



Course Brief Description – Procedures of the Course Plan Committee/ Department Civil Engineering and infrastructures

QF09/0409-1.0

المتطلب السابق Prerequisite	الساعات المعتمدة Credit Hours	اسم المادة الدراسية Course Name	رقم المادة Course No.
<b>0103101</b>	3C, 3H	<b>Statics (for Mech+Arch)</b>	<b>0902200</b>
Introduction, basic definitions for force system, components, resultants, couples, equilibrium, structures (trusses, frames, machines), distributed load (center of area and center of gravity, areas of compound volumes), shear and bending moment in beams, moment of inertia.			
<b>0904210</b>	<b>3C,3H</b>	<b>Strength of Materials</b>	<b>0902202</b>
Stress and strain, mechanical properties of materials, thin wall cylinders, bending moment and shear force diagrams; stresses and deformations in members subjected to tension, compression, shear and torsion; flexural and shearing stresses in beams; deflection of beams; combined stresses.			
<b>Co-0902202</b>	<b>1C,3L</b>	<b>Strength of Materials Lab</b>	<b>0902203</b>
This laboratory serves mainly the measuring and/or determination of some material properties (strain and stress, yield stress, ultimate stress, fracture stress). Non destructive testing of materials (NDT), micro and macro examination of materials and phase diagrams for steel. It is equipped with machines for conducting tests, such as: Tension, impact fatigue, bending, creep, hardness, and photo elasticity tests.			
<b>0101104</b>	<b>3C,3H</b>	<b>Probability and Statistics for Engineers</b>	<b>0902209</b>
A concise survey of: combinatorial analysis; probability and random variables; discrete and continuous densities and distribution functions; expectation and variance; normal (Gaussian), binomial and Poisson distributions; statistical estimation and hypothesis testing; method of least squares, correlation and regression. The emphasis is on statistics and quality control methods for engineers.			
<b>2<sup>nd</sup> year</b>	<b>2C,2H</b>	<b>Geology for Engineers</b>	<b>0902221</b>
This course introduce the Science of Geology, regard earth surface formation, surface process, minerals and minerals forming rocks; as well as discussing the soil and the strength of the geological materials. Excavation, slope stability problems are of the interest in this topic and some information in this regard is of a concern.			
<b>0902221</b>	<b>2C,2H</b>	<b>Construction Materials</b>	<b>0902222</b>
Production, types, properties and uses of cementitious materials and aggregate. Fresh concrete properties, concrete operations, concrete testing, and destructive and non-destructive testing of existing concrete structures. Durability Aspects of Concrete. Design of concrete mixes. Production and properties of masonry units including building stones, concrete blocks and calcium-silicate and clay bricks.			
<b>0902222</b>	<b>1C,3L</b>	<b>Construction Materials Lab</b>	<b>0902223</b>
Normal Consistency & Setting Time of Cement Past; Fresh and Mechanical Properties of Mortar; Sieve Analysis of Aggregate; Specific Gravity of Aggregate; Unit Weight of Aggregate; Abrasion test of Aggregate; Fresh and Mechanical Properties of Concrete; Mechanical Properties of Steel; Tests on wood			



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(Mechanical and Visual); Impact Test on Steel: Hardness Test on Metals.			
<b>0402100</b>	<b>1C,1H</b>	<b>Technical Writing</b>	<b>0902231</b>
Practice in the writing of technical reports. Topics include exposition, argumentation, presentation of technical data, and effective communication. Frequent written exercises and development of composition skills. Use of Writing Centre resources required outside regular class hours.			
<b>0902202</b>	<b>3C,3H</b>	<b>Structural Analysis I</b>	<b>0902332</b>
Classification of structures; loads; truss analysis, internal loadings in structures, shear and moment diagrams for beams and frames; influence lines for determinate structures; deflections; introduction to methods of analysis of statically indeterminate structures.			
<b>0902332</b>	<b>3C,3H</b>	<b>Structural Analysis II</b>	<b>0902333</b>
Analysis of statically indeterminate structures: method of consistent displacements; three moment equation, evaluation of fixed end moments; slope deflection method; moment distribution method; column analogy. Introduction to matrix methods. Approximate methods. Computer applications.			
<b>0902222,</b> <b>0902333</b>	<b>3C,3H</b>	<b>Reinforced Concrete I</b>	<b>0902434</b>
Flexural Analysis and Design of beams; singly reinforced rectangular beams, doubly reinforced rectangular beams, T-beams. Shear and diagonal tension, bond, anchorage and development length, analysis and design of edge supported slabs, design of compression members.			
<b>0902434</b>	<b>3C,3H</b>	<b>Reinforced Concrete II</b>	<b>0902435</b>
Review of design basis, ultimate strength versus unified design approaches, tension- and compression-controlled members, strain limits. Serviceability analysis, deflection and cracking control, shrinkage and creep deflection. Analysis and design for torsion. Slender columns. Analysis of building frames, simplifications, idealization. Two-way slabs, column-supported slabs, direct design method, equivalent frame method. Design of stairs.			
<b>0902333</b>	<b>2C,2H</b>	<b>Steel Structural Design</b>	<b>0902436</b>
Structural Steel Design (3-0) Design of structural steel elements found in bridges and building structures, including plate girders, other built-up members, beams and slender columns;, and connections.; detailing of steel structures; design sessions (computer applications).			
<b>0101104</b>	<b>3C,3H</b>	<b>Surveying</b>	<b>0902341</b>
Principles of surveying; linear measurements, chain surveying, leveling and its application in contouring, profiles and cross-sections. Areas, volumes, and earthwork. Measurement of angles; traverse surveys, tacheometry and electronic distance measurements (EDM). Theory of errors and adjustments. Principles of triangulation.			
<b>Co-0902341</b>	<b>1C,3L</b>	<b>Surveying Lab</b>	<b>0902342</b>



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Chain surveying, the use of the level and leveling staff; setting out levels; profile and cross-section leveling. The theodolite and its use traverse surveying. Tachometry and electronic distance measurements. Measurement of areas with planimeter. The use of laser theodolite and level.

0902341

3C,3H

**Traffic and Transportation Engineering**

0902443

The field of transportation engineering; role of transportation in society economics; social; political; and environmental. Operation and vehicular characteristics for all modes of transportation. Traffic control devices; pavement markings; object marking; delineators; studs; signs; and channelization; introduction to traffic signal timings. Rail transportation; Urban rail transit; railway cross section; Urban rail transit. Air transport demand, selection of airport site and runway orientation; airport passenger terminal area. Water transportation including marine structures, classes of harbors and planning and design of port facilities.

0902443

3C,3H

**Highways Engineering**

0902544

Principles of route location. Horizontal alignment; design and setting out (circular curve element, setting out of circular and transition curves, superelevation. Sight distance; stopping and passing sight distance. Vertical alignment; design and setting out (properties of vertical curves). Coordination of horizontal and vertical curves. Capacity of two-lane highways. Geometric design of intersection.

0902545

3C,3H

**Pavement Design**

0902545

Pavement types and definitions, soil classification for highway purposes. Bituminous material types and tests, uses of asphalt in highways, design of bituminous mixtures by Marshall Procedure. Analysis of rigid and flexible highway pavement stresses (one layer system). Pavement layers, calculations of equivalent single axle load, design of rigid and flexible highway pavement by AASHTO procedure.

Approved by

(التوقيع والخاتم الرسمي)

اعتمدت من قبل  
مجلس القسم