Northern Technical University

الجامعة التقنية الشمالية

First Cycle – Bachelor's degree (B.Sc.) – Environment and Pollution Techniques Engineering

بكالوريوس هندسة تقنيات البيئة والتلوث

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١. Mission & Vision Statement

Vision Statement

The academic staff of the environment and pollution engineering department at northern technical university believe that students come to understand the discipline of environment and pollution through a combination of laboratory experiences, fieldwork with research work on air, soil, and water pollution, the impact of biological pollution, wastewater treatment, and solid waste management. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by ecologists to make observations, develop insights and create theories about the environment that surrounds our planet. Small class sizes within the environment and pollution program foster a close working relationship between academic staff and students.

Mission Statement

The academic staff in environment and pollution dept. pursues a multifaceted charge at Northern Technical University. The Program seeks to provide all environment dept. students with fundamental knowledge of ecology, as well as a deeper understanding of a selected focus area within the ecological sciences. The curriculum and advising have been designed to prepare graduates for their professional future, whether they choose to work as field ecologists specializing in water pollution or air pollution, or to pursue advanced degrees in the wastewater treatment systems or sanitary networks. The program also provides the necessary fundamental knowledge of the management and control to support the solid waste management, industrial waste management, water pollution control and wastewater control. In addition, the courses provide a key laboratory science experience for those students seeking to complete the general education requirements.

٢. Program Specification

Program code:	BSc-ENV	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

Environment and pollution is a wonderfully wide-ranging subject and is well equipped to deliver. The emphasis of the program is on the fundamental studies on ecology and different types of environmental pollution and how to control them. The Environmental Engineering program offered by Northern technical university is designed to assist you in acquiring the academic foundation required for a career as a professional engineer in the industrial, consultancy, and academic fields. You will develop the knowledge and abilities necessary to meet the challenges of industry and research in the twenty-first century, including those relating to the design, air pollution, water and soil pollution, wastewater treatment systems etc., you will also gain the understanding necessary to work at the intersection of engineering and the environmental sciences. The variety of units and alternatives available emphasize the flexibility of the subject of environmental engineering and your capacity to gradually narrow the scope of your study.

٣. Program Objectives

1- Graduating engineers specialized in environmental sciences.

2- Producing scientific and applied research in the specialty of the department for the purpose of solving pollution problems.

3- Active participation in the renaissance and progress of society through holding seminars, conferences and continuing education.

4- Adopting the continuous improvement approach for all the various events and activities of the department to ensure the achievement of the mission and goals of the department.

5- Granting primary certificates in environmental specialization.

٤. Student Learning Outcomes

1. Recognize, articulate, and resolve difficult engineering issues using engineering, scientific, and mathematical methods.
2. Use of engineering design to create solutions that satisfy specific demands while considering public health, safety, and welfare as well as regional, national, international, social, cultural, and economic issues.
3. Interact with a variety of audiences efficiently.

4. Recognize the ethical and professional obligations in engineering settings and make wise decisions that consider how engineering solutions will affect societal, economic, environmental, and global issues.
5. Work well on a team where everyone contributes to leadership, fosters inclusivity and collaboration, sets goals, plans tasks, and achieves objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

٥. Academic Staff

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٦. Credits, Grading and GPA

Credits

Northern technical University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

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:				
Number 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.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

٧. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الاول (الفصل الاول)									
lecture hrs/week		CODE	ECTS	No. of hrs			اسم المقرر		
Pr	TH			SWL/sem	USWL	SSWL	باللغة الانكليزية	باللغة العربية	
0	2	NTU101	2	50	12	38	English Language	اللغة الانكليزية	1
0	4	TECK101	6	150	57	93	Derivatives and Integral	التفاضل والتكامل	2
2	1	TECK102	5	125	57	68	Engineering Drawing	الرسم الهندسي	3
0	2	NTU100	2	50	6	44	Human rights & Democracy	حقوق الانسان والديمقراطية	4
0	4	ENPE112	8	200	103	97	Principles of Environmental Engineering	مبادئ الهندسة البيئية	5
3	2	ENPE111	7	175	42	133	Analytical Chemistry	الكيمياء التحليلية	6
			30	750				المجموع	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الاول (الفصل الثاني)									
lecture hrs/week		CODE	ECTS	No. of hrs			اسم المقرر		
Pr	TH			SWL/sem	USWL	SSWL	باللغة الانكليزية	باللغة العربية	
0	2	NTU103	2	50	17	33	Arabic Language	اللغة العربية	1
3	0	TECK103	4	100	55	45	Workshop	الورش	2
0	4	ENPE113	5	125	62	63	Engineering Mechanics	الميكانيك هندسي	3
3	2	ENPE114	6	150	77	78	Organic Chemistry	كيمياء العضوية	4
0	3	ENPE104	5	125	77	48	Physics	الفيزياء	5
1	2	NTU102	3	75	27	48	Computer	الحاسوب	6
0	4	ENPE115	5	125	62	63	Applications of Derivatives and Integral	تطبيقات التكامل والتفاضل	7
			30	750				المجموع	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الثاني (الفصل الاول)									
lecture hrs/week		CODE	ECTS	No. of hrs			اسم المقرر		
Pr	TH			SWL/sem	USWL	SSWL	باللغة الانكليزية	باللغة العربية	
3	2	ENPE212	7	175	100	75	Fluid Mechanics	ميكانيك الموائع	1
3	2	ENPE210	7	175	100	75	Environmental Chemistry	كيمياء بيئية	2
3	1	ENPE211	5	125	65	60	Computer programming	برمجة الحاسوب	3
3	2	ENPE214	7	175	100	75	Environmental Geology	علم الأرض البيئي	4
0	3	ENPE217	4	100	55	45	Surveying	المساحة	5
			30	750				المجموع	

