

Course Description Form

1. Course Name:	
Treatment of Solid Waste	
2. Course Code:	
EnvTch35	
3. Semester / Year:	
2022–2023	
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: Assist. Lect. Omar Khair Aldin	
Email:	
8. 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.

9. 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.			
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)			Introduction to environmental engineering and science / Gilbert M. Masters - Solid wastes Engineering Principles and Management Issues/ George Tchobanglous , Hilary Theisen -		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

13. Course Name:	
Industrial Wastewater	
14. Course Code:	
EnvTch38	
15. Semester / Year:	
2022–2023	
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: Lect. Roao Youns	
Email:	
20. Course Objectives	
Course Objectives	Learn how to treat industrial wastewater so that it is in accordance with the required specifications
21. Teaching and Learning Strategies	
Strategy	

22. Course Structure

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

			treatment		
23. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reportsetc					
24. 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/		

Course Description Form

25. Course Name:	
Thermodynamics	
26. Course Code:	
EnvTch39	
27. Semester / Year:	
2022-2023	
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: Dr. Eman Al-Jajawady	
Email:	
32. 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</p>

	,second ,three law of thermodynamics; familiarity with the three public sector in Thermodynamics
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33. Teaching and Learning Strategies

Strategy	<p>1. Define terminology and become familiar with units concerned with basic concepts of the thermodynamics and Explain basic thermodynamic properties and units..</p> <p>2. .Define the meaning of the state of a working substance</p> <p>3. Derive ,discuss and apply the first law and second of thermodynamics</p> <p>4. Understand concepts of heat, work, and energy.</p>
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34. Course Structure

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

			matter, and P diagram, Ideal Boyle's Law Charles's L equation of state		
35. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reportsetc					
36. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			- Peter Atkins, The Laws of Thermodynamics: A Very Short Introduction, Oxford, ISBN-10 9780199572199 -Atkins, Peter, de Paula, Julio, Keeler, James, Physical Chemistry, Published by Oxford University Press, 2018 ISBN:10: 0198817894 / ISBN 13: 9780198817895		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			-Fundamentals of heat and mass transfer, by f.p. Incropera & d.p. De witt, John Wiley & Sons; 5th edition (2002) -Applications of thermodynamics" by: wood; addison-wesley -Basic thermodynamics: elements of energy systems" by: skrotzki; mcgraw-hill, copy 2018 - Introduction to Modern Thermodynamics, by Dilip Kondepudi, John Wiley & Sons Inc., 2008		
Electronic References, Websites					

Course Description Form

37. Course Name:	
Soil Pollution	
38. Course Code:	
EnvTch36	
39. Semester / Year:	
2022-2023	
40. Description Preparation Date:	
41. Available Attendance Forms:	
42. Number of Credit Hours (Total) / Number of Units (Total)	
43. Course administrator's name (mention all, if more than one name)	
Name: Dr. Abdulsattar Jubair	
Email:	
44. Course Objectives	
Course Objectives	Identifying soil pollutants and some chemical properties and methods for estimating them after taking samples and making extracts, estimating cations and anions in the soil, how to analyze and classify the results, dealing with the soil laboratory, preparing samples for examination, and knowing the approved recommendations to reduce the

	environmental impact..
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45. Teaching and Learning Strategies

Strategy	The main strategy that will be adopted in presenting this course is for the student to know the pollutants that occur in the soil, their source, their effect on the soil, and the extent to which they can be identified through the use of soil laboratories, conducting chemical tests for them, presenting the practical results and comparing them with the approved classifications and their impact on the soil and the environmental aspect.
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46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		That the student understands the lesson	Soil pollution definition, introduction to environmental quality, sources and nature of soil pollution and its harmful effects Soil salinity sources of soil salinity		

47. 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

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Soil Pollution. Origin, Monitoring & Remediation.2008. Ibrahim A. Mirsal
Main references (sources)	Soil Pollution: From Monitoring to Remediation 1st Edition.2017. Armando C. Duarte, Anabela Cachada, Teresa A.P. Rocha-Santos
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	https://www.alibris.com/search/books/subject/Soil-pollution