Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extracurricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: ……Basrah……

Faculty/Institute: ……Engineering Collage……

Scientific Department: Petroleum engineering dept.

Academic or Professional Program Name: BSC…

Final Certificate Name: ……BSC……

Academic System: …Bologna Path Semesters (1-2 Stages)

Courses (3-4 Stages).

Description Preparation Date: ……10/9/2025……..

File Completion Date: ……10/9/2025……..

Signature:

Head of Department Name:

Ammar Ali Ojimi

Date: 10/9/2025

Signature:

Scientific Associate Name:

Date:

ce and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

Academic Program Description Form

University Name: .....Basrah.....

Faculty/Institute: .....Engineering Collage...

Scientific Department: Petroleum engineering department

Academic or Professional Program Name: Bachelor of Petroleum Engineering

Final Certificate Name: BSC Bachelor of Petroleum Engineering

Academic System: Courses - Bologna Path Semesters (First and Second Stages)

Courses - (Third and fourth Stages)

Description Preparation Date: 10/09/2025.

File Completion Date: 10/09/2025.

Signature: Signature: M.A.Ism

Head of Department Name: Scientific Associate Name:

Ammar Ali Ojimi Muneer A. Ismael

Date: Date:

d University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

University of Basrah College of Engineering Dean Office

Approval of the Dean

أ.د. مفيد تركي رشيد

1. Program Vision

The Department of Petroleum Engineering's ambition is to graduate competent petroleum engineers, according to the latest internationally accredited curricula, with the goal of implementing various engineering projects currently needed by the country. This is achieved by providing a high-quality engineering, educational, and research environment in petroleum engineering to build and serve their country, and by highlighting the role of petroleum engineers in serving their country, in civilizational development, and in scientific progress.

2. Program Mission

The department seeks to provide a pioneering environment based on the distinguished engineering expertise of its faculty members, in addition to its administrators, and facilities that meet the needs of students and, consequently, the entire community. It also aims to provide students with a contemporary educational and scientific experience that enriches their skills, enabling them to excel in their professional life and postgraduate studies. It also aims to graduate engineers with a comprehensive knowledge of the fundamentals of petroleum engineering, enabling them to innovate and excel in this creative profession.

3. Program Objectives

1. Preparing and qualifying specialized engineers to meet the demands of the labor market in both the private and public sectors in computer engineering by diversifying learning and teaching methods and training students to apply acquired knowledge and skills to solve real-life problems.
2. Providing distinguished academic programs in the field of computer engineering, both theoretical and practical, that comply with international standards for academic quality and meet the needs of the labor market. 3. Encouraging and developing scientific research in the fields of computer engineering in general, and in the fields of artificial intelligence, robotics, computer software, computer networks, communications, and control in particular.
4. Creating a stimulating environment for faculty members to develop their educational and research knowledge and skills.
5. Building and developing partnerships with governmental and private sectors and the community with all its various institutions.

The educational objectives of the Department of Petroleum Engineering are to prepare students to solve problems in a scientific, ethical, and economic manner

by: Providing them with a sufficient education in the basics of mathematics, engineering sciences, and engineering techniques, in addition to their specific specialization in the field of petroleum technology, with the aim of applying this knowledge in the profession. Help them develop skills relevant to the design process, including problem formulation, creative thinking, effective communication, information analysis, and teamwork. Help them understand the importance of their professional and ethical responsibilities.

4. Program Accreditation

Thank God, we have obtained accreditation from the Iraqi Council for Accreditation of Engineering Education, with some comments.

5. Other external influences

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	4	4	% 7.084	
College Requirements	7	16	%15.41	
Department Requirements	47	140	%77.5	
Summer Training	1			
Other				

*This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
Level UGI Semester 1	BEP111	General Geology	4	
Level UGI Semester 1	BEP112	Calculus I	3	
Level UGI Semester 1	UOB103	Computer I	2	2
Level UGI Semester 1	BEP113	Physics	4	
Level UGI Semester 1	BEP114	Statics Mechanical Engineering	3	
Level UGI Semester 1	UOB102	Democracy and Human Rights	2	
Level UGI Semester 1	UOB104	Arabic Language I	2	
Level UGI Semester 2	BEP121	Stratigraphy & Sedimentary	2	2
Level UGI Semester 2	BEP122	Calculus II	3	
Level UGI Semester 2	BEP123	General Chemistry	4	2
Level UGI Semester 2	BEP124	Engineering Drawing and AutoCad	3	
Level UGI Semester 2	BEP125	Dynamics Mechanical Engineering	3	
Level UGI Semester 2	UOB101	English language I	2	
Level UGII Semester 3	BEP231	Static Fluid Mechanics	2	2
Level UGII Semester 3	BEP232	Fundamental Of Petroleum Engineering I	4	
Level UGII Semester 3	BEP233	Advanced Mathematics I	3	
Level UGII Semester 3	BEP234	Structural Geology	3	2
Level UGII Semester 3	BEP235	Mechanics of Materials	4	
Level UGII Semester 3	BEP236	Electrical Engineering Technology	2	2

Level UGII Semester 3	UOB201	English language II	2	
Level UGII Semester 4	BEP241	Dynamic Fluid Mechanics	2	2
Level UGII Semester 4	BEP203	Computer II	2	2
Level UGII Semester 4	BEP243	Advanced Mathematics II	3	
Level UGII Semester 4	BEP244	Petroleum Geology	2	2
Level UGII Semester 4	BEP245	Petroleum Properties	2	2
Level UGII Semester 4	UOB205	Crimes of Baath Party	2	
Level UGII Semester 4	UOB202	Arabic Language II	2	
Year 3 Semester 1	PeE311	Engineering & Numerical Analysis I	2	-
Year 3 Semester 1	PeE312	Petroleum Reservoir Engineering I	3	-
Year 3 Semester 1	PeE313	Petroleum Drilling Engineering I	2	2
Year 3 Semester 1	PeE314	Petroleum Production Engineering I	2	2
Year 3 Semester 1	PeE315	Basic of Thermodynamics	2	-
Year 3 Semester 1	PeE316	Well Logging I	2	2
Year 3 Semester 1	PeE317	Engineering Economics	2	-
Year 3 Semester 1	PeE318	Geophysics	2	-
Year 3 Semester 2	PeE321	Engineering & Numerical analysis II	2	-
Year 3 Semester 2	PeE322	Petroleum Reservoir Engineering II	3	-
Year 3 Semester 2	PeE323	Petroleum Drilling Engineering II	2	2
Year 3 Semester 2	PeE324	Petroleum Production Engineering II	2	2

Year 3 Semester 2	PeE325	Thermodynamics (Cycles)	2	-
Year 3 Semester 2	PeE326	Well Logging II	2	2
Year 3 Semester 2	PeE327	Engineering Statistics	2	-
Year 3 Semester 2	PeE328	Pollution & Industrial Safety	2	-
Year 4 Semester 1	E402	Engineering Project I	1	2
Year 4 Semester 1	PeE411	Numerical Methods	2	-
Year 4 Semester 1	PeE412	Petroleum Reservoir Engineering III	2	2
Year 4 Semester 1	PeE413	Petroleum Drilling Engineering III	2	2
Year 4 Semester 1	PeE414	Petroleum Production Engineering III	2	2
Year 4 Semester 1	PeE415	Secondary Oil Recovery I	2	2
Year 4 Semester 1	PeE416	Gas Technology I	2	-
Year 4 Semester 1	PeE417	Reservoir Management	2	-
Year 4 Semester 2	E403	Engineering Project II	1	2
Year 4 Semester 2	PeE421	Reservoir Simulation	2	-
Year 4 Semester 2	PeE422	Petroleum Reservoir Engineering IV	2	2
Year 4 Semester 2	PeE423	Petroleum Drilling Engineering IV	2	2
Year 4 Semester 2	PeE424	Petroleum Production Engineering IV	2	2
Year 4 Semester 2	PeE425	Secondary Oil Recovery II	2	2
Year 4 Semester 2	PeE426	Gas Technology II	2	-
Year 4 Semester 2	PeE427	Petroleum Management	2	-

8. Expected learning outcomes of the program

Knowledge	
	1. Engineering Knowledge & Scientific Foundation The graduate will be able to: · Apply advanced knowledge of mathematics (calculus, differential equations, statistics), physics (fluid mechanics, thermodynamics, mechanics), and chemistry (organic, petroleum chemistry) to engineering problems. · Understand the basic properties of rocks and fluids present in petroleum reservoirs. · Understand the entire oil field life cycle: from exploration, appraisal, drilling, production, through turnaround to final abandonment. 2. Analysis & Design of Oil & Gas Systems The graduate will be able to: · Analyze and design drilling operations, including the selection of drilling equipment and drilling fluids, and the design of a safe and sound well. Evaluate reservoir performance and estimate reserves using various methods and mathematical modeling. Design and operate surface and subsurface production systems (such as deep well pumps (ESPs) and surface oil, gas, and water separation facilities). Design and optimize enhanced oil recovery (EOR) methods to increase reservoir recovery rates. Apply reservoir engineering principles to optimize hydrocarbon recovery.
Skills	
	The graduate will be able to: Design and conduct laboratory experiments related to rock and fluid properties (such as porosity, permeability, and pressure measurements). Analyze and interpret well data, including well logs and pressure tests. Use models and simulations to study the behavior of reservoirs and production systems under various conditions. 4. Modern Tool Usage The graduate will be able to: · Proficiently use software specialized in the oil and gas industry, such as: · Simulation modeling software (such as Eclipse, CMG).

	· Well data interpretation software (such as Techlog, IP). · Design and production software (such as PIPESIM, PROSPER, MBAL). · Computer-aided design (CAD) software. · Apply artificial intelligence and big data analysis concepts to optimize petroleum operations. 5. General Engineering & Professional Skills The graduate will be able to: · Solve complex problems: Identify, formulate, and solve complex engineering problems in the field of petroleum engineering using analytical and logical methodologies. · Design under constraints: Design systems, processes, or components to meet specific needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. · Teamwork: Work effectively within a multidisciplinary team (with geologists, chemists, mechanical engineers, and others) to achieve a common goal. · Effective Communication: Communicate effectively in writing and speaking to specialist and non-specialist audiences, such as writing technical reports and clearly presenting results. · Economic and Management Understanding: Understand economic principles, project management, and lifecycle costing to make sound technical and financial decisions.
Ethics	
	The graduate will be able to: · Understand professional, ethical, and legal responsibilities in engineering practice. · Evaluate the impact of engineering solutions within their global, economic, environmental, and societal context (sustainability). · Strictly apply Health, Safety, and Environmental (HSE) standards in all operations to reduce risks and protect the environment.

9. Teaching and Learning Strategies

1. Explanation and clarification through lectures.
2. Methods for presenting scientific materials using projectors: data shows, smart boards, plasma screens.
3. Self-learning through homework and mini-projects within lectures.
4. Laboratories.
5. Graduation projects.
6. Scientific visits.
7. Seminars held in the department.

8- Summer training.

10. Evaluation methods

1. Quizzes.
2. Homework.
3. Midterm and final exams for theoretical and practical subjects.
4. Mini-projects within the class.
5. Interaction within the lecture.
6. Reports.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer
Prof.	1	0		1	
Ass. Prpf.	1	0		1	
Lecturer	6	0		6	
Ass. Lecturer	14	0		14	

Professional Development

Mentoring new faculty members

Academic Guidance
- Curriculum development and industry relevance.
- Design and implementation of laboratory experiments.
- Effective teaching strategies.

Research Guidance
- Writing research proposals and obtaining funding.
- Publishing scientific papers in prestigious journals.
- Laboratory and research project management.
- Collaborating with international researchers.

Industrial Guidance

- Understanding current industry terminology and issues.
- How to apply academic theories to real-world problems.
- Mechanisms for collaboration with companies (consultations, joint research).
- Safety and Environmental (HSE) standards in industry.

Professional development of faculty members

1- Academic & Research Development
· Keeping up with modern curricula: Attending workshops and training courses focused on developing educational content to align with the latest technologies in the industry, such as:
· Applications of artificial intelligence and data analysis in petroleum engineering. · Advanced reservoir modeling and simulation.
· Teaching and learning: Developing teaching skills using active learning strategies, project-based learning, and technology-enhanced learning in the classroom.
· Scientific research: Encouraging:
· Publishing research in prestigious scientific journals and international conferences.
· Obtaining research grants from national and international bodies. · Research collaboration with researchers from world-renowned universities.
· Co-supervising graduate students with international universities.

2. Industrial & Professional Development
· Industrial Secondments: Spending a semester or a full year working with a major oil company (such as Schlumberger, Halliburton, or BP) allows the instructor to gain firsthand insight into:
· The real-world challenges facing the industry.
· The latest equipment and technologies used in drilling and production. · Work culture, quality, and safety standards in the field.
· Field Visits and Summer Training: Regular visits to oil and gas fields, drilling platforms, and company laboratories are organized, not only for students but also for faculty members themselves, to keep up with the latest developments.

12. Acceptance Criterion

Average: Not less than 90%
Age: Not more than 25 years
Number: Up to 100 students per year

13. The most important sources of information about the program

1. Websites of Iraqi and foreign universities.
2. Workshops held by the Ministry of Higher Education, in addition to the Ministry's standards.

14. Program Development Plan

Strategic Development Plan Axes:
1: Curriculum and Study Plan Development
2: Faculty and Staff Development
3: Technical Development and Infrastructure
4: Industrial Partnerships and Applied Research
5: Quality Assurance and Academic Accreditation

Program Skills Outline														
				Required program Learning outcomes										
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics		
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Level UGI Semester 1	BEP111	General Geology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	BEP112	Calculus I	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	UOB103	Computer I	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	BEP113	Physics	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	BEP114	Statics Mechanical Engineering	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	UOB102	Democracy and Human Rights	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 1	UOB104	Arabic Language I	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 2	BEP121	Stratigraphy & Sedimentary	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 2	BEP122	Calculus II	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 2	BEP123	General Chemistry	Basic	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 2	BEP124	Engineering Drawing and AutoCad	Basic	√	√	√	√	√	√	√	√	√	√	√	√

Level UGI Semester 2	**BEP125**	**Dynamics Mechanical Engineering**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGI Semester 2	**UOB101**	**English language I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP231**	**Static Fluid Mechanics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP232**	**Fundamental Of Petroleum Engineering I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP233**	**Advanced Mathematics I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP234**	**Structural Geology**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP235**	**Mechanics of Materials**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**BEP236**	**Electrical Engineering Technology**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 3	**UOB201**	**English language II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**BEP241**	**Dynamic Fluid Mechanics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**BEP203**	**Computer II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**BEP243**	**Advanced Mathematics II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**BEP244**	**Petroleum Geology**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**BEP245**	**Petroleum Properties**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Level UGII Semester 4	**UOB205**	**Crimes of Baath Party**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√

Level UGII Semester 4	**UOB202**	**Arabic Language II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE311**	**Engineering & Numerical Analysis I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE312**	**Petroleum Reservoir Engineering I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE313**	**Petroleum Drilling Engineering I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE314**	**Petroleum Production Engineering I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE315**	**Basic of Thermodynamics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE316**	**Well Logging I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE317**	**Engineering Economics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 1	**PeE318**	**Geophysics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE321**	**Engineering & Numerical analysis II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE322**	**Petroleum Reservoir Engineering II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE323**	**Petroleum Drilling Engineering II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√

Year 3 Semester 2	**PeE324**	**Petroleum Production Engineering II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE325**	**Thermodynamics (Cycles)**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE326**	**Well Logging II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE327**	**Engineering Statistics**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 3 Semester 2	**PeE328**	**Pollution & Industrial Safety**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**E402**	**Engineering Project I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE411**	**Numerical Methods**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE412**	**Petroleum Reservoir Engineering III**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE413**	**Petroleum Drilling Engineering III**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE414**	**Petroleum Production Engineering III**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE415**	**Secondary Oil Recovery I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE416**	**Gas Technology I**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 1	**PeE417**	**Reservoir Management**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**E403**	**Engineering Project II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√

Year 4 Semester 2	**PeE421**	**Reservoir Simulation**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE422**	**Petroleum Reservoir Engineering IV**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE423**	**Petroleum Drilling Engineering IV**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE424**	**Petroleum Production Engineering IV**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE425**	**Secondary Oil Recovery II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE426**	**Gas Technology II**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
Year 4 Semester 2	**PeE427**	**Petroleum Management**	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**General Geology**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP111**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Understanding the Earth's structure and composition: General geology aims t provide an understanding of the Earth's internal structure and the composition its various layers, including the crust, mantle, and core. 2. Study of the Earth's history: General geology aims to study the Earth's history including the evolution of life and the geological processes that have shaped the planet over time. 3. Exploration of natural resources: General geology aims to explore and understand the distribution, occurrence, and extraction of natural resources suc as minerals, fossil fuels, and groundwater. 4. Understanding natural hazards: General geology aims to understand the causes and effects of natural hazards such as earthquakes, volcanoes, landslides and floods, and to develop strategies for mitigating their impact on human populations. 5. Environmental management: General geology aims to understand the interactions between the Earth's systems and human activities, and to develop strategies for managing the environment in a sustainable and responsible manner. Overall, the aim of general geology is to provide a comprehensive understandi of the Earth and its processes, and to apply this knowledge to address real-wor problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon completion of a general geology module, learners should be able to: 1. Describe the internal structure of the Earth, including the composition an properties of the different layers. 2. Explain the processes that have shaped the Earth's surface, such as plate tectonics, erosion, and weathering. 3. Understand the principles of relative and absolute dating and apply them to determine the age of rocks and geological events. 4. Identify and describe the different types of rocks, minerals, and fossils, ar explain their formation.

	5. Analyze geological maps and cross-sections to understand the distributio of geological features and resources. 6. Recognize and explain the causes and effects of natural hazards, and evaluate strategies for mitigating their impact. 7. Understand the principles of groundwater and surface water flow, and th role of water in shaping the Earth's surface. 8. Apply geological knowledge to address real-world problems related to resource exploration, environmental management, and natural hazards. 9. Communicate geological concepts and findings effectively through writte and oral presentations. Overall, learners should be able to apply their understanding of the Earth's structure, processes, and history to analyze geological problems and develo solutions. They should also be able to communicate their findings effectivel to a range of audiences.
Indicative Contents المحتويات الإرشادية	The indicative contents of a general geology module may include: 1. Introduction to Geology: Overview of the field of geology, its history, and i importance in society. 2. Earth's Internal Structure: Composition and properties of the Earth's crust, mantl and core; seismic waves and their role in studying the Earth's interior; plate tectoni and its impact on the Earth's surface. 3. Rocks and Minerals: Classification and identification of minerals based on the physical and chemical properties; formation of igneous, sedimentary, ar metamorphic rocks. 4. Geologic Time: Principles of relative and absolute dating; the geologic time scale ar the history of life on Earth. 5. Surface Processes: Weathering, erosion, and deposition; landforms created b water, wind, and ice; soil formation and properties. 6. Natural Hazards: Causes and effects of earthquakes, volcanoes, landslides, flooc and tsunamis; strategies for mitigating their impact.

	7. Groundwater and Surface Water: Hydrologic cycle; properties of groundwater ar its role in shaping the Earth's surface; management of water resources. 8. Energy and Mineral Resources: Formation and distribution of fossil fuels, meta and non-metallic minerals; exploration, extraction, and management of resources. 9. Environmental Geology: Human impact on the Earth's systems; strategies f managing the environment in a sustainable and responsible manner. 10. Geologic Maps and Cross-sections: Interpretation of geological maps and cros sections to understand the distribution of geological features and resources; use of G technology in geology. 11. Fieldwork and Laboratory Techniques: Field techniques for geological mappin measuring and describing rocks and minerals, and collecting samples; laborato techniques for mineral and rock identification and analysis. 12. Communication and Professional Skills: Effective communication of geologic concepts and findings through written and oral presentations; professional skills su as teamwork, time management, and ethical conduct. Overall, a general geology module should provide a comprehensive understanding the Earth and its processes, and equip learners with the skills needed to apply th knowledge to real-world problems.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that could be adopted in delivering general geology is a combinatic of lectures, practicals, field trips, and independent study. The lectures would provic a foundation for understanding the key concepts and principles of geology, whi practicals and field trips would give learners hands-on experience in applying th knowledge to real-world situations. Some specific strategies that could be used in delivering general geology include: 1. Interactive lectures: Lectures could be designed to encourage active participation l learners through the use of multimedia resources such as videos, animations, ar simulations. This would help learners to visualize geological processes and understar complex concepts.

	2. Laboratory work: Practical sessions could be used to give learners the opportuni to identify minerals and rocks, and to conduct experiments on geological process such as erosion and weathering. This would help learners to develop analytical ski and to apply theoretical knowledge to practical situations. 3. Field trips: Field trips could be organized to expose learners to different geologic settings and to observe geological features in their natural environment. This wou help learners to develop observational skills and to appreciate the relevance of geolo to real-world situations. 4. Independent study: Learners could be encouraged to undertake independent stu to consolidate their understanding of key concepts and to conduct research on speci topics of interest. This would help learners to develop critical thinking and resear skills, and to take ownership of their learning. 5. Assessment and feedback: Assessment could be used to evaluate learne understanding of key concepts and to provide feedback on their progress. A variety assessment methods could be used, such as written assignments, laboratory report fieldwork reports, and oral presentations. Feedback should be provided in a timely ar constructive manner to support learners in improving their understanding ar performance. Overall, the key strategy in delivering general geology should be to create a learni environment that is engaging, interactive, and relevant to learners' interests ar needs. By using a variety of teaching methods and resources, and by providi opportunities for independent study and feedback, learners can develop a dee understanding of geology and its applications.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	131	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction (nature of geology, solar system, structure and shape of earth)
Week 2	Matter, energy, minerals, atoms, elements, bonding, natural radioactivity, time in geology, rock forming minerals, physical properties of minerals
Week 3	Igneous activity (magma) formation of igneous rock, mineral composition of igneous rocl common igneous rocks.
Week 4	Sedimentary rocks (conversation sediments to sedimentary rock, Lithifcation, origin classification of sedimentary rocks (common sedimentary rocks).
Week 5	Metamorphic rock (concept of metamorphism, agents & types of metamorphism, identificati of common metamorphic rocks.
Week 6	weathering, erosion and soil, environment of weathering, mechanical weathering, chemi weathering, examples of selected rocks & minerals, soil profile.
Week 7	Ground water (movement of the origin &storage of ground water, mechanism of ground wat flow, aquifers, springs & wells.
Week 8	Shore lines (circulation of the ocean, tides, wave erosion, wave transportation, wave depositic development of shore lines.
Week 9	Earthquakes & earth's interior (shape &size of earth, Wight of earthsiemology, causes of earthquakes
Week 10	prediction & control, internal structural of earth.
Week 11	Contents (topographic features of the earth surface
Week 12	deformation of rocks (folds &faults), mountains &their origin.
Week 13	Sea-floor spreading (age, magnetic studies, movement of the sea floors
Week 14	crystal plates, transform faults), continental drift current, energy).
Week 15	Historical geology (evolution & fossilization, Paleozoic cycle, Cenozoic cycle, Pleistocene, life Cenozoic .
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: The minerals
Week 2	Lab 2: Igneous rocks
Week 3	Lab 3: sedimentary rocks
Week 4	Lab 4: metamorphic rocks
Week 5	Lab 5: Folds & faults
Week 6	Lab 6: contor maps
Week 7	Lab 7: Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	**General geology**	Yes
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Calculus I**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP112**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of mathematics can be broadly divided into two categories: foundation aims and practical aims. Foundational aims of mathematics include: 1. Developing logical thinking: Mathematics provides a rigorous framework f logical thinking and problem-solving, which can be applied in many other areas study and life. 2. Establishing axioms and proving theorems: Mathematics aims to establish a s of axioms or assumptions and then use them to prove theorems or propositions th follow logically from those assumptions. 3. Understanding abstraction: Mathematics involves abstraction, which is th process of identifying essential characteristics of objects or concepts and ignorir irrelevant details. This helps in developing a deeper understanding of the underlyir structure of mathematical objects. 4. Developing critical thinking: Mathematics encourages critical thinking l requiring students to analyze problems, identify patterns, and evaluate differe approaches to solving them. Practical aims of mathematics include: 1. Solving real-world problems: Mathematics has practical applications in fields su as physics, engineering, finance, and computer science, where it is used to mod and solve real-world problems. 2. Developing quantitative reasoning skills: Mathematics helps in developir quantitative reasoning skills, which are essential for making informed decisions many areas of life, such as personal finance, health, and politics. 3. Enhancing computational skills: Mathematics provides a foundation f developing computational skills, which are increasingly important in the digital ag 4. Fostering creativity: Mathematics can be a creative field where students ca develop their own ideas and solutions to problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The module learning outcomes of a mathematics course will depend on the level and focus of the course, but some possible learning outcomes of a mathematics module are: 1. Demonstrating proficiency in manipulating mathematical symbols and equations: This includes the ability to solve problems using algebraic, geometric, and trigonometric techniques, and to apply calculus and other mathematical methods to solve problems in real-world contexts.

	2. Applying mathematical reasoning to solve problems: This involves developing the ability to identify patterns, make conjectures, and construct logical arguments to support mathematical claims. 3. Demonstrating proficiency in using technology to solve mathematical problems: This includes the ability to use calculators, spreadsheets, comput algebra systems, and other software to solve mathematical problems efficiently and accurately. 4. Developing effective communication skills in mathematics: This involves the ability to communicate mathematical ideas clearly and concisely, both orally and in writing, and to use appropriate mathematical language and notation. 5. Developing an appreciation for the beauty and power of mathematics: Th includes understanding the historical and cultural context of mathematical discoveries and appreciating the elegance and simplicity of mathematical ideas. 6. Using mathematical models to solve real-world problems: This involves th ability to analyze and interpret data, design and implement mathematical models, and use mathematical methods to make predictions and solve problems in a wide range of fields, such as physics, engineering, economics, and the natural sciences. 7. Developing a growth mindset towards mathematics: This includes understanding that mathematical ability can be developed through practice and effort, and that mistakes and failures are opportunities for learning and improvement. 8. Collaborating effectively with others in mathematical problem-solving: Th involves the ability to work in groups to solve mathematical problems, share ideas, and give and receive feedback constructively. 9. Developing an understanding of the ethical implications of mathematical research and practice: This includes understanding the importance of honesty, integrity, and responsible use of mathematical models and techniques, and being aware of the potential ethical implications of mathematical decisions and solutions. 10. Developing an awareness of the diversity of mathematical perspectives and approaches: This involves understanding that there are different ways o approaching mathematical problems and that different cultures and communities have contributed to the development of mathematics over time.

Indicative Contents المحتويات الإرشادية	The indicative contents for a mathematics course will vary depending on the level the course and the specific aims and learning outcomes of the course. However, son possible indicative contents for a mathematics course are: 1. Algebra: This includes topics such as solving equations and inequalities, functior graphs, matrices, and systems of equations. 2. Calculus: This includes topics such as limits, derivatives, integrals, and applicatio of calculus to optimization, rates of change, and related rates. 3. Geometry: This includes topics such as Euclidean geometry, coordinate geometr and transformations. 4. Trigonometry: This includes topics such as trigonometric functions, identities, ar applications to triangles and circles. 5. Statistics and Probability: This includes topics such as descriptive statistic probability distributions, hypothesis testing, and regression analysis. 6. Discrete Mathematics: This includes topics such as logic, set theory, combinatoric and graph theory. 7. Numerical Methods: This includes topics such as numerical integration, numeric differentiation, and iterative methods for solving equations. 8. Mathematical Modeling: This includes topics such as formulating mathematic models to represent real-world phenomena, analyzing and interpreting data, and usi mathematical models to make predictions and solve problems. 9. History and Philosophy of Mathematics: This includes topics such as the historic development of mathematics, the role of mathematics in society, and tl philosophical foundations of mathematics. 10. Professional Skills: This includes topics such as effective communication mathematical ideas, using technology tosolve mathematical problems, ar collaborating with others in mathematical problem-solving. 11. Applications of Mathematics: This includes topics such as applications mathematics in fields such as physics, engineering, economics, and the natur sciences, as well as in everyday life.

