Ministry of Higher Education
& Scientific Research
Thi – Qar University
Engineering College
Civil Engineering Department
Third Year

وزارة التعليم العالي و البحث العلمي
جامعة ذي قار
كلية الهندسة
قسم الهندسة المدنية
المرحلة الثالثة

محاضرات مادة نظرية الإنشاءات

B. Sc. Course in

Theory Of Structures

THIRD YEAR COURSE
(JUNIOR COURSE)
2016 - 2017

Prepared by Instructor

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Technician Diploma in Building and Construction Engineering

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October 2016

تشرين الأول ٢٠١٦م

منهاج مادة نظرية الإنشاءات

Syllabus of Theory of Structures

The Syllabus :-

منهاج مادة نظرية الإنشاءات :-

The Course Objective :-

الهدف من تدريس المادة :-

Introduce students to the principles of Theory of Structures, and the types of Structures and the philosophy of Structural Analysis, and theories of different Structural Analysis that used in this field, and loads in the Structures, and the forces in parts of the Structure, and the types of joints in the Structure, as well as the types of Supports in the Structure, and the equations of equilibrium, and the definition of Determinacy and Stability of Structures, and the definition of the shear forces and bending Moments in the Structure, and the relationship between them and the loads, and the methods of drawing diagrams for each one of them.

تعريف الطالب بمبادئ نظرية الإنشاءات (Theory of Structures)، والتعريف بأنواع المنشآت وفلسفة التحليل الإنشائي (Structural Analysis)، ونظريات الإنشاءات المختلفة المستخدمة في التحليل الإنشائي، والأحمال (Loads) في المنشآت، والقوى (Forces) في أجزاء المنشأ الهيكلي، وأنواع المفاصل (Joints) في المنشأ الهيكلي، وكذلك أنواع المساند (Supports) في المنشآت الهيكلية، ومعادلات التوازن (Equilibrium Equations)، والتعريف بمحدودية (Determinacy) وإستقرارية (Stability) المنشآت، وكذلك التعريف بقوى القصّ (Shear Forces) وعزوم الإنحناء (Bending Moments) في المنشآت، والعلاقة فيما بينهما وبين الأحمال، وطريقة رسم المخططات (Diagrams) الخاصة بكل واحد منهما.

The Course Description :-

التفاصيل الأساسية للمادة :-

1- Introduction, Classification and Types of Structures, Types of Loads, Types of Supports.
2- Stability and Determinacy and Indeterminacy of Structures (Beams, Frames and Trusses).
3- Analyze of Statically Determinate Structures, and Equations of Equilibrium.
4- Types and Analysis of Trusses, Axial Force, Shear, and Bending Moment Diagrams for Structures.
5- Internal Forces of Structures (Beams, Frames, Trusses and Arcs).
6- Influence Line of Structures (Beams, Frames, Trusses and Girders), and uses of influence line.
7- Deflection of Structures, Introduction and Common Methods of Structural Analysis :-
(Double Integration Method, Conjugate Beam Method, Virtual Work Method, Elastic-Load Method, Approximate Analyze of Statically Indeterminate Structures, Method of Consistent Deformation, Slope Deflection Method, Moment Distribution Method, Least Work Method).
8- Matrix Method, Force and Displacement of Structures (Beams, Trusses and Frames).
9- Variation Approach; Finite Element Method for Structures (Frames and Trusses).
10- Cables and Suspension Bridges.

The Textbook :-

الكتب المنهجية للمادة :-

1- Structural Analysis, R. C. Hibeler, Pearson Education Asia Publication, Delhi.
2- Theory of Structures, S. P. Timoshenko and D. H. Young, McGraw Hill International Edition.

The References :-

المصادر الخارجية للمادة :-

1- Basic Structural Analysis, By C. S. Reddy (3rd Edition).
2- Elements of Strength of Materials, S. P. Timoshenko &. D. H. Young, East West Press, New Delhi.
3- Indeterminate Structural Analysis, C. K. Wang, Mcgraw Hill Book Company.
4- Matrix Analysis of Framed Structures, W. Weaver and J. M. Gere, CBS Publishers.
5- Statically Indeterminate Structures, By C. K. Wang, Tata Mcgraw Hill Publishing Company Ltd.
6- Structural Analysis, By T. S. Thandavamoorthy, Oxford University Press.
7- Structural Analysis, Volume-II, By Dr. R. Vaidyanathan, Dr. P. Perumal.
8- Structural Analysis: A Matrix Approach, By G. S. Pandit, 2nd Edition, Tata Mcgraw Hill.
9- Structural Analysis-I & II, By S.S. Bhavikatti.
10- Theory of Structures, By R. S. Khurmi.
11- Theory of Structures, By S. Ramamrutham.
12- Theory of Structures, R.S.Khurmi, P1, S.Chand, India, 2004.

The Course Assessment :-

تقديرات الفصل الدراسي :-

Course Time	2 Semesters		32 Weeks (4 Hours / Week)		
Course Assessment	Term Tests	Laboratory	Quizzes	Project	Final Exam
	35%	----	5%	----	60%