Materials Science Minor (Draft 3/26/12)

This minor is intended for students who have chosen to take a minimum of 16 credits of materials science coursework in any appropriate department.

Required:

1) ME 280 or MSC 202 Introduction to Materials Science
   Prerequisites below or with permission of instructor:
   MTH 163  Differential Equations I
   MTH 164  Multidimensional calculus (same as ME 164)
   PHY 123  Waves & Modern Physics
   ME 226  Intro to Solid Mechanics
   PHY 122  Electricity & Magnetism

2) Choose three of the following courses
   * **may only include one** of the following courses:
     PHY227 (MSC230), CHM455 (MSC455), ME460 (MSC 405)
   * **must include at least one** course at the 400(graduate) level

   CHE 225  Chemical Engineering Thermodynamics
   CHE 280  Materials Engineering
   CHE 286  Polymer Science & Technology
   EE 220  Electronic Properties of Materials
   EES 204  Mineralogy
   EES 240  Optical Mineralogy and Petrology
   EES 208  Structural Geology
   ME 242  Solids and Materials Laboratory
   ME 281  Mechanical Properties of Materials
   PHY 251  Introduction to Solid State Physics
   PHY 227 (MSC 230)  Thermodynamics & Statistical Mechanics
   BME 445 (MSC 445)  Biomaterials
   BME 483 (MSC 483)  Biosolid Mechanics
   CHE 462 (MSC 462)  Cell & Tissue engineering
   CHE 413 (MSC 413)  Engineering of Soft Matter
   CHE 454 (MSC 454)  Interfacial Engineering
   CHE 480 (MSC 431)  Chemistry of Advanced Materials
   CHE 486 (MSC 433)  Polymer Science & Engineering
   CHE 487 (MSC 434)  Polymer Rheology & Processing
   CHE 492 (MSC 472)  Biointerfaces
   CHE 416 (MSC 416)  X-ray Crystallography
   CHM 455 (MSC 455)  Thermodynamics and Stat mechanics
   CHM 456 (MSC 456)  Chemical Bonds: From Molecules to Materials
   CHM 458 (MSC 436)  Molecular Spectroscopy and Structures
   ME 408 (MSC 401)  Phase Transformations
<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ME 449 (MSC 409)</td>
<td>Elasticity</td>
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<td>ME 451 (MSC 403)</td>
<td>Characterization methods in Materials Science- Diffraction</td>
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<td>ME 460 (MSC 405)</td>
<td>Thermodynamics of nano and microsolids</td>
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<td>ME 461 (MSC 461)</td>
<td>Fracture and Fatigue</td>
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<td>ME 462 (MSC 407)</td>
<td>Solids &amp; Materials lab</td>
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<td>ME 463 (MSC 408)</td>
<td>Microstructure</td>
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<td>ME 466 (MSC 466)</td>
<td>Electrochemistry &amp; Corrosion</td>
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<td>ME 541 (MSC 541)</td>
<td>Nanoscale crystalline defects</td>
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<td>OPT 421 (MSC 470)</td>
<td>Optical properties of Materials</td>
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<td>OPT 469 (MSC 474)</td>
<td>Nano-optics</td>
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<td>PHY 418 (MSC 418)</td>
<td>Statistical mechanics</td>
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<tr>
<td>PHY 420 (MSC 420)</td>
<td>Intro to Condensed Matter Physics</td>
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