	12. Mathematical Proofs: This includes topics such as logic, proof techniques, ar mathematical reasoning, and aims to develop the ability to construct ar communicate mathematical arguments. 13. Advanced Topics: This includes topics such as complex analysis, differenti equations, topology, and abstract algebra, and is typically covered in more advance mathematics courses. 14. Assessment and Feedback: This includes topics such as assessment methoc feedback mechanisms, and strategies for improving performance in mathematics. 15. Ethics and Responsibility in Mathematics: This includes topics such as the ethic implications of mathematical research and practice, the responsible use mathematical models and techniques, and the importance of honesty and integrity mathematical work. These are some possible indicative contents for a mathematics course, but the actu contents will depend on the level and focus of the course, as well as the specific aim learning outcomes, and pedagogical approaches of the course.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Effective learning and teaching strategies for mathematics will depend on the level ar focus of the course, as well as the specific aims, learning outcomes, and pedagogic approaches of the course. However, some possible learning and teaching strategies f mathematics are: 1. Active Learning: Mathematics courses often require active learning strategies, su as problem-based learning, inquiry-based learning, and project-based learning, th encourage students to engage with mathematical concepts and apply them to rea world problems. 2. Practice and Feedback: Mathematics courses often require a significant amount practice and feedback to develop proficiency in mathematical skills and concepts. Th can include homework assignments, quizzes, exams, and feedback on student work. 3. Collaborative Learning: Mathematics courses often require collaborative learnir strategies, such as group work, peer tutoring, and collaborative problem-solving, th

	encourage students to work together to solve mathematical problems and share the understanding of mathematical concepts. 4. Technology-Enhanced Learning: Mathematics courses can benefit from technolog enhanced learning strategies, such as online resources, educational software, ar digital tools, that can help students visualize mathematical concepts, simula mathematical models, and solve mathematical problems more efficiently. 5. Differentiated Instruction: Mathematics courses often require differentiate instruction strategies, such as differentiated assignments, flexible grouping, ar scaffolding, that can help students with different learning needs and backgrounds succeed. 6. Conceptual Understanding: Mathematics courses should emphasize conceptu understanding of mathematical concepts, rather than just memorization of procedur and formulas. This can be achieved through exploration of mathematical concep through real-world applications, visualizations, and hands-on activities. 7. Problem-Solving Strategies: Mathematics courses should aim to develop probler solving strategies, such as breaking down problems into smaller parts, identifyir patterns, and testing strategies, that can be applied to a range of mathematic problems. 8. Active Engagement: Mathematics courses should aim to actively engage students the learning process, through activities such as classroom discussions, interacti demonstrations, and hands-on activities. 9. Assessment for Learning: Mathematics courses should use assessment for learnir strategies, such as formative assessments, to provide ongoing feedback to studen and identify areas for improvement. 10. Different Modes of Representation: Mathematics courses should use differe modes of representation, such as graphs, tables, and diagrams, to help studen visualize mathematical concepts and relationships. 11. Mathematical Communication: Mathematics courses should emphasize th importance of mathematical communication, through strategies such as peer revie group presentations, and writing assignments. 12. Reflection and Metacognition: Mathematics courses should encourage reflectic and metacognition, through strategies such as journaling, self-assessment, and goa setting, to help students develop a deeper understanding of their own learnir processes.

	These are some possible learning and teaching strategies for mathematics, but th actual strategies used will depend on the level and focus of the course, as well as th specific aims, learning outcomes, and pedagogical approaches of the course.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	77	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	48	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Numbers, functions and sets
Week 2	Introduction to Domain and rang of functions
Week 3	Problem- solving Questions
Week 4	Limit of a function

Week 5	Continuity of a function
Week 6	Problem- solving Questions
Week 7	Definition of Differential of a function
Week 8	Rules of Differential of a function
Week 9	Chain rule and implicitly differentia
Week 10	Problem- solving Questions
Week 11	Application of differentia
Week 12	optimization
Week 13	Time rate equations
Week 14	Maximum and Minimum of a function
Week 15	Discussion and revision
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Calculus and Thomas	Yes
Recommended Texts		
Websites	www.pragsoft.com	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer Programming**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP113**				
ECTS Credits	9				
SWL (hr/sem)	225				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of studying computer programming can vary depending on the specif context and goals of the learner, but some general aims include: 1. Developing programming skills: The primary aim of studying comput programming is to become proficient in programming languages and develop ski in designing and writing programs. 2. Understanding algorithms and data structures: Computer programming involv designing algorithms and data structures to solve problems. Studying comput programming helps learners understand how algorithms and data structures wo and how to use them effectively. 3. Developing problem-solving skills: Computer programming involves breaki down complex problems into smaller, manageable parts and developing solutio for each part. Studying computer programming can help learners develc problem-solving skills that are valuable in many fields. 4. Enhancing logical thinking: Programming involves thinking logically ar systematically to develop solutions to problems. Studying computer programmi can help learners develop their logical thinking skills. 5. Improving creativity: Programming involves designing and developing progran that meet specific needs. Studying computer programming can help learne cultivate their creativity and develop innovative solutions to problems. 6. Developing teamwork skills: Many programming projects require collaboratic and teamwork. Studying computer programming can help learners develop ski in working with others to develop and implement solutions. 7. Preparing for careers in technology: Many careers in technology requi knowledge of computer programming. Studying computer programming can he learners prepare for careers in fields such as software development, we development, data science, and cybersecurity.

	8. Developing computational thinking: Programming involves understanding ho computers process information and learning to think ina way that is compatib with this process. Studying computer programming can help learners develc computational thinking skills, which are useful in many areas of life and work. 9. Understanding computer architecture: Programming requires an understandi of how computers work and how they are designed. Studying comput programming can help learners develop an understanding of comput architecture, including hardware, software, and operating systems. 10. Developing a foundation for further study: Computer programming is foundational skill for many areas of computer science and technology. Studyi computer programming can provide a strong foundation for further study in are such as artificial intelligence, machine learning, and computer graphics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes for studying computer programming depend on the leve and context of the course, but some possible outcomes include: 1. Developing programming skills: The primary outcome of studying computer programming is to develop proficiency in programming languages and develop skills in designing and writing programs. 2. Understanding algorithms and data structures: Learners of computer programming will gain an understanding of how algorithms and data structures work and how to use them effectively. 3. Developing problem-solving skills: Learners will develop problem-solving skills that can be applied in many fields, as they learn to break down complex problems into smaller, manageable parts and develop solutions for each part. 4. Enhancing logical thinking: Learners will develop their logical thinking skills as they learn to think systematically and logically to develop solutions to problems 5. Improving creativity: Learners will develop their creativity and innovation skill as they design and develop programs that meet specific needs. 6. Developing teamwork skills: Learners will develop their skills in working with others to develop and implement solutions to programming projects.

	7. Applying programming skills in real-world contexts: Learners will develop the ability to use programming skills in a variety of real-world contexts, such as software development, web development, data science, and cybersecurity. 8. Preparing for careers in technology: Learners will develop skills and knowledg that are relevant for careers in technology, such as software development, web development, data science, and cybersecurity. 9. Understanding computer architecture: Learners will gain an understanding of computer architecture, including hardware, software, and operating systems, and how they are designed and function. 10. Developing computational thinking: Learners will develop computational thinking skills, which involve understanding how computers process informatior and learning to think in a way that is compatible with this process.
Indicative Contents المحتويات الإرشادية	The indicative contents for studying computer programming depend on the level ar context of the course, but some possible topics and areas of study include: 1. Programming languages: Learning programming languages, such as Python, Jav C++, or JavaScript, and understanding their syntax, structure, and use. 2. Algorithms and data structures: Understanding how algorithms and data structur work and how to use them effectively in programming. 3. Problem-solving: Developing problem-solving skills and applying them programming tasks, such as breaking down complex problems into smalle manageable parts and developing solutions for each part. 4. Logic and reasoning: Developing logical thinking skills and learning to thi systematically and logically to develop solutions to problems. 5. Programming concepts: Understanding key programming concepts, such variables, functions, loops, conditionals, and classes. 6. Software development processes: Understanding the software developme process, including project planning, design, implementation, testing, ar maintenance.

	7. Debugging and troubleshooting: Learning to identify and fix errors in comput programs, as well as troubleshooting issues that may arise in programming projects. 8. Object-oriented programming: Understanding the principles of object-oriente programming and how to use them to develop efficient and effective programs. 9. Web development: Learning to develop web applications using programmi languages and frameworks such as HTML, CSS, JavaScript, and React. 10. Mobile app development: Learning to develop mobile applications usi programming languages and frameworks such as Java, Swift, and Kotlin. 11. Game development: Learning to develop gamesusing programming languages ar game engines such as Unity or Unreal Engine. 12. Data science: Learning how to use programming languages such as Python, R, SQL to analyze and visualize data, and develop machine learning models. 13. Cybersecurity: Understanding the principles of cybersecurity and learning how use programming languages to secure computer systems and networks. 14. Cloud computing: Learning how to use programming languages and clou computing platforms such as Amazon Web Services or Microsoft Azure to develop ar deploy scalable applications in the cloud. 15. Version control: Learning how to use version control systems such as Git to mana and collaborate on programming projects. 16. Software testing: Understanding the principles of software testing and learning develop and implement effective testing strategies for programming projects. 17. User interface design: Learning the principles of user interface design and how develop user-friendly interfaces for software applications. 18. Programming tools and frameworks: Learning to use programming tools ar frameworks, such as Integrated Development Environments (IDEs), libraries, and AP to develop and implement programs.

	19. Code optimization: Learning how to write efficient and effective code that mee specific requirements and performs optimally. 20. Continuous learning and improvement: Understanding the value of continuo learning and improvement, and developing the skills to continue learning ar improving programming skills throughout one's career.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for computer programming depend on the lev and context of the course, but some effective strategies include: 1. Hands-on practice: Programming is a skill that requires practice and applicatio Learners should have ample opportunities for hands-on practice with programmi exercises, projects, and assignments. 2. Project-based learning: Project-based learning involves learners working on rea world projects that require programming skills. This approach emphasizes th development of problem-solving skills and the application of programming concep to real-world situations. 3. Collaborative learning: Collaborative learning involves learners working in groups pairs to complete programming tasks. This approach promotes teamwor communication skills, and peer learning. 4. Scaffolded learning: Scaffolding involves breaking down complex programming tas into smaller, more manageable parts. This approach provides learners with a cle understanding of programming concepts and helps them build their skills gradually. 5. Code review and feedback: Providing learners with feedback on their programmi code and helping them identify areas for improvement is essential for developi programming skills. Code review can be done by peers, instructors, or automate tools. 6. Code sharing and collaboration: Encouraging learners to share their code with othe and collaborate on programming projects can enhance their learning experience ar promote peer learning. 7. Flipped classroom: The flipped classroom approach involves learners watchi instructional videos or reading materials outside of class, and using class time f

	hands-on practice and problem-solving. This approach can provide learners with mo individualized attention and support. 8. Active learning: Active learning strategies, such as peer teaching, group discussion and problem-based scenarios, can help learners engage with programming concep and improve their understanding and retention of information. 9. Differentiated instruction: Differentiated instruction involves tailoring instruction meet the individual needs and abilities of learners. This approach can involve providi additional resources, offering different levels of programming assignments, adapting teaching methods to address the needs of diverse learners. 10. Formative assessment: Formative assessment involves assessing learners' progre and understanding throughout the learning process. This approach can involve quizze tests, peer feedback, or self-assessment, and can help learners identify areas f improvement as they learn. 11. Just-in-time teaching: Just-in-time teaching involves providing learners wi instruction and feedback in response to their immediate needs. This approach ca involve using online tools, such as chatbots or discussion forums, to answer learne questions and provide feedback on their programming code. 12. Mastery learning: Mastery learning involves providing learners with opportuniti to master programming concepts before moving on to more advanced topics. Th approach can involve providing learners with additional support and resources un they have demonstrated mastery of a particular programming skill or concept. 13. Reflection and self-evaluation: Encouraging learners to reflect on the programming progress and evaluate their own programming skills can help the become more autonomous and self-directed learners. 14. Peer learning and mentorship: Peer learning and mentorship can be an effecti way to develop programming skills, as learners can practice programming wi eachother and receive guidance and support from more experienced programmer This approach can involve peer tutoring or mentorship programs, where learners a paired with more experienced programmers who can provide guidance and support 15. Gamification: Gamification involves using game-design elements, such as point badges, and leaderboards, to motivate learners and enhance their engagement wi programming concepts. This approach can make programming more fun ar interactive, and can encourage learners to work towards achieving specific goals milestones. 16. Personalized learning: Personalized learning involves tailoring instruction to me the individual needs and interests of learners. This approach can involve providi

	learners with personalized learning plans, offering choices in programmi assignments, or using adaptive learning technologies to adjust instruction based c learners' progress and needs. 17. Multimodal learning: Multimodal learning involves using multiple modes instruction, such as videos, text, and interactive simulations, to cater to differe learning styles and preferences. This approach can help learners engage wi programming concepts in a way that is most meaningful and effective for them. 18. Emphasis on best practices: Emphasizing best practices in programming, such code readability, documentation, and testing, can help learners develop goc programming habits and prepare them for working in professional programmi environments. 19. Continuous learning: Emphasizing the importance of continuous learning ar professional development can help learners stay up-to-date with the late programming trends and technologies, and prepare them for long-term success their programming careers. 20. Real-world applications: Emphasizing the real-world applications of programmi can help learners understand the relevance and importance of programming skills, ar motivate them to develop their skills further. This approach can involve using ca studies, guest speakers, or industry partnerships to showcase how programming used in various fields and industries.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	124	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	101	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Problem solving algorithms** Data structures, searching and sorting algorithms
Week 2	**V. Basic Variables** 1) Variable types 2) Variable Names 3) Declarations
Week 3	**Assignment statements and expressions in V. Basic** Logical expressions and operators
Week 4	Mathematical expressions and operators
Week 5	**Conditional Decisions and Loops** **Conditional Decisions**
Week 6	If/Then/End If statement If/Then/Else/End If statement
Week 7	If/Then/ElseIf/End If statement Select Case statement
Week 8	Switch statement IIf statement Choose statement
Week 9	**Loops** 1) For-Next statement 2) While-Wend statement 3) Do Until-Loop statement 4) Do While-Loop statement 5) Do-Loop Until statement 6) Do-Loop While statement
Week 10	**ARRAYS** 1) Declaring Arrays 2) Input and Output Arrays 3) Generate Specific Array Elements 4) Computational (mathematical) processes that take place on the matrices (arrays)

Week 11	Review of basic instructions of V. Basic to prepare for advanced V. basic
Week 12	Built in Functions User defined functions and subroutines
Week 13	Sequential files Random Files
Week 14	MS chart MS flex grid
Week 15	Tree Data base control Picture control Image Control
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Computer application for engineering	
Recommended Texts	Visual Basic Programming Microsoft Access Visual Basic 2002	
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Physics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP126**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Rasha Saad Yousif		**e-mail**	rasha.saad@uobasrah.edu.iq	
Module Leader's Acad. Title		Assistant lecturer	**Module Leader's Qualification**		M.SC.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	General physics	**Semester**	Second
Co-requisites module	Petroleum Geology, Structural Geology, Reservoir Engineering, Drilling Engineering, Well Logs, Geophysics.	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. To provide students with a thorough understanding of the basic concepts of physi and the methods scientists use to explore natural phenomena, includi observation, hypothesis development, measurement and data collectio experimentation, evaluation of evidence, and employment of mathematic analysis. 2. To instruct students of the fundamental laws of physics and the application scientific data, concepts, and models for use in the natural sciences and real-wor situations. 3. To provide students with problem solving skills by an approach that describ physical phenomena with relevant mathematical models and formulae. 4. To develop the student's mathematical ability to manipulate formulae and deri correct numerical solutions that can be measured in the real world. 5. To have students effectively use computers as a tool for data collection, analys and communication.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of this course, students will: 1. Study Newton's laws of motion and learn how to apply them to simple mechanic systems. 2. Learn the physical concept of energy and how it relates to different physical systems. 3. Learn how to translate realistic physical problems into the equations that describ them; solve these equations for the variables describing the problem; and interpret the results to describe the resulting behavior of the realistic physical system. 4. Learn to carry out numerical evaluation of algebraic results rapidly, and accuratel using appropriate units for physical quantities. 5. Describe simple physical systems by graphing systems variables, and interpret graphs of system variables. 6. Relate the equations of physics to intuitive concepts.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1. Observations during in-class activities. 2. Homework exercises as a review for exams and class discussions. 3. Question and answers during the recitation class. 4. Questions and answers about the pre-class reading materials. 5. Examinations, and a final exam (a truly summative assessment). 6. Student Performance. 7. In-class assignments. 8. To do challenging problems in groups, usually by using a programming language 9. Help Students know what they need to do, without telling them how to do it.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15 اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	42	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	58	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10

Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	energy and its conservation, energy, work, and power
Week 2	Gravitational Potential Energy, Kinetic Energy, and Conservation of Energy
Week 3	simple harmonic motion: periodic motion and simple harmonic motion
Week 4	The potential energy of a spring, conservation of energy, and the vibrating spring
Week 5	Wave Motion
Week 6	speed of a transverse wave on a string, reflection of a wave at the boundary
Week 7	sound waves, the transmission of energy in a wave, and the intensity of a wave.
Week 8	Fluids: Density, Pressure, Pascal principle, Archimedes principle
Week 9	Equation of continuity, Bernoulli theorem
Week 10	Viscosity, stress, and strain
Week 11	surface tension: interfacial tension, contact angle
Week 12	wetting phenomena, capillary pressure
Week 13	Heat transfer: convection, conduction, and radiation
Week 14	coulomb law and the electric field
Week 15	flux, gauss law, electric potential
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamentals-of-physics-textbook, Jearl Walker, 2013 by Wiley Ltd.	Yes
Recommended Texts	Fundamentals-of-physicsII. Second Edition,2016, R. SHANKAR. Yale UNIVERSITY PRESS New Haven and London., Publication.	Yes
Websites	https://elearn.daffodilvarsity.edu.bd/pluginfile.php/987150/mod_label/intro/fundaı entals-of-physics-textbook.pdf https://industri.fatek.unpatti.ac.id/wp-content/uploads/2019/03/042-Fundamentals of-Physics-II-Electromagnetism-Optics-and-Quantum-Mechanics-R.-Shankar-Edisi-1-2016.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Static Mechanical Engineering**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP115**				
ECTS Credits	4				
SWL (hr/sem)	100				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Mechanical engineering is a broad field that encompasses a range of industries ar applications. The aims of mechanical engineering modules can vary depending c the specific course and institution, but some common goals include: 1. Developing a strong foundation in mathematics, physics, and other fundament sciences that underpin mechanical engineering. 2. Learning key principles of mechanics, dynamics, thermodynamics, and materia science, and how they apply to the design and analysis of mechanical systems. 3. Developing proficiency in computer-aided design (CAD) and other software toc used in mechanical engineering. 4. Developing skills in the design, analysis, and optimization of mechanical system including structures, machines, and mechanisms. 5. Learning about manufacturing processes, materials selection, and quali control, and how these factors impact the design and performance of mechanic systems. 6. Developing an understanding of the social, environmental, and econom implications of mechanical engineering, and the importance of ethical ar sustainable design practices. 7. Developing strong communication and teamwork skills, which are essential f success in the industry. Overall, the aim of mechanical engineering modules is to provide students with comprehensive understanding of the principles and practices of mechanic engineering, and to prepare them for successful careers in the field.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The specific learning outcomes of mechanical engineering modules can vary depending on the course and institution, but some common outcomes include: 1. Knowledge and Understanding: Students should be able to demonstrate a deep understanding of the fundamental principles and concepts of mechanics, thermodynamics, materials science, and other core areas of mechanical

	engineering. 2. Design and Evaluation: Students should be able to design mechanical systems and components using appropriate software tools, and evaluate the performanc of these systems using analytical and numerical methods. 3. Practical Skills: Students should be able to apply practical skills in manufacturing, fabrication, and testing of mechanical systems and components 4. Communication: Students should be able to communicate effectively with a range of stakeholders, including technical and non-technical audiences, using appropriate methods and media. 5. Professionalism: Students should be able to demonstrate a professional attitude and work effectively in a team, taking into account ethical, social, and environmental factors. 6. Lifelong Learning: Students should be able to demonstrate the ability to engage in continuous learning and professional development, keeping up-to-dat with developments in the field of mechanical engineering. Overall, the learning outcomes of mechanical engineering modules should equip students with the knowledge, skills, and attitudes necessary to succeed in a wid range of mechanical engineering roles, and to contribute to the development of innovative and sustainable solutions to real-world problems.
Indicative Contents المحتويات الإرشادية	The indicative contents of mechanical engineering modules can vary depending on th specific course and institution, but some common topics and areas of study include: 1. Mathematics and Physics: Calculus, differential equations, linear algebr mechanics, thermodynamics, electromagnetism, and waves and optics. 2. Materials Science: Properties of materials, including metals, polymers, ceramics, ar composites, and their behavior under different loading and environmental conditior 3. Mechanics: Statics and dynamics of particles and rigid bodies, kinematics ar dynamics of mechanisms, vibrations, and control systems.

	4. Thermodynamics: Fundamental concepts of thermodynamics, including energ entropy, and the laws of thermodynamics, and their application to engineerir systems. 5. Fluid Mechanics: Properties of fluids, fluid statics, fluid dynamics, and flo measurement, including applications to pumps, turbines, and other fluid systems. 6. Manufacturing and Materials Processing: Manufacturing processes, includir casting, forging, welding, and machining, and their impact on material properties ar product performance. 7. Design and Analysis: Principles of engineering design, including design optimizatio safety, and reliability, and tools for computer-aided design (CAD) and computer-aide engineering (CAE). 8. Professional Skills: Communication skills, teamwork, ethics, and sustainabilit including the role of mechanical engineering in society and the impact of engineerir decisions on the environment and society. Overall, the indicative contents of mechanical engineering modules provide studen with a broad and interdisciplinary education that prepares them for a range of caree in the field. The modules typically cover a combination of theoretical concepts ar practical applications, providing students with a strong foundation in core areas mechanical engineering, as well as opportunities to develop specialized knowledge ar skills in areas such as robotics, automation, energy systems, or biomedical engineerin

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for mechanical engineering modules can vary depending on the specific course and institution, but some common strategies include: 1. Lectures: Lectures are a common teaching method in mechanical engineering modules, providing an overview of key concepts and theories, as well as examples and applications. Lectures may be delivered in person or online, and may be accompanied by visual aids such as slides or videos. 2. Tutorials: Tutorials provide an opportunity for students to work through problems and exercises related to the lecture material, typically in small groups or one-on-one

	with a tutor. Tutorials may be in-person or online, and may be accompanied by online resources such as videos, quizzes, or interactive simulations. 3. Laboratory Work: Laboratory work provides students with hands-on experience ir designing, building, and testing mechanical systems and components. Laboratories may be used for experiments, demonstrations, or projects, and may be conducted ir person or online using virtual laboratories. 4. Computer-Aided Design (CAD) and Computer-Aided Engineering (CAE): CAD and CAE tools are commonly used in mechanical engineering to design and analyze mechanical systems and components. Students may receive instruction on using these tools in lectures, tutorials, or laboratory sessions, and may have access to specialized software and support. 5. Group Projects: Group projects provide an opportunity for students to work collaboratively on real-world engineering problems, applying their knowledge and skills in a practical context. Projects may involve designing, building, and testing a mechanical system or component, or conducting a research study on a specific topic in mechanical engineering. Projects may be supervised by faculty members or industry partners, and may require students to present their findings to a panel of experts. 6. Case Studies: Case studies provide students with an opportunity to analyze real-world examples of mechanical engineering problems and solutions, and to develop critical thinking and problem-solving skills. Case studies may be used in lectures, tutorials, or group projects, and may draw on examples from industry, research, or historical contexts. 7. Online Resources: Online resources such as videos, podcasts, interactive simulations, and online forums can provide students with additional opportunities t engage with the course material and connect with their peers and instructors. These resources may be integrated into the course curriculum or provided as supplementary material. Overall, the learning and teaching strategies for mechanical engineering modules ai to provide students with a range of opportunities to engage with the course materia develop their skills and knowledge, and apply their learning in practical contexts. Th strategies typically involve a mix of traditional teaching methods, such as lectures ar tutorials, as well as hands-on and collaborative learning opportunities, such as laboratory work and group projects.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	53	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Force system, units system, parallelogram law, force+ components
Week 2	resultant of coplanar forces, components of force in space, moment of a force, moment of coupler equilibrium
Week 3	free body diagram, coplanar system, analysis of trusses, friction
Week 4	nature of friction, theory of friction, coefficient of friction
Week 5	centroids and center of gravity, centroids of area, centroids determined by integration, moments inertia
Week 6	parallel axes theorem, 2nd moment of area by integration
Week 7	radius of gyration, moment of inertia of composite area.
Week 8	Kinetics of particle
Week 9	rectilinear motion, curvilinear motion

Week 10	rectangular components of curvilinear motion
Week 11	normal and tangential component of acceleration
Week 12	kinetics
Week 13	force, mass and acceleration
Week 14	kinetic of particle Newton's 2nd law
Week 15	pursuit exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Vector Mechanics for Engineers -Statics by F. Beer and E. Johnston , fifth edition	
Recommended Texts	McGraw Hill company, 1986	
Websites		

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors

	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Human Rights and Democracy			**Module Delivery**	
Module Type	**Supportive**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP225**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		Architecture Engineering	**College**	College of Engineering	
Module Leader	Hussein Jassim Shati		**e-mail**	lec.hussain.shati@uobasrah.edu.iq	
Module Leader's Acad. Title		assistant teacher	**Module Leader's Qualification**		Master's
Module Tutor			**e-mail**		
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/07/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Introducing students to the basic principles of human rights and clarifying those rights according to various sources. 2. Addressing the basic concepts of democracy and its historical development. 3. The ultimate goal of human rights education is people working together to bring about human rights, justice, and fear for all. 4. Connecting the students of the Faculty of Engineering with the practical reality, especially since most of the student's dealings are within the framework of privat institutions. 5. Shedding light on the legal status of engineers in the event of a contract with them, as well as stating their material and moral rights, in a more specific way. 6. Creating a student who knows his rights and his duties, and this matter is necessary for every student, regardless of his field of specialization
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- The student in the College of Engineering should know his rights in accordance with Iraqi law, so that he will not be deceived, cheated or misled in practice. 2 -Teaching students the foundations upon which human rights and the democratic system are built. 3- Preparing the graduate from the Faculty of Engineering in the work environment, whether the work is governmental or private 4-The student acquainted with the constitutional rights in the Iraqi law 5- An important outcome of human rights education is empowerment, a process through which people and communities increase their control of their own live. 6- Educating the student on the principles and laws related to the subject of human rights.
Indicative Contents المحتويات الإرشادية	- Universal Declaration of Human Rights - It is indicative to help students understand human rights, value human rights, and take responsibility for respecting, defending, and promoting human rights. An important outcome of human rights education is empowerment, a process through which people and communities increase their control of their own lives and the decisions that affect them. - Manage discussions on topics related to the curriculum

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	- Teaching and learning strategies of Human rights and democracy of whole class, group of five students and individual activities and jobs to examine abilities, skills and learning. - Learn about most of the ideas and theories related to the systems of political governance and the way of looking at the issue of human rights and democratic behavior. - Studying Iraqi law in line with the status of a university student: Example (Penal Code, Labor Law, Iraqi Constitution) - How to preserve the right of opposition constitutionally - Preserving the rights of minorities in society - Manage discussions on topics related to the curriculum - Methods of democratic dialogue - Mid-term and final exam.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.1
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 2 and 4
	Assignments	2	20% (20)	3, 8	LO # 3 and 4
	Projects / Lab.	-	-	-	-

	Report	1	10% (10)	12	LO # 4
Summative assessment	**Midterm Exam**	1.5 hr	10% (10)	7	LO # 1-4
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	General concepts about the idea of right and freedom
Week 2	The historical development of the idea of right and freedom
Week 3	Sources of human rights and the way they are organized
Week 4	Internal sources of human rights
Week 5	International Resources for Human Rights
Week 6	The Iraqi constitution as a basic source of rights
Week 7	Examples of rights and freedoms and the position of the law on them
Week 8	Examples of rights (the right to life, the right to privacy)
Week 9	Examples of rights (the right to a nationality, the right to demonstrate)
Week 10	Examples of freedoms (freedom of opinion and expression, freedom of movement and residence)
Week 11	Examples of freedoms (freedom of publication and media, freedom of belief and religion)
Week 12	The right to work in the Iraqi Labor Law
Week 13	Means of protecting human rights
Week 14	Constitutional means to protect human rights and freedoms
Week 15	**Judicial means to protect human rights and freedoms**
Week 16	The international judicial position on ways to protect the right and freedom

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	

Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Human rights, children and democracy for the Ministry of Education Human rights and children and democracy for the Ministry of Higher Education and Scientific Research - University of Tikrit	Yes
Recommended Texts	Curriculum prepared by the subject professor, as well as the Iraqi constitution, penal code, labor law, civil law, Coalition authority order, other laws	Yes
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A –** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Arabic Language**	**Module Delivery**
Module Type	**Basic learning activity**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	UOB101	
ECTS Credits	**2**	
SSWL (hr/sem)	**33**	
USSWL (hr/sem)	**17**	
SWL (hr/sem)	**50**	

