FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Structural Mechanics 4

Information :

Course Code :	SCM 415	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Professor	Mostafa Kamel Metwally Zidan	12
Lecturer	Dina Muhammad Fathy Ors	32
Assistant Lecturer	Muhammad Diab Saadeldin Abdl aal	2
Teaching Assistant	Mahmoud Mohamed Khalaf Ahmed	2
Teaching Assistant	Sarah Salah Sayed Hussein Aly Elsheshtawy	2
Teaching Assistant	Ahmed Taher Abdelhamed Mohamed Yousef	3

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 elastic buckling of column elastic buckling of beam-column plastic analysis of beams plastic analysis of frames approximate analysis of indeterminate structures surface of revolution and cylindrical shells

Description :

Elastic buckling of columns and beam columns, Stresses in circular plates under ax symmetric normal loads, Stresses in rectangular plates, Membrane stresses in shells of revolution and cylindrical shells.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	a1- Define the main terms of elastic buckling of column
2 -	a2- Define the main terms of elastic buckling of beam-column
3 -	a3- Describe the main concept of plastic analysis of beams
4 -	a4- Describe the main concept of plastic analysis of frames
b.Intellectual Skills: :	
1 -	b1- Analyze the system of elastic buckling of column
2 -	b2- Analyze the system of elastic buckling of beam-column
3 -	b3- Calculate the values of plastic analysis of beams
4 -	b4- Calculate the values of plastic analysis of frames
5 -	b5- Solve problems regarding approximate analysis of indeterminate structures

c.Professional and Practical Skills: :	
1 -	c1- Prepare technical reports for surface of revolution and cylindrical shells
d.General and Transferable Skills: :	
1 -	d1- Search for information and self-learning discipline

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
elastic buckling of column	8	6	2
elastic buckling of beam-column	8	6	2
plastic analysis of beams	8	6	2
plastic analysis of frames	8	6	2
approximate analysis of indeterminate structure	12	9	3
surface of revolution and cylindrical shells	12	9	3
Revision	4	3	1

Teaching And Learning Methodologies :

- Interactive Lec
- Discussion
- Problem Solving
- Report / Presentation

Course Assessment :

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

Course Notes :

Lecture Notes

Recommended books :

 R.C. Coates, M.G. Coutie, and F.K.Cong "Structural Analysis" 3rd Edition 1987, ELBS (UK)
 W.T. Marshall and H.M. Nelson "Structures", 2nd Edition 1984, ELBS (UK)
 V.N. Vazirani, and M.M. Ratwani, "Advanced Theory of Structures and Matrix Methods" 6Th Edition 2008, KHANNA Publishers, Delhi.