Ministry of higher education & scientific research
AL-Furat Al-Awsat technical university
AL-Samawa technical institute
Petroleum refinery and gas department

وزارة التعليم العالي والبحث الجامعي
الفرات الأوسط التقنية الجامعة
المعهد التقني سماوة
قسم تقنيات تكرير النفط والغاز

Academic Program

University: Al-Furat Al-Awsat Technical University

College / Institute: Al-Samawa Technical Institute

Scientific Department: Petroleum Refinery and Gas Technologies

Date of File Submission: / / 2024

Signature:
Name of Department Head:
Lec. Idrees Mahmoud Ahmed
Date: / / 2024

Signature:
Name of Scientific Assistant:
Assist. Prof. Dr. Alaa Abd Ali
Date: / / 2024

The file has been reviewed by the Quality Assurance and University Performance Division.

Name of the Head of Quality Assurance and University Performance Division:

Signature: 9/16
Assist.Lec. Izdihar yasser Mohsen
Date: 16 / 9 / 2024

Dean's Approval

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, proving whether he has made the most of the available opportunities.

It is accompanied by a description of each course within the program.

1	**Educational institution**	**Middle Euphrates Technical University**
2	**Scientific Department Center**	**Technical Institute/Samawa Oil & Gas Refining Technologies**
3	**Name of academic or vocational program**	**Oil & Gas Technologies Operation of Industrial Units and Oil Refining**
4	**Final Certificate Name**	**Technical Diploma in the Operation of Industrial and Oil Units**
5	**School System**	**Decisions for the first and second phases of the two branches**
6	**Accredited Accreditation Program**	**Modular System**
7	**Other external influences**	**Training Courses + Field Visits**
8	**Date of preparation of the description**	**2024/ /**

9- Objectives of the academic program:

The Department of Chemical Industries aims to graduate qualified technical staff to carry out the operation, maintenance and control of the operating devices of oil and gas industrial units in oil factories, including conducting laboratory tests on the final raw and manufactured materials and conforming to their standard specifications.

10 - Program Outcomes Required and Methods of Teaching, Learning and Evaluation :

A- Cognitive Objectives /

1- **Introducing the student to the methods of operating and controlling the various petroleum industrial devices and units and carrying out chemical and oil production work produced in factories .**

2- The student compares the chemical, physical and laboratory tests of chemical and oil raw materials and contributes with specialized cadres in making modifications and improvements to industrial units
3- The student uses drawings, maps and industrial plans related to chemical laboratories .
4- Implementation of quality control work for the purpose of conformity of the product to international and Iraqi standard . specifications
5- Introducing the student to the use of the electronic calculator to . apply the vocabulary of the curriculum

B - Skills objectives of the program /

1- The student acquires the skill of conducting laboratory and oil analyzes.
2- Using laboratory tools and oil workshops with quality and keenness on the safety and accuracy of the results.
3- Implementation of graphs and diagrams for the practical lesson .

Teaching and learning methods

Book Theoretical lecture practical training in laboratories, Power point seminars and seminars Discussion page, scientific developments, summer training, educational videos, scientific trips, graduation research.

Evaluation methods

Daily evaluation, oral tests, pre-tests, weekly reports, semester exam, including the first semester and the second semester (practical + theoretical).

C- Emotional and value goals /

1- The student learns about the work of industrial operating units and their role in building the country .
2- Encourage the student to gain practical experience and link it to theoretical principles .
3- Learn accuracy and discipline in receiving science and knowledge 4- Learn to communicate and interact during the lecture .

Teaching and learning methods

Practical and theoretical lectures, listening to professors and scientists within the specialization in the scientific department, through

methodological and external books, through websites on the Internet, and the presentation of scientific films, videos and field visits.

Evaluation methods

Quarterly and daily written and oral student tests and scientific reports .

d. General and qualifying skills transferred (other skills related to employability and personal development).

