

Curriculum for Associate Degree in Surveying Specialization

The curriculum of associate degree in “Surveying” 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 curriculum of associate degree
in
Surveying

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 | - | |
| 22002101 | English Language | 3 | 3 | - | |
| 21901100 | Islamic Culture | 3 | 3 | - | |
| 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 | - | 3 | - |
| 20204111 | AutoCAD | 2 | - | 6 | - |
| 20506111 | Occupational Safety | 2 | 2 | - | - |
| 21301111 | General Mathematics | 3 | 2 | 2 | - |
| 21302111 | General Physics | 3 | 2 | 2 | - |
| 21302112 | General Physics Laboratory | 1 | - | 3 | - |
| 21702111 | Communication Skills and Technical Writing | 3 | 2 | 2 | 22002101 |
| 20201121 | Engineering Materials | 2 | 2 | - | - |
| Total | | 17 | 10 | 18 | |



Third: Specialization Requirements (43 credit hours) as follows:

| Course No. | Course Title | Credit Hours | Weekly Contact Hours | | Prerequisite |
|--------------|---|--------------|----------------------|-----------|--------------|
| | | | Theoretical | Practical | |
| 20102111 | Surveying 1 | 3 | 3 | 0 | |
| 20102112 | Surveying 1 Laboratory | 2 | 0 | 6 | 20102111* |
| 20102113 | Surveying 2 | 3 | 3 | 0 | 20102111 |
| 20102114 | Surveying 2 Lab. | 2 | 0 | 6 | 20102113* |
| 20102211 | Surveying 3 | 2 | 2 | 0 | 20102113 |
| 20102212 | Surveying 3 Lab. | 1 | 0 | 3 | 20102211* |
| 20109111 | Quantity Surveying | 3 | 2 | 3 | |
| 20104121 | Civil Engineering Drawing | 2 | 0 | 6 | 21702101* |
| 20104261 | Highways Engineering | 2 | 2 | 0 | |
| 20102213 | Cadastral Surveying and Cadastral Evaluation | 2 | 2 | 0 | 20102111 |
| 20102214 | Cadastral Surveying and Cadastral Evaluation Lab. | 1 | 0 | 3 | 20102213* |
| 20102215 | Geodetic Surveying | 2 | 2 | 0 | |
| 20106211 | Global Positioning Systems | 2 | 1 | 3 | |
| 20106121 | Geographic Information Systems 1 | 2 | 2 | 0 | 20102111 |
| 20106122 | Geographic Information Systems 1 Lab. | 1 | 0 | 3 | 20106121* |
| 20106231 | Remote Sensing 1 | 2 | 2 | 0 | |
| 20106232 | Remote Sensing 1 Lab. | 1 | 0 | 3 | 20106231* |
| 20106141 | Mapping Science | 2 | 1 | 3 | 20102111 |
| 20102216 | Photogrammetry | 2 | 1 | 3 | |
| 20102291 | Training** | 3 | 0 | - | - |
| 20102292 | Project | 3 | 0 | - | - |
| Total | | 43 | 23 | 42 | |

*-Co-requisite

** Equivalent to 280 training hours

Guiding Plan

| First Year | | | | | |
|----------------|----------------------|--------------|-----------------|--|--------------|
| First Semester | | | Second Semester | | |
| Course No. | Course Title | Credit Hours | Course No. | Course Title | Credit Hours |
| 21702101 | Computer Skills | 3 | 21702111 | Communication Skills and Technical Writing | 3 |
| 21301111 | General Mathematics | 3 | 21901100 | Islamic Culture | 3 |
| 21302111 | General Physics | 3 | 20102111 | Surveying 1 | 3 |
| 21302112 | General Physics Lab. | 1 | 20102112 | Surveying 1 Lab. | 2 |
| 20506111 | Occupational Safety | 2 | 20204111 | AutoCAD | 2 |
| 22001101 | Arabic Language | 3 | 20109111 | Quantity Surveying | 3 |
| 22002101 | English Language | 3 | 20106141 | Mapping Science | 2 |
| Total | | 18 | Total | | 18 |

| Second Year | | | | | |
|----------------|---------------------------------------|--------------|-----------------|---|--------------|
| Third Semester | | | Fourth Semester | | |
| Course No. | Course Title | Credit Hours | Course No. | Course Title | Credit Hours |
| 20102216 | Photogrammetry | 2 | 20201121 | Engineering Materials | 2 |
| 20201111 | Engineering workshops | 1 | 20102211 | Surveying 3 | 2 |
| 20102113 | Surveying 2 | 3 | 20102212 | Surveying 3 Lab. | 1 |
| 20106231 | Remote Sensing 1 | 2 | 20102215 | Geodetic Surveying | 2 |
| 20106232 | Remote Sensing 1 Lab. | 1 | 20102291 | Training | 3 |
| 20102114 | Surveying 2 Lab. | 2 | 20104261 | Highways Engineering | 2 |
| 20106211 | Global Positioning Systems | 2 | 20102292 | Project | 3 |
| 20104121 | Civil Engineering Drawing | 2 | 20102213 | Cadastral Surveying and Cadastral Evaluation | 2 |
| 20106121 | Geographic Information systems 1 | 2 | 20102214 | Cadastral Surveying and Cadastral Evaluation Lab. | 1 |
| 20106122 | Geographic Information Systems 1 Lab. | 1 | | | |
| Total | | 18 | Total | | 18 |

