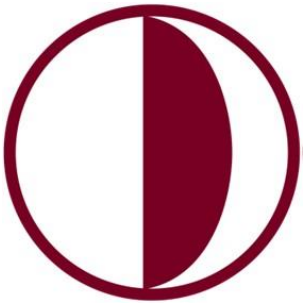

NEAR EAST UNIVERSITY

DEPARTMENT OF PETROLEUM AND NATURAL GAS ENGINEERING

Course Catalogue

CONTENTS

This course catalogue is developed to give information about the Petroleum and Natural Gas Engineering programme to all who are interested in the Near East University, Department of Petroleum and Natural Gas Engineering eg. future students, parents, academics, universities and institutions, bodies abroad.

The catalogue includes key information about the duration of the programme, mode of study, course description, credit and grading system etc. of the programme.

We hope you can find the necessary information to your questions about the Department of Petroleum and Natural Gas and the course programme.

Sincerely

Prof. Dr. Cavit Atalar

Chairperson

Department of Petroleum and Natural Gas Engineering

Petroleum and Natural Gas Engineering (PNGE) Programme

1. General Information about the Department of Petroleum and Natural Gas Engineering

Near East University, Department of Petroleum and Natural Gas Engineering was founded in 2013. The vision of the young and dynamic department is to become a sought after and well respected center in petroleum and natural gas education and scientific research. The department is further strengthened with its modern curriculum, library and research centers that were established with the best possible technology and the academic staff who can use the power of scientific education to enlighten the public and embrace the future of the public.

The department has single section, thus, the language of instruction is English.

Mode of Study and Type of program

The Bachelor's degree program is classified as a full time program. The Bachelor's degree program is aimed at Turkish, Cypriots and Foreign students, and teaching is given in English language. Studies in foreign universities can be included in the student's degree in NEU, if they are suitable to substitute studies in the NEU degree program. The Department of Petroleum and Natural Gas Engineering also has foreign teachers and researchers, which makes it possible to widen both the educational and cultural perspective.

Website of the higher education institute - http://www.neu.edu.tr

2. Official length of programme:

Length of the program is 4 years (excluding one year of English preparatory class for English programme), 2 semesters per year, 16 weeks per semester

3. Profile of the Programme and Method of Education

The curriculum is based on achieving the intended learning outcomes at the end of the 4-year study at the department. The curriculum and detailed content of the degree program are given in Appendix F. Students graduate after taking a total of 145 credit hours. During the 4-years study, students are offered 5 or 6 modules per semester and at the time of graduation a total of 47 modules are taken by each student.

The Bachelor's degree requires the completion of 240 ECTS credits. The "Module Handbook" (Appendix A) gives a description of each module.

The curriculum is classified into curricular categories represented in Table 1. A number of credits and a weight of a category in the program are indicated in Table 1. It includes studies of mathematics and science, studies of English and social science courses, studies of computer science and petroleum and natural gas engineering obligatory courses, studies of petroleum and natural gas engineering electives courses, bachelor's thesis and practical training.

Table 1: Curricular categories of the program

Category	Notation	Credit	Weight, %
Mathematics	MT	18	12.4
Basic Science	BS	12	8.3
English Composition & Social Science	ECS	14	9.6
Computer Science	CS	3	2.1
Obligatory Petroleum and Natural Gas Engineering Courses	OPE	74	51.0
Elective Petroleum and Natural Gas Engineering Courses	EPE	21	14.5
Bachelor's Thesis	BT	3	2.1
Summer Internship	SI	-	-
	Total	145	100

Each module of the program (Appendix E) is classified into curricular categories. Each module is assigned a number of semester credit hours, according to the number and types of formal activities within a given week. These are determined as follows:

- Lecture hours: presentation of material in a classroom setting
  - 3 credit hour = 3 "hour" of lecture per week
  - 2 credit hour = 2 "hour" of lecture per week
- Laboratory hours: formal experimentation in a laboratory setting
  - 1 credit hour = 2 "hour" laboratory session per week
- Recitation hours: problem-solving sessions, etc. in support of lecture material
  - 1 credit hour = 2 "hour" of recitation per week

The professional competence acquired in the required subject studies is further developed by elective subject choices. In the Bachelor's Degree Program the portion of elective studies is 14.4%. In exceptional cases, the elective subject can be chosen from other degree programs, if it is suitable for the degree. The application has to be approved by the Head of Petroleum and Natural Gas Engineering Department. With technical respect free electives on offer, students of the Bachelor's degree program may choose a certain specialization track to get a more distinguished qualifications profile.

Teaching methods: The Bachelor's program is full-time, on-campus program. The teaching methods applied in the Degree Program in Petroleum and Natural Gas Engineering include lectures, classroom and laboratory exercises, computer training, different kinds of assignments, seminars, excursions, and Case-exercises. The courses also involve group and project work which train the social competences of the students.

The Department of Petroleum and Natural Gas Engineering appreciates modern concepts and new methods in teaching and education methods that support educational objectives in addition to traditional methods. Traditional class attendance is compulsory for all courses except graduation projects. Problem solving sections of knowledge based courses are integrated with the theory sections.

The Department of Petroleum and Natural Gas Engineering aims to reach its educational objectives by using several teaching methods. Both the traditional and modern teaching methods are employed at the department. Traditional teaching methods are face-to-face lectures and are class based, requiring all students to attend classes. At least 70% of class attendance is compulsory for all the courses. Lectures are conducted using standard computer based presentations in the form of pre-prepared slides. In addition, white boards and marker pens are used whenever necessary in order to explain difficult topics in greater detail, or to answer student questions. Students are encouraged to take notes during the presentations and ask questions if there are points that they are not clear about. Electronic copies of the slides are sent to students by e- mail after each class, and students are encouraged to go through the slides in their own time and make sure that they understand all presented information.

In addition to traditional teaching methods, a variety of other methods are used to support the teaching. Most computer based learning requires the use of computers as part of the learning process. Students use the departmental computer laboratories for their practical work in order to improve their practical skills. Students use computers in the laboratory under the supervision of either a teaching assistant or an instructor.

Educational methods used for the students can be classified into **teacher centered and student centered**. In **Teacher-Centered Approach**, the Teachers are the main authority figure. The primary role of the student is to passively receive information (via lectures and direct instruction) with an end goal of testing and assessment. It is the primary role of teachers to pass knowledge and information onto their students. In this model, teaching and assessment are viewed as two separate entities. Student learning is measured through objectively scored tests and assessments. In **Student-Centered Approach**, the teachers are an authority figure, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate student learning and overall comprehension of material. Student learning is measured through both formal and informal forms of assessment, including group projects, student portfolios, and class participation. Teaching and assessments are connected; student learning is continuously measured during teacher instruction. Commonly used teaching methods may include class participation, demonstration, recitation, memorization, or combinations of these.

4. Qualification Awarded

Petroleum and Natural Gas Engineering (PNGE)(Bachelor's Degree/ first cycle in Bologna System)

Level of Qualification: Qualifications Framework- European Higher Education Area (QFEHEA): 1

5. Access requirement(s)

The admissions and entry requirements ensure that the students who are admitted to the degree program possess the required competences. Bachelor's degree modules are fully taught in English, and thus, good English skills are required.

Students admitted to the department come from three sources:

- Local students, who are citizens of the Turkish Republic of Northern Cyprus (TRNC)
- Students from Turkey, who are Turkish citizens
- Students from other countries (foreign students)

All students are admitted to the university after they complete their high school studies successfully and obtain high school graduation diplomas.

