

Curriculum for Associate Degree in Non-Destructive Inspection Technology

The curriculum of associate degree in “Non-Destructive Inspection Technology” specialization consists of (72 credit hours) as follows:

Serial No.	Requirements	Credit Hours
First	University Requirements	12
Second	Engineering Program Requirements	17
Third	Specialization Requirements	43
Total		72



The study plan of associate degree
in
Non-Destructive Inspection Technology

First: University requirements (12 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
22001101	Arabic Language	3	3	0	
22002101	English Language	3	3	0	
21901100	Islamic Culture	3	3	0	
21702101	Computer Skills	3	1	4	
Total		12	10	4	

Second: Engineering Program requirements (17 credit hours) as follows:

Course No	Course Title	Credit Hours	Weekly Contact Hours		Prerequisite
			Theoretical	Practical	
20201111	Engineering Workshops	1	0	3	-
20204111	AutoCAD	2	0	6	-
20506111	Occupational Safety	2	2	0	-
21301111	General Mathematics	3	2	2	-
21302111	General Physics	3	2	2	-
21302112	General Physics Laboratory	1	0	3	-
21702111	Communication Skills and Technical Writing	3	2	2	22002101
20201121	Engineering Materials	2	2	0	-
Total		17	10	18	



❖ تطبيق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

Third: Specialization Requirements (42 credit hours) as follows:

Course No.	Course Title	Credit Hours	Weekly Contact Hours		Pre-req.
			Theoretical	Practical	
20605111	Maintenance Regulations and Airfield Safety	2	2	0	-
20606211	Eddy Current Testing	2	2	0	
20606212	Eddy Current Testing Workshops	1	0	3	20606211
20606221	Spectrometric Oil Analysis	2	2	0	
20606222	Spectrometric Oil Analysis Workshops	1	0	3	20606221
20606131	Ultrasonic Testing	2	2	0	
20606132	Ultra Sonic Testing Workshops	1	0	3	20606131
20606241	X-ray Testing	3	3	0	
20606242	X-ray Testing Workshops	1	0	3	20606241
20606251	Principle of Magnetic Particle Testing	3	3	0	
20606252	Principle of Magnetic Particle Testing Workshops	1	0	3	20606251
20606251	Penetrant Testing	3	3	0	
20606262	Penetrant Testing Workshops	1	0	3	20606251
20602111	Electronic Devices and Circuits 1	3	3	0	20301113
20602112	Electronic Devices and Circuits 1 Laboratory.	1	0	3	20602111*
20301113	Electrical Circuits	3	3	0	21302111*
20301114	Electrical Circuits Laboratory	1	0	3	20301113*
20606271	Special Methods for Non-Destructive Testing Techniques	3	3	0	
20606101	Chemistry	2	2	0	
20606102	Chemistry Laboratory	1	0	3	20606101*
20606291	Training**	3	0	-	-
20606292	Project	3	0	-	-
Total		43	28	27	

*-Co-requisite

** Equivalent to 280 training hours



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Guiding Plan

First Year					
First Semester			Second Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
20301113	Electrical Circuits	3	22001101	Arabic Language	3
20301114	Electrical Circuits Lab.	1	20204111	AutoCAD	2
22002101	English Language	3	21901100	Islamic Culture	3
21302111	General Physics	3	20602111	Electronic Devices and Circuits 1	3
21302112	General Physics Lab.	1	20602112	Electronic Devices and Circuits 1 Lab.	1
21301111	General Mathematics	3	21702111	Communication Skills and Technical Writing	3
20201111	Engineering Workshops	1	20606101	Chemistry	2
21702101	Computer Skills	3	20606102	Chemistry Laboratory	1
Total		18	Total		18

Second Year					
Third Semester			Forth Semester		
Course No.	Course Title	Credit Hours	Course No.	Course Title	Credit Hours
20606211	Eddy Current Testing	2	20606241	X-ray Testing	3
20606212	Eddy Current Testing Workshops	1	20606241	X-ray Testing Workshops	1
20606221	Spectrometric Oil Analysis	2	20606251	Principle of Magnetic Particle Testing	3
20606222	Spectrometric Oil Analysis Workshops	1	20606252	Principle of Magnetic Particle Testing Workshops	1
20605111	Maintenance Regulations and Aircraft Safety	2	20606291	Training	3
20506111	Occupational Safety	2	20606292	Project	3
20606271	Special Methods for Non-Destructive Testing Techniques	3	20606261	Penetrant Testing	3
20606131	Ultrasonic Testing	2	20606262	Penetrant Testing Workshop	1
20606112	Ultra Sonic Testing Workshops	1			
20201121	Engineering Materials	2			
Total		18	Total		18

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Brief Course Description

University Requirements

Course Title	Course No	Credit Hours (Theoretical /Practical)
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Arabic Language	22001101	3 (3,0)
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تتضمن هذه المادة مجموعة من المهارات اللغوية بمستوياتها وأنظمتها المختلفة: الصوتية، والصرفية، والنحوية، والبلاغية، والمعجمية، والتعبيرية، وتشتمل نماذج من النصوص المشرقة: قرآنية، وشعرية، وقصصية، من بينها نماذج من الأدب الأردني؛ يتوخى من قراءتها وتدوقها وتحليلها تحليلًا أدبيًا؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.

