

Course Specifications

Programme(s) on which the course is given: **Aerospace engineering**

Major or Minor element of programmes: **N/A**

Department offering the programme: **Aerospace engineering**

Department offering the course: **Mechanical Design & Production**

Academic year / Level: **2nd Year Aerospace (3rd Year in a five-year program)**

Date of specification approval: November, 2007.

A- Basic Information

Title: Machine Design **Code:** MDP 220

Remark: Specification is not based on Credit Hours system. However, equivalent is computed based on: 1 credit hour = 1 contact hour for lectures and 1 contact hour for tutorial (class work)

Credit Hours: 4

Lecture: 1hrs **Tutorial:** 2hrs **Practicals:** -- **Total:** 3hrs

B- Professional Information

1 – Overall Aims of Course

To be capable of designing basic machine components

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- a1- Materials Selection
- a2- Design Procedure
- a3- Design and selection of basic Machine Components

b- Intellectual Skills

- b1-creative thinking
- b2-systematic analysis of components stresses.
- b3-decision making

c- Professional and Practical Skills

- c1- Design Problem solving
- c2- Proper design of machine components
- c3- Using standards and codes

d- General and Transferable Skills

- d1- Design Report preparation.
- d2- Participation in team work.
- d3- Use of internet

3- Contents (Per full academic year (2 terms))

Topic	No. of hours	Lecture	Tutorial/Practical
Design Procedure	4	2	2
Materials Selection	4	2	2
Stress Analysis	8	4	4
Failure Theories	8	4	4
Design of Joints	20	10	10
Design of Basic Machine Components	52	26	26
Total	96	48	48

4– Teaching and Learning Methods

- 4.1- lectures (including numerical examples).
- 4.2- class work (Learning solution of design assignment projects).
- 4.3- problems solving and internet search reporting

5- Student Assessment Methods

- 5.1 Final written exam. to assess knowledge & understanding of subjects.
- 5.2 Mid-term exam.(2 off) to assess knowledge & understanding of subjects.
- 5.3 Design projects and problems assigned for each topic to assess student capabilities
- 5.4 Course Projects and Internet search to assess team work and self study

Assessment Schedule

- Assessment 1 final exam. Week: 30
- Assessment 2 Mid-term Week: 10., 20
- Assessment 3 projects Week: during the full academic year (1-28)
- Assessment 4 internet report Week: 15-20

Weighting of Assessments

Mid-Term Examination	15	%
Final-term Examination	60	%
Oral Examination		%
Practical Examination	5	%
Semester Work	20	% (individual and group assignments)
<u>Other types of assessment</u>		<u>%</u>
Total	100	100%

Any formative only assessments

6- List of References

- 6.1- Course Notes
Slides notes by Dr. M.Z.Abdo
- 6.2- Essential Books (Text Books)

1. J.E.Shigley , C.R.Mischke and R.G.Budynas ,

"Mechanical Engineering Design", McGrawHill, 2004

6.3- Recommended Books

1. G.Pahl and W. Beitz, "Engineering Design: A Systematic Approach", Springer Verlag, London Limited, 1996 second Edition
2. R.L.Mott, "Machine Elements in Mechanical Design", Prentice Hall 1999

6.4- Periodicals, Web Sites, ... etc

www.mech.uwa.edu.au/DANotes

7- Facilities Required for Teaching and Learning

Video films

Course Coordinator: Prof. M.O.A.Mokhtar

Head of Department: Prof. Dr. Atef Sherif

Date: November, 2007.