Local students must sit for the Near East University entrance examination and obtain a pass mark from this examination. Successful students are admitted to the university, but not necessarily to the Petroleum and Natural Gas Engineering Department.

Students from Turkey must select the Near East University and the Petroleum and Natural Gas Engineering Department as their choice, and they must obtain successful pass marks from the Turkish university entrance examinations (prepared and administered by the Higher Education Council of Turkey, YOK). Those who obtain the required marks are admitted to the university, but not necessarily to the Petroleum and Natural Gas Engineering Department.

Students from other countries are admitted to the university based on the results of their high school graduation diplomas.

Because the medium of teaching is in English, the level of their English is assessed by the Faculty of English language. Those students who have certificates and who have already passed English Language proficiency examinations are exempt from the English preparation school and are admitted directly to the department where they are enrolled for the first year and first semester of their studies. Those students whose levels of English writing and communication skills are below the required standards are admitted to the English preparatory school of the university. The English preparatory school offers concentrated teaching of the English language reading, writing, and communication skills. The duration of the preparatory school is one academic year. Successful students are admitted to the department at the end of their studies at the English preparatory school.

6. Qualification Requirements

145 Near East University Credits (Near East University Credit is contact hour based) which is total 240 ECTS credits must be completed after being successful in the courses to

become a graduate of the Petroleum and Natural Gas Engineering department.

ECTS is a credit system designed to make it easier for students to move between different countries. Since they are based on the learning achievements and workload of a course, a student can transfer their ECTS credits from one university to another so they are added up to contribute to an individual's degree programme or training. ECTS helps to make learning more student-centred. It is a central tool in the Bologna Process, which aims to make national systems more compatible.

ECTS also helps with the planning, delivery and evaluation of study programmes, and makes them more transparent (http://ec.europa.eu/education/ects/ects_en.htm) .

7. Converting US College Credit Hours (semester credit hours-SCH) to ECTS

ECTS is the most commonly used credit system in Europe. The major difference between the European Credit System ECTS and the US College Credit system is that the first is based on student workload and the second on contact hours. The ECTS is oriented towards the time required for a student to meet the intended study outcomes, while the U.S. system is more oriented towards the time a faculty member needs to teach.

Here is an example of conversion of credits from ECTS to Semester Credit Hours for a college or university in the U.S.: 1.67 ECTS = 1.00 US College Credit Hours

Conversion standards may vary between higher education institutions in the U.S.

(http://www.mastersportal.eu/articles/1110/what-you-need-to-know-about-academic-credit-systems-in-the-us.html)

A student is required to have minimum pass grade from each course and obtain minimum 2.00/4.00 cumulative Grade Point Average (cumulative GPA).

The students who have successfully completed the programme should be able to be science-based, skilled and competent **Petroleum and Natural Gas Engineering specialist** prepared to meet the challenges of practicing Petroleum and Natural Gas Engineering in the 21st century, and **researchers** who are prepared to conduct Petroleum and Natural Gas Engineering research focused on bettering the human condition and advancing the fundamental understanding of Petroleum and Natural Gas Engineering.

8. Arrangements for transfer from another Petroleum and Natural Gas Engineering department (Recognition of Prior Learning)

A student wishing a transfer from another university: the student must prove her/his English Proficiency if s/he wishes to attend the English Section. At the time of OSS examination, the candidate's entrance score must not be less than the lowest score for admission to the Near East Petroleum and Natural Gas Engineering Department. The transcript and course content of the applicant is examined by the department and the student is then accepted to the appropriate year of the programme.

For further details, please contact:

Faculty of Engineering

Department of Petroleum and Natural Gas Engineering, Near East Boulevard, P.O. Box 92202 Nicosia, TRNC via Mersin 10-Turkey

Phone: +90 (392) 223 64 64 (ext. 5291)

E-mail: info@neu.edu.tr

9. Examination Regulations, Assessment and Grading

The examinations are a way of finding out whether the module objectives have been accomplished. Every module in the degree programme has an examination. The type of examination to be held is laid down in each module description.

At the commencement of the teaching term, students are informed as to examination requirements. All the examinations are done during the examination week. The lectures are cancelled during the examination week. Every effort is made to ensure that no more than one examination is taken by a student on the same day.

The assessment procedures, marking criteria, and examination regulations are available for the students to examine if they wish so. The regulations cover the student absences due to illness, financial, or other reasons.

Written examinations are done for each module except the graduation projects. There are some modules that make oral examinations which are indicated in Project/Presentation/ Report activities of the module.

There are two written examinations for each module: mid-term examination, and final examination. The mid-term examinations are done around 6 weeks after the start of a new semester. The final examinations are done at the end of each semester. The examination dates are published in the university calendar at the beginning of each semester.

Students are allowed only to take one make-up exam. The date and time of the make-up exams are announced by the department.

Students who fail in exam are allowed to get re-sit exam at the end of any semester.

The graduation project is completed in one semester. Students are assigned supervisors for the

duration of their graduation projects. Students can carry out their graduation project externally in the industry after approving their topic and supervisor by the department. Graduation project assessment consists of the preparation of a bound report by the student, and also an oral presentation to jury members. The jury members are selected from the departmental staff according to the topic of the presentation and there must be at least 3 members at the jury. Students are expected to prepare slides and present their projects orally. The presentation time is 10-15 minutes for each student. At the end of the presentation 5 minute time is allocated to questions. The assessment depends on the style of the presentation, command of the language, confidence of the student, the ability to answer the questions, and the content of the project. Each jury member fills in a separate assessment form. The final grading is taken to be the average grade given by all the jury members.

10. Grading Scheme and Grades

PERCENTAGE	COURSE GRADE	GRADE POINTS	
90-100	AA	4.00	(Excellent)
85-89	BA	3.50	(Excellent)
80-84	BB	3.00	(Very Good)
75-79	CB	2.50	(Very Good)
70-74	CC	2.00	(Good)
65-69	DC	1.50	(Good)
60-64	DD	1.00	(Good)
50-59	FD	0.50	(Failed)
0-49	FF	0.00	(Failed)

11. Occupational Profiles of Graduates

The perspectives of job market are quite wide due to wide range of international and national students in the department. For this reason, the degree programme offered by the department aims to train students in the general field of petroleum and natural gas engineering, prepare them for any kind of career in related jobs and also for post-graduate studies. The students find the opportunity to select a wide range of elective courses in their area of interest.

The graduates can find employment in petroleum industry, in the departments including

production, maintenance, quality control, design and management, in companies giving engineering services and mechanical consultancy, in power plants, in the field of accessing sources of energy such as petroleum, gas, sunlight and wind, in metal production plants and foundaries and many others.

The modules in the degree structure are also closely linked to the research conducted in the department and provide a path to post graduate studies. Moreover, a large majority of Bachelor's projects are completed in cooperation with industry in various projects either at the university or in companies, and thus provide a link to the professional field and a path to future employment in specialist tasks in these research areas.

Practical relevance of the program is achieved by:

- lectures given by professionals from various fields;
- laboratory lessons;
- renewing course contents periodically based on the job market needs;
- implementing new courses based on the job market needs;
- guest lecturers delivered by engineering practitioners;
- providing project based learning in courses with term projects;
- providing graduation projects that involve practical applications both in manufacturing and service sectors;
- organizing international and domestic academic seminars and workshops;
- a summer practice (internship) in order to integrate knowledge and theory to practice in the fields Petroleum and Natural Gas Engineering.

A summer practice is included in the Bachelor's degree. A summer practice is lasted 40 working days.

