CS6535: GUIDED STUDY IN ARTIFICIAL INTELLIGENCE

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Guided Study in Artificial Intelligence

Subject Code
CS - Computer Science
Course Number
6535

Academic Unit
Computer Science (CS)

College/School
College of Computing (CC)

Course Duration
One Semester

Credit Units
3

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
CS6534 Guided Study,
CS6536 Guided Study in Data Science,
CS6537 Guided Study in Information Security

Part II Course Details

Abstract

The aim of this course is to provide an opportunity to explore a research area of **artificial intelligence** in consultation with a member of the academic staff. The objectives are to develop in-depth knowledge of a chosen field of interest and to exercise the skill and techniques acquired in earlier courses to discover innovative approach to solving artificial intelligence related problems. The students will also have the opportunity to develop documentation and presentation skill in conveying the results of his/her work.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify a challenging artificial intelligence related problem, analyze the problem in detail in the context of an extensive review of existing literature.		x		
2	Propose innovative solutions, formulate a detailed design of the solutions and comparison of the proposed solution with existing approaches.			x	x
3	Document and report the system design process, background study and expected performance of the solution.				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	Project planning	Students will identify the problem for investigation and draft a project plan with appropriate milestones.	1	

2	Project proposal	Students will analyze the problem identified and research on existing and/or related solutions. Then, in consultation with their supervisors, they will propose their own designs and solutions.	2	
3	Project documentation	Students will document and explain their work in regular progress reports and a final report. At the end, they are required to present their projects in the form of oral presentation and demonstration.	3	

Additional Information for LTAs

Teaching pattern:
Suggested lecture/tutorial/laboratory mix: 8 hours individual consultation.

Each student is expected to solicit the support of an academic supervisor on a one to one basis for each project.

The role of the supervisor is to closely monitor the project progress with project meetings regularly, in order to give advice to the student, to establish criteria for assessment, and to advise on possible solutions and potential problems.

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Project management and individual development of the student	1	20	-	No
2	Technical merit of the proposed solution, including the degree of innovation in the proposed design	2	50	-	No
3	Standard of final documentation	3	20	Allowed for writing polishing	Yes
4	Standard of oral presentation	3	10	-	Yes

Continuous Assessment (%)

100

Additional Information for ATs

For assessment of technical merit, report, and presentation, the project committee assigns two examiners, including the supervisor. The Supervisor is required to give detailed grading reports on all aspects of assessment. The Assessor will evaluate the CILOs 2 and 3 of the project. The Course Leader will review all projects, moderate consistency across a wide

range of projects, and, where necessary, resolve discrepancies between grading of the Assessor and the Supervisor, drawing on the expertise of domain experts as needed.

Assessment Rubrics (AR)

Assessment Task
Project planning (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
1.1 ABILITY to IDENTIFY problems for investigations.
1.2 ABILITY to PLAN a project schedule with appropriate milestones, and MAINTAIN the project schedule.

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 proposal (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion
2.1 ABILITY to ANALYZE a problem.
2.2 ABILITY to EVALUATE, COMPARE, and CONTRAST existing solutions.
2.3 ABILITY to DESIGN and INNOVATE new solutions.

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 documentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

3.1 ABILITY to DOCUMENT the progress of the project in interim reports.
3.2 ABILITY to DOCUMENT the OUTCOMES of the project in a final report.
3.3 ABILITY to DEMONSTRATE project outcomes in an oral presentation.

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 planning (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

1.1 ABILITY to IDENTIFY problems for investigations.
1.2 ABILITY to PLAN a project schedule with appropriate milestones, and MAINTAIN the project schedule.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate to Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Project proposal (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

2.1 ABILITY to ANALYZE a problem.
2.2 ABILITY to EVALUATE, COMPARE, and CONTRAST existing solutions.
2.3 ABILITY to DESIGN and INNOVATE new solutions.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate to Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Project documentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

3.1 ABILITY to DOCUMENT the progress of the project in interim reports.
3.2 ABILITY to DOCUMENT the OUTCOMES of the project in a final report.
3.3 ABILITY to DEMONSTRATE project outcomes in an oral presentation.

Excellent

(A+, A, A-) High

Good

(B+, B) Significant

Marginal

(B-, C+, C) Moderate to Basic

Failure

(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Typical topic areas include: Reinforcement learning, Uncertainty reasoning, Searching, Planning and acting, Logics, Knowledge representation and inference, Computer vision, Natural language processing, Robotics, AI computer game.

The project starts with a specification phase in which the student is to arrive at a set of problem statements and objectives. This is formalized in a project definition and study plan. During the course of the project, the student will be guided by a supervisor from the academic staff to produce the following reports: Project Definition, Survey of Related Work, Design/ Analysis, Final Report (which may include any implementation and evaluation aspects).

Reading List

Compulsory Readings

	Title
1	N/A

Additional Readings

	Title
1	N/A