1- **Communication and conversation skills such as English, computer, presentation skill and introducing the student to his rights and duties (a basic standard for human rights).**
2- **Teamwork skills and encouraging the policy of discussions so that the student has the scientific creative ability.**
3- **Self-learning skills, self-reliance and teaching the student to link the mathematical formulas of scientific laws to petroleum chemistry .**
4- **Training the student on the use of websites and modern scientific programs.**

Teaching and learning methods

1- **. Daily exams with home questions to solve them self-practical tests**
2- **. Oral tests during lectures**
3- **C - Competitive tests among groups of students for the same division.**
4- **D- Tests to encourage scientific competition between the student people and stages .**

Evaluation methods

Commitment to assignments (such as making reports in the field of specialization and then discussing reports) and setting scores on written and oral tests and weekly and annual reports.

10- Program Structure (Study Plan):

Vocabulary and study units (Department of Oil and Gas Refining Technologies / for the academic year 2024/2025

First stage

t	Material	Number of hours per week			Number of Units	Material Type	Observations
		nun	on	M			
1	Petroleum Chemistry	2	2	4	8	Specialized	English
2	Light oils	2	2	4	8	Specialized	English
3	Material transmission	2	2	4	8	Specialized	English
4	Engineering drawing	-	3	3	6	Support	English
5	Computer Technologies	1	2	3	6	Support	Arabic
6	Industrial management and occupational safety	2	-	2	4	Support	Arabic
7	mathematics	2	-	2	4	Support	Arabic
8	Measurements and transfer of ownership	1	2	3	6	Specialist	Arabic
9	Human Rights and Democracy	1	-	1	2	Support	Arabic
10	coefficient	-	3	3	6	Support	Arabic
11	ENGLISH	1	-	1	2	Support	ENGLISH
Total		14	16	30	60		

Course Description

This course description provides a summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he has made the most of learning opportunities, and must be linked to the program description.

Course Description Form Table

1- Educational Institution	Ministry of Higher Education and Scientific Research - Middle Euphrates Technical University / Samawa Technical Institute
2- Scientific Department / Center	Oil & Gas Refining Technologies / Operation Industrial & Oil Units
3- Course Name/Code	Mandatory operation of industrial and oil units
5-Available attendance forms	Mandatory
5. Semester/Year	Quarterly
6- Total number of hours	71 hours
7- Date of preparation of this description	/ /2025
8. Course Objectives	- Graduating qualified technical staff to carry out operati maintenance and control of Devices for operating oil industrial units in the oil plant, including And conducting laboratory tests on the final raw and manufactured materials And conforming to its standard specifications and linking theoretical information to the process. - Familiarize the student with the techniques used . - Understand and use scientific materials . - Familiarity with industrial drawings and maps . - Carrying out maintenance work for industrial units .

9 **-Course Outcomes and Methods of Teaching, Learning and Evaluation**:

1- For cognitive purposes /

1. Introducing the student to the methods of operating and controlling the various oil industrial devices and units and carrying out oil production work .
2. The student compares between laboratory tests for raw and resulting materials .
3. The student uses drawings, maps and industrial plans related to mechanical or oil plants .
4. Implementation of quality control work for the purpose of conformity of the product to international and Iraqi standards.
5. Linking theoretical and practical information to benefit from improving industrial reality .

2- Course Skills Objectives/

1. The student acquires the skill of conducting laboratory analyzes .
2. Using laboratory tools and chemical workshops with quality and a lesson on the safety and language of the results .
3. Implementation of diagrams and diagrams for the practical lesson.
4. The student acquires the skills of dealing with the calculator.

Teaching and learning methods

Using the theoretical and practical lecture system, electronic calculator and electronic presentation
(DATASHOW) to learn the basics of oil and gas engineering.

Evaluation methods

Testing students to see the extent of their interaction with the lecture and conducting weekly, quarterly and annual tests

C- Emotional and value goals/

1- The student learns about the work of industrial and practical operating units and their role in building the country.
2- Encourage the student to gain practical experience and link it to theoretical principles.
3- Learn accuracy and discipline in receiving science and knowledge
4- Learn to communicate and interact during lecturers.

Teaching and learning methods

High lectures, theory, visual observations and listening scientific forces in courses of professors and the Internet.

Evaluation methods

.Periodic oral tests and scientific discussions

d. General and qualifying skills transferred (other skills related to employability and personal development) /

1- Focus on those who have great mental aptitude and comprehension.
2- Encourage the policy of discussions so that the student enjoys a creative scientific family.
3- Developing students' mental and scientific abilities.
4- Raising the level of students and following up on students.