12. Programme Director

Prof. Dr. Cavit Atalar (Chairperson)

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E-mail: cavit.atalar@neu.edu.tr

13. Key Learning Outcomes

The student who successfully completes the program should be able to

A list of the intended learning outcomes of the degree programme is given below

1) Ability to manage a drilling rig

2) Ability to calculate production in an oil, gas or geothermal field

3) Ability to understand and apply knowledge of mathematics, science, and engineering.

4) Participate effectively in the same-discipline and inter-disciplinary groups.

5) Identify, formulate, and solve engineering problems by applying firm principles, including open-ended problems.

6) Develop practical engineering solutions for petroleum and natural gas engineering problems under professional and ethical constraints.

7) Communicate effectively with written, oral, and visual means in a technical setting.

8) Recognize the fact that solutions may sometimes require non-engineering considerations such as art and impact on society.

9) Be prepared for a lifetime of continuing education.

10) Recognize environmental constraints and safety issues in engineering

11) An ability to use modern modeling and simulation techniques, and computing tools.

12) Encourage to be initiative for private enterprise.

14. Courses List with Near East University credits and ECTS

Please see the attached example of the diploma supplement which is given to all graduates of our university free of charge. It is arranged in English.

The diploma supplement is a document the purpose of which is to provide sufficient independent data to improve the international "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It is designed to provide a description of the nature, level, context, content and the status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgments, equivalence statements or suggestions about recognition.

BSc in Petroleum and Natural Gas Engineering

FRESHMAN

First Year, Fall Semester (20/20 credits, 30/30 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
CHM 101	General Chemistry	(4,1) 4	5	BS	
ENG 101	English I	(3,0) 3	3	ECS	
MTH 101	Mathematics I	(4,0) 4	6	MT	
PGE 101	Introduction to Petroleum Engineering	(2,0) 2	5	OPE	
PHY 101	General Physics I	(4,1) 4	5	BS	
ECC 101	Introduction to Programming	(3,1) 3	6	CS	

First Year, Spring Semester (19/39 credits, 30/60 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
CHM 102	Physical Chemistry	(3,0) 3	7	OPE	CHM 101
ENG 102	English II	(3,0) 3	3	ECS	ENG 101
MTH 102	Mathematics II	(4,0) 4	6	MT	MTH 101
PHY 102	General Physics II	(4,1) 4	5	BS	PHY 101
YIT 101	Turkish for Foreign Students	(2,0) 2	3	ECS	
TDE 102	Technical Drawing	(3,1) 3	6	OPE	

SOPHOMORE

Second Year, Fall Semester (19/58 credits, 30/90 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
ECC 207	Thermodynamics	(4,0) 4	7	OPE	
ECC 211	Engineering Materials	(4,0) 4	7	OPE	
MTH 201	Differential Equations	(4,0) 4	6	MT	MTH 102
PGE 201	General Geology	(4,0) 4	5	OPE	
PGE 221	Engineering Mechanics	(3,0) 3	5	OPE	PHY 101

Second Year, Spring Semester (19/77 credits, 30/120 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
PGE 202	Petroleum Geology	(3,0) 3	5	OPE	PGE 201
PGE 204	Applied Mathematics for Petroleum Engineers	(3,0) 3	5	MT	MTH 101
PGE 218	Rock Properties	(3,1) 3	6	OPE	
PGE 220	Fluid Properties	(3,1) 3	6	OPE	
ECC 213	Strength of Materials	(4,0) 4	5	OPE	PGE 221
NTE	Non-Technical Elective	(3,0) 3	5	ECS	

JUNIOR

Third Year, Fall Semester (16/93 credits, 30/150 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
PGE 300	Summer Practice I	-	4	SI	
PGE 301	Introduction to Fluid Mechanics	(4,0) 4	6	OPE	
PGE 303	Petroleum Production Engineering I	(3,0) 3	5	OPE	
PGE305	Petroleum Reservoir Engineering I	(3,0) 3	5	OPE	
PGE 307	Drilling Engineering I	(3,0) 3	5	OPE	
PGE 309	Statistics and Probability for Petroleum Engineers	(3,0) 3	5	MT	MTH 102

Third Year, Spring Semester (19/112 credits, 30/180 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
PGE 304	Petroleum Production Engineering II	(3,0) 3	5	OPE	PGE 303
PGE 306	Petroleum Reservoir Engineering II	(3,0) 3	5	OPE	PGE305
PGE 308	Drilling Engineering II	(4,0) 4	5	OPE	PGE 307
PGE 310	Oil and Gas Pipeline System	(3,0) 3	5	OPE	
PGE 312	Well Logging	(3,0) 3	5	OPE	
Unrestricted T. Elective	Unrestricted Technical Elective	(3,0) 3	5	EPE	

SENIOR

Fourth Year, Fall Semester (15/127 credits, 30/210 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
PGE 400	Summer Practice II	-	4	SI	PGE300
PGE 403	Natural Gas Engineering	(3,0) 3	5	OPE	
PGE 405*	Petroleum Engineering Design	(3,0) 3	6	OPE	
PGE 411	Petroleum Property Valuation	(3,0) 3	5	OPE	
T.Elective	Technical Elective	(3,0) 3	5	EPE	
T.Elective	Technical Elective	(3,0) 3	5	EPE	

Fourth Year, Spring Semester (18/145 credits, 30/240 ECTS)					
Course Code	Course Name	(Hour) Credit	ECTS	Category	Prerequisite
PGE 402	Graduation Project	(3,0) 3	5	BT	PGE 405
ECC 426	Economics For Engineers	(3,0) 3	5	ECS	
T.Elective	Technical Elective	(3,0) 3	5	EPS	
T.Elective	Technical Elective	(3,0) 3	5	EPE	
T.Elective	Technical Elective	(3,0) 3	5	EPE	
T.Elective	Technical Elective	(3,0) 3	5	EPE	

*Prerequisite for PGE 405 Petroleum Engineering Design course are PGE 303, PGE305 & PEG 307.
MT: Mathematics, BS: Basic Science, ECS: English Composition and Social Sciences, CS: Computer Science, OPE: Obligatory Petroleum and Natural Gas Engineering Courses, EPE: Elective Petroleum and Natural Gas Engineering Courses, BT: Bachelor's Thesis, SI: Summer Internship.

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Technical Electives

Code	Title	Credits
PGE 407	Reservoir Characterization	3
PGE 408	Geophysics for Petroleum Engineering	3
PGE 409	Process Control and Instrumentation	3
PGE 413	Globalization and Petroleum Politics	3
PGE 416	Environmental Control in Petroleum Engineering Operations	3
PGE 417	Petroleum and Natural Refining Processes	3
PGE 418	Oil Transportation and Storage	3
PGE 419	Health & Safety and Risk Management	3
PGE 420	Project Management	3

PGE 421	Introduction to Geothermal Reservoir Engineering	3
PGE 422	Enhanced Oil Recovery	3
PGE 423	Pressure Control	3
PGE 424	Physical and Engineering Properties of Rock	3
PGE 425	Directional Drilling	3
PGE 426	Petroleum Geochemistry	3
PGE 427	Well Stimulation	3
PGE 428	Transportation and Storage of Natural Gas	3
PGE 429	Well Design Control	3
PGE 430	Hydrocarbon Geophysics	3
PGE 431	Geological Maps and Cartography	3
PGE 432	Safety & Environmental Protection	3
PGE 433	Analysis of Well Pressure Tests	3
PGE 434	Individual Study	3
PGE 435	Petroleum Fuels Market & Segment	3
PGE 436	Simulating of Geosystems	3
PGE 437	LPG Technology and Sector	3

15. Objectives and contents of the course:

The educational objectives of the Degree Program in Petroleum and Natural Gas Engineering reflect the mission of Near East University. The Bachelor of Science program in Petroleum and Natural Gas Engineering prepares the students to achieve the following career and professional objectives.

