter, stoichiometry, electron configuration, chemical bonding, molecular shapes, covalent bonding, classes of reactions, thermochemistry, properties of gases, atomic structure, organic compounds, intermolecular forces, and phase equilibrium. Students assumed to develop their skills in this course through working in several experiments in chemistry lab. And requested assignments as well as course project work.

C.H.	L.	T.	P.	علم السكون والحركة (OGE124)
3	2	2		Statics & Dynamics

This course provides the students with an introduction to the basic equations and idealizations of mechanics in Statics and Dynamics. Topics includes: Introduction of mechanics, Forces vectors, Addition of a system of coplanar forces, Equilibrium of particle, Force system resultant, Equilibrium of a rigid body, Friction and Principles of dynamics. This course has also a tutorial component where the students are applied the theoretical part on some examples.

C.H.	L.	T.	P.	أساسيات هندسة البترول (OGE126) Fundamentals of Petroleum Engineering
3	3			

This course provides students with the fundamental aspects of petroleum engineering. Topics include origin of petroleum and generation, petroleum exploration methods, reservoir rock and fluid properties, methods of oil extraction, introduction to well drilling engineering, well logging and formation evaluation, introduction to production engineering, oil and gas gathering, processing and transportation.

C.H.	L.	T.	P.	الجيولوجيا العامة (OGE128) General Geology
4	3		2	

This course will introduce students to the fundamentals of petroleum geology. These include the classification and types of sedimentary rocks, nature and origin of petroleum, petroleum source rocks and hydrocarbon generation; migration, reservoir rocks, fluid distribution within a reservoir, petroleum seals and traps, mapping techniques and an introduction to Yemen petroleum geology.

المستـــــــــــــــــوى الثاني

الفصل الدراسي الأول

C.H.	L.	T.	P.	الانجليزي التقني (EIT211) Technical English
2	2			

This is an English for Specific Purpose (ESP) course for engineering and IT students. The course aimed to give students the specialized technical language, information, and skills needed for their program of study. It presents them with the appropriate English from a variety of technological, engineering and industrial fields. This course also enables students to produce organized reports, formal letters/emails, CVs that conform to technical format/style, audience, vocabulary, grammar and the use of graphics where appropriate.

C.H.	L.	T.	P.	رياضيات تطبيقية هندسية (رياضيات III) Applied Engineering Mathematics (Mathematics III)
3	2	2		

This course aims to introduce students to the main principles of differential equations and integral transformations, as well as their applications in solving mathematical issues in science and engineering. The course covers classification, formation and general and particular solutions of ordinary differential equations, geometric and physical applications, Laplace transform properties and applications; solutions of differential equations using Laplace transform, Fourier series; Fourier transform and Orthogonal Functions. The course focuses on specific applications of differential equations and integral transforms in different engineering problems.

C.H.	L.	T.	P.	مقاومة مواد (OGE221) Strength of Materials
3	2	2		

is course is about the performance of deformable solids in various materials under the action of different kinds of

opics covered are: Introduction to mechanical properties of materials; simple stress and strain; Energy methods; Th

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es and Strain; Constants of elasticity; torsion and Bending moment.~~This course is designed to help students to develop ingful and connected knowledge of main concepts and equations in fluid mechanics as well as develop the skills and aches that work effectively in professional practice in the field. In particular, fluid mechanics plays a very important role in the design, development, and analysis of systems.~~

C.H.	L.	T.	P.	ديناميكا حرارية هندسية (OGE225)
3	2	2		Engineering Thermodynamics

This course provides a full introduction to engineering thermodynamics with a focus on engineering flow processes as used in the power generation industries. The main purpose of the course is to study conservation of mass and energy in several application engineering. Topics to be covered in this course include: basic definitions and concepts of thermodynamics, energy transfer by heat and work; thermodynamic properties; open and closed system energy analysis, the first and second laws of thermodynamics and entropy. The course is complemented by the lecture, tutorials and assignments.

C.H.	L.	T.	P.	جيولوجيا البترول (OGE227)
3	2	2		Petroleum Geology

This course will introduce students to the fundamentals of petroleum geology. these include the classification and types of sedimentary rocks, nature and origin of petroleum, petroleum source rocks and hydrocarbon generation; migration, reservoir rocks, fluid distribution within a reservoir, petroleum seals and traps, mapping techniques and an introduction to Yemen petroleum geology.

