

Faculty of Engineering & Technology
Mechanics and technology of Engineering Materials

Information :

Course Code : SCM 535 **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 properties of composite materials, stress/strain analysis, analysis of structural models, quality control & assurance

Description :

Situ testing, Composite materials, Similitude and analysis of structural models, Stress/strain analysis: stress concentration, stress relaxation, residual stresses, strain energy, Applications of computer and modeling techniques in materials engineering, Code provisions related to quality control and assurance

Course outcomes :

a. Knowledge and Understanding: :

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|-----|--|
| 1 - | List the main items of properties of composite materials |
| 2 - | Describe the main concept of analysis of structural models |

b. Intellectual Skills: :

- | | |
|-----|---|
| 1 - | Calculate the values of properties of composite materials |
| 2 - | Solve problems regarding stress/strain analysis |
| 3 - | Assess issues of analysis of structural models |

c. Professional and Practical Skills: :

- | | |
|-----|---|
| 1 - | Prepare technical reports for properties of composite materials |
| 2 - | Prepare technical reports for quality control & assurance |

d. General and Transferable Skills: :

- | | |
|-----|---------------------------------------|
| 1 - | Cooperate and communicate effectively |
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Course Topic And Contents :

| Topic | No. of hours | Lecture | Tutorial / Practical |
|-----------------------------------|--------------|---------|----------------------|
| properties of composite materials | 12 | 9 | 3 |
| stress/strain analysis | 12 | 9 | 3 |
| analysis of structural models | 16 | 12 | 4 |

Course Topic And Contents :

| Topic | No. of hours | Lecture | Tutorial / Practical |
|-----------------------------|--------------|---------|----------------------|
| quality control & assurance | 16 | 12 | 4 |
| Revision | 4 | 3 | 3 |

Teaching And Learning Methodologies :

Interactive Lec.

Discussion

Problem Solving

Report / Present

Course Assessment :

| Methods of assessment | Relative weight % | Week No | Assess What |
|-----------------------|-------------------|---------|-------------|
| 1st Mid Term Exam | 15.00 | | |
| 2nd Mid Term Exam | 15.00 | | |
| Final exam | 40.00 | | |
| Quizzes / Assig. | 15.00 | | |
| Report / Present. | 15.00 | | |

Course Notes :

Handout notes on MOODLE

Recommended books :

"Mechanics of solids and materials", Robert Asaro, Vlado Lubarda, Cambridge, 2006