Course Title: Windows Components Technology

Date: 11/04/2003

Course Number: COP 4009

Number of Credits: 3

Subject Area: Systems

Subject Area Coordinator: Nagrajan Prabakar
email: prabu@cis.fiu.edu

Catalog Description: Component-Based and Distributed Programming Techniques: C#, Common Type System, Windows and Web Forms, Multithreading, Distributed Objects

Textbook:

References: MSDN online documentation

Prerequisites Courses: COP 4226 or COP 4005

Corequisites Courses: None

Type: Elective

Prerequisites Topics:

- Programming in Java
- Event Driven Programming
- GUI programming

Course Outcomes:

O1. Master the C# Programming Language
O2. Master User Interface Components
O3. Master Database Access components
O4. Master Internet-Based Application Development
O5. Be familiar with Web Services

Outline
<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Lecture Hours</th>
<th>Outcome</th>
</tr>
</thead>
</table>
| • Introduction to C#  
  o Common Types  
  o Classes  
  o Inheritance  
  o Events and Event Handling | 6 | O1 |
| • User Interface Design  
  o Windows Forms  
  o Toolbars  
  o Menus  
  o Data Binding | 6 | O2 |
| • Data Access  
  o Data Access Architecture  
  o Data Readers  
  o Data Sets  
  o Data Presentation  
    ▪ Data Grid | 9 | O2, O3 |
| • Internet-Based Applications  
  o Web Forms  
  o State Management  
    ▪ Cookies  
    ▪ Query Strings  
    ▪ Session Variables  
    ▪ View State  
  o Security | 9 | O2, O4 |
| • Web Services  
  o XML  
  o SOAP  
  o Web Service Applications  
  o Web Service Consumers | 6 | O5 |

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School’s Assessment Plan: [https://abet.cs.fiu.edu/csassessment/](https://abet.cs.fiu.edu/csassessment/)

Course Outcomes Emphasized in Laboratory Projects / Assignments
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number of Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1, O2</td>
<td>3</td>
</tr>
<tr>
<td>O1, O2, O3</td>
<td>3</td>
</tr>
<tr>
<td>O1, O2, O2</td>
<td>3</td>
</tr>
<tr>
<td>O1, O5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Oral and Written Communication:**

Number of written reports: **None**

Approximate number of pages for each report:

Number of required oral presentations: **None**

Approximate time for each presentation:

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**Social and Ethical Implications of Computing Topics**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class time</th>
<th>student performance measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
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</tbody>
</table>

**Approximate number of class hours devoted to fundamental CS topics**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Core Hours</th>
<th>Advanced Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Design</td>
<td></td>
<td>.5</td>
</tr>
<tr>
<td>Computer Organization and Architecture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Structures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concepts of Programming Languages</td>
<td></td>
<td>.5</td>
</tr>
</tbody>
</table>

**Theoretical Contents**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class time</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
Problem Analysis Experiences

1. N/A

Solution Design Experiences

1. Programming in C#
2. Data Access using C# and Data Access Objects and Win Forms
3. Data Access using C# and Data Access Objects and Web Forms
4. Web Service Application and Web Service Consumer Application

The Coverage of Knowledge Units within Computer Science Body of Knowledge\(^1\)

<table>
<thead>
<tr>
<th>Knowledge Unit</th>
<th>Topic</th>
<th>Lecture Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL2, PF5</td>
<td>Introduction to C#</td>
<td>3</td>
</tr>
<tr>
<td>HC5</td>
<td>User Interface Design</td>
<td>6</td>
</tr>
<tr>
<td>NC5</td>
<td>Internet-Based Applications</td>
<td>9</td>
</tr>
</tbody>
</table>

\(^1\)See [https://www.acm.org/binaries/content/assets/education/cs2013_web_final.pdf](https://www.acm.org/binaries/content/assets/education/cs2013_web_final.pdf) for a description of Computer Science Knowledge units