C.H.	L.	T.	P.	هندسة الحفر I (OGE231)
4	2	2	2	Drilling Engineering I

The course introduces the basic concepts in drilling engineering. Topics include rotary drilling systems and operations; drilling fluids technology; concepts and prediction of well bore pressures; drilling hydraulics; rotary drilling bits and introduction to the hole problems. The course is accompanied by a laboratory session which cover drilling fluids physical, chemical and properties, testing equipment and techniques.

C.H.	L.	T.	P.	خصائص صخور المكامن (OGE241)
3	2	1	1	Reservoir Rock Properties

This course deals mainly with theories and laboratory measurements of the rock. Course includes rock porosity, rock permeability, compressibility, saturation, electrical properties, capillary properties of reservoir rocks, relative permeability properties**.** This course also includes a session of laboratory class. The students are asked to prepare setup and take measurements of different rock properties.

الفصل الدراسي الثاني

C.H.	L.	T.	P.	الجبر الخطي (رياضيات IV) (MEC222)
3	2	2		Linear Algebra (Mathematics IV)

This course aims to introduce students to the main principles of linear algebra and coordinate systems, as well as their applications in solving mathematical problems in science and engineering. The course covers Cartesian, cylindrical and spherical coordinate systems, systems of linear equations; matrices; linear transformations and determinants; eigenvalues; eigenvectors; orthonormal bases; orthogonal matrices and Gram-Schmidt Algorithm. Theoretical class as accompanied with tutorial classes through which application examples of the studied material are provided.

C.H.	L.	T.	P.	ميكانيكا الموائع (OGE222)
3	2		2	Fluid Mechanics

The fluid mechanics is important in many applications ranging of engineering systems. The student should develop an awareness of the qualitive behavior of fluids in oil and gas engineering. Main fundamental topics of fluid behavior, fluid static and fluid dynamic will be introduced. Flowing flow types, flow measurement and the application of Bernoulli will be covered. Dimensional analysis and similitude, flow in conduits, laminar and turbulent flows, Frictional and minor losses, piping systems, Pumps will be studied. This course also includes a session of laboratory class.

C.H.	L.	T.	P.	هندسة الحفر II (OGE232)
3	2	2		Drilling Engineering II

This course deals with additional topics in drilling engineering, namely drill string and casing functions, and specifications. The student also gains good in-depth treatment of drill string, casing strings design/evaluation; and drilling optimization. Other topics include cementing techniques; Introduction to well control; drilling economic evaluation and well design for safety and efficiency.

C.H.	L.	T.	P.	خصائص موائع المكامن (OGE260)
3	2	1	1	Reservoir Fluid Properties

This course deals mainly with theories and measurements of the fluid properties of petroleum reservoir. Topics include properties of natural gases, phase behavior, types of reservoir fluid systems, properties of black oils, black oil correlations, gas-liquid equilibria, ideal & non-ideal solutions, flash calculations, properties of reservoir waters. This course also includes a session of laboratory tests on reservoir fluids.

C.H.	L.	T.	P.	الإحصاء والاحتمالات (EIT210)
3	2	2		Probability & Statistics

This course aims to provide students with the fundamental knowledge and understanding of the probability theory and statistical analysis. Course topics include types of data, graphs and representation, measures of central tendency and variation, correlation and regression, the principles of probability theory, some types of famous distributions such as Z- distribution, Student t distribution and Chi-Square distribution. In addition,

the course focuses on conducting and interpreting statistical experiments using popular statistics packages such as Excel, SAS, SPS or MatLAB.				
C.H.	**L.**	**T.**	**P.**	جيوفيزياء البترول (OGE242) Petroleum Geophysics
3	2	2		
The Geophysics Investigation the interior of the Earth involves taking measurements at or near the Earth's surface influenced by the internal distribution of physics properties. The analysis of these measurements reveals information in the Earth's interior. This course describes the geophysical methods as gravity, magnetic and seismic prospecting principles, instruments, field measurements, body and surface wave propagation, the seismic velocities, refraction and reflection methods, correction applied to the seismic data, processing and interpretation.				
C.H.	**L.**	**T.**	**P.**	تسجيلات البئر (OGE244) Well Logging
2	2			
This Course provides students with comprehensive study of principles and applications of well logging in open whole and cased hole oil and gas fields in order to evaluate formations and hydrocarbon bearing reservoirs. Covered topics include: introduction to well logging, Petrophysics, borehole logging environment, resistivity logs, spontaneous potential log, natural gamma ray, density logs, neutron log, sonic log and formation evaluation in clastic and shaly sandstone formations.				