Learning outcomes required from the program

	Course Name	Basic or optional	Cognitive goals				Skills Objectives				**Emotional goals**				General and Transferable Qualification Skills) Other skills related to employability and personal development			
			1a	2A	3A	4A	1b	2b	3b	4b	1C	2c	3C	4C	1D	2D	3D	4D
First stage	**Petroleum Chemistry**	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Light oils	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Measurements and transfer of ownership	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Material Transmission	**basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Engineering drawing	**Support**	√		√	√	√		√	√		√	√	√	√	√		√
	mathematics	**Support**	√	√	√	√	√		√	√		√	√	√	√	√	√	√
	Industrial management and occupational safety	**Support**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Computer Technologies	**Support**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	English language	**Support**	√	√	√	√			√	√			√	√	√	√	√	√
	Human Rights	**Support**	√	√	√	√			√	√			√	√	√		√	√
	coefficient	**Support**	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Material Name	In Arabic	Computer Technologies	Academic year	Weekly Hours			
	English	Computer technologies		theoretical	practical	Total	Number of Units
Language of instruction	Arabic Language		The first	1	2	3	**3**

Week	Theory/Practical Hours	Learning Outcomes	Unit / Subject	Teaching Method	Evaluation Method
1	2/1	Basic concepts of information technology, hardware	Basic Concepts	Theory + Practical	Oral questions, written tests, practical tests
2	2/1	Memory, storage, computer performance, software	Basic Concepts	Theory + Practical	Oral questions, written tests, practical tests
3	2/1	Data communication, computer networks, licensing, software types, viruses and protection	Basic Concepts	Theory + Practical	Oral questions, written tests, practical tests
4	2/1	Operating System (Windows: Starting, elements)	Operating System	Theory + Practical	Oral questions, written tests, practical tests
5	2/1	Operating System (Windows: drives, directory, files, editing, formatting)	Operating System	Theory + Practical	Oral questions, written tests, practical tests
6	2/1	Operating System (Linux, Mac: general background, Control Panel)	Operating System	Theory + Practical	Oral questions, written tests, practical tests
7	2/1	Microsoft Word (Starting, elements)	Word Processing Software	Theory + Practical	Oral questions, written tests, practical tests

8	2/1	Microsoft Word (Page setup, Typing)	Word Processing Software	Theory + Practical	Oral questions, written tests, practical tests
9	2/1	Microsoft Word (Editing, Formatting)	Word Processing Software	Theory + Practical	Oral questions, written tests, practical tests
10	2/1	Microsoft Word (Drawing, Inserting, Printing)	Word Processing Software	Theory + Practical	Oral questions, written tests, practical tests
11	2/1	Microsoft Word (Tables)	Word Processing Software	Theory + Practical	Oral questions, written tests, practical tests
12	2/1	Microsoft Excel (Starting, elements)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
13	2/1	Microsoft Excel (Workbook, Worksheet)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
14	2/1	Microsoft Excel (Cells, Columns, Rows)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
15	2/1	Microsoft Excel (Typing, Editing, Formatting)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
16	2/1	Microsoft Excel (Operators, Formulas)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
17	2/1	Microsoft Excel (Mathematical Functions, Engineering Functions)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
18	2/1	Microsoft Excel (Statistical Functions, Conditions, Looping Functions)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
19	2/1	Microsoft Excel (Charts,	Spreadsheet Software	Theory + Practical	Oral questions,

		Functions Plotting)			written tests, practical tests
20	2/1	Microsoft Excel (One dimensional Array - vector)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
21	2/1	Microsoft Excel (Two-dimensional Array - matrix)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
22	2/1	Microsoft Excel (Optimization - Solver, goal seek)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
23	2/1	Microsoft Excel (Root Finding, solve of Linear and non-linear set of equations)	Spreadsheet Software	Theory + Practical	Oral questions, written tests, practical tests
24	2/1	Microsoft PowerPoint (Starting, elements, Slides, editing, Formatting)	Presentation Software	Theory + Practical	Oral questions, written tests, practical tests
25	2/1	Microsoft PowerPoint (Animation, Transition, Timing)	Presentation Software	Theory + Practical	Oral questions, written tests, practical tests
26	2/1	Microsoft Visio (Introduction, Drawings, Flowcharts, Data graphics)	Drawing Software	Theory + Practical	Oral questions, written tests, practical tests
27	2/1	Microsoft SharePoint (Uses, Interface)	Collaboration Software	Theory + Practical	Oral questions, written tests, practical tests
28	2/1	The Internet and Communications (Basic Concepts, Explorer)	Internet	Theory + Practical	Oral questions, written tests, practical tests
29	2/1	The Internet and Communications (Search Engines, Searching)	Internet	Theory + Practical	Oral questions, written tests, practical tests
30	2/1	The Internet and Communications (E-mail, Microsoft	Internet	Theory + Practical	Oral questions, written tests,

