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
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

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<th>Topic</th>
<th>No. of Hours</th>
<th>Lecture</th>
<th>Tutorial/Practical</th>
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<tr>
<td>Cams, General overview and definitions</td>
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<tr>
<td>Cams, Displacement schemes</td>
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<td>Cams, Construction of different cams</td>
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<td>Cams, Analytical cam design</td>
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<td>Gears, Introduction, theory, and specifications</td>
<td>5</td>
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<tr>
<td>Gears, Gear trains (analytical methods)</td>
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<tr>
<td>Gears, Gear trains (tabulated and graphical methods)</td>
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<tr>
<td>Static Forces, Analysis of forces in mechanisms</td>
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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
   o Course notes
   o Theory of Machines and Mechanisms, By: Shigley Joseph Edward,
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