MODULE GUIDE 2025/26

University of East London

Updated Sep 2025

SCHOOL OF ARCHITECTURE, COMPUTING AND ENGINEERING

Module Title: Intelligent Systems
Module Code: CN7050

Level 7

Term A

Academic Year *2025/26*

Module Leader:
Dr Azhar Mahmood
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Office: EB.1.85

Updated Sep 2025

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Teaching Team	
Module Leader	**Other Tutors**
Dr. Azhar Mahmood **Email: a.mahmood3@uel.ac.uk** **Office: EB1.85**	**Dr Shaheen Khatoon** **Dr Mustansar Ali Ghanzafar** **Dr. Shahera Hossain** **Zulfiqar Ali** **Afroza Rahman** **Anas Mahdaoui**

The Module Leader/Other Tutors and Contact Details were correct at point of publication. You will be notified of any changes.

Timetabled Teaching

Session	Day	Start	End	Group	Staff	Room
Lecture	Tuesday	0900	1100	All	Azhar Mahmood/ Shaheen Khatoon/ Mustansar Ali Ghanzafar	MLT
Practical	Monday	1300	1600	4	Zulfiqar Ali	KD1.28
Practical	Monday	1300	1600	5	Mustansar Ali Ghanzafar	KD1.29
Practical	Tuesday	1300	1600	6	Afroza Rahman	KD1.28
Practical	Tuesday	1300	1600	7	Zulfiqar Ali	KD1.29
Practical	Wednesday	1300	1600	11	Azhar Mahmood	KD1.28
Practical	Wednesday	1300	1600	12	Zulfiqar Ali	KD1.29
Practical	Friday	1000	1300	1	Afroza Rahman	ITC06
Practical	Friday	1500	1800	2	Afroza Rahman	ITC02
Practical	Friday	1000	1300	3	Shahera Hossain	ITC09/10
Practical	Friday	0900	1200	10	Anas Mahdaoui	ITC17/18
Practical	Friday	1230	1530	8	Anas Mahdaoui	ITC14
Practical	Friday	0930	1230	14	Zulfiqar Ali	ITC14
Practical	Friday	1230	1530	9	Zulfiqar Ali	ITC15
Practical	Friday	1600	1900	13	Zulfiqar Ali	ITC01

How to access your timetable?
To access your personal timetable log into the intranet and click on the timetable box and save to your favorite browser or use the intranet link **(UEL ID required to login).**
https://uelac.sharepoint.com/students/Pages/Timetable-and-Attendance.aspx

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All room numbers on our campuses follow the same pattern – the initial of the building, followed by the floor number and finally the room number e.g. DL.4.01 is room 1 on the 4th floor of the Docklands Library building. Campus maps can be found on: ***https://www.uel.ac.uk/About/Finding-us***

Initials	Building name	Campus
AE	Arthur Edwards	Stratford
AVA	AVA Building	Docklands
DL	Docklands Library	Docklands
CC	Conference and Computer Centre	Stratford
EB	East Building	Docklands
ED	School of Cass Education and Communities	Stratford
ITC	IT clusters – Library	Docklands
KD	Knowledge Dock	Docklands
LT	Lecture Theatre	Stratford
MLT	Main Lecture Theatre	Docklands
RB	R Building	Stratford
SD	Sports Dock	Docklands
UH	University House	Stratford
US	University Square Stratford	University Square Stratford
WB	West Building	Docklands

Introduction to the Module

This is a level seven module within the Artificial Intelligence, Block chain and Fintech subject areas as a core module. The module will be delivered through a combination of lectures, tutorials/laboratory-based work and will be supported by a comprehensive set of self- study materials.

Lectures will be used to introduce both the theoretical and practical aspects of Intelligent Systems. The course is heavily designed to meet the industrial need of Artificial Intelligent by solving real world problems. Hence, the course will not necessarily be of a traditional didactic nature and you may be required to participate in a variety of tasks during study.

The duration of the tutorial/practical sessions is 2 hours lectures and 3 hours' lab work (see module calendar). These will be used to reinforce the lecture material covered. You will be involved in an assortment of group and individual tasks including discussions and problem solving.

The majority of your time on this module will be spent in private study. You are expected to use this private study time to read widely, beyond the essential reading, and prepare for tutorials as requested by teaching staff.

Extensive use of Moodle will be made during this module. The Moodle site will contain a variety of information and resources including teaching and learning materials (lecture slides, tutorial exercise, lab demonstration exercises), a calendar of important events and coursework deadlines and important news regarding the operation of this module. Please note that printed copies of the lecture slides, tutorial and lab demonstration exercises will NOT be provided, as they will be uploaded on Moodle for you to access and print. You should check Moodle

regularly.