المستـــــــــــــــــوى الثالث

الفصل الدراسي الأول

C.H.	**L.**	**T.**	**P.**	مهارات الاتصال (EIT212) Communication Skills
2	2			
Communication skills are essential to a successful career in Engineering. This communication course for the engineering and it students will enable them to develop the ability to communicate efficiently in English, orally as well as in written, within the field of engineering. Students will also train and develop interpersonal skills such as contributing to discussions, making presentations, reading and synthesizing information, writing reports and working effectively with colleagues and other professionals in the engineering field.				
C.H.	**L.**	**T.**	**P.**	اساسيات البحث العلمي (EIT310) Scientific Research Fundamentals
2	2			
The course aims to introduce students to the basic concepts and issues of quantitative and qualitative scientific research. Students will learn the nature and tools of research, the basic components of research process, formulating research questions, research design, elements of analysis research papers, data collection and analysis, conceptualization and measurement, building evidence, research evaluation, documentation and presentation. By the end of the course students submit and present a research course-project on a topic assigned by the course instructor.				
C.H.	**L.**	**T.**	**P.**	إكمال البئر (OGE331)

3	2	2		Well Completion

The student is introduced to subsurface operations needed to prepare the well for production after being drilled and cased. Parts covered include: - well completion designs based upon reservoir, mechanical and economic considerations, the production system, comprising bottom-hole, tubing, choke and surface facilities, subsurface production control, completion and work-over fluids, perforation, remedial cementing, sand control, and well stimulation operations.

C.H.	L.	T.	P.	تقييم الطبقات (OGE341) Formation Evaluation
3	2	2		

This course provides students with comprehensive study of the process of interpreting a combination of measurements taken inside a wellbore to evaluate the characteristics of subsurface formations and quantify oil and gas hydrocarbon in the resevoirs. Covered topics include: well logging reviews, routine formation evaluation techniques, over-plot interpretation techniques, multiple log interpretation techniques, cross-plot interpretation techniques, shaly-sand interpretation techniques, gas-sand interpretation techniques, calibration and data quality control, mud logging, cased-hole asset tools, nuclear magnetic resonance logging and measurements while drilling.

C.H.	L.	T.	P.	هندسة المكامن I (OGE361) Reservoir Engineering I
3	2	2		

The course provides students with fundamentals of reservoir fluid flow and drive mechanisms of oil reservoirs and the basic methods for estimating the oil reserves. Topics include fundamentals of reservoir fluid flow. steady, unsteady and pseudo-steady state single phase flow equations through porous media. Principle of superposition. Under-Saturated oil reservoirs. Basic concepts of primary recovery. Basic derivation of the general material balance equation. The material balance equation as an equation of a straight line.

C.H.	L.	T.	P.	برمجة الحاسوب (OGE371) Computer Programming
3	1		4	

This course is an introductory course to computer programming using C++. The course aims to provide students of the basic concepts in a structured programming methodology, through exploring the core features of C++ programming language and its wide-range applications in social and industrial environments. The course topics that are covered including: An introduction to problem-solving based on programming, introduction to C++ language & the layout of C++ program, control & repetitive statements, Arrays, and functions. Students assumed to develop their programming skills in C++, through working in computer programming lab and weakly requested assignments, as well as course project work.

C.H.	L.	T.	P.	كتابة التقارير التقنية (OGE373) Technical Report Writing
2	2			

This course will introduce students to various petroleum industry terms and phrases. It also deals with the researching, organizing, and writing technical reports and Proposals, resume Writing, job application**,** as well as business messages. Technical communication and oral presentation. Job interview skills will also be covered in this course.

الفصل الدراسي الثاني

C.H.	L.	T.	P.	
3	2	2		إدارة مشاريع (CIV470) Project Management

This course aims to provide students with basic knowledge for managing resources and scheduling, tracking and controlling and completing project within the specific constraints and deadlines. The course will focus on product life cycles, managing, planning, designing and controlling projects, human and logistics resources, systems' maintenance & reliability, industrial safety constraints, tools and techniques of quality cost. Students will develop skills in preparing feasibility studies and identifying elements for a success development of engineering projects.