Module Level	1	**Semester of Delivery**	2
Administering Department	CE	**College**	GE
Module Leader	صابرين علي حسين	**e-mail**	
Module Leader's Acad. Title	Asst. Lect.	**Module Leader's Qualification**	MS.c
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	13/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	العمل على النهوض باللغة العربية والمحافظة عليها من الخطأ 1. معرفة الطالب جمالية الأسلوب القرآني وإعجازه البلاغي ليكون النموذج الأمثل في الصياغة والتعبير 2. تنمية مهارات الطالب الإملائية 3. مساعدة الطالب على معرفة الطريقة الصحيحة في كتابة الاعداد وقراءتها وكتابة الهمزة 4. بأنواعها 5. مراجعة قواعد اللغة العربية لتجنب وقوع الطالب في الغلط النحوي . 6. تنمية مهارات الطالب على تذوق جمال التعبير الأدبي ومحاكاة النصوص الجميلة في الكتابة 7. مساعدة الطالب على تمييز الأغلاط اللغوية الشائعة وإرشاده الى تصويبها 8. تنمية مهارة الحفظ والإلقاء
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	حب الطالب للغة العربية والاعتزاز بها 1. اكتساب الطالب القدرة على فهم الاعجاز اللغوي في النصوص القرآنية والإحساس بجمال يتها 2. معرفة الطالب طريقة التفريق بين أنواع الهمزة الأولية و المتوسطة والمنتهية والقدرة غلى كتابتها 3. بالشكل الصحي دون الوقوع في الخطأ 4. قدرة الطالب على التفريق بين الظاء والضاد وعدم الوقوع في إشكالية الخلط بينهما 5. قدرة الطالب على الكتابة دون الوقوع في الخطأ الإملائي والنحوي 6. تمكن الطالب من قراءة النصوص الأدبية بلغة فصحى صحيحة ومضبوطة بالحركات 7. القدرة على التعبير الأدبي بلغة جميلة سليمة . 8. تمكن الطالب من معرفة أكثر من خمسين خطأ شائعا ومعرفة تصويبها.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ٥١ اسبوع ا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)		1،2،3،4
	Assignments	1	10% (10)		5،6،7،8
	Seminar	1	10% (10)		All
	Report	1	10% (10)		All
Summative assessment	**Midterm Exam**	2hr	10% (10)		
	Final Exam	3hr	50% (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	درس بيان أهمية اللغة العربية بصورة عامة وأهميتها لطلاب غير الاختصاص
Week 2	أقسام الكلام والمعرب والمبني من الأسماء والأفعال
Week 3	المثنى والملحق به
Week 4	أنواع الجموع وما يلحق بها
Week 5	الأسماء الخمسة
Week 6	كتابة الأعداد
Week 7	الهمزة الأولية – همزتا القطع والوصل
Week 8	الهمزة المتوسطة والمنتهية
Week 9	الإعجاز اللغوي في القرآن الكريم نماذج وتطبيقات
Week 10	الأسماء الخمسة
Week 11	الأفعال الخمسة

Week 12	الأغلاط اللغوية الشائعة
Week 13	كتابة الظاء والضاد والتاء المربوطة والهاء
Week 14	درس التعبير ونماذج من أساليب أشهر الكتاب الأدبية
Week 15	قصيدة لشاعر قديم ولشاعر حديث
Week 16	التحضير للامتحان النهائي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	النحو الواضح /علي الجارم لمسات بيانية/ فاضل السامرائي منهج اللغة العربية للأقسام غير الاختصاص	نعم
Recommended Texts	معجم الأخطاء اللغوية والنحوية الشائعة / خضر أبو العينين معاني النحو / فاضل السامرائي الأعمال الشعرية الكاملة /نازك الملائكة / المعلقات	نعم
Websites	https://ketabpedia.com	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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	C - Good	جيد	70 - 79	Sound work with notable errors
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mar of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT t condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automati rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Stratigraphy & Sedimentology**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UoB12345**				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Mazin Abdulmonim Mohammed		**e-mail**	Mazin.mohammed@UObasrah.edu.iq	
Module Leader's Acad. Title	Assistant Teacher		**Module Leader's Qualification**	Msc	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	General Geology	**Semester**	
Co-requisites module	Petroleum Geology, Structural Geology, Reservoir Engineering, Drilling Engineering, Well Logs, Geophysics.	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims

أهداف المادة الدراسية

1. Stratigraphy Gives students Techniques For Working Out Earth History, It Integrates Diverse Materials Into A Coherent

   View Of How The Earth And Its Life Forms Evolved.

2. Though Stratigraphy (Literally Writing About Strata) Is Mostly About Working Out The History Of Sedimentary Rocks, In

   Order To Do This You Also Need To Know The Effects

   Of Magmatism, Metamorphism, Tectonism, Climatic

   Change, And Sea-level Changes, And the Effects of Organic Evolution.

3. Stratigraphy Integrates Data And Concepts from Many Specialties, And In Practice ends up as a much more comprehensive study than its name Implie
4. Stratigraphy also lets you test ideas on how varying combinations of processes affect the planets through

   Time. for example, As Evidence For Continental Drift And

   Changing Climates, Wegener (1915) Used The Presently

   Separated Positions Of Carboniferous Mosasaurs-bearing And Glacial Sediments, Which Were Most Plausibly Explained By An Originally Compact Supercontinent.

5. Together, History And Process Let You Work Out How, When, And Why Environments Changed Through Time.

6. Stratigraphy, Perhaps Most Importantly, Also Helps You To Understand How Many Economic Materials

   Formed And Got Distributed In The Way They Did – And So Will Hopefully Help You Find More. For Example, The Wembley Field Is One Of Many Isolated Oil And Gas Reservoirs In The Middle Triassic In Alberta, Canada.

7. Finding Out Why The Oil Is There, And Where Other Similar Oil And Gas Fields Are, Requires You To Proceed Logically

   Through The Various Phases Of Stratigraphy.

   First, What Are The Actual Oil-bearing Rocks And

	How Were They Deposited? The Local (Borehole) Sections Mostly Consist Of Porous Sands Alternating With Clays Arranged In Coarsening-upwards Cycles, Deposited By Waves And Currents As Marine Barrier Island Deposits. Second, How Are These Sediments Arranged Spatially And How Old Are They? In The Absence Of Outcrops, Space Correlations Have To Be Worked Out From Borehole Logs And Seismic Sections Which Show The Arrangement And Thickness Of The Strata And Environments And That The Productive Oil And Gas Wells Are In Linear Sand Bodies Of a Particular Type Of Marine Barrier Bar. 8. Identify the stratigraphic column of Iraq. 9. Understand the basic definitions of stratigraphy and sedimentology. 10. Identify the economic formation southern Iraq.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Describe the stratigraphic column of Iraq. 2. List the various terms associated with stratigraphy, sedimentology and sequence stratigraphy. 3. Summarize what is meant by a basic sequence stratigraphy. 4. Discuss the relationships between the stratigraphic units. 5. Describe the stratigraphic units. 6. Define tectonostratigraphy. 7. Identify the sedimentary environments. 8. Discuss the stratigraphic relationships. 9. Discuss the various mechanism of sedimentation. 10. Explain the concepts of sequence stratigraphy. 11. Describe the main formations in Iraq.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – STRATIGRAPHIC PRINCIPLES.</u> Sedimentary rocks important Strata & Stratification Explain stratigraphic Units types. Name the stratigraphic units. Stratigraphy Committee.

	Tectonics & Tectonostratigraphy of Arabian Plate. Clarification of the stages development of the Arabian plate during geological time. Using the drawing process to understand the rock sequences in Iraq. The use of software in the task mapping process. Part B – SEQUENCE STRATIGRAPHY CONCEPTS. Understand the basic definitions of sequence stratigraphy Drawing sequence stratigraphic sections. Using the concepts of sequences stratigraphy in the investigation of oil traps.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encoura students' participation in the exercises, while at the same time refining and expandi their critical thinking skills. This will be achieved through classes, interactive tutoria and by considering type of simple experiments involving some sampling activities th are interesting to the students. One of the strategies for this course is to give the student an idea of th stratigraphic column in southern Iraq and the oil-producing rock formation and Identify the economic formation southern Iraq. In addition to Identify the ma oilfields in Iraq.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem)	200		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – Stratigraphy & Sedimentology – Why Bother, Development Of Stratigraphy, Phases Of Study.
Week 2	Sediments and sedimentary rocks.
Week 3	Stratigraphic Units.
Week 4	Sedimentary Environments.
Week 5	Stratigraphic Relationships.
Week 6	Transgression & Regression.
Week 7	**Mid-term Exam**

Week 8	Tectonostratigraphy.
Week 9	Sequence Stratigraphy
Week 10	Stratigraphic problem times and places.
Week 11	Tectonics and sedimentary basins.
Week 12	Arabian Plate Tectonostratigraphy.
Week 13	Basin analysis.
Week 14	Petroleum System in Iraq.
Week 15	Cretaceous Stratigraphic Column Southern Iraq.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Subsurface stratigraphic column in southern Iraq.
Week 2	Lab 2: Subsurface Cretaceous stratigraphic column in southern Iraq.
Week 3	Lab 3: The method of drawing the stratigraphic column.
Week 4	Lab 4: The method of drawing the stratigraphic correlation.
Week 5	Lab 5: stratigraphic Maps.
Week 6	Lab 6: The method of drawing the structural contour map.
Week 7	Lab 7: The method of drawing the isothickness map.
Week 8	Lab 8: Stratigraphic software.

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Principles of Stratigraphy. Edited by Michael E. Brookfield, 2004 by Blackwell Publishing Ltd.	Yes
Recommended Texts	Sedimentology and Stratigraphy. Second Edition, Edited by Gary Nichols. Welly Black well. A John Wiley & Sons, Ltd., Publication.	Yes
Websites	https://www.google.com/search?q=sepm+sequence+stratigraphy+web&oq=stratigr hy+web+&gs_lcrp=EgZjaHJvbWUqCAgBEAAYFhgeMgYIABBFGDkyCAgBEAAYFhge0gEI MjUxMTAxNmowajE1qAIAsAIA&sourceid=chrome&ie=UTF-8	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C - Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information

معلومات المادة الدراسية

Module Title	Calculus II	**Module Delivery**	
Module Type	**B**	☒ **Theory** ☒ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP112**		
ECTS Credits	**4**		
SWL (hr/sem)	**100**		

Module Level	2	**Semester of Delivery**	2
Administering Department	Type Dept. Code	**College**	Type College Code
Module Leader	Hisham.hashim@uobasrah.edu.iq	**e-mail**	E-mail
Module Leader's Acad. Title	Asst. Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Lecturer	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of mathematics can be broadly divided into two categories: foundational aims and practical aims. Foundational aims of mathematics include: 1. Developing logical thinking: Mathematics provides a rigorous framework for logical thinking and problem-solving, which can be applied in many other areas of study and life. 2. Establishing axioms and proving theorems: Mathematics aims to establish a set of axioms or assumptions and then use them to prove theorems or propositions that follow logically from those assumptions. 3. Understanding abstraction: Mathematics involves abstraction, which is the process of identifying essential characteristics of objects or concepts and ignoring irrelevant details. This helps in developing a deeper understanding of the underlying structure of mathematical objects. 4. Developing critical thinking: Mathematics encourages critical thinking by requiring students to analyze problems, identify patterns, and evaluate different approaches to solving them. Practical aims of mathematics include: 1. Solving real-world problems: Mathematics has practical applications in fields such as physics, engineering, finance, and computer science, where it is used to model and solve real-world problems. 2. Developing quantitative reasoning skills: Mathematics helps in developing quantitative reasoning skills, which are essential for making informed decisions in many areas of life, such as personal finance, health, and politics. 3. Enhancing computational skills: Mathematics provides a foundation for developing computational skills, which are increasingly important in the digital age. 4. Fostering creativity: Mathematics can be a creative field where students can develop their own ideas and solutions to problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The module learning outcomes of a mathematics course will depend on the level and focus of the course, but some possible learning outcomes of a mathematics module are: 1. Demonstrating proficiency in manipulating mathematical symbols and equations: This includes the ability to solve problems using algebraic, geometric, and trigonometric techniques, and to apply calculus and other mathematical methods to solve problems in real-world contexts. 2. Applying mathematical reasoning to solve problems: This involves

	developing the ability to identify patterns, make conjectures, and construct logical arguments to support mathematical claims. 3. Demonstrating proficiency in using technology to solve mathematical problems: This includes the ability to use calculators, spreadsheets, computer algebra systems, and other software to solve mathematical problems efficiently and accurately. 4. Developing effective communication skills in mathematics: This involves the ability to communicate mathematical ideas clearly and concisely, both orally and in writing, and to use appropriate mathematical language and notation. 5. Developing an appreciation for the beauty and power of mathematics: This includes understanding the historical and cultural context of mathematical discoveries and appreciating the elegance and simplicity of mathematical ideas. 6. Using mathematical models to solve real-world problems: This involves the ability to analyze and interpret data, design and implement mathematical models, and use mathematical methods to make predictions and solve problems in a wide range of fields, such as physics, engineering, economics, and the natural sciences. 7. Developing a growth mindset towards mathematics: This includes understanding that mathematical ability can be developed through practice and effort, and that mistakes and failures are opportunities for learning and improvement. 8. Collaborating effectively with others in mathematical problem-solving: This involves the ability to work in groups to solve mathematical problems, share ideas, and give and receive feedback constructively. 9. Developing an understanding of the ethical implications of mathematical research and practice: This includes understanding the importance of honesty, integrity, and responsible use of mathematical models and techniques, and being aware of the potential ethical implications of mathematical decisions and solutions. 10. Developing an awareness of the diversity of mathematical perspectives and approaches: This involves understanding that there are different ways of approaching mathematical problems and that different cultures and communities have contributed to the development of mathematics over time.
Indicative Contents المحتويات الإرشادية	The indicative contents for a mathematics course will vary depending on the level of the course and the specific aims and learning outcomes of the course. However, some possible indicative contents for a mathematics course are: 1. Algebra: This includes topics such as solving equations and inequalities, functions, graphs, matrices, and systems of equations. 2. Calculus: This includes topics such as limits, derivatives, integrals, and applications of calculus to optimization, rates of change, and related rates.

	3. Geometry: This includes topics such as Euclidean geometry, coordinate geometry, and transformations. 4. Trigonometry: This includes topics such as trigonometric functions, identities, and applications to triangles and circles. 5. Statistics and Probability: This includes topics such as descriptive statistics, probability distributions, hypothesis testing, and regression analysis. 6. Discrete Mathematics: This includes topics such as logic, set theory, combinatorics, and graph theory. 7. Numerical Methods: This includes topics such as numerical integration, numerical differentiation, and iterative methods for solving equations. 8. Mathematical Modeling: This includes topics such as formulating mathematical models to represent real-world phenomena, analyzing and interpreting data, and using mathematical models to make predictions and solve problems. 9. History and Philosophy of Mathematics: This includes topics such as the historical development of mathematics, the role of mathematics in society, and the philosophical foundations of mathematics. 10. Professional Skills: This includes topics such as effective communication of mathematical ideas, using technology to solve mathematical problems, and collaborating with others in mathematical problem-solving. 11. Applications of Mathematics: This includes topics such as applications of mathematics in fields such as physics, engineering, economics, and the natural sciences, as well as in everyday life. 12. Mathematical Proofs: This includes topics such as logic, proof techniques, and mathematical reasoning, and aims to develop the ability to construct and communicate mathematical arguments. 13. Advanced Topics: This includes topics such as complex analysis, differential equations, topology, and abstract algebra, and is typically covered in more advanced mathematics courses. 14. Assessment and Feedback: This includes topics such as assessment methods, feedback mechanisms, and strategies for improving performance in mathematics. 15. Ethics and Responsibility in Mathematics: This includes topics such as the ethical implications of mathematical research and practice, the responsible use of mathematical models and techniques, and the importance of honesty and integrity in mathematical work. These are some possible indicative contents for a mathematics course, but the actual contents will depend on the level and focus of the course, as well as the specific aims, learning outcomes, and pedagogical approaches of the course.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Effective learning and teaching strategies for mathematics will depend on the level and focus of the course, as well as the specific aims, learning outcomes, and pedagogical approaches of the course. However, some possible learning and teaching strategies for mathematics are: 1. Active Learning: Mathematics courses often require active learning strategies, such as problem-based learning, inquiry-based learning, and project-based learning, that encourage students to engage with mathematical concepts and apply them to real-world problems. 2. Practice and Feedback: Mathematics courses often require a significant amount of practice and feedback to develop proficiency in mathematical skills and concepts. This can include homework assignments, quizzes, exams, and feedback on student work. 3. Collaborative Learning: Mathematics courses often require collaborative learning strategies, such as group work, peer tutoring, and collaborative problem-solving, that encourage students to work together to solve mathematical problems and share their understanding of mathematical concepts. 4. Technology-Enhanced Learning: Mathematics courses can benefit from technology-enhanced learning strategies, such as online resources, educational software, and digital tools, that can help students visualize mathematical concepts, simulate mathematical models, and solve mathematical problems more efficiently. 5. Differentiated Instruction: Mathematics courses often require differentiated instruction strategies, such as differentiated assignments, flexible grouping, and scaffolding, that can help students with different learning needs and backgrounds to succeed. 6. Conceptual Understanding: Mathematics courses should emphasize conceptual understanding of mathematical concepts, rather than just memorization of procedures and formulas. This can be achieved through exploration of mathematical concepts through real-world applications, visualizations, and hands-on activities. 7. Problem-Solving Strategies: Mathematics courses should aim to develop problem-solving strategies, such as breaking down problems into smaller parts, identifying patterns, and testing strategies, that can be applied to a range of mathematical problems. 8. Active Engagement: Mathematics courses should aim to actively engage students in the learning process, through activities such as classroom discussions, interactive demonstrations, and hands-on activities. 9. Assessment for Learning: Mathematics courses should use assessment for learning strategies, such as formative assessments, to provide ongoing feedback to students and identify areas for improvement. 10. Different Modes of Representation: Mathematics courses should use different modes of representation, such as graphs, tables, and diagrams, to help students visualize mathematical concepts and relationships. 11. Mathematical Communication: Mathematics courses should emphasize the importance of mathematical communication, through strategies such as peer review, group presentations, and writing assignments.

	12. Reflection and Metacognition: Mathematics courses should encourage reflection and metacognition, through strategies such as journaling, self-assessment, and goal-setting, to help students develop a deeper understanding of their own learning processes.These are some possible learning and teaching strategies for mathematics, but the actual strategies used will depend on the level and focus of the course, as well as the specific aims, learning outcomes, and pedagogical approaches of the course.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	38	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to undefined integral and its applications
Week 2	Introduction to defined integral and its applications: Part 1
Week 3	Introduction to defined integral and its applications: Part 2
Week 4	TRANSCENDENTAL FUNCTIONS: Inverse Functions and their Derivatives, Derivatives of Inverse Differentiable Functions
Week 5	Logarithmic Functions, The Exponential Function and Other Exponential and Logarithmic Function
Week 6	Inverse of Trigonometric functions
Week 7	Hyperbolic Functions and Inverse of Hyperbolic Functions
Week 8	TECHNIQUES OF INTEGRATION: Part 1
Week 9	TECHNIQUES OF INTEGRATION: Part 2
Week 10	Numerical integration
Week 11	Polar Coordinates
Week 12	Complex Numbers
Week 13	Matrix and Determinates: Part 1
Week 14	Matrix and Determinates: Part 2
Week 15	Discussion and revision
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Calculus and Thomas	Yes
Recommended Texts		
Websites	www.pragsoft.com	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**General Chemistry**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP122**				
ECTS Credits	**9**				
SWL (hr/sem)	**225**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aims of a general chemistry course/module typically include: 1. Developing an understanding of the fundamental concepts and principles chemistry, such as atomic theory, chemical bonding, stoichiometry, ar thermodynamics. 2. Developing skills in problem solving, critical thinking, and laboratory techniqu through hands-on experiments and exercises. 3. Learning the language of chemistry, including the nomenclature of compoun and the use of symbols, formulas, and equations. 4. Understanding the role of chemistry in everyday life and in other fields science, such as biology, physics, and environmental science. 5. Developing an appreciation for the scientific method and the importance experimental design, data analysis, and interpretation. 6. Understanding the ethical and safety considerations associated with chemic research and experimentation. 7. Preparing students for further study in chemistry or related fields, such biochemistry, chemical engineering, materials science, or medicine. Overall, the goal of a general chemistry course/module is to provide students wi a solid foundation in the principles and methods of chemistry, as well as to fost an appreciation for the beauty and importance of this field of science.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The specific learning outcomes of a general chemistry course/module may vary depending on the institution and the level of the course, but some common examples include: 1. Understanding the fundamental principles of chemistry, including atomic structure, chemical bonding, periodic trends, stoichiometry, and

	thermodynamics. 2. Applying mathematical concepts to solve problems in chemistry, such as balancing chemical equations, calculating reaction rates, and determining equilibrium constants. 3. Developing laboratory skills, including proper measurement techniques, experimental design, data analysis, and safety protocols. 4. Communicating scientific information effectively, both orally and in writing, using appropriate terminology and conventions. 5. Analyzing and interpreting scientific data, including graphs, tables, and quantitative results. 6. Applying chemical principles to real-world problems and scenarios, such as environmental issues, energy production, and materials science. 7. Understanding the ethical and social implications of chemical research and its applications. 8. Collaborating effectively with peers and demonstrating professional behavior in a laboratory setting. 9. Developing a curiosity and appreciation for the natural world and the role of chemistry in understanding it. Overall, the learning outcomes of a general chemistry course/module are designed to provide students with a strong foundation in the principles and techniques of chemistry, as well as to prepare them for further study or careers in related fields.
Indicative Contents المحتويات الإرشادية	The indicative contents for a general chemistry course/module may vary depending o the level of the course and the institution offering it, but some common topics ar concepts that may be covered include:

	1. Introduction to Chemistry: The scientific method, measurement and units, matt and energy, classification of matter, and the history of chemistry. 2. Atomic Structure and the Periodic Table: Atomic theory, subatomic particle isotopes, electronic structure, periodic trends, and chemical bonding. 3. Chemical Reactions and Stoichiometry: Chemical equations, balancing equatior types of chemical reactions, mole concept, limiting reactants, and percent yield. 4. Gases: Properties of gases, gas laws, the ideal gas law, gas stoichiometry, and kinet molecular theory. 5. Thermochemistry and Thermodynamics: Heat and temperature, enthalp calorimetry, Hess's law, entropy, free energy, and spontaneity. 6. Chemical Kinetics: Reaction rates, rate laws, reaction mechanisms, and catalysis. 7. Chemical Equilibrium: Equilibrium constant, Le Chatelier's principle, acid-ba equilibria, and solubility equilibria. 8. Acids and Bases: Arrhenius, Bronsted-Lowry, and Lewis theories of acids and base pH and pOH scales, acid-base titrations, and buffer solutions. 9. Electrochemistry: Oxidation-reduction reactions, electrochemical cells, Faraday laws,standard reduction potentials, and electrolysis. 10. Nuclear Chemistry: Nuclear structure, types of radioactive decay, nucle reactions, and applications of nuclear chemistry. 11. Organic Chemistry: Introduction to organic chemistry, functional group nomenclature, basic reactions, and stereochemistry. 12. Biochemistry: Biomolecules, enzymes, metabolism, and biochemical pathways. 13. Materials Science: Properties of solids, crystalline structures, defects, and materia synthesis. 14. Environmental Chemistry: Air and water pollution, climate change, and sustainab energy sources.

	In addition to these topics, students may also be introduced to laboratory techniqu and experiments related to the above topics, where they can apply their knowled and skills in a hands-on setting.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies used in a general chemistry course/module w depend on the level of the course, the institution offering it, and the specific needs ar goals of the students. However, some common strategies that may be used to facilita learning and understanding of the subject matter include: 1. Lecture-based instruction: This is a traditional approach to teaching chemistr where the instructor presents information on key topics through lectures, with the a of visual aids such as slides, diagrams, and animations. 2. Problem-based learning: This approach involves presenting students with real-wor problems or scenarios that require them to apply their knowledge of chemistry arrive at a solution. This approach encourages critical thinking, problem-solving, ar collaboration among students. 3. Laboratory work: Laboratory exercises provide students with hands-on experien in conducting experiments and applying theoretical concepts to real-world situatior This approach helps to develop practical skills in chemical analysis, experiment design, data collection, and interpretation. 4. Active learning: This approach involves engaging students in the learning proce through activities such as group discussions, interactive simulations, and role-playi exercises. This approach encourages student participation and helps to reinforce k concepts learned in the classroom. 5. Flipped classroom: This approach involves students watching pre-recorded lectur or reading materials before class, and then using class time for problem-solvi activities and group discussions. This approach allows students to work at their ov pace and provides more opportunities for interaction with the instructor and peers. 6. Technology-based instruction: This approach involves the use of technology, such online resources, virtual simulations, and interactive software programs, to enhan learning and understanding of chemistry concepts. This approach allows students visualize and manipulate chemical structures and reactions, which can improve the understanding of abstract concepts.

	7. Peer instruction: This approach involves students working in pairs or small groups solve problems or complete assignments. This approach encourages collaboration ar peer teaching, which can reinforce understanding of key concepts. 8. Assessment and feedback: Regular assessments, such as quizzes, exams, ar assignments, provide students with feedback on their progress and understanding the material. This approach helps to identify areas where students may need addition support or guidance. Overall, a combination of these and other teaching strategies can be used to create dynamic and engaging learning environment that encourages active participation ar fosters a deeper understanding of the principles and applications of general chemistr

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	124	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	101	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Stoichiometry Acid-basic titration.
Week 2	Precipitation titration.
Week 3	Redox titration. Various butteries & electronic cells.
Week 4	Principles of corrosion.
Week 5	Water for domestic uses.
Week 6	Industrial water.
Week 7	Atmospheric pollution.
Week 8	Organic chemistry.
Week 9	Fuels (introduction).
Week 10	Types of fuel composition.
Week 11	Calorific
Week 12	Chemical reaction.
Week 13	Simple combustion.
Week 14	Lubricants & lubrication
Week 15	Plastic & elastomers.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: preparation and standardization of an acid. Determination of the percentage of acetic
Week 2	Lab 2: Analysis of sodium carbonate and sodium hydroxide mixture. Determination of chloride by the Mohr method
Week 3	Lab 3: Determination of chloride by the Volhard method Preparation and standardization of 0.1N $KMnO_4$
Week 4	Lab 4: Determination of ferrous from of iron in Mohr's salt Determination of total hardness in tab water

Week 5	Lab 5: **Determination of the Melting Point** **Determination of the Boiling Point**
Week 6	Lab 6: **Solution and Filtration** **Recrystallization** **Solvent Extraction**
Week 7	Lab 7: **Distillation** **Sublimation**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	الكيمياء للهندسه والعلوم التطبيقية	
Recommended Texts		
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
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	F – Fail	راسب	(0-44)	Considerable amount of work required

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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Drawing**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP124**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	The aims of an engineering drawing course/module typically include:

أهداف المادة الدراسية	1. Developing an understanding of the principles of technical drawing, includi orthographic projection, isometric projection, and sectioning. 2. Developing skills in creating and interpreting engineering drawings, includi freehand sketching and computer-aided design (CAD). 3. Understanding the importance of accurate and precise technical drawings engineering design and production. 4. Developing an appreciation for the role of engineering drawings communication among engineers, manufacturers, and other stakeholders. 5. Learning the language of engineering drawing, including the use of symbo dimensions, and scales. 6. Developing skills in problem-solving, critical thinking, and visualization throug hands-on drawing exercises and projects. 7. Understanding the ethical and safety considerations associated wi engineering design and production. 8. Preparing students for further study in engineering or related fields, such architecture, product design, or manufacturing. Overall, the goal of an engineering drawing course/module is to provide studen with a solid foundation in the principles and methods of technical drawing, as w as to prepare them for further study or careers in engineering or related fields.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The specific learning outcomes of an engineering drawing course/module may vary depending on the level of the course and the institution offering it, but som common examples include: 1. Understanding the principles of technical drawing, including orthographic projection, isometric projection, and sectioning.