- To acquire a strong foundation in Petroleum and Natural Gas Engineering area relevant to the current needs of industry to allow them to successfully compete for demanding and high quality jobs
- Analyze problems, propose algorithmic solutions, and implement them correctly and efficiently by applying their knowledge of mathematics, computing, systems and development tools.
- Propose engineering solutions using the information and communication technologies for the related problems of industry and government.
- To acquire clear communication abilities, ethical and social responsibilities for teamwork.
- Make positive contributions to their community and society by applying skills and abilities learned during their undergraduate program in Petroleum and Natural Gas Engineering
- Improve knowledge and skills through lifelong learning and graduate studies.

The individual courses are described below. These courses are offered by the Petroleum and Natural Gas Engineering Department together with the objective of each module.

FIRST YEAR

CHEM 101 General Chemistry I (4 credit)

A basic course with emphasizing the metric system. Introduction to atomic theory, stoichiometry. The structural and physical properties of matter. Periodic relationship among elements and periodic table. Gaseous state. Thermochemistry. Energy and enthalpy. Electronic structure of atoms. Electrochemistry. Chemical bonding.

Prerequisite :-

ENG 101 English I (3 credit)

Develops reading, writing, speaking, and listening skills by encouraging students to use language forms that they learn through reading and listening. The students are exposed to extensive reading both in and outside the classroom. They are encouraged to read a variety of texts such as short stories, academic articles, research reports, reviews and journalistic texts as well as chapters from textbooks.

Prerequisite :-

MTH 101 Mathematics I (4 credit)

Functions, limits and continuity. Derivatives. Mean value theorem. Sketching graphs. Definite integrals, infinite integrals (antiderivatives). Logarithmic, exponential, trigonometric and inverse trigonometric functions and their derivatives. L'Hospital's rule. Techniques of integration. Applications of the definite integral, improper integrals.

Prerequisite :-

PGE 101 Introduction to Petroleum Engineering (2 credit)

A course designed to acquaint the students with the basic concepts of petroleum industries. Historical background, sources, world supply and demand, chemical and physical properties of petroleum. Introduction to petroleum exploration, reservoir types and engineering concepts, production methods, refining and transportation of natural hydrocarbons. Engineering ethics, health, safety and environmental aspects in petroleum engineering profession.

Prerequisite :-

PHY 101 General Physics I (4 credit)

Measurement, vectors, kinematics, force, mass. Newton's laws, applications of Newton's laws. Work and kinetic energy. Conservation of linear momentum. Impulse, collisions, rotation, moments of inertia. Torque, angular momentum, conservation of angular momentum, static equilibrium.

Prerequisite :-

ECC 101 Introduction to Programming (3 credit)

An introduction to fundamental concepts. Algorithms and flowcharts as tools of program design process. Basic program structure. Input/output statetments. Control structures: Selection and repetition statements and arrays. Concept of modular programming: Procedures and Functions.

Prerequisite : -

CHEM 102 Physical Chemistry (3 credit)

A basic course with emphasizing the metric system. Introduction to atomic theory, stoichiometry. The structural and physical properties of matter. Periodic relationship among elements and periodic table. Gaseous state. Thermochemistry. Energy and enthalpy. Electronic structure of atoms. Electrochemistry. Chemical bonding.

Prerequisite: CHEM 101

ENG 102 English II (3 credit)

Develops students autonomy, evaluation, analysis and research skills and synthesizing ability. Students will learn the discourse patterns and structures to be used in different essay types. An academic essay and a project report are assigned.

Prerequisite : ENG 101

MTH 102 Mathematics II (4 credit)

Plane and polar co-ordinates, area in polar co-ordinates, arc length of curves. Limit, continuity and differentiability of function of several variables, extreme values, method of Lagrange multipliers. Double integral, triple integral with applications. Line integrals, Green's theorem. Sequences, infinite series, power series, Taylor's series. Complex numbers.

Prerequisite : MTH 101

PHY 102 General Physics II (4 credit)

Electrical charges. Coulomb's law. Electrical fields. Gauss's law. Electrical potential. Capacitance and dielectrics. Current and resistance. Direct current circuits. Magnetic fields. Sources of the magnetic field. Faraday's law of induction. Inductance and inductors.

Prerequisite : PHY 101

YIT 101 Turkish for Foreign Students (2 credit)

This course is a course for ferign students to gain skills of reading, writing, speaking, listening and understanding Turkish.

Prerequisite : -

TDE 102 Technical Drawing (3 credit)

Introduction to technical drawing. Drawing instruments and their use, lettering, lines, geometry of straight lines, scale drawing. Dimensions. Development of surfaces, shape description, selection of views, projecting the views. Pictorial drawing, diametric trimetric projection. Isometric projection, oblique projection. Perspective drawing cross section.

Prerequisite : -

YEAR 2

PGE 201 General Geology (4 credit)

Structure of the Earth. Elements, minerals, and rocks of the Earth`s crust. Igneous and metamorphic processes. Weathering. Sedimentary processes. Geological external processes. Rock formation. Earth`s dynamic processes and rock deformation. Map studies.

Prerequisite : -

MTH 201 Differential Equations (4 credit)

Ordinary and partial differential equations. Explicit solutions. First-order differential equations, separable, homogenous differential equations. Ordinary linear differential equations. Bernoulli differential equations. Cauchy-differential equations. High-order ordinary differential equations. Introduction to Laplace transforms. Introduction to series method for solving differential equations. Linear systems of differential equations

Prerequisite : MAT 102

PGE 202 Petroleum Geology (3 credit)

The goal of this course is to obtain knowledge of the origins of petroleum and gas. An overview is given on the conditions that are needed for oil and gas to accumulate in reservoirs. Moreover, techniques to find and exploit these reservoirs are highlighted. The focus always is on the task of the petroleum geologist during the different phases of oil and gas exploration and production.

Prerequisite : PGE 201

PGE 204 Applied Mathematics for Petroleum Engineers (3 credit)

This course is designed to give second year petroleum and natural gas engineering students fundamental concepts of vector calculus and linear algebra relevant to their fields, solutions of linear algebraic systems of equations, eigenvalues, roots of nonlinear equations, interpolation, and numerical differentiation and integration.

Prerequisite : MTH 201

ECC 207 Thermodynamics (4 credit)

Basic concepts and definitions of classical thermodynamics. Thermodynamic processes, work and heat interactions. First law for systems and for flow processes. Second law and entropy, irreversibility and availability.

Prerequisite : -

ECC 211 Engineering Materials (4 credit)

Materials and properties. Atomic structure and interatomic bonding, crystal structure, crystal imperfections, solid solutions. Mechanical properties of materials, elastic and plastic deformation. Behaviour of materials under tension, compression and shear. Hardness and hardness measurement. Dislocation and strengthening mechanism. Phase equilibria, phase diagrams, the iron –carbon system, solid reactions, microstructures. Structure and properties of ceramics. Polymer structure.

Prerequisite :

PGE 218 Rock Properties (3 credit)

Petrophysical properties of reservoir rocks and measurement procedures: Coring and core handling; sandstone and carbonate reservoir rock and pore types; fundamental porosity, grain density, permeability and saturation properties; special core analysis such as mechanical, acoustic and electrical properties; multiphase rock and fluid interactions, interfacial tension, capillary pressure, wettability and relative permeability properties.

