

**Faculty of Engineering & Technology**

**Applied Topics in Structural Analysis and Mechanics**

**Information :**

**Course Code :** SCM 516

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Structural Engineering & Construction Management

**Area Of Study :**

Upon successful completion of this course, the student should be able to: - Understand the basic concepts and main principles - Calculate the values of the essential terms  
Regarding load-deformation relationships computer analysis of structures dynamic properties modeling of high rise buildings modeling of bridges modeling of tunnels modeling of shells

**Description :**

Computer analysis and design of structures, Computer programming, Earthquake engineering, Dynamics of structures, Analysis of high-rise buildings, Analysis of bridges, Analysis of tunnels, Analysis of shell.

**Course outcomes :**

**a.Knowledge and Understanding: :**

- 1 - List the main items of load-deformation relationships
- 2 - Define the main terms of dynamic properties

**b.Intellectual Skills: :**

- 1 - Assess issues of computer analysis of structures
- 2 - Calculate the values of dynamic properties
- 3 - Analyze the system of modeling of high rise buildings
- 4 - Analyze the system of modeling of bridges
- 5 - Analyze the system of modeling of tunnels

**c.Professional and Practical Skills: :**

- 1 - Prepare technical reports for computer analysis of structures
- 2 - Apply Code provisions regarding modeling of high rise buildings
- 3 - Apply Code provisions regarding modeling of shells

**d.General and Transferable Skills: :**

- 1 - Search for information and self-learning discipline

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
load-deformation relationships	8	6	2
computer analysis of structures	8	6	2

### **Course Topic And Contents :**

<b>Topic</b>	<b>No. of hours</b>	<b>Lecture</b>	<b>Tutorial / Practical</b>
dynamic properties	8	6	2
modeling of high rise buildings	8	6	2
modeling of bridges	8	6	2
modeling of tunnels	8	6	2
modeling of shells	8	6	2
Revision	4	3	1

### **Teaching And Learning Methodologies :**

Interactive Lec.  
Discussion  
Problem Solving

### **Course Assessment :**

<b>Methods of assessment</b>	<b>Relative weight %</b>	<b>Week No</b>	<b>Assess What</b>
Final exam	40.00		
Mid- Exam I, II	30.00		
Quizzes / Assig	15.00		
Report / Present	15.00		

### **Course Notes :**

Lecture note on moodle

### **Recommended books :**

Structural Dynamics, Theory and Computations, Mario Paz  
The Seismic Design Handbook, 2nd Edition, F. Naeim (ed.), Van Nostrand Reinhold, New York, 2003.