



AL IMAM MOHAMMAD IBN SAUD ISLAMIC UNIVERSITY  
COLLEGE OF ENGINEERING  
Department of Mechanical Engineering

| Course Information    |                               |
|-----------------------|-------------------------------|
| Course Code and Name: | ME365 Machine Design – I      |
| Credit Hours:         | 3 (3 Lecture + 1 Tutorial)    |
| Prerequisites:        | ME 216 Mechanics of Materials |

| Course Description  |
|---|
| General principles of machine design, reliability and statistical considerations, engineering materials and their mechanical properties, factor of safety, fits & tolerances, deflections and stress analysis for different types of elements, buckling, static strength and failure theories, fatigue strength and failure theories. Basic design principles of some machine elements and their selection (power screws, fasteners, and welded joints). Ethical and social impacts of mechanical design. |

| Textbook  |   |                   |                 |
|-----------|---|-------------------|-----------------|
| Title     | Shigley's Mechanical Engineering Design |                   |                 |
| Authors   | R.G. Budynas, J.K. Nisbett              |                   |                 |
| Publisher | McGrawHill                              | Year and Edition: | 2011, Ninth Ed. |

| Course Contents                                 |
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| Introduction to Mechanical Engineering Design   |
| Load and stress analysis                        |
| Deflection and stiffness                        |
| Failure resulting from static loading           |
| Fatigue failure resulting from variable loading |
| Design of non-permanent joints                  |
| Design of permanent joints                      |
| Mechanical springs                              |
| Review of course                                |

| Academic Coordinator | Signature |
|----------------------|-----------|
| Dr. Khalil Hajlaoui  |           |



Official Stamp