Prerequisite : -

PGE 220 Fluid Properties (3 credit)

Properties of fluids encountered in petroleum engineering. Phase behaviour, density, viscosity, interfacial tension, and composition of oil, gas and brine systems. PVT relationships of hydrocarbon gas and liquid systems. Thermodynamic behaviour of naturally occurring hydrocarbon mixtures; evaluation and correlation of physical properties of petroleum reservoir fluids, including laboratory and empirical methods. Interpreting lab data for engineering applications. Flash calculations.

Prerequisite : -

PGE 221 Engineering Mechanics (3 credit)

Introduction, Force Vectors, Force System Resultants, Equilibrium of Particles, Equilibrium of Rigid Bodies and Frames, analysis of Trusses, Analysis of Beams, Centroid and Moments of Inertia.

Prerequisite : PHY 101

ECC 213 Strength of Materials (4 credit)

Introduction. Internal force diagrams. Analysis of stress and strain. Hooke's law. Yield criteria and plasticity. Axial force. Pure shear. Torsion of circular bars and thin walled tubes. Moment of inertia of cross-sections. Simple bending. Stress and strain, Mohr's circle. Bending with shear. The shear center. The shear center of thin walled sections. Elastic curve for symmetrical cross-sections. Study of elastic curve by various methods. Effect of shear on the elastic curve. Axial force with bending. Materials not resistant to tension. Bending with torsion. Energy methods. Theorem of virtual work. Theorems of Betti and Castigliano. Minimum principles. Elastic stability. Euler cases. Buckling beyond the elastic limit, method of omega multiplier, approximate methods, Rayleigh ratio.

Prerequisite : ME 211

YEAR 3

PGE 300 Summer Practice I (0 credit)

A minimum of four weeks (20 working days) of Summer Practice is obligatory to fulfill the requirements for the B.Sc. degree. The first practice is preferred to be in drilling operations after the second year. The training is based on the content of the summer practice manual.

Prerequisite : -

PGE 301 Introduction to Fluid Mechanics (4 credit)

Properties of fluids. Basic Concepts of Fluids in Fluid Mechanics. Classifications of Fluid Flow. Fluid Statics. Pressure Intensity, Pressure Heads, Buoyancy and Flotation. Hydrostatic Forces on a Submerged Surface. Fluid Kinematics. Fluid Mass under acceleration. Continuity Equation. Bernoulli Equation. Laminar and Turbulent Pipe Flow. One Dimensional Pipe Flow.

Prerequisite : -

PGE 303 Petroleum Production Engineering I (3 credit)

Drill stem testing, well completion methods, completion fluids and sand control. Perforating, well head equipment and flow control devices, production packers, oil and gas separators. Flowing well performance, sucker rod pumping, submersible electrical centrifugal pumping, well stimulation techniques; acidizing, hydraulic fracturing.

Prerequisite : -

PGE 304 Petroleum Production Engineering II (3 credit)

Drill stem testing, well completion methods, completion fluids and sand control. Perforating, well head equipment and flow control devices, production packers, oil and gas separators. Flowing well performance, sucker rod pumping, submersible electrical centrifugal pumping, well stimulation techniques; acidizing, hydraulic fracturing.

Prerequisite : PGE 303

PGE 305 Petroleum Reservoir Engineering I (3 credit)

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.

Prerequisite : -

PGE 306 Petroleum Reservoir Engineering II (3 credit)

Steady and unsteady state single phase flow equations through porous media, steady and unsteady superposition. Multiphase flow through porous media. Reservoir characterization in homogeneous and heterogeneous reservoirs by pressure and tracer testing.

Prerequisite : PGE 305

PGE 307 Drilling Engineering I (3 credit)

Drilling machinery: hole and equipment. Drilling fluids and hydraulics. Cementing and hydraulics. Drill off tests (bit performances). Pressure control.

Prerequisite : -

PGE 308 Drilling Engineering II (4 credit)

Directional drilling (Tangential, ROC and Minimum Curvature Methods). Drill string design (neutral point of tension and compression, neutral point of bending, Lubinski's stresses, margin of over pull). Casing design (biaxial, triaxial). Casing setting (buckling and well head loads).

Prerequisite : PGE 307

PGE 309 Statistics and Probability for Petroleum Engineers (3 credit)

Complex numbers, Matrix algebra, Methods of solution of linear equation systems.Vectors in 2D-Space and 3D-Space, Eigenvalues, Eigenvectors, Diagonalizations, Fourier Series. Applied Probability and Statistics.

Prerequisite : MTH 102

PGE 310 Oil and Gas Pipeline System (3 credit)

Importance of pipelines: pipelines as element of infrastructure, economical comparison of pipelines with other transportation systems, safety of pipelines, transportation tasks and dimensioning of pipelines, profitability investigation of pipelines. Planning and designing of pipelines: right of way, pipelines, stations, and execution of pipeline projects. Calculation of pipelines: pressure losses and flow rates, energy demand, pressure surge calculations, pipe strength calculations. Line pipes and fittings: line pipe materials, fabrication of line pipes, fittings, line pipe testing and inspection. Construction works and corrosion protection of pipelines.

Prerequisite : -

PGE 312 Well Loging (3 credit)

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.

Prerequisite : -

YEAR 4

PGE 400 Summer Practice II

A minimum of four weeks (20 working days) of summer practice is obligatory to fulfill the requirements for the B.Sc. degree. The second practice is for production and/or reservoir engineering after the third year of undergraduate education. The training is based on the content of the summer practice manual.

Prerequisite : PGE 300

PGE 402 Graduation Project (3 credit)

Application of Petroleum and Gas Engineering theories and topics on paper for design. The graduation project is chosen by the students and taken up after the approval of the relevant lecturer.

Prerequisite : -

PGE 403 Natural Gas Engineering (3 credit)

Properties of natural gases, hydrate formation. Estimation of gas reserves. Gas well testing. Estimation of gas deliverability. Gas flow measurement. Natural gas deliverability. Natural gas

transmission, design of gathering systems. Field treating and processing of natural gas. Compressor horsepower requirement.

Prerequisite : -

PGE 405 Petroleum Engineering Design (3 Credit)

Development and use of design methodology, formulation of design problem statements and specifications, consideration of alternate solutions, feasibility, considerations. Development of student creativity by using open ended problems.Project engineering and management of engineering projects. Design of drilling projects.

Prerequisite : -

PGE 411 Petroleum Property Valuation

The aim of our course is to study the profit analysis and to make feasibility studies for the valuation of oil and gas properties.In order to be able to make these kind of studies, we must know the amount of oil and gas producible from a field and this can be obtained trhough engineering analysis**.**

Prerequisite : -

ECC 426 Economics for Engineers (3 credit)

Principles and economic analysis of engineering decision making. Cost concept. Economic environment. Price and demand relations. Competition. Make-versus-purchase studies. Principles and applications of money-time relations. Depreciation. Many and banking. Price changes and inflation. Business and company finance.

Prerequisite : -

TECHNICAL ELECTIVE COURSES DESCRIPTIONS

PGE 407 Reservoir Characterization (3 credit)

Definition of petroleum reservoir heterogeneity using conventional methods and possible improvements to these methods. Review of basic statistical concepts and methods. Reservoir Rock and Fluid Property Evaluation by Statistical Methods. Scale-up and Simulator Data Preparation. Emerging Methods in Petroleum Reservoir Characterization. Case studies from oil industry.