Semester 4 | 30 ECTS | 1 ECTS = 25 hr

المستوي الدراسي الثاني (الفصل الثاني)								
lecture hr/weeks		CODE	ECTS	No. of hrs			اسم المقرر	
Pr	TH			SWL	USWL	SSWL	باللغة الانكليزية	باللغة العربية
3	2	ENPE218	7	175	100	75	Micro-Organism Techniques	تقنيات أحياء مجهريه	1
3	2	ENPE219	6	150	75	75	Ecology	علم البيئة التطبيقي	2
3	2	ENPE215	7	175	100	75	Hydrology	علم المياه	3
0	5	TECK202	6	150	75	75	Mathematics	الرياضيات	4
0	3	ENPE216	4	100	55	45	Environmental Statics	إحصاء بيئي	5
			30	750				المجموع	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الثالث (الفصل الاول)									
lecture hrs/week		code	ECTS	No. of hrs			اسم المقرر		
Pr	TH			SWL/sem	USWL	SSWL	باللغة الانكليزية	باللغة العربية	
0	4	TECK300	5	125	65	60	Engineering Analysis	التحليلات الهندسية	1
3	2	ENPE310	7	175	100	75	Water Pollution	تلوث المياه	2
3	2	ENPE311	6	150	75	75	Soil Pollution and Remediation	تلوث التربة والمعالجة	3
2	2	ENPE315	5	125	65	60	Environmental Thermodynamic	ديناميك الحرارة البيئي	4
3	2	ENPE312	7	175	100	75	Air Pollution	تلوث الهواء	5
			30	750				المجموع	

المستوي الدراسي الثالث (الفصل الثاني)									
lecture hrs/week		code	ECTS	No. of hrs			اسم المقرر		
Pr	TH			SWL	USWL	SSWL	باللغة الانكليزية	باللغة العربية	
0	4	TECK301	5	125	65	60	Numerical Analysis	تحليلات عددية	1
0	4	ENPE317	6	150	90	60	Hydraulic	الهيدروليك	2
3	2	ENPE313	6	150	75	75	Water Pollution Control	السيطرة على تلوث الماء	3
3	2	ENPE314	7	175	100	75	Air Pollution Control	السيطرة على تلوث الهواء	4
3	2	ENPE320	6	150	75	75	Waste Solid Management	إدارة نفايات صلبة	5
			30	750				المجموع	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الرابع (الفصل الاول)								
lecture hrs/week		code	ECTS	No. of hrs			اسم المقرر	
Pr	TH			SWL/sem	USWL	SSWL	باللغة الانكليزية	باللغة العربية
3	0	TECK401	6	150	105	45	Engineering Project	مشروع هندسي- البحوث السابقة، البرنامج العملي
0	3	ENPE415	5	125	80	45	Environmental Impact Assessment and Legislation	تقييم الأثر البيئي والتشريعات
3	2	ENPE417	6	150	75	75	Health and Safety	سلامة مهنية
3	2	ENPE412	7	175	100	75	Waste water Pollution Control	السيطرة على ملوثات الصرف الصحي
0	4	ENPE414	6	150	90	60	Water Supply Engineering	هندسة اسالة المياه
			30	750				المجموع

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

المستوي الدراسي الرابع (الفصل الثاني)								
lecture hrs		code	ECTS	No. of hrs			اسم المقرر	
Pr	TH			SWL	USWL	SSWL	باللغة الانكليزية	باللغة العربية
3	0	TECK403	6	150	105	45	Engineering Project	مشروع هندسي- تحليل النتائج، الاستنتاجات، الكتابة، المناقشة
0	4	ENPE419	6	150	90	60	Sludge Treatment control	السيطرة على معالجة الحماة
-	3	TECK402	6	150	105	45	Engineering economic	اقتصاد هندسي
3	2	ENPE413	6	150	75	75	Control and Measurement Control	هندسة قياس وسيطرة
3	2	ENPE418	6	150	75	75	Sanitary Networks engineering	هندسة شبكات الصرف الصحي
			30	750				المجموع

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