		Outlook, Dropbox, OneDrive, Google Drive)			practical tests

Material Name	In Arabic	Light oils	Academic year	Weekly Hours			
	English	Light oil		theoretical	practical	Total	**Number of Units**
Language of instruction	Arabic Language		The first	2	2	4	12

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	2/2	Crude oil composition and definition	Introduction to Crude Oil	Theoretical Practical /	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
6-10	2/2	Gas and crude oil isolation plants	Crude Oil Refining Authority	Theoretical Practical /	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
11-16	2/2	Types of refineries Principles of the distillation process Aerial Refining Unit	Production and purification units of light derivatives	Theoretical Practical /	Real-time questions , duties No extracurricular, exams Short and exams

					Monthly, Reports Weekly
17-23	2/2	Types of improved materials for petroleum derivatives	Chemical Additives Laboratory Tests	Theoretical / Practical	Real-time questions , duties No ,extracurricular exams Short and exams ,Monthly Reports Weekly
23-30	2/2	. Izmra Unit . Alkylation Unit . Polymerization Unit . Hydrogen production	Supplementary Production Units	Theoretical / Practical	Real-time , questions duties No ,extracurricular exams Short and exams Monthly, Reports Weekly

Material Name	In Arabic	Math	Academic year	Weekly Hours			
	English	Mathematics		theoretical	practical	Total	Number of Units
Language of instruction	Arabic/English		The first	2		2	**2**

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	2	Derivative \ Limits	Boundary/differential	theoretical	Real-time questions , duties No extracurricular, exams Short and exams ,Monthly Reports Weekly
6-10	2	Slope, derivative applications (speed, acceleration).	Calculus	theoretical	Real-time questions , duties

					No extracurricular, exams Short and exams ,Monthly Reports Weekly
11	2	Maximum and Minimum problems, Critical and Inflection points.	Calculus	theoretical	Real-time questions , duties No extracurricular, exams Short and exams ,Monthly Reports Weekly
12	2	The mean value theorem and their application. L 'hopital's rule (for Limit)	Calculus	theoretical	Real-time questions , duties No extracurricular, exams Short and exams ,Monthly Reports Weekly
13-14	2	Integration (Anti-derivatives), Rules of Integration, Differential equations, Indefinite integration.	Integration	theoretical	Real-time questions , duties No extracurricular, exams Short and exams ,Monthly Reports Weekly
15-16	2	First fundamental theorem of integral, Rules of indefinite integral.	Integration	theoretical	Real-time questions , duties No extracurricular, exams Short and exams ,Monthly Reports Weekly
17-19	2	Approximate of definite integral. Transcendental functions (In(x), ex, ax, log(x)).	Integration	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
20-23	2	The Inverse of Trigonometric functions: Domain, Range, properties, and their graphs.	Trigonometric functions Reverse	theoretical	Real-time questions , duties

					No extracurricular, exams Short and exams Monthly, Reports
24	2	Methods of integration: (by parts, partial fractions, reduction formulas, by substitution) and improper integrals.	Integration methods	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
25	2	Methods of integration: (by parts, partial fractions, reduction formulas, by substitution) and improper integrals.	Integration methods	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
26-27	2	Applications on definite integral: Areas, volumes, surfaces area, are length.	Integration	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
28	2	Determinants and their applications.	Matrices	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
29	2	Determinants and their applications.	Matrices	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
30	2	First ordinary equation		theoretical	Real-time questions , duties No extracurricular, exams

					Short and exams Monthly, Reports

Material Name	In Arabic	Measurements and tra of ownership	Academic year	Weekly Hours			
	English	**Measurement and custody**		theoretical	practical	Total	Number of Units
Language of instruction	Arabic/English		The first	1	2	3	6

