COURSE OUTLINE
Loc Nguyen, 2012

DEPARTMENT: Professional Technical Education
CURRICULUM: CAD / DESIGN Technology
COURSE TITLE: Applied Mechanics I
COURSE NUMBER: TDR 263
TYPE OF COURSE: Technical Preparatory
COURSE LENGTH: 1 quarter
CREDIT HOURS: 4
LECTURE HOURS: 33
LAB HOURS: 22
CLASS SIZE: 20
PREREQUISITES: 2nd year standing and MET 102 Technical Problem Solving.

COURSE DESCRIPTION:
This is a study of forces and force systems in equilibrium. Includes analysis for forces in trusses, frames and machine components; additional topics are friction, location of centroids, and evaluation of area moments of inertia.

STUDENT LEARNING OUTCOMES ADDRESSED:
1. Critical Thinking and Problem-Solving - Analyze and apply principles of engineering mechanics.
2. Computation - Utilize college algebra and calculus to solve engineering problems.
3. Technology - Use current data/information in engineering mechanics.
4. Critical Thinking and Problem Solving - Organize and evaluate technical data, as well as select and apply appropriate spatial relationship principles to determine problem solution.
TDR 163 Applied Mechanics I  
January, 2012

STUDENT LEARNING OUTCOMES ADDRESSED: (cont.)

5. Technology - Select and use appropriate technological tools to create technical graphics.

6. Personal Responsibility - Take pride in own work

7. Information Literacy - Access & use information from variety of resources / data

GENERAL COURSE OBJECTIVES:
Upon completion of the course the student will be able to:

1. Acquire knowledge in basic principles of engineering mechanics.
2. Demonstrate an understanding of fundamental properties of force systems and vectors.
3. Draw complete free-body diagrams of whole or part mechanisms.
4. Apply the equations of equilibrium, \( \Sigma F = 0, \Sigma M = 0 \) to the two-dimensional system.
5. Apply these principles in the analysis of structures, both frames to support loads and machines to transmit loads.

TOPICAL OUTLINE:  

<table>
<thead>
<tr>
<th>TOPICAL OUTLINE</th>
<th>APPROX. HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction &amp; Review of Trigonometry</td>
<td>5</td>
</tr>
<tr>
<td>II. Resultant of concurrent forces</td>
<td>10</td>
</tr>
<tr>
<td>III. Moment of force</td>
<td>10</td>
</tr>
<tr>
<td>IV. Moment of a couple</td>
<td>10</td>
</tr>
<tr>
<td>V. Equilibrium</td>
<td>10</td>
</tr>
<tr>
<td>VI. Trusses, Frames, and Machines</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
</tr>
</tbody>
</table>

Originated or Revised BY: L. NGUYEN  
DATE: Jan 10, 2010