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

Brief Course Description

University Requirements

| Course Title | Course No | Credit Hours (Theoretical /Practical) |
|--------------|-----------|---|
|--------------|-----------|---|

| | | |
|-----------------|----------|---------|
| Arabic Language | 22001101 | 3 (3-0) |
|-----------------|----------|---------|

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 وتذوقها وتحليلها تحليلاً أدبياً؛ تنمية الذوق الجمالي لدى الطلاب الدارسين.

| | | |
|------------------|----------|---------|
| English Language | 22002101 | 3 (3-0) |
|------------------|----------|---------|

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) |
|-----------------|----------|---------|

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) |
|-----------------|----------|---------|

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

| | | |
|---|-----------------|----------------|
| Surveying 1 | 20102111 | 3 (3-0) |
| Introduction to Surveying measurements, types of measurement, linear measurement, Theory of errors, bearings (directions and angles), areas computations, leveling, coordinates. | | |
| Surveying 1 Lab. | 20102112 | 2 (0-6) |
| Exercises and project covering the topics discussed in the Surveying 1 course. | | |
| Surveying 2 | 20102113 | 3 (3-0) |
| Vertical and horizontal angle measurements, theoretical applications, Tachometric surveying, Electronic Theodolite, Modern Instruments, Total Stations, Curves and curve setting. | | |
| Surveying 2 Lab. | 20102114 | 2 (0-6) |
| Exercises and projects covering the topics discussed in the Surveying 2 course, briefing about Plane Table. | | |
| Surveying 3 | 20102211 | 2 (2-0) |
| Coordinate systems in surveying works, topographic survey and contouring, laying out engineering projects, hydrographic surveying. | | |
| Surveying 3 Lab. | 20102212 | 1 (0-3) |
| Exercises and project covering the topics discussed in Surveying 3 course. | | |
| Quantity Surveying | 20109111 | 3 (2-3) |
| Conditions of Contracts, Measurement Rules, and Quantity take off and Calculations of areas and volumes, calculation quantities of all civil and architectural works orientation in tables. | | |
| Civil Engineering Drawing | 20104121 | 2 (0-6) |
| Basic concepts and conventional symbols of building drawing ,topographic maps ,plans, elevations ,vertical sections , detailing of stairs ,foundations ,beams ,columns, slabs ,drawing of sanitary and electrical installations ,manholes ,and inlets ,drawing of multistory building ,using AutoCAD 2005 in building drawing and steel structures drawing (3 hours drafting room drawing + 3 hours AutoCAD drawing). | | |
| Highways Engineering | 20104261 | 2 (2-0) |
| Highway types, road users, highway geometric design, horizontal and vertical alignments of roads, cross sections, design of rigid and flexible pavement, drainage and erosion control traffic engineering, road maintenance. | | |
| Cadastral Surveying and Cadastral Evaluation | 20102213 | 2 (2-0) |
| Historical notes about land registration in Jordan, legal terms and regulation, land regulation subdivision, computation of parcel area, restoration and modification of lost land boundaries, cadastral evaluation. | | |
| Cadastral Surveying and Cadastral Evaluation Lab. | 20102214 | 1 (0-3) |
| Exercises and project covering the topics discussed in the Cadastral Surveying and Cadastral Evaluation course. | | |

| | | |
|--|-----------------|-------------------------------|
| Geodetic Surveying | 20102215 | 2 (2-0) |
| The celestial sphere and celestial systems, time and motion and time system, the spherical shape of earth, coordinate systems, geodetic grids and triangulation, precise leveling, control points, projection systems, least squares method in geodetic survey. | | |
| Global Positioning Systems | 20106211 | 2 (1-3) |
| Satellite systems, Receivers, Control segments, Errors of observations, types of observations: Static survey, Rapid Static survey, Stop&Go Survey, Kinematic Survey, Real Time Survey; the use of GNSS in topography surveying. Exercises and skills, project covering the topics discussed in the GPS course. | | |
| Geographic Information Systems 1 | 20106121 | 2 (2-0) |
| Design and operation of Geo-Spatial Information Systems (GIS), role of GIS in digital mapping, spatial data management characteristics of GIS; spatial data management system geo-referencing, land Information modeling spatial representation geo-processing input/output operation data base management system, GIS computer hardware, GIS software. | | |
| Geographic Information Systems 1 Lab. | 20106122 | 1 (0-3) |
| Exercises and project covering the topics discussed in the Geographic Information Systems course. | | |
| Remote Sensing 1 | 20106231 | 2 (2-0) |
| Principles of remote sensing, types of images, thermal images, multi spectral images, applications, resolution ,classification , correction , types of bands and sensors, electromagnetic waves. | | |
| Remote Sensing 1 Lab. | 20106232 | 1 (0-3) |
| Exercises and project covering the topics discussed in remote sensing course. | | |
| Mapping Science | 20106141 | 2 (1-3) |
| Map scales, map projection, types of maps, maps symbols, map drawing, coordinates of maps, topographical maps, and interpretation of topographical maps ,maps profile, digital mapping and map completion; Exercises and project covering the topics discussed in the Mapping course. | | |
| Photogrammetry | 20102216 | 2 (1-3) |
| Basic principles of aerial photographs, aerial mission, overlaps, drawing maps from aerial photographs, exercises and skills, project covering the topics discussed in Photogrammetry course. | | |
| Training | 20105291 | 3 (280 training hours) |
| Equivalent to 280 Hours of field training targeted to emphasize the ability of students to apply the Theories in the real word of the profession. | | |
| Project | 20105292 | 3 |
| An integrated design project to practice the principles of analysis and design acquired throughout the course of the student's study. | | |