A- Basic Information

Course Title: Mechanics  
Code: MPH 012
Lecture: 2  
Tutorial: 2  
Practical: -  
Total: 4
Program on which the course is given: B.Sc. Mechanical Engineering (Power)
Major or minor element of program: Major
Department offering the program: Mechanical Engineering Department
Department offering the course: Physics and Sciences Department
Academic year / level: Prep Year / First Semester
Date of specifications approval: 10/5/2006

B- Professional Information

1- Overall aims of course:
Write the aims of the course here ...
* to know and understand the concept of the force which plays a key role in understanding many facts in Engineering.
* to learn and understand the applications of equilibrium of frames and machines.

2- Intended learning outcomes of course (ILOs)
By completion of the course, the student should be able to:

a- Knowledge and Understanding
a.1) Concepts and theories of mathematics and sciences, appropriate to the discipline.
a.5) Methodologies of solving engineering problems, data collection interpretation.

b- Intellectual Skills
b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
b.2) Select appropriate solutions for engineering problems based on analytical thinking.
b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.

c- Professional and Practical Skills
c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems.
c.7) Apply numerical modeling methods to engineering problems.

d- General and Transferable Skills
d.1) Collaborate effectively within multidisciplinary team.
d.5) Lead and motivate individuals.

3- Contents
### Course Specifications (2010-2011)

<table>
<thead>
<tr>
<th>Topic No.</th>
<th>Topic</th>
<th>Weeks</th>
<th>ILO’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Application of vectors in space</td>
<td>2</td>
<td></td>
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<tr>
<td>2</td>
<td>Resultant of spatial force systems</td>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
<td>Moments and Couples Equivalent Moments and Couples and Equivalent set of forces</td>
<td>2</td>
<td></td>
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<tr>
<td>4</td>
<td>Equilibrium of Rigid Body Kids of Supports and Connections</td>
<td>2</td>
<td></td>
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<tr>
<td>5</td>
<td>Center of Mass (Assemblage continuous quantity)</td>
<td>2</td>
<td></td>
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<tr>
<td>6</td>
<td>Moment of Inertia (Area – Mass)- Axial polar and product Moment of Inertia-parallel Axes theorem – Rotated set of Axes</td>
<td>2</td>
<td></td>
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<tr>
<td>7</td>
<td>Trusses - Friction</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>14 weeks</strong></td>
<td><strong>56 hours</strong></td>
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4- **Teaching and Learning Methods**

- Lectures
- Practical training / laboratory
- Seminar / workshop
- Class activity
- Case study
- Assignments / homework

5- **Student Assessment Methods**

Assignments to assess knowledge and intellectual skills.
Quiz to assess knowledge, intellectual and professional skills.
Mid-term exam to assess knowledge, intellectual, professional and general skills.
Oral exam to assess knowledge and intellectual skills.
Final exam to assess knowledge, intellectual, professional and general skills.

**Assessment Schedule**

- Assessment 1 on weeks 2, 5, 9, 11
- Assessment 2 Quizzes on weeks 4, 6, 10, 12
- Assessment 3 Mid-term exam on week 8
- Assessment 4 Oral Exam on week 14
- Assessment 5 Final exam on week 15

**Weighting of Assessments**

- 05% Home assignments
- 05% Quizzes
- 10% Mid-term examination
- 20% Oral examination
- 60% Final-term examination
COURSE SPECIFICATIONS (2010-2011)

Benha University  Faculty of Engineering at Shobra  Mechanical Engineering Department

100% Total

6- List of References
   Course notes
   Course notes.
   Essential books
   Recommended books

7- Facilities required for teaching and learning
   Lecture room equipped with overhead projector
   Presentation board, computer and data show
   Laboratory

Course coordinator: Dr. prof Dr. Mowed El Sharnoubi
Course instructor: Dr.

Head of Department: Prof. Dr. Ali Al Sabaagh  Date: December 5, 2011