CSC 513 - SOFTWARE DEVELOPMENT PRINCIPLES

CREDIT HOURS: 3
PREREQUISITES: Nine advanced hours of CSC
GRADE REMINDER: Must have a grade of C or better in each prerequisite course.

CATALOG DESCRIPTION

State-of-the-art principles of software design and development. Theories, methodologies, techniques, and tools of software engineering. Case studies.

PURPOSE OF COURSE

To provide the student with a knowledge of state-of-the-art software design and development principles with a software engineering orientation.

EDUCATIONAL OBJECTIVES

Upon successful completion of the course, students should be able to:

1. Explain the need for software engineering principles and techniques in software development and maintenance.

2. Independently perform research on an advanced topic in software engineering and report on it orally and in writing.

3. Describe the major activities of software development.

4. Choose an appropriate software process model for a particular development effort.

5. Use modern techniques of requirements analysis, design, and implementation.

6. Appreciate the historical evolution of software engineering techniques.

CONTENT

<table>
<thead>
<tr>
<th>Hours</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>History of software design and development</td>
</tr>
<tr>
<td></td>
<td>Software crisis</td>
</tr>
<tr>
<td></td>
<td>Software life cycle</td>
</tr>
<tr>
<td></td>
<td>Management issues</td>
</tr>
<tr>
<td></td>
<td>Origins of Software Engineering</td>
</tr>
</tbody>
</table>

| 5     | Requirements Engineering |

| 12    | Design Methods |
Software Process, Software Metrics, Tools ................................................................. 9

Implementation and Testing ...................................................................................... 10
  Programming environments, teams, languages, and style
  Strategies for maintainability and reusability
  Test case design, program testing, and system testing
  Quality assurance, verification, validation, reliability

Evolution .................................................................................................................... 3
  Operation; performance analysis and measurement
  Maintenance

Exams (plus final) ....................................................................................................... 3

TOTAL  45

REFERENCES