Prerequisite : PGE 305

PGE 408 Geophysics for Petroleum Engineering (3 credit)

This module is an introduction to geophysical signal analysis which is concerned with the construction, analysis, and interpretation of mathematical and statistical models. In general, it is intended to provide material of interest to upper undergraduate students in mathematics, science, and engineering.

Prerequisite : PGE 201

PGE 409 Process Control and Instrumentation (3 credit)

Introduction to Process Measurement, Pressure Measurement, Level Measurement, Temperature Measurement, Flow Measurement, Control Valves, Process Considerations, Transmission of Measurement Signals, Basic Control Concepts, Complex Control Systems, Computer Control Systems, Networks

Prerequisite :-

PGE 413 Globalization and Petroleum Politics (3 credit)

As global energy demand increases, sources of oil and gas are becoming incredibly important to nations whose citizens continue to grow more dependent on them. This dependence has led to a more robust international petroleum industry, as a result of globalization, underlined by an increase in stakeholders and complicated contractual frameworks.

Prerequisite :-

PGE 416 Environmental Control in Petroleum Engineering Operations (3 credit)

Principles of environmental control in petroleum engineering. The impact of drilling and production operations. Environmental transport of petroleum wastes. Planning for environmental protection. Waste treatment methods. Remediation of contaminated sites.

Prerequisite :-

PGE 417 Petroleum and Refining Processes (3 credit)

This module highlights contemporary approaches to resource utilization and provides comprehensive coverage of technological advances in residuum conversion. It illustrates state-of-the-art engineering methods for the refinement of heavy oils, bitumen, and other high-sulphur feedstocks.

Prerequisite :-

PGE 418 Oil Transportation and Storage (3 credit)

Waterborne Transportation, Oil Spills, Storage Facilities, Oil Pipelines, World Oil Transit Checkpoints , Marine Tankers and Barges,Super tankers, Oil tankers, Barges, Marine vessels for transporting LPG and LNG, Aboveground Tank Storage of Liquid Petroleum Products, Storage Tanks, Tank Farm.

Prerequisite :-

PGE 419 Health & Safety and Risk Management (3 credit)

This course develops a foundation of Health & Safety concepts and stakeholders, Risk assessment of engineering developments, Hazard identification and protection methods, Business Continuity Planning (BCP) and Management of health and safety in oil and gas industry.

Prerequisite :-

PGE 420 Project Management (3 credit)

This course develops a foundation of concepts and solutions that supports the planning, scheduling, controlling, resource allocation, and performance measurement activities and leadership traits required for successful completion of oil and gas engineering projects.

Prerequisite :-

PGE 421 Introduction to Geothermal Reservoir Engineering (3 credit)

Classification of geothermal reservoirs, distribution and characteristics of geothermal resources. Physical aspects of hydrothermal systems. Assessment of geothermal resources. Well completion and warm-up, measurements during drilling; temperature log, the completion tests, pressure log. Flow testing. Well performance.

Prerequisite :-

PGE 422 Enhanced Oil Recovery (3 credit)

Enhanced oil recovery methods and limitations Improved oil recovery, Fractured Reservoirs, Shale Gas., Coal Gas Methane ,Buckley Leveret Displacement Mechanism Miscible and immiscible gas drives. steam and steam drive applications. In-situ Combustion. Chemical EOR. Polymer and surfactant flooding, microbial flooding.

Prerequisite : PGE 303

PGE 423 Pressure Control (3 credit)

Origin and detection of abnormal formation pressures. Principles of pressure control: behavior of gas in drilling fluids, mechanics of bubble rise. Pressure control methods: driller, engineer, concernment and low choke pressure methods. Prediction methods for fracture pressure gradient. Drilling and completion concepts in over pressured formations. Pressure control equipment. Special problems.

Prerequisite :-

PGE 424 Physical and Engineering Properties of Rock (3 credit)

Rock as an engineering material, rock and rock mass classifications. Physical properties of rock, weathering and slaking. Petrophysical properties of reservoir rocks and measurement procedures: Coring and core handling; sandstone and carbonate reservoir rock and pore types; fundamental porosity, grain density, permeability and saturation properties; special core analysis such as

mechanical, acoustic and electrical properties; multiphase rock and fluid interactions, interfacial tension, capillary pressure, wettability and relative permeability properties. Oral presentation on a specific topic of rock properties.

Prerequisite :-

PGE 425 Directional Drilling (3 credit)

Directional drilling applications and limitations. Terminology, the best way to better planning objectives and targets: Calculations and data collection. MWD (Measurements While Drilling). Bottom Hole Assembly drilling equipment: drilling tools and methods of kick off. Drilling motors, drill bits, and BHAs (Bottom Hole Assembly). Well head operations. Reservoir considerations during the design aspects of directional drilling. Drilling and surface locations requirements. Torque and drag (torque and drag) models. Types of horizontal wells and plans. Loging, coring, and completion techniques. Well-stability (wellbore stability) issues and well cleaning requirements.

Prerequisite : PGE 307

PGE 426 Petroleum Geochemistry (3 credit)

The course involves in basic organic chemistry, origin, generation, migration and accumulation of oil and gas. Alteration of hydrocarbons in the reservoir. Application correlation studies to production allocation problems which petroleum engineers are met.

Prerequisite :-

PGE 427 Well Stimulation (3 credit)

In this course, participants will first learn the fundamental science related to geosciences, rock mechanics, and fluid mechanics, and then gain know-how knowledge on the principles of well stimulations followed by practical skills related to design and evaluation of stimulation treatments. At the end of this course, participants will gain the ability and confidence in solving real-world problems by integrating physics, geology, rock mechanics, formation evaluation, production and reservoir engineering. Examples, case studies, and leading software demonstration/practices will further enhance participants' knowledge and skills acquired in this course.

Prerequisite : PGE 303

PGE 428 Transportation and Storage of Natural Gas (3 credit)

Transportation of natural gas , Design and construction of natural gas pipelines, Liquifed Natural Gas (LNG).Compressed Natural Gas (CNG) Underground Storage of Natural Gas.

Prerequisite :-

PGE 429 Well Design Control (3 credit)

Well Design and Control are very important for a successful drilling operation. The well design concepts are very important to be comprehended by the engineer in charge of the operation. The Well Control measures are determined in place taking into consideration the policy requirements of the organizations. Well Control fundamentals are in place being used by the industry since the early 1960s. Accident statistics show that the merits of training, and most individuals involved in drilling or other well operations do receive well control training, topics of which are based on the subjects determined by forums recognized by the main drivers of the industry. This course is aiming the determination of the basic well design requirements and main aspects of the well control procedures.

Prerequisite : PGE 307

PGE 430 Hydrocarbon Geophysics (3 credit)

Description of Hydrocarbons (Fossil Fuels), A brief history of hydrocarbon exploration, Passive Geophysical methods for hydrocarbon explorations (Gravity, Magnetic and EM methods., Theory and Principles), Student presentations-I (first project topics- coal, oil and natural gas explorations with passive geophysical methods), Active geophysical methods for hydrocarbon explorations (Seismic methods, Theory and Principles), Introduction to seismic amplitude-versus-offset (AVO) Analysis, Seismic modeling of hydrocarbon bearing structural traps (geometrical and resolutional aspects), A new energy source, Gas Hydrates, Exploration of gas hydrates and their economic and enviromental importance, Student presentations-II (second project topics- Oil, natural gas and gas hydrate explorations with active geophysical methods), Overall evaluation of the methods in hydrocarbon exploration.

