

Syllabus for Final term Examination, 7th semester

B.S.C Mechanical Engineering, Session 2009

UET Lahore, KSK Campus

1. Heat Mass Transfer

Book Author (Holman, 9th/10th edition)

Chapter 5

Derivations included from page 205 to 230 including 5.1-5.6 solved examples and 5.1-5.4 exercise problems are also the part of syllabus.

Chapter 6

Class problems, Examples 6.1, 6.2

Chapter 8

Thermal Radiation, Radiation properties (i.e. Kirchhoff's Law), Gray body, Shape factor and Example 8.1

Note

Chapter 5, chapter 6 and lecture notes of chapter 8 are placed at photocopy shop. Further you may get chapter 8 from the book (Holman, 6th edition) that has been uploaded on site.

2. Measurement and Instrumentation

Book Author (Alan S. Morris, 3rd edition)

Only lectures 5, 6 and 7 are considered here and has been uploaded on site

09-mech-cr.weebly.com

Further explanations and details of above mentioned lectures can be obtained from the uploaded reference book Chapter 15-17.

3. Mechanical Vibrations

For this consider the.pdf file named **Revised Presentation topics** that has been uploaded in respective section of site.

Note

In final term, 30-40% is also included from mid-term syllabus.

4. Manufacturing Process

Book Author (Grover, 4th edition and Serope Kalpakjan, 4th edition)

Introduction to welding, Fusion Welding and all its related types, Solid state Welding and all its related types, Types of welding joints, weld ability, Welding defects, Welding Symbols, Mechanical Methods of Joining and fastening , Fundamentals of polymers, Behavior and properties of thermosets and thermoplastics, Processing of plastics

Note

Lecture slides up till welding symbols have been uploaded on site, rest of contents can be sorted out from mentioned reference books.

5. Mechanics of Materials

Book Author (E.J Hearn Vol. 1 and Vol. 2)

Photo Elasticity

Basics and Principles of photo elasticity, polarization, Birefringence, Retardation, Circular and plane Polari scope, ISO clinic and ISO chromatic fringe patterns, types of polarized light and their formation, Stress Optic Law and its derivation, Effects of stressed model in Plane Polari scope with its three sub-cases.

Chapter 3 (Vol. 2)

Introduction, Partial and fully plastic Bending of Rectangular, I and T-sectioned beams, Shape factor-symmetrical and unsymmetrical sections, Deflections of partially plastic beams, length of yielded area in beams, Collapse load-plastic limit design, Torsion of shafts beyond the elastic-plastic torsion, Angles of twist of shafts strained beyond the elastic limit, plastic torsion of hollow tubes and case-hardened shafts, plastic yielding of axially symmetrical components.

Example problems 3.1, 3.2, 3.3 (part a), 3.4, 3.5, 3.6 (excluding the portion of residual stresses) and all class problems are also included.

Chapter 10 (Vol. 10)

Basic assumptions for the treatment of thick cylinder and their comparison with thin cylinders, Development of Lamé theory, Thick cylinder-internal pressure only, Longitudinal stresses, Maximum shear stresses, Change of cylinder theory, Comparison with cylinder theory, Failure theory- Yield criteria, Tresca yield criteria

Example problems 10.1, 10.2, 10.3

Exercise problems 10.1, 10.2, 10.3, 10.4, 10.9, 10.15(part a), 10.18 and all other class problems are also included.

Beam Analysis considering Elastic foundation only

All sorts of derivations and problems solved in the class are included in this section.

Strain Gauges

Notes from the book by Rilley and Dilley are placed at photocopy shop

Note

Both volumes of above mentioned text book have been uploaded on site.

Photo elasticity complete notes have been placed at photo copy shop.

In final term paper, up till 20 % from mid-term syllabus may also also be asked.

Prepared by

S.H. Fahad Fiaz

Class Representative