	2. Creating and interpreting engineering drawings, including freehand sketching and computer-aided design (CAD). 3. Understanding the importance of accurate and precise technical drawings in engineering design and production. 4. Communicating technical information effectively, both orally and in writing, using appropriate terminology and conventions. 5. Applying engineering drawing principles to real-world problems and scenarios such as creating detailed drawings for manufacturing processes or designing mechanical parts. 6. Analyzing and interpreting technical drawings, including the use of symbols, dimensions, and scales. 7. Developing skills in problem-solving, critical thinking, and visualization throug hands-on drawing exercises and projects. 8. Understanding the ethical and safety considerations associated with engineering design and production. 9. Collaborating effectively with peers and demonstrating professional behavior in a design and production setting. 10. Developing a curiosity and appreciation for the role of engineering drawing i engineering and related fields. Overall, the learning outcomes of an engineering drawing course/module are designed to provide students with a strong foundation in the principles and techniques of technical drawing, as well as to prepare them for further study or careers in engineering or related fields.
Indicative Contents المحتويات الإرشادية	

	The indicative contents for an engineering drawing course/module may va depending on the level of the course and the institution offering it, but some comm topics and concepts that may be covered include: 1. Technical Drawing Fundamentals: Basic drawing tools and materials, freehar sketching, and lettering. 2. Geometric Construction: Construction of basic geometric shapes, tangent intersections, and orthographic projection. 3. Projection Systems: Orthographic projection, isometric projection, and obliqu projection. 4. Sectional Views: Full sections, half sections, revolved sections, and remove sections. 5. Dimensioning and Tolerancing: Tolerance specifications, geometric dimensioni and tolerancing (GD&T), and surface finish. 6. Computer-Aided Design (CAD): Introduction to CAD software, 2D and 3D modelin and drafting. 7. Assembly Drawings: Bill of materials, exploded views, and assembly instructions. 8. Welding and Sheet Metal Drawings: Welding symbols, sheet metal bending, ar forming. 9. Piping and Instrumentation Diagrams (P&IDs): Basic symbols and notations used P&IDs. 10. Electrical and Electronic Diagrams: Basic symbols and notations used in electric and electronic diagrams. In addition to these topics, students may also work on hands-on projects and exercis related to the above topics, using both freehand drawing techniques and CA software. The projects may include creating detailed drawings for manufacturi processes or designing mechanical parts. The hands-on work helps to develop practic skills in design, visualization, and communication, and also reinforces theoretic concepts learned in the classroom.

	Overall, the indicative contents of an engineering drawing course/module a designed to provide students with a broad understanding of the principles ar applications of technical drawing, as well as to prepare them for further study careers in engineering or related fields.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies used in an engineering drawing course/modu will depend on the level of the course, the institution offering it, and the specific nee and goals of the students. However, some common strategies that may be used facilitate learning and understanding of the subject matter include: 1. Lecture-based instruction: This is a traditional approach to teaching engineeri drawing, where the instructor presents information on key topics through lecture with the aid of visual aids such as slides, diagrams, and animations. 2. Hands-on exercises: In engineering drawing, hands-on exercises are essential reinforce theoretical concepts learned in the classroom. These exercises can inclu creating sketches, drawings, and models using both freehand drawing techniques ar CAD software. 3. Group projects: Working in groups to solve problems or complete engineeri drawing projects can foster collaboration and peer teaching, which can reinfor understanding of key concepts. 4. Critique sessions: Critique sessions provide opportunities for students to recei feedback on their work and improve their skills in technical drawing. 5. Flipped classroom: This approach involves students watching pre-recorded lectur or reading materials before class, and then using class time for hands-on exercise problem-solving activities, and group discussions. This approach allows students work at their own pace and provides more opportunities for interaction with th instructor and peers. 6. Technology-based instruction: This approach involves the use of technology, such online resources, virtual simulations, and interactive software programs, to enhan learning and understanding of technical drawing concepts. 7. Assessment and feedback: Regular assessments, such as quizzes, exams, ar assignments, provide students with feedback on their progress and understanding the material. This approach helps to identify areas where students may need addition support or guidance.

	8. Professional practice: Students may have opportunities to work on projects ar exercises that reflect real-world engineering design and production scenarios. Th approach can help students develop professional skills and gain practical experience Overall, a combination of these and other teaching strategies can be used to create dynamic and engaging learning environment that encourages active participation ar fosters a deeper understanding of the principles and applications of technical drawin

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Graphic Instruments and Their Use
Week 2	Lettering
Week 3	Graphic Geometry

Week 4	Multi View Ortho Graphic Projection in First and Third Angle Projection
Week 5	Dimensions
Week 6	Third View
Week 7	Isometric Drawing and Sketching
Week 8	Oblique Drawing
Week 9	Section of Isometric Drawing Sectional View
Week 10	The use of CAD in engineering drawing. Description of menu Bar and toolbars
Week 11	Drawing Ellipse, Rectangle, line, Ray, Circle, point, Arc, etc.
Week 12	CAD Electrical, Mechanical/ Special features
Week 13	The use of various layers. Drawing electrical symbols on simple architectural plans.
Week 14	3-D Drawing, render
Week 15	orthogonal projections and sectional views.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library**
Required Texts	أسس الرسم الهندسي-عبد الرسول الخفاف	Yes
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The student acquires the skill of dealing with engineering mechanics, as it is one of the scientific engineering foundations involved in most practical fields.

- Clarify the concept of kinesiology and its applications.
- The course aims to give the student a new background that he can use to solve most of the engineering problems that he encounters in this field.
- The student learns about some mechanical equipment and how to deal with it through engineering workshops.

1. Teaching Institution	Basra University
2. University Department/Centre	Department of Petroleum Engineering
3. Course title/code	Dynamics mechanics / ***PeE124***
4. Programme to which it contributes	Academic Program
5. Modes of Attendance offered	Electronic education
6. Semester/Year	2st Semester / First Year
7. Number of hours tuition (total)	45 Hours
8. Date of production/revision of this	2021

specification	

9. Aims of the Course

• The student acquires the skill of dealing with engineering mechanics, as it is one of the scientific engineering foundations involved in most practical fields.

• Clarify the concept of kinesiology and its applications.

• The course aims to give the student a new background that he can use to solve most of the engineering problems that he encounters in this field.

• The student learns about some mechanical equipment and how to deal with it through engineering workshops.

10· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Clarify the basic concepts of engineering mechanics through lectures and practical exercises.

A2- Expand the students' perceptions and enhance the concept of mechanics by giving them general principles and concepts about static forces, torque distribution, friction and moment of inertia.

A3- Working on some mechanical equipment in the engineering workshops.

B. Subject-specific skills

B1 - a detailed study of mechanics.

B2 Study the mathematical details that the student needs during their studies of engineering mechanics.

B 3- Preparing the student to be successful by learning the correct principles related to this science.

Teaching and Learning Methods

1. Using modern means in presenting the scientific and theoretical side, such as Data Show devices, to attract attention and attract students, so that the idea can be better delivered to the student.

2. Giving students extra-curricular assignments that require them to exert skills and self-explanations in experiential ways.

3. Interrogation of students through discussion sessions by asking thinking questions (how, why, when, where, which) for specific topics.

4. Using the method of brainstorming and feedback in order to activate the accumulated experiences of students by linking what has been taken from study materials in the previous academic stages and linking them with the new ones.

5. Providing students with practical skills through conducting practical experiments on laboratory equipment.

Assessment methods

1. Interaction within the lecture

2 homework

3 laboratory reports

4 short quizzes (kuzat)

5 semester and final exams

C. Thinking Skills

c1- Attention: Arousing the students' attention by addressing one of the applied topics on the display screen in the hall

C2 - Response: Follow up the student's interaction with the material displayed on the screen

C3 - Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting related topics and applications to be presented.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5 - Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so he has a stable level in the lesson and does not become lazy or fidgety.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D 1- Develop the student's ability to perform the duties and deliver them on time

D 2- Logical and scientific thinking to find solutions to various obstacles

D 3- Develop the student's ability to dialogue and discussion

D4 - Develop the student's ability to deal with modern technology, especially the Internet

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Student understanding of the topic	linear motion	theoretical + practical	Questions and discussion
2	4	Student understanding of the topic	linear motion	theoretical + practical	Questions and discussion
3	4	Student understanding of the topic	linear motion	theoretical + practical	Questions and discussion
4	4	Student understanding of the topic	curved motion	theoretical + practical	Questions and discussion+ quiz

5	4	Student understanding of the topic	curved motion	theoretical + practical	Questions and discussion
6	4	Student understanding of the topic	curved motion	theoretical + practical	Questions and discussion
7	4	Student understanding of the topic	rotational motion	theoretical + practical	Questions and discussion
8	4	Student understanding of the topic	rotational motion	theoretical + practical	Questions and discussion
9	4	Student understanding of the topic	rotational motion	theoretical + practical	Questions and discussion
10	4	Student understanding of the topic	work and energy	theoretical + practical	Questions and discussion+ quiz
11	4	Student understanding of the topic	work and energy	theoretical + practical	Questions and discussion
12	4	Student understanding of the topic	work and energy	theoretical + practical	Questions and discussion
13	4	Student understanding of the topic	work and energy	theoretical + practical	Questions and discussion
14	4	Student understanding of the topic	audit	theoretical + practical	Questions and discussion
15	4	Student understanding of the topic	audit	theoretical + practical	Questions and discussion

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	•Vector Mechanics for Engineers – Statics & Dynamics, Beer & Johnston; 10 edition. •Engineering Mechanics Statics Vol. 1, Engineering Mechanics Dynamics Vol. 2, Meriam & Kraige; 6thedition.
Special requirements (include for example workshops, periodicals, IT software, websites)	Engineering Mechanics – Statics, lectures by instructor, R. Ganesh Narayanan. Engineering Mechanics – Dynamics, lectures by instructor, Y. Wang. Lectures of other instructors in the department. Any other references in this field.
Community-based facilities (include for example, guest Lectures, internship, field studies)	books, resources and articles published on various websites

13. Admissions	
Pre-requisites	1 The material presented above is a synthesis material by the professor of the subject from sever sources and research, and it is updated according t the development of research methods in order to

	link the basics and principles of the material and th developments that occur to it. 2 Access to the modern sources published globally, as well as the modern resources available on the Internet, and use them to develop and update the lectures and information that the student is scheduled to see.
Minimum number of students	50
Maximum number of students	50

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language**			**Module Delivery**	
Module Type	**B**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP114**				
ECTS Credits	**3**				
SWL (hr/sem)	**75**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aims of studying the English language can vary depending on the specif context and goals of the learner, but some general aims include:

	1. Developing language proficiency: The primary aim of studying the Englis language is to become proficient in using it for communication. This includ developing skills in speaking, listening, reading, and writing in English. 2. Enhancing personal and professional opportunities: English is widely used as global language in business, academia, and other fields, so learning it can open u opportunities for personal and professional growth. 3. Improving cultural understanding: English-speaking countries have diver cultures and histories, and studying the language can help learners gain a bett understanding of these cultures and their perspectives. 4. Accessing information and resources: Much of the world's information ar resources are available in English, so learning the language can enable learners access a wider range of materials and knowledge. 5. Developing critical thinking and communication skills: Studying the Englis language can help learners develop critical thinking and communication skills, they learn to analyze and express ideas in a clear and effective manner. 6. Fostering intercultural communication: As a global language, English is ofte used as a means of communication between people of different cultures ar backgrounds. Studying the language can help learners develop the skills needed communicate effectively in intercultural settings.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The learning outcomes for studying English language depend on the level and context of the course, but some possible outcomes include: 1. Developing language skills: The primary outcome of studying English language is to develop proficiency in using the language for communication. This includes developing skills in speaking, listening, reading, and writing in English. 2. Understanding grammar and vocabulary: Learners of English language will gai an understanding of the structure of the language, including grammar and vocabulary, which will enable them to use it more effectively. 3. Building fluency and accuracy: Through practice and feedback, learners will develop their ability to use English fluently and accurately, with appropriate

	pronunciation, intonation, and grammar. 4. Improving reading and writing skills: Learners will develop their ability to reac and understand a wide range of texts, as well as to write coherently and effectively in English for different purposes. 5. Enhancing listening and speaking skills: Learners will develop their ability to understand spoken English in different contexts, as well as to express themselve fluently and accurately in spoken English. 6. Understanding cultural nuances: Learners will gain an understanding of the cultural nuances of English-speaking countries and the role of language in shaping culture and society. 7. Developing critical thinking and analysis skills: Through the study of English language, learners will develop their ability to analyze and evaluate ideas and arguments, and to express their own ideas in a clear and convincing manner. 8. Applying language skills in real-world contexts: Learners will develop the abili to use English language skills in a variety of real-world contexts, such as in academic or professional settings, or in social situations. 9. Enhancing intercultural communication skills: Learners will develop the ability to communicate effectively with people from different cultures and background using English as a common language. 10. Developing lifelong learning skills: Through the study of English language, learners will develop an appreciation for the value of lifelong learning and the skills needed to continue learning and improving their language skills throughou their lives.
Indicative Contents المحتويات الإرشادية	The indicative contents for studying English language depend on the level and conte of the course, but some possible topics and areas of study include: 1. Grammar: The structure of English language, including parts of speech, senten structure, and verb tenses.

	2. Vocabulary: Building a range of vocabulary for different purposes, includi academic, professional, and social contexts. 3. Reading comprehension: Developing skills in reading and understanding differe types of texts, including fiction, non-fiction, and academic texts. 4. Writing skills: Developing skills in writing for different purposes, including academ essays, reports, letters, and emails. 5. Speaking and listening skills: Developing skills in listening to and understandi spoken English in different contexts, as well as expressing oneself fluently ar accurately in spoken English. 6. Pronunciation and intonation: Developing skills in pronunciation and intonation improve clarity and fluency in spoken English. 7. Idioms and colloquial expressions: Understanding and using common idioms ar colloquial expressions in English language. 8. Literature: Studying and analyzing works of literature in English, including poetr drama, and prose. 9. English for academic purposes: Developing skills in academic writing and researc including citing sources and writing research papers in English. 10. English for specific purposes: Developing skills in using English for specific purpose such as business, medicine, law, or engineering. 11. Cultural nuances: Understanding the cultural nuances of English-speaki countries, including customs, traditions, and social norms. 12. Critical thinking and analysis: Developing skills in analyzing and evaluating ide and arguments in English language texts, as well as expressing one's own ideas in clear and convincing manner. 13. Language skills for intercultural communication: Developing skills communicating effectively with people from different cultures and backgrounds, usi English as a common language.

	14. Test preparation: Preparing for English language proficiency tests, such as TOEF IELTS, or Cambridge English exams. 15. Language teaching and learning: Understanding the principles of language teachir and learning, including different teaching methods and techniques, as well strategies for language learning and self-study. 16. Linguistics: Studying the science of language, including the history ar development of the English language, as well as its structure and use in differe contexts. 17. Technology and language learning: Exploring the use of technology in langua learning and teaching, including online resources, digital tools, and language learnir apps. 18. Language and society: Examining the role of language in shaping culture ar society, including issues of language policy, language variation, and language change 19. English language proficiency for study abroad: Developing the language ski needed for studying and living in English-speaking countries, including academ writing, research, and communication in different contexts. 20. English language proficiency for international careers: Developing the langua skills needed for working in international contexts, including business communicatio negotiation, and presentation skills in English.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The learning and teaching strategies for English language depend on the level ar context of the course, but some effective strategies include: 1. Communicative language teaching: This approach emphasizes the use of English f communication, with a focus on real-life situations and tasks. Learners are encourage to speak and interact in English in order to develop their language proficiency. 2. Task-based learning: This approach involves learners in completing tasks in Englis such as writing an email, making a presentation, or having a conversation. The focus on using language in a purposeful way, rather than on learning grammar or vocabula in isolation.

3. Content-based instruction: This approach involves using English language texts ar materials as the basis for instruction in other subjects, such as science, social studie or literature. The focus is on developing both content knowledge and language ski simultaneously.

4. Grammar-translation method: This traditional approach involves focusing c grammar rules and vocabulary, and translating texts from the target language to th learner's native language. While this approach is less communicative, it can be usef for developing accuracy in grammar and vocabulary.

5. Communicative grammar teaching: This approach combines a focus on gramm with a communicative approach to language teaching. Learners are exposed grammar rules in context, and are encouraged to use them in real-life situations ar tasks.

6. Learning through games and activities: Games and activities can be an effective wa to engage learners in using English in a fun and interactive way. Examples includ language games, role-play activities, and language-based puzzles.

7. Peer learning and collaboration: Peer learning and collaboration can be an effecti way to develop language skills, as learners can practice speaking and listening to eac other, provide feedback, and learn from each other's strengths and weaknesses.

8. Technology-enhanced learning: Technology can be used to enhance languag learning, through online resources, digital tools, and language learning apps. These ca provide learners with additional opportunities for practice and feedback, as well access to authentic language materials.

9. Individualized instruction: Individualized instruction can be effective for learne with specific language needs or goals, as it allows for personalized feedback ar guidance. This can include one-on-one tutoring, online language courses, or self-stud programs.

10. Contextualized learning: Contextualized learning involves teaching language ski in the context of real-life situations and tasks, such as ordering food in a restaurant making a phone call. This approach can make language learning more meaningful ar relevant for learners.

11. Explicit instruction: Explicit instruction involves providing learners with cle explanations and examples of language rules and structures. This can be particular effective for learners who benefit from explicit instruction, such as those who are ne to the language or those who struggle with grammar.

	12. Authentic materials: Using authentic materials, such as newspaper articles, T shows, or podcasts, can provide learners with exposure to real-life language use ar help them develop their listening and reading skills. 13. Assessment and feedback: Regularassessment and feedback are important English language learning, as they help learners track their progress and identify are for improvement. Teachers can use a variety of assessment methods, such as test quizzes, or performance tasks, and provide learners with feedback on their languag skills and performance. 14. Multilingualism and multiculturalism: Recognizing and valuing learners' diver linguistic and cultural backgrounds can enhance language learning, as it promotes positive learning environment and encourages learners to use their own language ar culture as a resource in language learning. 15. Real-world exposure: Providing learners with opportunities to use English in rea world contexts, such as through community service, internships, or study abroa programs, can enhance language proficiency and help learners develop intercultur communication skills. 16. Motivation and engagement: Motivation and engagement are key factors language learning success. Teachers can use a variety of strategies to motivate ar engage learners, such as setting meaningful and achievable language goals, usir authentic materials or real-life situations, and providing positive feedback ar recognition. 17. Reflection and self-evaluation: Encouraging learners to reflect on their languag learning progress and evaluate their own language skills can help them become mo autonomous and self-directed learners. 18. Continuous professional development: Teachers and language instructors ca benefit from continuous professional development, such as attending workshop conferences, or training programs, to enhance their language teaching skills and kee up with new developments in language teaching and learning.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SSWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured USWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	13	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Simple past tense
Week 2	Past continuous
Week 3	past perfect tense
Week 4	Simple present
Week 5	Present continuous tense
Week 6	Present perfect tense
Week 7	Simple future tense
Week 8	future continuous tense
Week 9	future perfect tense
Week 10	Grammar test
Week 11	punctuation marks
Week 12	Simple sentences
Week 13	Compound sentence
Week 14	Writing scripts
Week 15	pursuit exam
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:
Week 7	Lab 7:

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		Yes
Recommended Texts	New Headway_ Beginner A1_ Workbook	
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Static Fluid Mechanics			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	BEP231				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	NOOR HATEM		**e-mail**	eng.lect.noor@avicenna.uobasrah.edu.iq	
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**	Ph.D	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• **... خواص وسلوك الموائع :تعريف الطلبة بخصائص وسلوك الموائع، بما في ذلك (Fluid Statics)، جريان الموائع(Fluid Flow) ، اللزوجة(Viscosity) ، وضغط الموائع(Fluid Pressure) ، بالإضافة إلى قياس الضغط. الهدف هو تزويد الطلبة بأساس لفهم ميكانيك الموائع.** • **تحليل جريان الموائع :تنمية مهارات الطلبة في تحليل ظواهر جريان الموائع، توزيع الضغط، وتقنيات قياس التدفق. الهدف هو تمكينهم من تحليل وتصميم الأنظمة والمكونات المائعة.** • **قوانين الحفظ في ميكانيكك الموائع :تعليم الطلبة قوانين الحفظ، بما في ذلك حفظ الكتلة، الزخم، والطاقة، وتطبيقها في حل مسائل جريان الموائع. الهدف هو تطوير قدرتهم على تحليل سلوك الموائع والتنبؤ بأداء الأنظمة.** • **قوى الموائع وتطبيقاتها :استكشاف قوى الموائع مثل الطفو (Buoyancy) والرفع (Lift)وتطبيقاتها في مختلف المجالات الهندسية. الهدف هو تزويد الطلبة بالمعرفة العملية والتطبيقات المتعلقة بميكانيك الموائع.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• • **اكتساب فهم شامل لخصائص الموائع** • **سلوك تدفق الموائع الساكنة** • **سلوك تدفق الموائع، اللزوجة، وضغط الموائع** • **قياس الضغط، ضغط السائل، ضغط السائل** • **قانون باسكال، الضغوط المطلقة والقياسية** • **قياس الضغط ـ المانومترات ـ الميكانيكية، المقاييس، السطح المغمور أفقيًا** • **السطح المغمور رأسيًا، مركز الطفو** • **أنواع توازن الأجسام العائمة**
Indicative Contents المحتويات الإرشادية	• **مقدمة في الظواهر البينية: طاقة السطح، التوتر السطحي، طاقة الواجهة للسطح البيني غاز/سائل، الواجهة ثلاثية الطور.** • • **توزيعات الضغط والسرعة: قانون باسكال، ارتفاع الضغط(pressure head) ، المانومترات، البيزومتر، المانومتر التفاضلي، المانومتر المقلوب، البارومتر، مقياس بوردون، القوى المؤثرة على الأسطح المنحنية المغمورة، اتزان أسطح الطفو، توزيع الضغط.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**لاستراتيجية الرئيسية التي سيتم اعتمادها في تقديم هذا المقرر هي تشجيع مشاركة الطلبة في مارين، مع العمل في الوقت نفسه على صقل وتوسيع مهاراتهم في التفكير النقدي. وسيتم تحقيق**

	ك من خلال المحاضرات، والدروس التفاعلية، والنظر في نوع من التجارب البسيطة التي تتضمن ض أنشطة أخذ العينات التي تثير اهتمام الطلبة. د الأساليب المعتمدة في هذا المقرر هو: راءة والتعلّم الذاتي. دريب والأنشطة خلال المحاضرة. إجابات المنزلية. راح بعض المواقع الإلكترونية للقراءة الإضافية. ناقشات وورش العمل

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15 اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	92	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	33	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	4	5% (5)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	5	20% (20)	Continuous	All
	Report	1	5% (5)	13	LO # 5, 8 and 10

Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
1 الأسبوع	الموائع في الجريان أنواع - الأساسية والمفاهيم مقدمة
2 الأسبوع	المائع حركة وصف
3 الأسبوع	اللزوجة على الضغط تأثير
4 الأسبوع	الشعرية والخاصية السطحي التوتر
5 الأسبوع	الضغط قياس
6 الأسبوع	والقياسية المطلقة الضغوط
7 الأسبوع	الفصل نصف امتحان
8 الأسبوع	المانومترات
9 الأسبوع	الأسطح على الهيدروستاتيكية القوى
10 الأسبوع	عموديًا المغمور السطح
11 الأسبوع	الطفو وقوة الطفو
12 الأسبوع	الطافية الأجسام اتزان أنواع
13 الأسبوع	(القسرية بالدوامة الجريان) المعجَّل المائع
14 الأسبوع	المنتظم بالتسارع الخطية الحركة
15 الأسبوع	الموائع حركيات (Kinematics of Fluids)
16 الأسبوع	النهائي الامتحان قبل التحضيري الأسبوع

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
الأسبوع 1	مختبر 1: خواص الموائع
الأسبوع 2	مختبر 2: التوتر السطحي
الأسبوع 3	مختبر 3: مقاييس الضغط والمعايرة بالوزن
الأسبوع 4	مختبر 4: الضغط الهيدروستاتيكي والمانومترات
الأسبوع 5	مختبر 5: مركز قوة الضغط
الأسبوع 6	مختبر 6: الأجسام الطافية

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	FLUID MECHANICS AND HYDRAULIC MACHINES	NO
Recommended Texts	White_Fluid_mechanics	NO
Websites	https://www.studocu.com/row/document/accra-institute-of-technology/hydrualics/fluid-mechanics-and-hydraulic-machines-b/11107930	

Course Description Form

13.Course Name:
Fundamentals of petroleum engineering
14.Course Code:
PEN20203
15.Semester / Year:
Year
16.Description Preparation Date:
2025
17.Available Attendance Forms:
Attendance
18.Number of Credit Hours (Total) / Number of Units (Total)
6/4
19. Course administrator's name (mention all, if more than one name) Name: heba ismaeel abdulmohsen Email: heba.i.addulmohsen@uoalkitab.edu.iq
20.Course Objectives

Course Objectives	• **Reservoir engineering** • **drilling engineering** • **Production engineering**

21.Teaching and Learning Strategies	
Strategy	Brainstorming

22. Course Structure

Week	**Hours**
1-3	9
3-5	
6-7	9
8-10	6
11-12	
13-14	9
15	6
	6
	3

23.Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc
24.Learning and Teaching Resources
Required textbooks (curricular books, if any)
Main references (sources)
Recommended books and references (scientific journals, reports...)
Electronic References, Websites

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Advanced Mathematics I**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP233**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Salam Abdulqader Falih		**e-mail**	Salam.abdulqader@uobasrah.edu.iq	
Module Leader's Acad. Title		lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		1/08/2024	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Calculus I	**Semester**	1
Co-requisites module	Calculus II	**Semester**	2

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims	**The course aims to;**

أهداف المادة الدراسية	1- Presenting vectors, vector-valued functions and their applications engineering. 2- Presenting partial derivatives and their applications in engineering. 3- Presenting multiple integrals and their applications in engineering.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**Knowledge and Understanding** 1- Studying vectors and use them to study the analytic geometry of space v their important applications in engineering. 2- Using partial differentiation in deriving different surface equations, rate change, optimization problem and estimation of change. 3- Studying and using multiple integral and their applications in Engineer such as determining areas, volumes, center of masses and moments of iner
Indicative Contents المحتويات الإرشادية	• Study the analytic geometry of space using vectors. Vectors provide sim ways to define equations for lines, planes, curves, and surfaces in space v their many important applications in science, engineering. **[20 hrs]** • Study partial derivatives for the functions of two or multiple variables, ch rules, directional derivatives and critical points. **[20 hrs]** • Study the multiple integrals in Cartesian and polar coordinates and a volume, centroid and moment of inertia calculations using multiple integr **[22 hrs]**

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Scientific and research skills are developed through teaching and learnir activities. Analysis and problem solving skills are further developed by mea of a set of problems prepared by the lecturers in small study groups and a assignments and report work submitted is evaluated and responded to.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ **15** اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem)	38	**Unstructured SWL (h/w)**	2.6

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 1, 2, 4, 5
	Assignments	2	10% (10)	6,12	LO # 1, 2, 4, 5
	Projects / HW.	2	10% (10)	6,12	All
	Report	1	10% (10)	13	LO # 3, 6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1,2,3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Vectors and the Geometry of Space, Component Form and Vector Algebra Operations, limi and continuity, derivatives.
Week 2	forms of a curve equation in space, parametric representation, unit tangent and normal vectors, curvature, radius of curvature, motion along a curve.

Week 3	Velocity, acceleration and speed, normal and tangential components of acceleration, the Do Product, Angle Between Vectors, orthogonal Vectors, work and Vector Projections,
Week 4	The Cross Product, Calculating the Cross Product as a determinant.
Week 5	Area of a Parallelogram and Torque, Lines and Planes in Space.
Week 6	Partial Derivatives, Limits and Continuity in Higher Dimensions.
Week 7	Partial Derivatives of a Function of Two and Three Variables Second-Order and higher Partial Derivatives.
Week 8	The Chain Rule, Directional Derivatives and Gradient Vectors, Tangent Planes and Differentials.
Week 9	Extreme Values and Saddle Points, optimization
Week 10	Double Integrals in Cartesian and Polar Form.
Week 11	Area by Double Integration
Week 12	Triple Integrals, Area.
Week 13	Volume, centroid and moment of inertia
Week 14	Triple Integrals in Cylindrical and Spherical Coordinates
Week 15	Triple Integrals in Cylindrical and Spherical Coordinates
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	

Week 4	
Week 5	
Week 6	
Week 7	
Week 8	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas' Calculus, George B. Thomas	Yes
Recommended Texts	Calculus , STANLEY I. CROSSMAN	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The structural geology course includes a study of the theories of the formation of continents, a study of primary and secondary terrestrial geological structures, and identification of the types of stresses that cause them. The course focuses on classifying the most important geological structures that qualify to contain oil and gas, such as folds, faults, and others. It also includes

a study of sedimentary environments, the emergence and migration of oil, and deals with the most important types of oil traps.