Prerequisite :-

PGE 431 Geological Maps and Cartography (3 credit)

Importance of geological maps in engineering projects. Properties of the linear and planar structures. Properties of topographic maps and contouring. Surface geology and relationships between surface and subsurface planar structures. Structure contours and their importance. Preperation and interpretation of geological maps based on structure contours. Map pattern and cross sections of undeformed areas. Map pattern and cross sections of folded beds. Map pattern and cross sections of unconformities. Map pattern and cross sections of faulted regions. Map pattern and cross sections of non bedded units. Interpretation of geological maps.

Prerequisite :-

PGE 432 Safety & Environmental Protection (3 credit)

Wide variety of subjects in health, safety and environmental protection in the activities and facilities of oil, gas, and geothermal industries are covered in the course. A term project is assigned to groups of students who are required to present their work to other groups, and group projects are required to reported.

Prerequisite :-

PGE 433 Analysis of Well Pressure Tests (3 credit)

Fundamentals of well test analysis. Methodology in analysis and test types. Diffusivity equation and its solutions. Semi-log approach and type curve matching. Pressure-derivative analysis methods. Formation damage and wellbore storage. Superposition principle. Pressure drawdown and buildup analysis. Multiple rate tests. Concept of effective wellbore radius. Well test analysis for fractured wells. Well Test Design and points to be taken into considerations in test design.

Prerequisite :

PGE 434 Individual Study (3 credit)

Literature search in area of interest (in the area of Petroleum and Natural Gas Engineering), in class discussions and paper presentations in the area of interest, preparation of final report and final report presentation.

Prerequisite :-

PGE 435 Petroleum Fuels Market & Segment (3 credit)

This course aims to get basic products derived from petroleum and their market perspectives and that of segmenting the products namely fuels. This course is primarily designed for the students from 5 th semester and upwards. It is highly recommended for 7 and 8 semester students before they leave the department as young professionals. This course will provide these young engineers with the basic understanding of what they would deal with as they begin their professional life in working environment. Further, the fields dealt with professional institutions and International market tools i.e. Platt's, EPDK and relevant terminologies and their applications in business are discussed.

Prerequisite :-

PGE 436 Simulating of Geosystems (3 credit)

Simulation in general (incentives for simulation, planning a simulation study). Equations for mass/heat flow in permeable/porous media. Modeling concepts (finite differences, 1D, 2D and 3D mass/heat flow domains). Selecting reservoir-rock and fluid-properties data. Selecting grid block and time steps. Placement of wells in grid blocks. History matching and predicting future performance of geosystems by numerical simulation. Applications of simulation to oil and gas reservoirs as well as geothermal reservoirs.

Prerequisite :-

PGE 437 LPG Technology and Sector (3 credit)

History of LPG (liquified petroleum gas) utilization and trade in Turkey and in the world. LPG properties, phase behavior, production, storage and bottling facilities, land and sea born transport. LPG consumption as bottled, bulk and fuel in motor vehicles. Safety measures for LPG fires and hazards. LPG sector and market in Turkey. Laws, legislation, and standards for LPG operations, facilities, and consumption. Technical trip to LPG storage facility and filling station.

Prerequisite :-

16. Sample copy of diploma supplement

At the end of program the diploma supplement which is given to all graduates of our university free of charge. It ıs arranged in English.

The diploma supplement is a document the purpose of which is to provide sufficient independent data to improve the international "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It is designed to provide a description of the nature, level, context, content and the status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgments, equivalence statements or suggestions about recognition

Diploma supplement

<table>
<tr><td>Diploma No:</td><td>Diploma Date: 11.07.2014</td></tr>
<tr><td colspan="2">1.INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION</td></tr>
<tr><td>1.1. Family name(s):
1.2. Given name(s):</td><td>1.3. Place and date of birth:
1.4. Student identification number:</td></tr>
<tr><td colspan="2">2. INFORMATION IDENTIFYING THE QUALIFICATION</td></tr>
<tr><td>2.1. Name of the qualification and (if applicable) the title conferred
BACHELOR OF SCIENCE, B.Sc.
2.2. Main field(s) of study for qualification
PETROLEUM AND NATURAL GAS ENGİNEERİNG
2.3. Name and status of awarding institution
NEAR EAST UNIVERSITY, PRIVATE UNIVERSITY</td><td>2.4. Name and type of institution administering studies
SAME AS 2.3.
2.5. Language(s) of instruction/examinations
ENGLISH</td></tr>
<tr><td colspan="2">3. INFORMATION ON THE LEVEL OF THE QUALIFICATION</td></tr>
<tr><td>3.1. Level of qualification
First Cycle (Bachelor's Degree)</td><td>3.2. Official length of program
Normally 4 Years (excluding 1 year English Preparatory School, if nEPEssary), 2 semesters per year, 16 weeks per semester</td></tr>
<tr><td colspan="2">3.3. Access requirement(s)
Admission of Turkish nationalities to higher education is based on a nation-wide Student Selection Examination (ÖSS) administered by the Higher Education Council of Turkey (YÖK). Admission of Turkish Republic of Northern Cyprus nationals is based on the Near East University Entrance and Placement Exam for Turkish Cypriots. Admission of foreign students is based on their high school credentials. Proof of English language proficiency is also required.</td></tr>
<tr><td colspan="2">4. INFORMATION ON THE CONTENTS AND RESULTS GAINED</td></tr>
<tr><td>4.1. Mode of study
Full-Time</td><td>4.2. Programme requirements
A student is required to have a minimum CGPA of 2.OO/4.00 and no failing grades (below DD).</td></tr>
<tr><td>4.3. Objectives
The aim of the Petroleum and Natural Gas Engineering department is to prepare engineering candidates for various branches of industry with an improved self-confidence and individual initiative. Students are educated to have scientific systematic approach in solving engineering problems, sound engineering base, life-long learning habits and research abilities.</td><td>4.4. Programme details and the individual grades/marks obtained
Please see the next page.</td></tr>
</table>

4.5. ***Grading scheme, grade translation and grade distribution guidance:***

For each course taken, the student is assigned one of the following grades by the course teacher.

For A.Sc., B.Sc. or B.A. degrees, students must obtain at least DD or S from each course and have a GGPA of not less than 2.00 out of 4.00 and have completed all the courses and summer practices in the program. For graduate degrees, students must obtain at least CC or S from each course for M.Sc. and M.A., at least BB for Ph.D. They also need to have a GCPA of 3.00 to graduate. The student's standing is calculated in the form of a Graduate Point Average (GPA) and Cumulative Grade Point (CGPA) and is announced at the end of each semester by the Registrar's Office. The total credit points for a course are obtained by multiplying the coefficient of the final grade by the credit hours. In order to obtain the GPA for any given semester, the total credit points are divided by the total credit hours. The averages are given up to two decimal points. Students who obtain a CGPA of 3.00-3.49 at the end of a semester are considered as "Honour Students" and those who obtain a CGPA of 3.50-4.00 at the end of a semester are considered as "High Honour Students" and this is recorded in their academic report. The letter grades, the quality point equivalents are:

Percentage	**Course Coefficient**	**Grade**	**Percentage**	**Course Coefficient**	**Grade**
90-100	4	AA	70-74	2	CC
85-89	3.5	BA	65-69	1.5	DC
80-84	3	BB	60-64	1	DD
75-79	2.5	CB	50-59	0.5	FD
49 and below	0	FF			

I- Incomplete **S-** Satisfactory Completion, **U**-Unsatisfactory, **NA**-Never Attended,**E**-Exempted, **W**– Withdrawn

4.6*Overall classification of the award* CGPA: 3.04/4.00

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1. ***Access to further study***
May apply to second cycle programmes.