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	1/2	Methods & Devices of Measuring Measuring Instruments and Equipment Measurement Types Types of measurements Pressure measurement قياس الضغط Temperature Measurement	Terms & Definition Terms and Definitions	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
6-10	1/2	Factors affecting flow measurement in meters Safety and accuracy requirements for metered transfer measurements Types of meters and their working principles Positive displacement counters	Metering	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
11	1/2	Ultrasonic meters Vortex counters Differential pressure meters Other types of flow meters	Metering	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

12	1/2	Technical terms for level measurement Safety and accuracy requirements for measuring the transfer of ownership by reservoirs	Types of tanks	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
13-15	1/2	1- Method of measurement by raft and tape Electromechanical Method-2 Hydrostatic Method-3 Hybrid Method-4 Microwave level measurement	Self-measurement or automatic	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
16	1/2	Level measurement in tanker tanks	Self-measurement or automatic	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
17-19	1/2	-Modeling1 Modeling Methods-2 Qualitative measurements-3 Methods for determining density and relative density	Modeling	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
20-23	1/2	Methods for assigning water and sediment# Set Ash Percentage# Viscosity set# Set the sulfur percentage#	Modeling	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
24	1/2	*Calibration of meters and extraction of the meter coefficient* Calibration Items*	Calibration and verification	Theoretical/Practical	Real-time questions , duties No extracurricular, exams

		Agglomerate Calibration* Volumetric titration*			Short and exams Monthly, Reports
25	1/2	Tank calibration methods *Strip method for calibration of cylindrical tanks * Calibration of cylindrical vertical tanks by reference line method	Calibration and verification	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
26-30	1/2	* Calibration of vertical cylindrical tanks by optical triangulation method * Calibration method of vertical tanks using optical method EODR (Electronic) Calibration of transmitters (pneumatic and electronic)	Calibration and verification	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports

Material Name	In Arabic	Engineering Drawing	Academic year	Weekly Hours			
	English	**Engineering drawing**		theoretical	practical	Total	Number of Units
Language of instruction		Arabic/English	The first		3	3	6

Week	Hours	Learning Outcomes	Unit / Topic Name	Learning Method	Teaching Method
First	3	Introduction	Engineering Drawing	Practical	Lecture & Practical Exercises
Second	3	Engineering graphic instruments and their using	Engineering Drawing	Practical	Lecture & Practical Exercises
Third	3	Engineering graphic instruments	Engineering Drawing	Practical	Lecture & Practical Exercises

		and their using			
Fourth	3	Engineering drawing lines	Engineering Drawing	Practical	Lecture & Practical Exercises
Fifth	3	Engineering drawing lines	Engineering Drawing	Practical	Lecture & Practical Exercises
Sixth	3	Graphic Geometry	Engineering Drawing	Practical	Lecture & Practical Exercises
Seventh	3	Graphic Geometry	Engineering Drawing	Practical	Lecture & Practical Exercises
Eighth	3	Graphic Geometry	Engineering Drawing	Practical	Lecture & Practical Exercises
Ninth	3	Graphic Projection Theory	Engineering Drawing	Practical	Lecture & Practical Exercises
Tenth	3	Graphic Projection Theory	Engineering Drawing	Practical	Lecture & Practical Exercises
Eleventh	3	Graphic Projection Theory	Engineering Drawing	Practical	Lecture & Practical Exercises
Twelfth	3	Dimensions	Engineering Drawing	Practical	Lecture & Practical Exercises
Thirteenth	3	Missed Views	Engineering Drawing	Practical	Lecture & Practical Exercises
Fourteenth	3	Isometric Drawing and Sketching	Engineering Drawing	Practical	Lecture & Practical Exercises
Fifteenth	3	Isometric Drawing and Sketching	Engineering Drawing	Practical	Lecture & Practical Exercises
Sixteenth	3	Isometric Drawing and Sketching	Engineering Drawing	Practical	Lecture & Practical Exercises
Seventeenth	3	Section of Isometric Drawing	Engineering Drawing	Practical	Lecture & Practical Exercises
Eighteenth	3	Section of Isometric Drawing	Engineering Drawing	Practical	Lecture & Practical Exercises
Nineteenth	3	Sectional View	Engineering Drawing	Practical	Lecture & Practical Exercises
Twentieth	3	Sectional View	Engineering Drawing	Practical	Lecture & Practical Exercises