1. Teaching Institution	Basra University
2. University Department/Centre	Department of Petroleum Engineering
3. Course title/code	Structural Geology / ***PeE213***
4. Programme to which it contributes	Academic Program
5. Modes of Attendance offered	Electronic education
6. Semester/Year	1st Semester / Second Year
7. Number of hours tuition (total)	60 Hours
8. Date of production/revision of this specification	2021
9. Aims of the Course	
1. The student understands the concept of structural geology and its importance for petroleum engineering.	
2. The student learns the forces, stresses, and factors controlling the behavior of rock materials.	
3. Recognize the types of geological structures and explain the causes of their emergence and the stresses causing them.	
4. The student describes and classifies folds.	
5. The student describes and classifies faults.	
6. Recognize the types of oil traps resulting from the above geological structures.	

10· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1. Enable the student to obtain knowledge and understanding of the basic principles of earth sciences and their structures

A2. Enabling the student to obtain knowledge and understanding of how the earth originated.

A3. Identify the most important geological structures and environments of oil formation and the most prominent types of oil traps

A4. Teaching methods of calculating layer thicknesses from maps laboratory.

B. Subject-specific skills

B1. Scientific skills.

B2. Applied skills.

B3. Writing scientific reports.

B4. Gain the skill of geological and structural mapping.

Teaching and Learning Methods

1. Using a power point to clarify structures because the geology is an applied science that requires the use of images and graphics in two and three dimensions, and the use of the blackboard in the case of attendance.
2. Student participation in the processes of interpretation.
3. On the practical side, the exercises are re-implemented by the lecturer.
4. The student is asked to carry out the exercise under the direct supervision of the lecturer.
5. The student's work is evaluated and detailed notes are placed on his work so that he can avoid them in the future.

Assessment methods

1. Interaction within the lecture.
2. Homework and Reports.
3. Quizzes.
4. Semester and final exams.

C. Thinking Skills

C1. Attention: arouse students' attention by displaying the earth structure on the data show.

C2. Response: Monitoring the student's interaction with the material displayed on the data show.

C3. Attention: Follow up the interest of the student who interacted more with the presented material, by increasing this interaction with questions.

C4. Forming the competition method: by showing unclassified geological structures and asking students about them

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Modern technology is used to explain and solve various geology problems.

D2. Apply for tests carried out by local authorities, especially petroleum companies.

D3. Encouraging students to compete in applying for postgraduate studies.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Definition of structural geology	Structural Geology Its Definition and Important	theoretical + practical	Questions and discussion

2	4	Classification of Geological structures	Geological structures	theoretical + practical	Questions and discussion
3	4	The development and maturation of the earth	Geotectonic	theoretical + practical	Questions and discussion
4	4	The resulting structures after deformation	Rock Deformation	theoretical + practical	Questions and discussion+ quiz
5	4	Classification of Fold Structure	Fold Structure	theoretical + practical	Questions and discussion
6	4	Classification of Faults	Faults Structure	theoretical + practical	Questions and discussion
7	4	Recognition of Joints and Unconformities	Joints and Unconformities	theoretical + practical	Questions and discussion
8	4	Division of Sedimentary Environments	Sedimentary Environments	theoretical + practical	Questions and discussion
9	4	Identify sections of the continental environment	The continental environment	theoretical + practical	Questions and discussion
10	4	Identify sections of the transitional and marine environment	The transitional and marine environment	theoretical + practical	Questions and discussion+ quiz
11	4	How is petroleum made	Origin, source rocks of petroleum	theoretical + practical	Questions and discussion
12	4	Movement of petroleum throw formations	Migration of petroleum	theoretical + practical	Questions and discussion
13	4	Identify the meaning of Petroleum traps	Petroleum traps	theoretical + practical	Questions and discussion
14	4	Recognition the types of stratigraphic traps	Stratigraphic traps	theoretical + practical	Questions and discussion

15	4	Recognition the types of structural traps	Structural traps	theoretical + practical	Questions and discussion

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Fossen H (2010) Structural geology. Cambridge University Press, United States of America, p 457
Special requirements (include for example workshops, periodicals, IT software, websites)	http://www.geosci.usyd.edu.au/users/prey/Patrice_Intro_to_SG.pdf https://scholar.google.com/scholar?q=structural+geology+/Cambridge+University&hl=ar&as_sdt=0&as_vis=1&oi=scholart
Community-based facilities (include for example, guest Lectures, internship, field studies)	Hatcher RD (1995) Structual Geology: Principles, Concepts and Problems 2n Ed., Prentice-Hall, New Jersey, 525p

13. Admissions	
Pre-requisites	
Minimum number of students	

Maximum number of students	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Mechanics of Material**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP214**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	2		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Iman Ghazi Mohammed		**e-mail**	Eman.ghazi1995@gmail.com	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	

Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	11. To understand the concept of stresses and strains in centrally loaded bodies 12. Illustration of the effect of internal pressure on thin-walled cylinders 13. To understand the occurrence of thermal stresses when there is a temperature difference. 14. Clarification of the simple torsion theory and the resulting stresses. 15. Understand flange bolt coupling: design, function, and application in various engineering systems
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	12. Recognize how electricity works in electrical circuits. 13. List the various terms associated with electrical circuits. 14. Summarize what is meant by a basic electric circuit. 15. Discuss the reaction and involvement of atoms in electric circuits. 16. Describe electrical power, charge, and current. 17. Define Ohm's law. 18. Identify the basic circuit elements and their applications. 19. Discuss the operations of sinusoid and phasors in an electric circuit. 20. Discuss the various properties of resistors, capacitors, and inductors. 21. Explain the two Kirchoff's laws used in circuit analysis. 22. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents	Indicative content includes the following.

المحتويات الإرشادية	
	Part A - Circuit Theory DC circuits – Current and voltage definitions, Passive sign convention and circu elements, Combining resistive elements in series and parallel. Kirchhoff's laws ar Ohm's law. Anatomy of a circuit, Network reduction, Introduction to mesh and nod analysis. [15 hrs] AC circuits I – Time dependent signals, average and RMS values. Capacitance ar inductance, energy storage elements, simple AC steady-state sinusoidal analysis. [1 hrs] AC Circuits II - Phasor diagrams, definition of complex impedance, AC circuit analys with complex numbers. [10 hrs] RL, RC and RLC circuits - Frequency response of RLC circuits, simple filter and band-pa circuits, resonance and Q-factor, use of Bode plots, use of differential equations ar their solutions. Time response (natural and step responses). Introduction to secor order circuits. [15 hrs] Revision problem classes [6 hrs] Part B - Analogue Electronics Fundamentals Resistive networks, voltage and current sources, Thevenin and Norton equivale circuits, current and voltage division, input resistance, output resistance, coupling ar decoupling capacitors, maximum power transfer, RMS and power dissipation, curre limiting and over voltage protection. [15 hrs] Components and active devices – Components vs elements and circuit modeling, re and ideal elements. Introduction to sensors and actuators, self-generating modulating type sensors, simple circuit interfacing. [7 hrs]

	Diodes and Diode circuits – Diode characteristics and equations, ideal vs real. Sign conditioning, clamping and clipping, rectification and peak detection, photodiode LEDs, Zener diodes, voltage stabilization, voltage reference, power supplies. [15 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this modu is to encourage students' participation in the exercises, while at the same time refini and expanding their critical thinking skills. This will be achieved through classe interactive tutorials and by considering type of simple experiments involving son sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome

Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Difference between typical loading types
Week 2	Simple Stresses/Direct Stress
Week 3	Shear Stress, Bearing stress
Week 4	Simple Strain/Direct Strain, Poisson's Ratio, Shear Strain
Week 5	Thin Cylinder Under Internal Pressure/ Hoop or Circumferential Stress, Longitudinal Stress
Week 6	Thin Spherical Shell Under Internal Pressure
Week 7	Mid-term Exam
Week 8	Stress-Strain Diagrams, Elastic Materials-Hook's law, Modulus of elasticity-Young's Modulus
Week 9	Mechanical Properties, Ductile and Brittle Materials
Week 10	Thermal Stresses
Week 11	Thermal Stresses
Week 12	Simple Torsion Theory
Week 13	Composite Shafts
Week 14	Composite Shafts

Week 15	Flange Bolt Coupling
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to Agilent VEE and PSPICE
Week 2	Lab 2: Thévenin's / Norton's Theorem and Kirchhoff's Laws
Week 3	Lab 3: First-Order Transient Responses
Week 4	Lab 4: Second-Order Transient Responses
Week 5	Lab 5: Frequency Response of RC Circuits
Week 6	Lab 6: Frequency Response of RLC Circuits
Week 7	Lab 7: Filters

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in tl Library?**
Required Texts	Mechanics of Materials I By: E. J. HEARN	Yes
Recommended Texts	Strength of Materials - Ferdinand L. Singer and Andrew Pytel	No
Websites	https://www.mathonline.com	

Grading Scheme
مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors

	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Electrical Engineering Technology**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	BEP224				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Associate Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	

Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	16. To develop problem solving skills and understanding of circuit theory throug the application of techniques. 17. To understand voltage, current and power from a given circuit. 18. This course deals with the basic concept of electrical circuits. 19. This is the basic subject for all electrical and electronic circuits. 20. To understand Kirchhoff's current and voltage Laws problems. 21. To perform mesh and Nodal analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	23. Recognize how electricity works in electrical circuits. 24. List the various terms associated with electrical circuits. 25. Summarize what is meant by a basic electric circuit. 26. Discuss the reaction and involvement of atoms in electric circuits. 27. Describe electrical power, charge, and current. 28. Define Ohm's law. 29. Identify the basic circuit elements and their applications. 30. Discuss the operations of sinusoid and phasors in an electric circuit. 31. Discuss the various properties of resistors, capacitors, and inductors. 32. Explain the two Kirchoff's laws used in circuit analysis. 33. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Circuit Theory

DC circuits – Current and voltage definitions, Passive sign convention and circu elements, Combining resistive elements in series and parallel. Kirchhoff's laws ar Ohm's law. Anatomy of a circuit, Network reduction, Introduction to mesh and nod analysis. [15 hrs]

AC circuits I – Time dependent signals, average and RMS values. Capacitance ar inductance, energy storage elements, simple AC steady-state sinusoidal analysis. [1 hrs]

AC Circuits II - Phasor diagrams, definition of complex impedance, AC circuit analys with complex numbers. [10 hrs]

RL, RC and RLC circuits - Frequency response of RLC circuits, simple filter and band-pa circuits, resonance and Q-factor, use of Bode plots, use of differential equations ar their solutions. Time response (natural and step responses). Introduction to secor order circuits. [15 hrs]

Revision problem classes [6 hrs]

Part B - Analogue Electronics

Fundamentals

Resistive networks, voltage and current sources, Thevenin and Norton equivale circuits, current and voltage division, input resistance, output resistance, coupling ar decoupling capacitors, maximum power transfer, RMS and power dissipation, curre limiting and over voltage protection. [15 hrs]

Components and active devices – Components vs elements and circuit modeling, re and ideal elements. Introduction to sensors and actuators, self-generating modulating type sensors, simple circuit interfacing. [7 hrs]

Diodes and Diode circuits – Diode characteristics and equations, ideal vs real. Sign conditioning, clamping and clipping, rectification and peak detection, photodiode LEDs, Zener diodes, voltage stabilization, voltage reference, power supplies. [15 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Type something like: The main strategy that will be adopted in delivering this modu is to encourage students' participation in the exercises, while at the same time refini and expanding their critical thinking skills. This will be achieved through classe interactive tutorials and by considering type of simple experiments involving son sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
	Midterm Exam	2 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction - Difference between Circuit Theory and Field Theory
Week 2	Basics of Network Elements
Week 3	Resistance and Resistivity, Ohm's Law and Inductance, Capacitance
Week 4	Kirchhoff's Laws, Circuit Analysis - Nodal and Mesh
Week 5	Circuit Analysis - Nodal Theory Linearity and Superposition, Source Transformations, Thévenin and Norton Equivalents
Week 6	Circuit Analysis – Mesh Theory Review of Inductor and Capacitor as Circuit Elements, Source-free R and RC Circuits, Transient Response
Week 7	Mid-term Exam + Unit-Step Forcing, Forced Response, the RLC Circuit
Week 8	Circuit Analysis - Linearity and Superposition theory
Week 9	Circuit Analysis - Source Transformations theory, Thévenin and Norton Equivalents
Week 10	Circuit Analysis - Thévenin Theory
Week 11	Circuit Analysis - Norton Thory
Week 12	Introduction to AC circuits: Sinusoidal Forcing, Complex Forcing, Phasors, and Complex Impedance, Sinusoidal Steady State Response
Week 13	Introduction to AC circuits: R, L, C in series and in parallel connections
Week 14	Introduction to AC circuits: Average Power and RMS value
Week 15	Introduction to AC circuits: Network theory in AC circuits

Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education	Yes
Recommended Texts	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسة			
Module Title	**English Language 2**	**Module Delivery**	
Module Type	**Support or related learning activity**		
Module Code	**UOB202**		
ECTS Credits	**2**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
SSWL (hr/sem)	**33**		
USSWL (hr/sem)	**17**		
SWL (hr/sem)	**50**		

Module Level	2	**Semester of Delivery**	3
Administering Department	CE	**College**	GE
Module Leader	Khattab Ghazi Al-Ghrery	**e-mail**	k.alghrery@coeng.uobaghdad.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name		**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسة الأخرى			
Prerequisite module	GE03	**Semester**	2

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسة ونتائج التعلم والمحتات الإرشادة

Module Objectives أهداف المادة الدراس ة	1- The aim of this course is to empower students with the language and life 2- The integrated skills approach of the course develops the student's self- 3- succeed in professional and social encounters within an English-speaking 4- using language to express knowledge of Environment and health impacts
Module Learning Outcomes مخرجات التعلم للمادة الدراس ة	A1) Find and understand information about vocabulary, pronunciation, usage, and grammar in reference texts, online resources, and English language dictionaries, (A2) Develop conversational English skills necessary for becoming a contributing participant in small group activities, large group discussions, and oral presentations, (A3) Understand texts using effective learning strategies for reading and vocabulary building,
Indicative Contents المحتات الإرشاد ة	Speaking, reading and writing

Learning and Teaching Strategies

اس تراتجات التعلم والتعلم

Strategies	Lecture and classroom discussion

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدرا ي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدرا ي المنتظم للطالب أسبوعا	2
Unstructured SWL (h/sem) الحمل الدرا ي غي المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدرا ي غي المنتظم للطالب أسبوعا	1
Total SWL (h/sem) الحمل الدرا ي ال ي للطالب خلال الفصل	**50**		

Module Evaluation

تقيم المادة الدراسة

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	20% (20)	5, 10	1,2
	Assignments	2	10% (10)	2, 12	3,1
	Projects / Lab.	0	0	0	0
	Report	1	10% (10)	13	3,1
Summative assessment	Midterm Exam	2 hr	10% (10)	7	1,2
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Unit 1,2
Week 2	Unit 3,4
Week 3	Unit 5,6
Week 4	Unit 7
Week 5	Unit 8
Week 6	Unit 9
Week 7	Unit 10,11
Week 8	Unit 12,13
Week 9	Unit 14
Week 10	Essay Writing
Week 11	General discussion
Week 12	English for Specific Purposes
Week 13	English for Specific Purposes
Week 14	English for Specific Purposes
Week 15	English for Specific Purposes

Week 16	General discussions

Learning and Teaching Resources مصادر التعلم والتدرس

	Text	Available in the Library
Required Texts	(1) New Headway Plus [Pre-intermediate] by John and Liz Soars, Oxford: Oxford University Press (2006), (2) Modern scientific articles from the news related to the students' specialty, and (3) Internet links and videos related to the topics discussed in General English and English for Specific Purposes lectures.	No
Recommended Texts	Morphy,A.J (1983) English Grammar in use. Cambridge:CUP	No
Websites	https://yoast.com/the-passive-voice-what-is-it-and-how-to-avoid-it/ https://www.ego4u.com/en/cram-up/grammar/passive https://en.wikipedia.org/wiki/English_passive_voice https://www.grammarly.com/blog/verb-tenses/?gclid=CjwKCAiAgc-ABhA7EiwAjevj8Z8k1bheBN1ntkPThBC2aHSpRd_W9bqT5Q7ER	

Grading Scheme مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتا ز	90 - 100	Outstanding Performance
	B - Very Good	جد جدا	80 - 89	Above average with some errors
	C - Good	جد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Dynamic Fluid Mechanics**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP241**				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	NOOR HATEM		**e-mail**	eng.lect.noor@avicenna.uobasrah.edu.i	
Module Leader's Acad. Title	lecturer		**Module Leader's Qualification**	Ph.D	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Fluid flow analysis: develop students' skills in analyzing fluid flow phenomena, different types of heads (or energies) of a liquid In motion, Bernoulli's equation, including laminar and turbulent flow Fluid dynamics, pressure distribution, and flow measurement techniques. The aim is to enable them to analyze and design fluid systems and components. Conservation laws in fluid mechanics: teach students the conservation laws, including mass, momentum, and energy conservation, and their application in solving fluid flow problems. The aim is to develop their ability to analyze fluid flow behavior and predict system performance. In fluid mechanics: fluid flow through porous media is the manner in which fluids behave when flowing through a porous medium for example sponge or wood, or when filtering water using sand or another porous material. As commonly observed, some fluid flows through the media while some mass of the fluid is stored in the pores present in the media.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1-Fluid flow analysis: analyze and 2- Calculate fluid flow phenomena, including laminar and turbulen flow. 3- Flow rate, pressure distribution. 4- Flow measurement techniques. Understand the factors influencing fluid flow behavior. 5- Application of conservation laws: apply the principles of conservation of mass, momentum. 6- Energy to analyze and predict fluid flow behavior. 7- Pressure drop, and fluid forces in engineering systems. Practical applications of bernoulli's equation.

	8-Velocity distribution for turbulent flow in rough pipes flow through pipes. 9-Loss of head due to sudden contraction 10-Two phase flow – concepts and definitions 11-Power transmission through pipes 12-Fluid flow through porous media 13-Properties related to single phase flow 14-Hydraulic gradient and total energy lines 15-Loss of energy (or head) in pipes
Indicative Contents المحتويات الإرشادية	Flow in pipes, dimensional Analysis, laminar and turbulent flow, Rynold's number, boundary layers, pressure drop, friction losses, velocity distributions. Classical flow mechanics in porous media assumes that the mediur is homogenous, isotropic, and has an intergranular pore structure. I also assumes that the fluid is a Newtonian fluid, that the reservoir i isothermal, that the well is vertical, etc. Traditional flow issues in porous media often involve single-phase steady-state flow, multi-well interference, oil-water two-phase flow, natural gas flow, elasti energy-driven flow, oil-gas two-phase flow, and gas-water two-phase flow

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by

	considering type of simple experiments involving some sampling activities that are interesting to the students. One of the strategies for this course Reading and self-learning. • Training and activities during lecture. • HomeWorks. • Suggesting some websites for extra reading. • Discussions and workshops

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	92	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	33	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	4	5% (5)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	5	20% (20)	Continuous	All

	Report	1	5% (5)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and basic concepts Types of fluid flow
Week 2	Laminar and turbulent flows
Week 3	Types of flow lines
Week 4	Rate of flow or discharge
Week 5	Bernoulli's equation (conservation of energy)
Week 6	Practical applications of Bernoulli's equation
Week 7	Mid-term exam
Week 8	Loss of head due to friction in pipe flow–darcy equation
Week 9	Velocity distribution for turbulent flow in rough pipes
Week 10	Flow through pipes
Week 11	Loss of energy (or head) in pipes
Week 12	Two phase flow – concepts and definitions
Week 13	Classical flow mechanics in porous media
Week 14	Newtonian fluid
Week 15	Traditional flow in porous media
Week 16	Preparatory week before the final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Bernoulli´s Theorem Demonstration
Week 2	Lab 2: Flow meter measurement
Week 3	Lab 3: Pitot static tube
Week 4	Lab 4: Reynolds number
Week 5	Lab 5: Losses at Pipes and Fittings
Week 6	Lab 6: Darcy Law

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	FLUID MECHANICS AND HYDRAULIC MACHINES	NO
Recommended Texts	White_Fluid_mechanics	NO
Websites	https://www.studocu.com/row/document/accra-institute-of-technology/hydrualics/fluid-mechanics-and-hydraulic-machines-b/11107930	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	Computer Programming II	**Module Delivery**	
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	BEP226		
ECTS Credits	6		
SWL (hr/sem)	150 BEP226		

Module Level	1	**Semester of Delivery**	1
Administering Department	Type Dept. Code	**College**	Engineering
Module Leader	Rawan Saleh Ismeal	**e-mail**	Rawan.aldaneen@uobasrah.edu.iq
Module Leader's Acad. Title	Assistant Lecture	**Module Leader's Qualification**	Ms.C
Module Tutor	Rawan Saleh Ismeal	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	22. Provide the fundamentals of programming in MATLAB (a mathematical programming language for computation and visualization). 23. To develop skills to solve complex mathematical problems using computation. 24. To provide practice in applying these techniques to problems in petroleum engineer and other subjects 25. Create and solve different types of engineering application using Matlab.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	34. Recognize how programming works. 35. List the various terms associated with Matlab Coding. 36. Identify the basic circuit elements and their applications. 37. Implementing various type of functions. 38. Creating real life engineering application. .
Indicative Contents المحتويات الإرشادية	Indicative Content ● MATLAB fundamentals Students will learn basic operations in MATLAB, and implement various finite difference schemes to solve ODEs (primarily initial value problems) ● MATLAB ODE solvers for initial value problems Students will learn to use standard built-in solvers with MATLAB, We will apply thes solvers to initial value problems (and possibly delay differential equations). ● MATLAB application Creating real life engineering application using various subjects.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Theoyirtical Practical Delevering homework and coursework Quizes

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Matlab
Week 2	Environment
Week 3	Basic syntics
Week 4	Variables
Week 5	Operations in Matlab
Week 6	Loops in Matlab
Week 7	Conditions in Matlab
Week 8	Applying Examples
Week 9	Vecters and operation
Week 10	Matrix and Array
Week 11	Implementing Examples
Week 12	Function in Matlab
Week 13	Types of Functions in Matlab
Week 14	Plotting in Matlab
Week 15	3D plotting and applying examples
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Matlab and Environment
Week 2	Lab 2: Appling Variables + operations
Week 3	Lab 3: Loops in matlab
Week 4	Lab 4:Conditions in Matlab
Week 5	Lab 5: Vectors + matrix + array
Week 6	Lab 6: Functions
Week 7	Lab 7: 2D Plotting + 3D Plotting

Learning and Teaching Resources

سادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Matlab Tutorial	N0
Recommended Texts	Get Started with MATLAB	No
Websites	https://www.mathworks.com/help/matlab/getting-started-with-matlab.html https://www.mathworks.com/support/learn-with-matlab-tutorials.html https://www.tutorialspoint.com/matlab/index.htm	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automat rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Advanced Mathematics II**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**BEP243**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level		1	**Semester of Delivery**		1
Administering Department		Type Dept. Code	**College**	Type College Code	
Module Leader	Salam Abdulqader Falih		**e-mail**	Salam.abdulqader@uobasrah.edu.iq	
Module Leader's Acad. Title		lecturer	**Module Leader's Qualification**		Ph.D.

Module Tutor	Name (if available)	**e-mail**	E-mail
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	1/08/2024	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Calculus I	**Semester**	1
Co-requisites module	Calculus II	**Semester**	2

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	**The course aims to;** 4- Presenting First order differential equations. 5- Presenting Second order differential equations. 6- Presenting Higher order differential equations. 7- Presenting Sequences and Series and their applications in engineering. 8- Presenting Fourier series full range and half range and their applications engineering.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**Knowledge and Understanding** 4- Studying differential equations and their applications. 5- Studying Fourier series to solve different mathematical problems. 6- Studying different types of series and their applications in solving differ engineering and mathematical problem.
Indicative Contents المحتويات الإرشادية	• Study First order differential equations: linear differential equatic separable equations, exact equations, Bernoulli differential equations substitutions. **[10 hrs]** • Study Second order differential equations: Basic concepts, Real and disti roots, Complex roots, Repeated roots, Reduction of order, Homogene differential equations, undetermined coefficients, variation of parameters Fundamental sets of solution. **[14 hrs]**

	• Study Higher order differential equations: Linear homogenc Undetermined Coefficients and Variation parameter. **[6 hrs]** • Understanding the types of sequences and series and solve it in different wa **[20 hrs]** • How to solve Fourier series in different methods. **[12 hrs]**

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Scientific and research skills are developed through teaching and learnir activities. Analysis and problem solving skills are further developed by mea of a set of problems prepared by the lecturers in small study groups and a assignments and report work submitted is evaluated and responded to.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15 اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	62	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	38	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO # 1, 2, 4, 5
	Assignments	2	10% (10)	6,12	LO # 1, 2, 4, 5
	Projects / HW.	2	10% (10)	6,12	All
	Report	1	10% (10)	13	LO # 3, 6
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1,2,3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Study First order differential equations: linear differential equations, separable equations, exact equations, Bernoulli differential equations and substitutions.
Week 2	Study First order differential equations: Bernoulli differential equations and substitutions
Week 3	Study Second order differential equations: Basic concepts, Real and distinct roots, Complex roots, Repeated roots, Reduction of order.
Week 4	Study Second order differential equations: Homogeneous differential equations, undetermined coefficients, variation of parameters and Fundamental sets of solution
Week 5	Study Higher order differential equations: Linear homogenous, Undetermined Coefficients and Variation parameter.
Week 6	Studying Sequences and series: Basic series, Convergence and divergence of series
Week 7	Studying special series, Integral test, Comparison Test / limit comparison test.
Week 8	Studying special series, Integral test and comparison test / limit test.
Week 9	Studying Alternating series test, Absolute convergence.
Week 10	Studying Ratio test, Root test.
Week 11	Studying Power series and function and Tylor series.
Week 12	Studying Fourier Sine series (Half Range)
Week 13	Studying Fourier Cosine series (Half Range)
Week 14	Studying Fourier series (Full Range)
Week 15	Studying Fourier series (Full Range)
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Thomas' Calculus, George B. Thomas	Yes
Recommended Texts	Calculus , STANLEY I. CROSSMAN	No
Websites		

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

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TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The petroleum geology course includes studying the formation of oil reservoirs and the most important types of rocks that are qualified to store economic quantities of oil. It also includes a study of the basic characteristics of rock reservoirs (porosity and permeability). The course describes some methods of subsurface surveys , such as geophysical surveys, well logs, and a presentation of the most prominent rock formations and oil fields in Iraq..

1. Teaching Institution	Basra University
2. University Department/Centre	Department of Petroleum Engineering
3. Course title/code	Petroleum Geology / ***PeE223***
4. Programme to which it contributes	Academic Program
5. Modes of Attendance offered	Electronic education
6. Semester/Year	2nd Semester / Second Year
7. Number of hours tuition (total)	60 Hours
8. Date of production/revision of this specification	2021
9. Aims of the Course	
7. The student understands the concept of Petroleum geology and its importance for petroleum engineering.	
8. The student learns about the types of rocky reservoirs, their components and characteristics.	
9. Explanation of some important subsurface surveys in the field of petroleum engineering, such as geophysical methods and well logs.	
10. The student describes the most important types of rock formations found in Iraq.	
11. The student learns about the most important Iraqi oil fields and their advantages.	

10· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1. Enable the student to obtain knowledge and understanding of the basic principles of petroleum geology.

A2. Enabling the student to obtain knowledge and understanding of how oil arises and collects and types of oil reservoirs.

A3. Enable the student to obtain knowledge of the methods used in the exploration of oil and minerals.

A4. Teaching methods of calculating the drawing of the visible layers after drilling wells from the maps in the laboratory.

B. Subject-specific skills

B1. Scientific skills .

B2. Applied skills.

B3. Writing scientific reports.

B4. Gain the skill of geological and structural mapping.

Teaching and Learning Methods

6. Using a power point to clarify structures because the geology is an applied science that requires the use of images and graphics in two and three dimensions, and the use of the blackboard in the case of attendance.
7. Student participation in the processes of interpretation.
8. On the practical side, the exercises are re-implemented by the lecturer.
9. The student is asked to carry out the exercise under the direct supervision of the lecturer.
10. The student's work is evaluated and detailed notes are placed on his work so that he can avoid them in the future.

Assessment methods

5. Interaction within the lecture.
6. Homework and Reports.
7. Quizzes.
8. Semester and final exams.

C. Thinking Skills

C1. Attention: arouse students' attention by displaying the earth structure on the data show.