5.2. ***Professional status conferred***
This degree enables the graduates to teach English in public and private institutions.

6. ADDITIONAL INFORMATION

6. 1. ***Additional information***
The department is accredited by Edexcel Assured Services for its quality standards.

6.2. Sources for further information
Faculty web sitehttp://www.neu.edu.tr/en/node/6183
Department web site http://english.neu.edu.tr/
University web site http://www.neu.edu.tr
The Council of Higher Education of Turkey
http://www.yok.gov.tr
Higher Education Planning, Evaluation Accreditation and Coordination of North Cyprus Council Web site
http://www.ncyodak.org
Edexcel Quality Assured Services
http://www.edexcel.com/international/qualifications/edexcel-assured/Pages/default.aspx

4.4. *Program details and the individual grade/marks obtained:*

1 (1st Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
CHM 101	General Chemistry	4	5	Compulsory	
ENG 101	English I	3	3	Compulsory	
MTH 101	Mathematics I	4	6	Compulsory	
PGE 101	Introduction to Petroleum Engineering	2	5	Compulsory	
PHY 101	General Physics I	4	5	Compulsory	
ECC 101	Introduction to Programming	3	6	Compulsory	
		20	30		

2 (2nd Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
CHM 102	Physical Chemistry	3	7	Compulsory	
ENG 102	English II	3	3	Compulsory	
MTH 102	Mathematics II	4	6	Compulsory	
PHY 102	General Physics II	4	5	Compulsory	
YIT 101	Turkish for Foreign Students	2	3	Compulsory	
TDE 102	Technical Drawing	3	6	Compulsory	
		19	30		

3 (3rd Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
ECC 207	Thermodynamics	4	7	Compulsory	
ECC 211	Engineering Materials	4	7	Compulsory	
MTH 201	Differential Equations	4	6	Compulsory	
PGE 201	General Geology	4	5	Compulsory	
PGE 221	Engineering Mechanics	3	5	Compulsory	
		19	30		

4 (4th Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
PGE 202	Petroleum Geology	3	5	Compulsory	
PGE 204	Applied Mathematics for Petroleum Engineers	3	5	Compulsory	
PGE 218	Rock Properties	3	6	Compulsory	
PGE 220	Fluid Properties	3	6	Compulsory	
ECC 213	Strength of Materials	4	5	Compulsory	
NTE		3	3	N. Technical Elective	
		19	30		

5 (5th Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
PGE 300	Summer Practice I	0	4	Compulsory	
PGE 301	Introduction to Fluid Mechanics	4	6	Compulsory	
PGE 303	Petroleum Production Engineering I	3	5	Compulsory	
PGE305	Petroleum Reservoir Engineering I	3	5	Compulsory	
PGE 307	Drilling Engineering I	3	5	Compulsory	
PGE 309	Statistics and Probability for Petroleum Engineers	3	5	Compulsory	
		16	30		

6 (6th Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
PGE 304	Petroleum Production Engineering II	3	5	Compulsory	
PGE 306	Petroleum Reservoir Engineering II	3	5	Compulsory	
PGE 308	Drilling Engineering II	4	5	Compulsory	
PGE 310	Oil and Gas Pipeline Systems	3	5	Compulsory	
PGE 312	Well Logging	3	5	Compulsory	
Unrestricted T.Elective		3	5	Unrestricted T.Elective	
		19	30		

7 (7th Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
PGE 400	Summer Practice II	0	4	Compulsory	
PGE 403	Natural Gas Engineering	3	5	Compulsory	
PGE 405	Petroleum Engineering Design	3	6	Compulsory	
PGE 411	Petroleum Property Valuation	3	5	Compulsory	
T.Elective		3	5	T.Elective	
T.Elective		3	5	T. Elective	
		15	30		

8 (8th Semester)

Course Code	Course Name	CR	ECTS	Status	Grade
PGE 402	Graduation Project	3	5	Compulsory	
ECC 426	Economics for Engineers	3	5	Compulsory	
T.Elective		3	5	T. Elective	
T.Elective		3	5	T.Elective	
T.Elective		3	5	T.Elective	
T.Elective		3	5	T.Elective	
		18	30		

TOTAL LOCAL CREDITS	**145**
TOTAL ECTS	**240**

7. CERTIFICATION OF THE SUPPLEMENT

7.1. *Date* :

7.2. Name and *Signature* :Ümit Serdaroğlu

7.3. *Capacity* : Registrar

7.4. *Official stamp or seal* :

INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

The basic structure of the North Cyprus Education System consists of four main stages as pre-school education, primary education, secondary education and higher education.

Pre-school education consists of non-compulsory programs whereas primary education is a compulsory 8 year program for all children beginning from the age of 6. The secondary education system includes "General High Schools" and "Vocational and Technical High Schools".

The Higher Education System in North Cyprus is regulated by the Higher Education Planning, Evaluation, Accreditation and Coordination Council (Yüksek öğretim Planlama, Denetleme, Akreditasyonve Koordinasyon Kurulu – YÖDAK). Established in 1988, the Council regulates the activities of higher education institutions with respect to research, governing, planning and organization. The higher education institutions are established within the framework of the Higher Education Law. All programs of higher education should be accredited by YÖDAK.

Higher education in North Cyprus comprises all post-secondary higher education programmes, consisting of short, first, second, and third cycle degrees in terms of terminology of the Bologna Process. The structure of North Cyprus higher education degrees is based on a two-tier system, except for dentistry, pharmacy, medicine and veterinary medicine programmes which have a one-tier system. The duration of these one-tier programmes is five years except for medicine which lasts six years. The qualifications in these one-tier programmes are equivalent to the first cycle (bachelor degree) plus secondary cycle (master degree) degree. Undergraduate level of study consists of short cycle (associate degree) - (ön lisans derecesi) and first cycle (bachelor degree) - (lisans derecesi) degrees which are awarded after the successful completion of full-time two-year and four-year study programmes, respectively.

Graduate level of study consists of second cycle (master degree) – (yüksek lisans derecesi) and third cycle (doctorate) – (doktora derecesi) degree programmes. Second cycle is divided into two sub-types named as master without thesis and master with thesis. Master programmes without thesis consists of courses and semester project. The master programmes with a thesis consist of courses, a seminar, and a thesis. Third cycle (doctorate) degree programmes consist of completion of courses, passing a qualifying examination and a doctoral thesis. Specializations in dentistry, accepted as equivalent to third cycle programmes are carried out within the faculties of dentistry. Specialization in medicine, accepted as equivalent to third cycle programmes are carried out within the faculties of medicine, and university hospitals and training hospitals operated by the Ministry of Health.

Universities consist of graduate schools (institutes) offering second cycle (master degree) and third cycle (doctorate) degree programmes, faculties offering first cycle (bachelor degree) programmes, four-year higher schools offering first cycle (bachelor degree) degree programmes with a vocational emphasis and two-year vocational schools offering short cycle (associate degree) degree programmes of strictly vocational nature.

Second cycle degree holders may apply to third cycle programmes if their performance at the first cycle degree level is exceptionally high and their national central Graduate Education Entrance Examination (ALES) score is also high and their application is approved. The doctoral degree is conferred subject to at least one publication in a cited and refereed journal.

GENERAL STRUCTURE OF THE NORTH CYPRUS EDUCATION SYSTEM