Course:  

**CIV_ENV 336, Project Scheduling, Winter 2011**

**Credits:**  
1 Unit credit; contact hours: 3 hours lecture, 1 hour lab per week

**Instructor:**  
Ahmad Hadavi

**Text:**  
*Construction Project Scheduling and Control* by Saleh Mubarak, Second Edition, 2010

**Other Mat’l:**  
Software: PRIMAVERA P6

**Description:**  
Project planning, scheduling, and control using CPM arrow and precedence networks; resource allocation and leveling; earned-value analysis, linear scheduling; PERT; hands-on experience in using computer tools.

**Prereq:**  
CIV_ENV 330 or permission of instructor

**Required?:**  
Not required

**Specific Goals for the Course:**

By the end of the course, students should be able to

- Identify activities involved in a construction project and their relationships;

  1) Develop arrow and precedence network diagrams and perform schedule computation for PDM networks;
  2) Identify the resources required in a project and apply techniques for resource allocation and leveling;
  3) Perform cost loading and time-cost trade-offs;
  4) Explain concepts and techniques for monitoring, evaluating, and controlling project performance (i.e. earned value analysis);
  5) Explain contractual and legal issues related to scheduling; and
  6) Use a scheduling software.

**Relation of “course specific goals” to programmatic student learning outcome through Course Assessment Table (CAT), which feeds into Program Assessment Table (PAT)**

<table>
<thead>
<tr>
<th>Course Goals</th>
<th>Outcome</th>
<th>Assessment via</th>
<th>Performance Indicator</th>
<th>Assessment</th>
<th>Proposed Action</th>
</tr>
</thead>
</table>
| 1, 2, 3, 7   | c       | R, ME, H, FE   | R ME H1 Problem 2 and 3 H2 H3 H4 FE: Q 9 to 11 | 100%>60%  
100%>60%  
83%>60%  
100%>60%  
100%>60%  
91%>60% | More examples on Linear Scheduling |
| 1, 2, 7      | d       | R, H           | R H2 Project         | 100%>60%  
100%>60% | None |
| 6            | f       | FE             | FE: Q1 to 5          | 96%>60%   | None |
| 2, 7         | g       | R, H, L        | R H1 Problem 1 and 4 L | 100%>60%  
87%>60%  
100%>60% | None |
| 1, 2         | i       | H              | H1 Problem 1 H2 Project | 87%>60%  
100%>60% | None |
| 4, 5, 7      | k       | FE, R, H, L    | FE: Q 6 to 8 and Q 12 to 14 R H5 H6 L | 91%>60%  
100%>60%  
100%>60%  
100%>60% | None |

1 Three students did not submit the homework on time.
**Topics Covered:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Guest Speaker/Location</th>
<th>Texts</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 5, 2011</td>
<td>Introduction to Project Scheduling; Work Breakdown Structure; Activity Identification; Bar Chart Schedules</td>
<td></td>
<td>Text: Chapters 1, 2, and handouts “PM101: The WBS” and “Advocating a Deliverable-Oriented Work Breakdown Structure”</td>
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<td>January 12</td>
<td>Arrow and Node Networks; Critical Path Method; “PRIMAVERA” Scheduling Software</td>
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<td>January 19</td>
<td>Precedence Networks; Estimating Activity Durations; Introduction to Term Project</td>
<td>Michael Molnar – PMA Consultants, LLC</td>
<td>Text: Chapters 5 and 10.</td>
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<td>January 26</td>
<td>Resource Allocation and Leveling</td>
<td>Brad Benhart – Purdue University</td>
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<td></td>
<td>Guest Speaker: Michael Molnar – PMA Consultants, LLC</td>
<td>NetPoint Planning Software</td>
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<td>Text: Chapters 5 and 10.</td>
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<td>February 2</td>
<td>Reviewing, Analyzing, and Updating the Schedule; Project Progress Measurement</td>
<td>Veena Kumar - Rise Group</td>
<td>Text: Chapters 7 and 9</td>
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<td>February 9</td>
<td>Cost Planning and Scheduling, Schedule Compression and Decompression</td>
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<td>Text: Chapter 8</td>
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<td>February 16</td>
<td>Review and Mid-Term Exam</td>
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<td>February 23</td>
<td>Short-Interval Scheduling; Linear Scheduling; PERT Scheduling</td>
<td>John Spittler</td>
<td>Text: Chapter 11</td>
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<td>Guest Speaker: John Spittler</td>
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<td></td>
<td>Re-baselining Baseline Schedules and Program Scheduling</td>
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<td>March 2</td>
<td>CPM in Dispute Resolution</td>
<td>Donald Giegerich</td>
<td>Text: Chapters 13, 14, and handouts</td>
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<td>March 9</td>
<td>Lean Scheduling; 4-D Scheduling</td>
<td>Afshan Barshan – Skender Construction</td>
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<td>March 16</td>
<td>Final Exam 6:30-8:30 PM</td>
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**Grade Distribution:**

- Homework 20%
- Term Project 25%
- Mid-Term Exam 20%
- Final Exam 30%
- Participation 5%

**Contact Information:**

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