CS3343: SOFTWARE ENGINEERING PRACTICE

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Software Engineering Practice

Subject Code
CS - Computer Science

Course Number
3343

Academic Unit
Computer Science (CS)

College/School
College of Engineering (EG)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
CS3342 Software Design or equivalent

Equivalent Courses
Nil

Exclusive Courses
Nil
Part II Course Details

Abstract
This course aims to provide an opportunity for students, in small groups with real role-playing, to practise software engineering principles and techniques, through the development of a larger and really useful software system that meets stated requirements and quality standards, using those common practices used in the software industry.

Course Intended Learning Outcomes (CILOs)

<table>
<thead>
<tr>
<th>CILOs</th>
<th>Weighting (if app.)</th>
<th>DEC-A1</th>
<th>DEC-A2</th>
<th>DEC-A3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Properly apply the principles and techniques of requirements specification and analysis, software design, implementation, testing, delivery, and maintenance to create a software application.</td>
<td>X</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>2</td>
<td>Present projects effectively.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Write technical documentation in a clear and concise manner.</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>4</td>
<td>Work effectively in a team environment.</td>
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<td>X</td>
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A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing/constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

<table>
<thead>
<tr>
<th>TLAs</th>
<th>Brief Description</th>
<th>CILO No.</th>
<th>Hours/week (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture</td>
<td>Lecture presentations deliver the course materials (best practices of software engineering) to the students. Students are required to attend the lecture classes.</td>
<td>1, 2, 3, 4</td>
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</table>
The tutorial and consultation sessions are used to review some major points of the course materials and hold group meetings for reviewing all possible artifacts generated by the project groups. Students can also raise and discuss issues related to the project.

Students will have to work in small groups to work on a realistic software development project to create a software application with technical documentation, in order to gain experience in applying the principles and techniques of software engineering, and to practise project management skills in a team environment. Each group is expected to define clearly the roles of individual members. Every member will do an oral presentation on the work accomplished, and, in particular, on the individual contribution to the group project. The group report records their project progress, the problems they encountered, and how they solved them, and their personal experience of playing the role in the project.

<table>
<thead>
<tr>
<th>Assessment Tasks / Activities (ATs)</th>
<th>CILO No.</th>
<th>Weighting (%)</th>
<th>Remarks (e.g. Parameter for GenAI use)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hands-on practical tests</td>
<td>1, 3</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>2 Group project</td>
<td>1, 2, 3, 4</td>
<td>30</td>
<td></td>
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</tbody>
</table>

**Continuous Assessment (%)**
70

**Examination (%)**
30
Examination Duration (Hours)
2

Additional Information for ATs
For a student to pass the course, at least 40% of the maximum mark for the continuous assessment and 30% of the maximum mark for the examination must be obtained.

Assessment Rubrics (AR)

Assessment Task
Hands-on practical tests

Criterion
1.1 CAPACITY for SELF-DIRECTED LEARNING to understand the tools and practices of software development.
1.2 ABILITY to EXPLAIN AND APPLY software testing techniques.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
Group project

Criterion
2.1 CAPACITY for SELF-DIRECTED LEARNING to apply the learnt practices to real problems, produce an application and write technical documents.
2.2 ABILITY to EXPLAIN AND DEMONSTRATE IN DETAIL about project management in a team environment.
2.3 ABILITY to APPLY the software development and testing procedures to produce a quality software system within a team.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic
Failure (F)
Not even reaching marginal levels

Assessment Task
Examination

Criterion
3.1 CAPACITY for SELF-DIRECTED LEARNING to understand the tools and practices of software development.
3.2 ABILITY to EXPLAIN AND APPLY software development and testing procedures to produce high quality software systems.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Syllabus
- Software project management
- Requirement elicitation and specification
  User requirements specification. Prototyping.
- Design
- System implementation and testing

Reading List

Compulsory Readings

<table>
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<tr>
<th>Title</th>
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<tbody>
<tr>
<td>Nil</td>
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### Additional Readings

<table>
<thead>
<tr>
<th>Title</th>
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