MEC E 364 Manufacturing Processes
January - April, 2012

Lectures: TR 11:00 – 11:50 Mec 4-1
Labs & Field Trips: TBD

Instructor: Professor Zihui Xia
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Office Hours: Tuesday 12:00-2:00 or by appointment

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Homepage: e-class: https://eclass.srv.ualberta.ca/portal/ (use your GPU login and password) where lecture notes and other materials are posted.

Pre-requisite: MEC E 260 check if you have the prerequisite. If you do not, talk to Department adviser.

Examinations: Examinations are ‘closed book'
Midterm: Feb. 16, 11:00-12:00, location: MEC 4-1
Final: Apr. 26, 9:00-11:00, location: TBD

Mark Distribution:

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<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab reports (3)</td>
<td>10%</td>
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<td>Quizzes after field trips (5)</td>
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<td>Mid-term exam</td>
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<td>Final exam</td>
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(Note: if you miss the midterm examination, for a valid reason, your final examination will have a weight of 80 percent.)

Course Objective: learn the common practical engineering knowledge about the materials and the manufacturing processes, to build ability to select optimal materials and processing methods for designed products.

Lecture Outline:

Chapter 1 Microstructures of Metals and Alloys
Chapter 2 Ferrous Metals and Alloys
Chapter 3 Metal Casting Processes
Chapter 4 Surface Technology
Chapter 5 Powder Metallurgy (P/M)
Chapter 6 Metal Forming Processes
Chapter 7 Material-removal Processes
Chapter 8 Polymers and Polymer Processes
Chapter 9 Composites and Processing Methods

Labs & Demonstrations:
(1) Shape measurement and surface roughness
(2) Machine shop demonstration including various machine tools and their basic operations, welding and prototyping
(3) CNC lathe machining and CNC milling machining

Field Trips:
(1) Norwood Foundry (Nisku)
(2) Western Hard-Chrome Plating
(3) SCAW METALS GROUP (AltaSteel)
(4) Drader Manufacturing
(5) ZCL Composites Inc.

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