

CS3367: ESSENTIALS OF SOFTWARE ENGINEERING

Effective Term

Semester A 2022/23

Part I Course Overview

Course Title

Essentials of Software Engineering

Subject Code

CS - Computer Science

Course Number

3367

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

P5, P6 - Postgraduate Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

CS2311 Computer Programming or

CS2360 Java Programming, or equivalent

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course introduces students to the concepts, methodologies and practices in the application software development life cycle. Students will get exposed to the process, methodologies and techniques for building and maintaining software application systems.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)		
1	Recognize and describe the stages and processes involved in a software development life cycle.		x	
2	Explain and compare the major software development methodologies and techniques.		x	
3	Apply the appropriate methodology, techniques and best practices to develop software applications.			x

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)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)	
1	Lecture	Explain key concepts, methodologies, techniques and best practices.	1, 2, 3	3 hours/week
2	Tutorial	Build up technical and analytical skills of students by working on short questions and practical cases.	1, 2, 3	8 hours/semester

3	Software design project	Require students to work in a group on a software design project, demonstrate the ability to handle project management issues, and document the software engineering tasks performed throughout the software development process. May require students to present their project and share their learning experience.	1, 3	
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Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Software design project	1, 3	35
2	Quiz	1, 2, 3	15

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

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

Assessment Rubrics (AR)**Assessment Task**

Software design project

Criterion

1.1 ABILITY to JUSTIFY the stages and processes adopted in the project

1.2 ABILITY to APPLY the appropriate methodology, techniques and best practices in the project

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

Quiz

Criterion

2.1 ABILITY to ACHIEVE the respective CILOs

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 ABILITY to ACHIEVE the respective CILOs

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

- Overview of software issues and problems. Introduction to software engineering and process models.
- Software requirement specifications. IEEE standards. Software maintenance process and issues.

- Software design principles, patterns, tools and methodologies. Object-oriented design approach. Introduction to UML. Software implementation issues. Software testing, validation and verification.
- Software engineering best practices. Managerial and social aspects of software development.

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	R. Pressman (2010). Software Engineering. McGraw-Hill, 7th edition.
2	I. Sommerville (2011). Software Engineering. Addison-Wesley, 9th edition.
3	Selected documents from IEEE Standards: accessible online via CityU library.