

CS4385: TOPICS IN SOFTWARE ENGINEERING

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Topics in Software Engineering

Subject Code

CS - Computer Science

Course Number

4385

Academic Unit

Computer Science (CS)

College/School

College of Computing (CC)

Course Duration

One Semester

Credit Units

3

Level

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

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

CS3342 Software Design or
CS3367 Essentials of Software Engineering, or equivalent

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course provides students with an opportunity to study selected advanced topics and identify emerging trends in software engineering. It exposes students to the state-of-the-art software engineering concepts, techniques, technologies, tools and/or processes through directed independent study, guided class discussions and practice of lifelong learning skills.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 app.)		DEC-A2	DEC-A3
1	Describe critical issues and identify emerging trends in software engineering.		x		
2	Explain selected current topics and evaluate new technologies and tools in software engineering.		x	x	
3	Apply advanced concepts, techniques, technologies, tools and/or processes in application software development.			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.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Students will engage in lectures that will direct them to critical issues, current topics and selected articles for their independent study. Provide the basic background information and requisite knowledge on the selected topics.	1, 2, 3	3 hours/week
2	Tutorial	Students will work on short exercises or guided questions, or practice the necessary skills with software tools.	2, 3	8 hours/semester

3	Presentations and group discussions.	Students will give their presentations in class. Facilitate group discussions, critical review and evaluation of new technologies and tools.	2, 3	
---	--------------------------------------	--	------	--

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Guided study	1, 2	25	-	Yes
2	Project	2, 3	25	-	Yes

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Minimum Examination Passing Requirement (%)

30

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**

Guided study

Criterion

1.1 ABILITY to DESCRIBE critical issues and IDENTIFY emerging trends in software engineering

1.2 ABILITY to REVIEW selected current topics and EVALUATE new technologies and tools in software engineering

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

Project

Criterion

2.1 ABILITY to REVIEW selected current topics and EVALUATE new technologies and tools in software engineering

2.2 ABILITY to APPLY advanced concepts, techniques, technologies, tools and/or processes in application software development

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

A selection of topics on contemporary issues and trends of software engineering, such as the following: Software development processes, tools and patterns. Software requirements analysis and specification. Emerging software design

and construction technologies. Code generation, analysis and verification. Advanced software testing and debugging techniques. Software management and maintenance issues.

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	P. Bourque and R.E. Fairley (Eds.) (2014). Guide to the Software Engineering Body of Knowledge (Version 3). IEEE Computer Society. http://www.swebok.org/
2	Selected peer-reviewed software engineering articles from professional magazines, academic journals, book chapters and conference proceedings: available via CityU library or the Internet.
3	IEEE standards documents: updated versions accessible online via CityU library.