City University of Hong Kong

Information on a Course
offered by Department of Computer Science
with effect from Semester A in 2012 / 2013

Part I

Course Title: Advanced Internet Applications Development

Course Code: CS4280

Course Duration: One Semester

No. of Credit Units: 3

Level: B4

Medium of Instruction: English

Prerequisites: (Course Code and Title)
CS2204 Fundamentals of Internet Applications Development
OR
(CS1103 Introduction to Media Computing
and CS1303 Introduction to Internet and Programming
and CS2313 Computer Programming)

Precursors: (Course Code and Title)
CS2303 Data Structures for Media or
CS3201 Computer Networks or
CS3270 Fundamentals of Computer Networks and the Internet

Equivalent Courses: (Course Code and Title)
Nil

Exclusive Courses: (Course Code and Title)
Nil
Part II

1. Course Aims:
   This course aims at providing an advanced study of designing and building Internet applications, with emphasis on the server-side architecture. Students should be able to set up enterprise-scale web-based services and develop application programs to support such services. Comparative study of different server-side technologies will also be included.

2. Course Intended Learning Outcomes (CILOs)
   
   Upon successful completion of this course, students should be able to:

<table>
<thead>
<tr>
<th>No.</th>
<th>CILOs</th>
<th>Weighting (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>explore the fundamental concepts and procedures of major server-side Internet application architectures and services;</td>
<td></td>
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<tr>
<td>2.</td>
<td>build web sites that involve server-side processing;</td>
<td></td>
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<td>3.</td>
<td>write server-side processing scripts;</td>
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<tr>
<td>4.</td>
<td>design advanced web-based application systems with state-of-art techniques using Java models and frameworks;</td>
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<tr>
<td>5.</td>
<td>explore other advanced techniques of web servers, including security and service-oriented architecture.</td>
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</tbody>
</table>

3. Teaching and learning Activities (TLAs)

   (designed to facilitate students’ achievement of the CILOs)

   Teaching pattern:
   Suggested lecture/tutorial/laboratory mix: 2 hrs. lecture; 1 hr. tutorial.

<table>
<thead>
<tr>
<th>ILO No</th>
<th>TLAs</th>
<th>Hours/week (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CILO 1</td>
<td>classroom lectures; discussion, question and answer based tutorial sessions</td>
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</tr>
<tr>
<td>CILO 2</td>
<td>classroom lectures; discussion, question and answer based tutorial sessions</td>
<td></td>
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<tr>
<td>CILO 3</td>
<td>instructor led and self-paced laboratory exercises</td>
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<tr>
<td>CILO 4</td>
<td>instructor led and self-paced laboratory exercises; problem based learning (PBL) activities in the form of a project with a substantial scope</td>
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<tr>
<td>CILO 4, 5</td>
<td>problem based learning activities in the form of a project with a substantial scope</td>
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</tbody>
</table>
4. **Assessment Tasks/Activities**  
*(designed to assess how well the students achieve the CILOs)*

<table>
<thead>
<tr>
<th>ILO No</th>
<th>Type of assessment tasks/activities</th>
<th>Weighting (if applicable)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>CILO 1</td>
<td>laboratory exercises conducted in tutorials; examination with short questions to assess the breadth of knowledge of students</td>
<td></td>
<td></td>
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<tr>
<td>CILO 2</td>
<td>laboratory exercises conducted in tutorials; examination with short and long questions to assess the understanding of the topic</td>
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<tr>
<td>CILO 3</td>
<td>instructor led exercises in the form of coursework; examination to assess programming in script writing</td>
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<tr>
<td>CILO 4</td>
<td>coursework in the form of a PBL project; examination to assess the in-depth understanding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CILO 5</td>
<td>coursework in the form of a PBL project; examination to assess the in-depth understanding</td>
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<td></td>
</tr>
</tbody>
</table>

5. **Grading of Student Achievement:** Refer to Grading of Courses in the Academic Regulations.

*Examination duration: 2 hours*  
*Percentage of coursework, examination, etc.: 50% CW; 50% Exam*  
*Grading pattern: Standard (A+AA--F)*

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Part III

Keyword Syllabus:

Review of web server architecture and technologies. Multi-tier applications, LAMP, .NET, Java EE. Server-side programming models, CGI, Java Servlets; JSP, EJB; Model View Controller, Tag library and Struts; Security in web applications, session control, SSL; SOAP and Web Services
Syllabus:

1. Review of web server architecture and technologies
   

2. Server-side programming
   
   Server side scripting technologies. Java programming introduction. Servlet. JSP. Java Bean. J2EE and EJB.

3. Web systems design.
   
   Model View Controller. JSP Tag library. Design pattern and Struts framework.

   

5. Multi-server web systems.
   
   SOAP. Web services. WSDL. Java API for Web services.

Recommended Reading:


Text(s):


Online Resources:

http://java.sun.com/javaee/index.jsp
http://struts.apache.org/1.3.5/index.html