English Language	22002101	3 (3,0)
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English 1 is a general course. It covers the syllabuses of listening, speaking, reading, writing, pronunciation and grammar, which are provided in a communicative context. The course is designed for foreign learners of the English language, who have had more than one year of English language study. The extension part would be dealt with in the class situation following the individual differences.

Islamic Culture	21901100	3 (3,0)
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1. تعريف الثقافة الإسلامية وبيان معانيها وموضوعاتها والنظم المتعلقة بها - وظائفها وأهدافها.
2. مصادر ومقومات الثقافة الإسلامية والأركان والأسس التي تقوم عليها.
3. خصائص الثقافة الإسلامية.
4. الإسلام والعلم، والعلاقة بين العلم والإيمان
5. التحديات التي تواجه الثقافة الإسلامية.
6. رد الشبهات التي تثار حول الإسلام.
7. الأخلاق الإسلامية والآداب الشرعية في إطار الثقافة الإسلامية.
8. النظم الإسلامية.

Computer Skills	21702101	3 (1-4)
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An introduction to computing and the broad field of information technology is given. Topics covered include the basic structure of digital computer system, microcomputer, operating systems, application software, data communication and networks, and the internet. Hands-on learning emphasizes Windows XP, MS-office2000, and the internet.

Engineering Program requirements

Engineering Workshops	20201111	1 (0,3)
Development of basic manual skills in Mechanical and Electrical works. Use of manual tools and measuring devices. Hand filing, welding, metal cutting and forming. Electrical wiring.		
AutoCAD	20204111	2 (0,6)
Introduction to AutoCAD, application of AutoCAD, commands, geometric entities. Geometric construction. Dimensioning, free –hand sketching, object representation, orthographic drawing and projections.		
Occupational safety	20506111	2 (2,0)
Role of technicians in economic development First aid accident prevention. Protective devices and equipment. Industrial safety standards. Nature of fire hazards. Sand fire regulations. Physiological effects of electrical shock on human body. First aid and treatment for the effects of electric shock. Rules of spare and chemicals storage and handing.		
Communication Skills and Technical Writing	21702111	3 (2,2)
The main goal of this course is to equip the students with the necessary communication skills in everyday life & work situations and improve their abilities in technical writing to meet market needs. For this course, the English language is the language of teaching & the means of communication for all classroom situations.		
Engineering Materials	20201121	2 (2,0)
Definition of engineering materials. Classification of materials and their properties. Metallic and non-metallic materials. Metals, alloys and composite materials. Conductors, insulators and semiconductors. Mechanical, Magnetic, Thermal and electrical characteristics of materials. Industrial applications of different types of materials.		
General Mathematics	21301111	3 (2,2)
Real numbers coordinate planes, lines, distance and circles. Functions: (operations and graphs on functions), limits, continuity, limits and continuity of trigonometric functions. Exponential and logarithmic functions. Differentiation (techniques of differentiation, chain rule, implicit differentiation). Application of differentiation (increase, decrease, concavity). Graphs of polynomials. Applications: Rolle's Theorem and Mean-Value Theorem, Integration (by substitution, definite integral, fundamental theorem of Calculus). Application of definite integral (area between two curves, volumes)		
General Physics	21302111	3 (2,2)
Physics and measurement, motion in one dimension, vectors, laws of motion, circular motion, energy and energy transfer, potential energy, linear momentum and collisions, electric fields, Gauss's law, electric potential, capacitance and dielectrics, current and resistance, direct current circuits, magnetic fields, sources of the magnetic field, and Faraday's law of electromagnetic induction.		
General Physics lab	21302112	1 (0,3)
In this course, the student performs thirteen experiments in mechanics and in electricity.		

Specialization Requirements

Maintenance Regulations and Airfield Safety	20605111	2(2.0)
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The first part handles those areas related to aircraft maintenance concept, the second part deals with the safety requirements associated with safe operation of the aircraft.

