

Course Specifications

University: Benha University

Faculty: High Institute of Technology

Course specifications

Program(s) on which the course is given

Basic and General course for all programs

Major or minor element of programs

Major

Department offering the program

Mechanical Eng. Tech., Civil Engineering Tech., and Electrical Eng. Tech.

Department offering the course

Mechanical Engineering Technology

Academic year / Level

First year (Preparatory year)

Date of specification approval

1990 G.

A- Basic Information

Title: Mechanics of machines

Code: M 252

Credit Hours: 3

Lecture: 2

Tutorial: 2

Practical: -

Total:4

B- Professional Information

1 - Overall aims of course

- Recognize mechanisms as a part of machine
- Analyze and follow planar mechanisms motions
- Identify kinematics of mechanisms
- Identify static forces in mechanisms

2- Intended learning outcomes of course (ILOs)

- Differentiate between structures and mechanisms
- Identify the mechanism controlling inputs

- Analyze displacement, velocity and acceleration of a point on the mechanism
- Analyze static and dynamic forces in mechanisms

a. Knowledge and understanding:

- a.1 Kinds of structural assemblies
- a.2 Follow and recognize motion transfer in gear trains
- a.3 Differentiate between different motion schemes in cams

b. Intellectual skills

- b.1 Visualize and follow mechanism positions during a course of motion
- b.2 Deduce and trace step up and step down motion in gears
- b.3 Define velocities and accelerations along a given gear or cam mechanisms

c- Professional and practical skills

- c.1 Deal with a given gear train

d- General and transferable skills

- d.1 Compute kinematics of a point in a mechanism
- d.2 Map a given mechanism into its kinematic chain to analyze its kinematics

3- Contents

Topic	No. of Hours	Lecture	Tutorial/Practical
Cams, General overview and definitions	5	3	2
Cams, Displacement schemes	5	3	2
Cams, Construction of different cams	10	6	4
Cams, Analytical cam design	5	3	2
Gears, Introduction, theory, and specifications	5	3	2
Gears, Gear trains (analytical methods)	5	3	2
Gears, Gear trains (tabulated and graphical methods)	15	9	6
Static Forces, Analysis of forces in mechanisms	5	3	2

Dynamics, Dynamic forces in mechanisms	10	6	4
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4– Teaching and learning methods

- 4.1-Direct instruction
- 4.2-Tutoring
- 4.4-Home assignments

5- Student assessment methods

- 5.1 Quizzes to assess understanding and professional skills
- 5.2 Homework grading to assess understanding and professional skills
- 5.3 MidTerm to assess intellectual and transferable skills
- 5.4 Final Exam to assess intellectual and transferable skills

Assessment schedule

- Assessment 1** Quizzes : Three or four times
- Assessment 2** HW : Every topic
- Assessment 3** Mid Term : Sixth or Seventh week
- Assessment 4** Final Exam : End of the term

Weighting of assessments

- Mid-term examination 20 %
- Final-term examination 60 %
- Oral examination 0 %
- Practical examination 0 %
- Semester work 20 %
- Other types of assessment 0 %
- Total 100 %
- Any formative only assessments

6- List of references

- Course notes
- Theory of Machines and Mechanisms, By: Shigley Joseph Edward, Published by: McGraw-Hill,1995.

6.2- Essential books (text books)

- Lecture Notes

6.3- Recommended books

- Same books

6.4- Periodicals, Web sites, ... etc

7- Facilities required for teaching and learning

Possible lab demonstration

Possible E-Learning

Course coordinator: Prof. Dr. Ahmed El-Assal

Head of Department:

Date:30 / 6/2009