Module Aims

This module aims to provide students with practical knowledge in intelligent system design and development. The module equips the students to develop competencies in intelligent agents AI based learning techniques for solving the advance real-world applications.

Main Topics of the Study

- Intelligent systems' key components & architecture
- Transformation to Agentic AI from expert systems & DSS
- Enabling system adaptability in agents
- Autonomous agents for complex decision-making and interaction.
- Multimodal perception using DL & generative models.
- Enabling LLMs for intelligent agents
- Design optimized search agents
- Decision-making under uncertainty
- Intelligent Healthcare/Edge and real time agents
- Ensuring transparency, accountability, and trustworthiness

Learning Outcomes

- Digital Proficiency - Code = (DP)
- Industry Connections - Code = (IC)
- Emotional Intelligence Development - Code = (EID)
- Social Intelligence Development - Code = (SID)
- Physical Intelligence Development - Code = (PID)
- Cultural Intelligence Development - Code = (CID)
- Cognitive Intelligence Development – Code = (COI)
- Community Connections - Code = (CC)
- UEL Give-Back - Code = (UGB)

At the end of this module, students will be able to:

1. Relate and describe the various implementation methodologies, methods and tools used for the modelling, design and development of intelligent agents.
2. Explain the current and emerging concepts, technologies and principles relevant to intelligent systems using machine learning, Deep learning and generative AI.
3. Analyze problems associated with modelling and designing based Intelligent Systems to solve real world industrial problems ranging from predictive modelling to decision making.
4. Critically evaluate appropriate intelligent learning algorithm within a business context, which includes legal, social, and ethical issues.
5. Analyze the suitable real world problems to develop solutions by utilizing AI tools and technologies.
6. Design and build a predictive system using intelligent state-of-the-art technique and tools.
7. Work effectively to develop an intelligent application for a given real world problem.

8. Demonstrate the intelligent system prototype to technical and non-technical audiences.

Teaching Schedule

Week	Lecture	Lecturer	Tutorial
W1	Overview of intelligent systems, key components, architecture, and real-world applications, transformation to Agentic AI.	AM	Overview of Lab Tools and Technologies, Module overview and assessments. Develop Reactive Agent
W2	Designing rule-based systems, expert systems, and decision support models for intelligent behaviour.	AM	Expert Systems forward and backward chaining
W3	ML learning methods for enabling system adaptability.	AM	Agent's adaptability Tutorial
W4	Advanced neural architectures and autonomous agents for complex decision-making and interaction.	AM	Develop Deep Neural Network Based Agent & Hyper Tuning
W5	Multimodal perception using DL & generative models.	AM	Develop Multimodal Agent
W6	Foundations and applications of LLMs for understanding, generation, and conversation in intelligent systems.	AM/ SK	Develop Agents using open Models of LLM
W7	Intelligent search algorithms, planning systems, and IR for structured and unstructured data.	SK	Retrieval-Augmented Generation for search agent I
W8	Probabilistic reasoning, reinforcement learning through policies and rules, and decision-making under uncertainty.	SK	Retrieval-Augmented Generation for search agent II
W9	Building intelligent healthcare systems using AI for diagnosis, monitoring, and personalized	SK	Healthcare Automation Agent (N8N)
W10	Developing edge AI and real-time intelligent systems	MG	IoT based Sensing Automation Agent (N8N)
W11	Ensuring transparency, accountability, and trustworthiness in intelligent system design.	MG	Review Course Work and provide feedback Individually with Students
W12	Recap and revision, Q/A Session	MG	Demonstration of Coursework Implementation

The lab work would be based on CoLab/MATLAB/N8N programming and building intelligent systems covered in the lectures.

Assesments

This is a 30-credit module and its assessment is based on:
- Individual assignment: Design and Develop an Intelligent Agent (Online Submission): **75%**
- Continuous Assessment (Lab tasks): **25%**
  Quizzes would be only for practice and to understand the concepts.

Individual Coursework Report (75%) **Online Submission** **Due Date: 18th Dec 2025**	Each student report covers the deliverables as explained in coursework file.
Lab Tutorials (25%) **Online Submission** **Due Date: During Same Tutorial Week.**	Each Student can complete and submit 5 Tutorial's tasks carry marks.

We strongly suggest that you try to submit all coursework by the deadline. However, in our regulations, UEL has permitted students to be able to submit their coursework up to 24 hours after the deadline. Coursework which is submitted late, but within 24 hours of the deadline, will be assessed but subject to a fixed penalty.

The impact of the fixed penalty on your result will depend what level of study you are in and when you began your course at UEL. For full details see Part 3, Manual of General Regulations at ***https://www.uel.ac.uk/about/about-uel/governance/policies-regulations-corporate-documents/student-policies/manual-of-general-regulations*** .

