



Ministry of Higher Education and  
Scientific Research - Iraq  
Al-Mustaqbal University  
Chemical Engineering Department



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

<b>Module Information</b> معلومات المادة الدراسية			
<b>Module Title</b>	Chemicals from Petroleum		<b>Module Delivery</b>
<b>Module Type</b>	Core		<b>Theory Lecture</b>
<b>Module Code</b>	UOMU0102066		
<b>ECTS Credits</b>	٣		
<b>SWL (hr/sem)</b>	75		
<b>Module Level</b>	3	<b>Semester of Delivery</b>	1
<b>Administering Department</b>	Chemical Engineering Department	<b>College</b>	Engineering college
<b>Module Leader</b>	Zaid emad Mohsen	<b>e-mail</b>	Zaid.emad.mohsen@uomus.edu.iq
<b>Module Leader's Acad. Title</b>	Lecturer	<b>Module Leader's Qualification</b>	Assist . lecturer
<b>Module Tutor</b>		<b>e-mail</b>	
<b>Peer Reviewer Name</b>		<b>e-mail</b>	
<b>Review</b>	1/2/2026	<b>Version</b>	1.0

<b>Committee Approval</b>		<b>Number</b>	
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<b>Relation With Other Modules</b> العلاقة مع المواد الدراسية الأخرى			
<b>Prerequisite module</b>	Petroleum Chemistry	<b>Semester</b>	2
<b>Co-requisites module</b>	None	<b>Semester</b>	
<b>Module Aims, Learning Outcomes and Indicative Contents</b> أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
<b>Module Aims</b> أهداف المادة الدراسية	1- To know sources of feed stock. These sources are petroleum fractions and natural gases. 2- To introduce petrochemicals generations: first (basic petrochemicals), 2nd derivatives, 3rd and product. 3- Ability to select of appropriate equipment for the production of materials in process plant.		
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	1- The chemical engineering student should be able to think critically, solve problems, manage resources and time, describe the specialty of chemical and petroleum refinery engineering and its concepts in a scientific and engineering way, and make appropriate changes to that. 2- The ability to perform engineering analysis and scientific thinking by applying laws in science, mathematics, and engineering and attaching to guidelines and instructions for any activity and framework in implementing a project or confronting an engineering problem and solving it.		
<b>Indicative Contents</b> المحتويات الإرشادية	<b>Introduction :</b> [2 hr] Raw material, characterization <b>Primary Petrochemicals:</b> [10 hr] Olefins, Diolefins, Higher Olefins, LAB, Aromatics, separation Aromatics, Syn gas, H <sub>2</sub> production, steam reforming ,PO <b>Derivatives Syn gas derivatives:</b> [12 hr] Methanol, Acetic acid . Ethylene derivatives : Vinyl chloride M, Ethylene Oxide. Ethylene glycol, MEA, DEA&TEA Propylene derivatives : Acrylonitrile, Derivatives of C <sub>4</sub> hydrocarbon : MTBE, Adipic acid. Benzene derivatives Ethyl benzene, styrene, nitrobenzene, aniline, cyclohexane, cumene, Phenol, acetone. Toluene derivatives : Benzoic acid Xylene derivatives : Terephthalic acid Products:		

	polymers: LDPE, HDPE, PVC, PP.	[6 hr]
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم		
<b>Strategies</b>	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 and tutorials.	

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	33	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	2.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	75		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		<b>Time/Number</b>	<b>Weight (Marks)</b>	<b>Week Due</b>	<b>Relevant Learning Outcome</b>
<b>Formative assessment</b>	<b>Quizzes</b>	3	15% (5)	4,8,12	1,2
	Online Assignments	2	10% (5)	Continuous	
	Onset Assignments	2	10% (5)	Continuous	
	<b>Report</b>	1	5% (5)	14	1,2
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	10	1,2
	<b>Final Exam</b>	2hr	50% (50)	16	1,2
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	<b>Introduction :</b> Raw material, characterization
<b>Week 2</b>	<b>Primary Petrochemicals:</b> Olefins, Diolefins, Higher Olefins
<b>Week 3</b>	LAB, Aromatics
<b>Week 4</b>	Syn gas,

<b>Week 5</b>	H2 production
<b>Week 6</b>	Steam reforming, PO
<b>Week 7</b>	<b>Derivatives Syn gas derivatives:</b> Methanol, Acetic acid
<b>Week 8</b>	Ethylene derivatives: Vinyl chloride M, Ethylene Oxide.
<b>Week 9</b>	Ethylene derivatives: Ethylene glycol, MEA, DEA&TEA
<b>Week 10</b>	Propylene derivatives, Acrylonitrile, Derivatives of C4 hydrocarbon: MTBE, Adipic acid.
<b>Week 11</b>	Benzene derivatives Ethyl benzene, styrene, nitrobenzene, aniline, cyclohexane, cumene, Phenol, acetone.
<b>Week 12</b>	Toluene derivatives: Benzoic acid, Xylene derivatives: Terephthalic acid
<b>Week 13</b>	Products: <b>polymers: LDPE, HDPE</b>
<b>Week 14</b>	PVC
<b>Week 15</b>	PP
<b>Week 16</b>	<b>Final Exam</b>

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Sami Matar, Lewis F. Hatch, Chemistry of Petrochemical Process, 2nd edition.	Yes
<b>Recommended Texts</b>	William D. Callister, David G. Rethwisc, Materials Science and Engineering.	Yes
<b>Websites</b>		

### GRADING SCHEME

مخطط الدرجات

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

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Note:

NB 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.

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