C2. Response: Monitoring the student's interaction with the material displayed on the data show.

C3. Attention: Follow up the interest of the student who interacted more with the presented material, by increasing this interaction with questions.

C4. Forming the competition method: by showing unclassified geological structures and asking students about them

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Modern technology is used to explain and solve various geology problems.

D2. Apply for tests carried out by local authorities, especially petroleum companies.

D3. Encouraging students to compete in applying for postgraduate studies.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Learn the meaning of the reservoir	Reservoir	theoretical + practical	Questions and discussion

2	4	Studying the types of reservoirs	Types of the reservoir	theoretical + practical	Questions and discussion
3	4	Distinguishing the physical properties of reservoirs	Physical characteristics of a reservoir	theoretical + practical	Questions and discussion
4	4	Comparison between effective porosity and total porosity	Porosity of the rocks	theoretical + practical	Questions and discussion+ quiz
5	4	Effect of rock characteristics on increasing or decreasing porosity	Factors affecting the porosity	theoretical + practical	Questions and discussion
6	4	The effect on the characteristics of the rock permeability	Permeability of the rocks	theoretical + practical	Questions and discussion
7	4	Examples of variations in permeability and porosity	Examples of variations in permeability and porosity	theoretical + practical	Questions and discussion
8	4	Studying the Geophysical Surveys	Exploration and Mapping Techniques	theoretical + practical	Questions and discussion
9	4	Identification of the well logs	The well logs	theoretical + practical	Questions and discussion
10	4	Studying the Types of well logs	Types of well logs	theoretical + practical	Questions and discussion+ quiz
11	4	Studying the Types of well logs	Types of well logs	theoretical + practical	Questions and discussion
12	4	Viewing the most important rock formations in southern Iraq	Southern Iraq formations	theoretical + practical	Questions and discussion

13	4	Viewing the most important rock formations in southern Iraq	Southern Iraq formations	theoretical + practical	Questions and discussion
14	4	Viewing The most important oil fields in Iraq	The most important oil fields in Iraq	theoretical + practical	Questions and discussion
15	4	Viewing The most important oil fields in Iraq	The most important oil fields in Iraq	theoretical + practical	Questions and discussion

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Introduction to petroleum geology
Special requirements (include for example workshops, periodicals, IT software, websites)	https://www.sciencedirect.com/science/article/pii/B978044-506627000020 https://www.ou.edu/admissions/academics/earth-energy/petroleum-geology
Community-based facilities (include for example, guest Lectures, internship, field	Science Direct journal / Developments in petroleum Science

studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Petroleum Properties**			**Module Delivery**	
Module Type	**Basuc**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	BEP215				
ECTS Credits	**6**				
SWL (hr/sem)	150				
Module Level		1	**Semester of Delivery**		1
Administering Department		Basra university	**College**	Petroleum department	
Module Leader	Name		**e-mail**	E-mail	

Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr.Basim A. Abdul Hayi	**e-mail**	Basim.11@yahoo.com
Peer Reviewer Name	Name	**e-mail**	E-mail
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	26. The objective of this course is to introduce students to fundamental petroleum analytical. 27. Study the history and origin of petroleum science which enables students to focus on the study petroleum theories and formation. 28. This course deals with the basic concept of petroleum properties. 29. These matters allow the students to assess what could be achieved through working when they are using it to solve problems in science and engineering 30. The course exposes students to the analytical petroleum chemistry and measurement petroleum properties and the necessary apparatus libraries to learn different applications. 31. Upon completion of this course the students are expected to become proficient in petroleum properties.
Module Learning Outcomes	39. Summarize the history and origin petroleum. 40. Study the theories of origin petroleum. 41. Summarize the analytical petroleum chemistry. 42. Discuss the measurement petroleum properties.

مخرجات التعلم للمادة الدراسية	43. Describe petroleum properties with different API. 44. Identify the basic applications with different prices. 45. Discuss the apparatus libraries to learn different applications.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A - Petroleum Theory Origin Theories – organic and inorganic theories and hypothesis definitions, supported theories, study ultimate analysis, Evidences for organic origin of petroleum, Define and Chemical Composition Petroleum What the Structure of Petroleum. [15 hrs] Petroleum Properties I – Many Various Crude Oil Types, Conventional Crudes ar Unconventional Crudes. The API gravity is used to classify oils as light, medium, heav or extra heavy, Classification Crude Oil, Relationship between density and chemic composition, Coefficient Expansion. [15 hrs] Petroleum Properties II – ASPHALTS Origins, properties (Penetration and softening point) manufacture and use, Historical Background, Sources and Manufacture of Asphalt, Composition and Structure of Asphalt, Chemical of asphalt, Method of separation asphalt, Manners of manufacturing asphalt in Iraq, Testing of asphalt. [10 hrs] Viscosity-Molecular weight, - Fluids Viscosity – relationship, Types of viscosit Viscosity Measurements, Effects of temperature, Relationship between viscosity ar temperature, Viscosity index Dean & Davis Scale, Molecular Weight. [15 hrs] Revision problem classes [6 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this modu is to encourage students' participation in the exercises, while at the same time refini and expanding their critical thinking skills. This will be achieved through classe

	interactive tutorials and by considering type of simple experiments involving son sampling activities that are interesting to the students.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and origin of petroleum
Week 2	Introduction of Chemistry of petroleum
Week 3	Classification of crude oil.
Week 4	Density, s.g, API and coefficient of expansion
Week 5	Viscosity molecular weight
Week 6	Specific heat latent heat
Week 7	Sulfur content aniline point
Week 8	Penetration softening point
Week 9	Crude oil evaluation
Week 10	Fractional distillation
Week 11	Analysis of fraction
Week 12	Dehydration of crude oil
Week 13	Natural gas property
Week 14	Oil field water properties
Week 15	Heat of combustion
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Petroleum properties

Week 2	Lab 2: Measuring density and API
Week 3	Lab 3:Flash and Fire
Week 4	Lab 4: viscosity of oil
Week 5	Lab 5: Asphalt study
Week 6	Lab 6: Cloud and pour point
Week 7	Lab 7: Aniline point

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Fundamental of petroleum property	Yes
Recommended Texts	Chemistry of crude oil.	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسة

Module Information
معلومات المادة الدراسة

Module Title	**الديمقراطية وحقوق الانسان** **Democracy and Human Rights**	**Module Delivery**
Module Type	**Basic learning activities**	☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	**UOB104**	
ECTS Credits	**2**	
SSWL (hr/sem)	**33**	
USSWL (hr/sem)	**17**	
SWL (hr/sem)	**50**	

Module Level	1	**Semester of Delivery**	1
Administering Department	CE	**College**	GE
Module Leader	Hayder Zuhair Jasim	**e-mail**	h.alwaeli@uobaghdad.coeng.edu.iq
Module Leader's Acad. Title	Assist. Professor	**Module Leader's Qualification**	Ph.D.

Module Tutor	Hayder Zuhair Jasim	**e-mail**	h.alwaeli@uobaghdad.coeng.edu.iq
Peer Reviewer Name	None	**e-mail**	none
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules العلاقة مع المواد الدراسة الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسة ونتائج التعلم والمحتات الإرشادة

Module Objectives
أهداف المادة الدراس ة

1. للتعف بالدمقراطة وشأتها وما المقصود بحقوق الاسان وكفة ممارستها.
2. مقارنة ي نبن النظم الدمقراطة وم ا توفرها الدمقراطة من اجل ممارسة حقو ق الاسان بحة دون قيود.
3. التعف بخصائص وسمات حقوق الاسان.
4. توضيح الوثائق الدولة والمنظمات الدولة ت يالئ ارست مبادئ حقوق الاسان.
5. التعرف ع النظم الانتخابة ال ت يئ تمارسها الدول ن ي اختار الحكومات الدمقراطة.
6. التعرف ع القوان ي نن الدولة ال ت يئ تح ي وتضمن ممارسة حقوق الاسان ن ي المجتمعات كافة.
7. المقارنة ب ي نن النظم الدمقراطة والنظم الدكتاتورة ن ي تطبيق وممارسة حقوق الاسان
8. تعف ما حقوق المرأة وتوضيح المقصود بالتعاش السل ي.

Module Learning Outcomes مخرجات التعلم للمادة الدراس ؛	1. ي حقوق الاسان. فهم ما تع نيئ الدمقراطة وما 2. جعل الطالب درك اهمة الساق التار ن ي وكف تطورت الممارسات الشعبة من اجل ارساء نظام 3. ي كفل المساواة نيي الحقوق والال ت نامات . حكم دمقرا 4. معرفة الطالب بحقوقه الاساسة ال تيئ مكن ان مارسها بحة ، والال ت نامات ال تيئ جب عله 5. ي. اتباعها دون المساس بالنظام الدمقرا 6. ي نالقوانن الدولة والدستور العرا تي . ارشاد الطالب ا ممارسة حقوقه حسب 7. تعلم الطالب كفة ممارسة حقه نيي الانتخابات حسب نع النظام المعتمد . 8. ي ودوره نيي حماة حقوق الاسان. جعل الطالب درك اهمة النظام الدمقرا 9. شحقوق الاسان نيي المجتمع . ضمان ظهور جل متعلم وا ي ساهم نيي المساواة نيي الحقوق ب ي نن الجنسي نن نيي مختلف الممارسات الدمقراطة دون تمي ن. الوصول ا تطبقات وممارسات مجتمعة تضمن التعاش السل ي نيي المجتمع الواحد .
Indicative Contents المحتات الإرشاد ة	الدمقراطة وحقوق الاسان تتكون هذه المفردات من مادت ي نن هما الدمقراطة وحقوق الاسان وهما حقل ي نن مختلف ي نن نيي المع نئ والاختصاص والتطبيق ، لن احدهما كمل الاخر كونهما من ضمن العلوم الاجتماعة لا سما حقل العلوم الساسة . فبدون النظام الدمقرا ي لا مكن ممارسة حقوق الاسان ولا يوجد لها ذكر اصلا ، وتكون مجهولة بالنسبة للمجتمعات ال تيئ تحكمها النظم الاستبدادة والاوتوقراطة تلك ال تيئ تقيد الحقوق والحات. (ساعة. 25لذلك ستحدد لمادة الدمقراطة) (ساعة . 25و ستحدد لحقوق الاسان)

Learning and Teaching Strategies
استتاتجات التعلم والتعلم

Strategies	1. شح مع نئ المفردات ال تيئ تتضمنها المادة من الاستاذ . 2. اعطاء دور للطلبة لممارسة حقوقهم نيي ابداء الرأي من دون تعصب واحتام الرأي الاخر. 3. تنظم ممارسات داخل القاعات لمحااة تجة انتخابة او تناول قضة معينة تحتاج وضع حلول مناسبة لها عن طق تقسم الطلبة ا مجموعات واعطاء ادوار لهم فيها. 4. عرض محتات فديو ساهم نيي ك الروتي نن نيي القاء المحا نة. 5. القام بارات مدانة لأبرز المنظمات الراعة لحقوق الاسان كاللجنة الدولة لحقوق الاسان وفع منظمة العفو الدولة نيي العراق والمفوضة العلا لحقوق الاسان ومؤسسات الدولة الاخرى. 6. نييداي والتطو ي نيي رعاة حقوق الاسان ك رعاة دور الايتام او دار كبار تكلف الطلبة بالعمل الم السن
	او دور المرأة، او المساهمة بفعالة مجتمعة توعة ....الخ هدفها ارساء مبدأ التكافل الاجتما ي والتعاش السل ي وتقة الاوا المجتمعة. . تكلف الطلبة بعمل تقر من اختاره من ضمن عدة مواضيع تعرض عليهم تكون قابلة للتطبيق نيي المجتمع او 7 تعالج حالة اسانة معينة.

Student Workload (SWL)

ي للطالب محسوب لـ ١٥ اسبوعا الحمل الدرا

Structured SWL (h/sem) ي المنتظم للطالب الحمل الدرا خلال الفصل	33	**Structured SWL (h/w)** ي المنتظم للطالب أسبوعا الحمل الدرا	2
Unstructured SWL (h/sem) ي غي المنتظم للطالب خلال الفصل الحمل الدرا	17	**Unstructured SWL (h/w)** ي غي المنتظم للطالب أسبوعا الحمل الدرا	1
Total SWL (h/sem) ي للطالب خلال الفصل ي ال الحمل الدرا	**50**		

Module Evaluation

تقيم المادة الدراسة

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	4, 11	LO# 1,2,3, 4
	Assignments	1	10% (10)	5, 12	LO# 4, 5 , 8 ,9
	Projects / Lab.	1	10% (10)		
	Report	1	10% (10)	12	LO# 8, 9
Summative assessment	**Midterm Exam**	**2hr**	**10% (10)**	8	1-9
	Final Exam	**3hr**	**50% (50)**	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبو ي النظري

	Material Covered
Week 1	مفهوم الدمقراطة والتطور التار ن ي لممارساتها ن ي حضارة وادي الرافدين وادي النل
Week 2	الدمقراطة ن ي الحضارات القدمة الاخرى
Week 3	الدمقراطة ن ي الاسلام والدانة المسحة
Week 4	انواع الدمقراطة
Week 5	الانتخاب ونظمه
Week 6	امتحا ن

Week 7	معنى حقوق الانسان وابرز خصائصه
Week 8	يساي والقانون الدو ي لحقوق الانسان التعف بالقانون الدو ي الا
Week 9	زارة مدانة
Week 10	مصادر القانون الدو ي لحقوق الانسان
Week 11	انواع حقوق الانسان والمواثيق الدولة لحقوق الاسا ن
Week 12	التجارب الحديثة لحقوق الانسان
Week 13	حقوق المرأة والتعاش السل ي
Week 14	المنظمات الرائدة لحقوق الانسان
Week 15	حقوق الانسان ي الدستور العرا ت ي
Week 16	امتحان

Learning and Teaching Resources
مصادر التعلم والتدرس

	Text	Available in the Library?
Required Texts	1- راض عز هادي، حقوق الاسان تطورها –مضامينها- حمايتها 2- مصادر متنوعة من الان ت نت	Yes
Recommended Texts	صالح جواد الاظم، ع ي غالب ي العاي، الانظمة الساسة، كلة القانون، بغداد، 2007 ، 2ط	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتا ز	90 - 100	Outstanding Performance
	B - Very Good	جد جدا	80 - 89	Above average with some errors
	C - Good	جد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mar of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT t condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automati rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	**Arabic Language**	**Module Delivery**
Module Type	**Basic learning activity**	☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**
Module Code	UOB101	
ECTS Credits	**2**	
SSWL (hr/sem)	**33**	
USSWL (hr/sem)	**17**	
SWL (hr/sem)	**50**	

Module Level	1	**Semester of Delivery**	2
Administering Department	CE	**College**	GE
Module Leader	صابرين علي حسين	**e-mail**	
Module Leader's Acad. Title	Asst. Lect.	**Module Leader's Qualification**	MS.c
Module Tutor	-	**e-mail**	-
Peer Reviewer Name	-	**e-mail**	-
Scientific Committee Approval Date	13/06/2023	**Version Number**	1.0

Relation with other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	العمل على النهوض باللغة العربية والمحافظة عليها من الخطأ 1. معرفة الطالب جمالية الأسلوب القرآني وإعجازه البلاغي ليكون النموذج الأمثل في الصياغة والتعبير 2. تنمية مهارات الطالب الإملائية 3. مساعدة الطالب على معرفة الطريقة الصحيحة في كتابة الاعداد وقراءتها وكتابة الهمزة بأنواعها 4. مراجعة قواعد اللغة العربية لتجنب وقوع الطالب في الغلط النحوي . 5. تنمية مهارات الطالب على تذوق جمال التعبير الأدبي ومحاكاة النصوص الجميلة في الكتابة 6. مساعدة الطالب على تمييز الأغلاط اللغوية الشائعة وإرشاده الى تصويبها 7. تنمية مهارة الحفظ والإلقاء 8.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	حب الطالب للغة العربية والاعتزاز بها 1. اكتساب الطالب القدرة على فهم الاعجاز اللغوي في النصوص القرآنية والإحساس بجمال يتها 2. معرفة الطالب طريقة التفريق بين أنواع الهمزة الأولية و المتوسطة والمنتهية والقدرة غلى كتابتها بالشكل الصحي دون الوقوع في الخطأ 3. قدرة الطالب على التفريق بين الظاء والضاد وعدم الوقوع في إشكالية الخلط بينهما 4. قدرة الطالب على الكتابة دون الوقوع في الخطأ الإملائي والنحوي 5. تمكن الطالب من قراءة النصوص الأدبية بلغة فصحى صحيحة ومضبوطة بالحركات 6. القدرة على التعبير الأدبي بلغة جميلة سليمة . 7. تمكن الطالب من معرفة أكثر من خمسين خطأ شائعا ومعرفة تصويبها. 8.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ٥١ اسبوع ا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)		1،2،3،4
	Assignments	1	10% (10)		5،6،7،8
	Seminar	1	10% (10)		All
	Report	1	10% (10)		All
Summative assessment	**Midterm Exam**	2hr	10% (10)		
	Final Exam	3hr	50% (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	درس بيان أهمية اللغة العربية بصورة عامة وأهميتها لطلاب غير الاختصاص
Week 2	أقسام الكلام والمعرب والمبني من الأسماء والأفعال
Week 3	المثنى والملحق به
Week 4	أنواع الجموع وما يلحق بها
Week 5	الأسماء الخمسة
Week 6	كتابة الأعداد
Week 7	الهمزة الأولية – همزتا القطع والوصل
Week 8	الهمزة المتوسطة والمنتهية
Week 9	الإعجاز اللغوي في القرآن الكريم نماذج وتطبيقات

Week 10	الأسماء الخمسة
Week 11	الأفعال الخمسة
Week 12	الأغلاط اللغوية الشائعة
Week 13	كتابة الظاء والضاد والتاء المربوطة والهاء
Week 14	درس التعبير ونماذج من أساليب أشهر الكتاب الأدبية
Week 15	قصيدة لشاعر قديم ولشاعر حديث
Week 16	التحضير للامتحان النهائي

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	النحو الواضح /علي الجارم لمسات بيانية/ فاضل السامرائي منهج اللغة العربية للأقسام غير الاختصاص	نعم
Recommended Texts	معجم الأخطاء اللغوية والنحوية الشائعة / خضر أبو العينين معاني النحو / فاضل السامرائي الأعمال الشعرية الكاملة /نازك الملائكة / المعلقات	نعم
Websites	https://ketabpedia.com	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

1. Course Name:	
Drilling Engineering I	
2. Course Code:	
PeE313	
3. Semester / Year:	
1st Semester / 3rd Year	
4. Description Preparation Date:	
1/9/2024	
5. Available Attendance Forms:	
In Person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours Theory / 30 Hours Lab / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ethar Hisham Khalil Email: ethar.khalil@uobasrah.edu.iq	
8. Email: Course Objectives	
Course Objectives	• The student understands the concept of drilling engineering and its importance to petroleum engineering. • The student becomes familiar with drilling systems, their components, and characteristics. • Knowledge of the types of drilling fluids and their significance in the oil well drilling process. • The student describes the main types of rock formations encountered in Iraqi fields. • The student becomes familiar with the major Iraqi oil fields, their characteristics, and drilling challenges.
9. Teaching and Learning Strategies	
Strategy	**Direct Theoretical Lectures:** Simplifying fundamental concepts (drilling phases, rig components, well pressures). **Practical Learning:** Using drilling laboratories and drill simulators for training on real-life situations.

	Case Studies: Analyzing real incidents (kick/blowout) and linking them to preventive measures. **Group Projects:** Preparing reports or presentations on modern techniques (e.g., directional drilling). **Field Visits:** To drilling sites to strengthen the practical aspect. **Use of Technology:** Employing specialized software (Landmark, WellPlan) for pressure calculations and well path design. **Problem-Based Learning:** Presenting operational scenarios for students to propose solutions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Rig System	Introduction to Drilling Engineering and Rig Systems	Lecture and Tutorial	Brain Storming and Discussion
2	4	Calculate volumes of sections	Wellbore Sections	Lecture and Tutorial	Brain Storming and Discussion
3	4	Draw the well section in a detailed schematic	Wellbore Schematic	Lecture and Tutorial	Brain Storming and Discussion
4	4	Wellbore Section Volumes	Using a Software for drawing Schematics	Lecture and Tutorial	Brain Storming and Discussion and Quiz
5	4	Calculate the Hydrostatic Pressure	Hydrostatic Pressure	Lecture and Tutorial	Brain Storming and Discussion

6	4	Knowledge about the Challenges of Hydrostatic Pressure calculations	Challenges of Hydrostatic Pressure calculations	Lecture and Tutorial	Brain Storming and Discussion
7	4	Methods of Pore Pressure Estimation	Pore Pressure	Lecture and Tutorial	Brain Storming and Discussion
8	4	Methods of Overburden Estimation	Overburden	Lecture and Tutorial	Brain Storming and Discussion
9	4	Methods of Fracture Gradient Estimation	Fracture Gradient	Lecture and Tutorial	Brain Storming and Discussion
10	4	Types of Drilling Fluids	Drilling Fluids	Lecture and Tutorial	Brain Storming and Discussion and Quiz
11	4	Drilling Fluids Models	Drilling Fluids	Lecture and Tutorial	Brain Storming and Discussion
12	4	Drilling Fluid Functions	Drilling Fluids	Lecture and Tutorial	Brain Storming and Discussion
13	4	Kinds of Bits and bit selection criteria	Bits-I	Lecture and Tutorial	Brain Storming and Discussion

14	4	Evaluate the bit wear and its estimated life	Bits-II	Lecture and Tutorial	Brain Storming and Discussion
15	4	Fina Review and Exam	Intensive Review		Brain Storming and Discussion

11. Course Evaluation
Classroom interaction **Homework and reports** **Quizzes** **Midterm and final exams**

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Applied Drilling Engineering, By Bourgoyne et al.
Main references (sources)	Well Engineering & Construction, by Hussain Rabia
Recommended books and references (scientific journals, reports...)	Fundamental of Drilling Engineering, by Mitchel and Miska
Electronic References, Websites	1. PetroWiki: www.petrowiki.org 2. OnePetro: https://www.onepetro.org/

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Well Performance & Production**			**Module Delivery**	
Module Type	**Core**			☒ **Theory**	
Module Code	BEP322			☒ **Lecture**	
ECTS Credits	**8**			☐ **Lab**	
SWL (hr/sem)	**200**			☐ **Tutorial** ☒ **Practical** ☐ **Seminar**	
Module Level	3		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Dr. Ahmed N. Nimir Al Subeeh		**e-mail**	Ahmed_nimir@yahoo.com	
Module Leader's Acad. Title	Assistant Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Fundamental of Petroleum Engineering	**Semester**	
Co-requisites module	Static and Dynamic Fluid	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	32. To understand basic field production engineering operations. 33. This course deals with the basic concept of production engineering. 34. To understand completion, and well testing basics.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	46. Recognize types of well completion and how are conducted in field environment. 47. Various perforation methods are introduced to complete a well. 48. Summarize a stepwise procedure for a simple completion program. 49. Deals with method of well testing (drill stem test DST). 50. Identify the type of water or gas conning around the well and make a prima modification for oil production and well completion to prevent unsteady state conning. 51. Describe the reservoir near the well region according to well test outcomes. 52. Handling the mechanical stresses subjected to landing pipes through a well.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – well completion</u> Well completion definition and main operations. Types of well completion. Tools use in well completion. [20 hrs] <u>Part B – well perforation</u> Well perforation types and methods. Advantages and disadvantages of w perforation method. Problems used field data on perforation methods to complete well. [8 hrs] <u>Part C – conning types and problems</u>

	Conning definition and types. Water oil conning and gas oil conning are introduce Mayer and Gardenr and Pirson method and Chaney et.al method are introduced handle conning problems as primary knowledge. [12 hrs] Part D – well test A drill stem test DST method is studied in detail. The interpretation procedures are al introduced with application on several field problems. [12 hrs] Part E – helical buckling Definition of types of distortion and stresses affected the landing pipe through a we Helical buckling is concerned in more detail with field problems and calculations. hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main aim of this course to make the student familiar with basic introduction important field operation in petroleum production engineering such as completio conning problems, well testing, and helical buckling.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem)	-	**Unstructured SWL (h/w)**	-

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	60		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5% (5)	5, 10	-
	Assignments	2	5% (5)	2, 12	-
	Projects / Lab.	-	-	-	-
	Report	1	5% (5)	13	-
Summative assessment	**Midterm Exam**	2 hr	25% (25)	7	-
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction 01 – Petroleum production engineering - I
Week 2	Well completion – introduction and affecting factors on well completion operations
Week 3	Well completion –types and properties
Week 4	Well completion- completion fluids and tools
Week 5	Well completion – unconventional completion methods

Week 6	Perforation method – introduction and methods
Week 7	Perforation methods – application and problems
Week 8	Conning – introduction physical phenomena and types
Week 9	Conning – methods to handle water – oil – gas conning – Mayer Gardenr Pirson and Chaney Methods
Week 10	Conning – application and problems
Week 11	Well testing – introduction and theory
Week 12	Well testing – drill stem testing DST and tools used
Week 13	Well testing – DST application and problems
Week 14	Helical buckling - introduction
Week 15	Helical buckling – Application and problems
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Petroleum production engineering for third stage students By dr. Hazem H. Al Attar and Dr. Taleb R. Al Anee.	Yes
Recommended Texts	Introduction to petroleum production. By skinner D.R. vol. 2, gulf publishing Co.	No
Websites	https://spu.edu.sy	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Well Logging**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☒ **Practical** ☒ **Seminar**	
Module Code	**BEP312**				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level	3		**Semester of Delivery**	2	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Dr. Rafea ahmed abdullah		**e-mail**	Raf32005@yahoo.com	
Module Leader's Acad. Title			**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Well logging_1	**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Understand basic formation evaluation schemes for qualitative and quantitative determination of porosity and permeability of different reservc type (clastic and non-clastic reservoir)
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Identify reservoir quality 2. Identify which down-hole tools are used to measure key properties 3. Read well log field prints to identify tool types and parameters used 4. Interpret logs to identify potential reservoir intervals, lithology and porosity 5. Calculate reservoir porosity and permeability using different well logs 6. Incorporate FE data and results into routine geologic and engineering decisions
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main aim of this course to make the student familiar with different open hole lo and understand who to identify rock types and reservoir quality ba

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem)	60	**Structured SWL (h/w)**	4

الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	-	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	-
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	60		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	5% (5)	5, 10	-
	Assignments	2	5% (5)	2, 12	-
	Projects / Lab.	-	-	-	-
	Report	1	5% (5)	13	-
Summative assessment	**Midterm Exam**	2 hr	25% (25)	7	-
	Final Exam	2hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction – (Porosity well logs)
Week 2	Conventional Acoustic Tools
Week 3	Array Acoustic Tools

Week 4	Application, limitation, and correction for Sonic logs
Week 5	Sonic porosity calculation for clean and shaly reservoirs
Week 6	Density tool (Theoretical background)
Week 7	Density tool (Interpretation, application, and limitation)
Week 8	Density porosity calculation
Week 9	Neutron tool (Theoretical background)
Week 10	Neutron tool (Interpretation, application, and limitation)
Week 11	Neutron corrections
Week 12	Density-Neutron Interpretation
Week 13	Nuclear Magnetic Resonance Tool (NMR)
Week 14	NMR (Interpretation, application, and limitation)
Week 15	Permeability estimation from well logs
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Liu, H. (2017). *Principles and applications of well logging* (pp. 237-269). Berlin, Heidelberg: Springer Berlin Heidelberg	No
Recommended Texts	Asquith, G. B., Krygowski, D., & Gibson, C. R. (2004). *Basic well log analysis* (Vol. 16). Tulsa: American Association of Petroleum Geologists.	No
Recommended Texts	Dunn, K. J., Bergman, D. J., & LaTorraca, G. A. (Eds.). (2002). *Nuclear magnetic resonance: Petrophysical and logging applications*. Elsevier.	No
Websites		

1. Course Name: Well; logging	
2. Course Code:	
3. Semester / Year: First Semester 2024	
4. Description Preparation Date: September 10, 2025	
5. Available Attendance Forms: Daily attendance	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours/ 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Rafea Ahmed Abdullah Email: lec.rafea.ahmed@uobasrah.edu.iq	
8. Email: Course Objectives	
Course Objectives	• Providing petroleum engineering students with the theoretical knowledge and practical skills necessary to understand the principles and techniques of well logging, with a focus on explaining the operation, interpretation, and applications of caliper logs, various types of resistivity logs, and gamma ray logs. The aim is to utilize well logging results in petrophysical characterization and to enhance exploration and reservoir development processes. • In addition, the course covers: • Introducing well logging operations. • Explaining the concept of well logging and its importance in the oil and gas industry. • Familiarizing students with different types of logging tools and their roles in characterizing geological formations.