Twenty-First	3	Sectional View	Engineering Drawing	Practical	Lecture & Practical Exercises
Twenty-Second	3	Introduction to the AUTOCAD program	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Third	3	Definition of AUTOCAD Windows	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Fourth	3	Two-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Fifth	3	Two-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Sixth	3	Three-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Seventh	3	Three-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Eighth	3	Three-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Twenty-Ninth	3	Three-dimensional drawing with AUTOCAD	AutoCAD	Practical	Lecture & Practical Exercises
Thirtieth	3	Final Review and Project Presentation	AutoCAD	Practical	Lecture & Practical Exercises

Material Na	In Arabic	Petroleum Chemistry	Academic year	Weekly Hours			
	English	**Petroleum chemistry**		theoretical	practical	Total	Number of U
Language of instruction	Arabic/English		The first	2	2	4	10

				Unit or subject name		

	The week	hours theoretical practical	Required Learning Outcomes		Method of education	Evaluation method
	The first	2/2	Get to know a brief history About Crude Oil	Historical introduction	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
	Second	2/2	Familiarize yourself with the stages of formation Crude Oil	The composition of crude oil	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
	Third	2/2	Learn about methods of evaluating Crude Oil	Crude Oil Valuation	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
	Fourth	2/2	Learn about specifications Various crude oil	Crude Oil Specification	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
	V/VI	2/2	Recognize curves Distillation	Distillation curves	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
	Seventh	2/2	Recognize the characteristics of refining products) Properties Petroleum gases (	Products Features Refining	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

	Eighth	2/2	Recognize the characteristics of Refining Products)Properties Naphtha and Caseolin	Products Features Refining	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
	Ninth	2/2	Recognize the characteristics of refining products) Properties Kerosene and fuel Aircraft (	Products Features Refining	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
	X	2/2	Recognize the characteristics of Refining products (properties Heavy diesel fuel and light)	Products Features Refining	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
	atheist Tenth/ VI ten	2/2	Recognize the characteristics Solid and semi-solid	Solid and semi-properties Solid	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
	Seventeenth / Twentieth	2/2	Recognize phase behavior Or three mixtures of two components	Phase behavior	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
	atheist Twenty/ Fourth Twenty	2/2	Recognize the characteristics of Natural Gas / Natural Gas Composition Meet links Reed vapor pressure	Natural Gas Properties / Natural gas composition	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports

	V Twenty/	2/2	Heat recognition Combustion and its relationships	Combustion heat	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
	Sixth Twenty	2/2	Learn about the limits Explosion and safety	Explosion limits	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
	Seventh Twenty	2/2	Learn about scaling and pressure and its relationships	Expansion and compression	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
	Eighth Twenty	2/2	Recognize the characteristics Critical for crude oil and Derivatives	Critical characteristics	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
	Ninth Twenty/ Thirty	2/2	Learn the basics and Real Gas Accounts And the perfect gas	Real gas and gas Perfect	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports

Weekly Hours				Academic year	Human Rights	In Arabic	Material Na
Number of Unit	Total	practical	theoretical				
					Human rights	English	

2	2		2	The first	Arabic Language	Language of instruction

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	2	Definition of the right and the concept of human rights The position of divine laws on human rights	Definition of the right and the concept of human rights	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
6-10	2	Division of government in terms of source of power and respect for the law	The division of government in terms of the source of authority and respect for the law	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
11-16	2	Parliamentary system	Parliamentary system	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
17-23	2	Election / the concept of election and its legal adaptation	Election / the concept of election and its legal adaptation	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
23-30	2	System Secret Voting and Public Voting	For the system of secret voting and public voting	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

Weekly Hours				Academic year	Industrial management and occupational safety	In Arabic	Material Name
Number of Units	Total	practical	theoretical				
						English	
4			2	The first	Arabic Language		Language of instruction

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	2	Management and organizational performance Production and manufacture of goods and services. - Types of production) continuous production and intermittent output (The difference between production and productivity.	Industrial Management	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
6	2	Conceptual model of production management Production management scope Competitiveness in the production function	Systems approach in Production Management	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
7-8	2	The main tasks covered by the production management system Planning marshalling Leadership	Management qualities Good industrial	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

