Course Title: EET 4120 Engineering Technology Management

Courses Description: This course presents students with the basic management skills they will need throughout their careers. Topics include the historical development and the functions of management from planning and decision making to organizing, staffing, leading, motivating, and controlling. The nature and application of management principles throughout the technology product/project life cycles will be covered. Students will also learn about the transition from a technical performer to technical management, the position of women and minorities in engineering management, effective time management, and the importance of professional ethics and conduct.

Credit hours: 2 course credits, 2 classroom hours

Prerequisites: EET 3212


Prepared by: Z. Marantz
Instructional Objectives and Assessment

<table>
<thead>
<tr>
<th>Instructional Objectives: (For the successful completion of this course, the students should be able to)</th>
<th>Assessment: (Students will exhibit skills in class, homework assignments, quizzes, exams, and a project report.)</th>
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</thead>
<tbody>
<tr>
<td>A. Understand the nature and role of technology.</td>
<td>Students will demonstrate an understanding of the role of technology in today’s modern world.</td>
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<tr>
<td>B. Understand the nature and role of engineering management.</td>
<td>Students will demonstrate how engineering management is used in practical industrial applications.</td>
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<td>C. Understand the functions of technology management.</td>
<td>Students will apply engineering economic tools for planning and managing a project.</td>
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<td>D. Appreciation for the different technology management roles throughout the product life cycle.</td>
<td>Students will participate in a group project where they will present a product throughout its life cycle.</td>
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<td>E. To understand some of the fundamentals of managing technology projects.</td>
<td>Students will apply concepts of planning and decision making, organizing, staffing, leading, motivating, and controlling a project.</td>
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<td>F. Apply technology to managing projects.</td>
<td>Students will utilize software to manage a project from conception to production.</td>
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<td>G. Understand some of the considerations that impinge upon managing an engineering career.</td>
<td>Students will present a report that presents their plan for the development of their careers including life-long learning.</td>
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Grading Procedure:
- Midterm: 20%
- Final Exam: 25%
- Quizzes: 10%
- Homework: 20%
- Projects: 25%
### Course Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1. Functions of management, what is engineering management.</td>
<td>Chapter 1</td>
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</tbody>
</table>
| 2    | 1. Explain the importance of planning  
2. Identify missions  
3. Explain the roles of goals and objectives  
4. Identify strategies  
5. Define the different types of forecasting  
6. Describe the Delphi Method  
7. Define different approaches to forecasts  
8. Discuss some strategies for managing technology. | Chapter 4 |
| 3    | 1. Describe the three main elements of a project  
2. Explain the important parts of a scope  
3. Discuss scheduling techniques  
4. Be able to shorten a project by “crashing”  
5. Explain the steps in a project life cycle | Chapter 14 |
| 4    | 1. Discuss how decision making relates to planning  
2. Explain the process of engineering problem solving  
3. Be able to solve problems using three types of decision making tools  
4. Discuss the differences between decision making under certainty, risk, and uncertainty  
5. Describe the basics of other decision making techniques | Chapter 5 |
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<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Reading Assignment</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td><strong>Stage 1 of group project due</strong>&lt;br&gt;1. Define quality 2. Describe the quality revolution 3. Discuss some of the tools of quality 4. Recognize the methods of work measurement</td>
<td>Chapter 12</td>
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<td>6</td>
<td>Midterm Exam.</td>
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<tr>
<td>7</td>
<td>1. Describe some of the important elements for establishing financial controls 2. Explain balance sheets, income statements, ratios. 3. Explain different non-financial control systems</td>
<td>Chapter 8</td>
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<tr>
<td>8</td>
<td>1. Explain product and technology life cycles 2. Describe the legal means to protect a person’s ideas 3. Discuss the nature of creativity</td>
<td>Chapter 9</td>
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<tr>
<td>9</td>
<td>1. Describe the phases or stages in systems engineering and the new product development process 2. Recognize product liability and safety issues 3. Recognize the significance of reliability and other design factors</td>
<td>Chapter 10</td>
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<tr>
<td>10</td>
<td><strong>Stage 2 of group project due</strong>&lt;br&gt;1. Explain the difference between leaders and managers 2. Describe the nature of leadership and its significance to an organization 3. Address the application of servant leadership in</td>
<td>Chapter 3</td>
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<td>Week</td>
<td>Lecture Topic</td>
<td>Reading Assignment</td>
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<td></td>
<td>current organizations</td>
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<td>4. Recognize the different views of motivation</td>
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<td>11</td>
<td>1. Describe position of engineer in the production process</td>
<td>Chapter 11</td>
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<td></td>
<td>2. Describe considerations in planning manufacturing facilities</td>
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<td>3. Be able to use production planning tools</td>
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<td>4. Recognize different methods for production planning and control</td>
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<tr>
<td>12</td>
<td>1. Explain how the project is managed in the different organization structures</td>
<td>Chapter 15</td>
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<td>2. Describe some of characteristics of an effective project manager</td>
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<td>3. Explain the importance of the team</td>
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<td>4. Explain the importance of communications with the customer</td>
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<td>13</td>
<td>1. Explain the importance of ethics in engineering</td>
<td>Chapter 16</td>
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<td>2. Describe what is meant by whistle-blowing</td>
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<td>3. Describe the need for ethics in construction</td>
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<td>4. Describe situations where conflict of interest may arise</td>
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<td>5. Apply Guidelines for Facilitating Solutions to Ethical Dilemmas</td>
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<td>14</td>
<td><strong>Group projects and presentations due</strong></td>
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<td>15</td>
<td>Final Exam</td>
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