

<b>COURSE NUMBER:</b> ME 5243, 4 credits	<b>COURSE TITLE:</b> Advanced Mechanism Design
<b>TERMS OFFERED:</b> Every two years, Fall	<b>PREREQUISITES:</b> ME 3222 is desired, but not required. Basic CAD is desirable
<b>TEXTBOOKS/REQUIRED MATERIAL:</b> Advanced Mechanism Design: Analysis and Synthesis, Volume 2, by Sandor and Erdman, Prentice-Hall, 1984	<b>PREPARED BY:</b> Professors Erdman, Chase <b>DATE OF PREPARATION:</b> May 21, 2007
<b>COURSE LEADER(S):</b>  Professors Erdman, Chase	<b>CLASS/LABORATORY SCHEDULE:</b> Two 120 minute lectures per week <b>CONTRIBUTION OF COURSE TO MEETING PROFESSIONAL OBJECTIVES:</b> 100 % Engineering Topics
<b>CATALOG DESCRIPTION:</b> Analytical methods of kinematic and dynamic, analysis and synthesis of mechanisms. Computerized design for function, path, and motion generation based on Burmester theory. Path curvature theory and type synthesis.	<b>COURSE TOPICS:</b>  <ol style="list-style-type: none"> <li>1. Review of basic kinematics</li> <li>2. Type synthesis of mechanisms</li> <li>3. Graphical and analytical methods for 3-point synthesis</li> <li>4. Advanced synthesis methods for 4 and 5 prescribed positions</li> <li>5. Software for mechanism synthesis (LINCAGES)</li> <li>6. Geared and dwell mechanisms</li> <li>7. Spherical linkages</li> <li>8. Path curvature theory</li> </ol>

<b>COURSE OBJECTIVES</b>	<ol style="list-style-type: none"> <li>1. Provide theoretical background for basic and advanced kinematics and synthesis of mechanisms to achieve desired motion.</li> <li>2. Introduce basic and advanced computer-based tools for analysis and synthesis of mechanisms.</li> <li>3. Provide an opportunity for students to use theory and application tools through a major mechanism design project.</li> </ol>
<b>COURSE OUTCOMES</b>	<p><b>(Letters shown in brackets are linked to program outcomes a-k)</b></p> <ol style="list-style-type: none"> <li>1. Students gain a solid theoretical background in kinematics and in the analysis and synthesis of mechanisms. [a]</li> <li>2. Students become familiar with basic and advanced computer-based engineering tools for the analysis and design of linkages. [k]</li> <li>3. Students have the ability to apply theory and the use of practical engineering tools in a substantial mechanism design project. [c, e, g, i, k]</li> </ol>

<b>ASSESSMENT TOOLS:</b>	<ol style="list-style-type: none"><li>1. Homework assignments</li><li>2. Quizzes</li><li>3. Major mechanism design project</li><li>4. Final exam</li></ol>
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## ME 5243

### *Nature of Changes:*

1. *Deleted the term kinetoelastodynamic from the catalog description.*
2. *Updated the Program Objectives that Course Outcome 3 applies to; originally [3,9], now [3,5,7,9], which were mapped to ABET c, e, g, i and k.*