<table>
<thead>
<tr>
<th>科目名稱</th>
<th>即時系統特論 (Q350400/ Q3-020)</th>
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<tbody>
<tr>
<td>學分數</td>
<td>3</td>
</tr>
<tr>
<td>開課學期</td>
<td>下學期</td>
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</tbody>
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### 教學目標
1. 瞭解軟性即時系統之特徵與其應用
2. 瞭解軟性即時系統與應用發展之理論與技術
3. 經由文獻研讀與討論瞭解軟性即時系統之分析與評估技術

### 教學大綱

#### 講義課程大綱：
1. Introduction to Real-Time System: Concepts and Applications
2. Real-Time System Architecture and Task Scheduling
3. Real-Time Scheduling Theory and Techniques
4. Overload Management
5. Temporal Protection
6. Multi-Thread Applications
7. Synchronization Protocols
8. Resource Reclaiming
9. QOS Management
10. Feedback Scheduling
11. Stochastic Scheduling

#### 文獻閱讀討論大綱：
1. The analysis of Real-Time Scheduling techniques
2. Real-Time Kernel and Real-Time Operating Systems
3. Real-Time Scheduling in Multimedia Applications

### 參考教材
1. 自編教材
2. 主要教科書：
   Soft Real-Time Systems – Predictability vs. Efficiency
   作者：Giorgio C. Buttazzo, Giuseppe Lipari, Luca Abeni, Marco Caccamo
3. 相關文獻

### 講授方式
1. 課堂講解與討論，作業演練。
2. 文獻閱讀，報告與討論。

### 成績考評
出席狀況，作業練習，文獻閱讀與報告，期末報告等。

### 備註
<table>
<thead>
<tr>
<th>Course Name</th>
<th>Special Topics in Real-Time Systems (Q350400/Q3-020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credits</td>
<td>3</td>
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<tr>
<td>Period</td>
<td>Spring Semester</td>
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| Objects     | 1. Understanding the characteristics of soft real-time systems and their applications  
               2. Understand the methodology and technology of supporting the development of soft real-time applications  
               3. Getting familiar with the advances in techniques of analyzing and evaluating soft real-time systems through literature study |
| Schedule    | A. Lecture and Presentation:  
               1. Introduction to Real-Time System: Concepts and Applications  
               2. Real-Time System Architecture and Task Scheduling  
               3. Real-Time Scheduling Theory and Techniques  
               4. Overload Management  
               5. Temporal Protection  
               6. Multi-Thread Applications  
               7. Synchronization Protocols  
               8. Resource Reclaiming  
               9. QOS Management  
               10. Feedback Scheduling  
               11. Stochastic Scheduling  
               B Literature Study and Discussion:  
               1. The analysis of Real-Time Scheduling techniques  
               2. Real-Time Kernel and Real-Time Operating Systems  
               3. Real-Time Scheduling in Multimedia Applications |
| References  | 1. Hand-out of Lecture Notes  
               2. Main Text:  
               *Soft Real-Time Systems – Predictability vs. Efficiency*  
               Authors: Giorgio C. Buttazzo, Giuseppe Lipari, Luca Abeni, Marco Caccamo  
               3. Related literature |
| Lecture type| 1. Classic classroom lecture and discussion with homework  
               2. Seminar style presentation and discussion of literature study |
| Grade       | Attendance and participation, home work, presentation, reading reports |
| Others      |                                                     |