

# CS6522: PROJECT IN AUTONOMOUS DRIVING

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## Effective Term

Semester B 2025/26

## Part I Course Overview

### Course Title

Project in Autonomous Driving

### Subject Code

CS - Computer Science

### Course Number

6522

### Academic Unit

Computer Science (CS)

### College/School

College of Computing (CC)

### Course Duration

Two Semesters

### Credit Units

0-6

### Level

P5, P6 - Postgraduate Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Students should have completed at least 12 credit units

### Precursors

Nil

### Equivalent Courses

Nil

### Exclusive Courses

CS6523 Internship in Autonomous Driving or  
CS6524 Project in Generative AI or  
CS6525 Internship in Generative AI or  
CS6526 Project in Trustworthy AI or  
CS6527 Internship in Trustworthy AI or  
CS6528 Internship in Artificial Intelligence or  
CS6529 Project in Artificial Intelligence or

CS6539 Internship in Autonomous Driving or  
 CS6540 Internship in Generative AI or  
 CS6541 Internship in Trustworthy AI or  
 CS6542 Internship in Artificial Intelligence

## Part II Course Details

### Abstract

This course aims to provide an opportunity for students to explore individually an area of AI-enabled autonomous driving systems on their own choice. It allows students to develop their skill and knowledge further in the area of interest. It provides the context for students to demonstrate their ability to integrate specialized knowledge that they have acquired in other preceding and concurrent courses of study and apply them to solve an advanced problem with a working solution.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Identify a challenging problem related to AI-enabled autonomous driving systems, analyze the problem in detail; and propose innovative solutions by techniques in computing and AI.		x		
2	Provide a proof-of-concept for the solution by designing and developing a working system or application.			x	x
3	Implement and evaluate the developed system or application to match the initial system requirements.				x
4	Document and report the system design process, study, implementation and evaluation findings using different communication media.				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 implementation and evaluation	Students will implement the proposed solutions and validate their designs by testing and evaluating the completed solution.	3	
4	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.	4	

**Assessment Tasks / Activities (ATs)**

ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	1	10	<p>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 2-4 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.</p>	No

2	Technical merit of the proposed solution, including the degree of innovation in the proposed design or solution	2, 3	50	<p>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 2-4 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.</p>	No
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3	Standard of final documentation	4	30	<p>Allowed for writing polishing.</p> <p>For assessment of technical merit, report, and presentation, the project committee assigns two examiners, including the supervisor.</p> <p>The Supervisor is required to give detailed grading reports on all aspects of assessment.</p> <p>The Assessor will evaluate the CILOs 2-4 of the project.</p> <p>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.</p>	Yes
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4	Standard of oral presentation	4	10	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 2-4 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.	Yes
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**Continuous Assessment (%)**

100

**Additional Information for ATs****Dissertation-type Course:**

This course falls under the academic regulation for dissertation-type courses (AR12.6). The course assessed through 100% coursework.

Each student is assigned a supervisor from the academic staff for individual consultation.

The normal duration of the course is two semesters, after which the dissertation must be submitted.

The maximum duration of the course is four semesters, after which no further extension must be permitted.

Dissertation-type courses may NOT be repeated.

**Assessment Rubrics (AR)****Assessment Task**

1. Project planning

**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

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**Assessment Task**

2. Project proposal

**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

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**Assessment Task**

3. Project implementation and evaluation

**Criterion**

3.1 ABILITY to IMPLEMENT the proposed solution.

3.2 ABILITY to VALIDATE and TEST the implemented solution.

3.3 ABILITY to EVALUATE and INTERPRET results from the design, and COMPARE with existing 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**

4. Project documentation

**Criterion**

4.1 ABILITY to DOCUMENT the progress of the project in interim reports.

4.2 ABILITY to DOCUMENT the OUTCOMES of the project in a final report.

4.3 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

## Part III Other Information

**Keyword Syllabus**

The Project has no fixed formal syllabus. Each student will be required to undertake an individual piece of work, which is related to the area of AI-enabled autonomous driving systems. The topic area of the dissertation will be chosen so that the aims of the Project can be achieved. Criteria for topic choice include: (i) compatibility with a subject area of AI-enabled autonomous driving systems, (ii) availability of a qualified supervisor; (iii) appropriate academic level; (iv) availability of necessary specialized resources. Topic areas include: sensing, perception, tracking, localization, prediction, planning, driving control, system software and middleware for autonomous driving systems, performance optimization of autonomous driving systems, real-time performance analysis, safety and security of autonomous driving systems, hardware platform for autonomous driving systems.

**Reading List****Compulsory Readings**

	Title
1	N/A

**Additional Readings**

	<b>Title</b>
1	N/A