

Course Description Form

1. Course Name:	
Organic chemistry	
2. Course Code:	
EnvTch28	
3. Semester / Year:	
2020–2021	
4. Description Preparation Date:	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Eman Al-Jajawady	
Email:	
8. Course Objectives	
Course Objectives	Introducing students to organic chemistry and organic compounds, naming them, preparing them, and their reactions.
9. Teaching and Learning Strategies	
Strategy	Teaching strategies include knowing the principles of organic chemistry and organic compounds, introducing students to organic compounds, learning about the method of measuring melting and boiling points and their scientific names, and discussing methods of preparing them in different ways, their reactions, the products of reactions, and their use.

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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		That the student understands the lesson			

11. 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, reportsetc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<p>J. Clayden, N. Greeves & S. Warren "Organic Chemistry" (Oxford University Press, 2012) Robert T. Morrison, Robert N. Boyd, and Robert K. Boyd, <i>Organic Chemistry</i>, 6th edition, Benjamin Cummings, 1992</p> <p>INTRODUCTION TO GREEN CHEMISTRY by A. S. Matlack (2nd Edition), CRC Press, New York, 2012. ISBN-13: 9781420078114.</p> <p>of the International Commission Radiological Protection, Publication 1 Elsevier (2007)</p>
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Thermodynamics	
2. Course Code:	
EnvTch39	
3. Semester / Year:	
2020–2021	
4. Description Preparation Date:	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Eman Al-Jajawady	
Email:	
8. Course Objectives	
Course Objectives	<p>Thermodynamics :The objective of this course is to learn about</p> <ul style="list-style-type: none"> • Concept temperature; the heat • basic theories in deriving the general law of gases, • Thermodynamic system (closed, open, or controlled the sound); • Thermodynamic and equilibrium properties. <p>System Status, Status Diagram, Path and process different working methods of the zero ,first ,second ,three law of thermodynamics;</p>

familiarity with the three public sector in Thermodynamics

9. Teaching and Learning Strategies

Strategy	<ol style="list-style-type: none"> 1. Define terminology and become familiar with units concerned with basic concepts of the thermodynamics and Explain basic thermodynamic properties and units.. 2. .Define the meaning of the state of a working substance 3. Derive ,discuss and apply the first law and second of thermodynamics 4. Understand concepts of heat, work, and energy.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		That the student understands the lesson	Introduction - Prescribed Books - Units. Important definitions - force - pressure and its types Temperature: its units, its conversions, and its measurement methods equilibrium, properties of p matter, and P		

			<p>diagram, Ideal Boyle's Law Charles's Law equation of state</p>		
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11. 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, reportsetc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<p>- Peter Atkins, The Laws of Thermodynamics: A Very Short Introduction, Oxford, ISBN-10 9780199572199</p> <p>- Atkins, Peter, de Paula, Julio, Keeler, James, Physical Chemistry, Published by Oxford University Press, 2018</p> <p>ISBN:10: 0198817894 / ISBN 13: 9780198817895</p>
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<p>- Fundamentals of heat and mass transfer, by f.p. Incropera & d.p. De witt, John Wiley & Sons; 5th edition (2002)</p> <p>- Applications of thermodynamics" by: wood; Addison-Wesley</p> <p>- Basic thermodynamics: elements of energy systems" by: skrotzki; McGraw-Hill, copy 2018</p> <p>- Introduction to Modern Thermodynamics, by Dilip Kondepudi, John Wiley & Sons Inc., 2008</p>
Electronic References, Websites	

Course Description Form

13. Course Name:	
Treatment of Solid Waste	
14. Course Code:	
EnvTch35	
15. Semester / Year:	
2020-2021	
16. Description Preparation Date:	
17. Available Attendance Forms:	
18. Number of Credit Hours (Total) / Number of Units (Total)	
19. Course administrator's name (mention all, if more than one name)	
Name: Assist. Lect. Omar Khair Aldin	
Email:	
20. Course Objectives	
Course Objectives	The course aims to introduce the student to waste, its types, harm to the environment, and how to collect it and dispose of it through sanitary landfilling and recycling important waste.

21. Teaching and Learning Strategies

Strategy	The course is annual and is four hours a week. It is a theoretical subject, and students are tested in the form of daily and monthly examinations and in a written form.
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22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		That the student understands the lesson			

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, reportsetc

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	<p style="text-align: center;">Introduction to environmental engineering and science / Gilbert M. Masters -</p> <p style="text-align: center;">Solid wastes Engineering Principles and Management Issues/ George Tchobanglous , Hilary Theisen -</p>
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

25. Course Name:	
Industrial Wastewater	
26. Course Code:	
EnvTch38	
27. Semester / Year:	
2020–2021	
28. Description Preparation Date:	
29. Available Attendance Forms:	
30. Number of Credit Hours (Total) / Number of Units (Total)	
31. Course administrator's name (mention all, if more than one name)	
Name: Lect. Roao Youns	
Email:	
32. Course Objectives	
Course Objectives	Learn how to treat industrial wastewater so that it is in accordance with the required specifications
33. Teaching and Learning Strategies	
Strategy	

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		That the student understands the lesson	An overview industrial wastewater Industrial wastewater sources Physical and chemical properties wastewater Industrial and most important indicators Biological characteristics A field visit Treatment levels: Pretreatment Primary processing Secondary processing Tertiary		

			treatment		
35. 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, reportsetc					
36. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Water and Wastewater Treatment and Disposal by Metcalf and Eddy		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			<p>Metcalf and Eddy, (2003). Wastewater engineering –treatment and reuse (2003), CHP.13</p> <p>Nemerow, N.L. Industrial Water Pollution; Addison-Wesley: Reading, MA, 1978.</p> <p>Besselièvre, E.B. The Treatment of Industrial Wastes; McGraw-Hill: New York, NY, 1969.</p> <p>Eckenfelder, W.W. Industrial Water Pollution Control; McGraw-Hill: New York, NY, 1989.</p> <p>Orhon D., Babuna, F.G., Karahan, O. Industrial Wastewater Treatment by Activated Sludge, 2009</p> <p>عبد الله صغير، معالجة مياه الصرف الصناعي في الوطن العربي، الدار العربية للعلوم ناشرون، 2017</p>		
Electronic References, Websites			https://ocw.mit.edu/courses/1-85-water-and-wastewater-treatment-engineering-spring-2006/pages/lecture-notes/		