Eddy Current Testing	20606211	2(2.0)
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This Course Talks About The Eddy Current Principles, Theory Of Eddy Current Testing Method, Principles And Theory Of Eddy Current, Equipment Types, Application Of Eddy Current, And Interpreting Eddy Current Signals.

Eddy Current Testing workshop	20606212	1 (0.3)
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Complete Coverage Of Eddy Current Detection Method, Equipment And Safety Precautions To Be Considering While The Instruments Are Operate.

Spectrometric Oil Analysis	20606221	2(2.0)
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This course talks about oil analysis theory and benefits, advantages, how to take samples, types of wear metals, Customer responsibilities, requirements, and procedures.

Spectrometric Oil Analysis Workshop	20606222	1(0.3)
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Complete coverage of spectrometric oil analysis method, equipment, and safety precaution for both person and equipment

Ultrasonic Testing	20606131	2(2.0)
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The Capabilities of Ultrasonic Inspection, the Principles and theory of ultrasonic inspection, how to operate Ultrasonic inspection equipment and materials Ultrasonic inspection application, Ultrasonic inspection interpretation, Ultrasonic inspection process controls.

Ultrasonic Testing Workshop	20606132	1(0,3)
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Complete coverage of ultrasonic detection methods and techniques, and the instrument calibration and interpretation of indication.

X-Ray Testing	20606241	3(3.0)
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Course talk about the radiographic inspection method, the principles and Theory of Radiographic Inspection, Radiographic Equipment, Application of Radiographic Inspection, Interpretation of Radiographic Inspection, Process Control of Radiographic Inspection, Radiographic Inspection Safety.

X-Ray Testing Workshop	20606142	1(0.3)
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A comprehensive course enabling the student to practice the theoretical knowledge gained in the classroom, the work includes practicing safety precaution, while used the radiation equipment, and film processing method then the interpretation of indication.

Principle Of Magnetic Particle Testing	20606251	3(3.0)
Magnetic Particle Inspection Method, Principles And Theory Of Magnetic Particle Inspection, Magnetic Particle Inspection Equipment And Materials, Magnetic Particle Inspection Application Methods, Magnetic Particle Inspection Interpretations, Process Control Of Magnetic Particle Inspection And Magnetic Particle Inspection Safety.		
Principle of Magnetic Particle Testing Workshop	20606252	1(0.3)
Coverage the Magnetic Particle Inspection Methods, Magnetic Particle Inspection Equipment and Materials, and Magnetic Particle Inspection Safety.		
Penetrant Testing	20606261	3(3.0)
General Capabilities of Liquid Penetrant Inspection, Principles and Theory, liquid Penetrant Inspection Equipment, Liquid Penetrant Application Methods, And Interpretation of Liquid Penetrant Inspection.		
Penetrant Testing Workshop	20606262	1(0.3)
Coverage of Dye Penetrant Detection Methods and Types, Liquid Penetrant Inspection Equipment, Safety Precautions for both Persons and Parts.		
Electronic Devices and Circuits1	20602111	3(3,0)
Semiconductor material, and PN junction, diodes and application, special diodes, transistors power electric device.		
Electronic Devices and Circuits 1 Laboratory	20602112	1(0.3)
A comprehensive set of exercises enabling the student to practice the theoretical knowledge gained in the class room about Semiconductor materials and PN junctions, diodes and applications, special diodes, transistors and power electronic devices		
Electrical Circuits	20301113	3(3.0)
Voltage, Current, and Resistance, Ohm's Law, Energy and Power, Series-Parallel Circuits, Introduction to Alternating Current and Voltage, Capacitors, Inductors, RLC Circuits and Resonance. Electrical Measurements.		
Electrical Circuits Lab	20301114	1(0.3)
DC and AC circuits. Resonance. Measuring devices.		

Special Methods for Non-Destructive Testing Techniques	20606271	3(3.0)
A Study about the Anodic flow detection, Barkhausen noise, engineering surface chemistry, hardness testing, heat treatment, mechanical testing, tensile testing, thickness coating, welding inspection.		
Chemistry	20606101	2(2.0)
Introduces concepts on the atomic structure of matter. Discusses the periodic table and the significance of the information in a periodic table. Explains chemical bonding, the laws of chemistry, chemical equations, and simple idea about the chemistry of the liquid penetrant method.		
Chemistry Lab.	20606102	1(0.3)
This knowledge will help personnel understand the impact that their actions may have on the safe and reliable operation of Aircraft components.		
Training	20606291	3 (280 training hours)
Equivalent to 8 weeks of field training targeted to emphasize the ability of students to apply the theories in the real world of the profession.		
Project	20606292	3
An integrated design project to practice the principles of analysis and design acquired throughout the course of the student's study.		