C.H.	L.	T.	P.	
3	2	2		هندسة الإنتاج البترولي I (OGE350) Petroleum Production Engineering I

This course offers a basic knowledge of petroleum production systems. Topics include: reservoir inflow performance, outflow performance relationship, flow maps and correlations, choke and flow-line performance, total system analysis and production optimization.

C.H.	L.	T.	P.	
3	2	2		هندسة المكامن II (OGE362) Reservoir Engineering II

The course provides students with the classifications and drive mechanisms of oil reservoirs and the basic methods for estimating the oil reserves. Topics include introduction of water influx. Water influx models. Saturated oil reservoirs. Predicting oil reservoir performance. Coning in vertical and horizontal wells. Decline-curve analysis. Through this course student well be do tutorials to estimate oil reserves and predicting future production using different methods and evaluating the coning problem in vertical and horizontal wells using three categories of correlation.

C.H.	L.	T.	P.	
3	2	2		هندسة الغاز الطبيعي (OGE364) Natural gas Engineering

This course provides students with comprehensive study of volumetric method and different forms of the general material balance equation for gases reservoirs. Topics covered include: dry gas reservoirs, wet gas reservoirs, gas condensate reservoirs, decline curve analysis, gas well performance, natural gas hydrates, gas flow measurement and processing, and liquefied natural gas.

C.H.	L.	T.	P.	
2	2			الصحة والسلامة والبيئة (OGE374) Health Safety & Environment

The course provides students with fundamentals of health safety and environment in petroleum operations. Topics include principles of health and safety, primary principles in fire, fire fighting materials and equipment, risks of oil industry, risks of crude oil refining operations and electrical hazards in the oil industry. While teaching this course students will be presented in the form of small project groups on topics related to health and safety in the oil industry.

C.H.	L.	T.	P.	
3	2	2		التحليل العددي (OGE376) Numerical Analysis

This course covers the numerical methods for solving problems arising in petroleum engineering. Topics covered in this course are: roots equations, linear equations, curve fitting and interpolation, integration and differentiation methods, and solution of ordinary differential equations. All methods are presented within the context of the program engineering problems.				
C.H.	**L.**	**T.**	**P.**	مقرر اختياري 1 (OGE380)
3	2	2		
Department Approval				

المستـــــــــــــــــوى الرابع

الفصل الدراسي الأول

C.H.	L.	T.	P.	
3	2	2		اختبار البئر (OGE441) Well Testing

This course deals mainly with theory and practice of pressure transient testing. Topics covered in this course are: introduction and basic concepts of well test, pressure drawdown test analysis, pressure buildup test analysis, injection well testing, well test analysis by use of type curve matching, other well tests, gas well testing, design and implementation of well test.

C.H.	L.	T.	P.	
				هندسة الإنتاج البترولي II (OGE451) Petroleum Production Engineering II

The course introduces the student to theoretical and practical aspects of artificial lift methods in oil wells. Topics covered in this course are: Introduction to artificial lift, gas lift methods, electric submersible pumping unit, sucker rod pumping systems, other artificial lift methods and well stimulation by acidizing and hydraulic fracturing.

C.H.	L.	T.	P.	
3	2		2	نمذجة المكامن (OGE461) Reservoir Simulation

This course provides students with principles of reservoir simulation. Topics include introduction to formulation of fluid flow equations, finite difference formulations of explicit and implicit techniques, applications of finite difference techniques, stability of finite difference techniques and applications using a simulator. Through this course student will be use black oil simulator (Eclipse) and Matlab programs for reservoir simulation data.

C.H.	L.	T.	P.	
3	2	2		مقرر اختياري II (OGE481)

Department Approval

C.H.	L.	T.	P.	
3	2	2		مقرر اختياري III (OGE487)

Department Approval

C.H.	L.	T.	P.	
2		4		مشروع تخرج I (OGE491) Graduation Project I

The individual project exposes and trains students on tasks that are involving the research and analysis works. In the first part of the undergraduate research project course, students are required to do their preliminary study on the petroleum engineering related topic and plan on how their research will be conducted in the following semester for the second part of the Undergraduate Project. At the end of the semester, every student is required to give an oral presentation and submit a log book and a full report comprises his/her research proposal.