	• Describing the steps of conducting field logging operations and associated safety considerations. • Linking logging techniques to their applications in reservoir evaluation.

9. Teaching and Learning Strategies

Strategy	Detailed explanation by the course instructor. Self-learning and discussion sessions. Guiding students to selected resources and websites for better understanding and skill development. Conducting discussion sessions to explain and analyze specific problems and find solutions. Active interaction during the lecture. Homework assignments and reports.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	**Introduction**	**Introduction about the well logging and formation evaluation, Types of reservoirs and classification of the reservoir, and reservoir rocks and principle calculation**	theoretical	Questions and Discussion
Second	4	**convey the logging tools**	**different methods to convey the logging tools to the total depth and cable types**	theoretical	Questions and Discussion
Third	4	**Caliber tool**	**Caliber tools, principle, application, limitation, and interpretation**	theoretical	Questions, Discussion, and Quiz
Fourth	4	**Gamma Ray Tool**	**Normal gamma ray tools and spectral gamma ray tools**	Theoretical and practical	Questions and Discussion
Fifth	4	**Corrections of GR tools**	**Gamma ray corrections for open holes and cased holes and the tool limitation**	Theoretical and practical	Questions and Discussion
Sixth	4	**Calculation of volume of shale**	**Introduction to the volume of shale and different methods**	Theoretical and practical	Questions, Discussion, and Quiz

			to calculate shale volume		
Seventh	4	**Spontaneous potential**	**Spontaneous potential tools, principle of work**	Theoretical and practical	Questions and Discussion
Ninth	4	**Spontaneous potential interpretation**	**Spontaneous potential, application, limitation, and interpretation**	Theoretical and practical	Questions and Discussion
Ten	4	**Resistivity of formation water**	**Different methods to calculate resistivity of formation water**	Theoretical and practical	Questions, Discussion, and Quiz
Eleven	4	**Dual laterolog**	**Dual laterolog, principle of work, limitation, interpretation, and interpretation**	Theoretical and practical	Questions and Discussion
Twelve	4	**Dual indection**	**Dual Induction principle of work, limitation, interpretation, and interpretation**	Theoretical and practical	Questions and Discussion
Thirteen	4	**Array resistivity**	**Array resistivity, principle of work, limitation, interpretation, and interpretation**	Theoretical and practical	Questions and Discussion
Fourteen	4	**Micro Resistivity tool**	**Micro Resistivity principle of work, limitation, interpretation, and interpretation**	Theoretical and practical	Questions and Discussion
Fifteen	4	**Resistivity corrections**	**Corrections for different types of resistivity tools**	Theoretical and practical	Questions and Discussion

11. Course Evaluation	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Ellis, D. V., & Singer, J. M. (2007). *Well logging for earth scientists* (Vol. 692). Dordrecht: Springer. Ramesh, A. N. I. M. I. R. E. D. D. Y. (2016). *Well Logging Principles, Interpretation*

	and Applications (Doctoral dissertation, Dr. BR Ambedkar University). Asquith, G. B., Krygowski, D., & Gibson, C. R. (2004). *Basic well log analysis* (Vol. 16, pp. 305-371). Tulsa: American Association of Petroleum Geologists
Recommended books and references (scientific journals, reports...)	. Journal of Petroleum Research and Studies
Electronic References, Websites	

نموذج وصف المقرر

1. Course Name: Engineering Economics
2. Course Code:
3. Semester / Year: Third year / Second semester
4. Description Preparation Date: 2025
5. Available Attendance Forms: presence
6. Number of Credit Hours (Total) / Number of Units (Total)
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohammed Jawad Jumaa Email: mmjj165@yaho.com
8. Course Objectives

Course Objectives	• 1. Introduce students to the concepts of engineering economics and its importance. • 2. Enable students to understand the relationship between engineering economics and the requirements of the production process. • 3. Develop students' ability to analyze, plan, and improve manufacturing processes within an engineering economics framework. • 4. Link theoretical concepts with practical applications in factories and production workshops. • 5. Familiarize students with the fundamentals of quality control and its applications in engineering economics.

9. Teaching and Learning Strategies	
Strategy	1. Explanation and instruction through lectures.

	2. Presentation of course material using audiovisual equipment: data projectors, interactive whiteboards, and plasma screens. 3. Self-directed learning through homework assignments and small projects within the lectures. 4. Graduation projects. 5. Field trips and site visits. 6. Seminars held within the department. 7. Summer internships. Assessment Methods 1. Quizzes. 2. Homework assignments. 3. Midterm and final exams for theoretical and practical courses. 4. Small projects completed during class. 5. Class participation. 6. Reports.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1	2		Introduction to Engineering Economy	theoretical	
Week 2	2		Cost Concepts and Design Economics		
Week 3	2		Cost-Estimation Techniques		
Week 4	2		The Time Value of Money		
Week 5	2		Evaluating a Single Project		
Week 6	2		Comparison and Selection among Alternatives		
Week 7	2		Mid-term Exam		
Week 8	2		Depreciation and Income Taxes		
Week 9	2		Price Changes and Exchange Rates		
Week 10	2		Replacement Analysis		
Week 11	2		Evaluating Projects with the Benefit−Cost Ratio Method		
Week 12	2		Breakeven and Sensitivity Analysis		

Week 13	2		Probabilistic Risk Analysis		
Week 14	2		The Capital Budgeting Process		
Week 15	2		Decision Making Considering Multiattributes		

11. Course Evaluation

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Engineering Economics . william G. Sullivan
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Drilling Engineering II
2. Course Code:
PeE323
3. Semester / Year:
2nd Semester / 3rd Year
4. Description Preparation Date:
1/3/2025
5. Available Attendance Forms:
In Person
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours Theory / 30 Hours Lab / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ethar Hisham Khalil Email: ethar.khalil@uobasrah.edu.iq
8. Email: Course Objectives

Course Objectives	• The student understands the concept of drilling engineering and its importance to petroleum engineering. • The student becomes familiar with drilling systems, their components, and characteristics. • Knowledge of the types of drilling fluids and their significance in the oil well drilling process. • The student describes the main types of rock formations encountered in Iraqi fields. • The student becomes familiar with the major Iraqi oil fields, their characteristics, and drilling challenges.
9. Teaching and Learning Strategies	
Strategy	**Direct Theoretical Lectures:** Simplifying fundamental concepts (drilling phases, rig components, well pressures). **Practical Learning:** Using drilling laboratories and drill simulators for training on real-life situations. **Case Studies:** Analyzing real incidents (kick/blowout) and linking them to preventive measures.

	Group Projects: Preparing reports or presentations on modern techniques (e.g., directional drilling). **Field Visits:** To drilling sites to strengthen the practical aspect. **Use of Technology:** Employing specialized software (Landmark, WellPlan) for pressure calculations and well path design. **Problem-Based Learning:** Presenting operational scenarios for students to propose solutions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Wellbore Sections	Calculate volumes of sections	Lecture and Tutorial	Brain Storming and Discussion
2	4	Wellbore Schematic	Draw the well section in a detailed schematic	Lecture and Tutorial	Brain Storming and Discussion
3	4	Using a Software for Drawing Schematics	Wellbore section volumes	Lecture and Tutorial	Brain Storming and Discussion
4	4	Introduction to Casing	Understand the importance of casing, its types, and basic functions	Lecture and Tutorial	Brain Storming and Discussion and Quiz
5	4	Casing Design – Standards and Variables	Calculate casing thickness and select the appropriate material	Lecture and Tutorial	Brain Storming and Discussion
6	4	Special Considerations in Casing Design (Casing Setting Depth, Cement Support)	Link design to geology and subsurface pressures	Lecture and Tutorial	Brain Storming and Discussion
7	4	Introduction to Well Cementing	Learn about cement types, their specifications, and main functions	Lecture and Tutorial	Brain Storming and Discussion
8	4	Cement Preparation and Pumping Techniques	Explain the steps of the cementing process, slurry preparation, and pumping	Lecture and Tutorial	Brain Storming and Discussion

9	4	Cement Quality Evaluation (Cement Bond Log, Pressure Tests)	Use field tools to assess the bond between casing and formation	Lecture and Tutorial	Brain Storming and Discussion
10	4	Cementing Problems (Channeling, Micro-annulus, Gas Migration)	Analyze causes of cementing failures and propose solutions	Lecture and Tutorial	Brain Storming and Discussion and Quiz
11	4	Introduction to Well Control	Understand the concept of kick, blowout, and hydrostatic pressure controls	Lecture and Tutorial	Brain Storming and Discussion
12	4	Well Control Methods (Driller's Method, Wait & Weight)	Ability to calculate kill mud weight and apply control methods	Lecture and Tutorial	Brain Storming and Discussion
13	4	Applied Case Studies (Casing Failures, Cementing Problems, Well Control Incidents)	Analyze real problems and link them to design, execution, and safety	Lecture and Tutorial	Brain Storming and Discussion
14	4	Well Kicks Prevention Procedure	Best Practices to Avoid Well Kicks	Lecture and Tutorial	Brain Storming and Discussion
15	4	Intensive Review	Final Review and Exam	Lecture and Tutorial	Brain Storming and Discussion

11. Course Evaluation
Classroom interaction **Homework and reports** **Quizzes** **Midterm and final exams**

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Applied Drilling Engineering, By Bourgoyne et al.
Main references (sources)	Well Engineering & Construction, by Hussain Rabia
Recommended books and	Fundamental of Drilling Engineering, by Mitchel and Miska

references (scientific journals, reports...)	
Electronic References, Websites	1. PetroWiki: www.petrowiki.org 2. OnePetro: https://www.onepetro.org/

Course Description Form

١.سم المقرر
Petroleum Production Engineering
٢.مز المقرر
PE
٣.فصل / السنة
Second session/third year
٤.اريخ إعداد هذا الوصف
10/9/2025
٥. أشكال الحضور المتاحة
Attendance
٦. عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي)
100/3
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)
الاسم: Dr. Ahmad Kahim Jassim الآيميل ahmadkj1966@yahoo.com
٨. اهداف المقرر
1. Defining the students' concepts of oil production and its importance 2. Enable the student to understand the relationship between engineering and the requirements of the production process. 3. Developing the student's ability to analyze and develop manufacturing methods in the oil. 4. Linking theoretical concepts to practical applications in factories and production. 5. Learn about the foundations of quality and its applications in oil. 6. Develop systematic thinking in dealing with the problem of production
٩. استراتيجيات التعليم والتعلم

الاستراتيجية	1 - Explanation and recommendations during the lecture 2 - View scientific materials using projectors. 3 - Self-learning through assignments and small projects inside the class. 4 - Graduation projects. 5 - Scientific visits. 6 - Seminars held in the department. 7 - Summer training. Evaluation methods: 1. Quiz. 2. Homework. 3. Semester and final exams. 4. Interaction in the lecture. 5. Small projects within the lesson.

6. Reports.	

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع		طريقة التقييم

طريقة التقييم	طريقة التعليم	اسم الوحدة / أو الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
Questions and discussion	Theoretical	Introduction	Introduction for Petroleum Production Engineering	4	First
Questions, discussion and quiz	Theoretical	surface gathering system Component of a surface gathering system	Surface Gathering System for Oil and Gas	4	Second
Questions and discussion	Theoretical	Types of Surface Gathering System Challenges in Surface Gathering System	Surface Gathering System for Oil and Gas	4	Third
Questions, discussion and quiz	Theoretical	Type of Storage Tank	Oil Storage Tank	4	Fourth
Questions and discussion	Theoretical	Tank Roof Shape	Oil Storage Tank	4	Fifth
Questions and discussion	Theoretical	Accessories of Oil Storage Tanks	Oil Storage Tank	4	Sixth
Questions and discussion	Theoretical and tutorials	types of pumps	Pump Assisted Lift	4	Seventh
Questions, discussion and quiz	Theoretical and tutorials	Prime Mover Power Requirements	Pump Assisted Lift	4	Eighth
Questions and discussion	Theoretical and tutorials	Tutorial	Pump Assisted Lift	4	Ninth
Questions and discussion	Theoretical	Classified of separator	Separation of Oil, Gas and Water	4	Tenth
Questions and discussion	Theoretical	Classified of separator	Separation of Oil, Gas and Water	4	Eleventh
Questions and discussion	Theoretical and tutorials	Three Phase Oil-Water-Gas Separators	Separation of Oil, Gas and Water	4	Twelfth

Questions, discussion and quiz	Theoretical	Production Engineering	Presentations for different subject in Production	2	Thirteenth
Questions and discussion	Theoretical	Production Engineering	Presentations for different subject in Production	2	Fourteenth
Questions and discussion	Theoretical	Production Engineering	Presentations for different subject in Production	2	Fifteenth

١١. تقييم المقرر
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written and reporting exams.

١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	. Petroleum Production Engineering
المراجع الرئيسة (المصادر)	
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	
المراجع الإلكترونية ، مواقع الانترنيت	المواقع الالكترونية الرصينة مواقع المكتبات في الجامعات العالمية

Course Description Form

Course Description Form

1. Course Name: Well; logging	
2. Course Code:	
3. Semester / Year: Second Semester 2024	
4. Description Preparation Date: September 10, 2025	
5. Available Attendance Forms: Daily attendance	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hours/ 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Rafea Ahmed Abdullah Email: lec.rafea.ahmed@uobasrah.edu.iq	
8. Email: Course Objectives	
Course Objectives	• Providing petroleum engineering students with the theoretical knowledge and practical skills necessary to understand the principles and techniques of type of porosity, classification, different methods available to calculate the porosity. The aim is to utilize well logging results in petrophysical characterization and to enhance exploration and reservoir development processes. In addition, the course covers: • The principle of the work for each type of porosity tools such as (Acoustic, Density, Neutron, and Nuclear magnetic resonance) in addtion to the tool corrections, calibrations, applications, and limitations. •

9. Teaching and Learning Strategies	
Strategy	Detailed explanation by the course instructor. Self-learning and discussion sessions. Guiding students to selected resources and websites for better understanding and skill development. Conducting discussion sessions to explain and analyze specific problems and find solutions. Active interaction during the lecture. Homework assignments and reports.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	4	**Introduction**	**Introduction, Types of reservoir porosity and the factors effecting porosity**	theoretical	Questions and Discussion
Second	4	**Porosity measurement**	**Porosity measurement and determination**	theoretical	Questions and Discussion
Third	4	**Permeability**	**Reservoir permeability classification and estimation**	theoretical	Questions, Discussion, and Quiz
Fourth	4	**Acoustic tools**	**Principle of work of the normal Acoustic tools**	theoretical	Questions and Discussion
Fifth	4	**Array Acoustic tools**	**Principle of work of the Array Acoustic tools**	theoretical	Questions and Discussion
Sixth	4	**Sonic waves**	**Types of sonic waves and the applications of each of them**	theoretical	Questions, Discussion, and Quiz
Seventh	4	**Pore hole effects**	**Pore hole effects on the sonic tools**	theoretical	Questions and Discussion
Eight	4	**Calculation of sonic porosity**	**Sonic porosity calculations using Raymer-Hunt**	Theoretical and practical	Questions and Discussion
Ninth	4	**Calculation of sonic porosity**	**Sonic porosity calculations using Wyllie methods**	Theoretical and practical	Questions and Discussion
Ten	4	**Density tools**	**Density principle of work and applications**	Theoretical	Questions, Discussion, and Quiz

Eleven	4	**Neutron tools**	**Neutron logs, principle of work, applications, and limitations**	Theoretical	Questions and Discussion
Twelve	4	**Neutron tools**	**Corrections of neutron tools and porosity estimations**	Theoretical and practical	Questions and Discussion
Thirteen	4	**Density-Neutron**	**Porosity based on density-neutron and Neutron-Density logs responce**	Theoretical and practical	Questions and Discussion
Fourteen	4	**NMR**	**Nuclear Magnetic Resonance principle of work and limitations**	Theoretical	Questions and Discussion
Fifteen	4	**NMR**	**Nuclear Magnetic Resonance applications and porosity estimation**	Theoretical and practical	Questions and Discussion

11. Course Evaluation

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Ellis, D. V., & Singer, J. M. (2007). *Well logging for earth scientists* (Vol. 692). Dordrecht: Springer. Ramesh, A. N. I. M. I. R. E. D. D. Y. (2016). *Well Logging Principles, Interpretation and Applications* (Doctoral dissertation, Dr. BR Ambedkar University). Asquith, G. B., Krygowski, D., & Gibson, C. R. (2004). *Basic well log analysis* (Vol. 16, pp. 305-371). Tulsa: American Association of Petroleum Geologists
Recommended books and references (scientific journals, reports...)	. Journal of Petroleum Research and Studies
Electronic References, Websites	

Course Description Form

1. Course Name: Engineering Statistics	
2. Course Code:	
3. Semester / Year: Third year / Second semester	
4. Description Preparation Date: 2025	
5. Available Attendance Forms: presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mohammed Jawad Jumaa Email: mmjj165@yaho.com	
8. Course Objectives	
Course Objectives	• To present facts in a definite • To simplify complex data so as to make them understandable . • Statistics is technique of making comparison. • Statistics enlarges individual experience. • Statistics enables measurement of the magnitude of phenomenon. • Give an idea of probability and distributions
9. Teaching and Learning Strategies	
Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1			Introduction - The nature of statistics	theoretical	
Week 2			Statistics methodology		
Week 3			frequency distributions		
Week 4			The graphical representation of the data		
Week 5			Measures of Central Tendency, Mean, Median, Mode		
Week 6			Harmonic Mean, Quadratic Mean, Geometric Mean		
Week 7			Mid-term Exam		
Week 8			variance measures, Range, mean deviation, Quartile deviation		
Week 9			standard deviation, variance, dispersion coefficient, Skew ness and Kurtosis		
Week 10			Correlation analysis, Simple linear correlation coefficient, Rank Correlation Coefficient of Spearman		
Week 11			Regression analysis, Nonlinear Regression Models,		
Week 12			Qualitative Response Regression Models		
Week 13			Panel Data Regression Models		
Week 14			Dynamic Econometric Models: Autoregressive and Distributed-Lag Models		
Week 15			Simultaneous Equation Models		

11. Course Evaluation	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Probability and Statistics for Engineering and the Sciences, JAY DEVORE, Richard Stratton
Recommended books and references (scientific journals, reports...)	BASIC ECONOMETRICS Copyright Damodar N. Gujarati.2003 Mc Graw Hill,
Electronic References, Websites	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Pollution and Occupation safety**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	BEP316				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Professor Dr. Nayyef M. Azeez		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	35. Understanding Pollution: The module aims to provide a comprehensive understanding of different types of pollution, such as air, water, soil, and noise pollution. It explores the sources, causes, and effects of pollution on ecosystems, biodiversity, and human health. 36. Environmental Impact: The module aims to raise awareness about the adverse environmental consequences of pollution. It emphasizes the importance of preserving natural resources, protecting wildlife, and maintaining ecological balance. 37. Health Implications: The module aims to educate individuals about the healt risks associated with pollution. It covers topics such as respiratory diseases, waterborne illnesses, chemical exposures, and the long-term effects of pollution on human well-being. 38. Pollution Prevention and Control: The module aims to promote strategies and techniques for preventing and controlling pollution. It explores the concept of sustainable development, pollution control technologies, waste management practices, and the role of regulations and policies in pollution prevention. 39. Occupational Safety: The module aims to enhance understanding of workplace hazards and occupational safety measures. It focuses on identifying potential risks, implementing safety protocols, using personal protective equipment (PPE), and creating a safe working environment. 40. Regulatory Compliance: The module aims to familiarize individuals with relevant environmental and occupational safety regulations, standards, and guidelines. It emphasizes the importance of compliance with these regulations to protect both the environment and workers' health.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	53. Knowledge of Pollution: Students will acquire a comprehensive understanding of various types of pollution, their sources, causes, and effec on the environment and human health. 54. Awareness of Environmental Impact: Students will develop an awareness of the adverse consequences of pollution on ecosystems, biodiversity, and natural resources. They will understand the importance of preserving the environment and promoting sustainable practices. 55. Understanding of Health Implications: Students will grasp the health risks associated with pollution, including respiratory diseases, waterborne illnesses, and chemical exposures. They will recognize the long-term impact

	of pollution on human well-being. 56. Pollution Prevention and Control: Students will learn strategies and techniques for preventing and controlling pollution. They will gain knowledg of pollution control technologies, waste management practices, and the rol of regulations and policies in pollution prevention. 57. Occupational Safety Measures: Students will acquire knowledge of workplac hazards and the importance of occupational safety. They will understand th significance of risk assessment, safety protocols, personal protective equipment (PPE), and creating a safe working environment. 58. Compliance with Regulations: Students will become familiar with environmental and occupational safety regulations, standards, and guidelines. They will understand the importance of compliance and the role plays in protecting the environment and ensuring worker safety. 59. Risk Assessment and Management: Students will develop skills in identifying evaluating, and managing risks associated with pollution and occupational hazards. They will learn how to implement risk mitigation measures and create emergency response plans. 60. Responsible Behavior: Students will cultivate a sense of responsibility and accountability towards pollution prevention and occupational safety. They will be encouraged to adopt sustainable practices, reduce their ecological footprint, and prioritize safety in their personal and professional lives.
Indicative Contents المحتويات الإرشادية	1. Introduction to pollution and occupational safety. 2. Air, water, soil, and noise pollution. 3. Hazardous substances and chemical safety. 4. Occupational health and safety. 5. Environmental regulations and compliance. 6. Sustainable practices and pollution prevention. 7. Communication and education on pollution and safety.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. Lectures for introducing key concepts. 2. Case studies to illustrate practical applications. 3. Group discussions for critical thinking and problem-solving. 4. Field visits to observe real-world practices. 5. Simulations and role-playing for hands-on learning. 6. Multimedia resources for interactive experiences.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Pollution and Air Pollution
Week 2	Sources, Causes, and Health Effects of Air Pollution
Week 3	Control Measures and Regulations for Air Pollution
Week 4	Water Pollution and its Impacts
Week 5	Water Treatment and Pollution Prevention Techniques
Week 6	Soil Pollution and Remediation Methods
Week 7	Mid-term Exam
Week 8	Noise Pollution and Occupational Noise Exposure
Week 9	Effects of Noise Pollution and Noise Control Measures
Week 10	Hazardous Substances and Chemical Safety
Week 11	Occupational Health and Safety
Week 12	Workplace Hazards and Risk Assessment
Week 13	Environmental Regulations and Compliance
Week 14	Sustainable Practices and Pollution Prevention
Week 15	Communication and Education on Pollution and Safety
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts		No
Websites		

Grading Scheme

مخطط الدرجات

Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	**B -** Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarde
(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a ma of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automa rounding outlined above.

Course Description Form

1. Course Name:	
Drilling Engineering III	
2. Course Code:	
PeE413	
3. Semester / Year:	
1st Semester / 4th Year	
4. Description Preparation Date:	
1/9/2024	
5. Available Attendance Forms:	
In Person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours Theory / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ethar Hisham Khalil Email: ethar.khalil@uobasrah.edu.iq	
8. Email: Course Objectives	
Course Objectives	• The student understands the concept of drilling engineering and its importance to petroleum engineering. • The student becomes familiar with drilling systems, their components, and characteristics. • Knowledge of the types of drilling fluids and their significance in the oil well drilling process. • The student describes the main types of rock formations encountered in Iraqi fields. • The student becomes familiar with the major Iraqi oil fields, their characteristics, and drilling challenges.
9. Teaching and Learning Strategies	
Strategy	**Direct Theoretical Lectures:** Simplifying fundamental concepts (drilling phases, rig components, well pressures). **Practical Learning:** Using drilling laboratories and drill simulators for training on real-life situations. **Case Studies:** Analyzing real incidents (kick/blowout) and linking them to preventive measures.

	Group Projects: Preparing reports or presentations on modern techniques (e.g., directional drilling). **Field Visits:** To drilling sites to strengthen the practical aspect. **Use of Technology:** Employing specialized software (Landmark, WellPlan) for pressure calculations and well path design. **Problem-Based Learning:** Presenting operational scenarios for students to propose solutions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Hook Load Calculation	Drill Stem-I	Lecture and Tutorial	Brain Storming and Discussion
2	4	Advanced Hook Load Calculation	Drill Stem-II	Lecture and Tutorial	Brain Storming and Discussion
3	4	Buckling Types	Buckling Phenomenon	Lecture and Tutorial	Brain Storming and Discussion
4	4	How to avoid Buckling	Buckling Calculations	Lecture and Tutorial	Brain Storming and Discussion and Quiz
5	4	Pressure Losses Calculations	Drilling Hydraulics-I	Lecture and Tutorial	Brain Storming and Discussion
6	4	Pressure Losses Profile	Drilling Hydraulics-II	Lecture and Tutorial	Brain Storming and Discussion

7	4	Lifting Capacity and Hole Cleaning	Drilling Hydraulics-III	Lecture and Tutorial	Brain Storming and Discussion
8	4	Optimum Operating Parameters	Optimization	Lecture and Tutorial	Brain Storming and Discussion
9	4	Optimum Operating Parameters	Optimization	Lecture and Tutorial	Brain Storming and Discussion
10	4	Stuck Pipe	Hole Problems	Lecture and Tutorial	Brain Storming and Discussion and Quiz
11	4	Differential Sticking	Hole Problems	Lecture and Tutorial	Brain Storming and Discussion
12	4	Lost Circulation	Hole Problems	Lecture and Tutorial	Brain Storming and Discussion
13	4	Fishing Operation	Hole Problems	Lecture and Tutorial	Brain Storming and Discussion
14	4	Cost Effect of Non-Productive Time	Hole Problems	Lecture and Tutorial	Brain Storming and Discussion

15	4	Fina Review and Exam	Intensive Review		Brain Storming and Discussion

11. Course Evaluation
Classroom interaction **Homework and reports** **Quizzes** **Midterm and final exams**

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Applied Drilling Engineering, By Bourgoyne et al.
Main references (sources)	Well Engineering & Construction, by Hussain Rabia
Recommended books and references (scientific journals, reports...)	Fundamental of Drilling Engineering, by Mitchel and Miska
Electronic References, Websites	1. PetroWiki: www.petrowiki.org 2. OnePetro: https://www.onepetro.org/

Course Description Form

This course addresses restricted and unrestricted well production, including the effect of various parameters on well performance using the diffusivity equation. It includes the application of Horner solutions, analysis of skin factor effects on well testing, and evaluation of performance tests influenced by impermeable barriers in bounded reservoirs. The course also covers gas lift systems and stimulation operations such as acidizing and hydraulic fracturing. In addition to the well testing analysis (draw-down and buildup tests).

1. Course Name: **Petroleum Production Engineering**	
2. Course Code: **PeE424**	
3. Semester / Year: **2nd Semester / 4th Year**	
4. Description Preparation Date: **2025**	
5. Available Attendance Forms: **Daily attendance**	
6. Number of Credit Hours (Total) / Number of Units (Total) **Theoretical: 2 hrs/week** **Practical: 2 hrs/ week** **3 units**	
7. Course administrator's name (mention all, if more than one name)	
Name: Email:	
8. Email: Course Objectives	
Course Objectives	• Analyze restricted and unrestricted production behavior in oil wells. • Apply the diffusivity equation to evaluate well performance under various conditions. • Understand the application of Horner solutions in well test analysis. • Evaluate the impact of skin factor on production efficiency. • Analyze draw-down and buildup tests to assess reservoir and well behavior. • Understand gas lift systems and stimulation operations such as acidizing and hydraulic fracturing.