Please note that if you submit twice, once before the deadline and once during the 24-hour late period, then the second submission will be marked and the fixed penalty applied.

This rule only applies to coursework. It does not apply to examinations, presentations, performances, practical assessments or viva voce examinations. If you miss these for a genuine reason, then you will need to apply for extenuating circumstances, or accept that you will receive a zero mark.

- Reassessment: if you do not pass the module at the first opportunity, you will need to resubmit a new coursework. Resubmission/resit in CN7050 will occur during the UEL resit period. Resit marking will be capped at 50%.
- Assessment criteria: assessment criteria will be detailed in a separate document. The criteria for coursework will be available in Moodle within week 4 or 5 of teaching.

Submitting Assessments Using Turnitin

Turnitin is required for coursework assessments, such as report/research papers or projects in Microsoft Word, PowerPoint, and in PDF format. There are two main reasons we want you to use Turnitin:
- Turnitin can help you avoid academic breaches and plagiarism. When you use Turnitin **before** a submission deadline, you can use the Originality Report feature to compare your work to thousands of other sources (like websites, Wikipedia, and even other student papers). Anything in your work that identically matches another source is

highlighted for you to see. When you use this feature ***before the deadline,*** you will have time to revise your work to avoid an instance of academic breach/plagiarism.

- Turnitin saves paper. When using Turnitin to electronically submit your work, you will almost never have to submit a paper copy.

Late Submissions using Turnitin

UEL has permitted students to be able to submit their coursework up to 24 hours after the deadline. Assessments that are submitted up to 24 hours late are still marked, but with a deduction in marks (see above). However, you have to **be very careful when you are submitting your assessment**. If you submit your work twice, once using the original deadline link and then again using the late submission link on Turnitin, your assignment will be graded as late.

Turnitin System Failure

Best advice: Don't wait until the last minute to submit your assessments electronically. If you experience a problem submitting your work with Turnitin, you should notify your lecturer/tutor by email immediately.
However, deadlines are not extended unless there is a significant systems problem with Turnitin. UEL has specific plans in place to address these issues. If UEL finds that the issue with the system was significant, *you will receive an email notifying you of the issue and that you have been given a 24-hour extension. If you don't receive any email that specifically states you have been given an extension, then the original deadline has not been changed*.

Return of Work and Feedback
Feedback to all coursework will be provided via Turnitin Comments

Student Feedback
UEL values student feedback and there are lots of channels for gathering your views. Module evaluation is your opportunity to provide feedback on your learning and teaching experience of studying on your modules. All undergraduate and taught postgraduate students are provided with the opportunity to contribute feedback on their experience for each module that they study.

a) Feedback from students who have previously taken the module

Student Comments	Action Taken
"The lecture and practical lab is very good"	Not necessary
The module is one of the present trending fields and it's good to learn it.	Not necessary
It is very helpful to gain practical knowledge and to implement in real world.	Not necessary
Module guide explained all the things very clearly.	Not necessary

b) Opportunities for student feedback on the module including end of module evaluation, and any mid-module evaluation, where relevant.

Student feedback is welcomed via Moodle, email or in person.

Engagement and Attendance Requirements

As a UEL student you are expected to engage with all scheduled sessions, including lectures, seminars, group work and tutorials. During extended projects and dissertations, you must engage with dissertation work and follow attendance guidelines for dissertation supervision set out in dissertation module specifications.

You are also expected to be punctual, to be respectful of others' time as well as your own, to participate whilst present, to put in time to study between classes, to prepare for taught sessions and to be active participants in both groupwork and your own learning experience. Our Engagement and Attendance policy sets out your engagement and attendance requirements and why it so important to your success as a student.

MORE INFORMATION

- Link to your personal timetable
- Link to the Docklands Campus Map
- Link to the Stratford Campus Map
- Link to University Square Stratford
- Link to the Guide to Room Numbers

- Link to Library support for referencing
- Video guide to Getting Started on Zotero
- Video guide to using referencing software Zotero
- Link to the Student Handbook page on Academic Misconduct and Plagiarism
- Link to information about Student Engagement, Retention and Success

Key Links

- Academic Appeals
- Academic Integrity
- Academic Tutoring
- Assessment and Feedback Policy
- Bus Timetable
- Civic Engagement
- Complaints procedure
- Counselling
- Disability support
- Engagement & Attendance Policy
- Extensions
- Extenuation Procedures
- Frequently-Asked Questions
- Health and Safety
- IT Support
- Library Archives and Learning Services
- Manual of General Regulations
- Mentoring
- Office for Institutional Equity
- Student Engagement, Retention and Success
- Track My Future