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<th>開課系所</th>
<th>材料系</th>
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<td>開課學年</td>
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<tr>
<td>課程名稱 (中文)</td>
<td>計算機系統設計</td>
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<tr>
<td>課程名稱 (英文)</td>
<td>Introduction to Materials Science</td>
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<td>課程碼</td>
<td>E511200</td>
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<td>先修科目或先備能力</td>
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<td>學分數</td>
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<tr>
<td>開課教師</td>
<td>黃啟祥</td>
</tr>
<tr>
<td>e-mail</td>
<td><a href="mailto:cshwang@mail.ncku.edu.tw">cshwang@mail.ncku.edu.tw</a></td>
</tr>
<tr>
<td>電話</td>
<td>2757575 ext. 62940</td>
</tr>
<tr>
<td>Office Hours</td>
<td>Every Monday 09:00 – 11:00</td>
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**課程概述**

Introduce fundamental concepts in MSE.
Introduce the relationships that exist between the structures and properties of Materials (metal, polymer and ceramics). On the basis of those structure property correlations, designing or engineering the structure of a material to produce a predetermined set of properties.

**教學目標**

- Use the right material for the job.
- Understand the relation between properties, structure and processing.
- Recognize new design opportunities offered
1. Introduction (3h)  
2. Atomic Structure and Interatomic Bonding (1h)  
3. The Structure of Crystalline Solids (4h)  
4. Imperfections in Solids (3h)  
5. Diffusion (3h)  
6. Mechanical Properties of Metals (4h)  
7. Dislocations and Strengthening Mechanisms (3h)  
8. Failure (3h)  
9. Phase Diagrams (5h)  
10. Phase Transformations: Development of Microstructure and Alteration of Mechanical Properties (5h)  
11. Applications and Processing of Metal Alloys (4h)  
12. Structures and Properties of Ceramics (3h)  
13. Applications and Processing of Ceramics (2h)  
14. Polymer Structures (3h)  
15. Applications and Processing of Polymers (2h)

**Textbook:**  

**References:**  

**評量方式:**  
- Four writing Examination  80%  
- Quizzes + Class attendance 10%  
- Homework 10%

**助教資訊**  
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