9. Teaching and Learning Strategies	
Strategy	• Classroom Lectures • Class Discussions • Independent Study and Reading Assignments • Problem-Solving Sessions • Student Presentations • Case Studies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Differentiate between restricted and unrestricted production.	Prediction of restricted and unrestricted production.	Lecture + Discussion	Quiz
2	4	To analyze the reservoir pressure	Derivation and solution of diffusivity equation.	Lecture + Examples	Assignment
3	4	Analyze the well test	Application of Horner's solution.	Lecture + Discussions	Assignment
4	4	Effect skin factor on production	Skin Factor	Lecture + Case study	Report
5	4	Well testing analysis	Principle of Superposition	Lecture + Field Case Study	Field Report
6	4	Well testing analysis	Bounded reservoirs	Lecture	Discussion

7	4	Oil recovery	Introduction of the Artificial Lift Methods	Lecture + Video	Quiz
8	4	Well analysis	Methods of the Well Testing	Lecture + Discussion	Report
9	4	Well evaluation	Build up Test	Data Analysis	Assignment
10	4	Well evaluation	Draw down Test	Lecture + Practical Example	Field Report
11	4	Well analysis	Field Data Analysis	Lecture + Discussion	Presentation
12	4	Well stimulation	Acidizing	Lecture + Examples	Quiz
13	4	Well stimulation	Hydraulic Fracturing	Lecture + Discussion	Presentation
14	4	Wellbore issues	Production Issues	Lecture + Discussion	Field case study

15	4		Final Review	Questions and Answers	Quiz

11. Course Evaluation
• In-class participation. • Homework and reports. • Quizzes. • Midterm and final exams.

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	1. Mukherjee, H. and Brill, J.P., 1999. Multiphase flow in wells. Society of Petroleum Engineers of AIME. 2. Guo, B., 2011. Petroleum production engineering, a computer-assisted approach. Elsevier. 3. Beggs, H.D., 2003. Production Optimization Using Nodal (TM) Analysis. Ogci. 4. Ahmed, T., 2018. Reservoir engineering handbook. Gulf professional publishing. 5. Economides, M.J., 2013. Petroleum production systems. Pearson education. 6. Brown, K.E., 1977. Technology of artificial lift methods. Volume 1. Inflow performance, multiphase flow in pipes, the flowing well. 7. Lee, J., 1982. Well testing. 8. Bourdarot, G., 1998. Well testing: Interpretation methods.
Recommended books and references (scientific journals, reports...)	• Reliable websites. • Library websites at some international universities.
Electronic References, Websites	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Secondary Oil Recovery			**Module Delivery**	
Module Type	Core			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	BEP414				
ECTS Credits	3				
SWL (hr/sem)	75				
Module Level			**Semester of Delivery**	2	
Administering Department	Type Dept. PE		**College**	Type College Code	
Module Leader	Ali Nooruldeen Abdulkareem		**e-mail**	Lec.ali.nooruldeen@uobasrah.edu.iq	
Module Leader's Acad. Title	Asst. Lecturer		**Module Leader's Qualification**	Ms.c.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Reservoir Engineering	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aim of a module for university students can generally be summarized a follows: Provide comprehensive knowledge and understanding of the subject matter. Develop critical thinking, research, and analytical skills. Apply theoretical knowledge to practical scenarios. Enhance communication skills, both oral and written. Foster independent learning and self-motivation. Encourage collaboration and teamwork. Assess student progress and provide feedback. Support personal and professional development. These aims aim to provide students with a well-rounded education and equ them with the necessary skills and knowledge to succeed academically ar professionally.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Knowledge and Understanding: Acquire a solid understanding of key concepts, theories, and principles within the subject area of the module. • Critical Thinking and Analysis: Develop the ability to critically evaluate and analyze information, arguments, and evidence related to the module's subject matter. • Practical Application: Apply theoretical knowledge to practical scenarios or real-world situations, employing appropriate methodologies and techniques.

	• Research Skills: Demonstrate proficiency in conducting research, including locating, evaluating, and synthesizing information from various sources. • Communication Skills: Effectively communicate ideas, concepts, and findings related to the module's subject matter, both orally and in writing. • Problem-Solving: Develop problem-solving skills by identifying and analyzing problems within the subject area and proposing appropriate solutions. • Collaboration and Teamwork: Engage in collaborative activities or projects, working effectively with peers to achieve common goals. • Ethical and Professional Behavior: Adhere to ethical standards and exhibit professional conduct within the subject area. • Self-Reflection and Lifelong Learning: Engage in self-reflection, identify areas for personal improvement, and demonstrate a commitment to lifelong learning. These learning outcomes provide students with a clear understanding of the expected knowledge, skills, and abilities they should gain upon completing th module
Indicative Contents المحتويات الإرشادية	These indicative contents provide a concise overview of the topics covered in module on Secondary Oil Recovery (SOR), including waterflooding, gas injection, thermal methods, tertiary recovery, optimization, monitoring, case studies, ethics, and assessment.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

	• Lectures and Presentations: Instructors deliver lectures to provic foundational knowledge of SOR principles. • Case Studies and Problem-Based Learning: Analyzing real-world cas and problem scenarios to apply SOR concepts. • Interactive Discussions: Facilitating discussions for active engageme and critical analysis of SOR approaches. • Practical Work and Simulations: Hands-on exercises and simulations understand SOR techniques. • Group Projects and Collaboration: Assigning group projects to fost teamwork and tackle SOR challenges. • Field Trips and Guest Speakers: Visiting oilfields or inviting experts provide real-world insights into SOR practices. • Multimedia and Visualization Tools: Using visual aids and tools enhance understanding of SOR processes. • Feedback and Assessment: Providing feedback and assessments monitor progress and understanding. • Independent Research and Literature Review: Encouraging independe research to explore SOR advancements. • Online Learning and Resources: Utilizing online platforms f supplementary materials and interactive learning. • These strategies support students in acquiring knowledge, applying SC techniques, engaging in critical analysis, and collaborating with peer ultimately preparing them for SOR challenges and developments

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	150	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	63
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem)	150		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to SOR Overview of SOR methods and their importance in oil recovery Discussion on the need for secondary recovery techniques
Week 2	Water flooding Techniques Buckley-Leverett method for water displacement Calculation of fractional flow and saturation profiles Analysis of water flooding efficiency using Welge and Stiles methods
Week 3	Gas Injection Techniques

	Immiscible gas injection (Tarner method) Estimating oil recovery through immiscible gas displacement Introduction to miscible gas injection (Muskat method)
Week 4	Thermal Recovery Methods Steam injection for thermal recovery Heat flow through rocks and its impact on oil viscosity In-situ combustion as a thermal recovery technique
Week 5	Tertiary Oil Recovery Surfactant flooding for enhanced oil recovery Solvent injection techniques and their application in SOR Polymer flooding to improve sweep efficiency • Quiz
Week 6	Optimization of SOR Methods Factors influencing the selection of SOR techniques Strategies for optimizing water flooding, gas injection, and thermal recovery Considerations for economic viability and reservoir characteristics
Week 7	Monitoring and Evaluation in SOR Importance of monitoring SOR operations Analysis of production data, pressure profiles, and fluid flow rates Evaluation of sweep efficiency and displacement efficiency
Week 8	Case Studies and Industry Practices in SOR Analysis of real-world SOR projects and their outcomes Examination of industry best practices and lessons learned
Week 9	Ethical and Environmental Considerations in SOR Discussion on ethical issues and responsibilities in SOR operations Considerations for sustainable practices and environmental impact assessment
Week 10	Review and Midterm Assessment
Week 11	Advanced Water flooding Techniques Numerical simulation methods for water flooding optimization

	Discussion on smart water injection and advanced reservoir engineering techniques
Week 12	Advanced Gas Injection Techniques Analysis of compositional simulation and reservoir modeling for gas injection Evaluation of nitrogen (N2) and carbon dioxide (CO2) injection strategies
Week 13	Advanced Thermal Recovery Methods Examination of steam-assisted gravity drainage (SAGD) and cyclic steam stimulatic (CSS) Review of in-situ combustion optimization techniques
Week 14	Emerging Technologies in SOR Overview of innovative technologies such as chemical flooding and nanoparticle-enhanced oil recovery Discussion on the future of SOR and potential advancements
Week 15	• Final Project and Exam Preparation • Completion of the project • Exam preparation and review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts		No
Websites		

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Gas Technology			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	Basic				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name :HAYFAA L.SWADI		**e-mail**	hyfaa.swadi@uobasrah.edu.iq	
Module Leader's Acad. Title	Lecture		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. To introduce and develop an understanding of the natural gas fundamental 2. Understanding the basic concepts of natural gas processing 3. Provide an insight to what is known as Gas to Liquids Technology 4. Provide practice at developing critical thinking skills, solving open ended Problems and to work in teams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Knowledge and Understanding. • Develop a deep understanding of issues related to the natural gas formation, resources, and properties • Familiarize students with the basic concepts of natural gas processing • Provide the students with the concepts and methods of design for the main gas processing units • Analyze the different processes comprising a typical gas processing plant • Apply the basic concepts of chemical engineering to design a certain gas treating unit.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1.Develop a deep understanding of issues related to the natural gas formatio resources, and properties 2.Familiarize students with the basic concepts of natural gas processing. 3. Provide the students with the concepts and methods of design for the ma gas processing units 4.Analyze the different processes comprising a typical gas processing plant. 5. Apply the basic concepts of chemical engineering to design a certain g treating unit.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering th module is to encourage students' participation in the exercises, while at th same time refining and expanding their critical thinking skills. This will b achieved through classes, interactive tutorials.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
	Midterm Exam	2 hr	10% (10)	7	LO # 1-7

Summative assessment	**Final Exam**	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Gaseous fuels, Natural gas fundamentals: Natural gas origin and composition, Ability to classify and identify the importance of gaseous fuels. Be familiar with natural gas origin and composition
Week 2	Be familiar with natural gas resources, phases behavior
Week 3	Ability to predict the physical properties of natural gas
Week 4	Understand the Natural gas process modules
Week 5	Processing objectives: Analyze the processing objectives Basic concepts of natural gas processing.
Week 6	Understand the principals of gravity separators and multistage separators Phase Separation Gravity and multistage separators
Week 7	Mid-term Exam
Week 8	Analyze the high efficiency liquid gas coalesces Phase Separation.
Week 9	Basics of stabilization processes :Ability to understand the basics of stabilization processes Condensates stabilization
Week 10	Fractionation Condensates :Ability to distinguish between flash vaporization and Stabilization by stabilization: Flash vaporization, fractionation
Week 11	Acid Gas Treating: Amine processes understand the fundamentals of the Amine processes and their design aspects

Week 12	Acid Gas Treating: Analyze the sulfur recovery processes sulfur recovery processes
Week 13	Natural Gas Dehydration: Glycol dehydration process Ability to understand the basics of Glycol dehydration process and its design aspects
Week 14	Ability to understand the basics of solid bed dehydration process and its design aspects Natural Gas Dehydration: Solid bed dehydration processes
Week 15	Understand the principals of NGLs recovery and separation Natural Gas Liquids Recovery and Ability to understand the Lignification and conversion of gas to liquids technologies LN and GTL Processes
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	o Lecturers Books o Arthur J Kidnay & W. R. Parrish "Fundamentals of Natural Gas Processing" (2006) Other support books o Saeid Mokhatab, W. A. Poe and James G. Speight," Handbook of Natural Gas Transmission and Processing" 2006. o Xiuli W. XGAS "Advanced Natural Gas Engineering" 2009.	Yes
Recommended Texts		No
Websites		

Course Description Form

This course focuses on understanding reservoir types and radial flow behavior in reservoirs, with an emphasis on the inflow performance relationship (IPR). It covers productivity index concepts, effects of stratification and water cut, and introduces key models such as Vogel, Fetkovich, and Al-Sadoon. Flow pattern analysis and mathematical and physical principles for pressure drop calculations are discussed, along with techniques such as Poettmann and Carpenter methods, Dukler method, working charts, and choke performance analysis.

1. Course Name: **Petroleum Production Engineering**	
2. Course Code: **PeE414**	
3. Semester / Year: **1st Semester / 4th Year**	
4. Description Preparation Date: **2025**	
5. Available Attendance Forms: **Daily attendance**	
6. Number of Credit Hours (Total) / Number of Units (Total) **Theoretical: 2 hrs/week** **Practical: 2 hrs/ week** **3 units**	
7. Course administrator's name (mention all, if more than one name)	
Name: Email:	
8. Email: Course Objectives	
Course Objectives	• Understand reservoir types and radial fluid flow behavior. • Analyze the inflow performance relationship (IPR) between reservoir pressure and production rate. • Apply productivity index tests and interpret their results. • Utilize Vogel, Fetkovich, and Al-Sadoon models for well performance analysis. • Calculate pressure drop using mathematical and physical principles. • Evaluate choke performance using theoretical analysis and working charts.

	• Distinguish between flow patterns and their impact on production efficiency.

9. Teaching and Learning Strategies	
Strategy	• Classroom Lectures • Class Discussions • Independent Study and Reading Assignments • Problem-Solving Sessions • Student Presentations • Case Studies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Petroleum production engineering	Introduction to Production Engineering	Lecture + Discussion	Quiz
2	4	Reservoir type s and flow mechanisms	Types of reservoirs and radial flow in reservoirs.	Lecture + Examples	Assignment
3	4	Well performance	Inflow performance relationship (IPR) and productivity index.	Lecture + Discussions	Assignment
4	4	Well performance	Effect of stratification and water cut on IPR.	Lecture + Case study	Report
5	4	Well performance	Productivity index test.	Lecture + Practice	Field Report

6	4	Well performance	Vogel method.	Lecture + Model Application	Quiz
7	4	Well performance	Standing's method.	Lecture + Data Analysis	Field test
8	4	Well performance	Fetkovich method.	Lecture + Data Analysis	Exercise
9	4	Well performance	Al-Saadoon method	Theoretical Lecture	Assignment
10	4	Estimate the pressure drop using mathematical models	Principles for pressure drop calculations.	Lecture + Math Examples	Quiz
11	4	Distinguish between flow regime in tubing	Flow Patterns Analysis	Lecture + Discussion	Presentation
12	4	Pressure analysis and optimization	Poettmann and Carpenter method.	Lecture + Discussion	Quiz
13	4	Pressure analysis and optimization	Dukler method	Lecture + Discussion	Presentation

14	4	Pressure analysis and optimization	Working Charts	Lecture + Data analysis	Field case study
15	4		Final Review	Questions and Answers	Quiz

11. Course Evaluation
• In-class participation. • Homework and reports. • Quizzes. • Midterm and final exams.

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	9. Mukherjee, H. and Brill, J.P., 1999. Multiphase flow in wells. Society of Petroleum Engineers of AIME. 10. Guo, B., 2011. Petroleum production engineering, a computer-assisted approach. Elsevier. 11. Beggs, H.D., 2003. Production Optimization Using Nodal (TM) Analysis. Ogci. 12. Ahmed, T., 2018. Reservoir engineering handbook. Gulf professional publishing. 13. Economides, M.J., 2013. Petroleum production systems. Pearson education.
Recommended books and references (scientific journals, reports...)	• Reliable websites. • Library websites at some international universities.
Electronic References, Websites	

وصف المقرر

١.سم المقرر
Reservoir Management
٢.مز المقرر
٣.فصل / السنة
First session/fourth year
٤.اريخ إعداد هذا الوصف
1/9/2025
٥. أشكال الحضور المتاحة
Attendance
٦. عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي)
100/3
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)
الاسم: Mustafa Kamil Al-Jasim الآيميل mustafakamil20172018@gmail.com
٨. اهداف المقرر
1. Understand Reservoir Characterization 2. Production forecasting and performance analysis 3. Develop skills in reservoir simulation 4. Formulate and evaluate field development plans 5. Utilities data analytics
٩. استراتيجيات التعليم والتعلم

الاستراتيجية	1 - Explanation and recommendations during the lecture 2 - View scientific materials using projectors. 3 - Self-learning through assignments and small projects inside the class. 4 - Graduation projects. 5 - Scientific visits. 6 - Seminars held in the department. 7 - Summer training. Evaluation methods: 1. Quiz. 2. Homework. 3. Semester and final exams. 4. Interaction in the lecture. 5. Small projects within the lesson. 6. Reports.

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم

طريقة التقييم	طريقة التعليم	اسم الوحدة / أو الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
Questions and discussion	Theoretical	Introduction	Introduction to reservoir management and reservoir engineering concepts	4	First
Questions, discussion and quiz	Theoretical	Subsurface data from geological and engineering sources	Integrated data from reports of Scal and RCA	4	Second
Questions and discussion	Theoretical	Subsurface data from geological and engineering sources	porosity and permeability correlation	4	Third
Questions, discussion and quiz	Theoretical	Subsurface data from geological and engineering sources	Averaging permeability and determination of water cutt off values	4	Fourth
Questions and discussion	Theoretical	Method of STOIIP determination	Traditional and simulation methods for oil in place calculation	4	Fifth
Questions and discussion	Theoretical	Fluid properties	PVT data analysis	4	Sixth
Questions and discussion	Theoretical and tutorials	Relative permeability analysis	Normalisation of core permeability data	4	Seventh
Questions, discussion and quiz	Theoretical and tutorials	Relative permeability analysis	**De-Normalisation of core permeability data**	4	Eighth
Questions and discussion	Theoretical and tutorials	Capillary pressure analysis	Averaging capillary pressure data	4	Ninth
Questions and discussion	Theoretical	Capillary pressure analysis	Averaging capillary pressure data	4	Tenth
Questions and discussion	Theoretical	Introduction to reservoir simulation	Types of data needed for simulator inputs	4	Eleventh

Questions and discussion	Theoretical and tutorials	Introduction to reservoir simulation	Types of data needed for simulator inputs	4	Twelfth
Questions, discussion and quiz	Theoretical	workshop and tutorial	workshop and tutorial	2	Thirteenth
Questions and discussion	Theoretical	workshop and tutorial	workshop and tutorial	2	Fourteenth
Questions and discussion	Theoretical	workshop and tutorial	workshop and tutorial	2	Fifteenth

١١. تقييم المقرر	
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written and reporting exams.	
١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	.
المراجع الرئيسة (المصادر)	
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	Advance reservoir management and engineering
المراجع الإلكترونية ، مواقع الانترنيت	المواقع الالكترونية الرصينة مواقع المكتبات في الجامعات العالمية

Course Description Form

This course addresses restricted and unrestricted well production, including the effect of various parameters on well performance using the diffusivity equation. It includes the application of Horner solutions, analysis of skin factor effects on well testing, and evaluation of performance tests influenced by impermeable barriers in bounded reservoirs. The course also covers gas lift systems and stimulation operations such as acidizing and hydraulic fracturing. In addition to the well testing analysis (draw-down and buildup tests).

1. Course Name: **Petroleum Production Engineering**	
2. Course Code: **PeE424**	
3. Semester / Year: **2nd Semester / 4th Year**	
4. Description Preparation Date: **2025**	
5. Available Attendance Forms: **Daily attendance**	
6. Number of Credit Hours (Total) / Number of Units (Total) **Theoretical: 2 hrs/week** **Practical: 2 hrs/ week** **3 units**	
7. Course administrator's name (mention all, if more than one name)	
Name: Email:	
8. Email: Course Objectives	
Course Objectives	• Analyze restricted and unrestricted production behavior in oil wells. • Apply the diffusivity equation to evaluate well performance under various conditions. • Understand the application of Horner solutions in well test analysis. • Evaluate the impact of skin factor on production efficiency. • Analyze draw-down and buildup tests to assess reservoir and well behavior. • Understand gas lift systems and stimulation operations such as acidizing and hydraulic fracturing.

9. Teaching and Learning Strategies	
Strategy	• Classroom Lectures • Class Discussions • Independent Study and Reading Assignments • Problem-Solving Sessions • Student Presentations • Case Studies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Differentiate between restricted and unrestricted production.	Prediction of restricted and unrestricted production.	Lecture + Discussion	Quiz
2	4	To analyze the reservoir pressure	Derivation and solution of diffusivity equation.	Lecture + Examples	Assignment
3	4	Analyze the well test	Application of Horner's solution.	Lecture + Discussions	Assignment
4	4	Effect skin factor on production	Skin Factor	Lecture + Case study	Report
5	4	Well testing analysis	Principle of Superposition	Lecture + Field Case Study	Field Report
6	4	Well testing analysis	Bounded reservoirs	Lecture	Discussion

7	4	Oil recovery	Introduction of the Artificial Lift Methods	Lecture + Video	Quiz
8	4	Well analysis	Methods of the Well Testing	Lecture + Discussion	Report
9	4	Well evaluation	Build up Test	Data Analysis	Assignment
10	4	Well evaluation	Draw down Test	Lecture + Practical Example	Field Report
11	4	Well analysis	Field Data Analysis	Lecture + Discussion	Presentation
12	4	Well stimulation	Acidizing	Lecture + Examples	Quiz
13	4	Well stimulation	Hydraulic Fracturing	Lecture + Discussion	Presentation
14	4	Wellbore issues	Production Issues	Lecture + Discussion	Field case study

15	4		Final Review	Questions and Answers	Quiz

11. Course Evaluation
• In-class participation. • Homework and reports. • Quizzes. • Midterm and final exams.

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	14. Mukherjee, H. and Brill, J.P., 1999. Multiphase flow in wells. Society of Petroleum Engineers of AIME. 15. Guo, B., 2011. Petroleum production engineering, a computer-assisted approach. Elsevier. 16. Beggs, H.D., 2003. Production Optimization Using Nodal (TM) Analysis. Ogci. 17. Ahmed, T., 2018. Reservoir engineering handbook. Gulf professional publishing. 18. Economides, M.J., 2013. Petroleum production systems. Pearson education. 19. Brown, K.E., 1977. Technology of artificial lift methods. Volume 1. Inflow performance, multiphase flow in pipes, the flowing well. 20. Lee, J., 1982. Well testing. 21. Bourdarot, G., 1998. Well testing: Interpretation methods.
Recommended books and references (scientific journals, reports...)	• Reliable websites. • Library websites at some international universities.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Drilling Engineering IV	
2. Course Code:	
PeE423	
3. Semester / Year:	
2nd Semester / 4th Year	
4. Description Preparation Date:	
1/2/2025	
5. Available Attendance Forms:	
In Person	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours Theory / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ethar Hisham Khalil Email: ethar.khalil@uobasrah.edu.iq	
8. Email: Course Objectives	
Course Objectives	• The student understands the concept of drilling engineering and its importance to petroleum engineering. • The student becomes familiar with drilling systems, their components, and characteristics. • Knowledge of the types of drilling fluids and their significance in the oil well drilling process. • The student describes the main types of rock formations encountered in Iraqi fields. • The student becomes familiar with the major Iraqi oil fields, their characteristics, and drilling challenges.
9. Teaching and Learning Strategies	
Strategy	**Direct Theoretical Lectures:** Simplifying fundamental concepts (drilling phases, rig components, well pressures). **Practical Learning:** Using drilling laboratories and drill simulators for training on real-life situations. **Case Studies:** Analyzing real incidents (kick/blowout) and linking them to preventive measures.

	Group Projects: Preparing reports or presentations on modern techniques (e.g., directional drilling). **Field Visits:** To drilling sites to strengthen the practical aspect. **Use of Technology:** Employing specialized software (Landmark, WellPlan) for pressure calculations and well path design. **Problem-Based Learning:** Presenting operational scenarios for students to propose solutions.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Introduction to Directional Drilling – Concept and Importance	Introduce the student to the concept of directional drilling and the reasons for its use	Lecture and Tutorial	Brain Storming and Discussion
2	4	Directional Drilling Applications – I	Analyze field applications such as multilateral wells	Lecture and Tutorial	Brain Storming and Discussion
3	4	Directional Drilling Applications – II	Analyze field applications such as sidetracking	Lecture and Tutorial	Brain Storming and Discussion
4	4	Directional Drilling Applications – III	Analyze field applications such as relief wells	Lecture and Tutorial	Brain Storming and Discussion and Quiz
5	4	Types of Directional Wells (J-Type, S-Type, Horizontal Wells)	Compare well trajectories and select the most suitable based on conditions	Lecture and Tutorial	Brain Storming and Discussion
6	4	BHA Design in Directional Drilling	Identify the components of BHA and their role in trajectory control	Lecture and Tutorial	Brain Storming and Discussion

7	4	Deflection Tools – Bent Sub	Explain the mechanism and application of bent sub	Lecture and Tutorial	Brain Storming and Discussion
8	4	Deflection Tools – Downhole Motors	Explain the mechanism and application of downhole motors	Lecture and Tutorial	Brain Storming and Discussion
9	4	Deflection Tools – RSS	Explain the mechanism and application of rotary steerable systems (RSS)	Lecture and Tutorial	Brain Storming and Discussion
10	4	Well Survey – Basic Principles	Learn about survey methods (Magnetic, Gyro, Inclinometer)	Lecture and Tutorial	Brain Storming and Discussion and Quiz
11	4	Survey Methods (Tangential, Balanced Tangential, MWD/LWD)	Distinguish between methods and evaluate their accuracy	Lecture and Tutorial	Brain Storming and Discussion
12	4	Dog Leg Severity (DLS) Calculation	Perform DLS calculations and assess its impact on design	Lecture and Tutorial	Brain Storming and Discussion
13	4	Deviation and Trajectory Control	Apply strategies to adjust well path during drilling	Lecture and Tutorial	Brain Storming and Discussion
14	4	Directional Drilling Problems and Solutions	Analyze issues such as torque & drag, hole cleaning, and BHA failure	Lecture and Tutorial	Brain Storming and Discussion

15	4	Case Studies in Directional Drilling	Analyze real operational cases and link them to theory	Lecture and Tutorial	Brain Storming and Discussion

11. Course Evaluation
Classroom interaction **Homework and reports** **Quizzes** **Midterm and final exams**

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Applied Drilling Engineering, By Bourgoyne et al.
Main references (sources)	Well Engineering & Construction, by Hussain Rabia
Recommended books and references (scientific journals, reports...)	Fundamental of Drilling Engineering, by Mitchel and Miska Directional Drilling by Ingles
Electronic References, Websites	1. PetroWiki: www.petrowiki.org 2. OnePetro: https://www.onepetro.org/

نموذج وصف المقرر

١.سم المقرر
Reservoir Management
٢.مز المقرر
٣.فصل / السنة
Second session/fourth year
٤.اريخ إعداد هذا الوصف
1/9/2025
٥. أشكال الحضور المتاحة
Attendance
٦. عدد الساعات الدراسية (الكلي)/ عدد الوحدات (الكلي)
100/3
٧. اسم مسؤول المقرر الدراسي (اذا اكثر من اسم يذكر)
الاسم: Mustafa Kamil Al-Jasim الأيميل mustafakamil20172018@gmail.com
٨. اهداف المقرر
1. Introduction to reservoir management and surveillance 2. Deep learning of reservoir pressure measurement and calculation methods 3. Familirize with well testing objectives and analysis 4. understanding reservoir heterogeneity and connectivity 5. Basic knowledge of reservoir Stimulation
٩. استراتيجيات التعليم والتعلم

الاستراتيجية	8 - Explanation and recommendations during the lecture 9 - View scientific materials using projectors. 1 0 - Self-learning through assignments and small projects inside the class. 1 1 - Graduation projects. 1 2 - Scientific visits. 1 3 - Seminars held in the department. 1 4 - Summer training. Evaluation methods: 7. Quiz. 8. Homework. 9. Semester and final exams. 10. Interaction in the lecture. 11. Small projects within the lesson. 12. Reports.

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم

طريقة التقييم	طريقة التعليم	اسم الوحدة / أو الموضوع	مخرجات التعلم المطلوبة	الساعات	الأسبوع
Questions and discussion	Theoretical	Responsibilities of reservoir engineer	Introduction to reservoir engineer tasks and responsibilities	4	First
Questions, discussion and quiz	Theoretical	Introduction to reservoir surveillance	reservoir and well surveillance	4	Second
Questions and discussion	Theoretical	Introduction to reservoir surveillance	reservoir and well surveillances	4	Third
Questions, discussion and quiz	Theoretical	Pressure measurement	SGS and FGS tests	4	Fourth
Questions and discussion	Theoretical	Pressure measurement	ESP pressure calculations	4	Fifth
Questions and discussion	Theoretical	Pressure measurement	ESP pressure calculations	4	Sixth
Questions and discussion	Theoretical and tutorials	pressure measurement	MDT and RFT analysis	4	Seventh
Questions, discussion and quiz	Theoretical and tutorials	eservoir heterogeneity	**Using pressure data from new wells to describe reservoir connectivity**	4	Eighth
Questions and discussion	Theoretical and tutorials	Introduction to well testing	types of well testing	4	Ninth
Questions and discussion	Theoretical	well testing	PBU and PDD principles	4	Tenth
Questions and discussion	Theoretical	Introduction to reservoir and well stimulation	types of well damage, skin effect and measurements	4	Eleventh
Questions and discussion	Theoretical and tutorials	Reservoir stimulation	Principles of reservoir stimulation	4	Twelfth
Questions, discussion and quiz	Theoretical	workshop and toturial	workshop and toturial	2	Thirteenth

Questions and discussion	Theoretical	workshop and toturial	workshop and toturial	2	Fourteenth
Questions and discussion	Theoretical	workshop and toturial	workshop and toturial	2	Fifteenth

١١. تقييم المقرر	
Distribution of the score out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written and reporting exams.	
١٢. مصادر التعلم والتدريس	
الكتب المقررة المطلوبة (المنهجية أن وجدت)	.
المراجع الرئيسة (المصادر)	
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	Advance reservoir management and engineering
المراجع الإلكترونية ، مواقع الانترنيت	المواقع الالكترونية الرصينة مواقع المكتبات في الجامعات العالمية