الفصل الدراسي الثاني

C.H.	L.	T.	P.	
3	2	2		منشئات الإنتاج السطحية (OGE452) Surface Production Facilities

The course focuses on principles of design and operation of the surface processing facilities. It include introduction and basic concepts of oil and gas separation, two-phase oil and gas separation calculations, two-phase separation equipment, three-phase oil and water separation, crude oil treatment, produced water treating facilities, crude oil desalting system.

C.H.	L.	T.	P.	
3	2	2		طرق الاسترداد المحسن (OGE460) Enhanced Oil Recovery

This Course provides students with principles of basic theoretical and design aspects of waterflooding processes. Topics include introduction to stages of recovery, fundamentals of rock and fluid interaction, flow of immiscible fluids, prediction of linear immiscible displacement, areal sweep efficiency, flood patterns, miscible gas displacement methods, chemical flooding methods and thermal oil recovery methods. Through this course student will be able to understand of the technical and economic constraints that govern the performance of water flooding project and improved oil recovery methods.

C.H.	L.	T.	P.	
2	2			الاقتصاد البترولي (OGE470) Petroleum Economics

The course provides students with the standards and practices of economic evaluation in the petroleum industry and brief review of the principles of economic evaluation. Topics include alternative reservoir depletion schemes utilizing decline curve analysis, economic decision tools, typical decision-making situations, gas economics, risk and uncertainty and decline balance depreciation. While teaching this course students will be presented in the form of small project groups on topics related to economic evaluation studies of oil and gas projects.

C.H.	L.	T.	P.	
3	2	2		مقرر اختياري IV (OGE480)

Department Approval

C.H.	L.	T.	P.	
4		4	4	مشروع تخرج II (OGE492) Graduation Project II

This course is continuation of the Undergraduate Project I. The second part of Undergraduate Project requires students to implement the research proposal that has been prepared in the previous semester. This might involve practical activities such as laboratory works, data collection from petroleum industry and computer programming/simulation. At the end of the course, students should be able to prepare a full report compiling the first and second part of the Undergraduate Research Project and subsequently present their research findings. Finally, students must submit a bound thesis according to the EIU thesis-writing format. At the end of the semester, students are asked to write a report and make an oral presentation with the presence of faculty members as referees.

المقـــــررات الاختياريـــــة في البرنـــــــامج

C.H.	L.	T.	P.	
3	2	2		الحفر الموجه (OGE380) Directional Drilling

This course covers advanced drilling topics which is essential in drilling technology environment. This includes planning directional well trajectory including horizontal and multi-lateral wells, calculating the trajectory of a well. The student is then introduced to the principles and techniques of planning the kickoff and trajectory change, directional drilling measurements, deflection tools, principles of bottom hole assembly and deviation control. Problems in directional wells are also covered.

C.H.	L.	T.	P.	
3	2	2		التسجيلات الإنتاجية (OGE481) Production Logging

This course gives overview of the production logging applications, and review of the many factors affecting the production logging measurements. Topics covered include introduction and overview, principles of production logging tools, production logging operation and flow velocity spinner tools, cement quality logging, fluid density measurements, noise logging, cased-hole formation evaluation, horizontal wells production logging.

C.H.	L.	T.	P.	
3	2		2	تطبيقات الحاسوب في هندسة البترول(OGE487) Computer Applications in petroleum Engineering

This course provides students with principles of the basics of computer science and its applications in petroleum engineering practices including geophysical, well logging, geological, drilling engineering problem, reservoir engineering and production engineering aspects. This course also includes a session of laboratory student will be use a Matlab program in a computer Lab.

C.H.	L.	T.	P.	
3	2	2		نقل وتخزين النفط والغاز (OGE480) Storage and Transportation of Oil and Gas

The course focuses on principles of flowing oil and gas in pipes and design and operation of the oil and gas pipes and tanks. It includes introduction and basic concepts of oil and gas separation, fundamentals of flow in pipes, flow in pipes types, gathering and separation of oil and gas, pipeline transportation of oil, pipeline transportation of natural gas, oil tanks, gas tanks, corrosion in pipes and tanks and control and safety systems.