9-10	2	Extractive Industries Genetic industries Manufacturing Industries	Types of industries	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
11-12	2	Capital estimates requirements. Capital cost estimates Classification of grades	Sources of funds	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
13-15	2	Annual Fixed Investment Off-site capital Working Capital Percentage of investment methods	Fixed Investment	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

Weekly Hours				Academic year	English Language (1)	In Arabic	Material Name
Number of Units	Total	practical	theoretical		**English**	English	
2			1	The first	English Language		Language of instruction

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
1-5	1	Hello Your World All about you	Unit (1.2.3)	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

6	1	Family and friends	Unit 4	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
7-8	1	The way I live	Unit 5	theoretical	Real-time questions , duties No extracurricular, exams Short and examsMonthly, Reports Weekly
9-10	1	Everyday	Unit 6	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
11-12	1	Places I like	Unit 7	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
13-15	1	My favorites	Unit 8	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
16-19	1	Where I live	Unit 9	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
20-23	1	Times past	Unit 10	theoretical	Real-time questions , duties

					No extracurricular, exams Short and exams Monthly, Reports Weekly
24-25	1	We had a great time!	Unit 11	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
26-27	1	I can do that!	Unit 12	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
28-29	1	Please and thank you	Unit 13	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
30	1	Here and now	Unit 14	theoretical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly

Weekly Hours				Academic year	Material Transmission	In Arabic	Material Name
Number of Units	Total	practical	theoretical				
					Mass transfer	English	
8	4	2	2	The first	Arabic / English		Language of instruction

The week	hours theoretical practical	Required Learning Outcomes	Unit or subject name	Method of education	Evaluation method
The first	2/2	Introduction to chemical engineering and mass transfer, generally		Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
Second	2/2	Diffusion in binary mixtures of gases.	Calculation of rate of mass transfer and flux in gases.	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
Third	2/2	Maxwell Theory	Diffusion in binary and multi component system	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
Fourth	2/2	Diffusion in binary liquid mixtures	Calculation of rate of mass transfer and flux in liquids.	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
V/VI	2/2	Diffusion in multi – component liquid mixtures .diffusivity calculating.	Diffusion rate and empirical correlations to find diffusivity.	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports Weekly
Seventh	2/2	Convective mass transfer. Mass transfer coefficients.	Correlating the flux in terms of mass transfer coefficients.	Theoretical/Practical	Real-time questions , duties No extracurricular, exams

					Short and exams Monthly, Reports Weekly
Eighth	2/2	Diffusion theories.	Film theory, and two film theory	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
Ninth	2/2	Equilibrium curves and over all mass transfer coefficients.	Relation between mass transfer rate and reaching equilibrium state.	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
X	2/2	Finding No. of stages theoretically and graphically.	calculating the required number of trays to obtain the degree of removing or recovering	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
atheist Tenth/ VI ten	2/2	Types of absorption columns. (Tray and Packed).	the difference between using plate tower or packed bed column for a certain separation process	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
Seventeenth / Twentieth	2/2	Design equation for dilute solutions.	Finding the design equation when solute concentration less than 10%	Theoretical/Practical	Real-time questions , duties No extracurricular, exams Short and exams Monthly, Reports
atheist Twenty/ Fourth Twenty	2/2	Finding HTU and NTU.	For a packed column, column height is a function of	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams

			HTU and NTU.		Monthly, Reports
V Twenty/	2/2	Column efficiency.	Point eff. Murdree eff. Overall eff.	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
Sixth Twenty	2/2	Constant and variable Mass transfer area.	The effect of area with different shapes in diffusion rate	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
Seventh Twenty	2/2	Boiling point diagram.	Most effective diagram in distillation columns to find the vapor liquid equilibrium	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
Eighth Twenty	2/2	Vapor liquid equilibrium.	Standard shape for VLE and the deviation from standard one, how to design such columns.	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports
Ninth Twenty/ Thirty	2/2	Fensk's equation, Minimum No. of reflux ratio.	How to find the minimum reflux ratio graphically and analytically	Theoretical/Practical	Real-time questions, duties No extracurricular, exams Short and exams Monthly, Reports