# Solent University Unit Descriptor

## **Unit Code: COM526 Unit title:** Introduction to Artificial Intelligence

### **Why is this unit important?**

The area of artificial intelligence has seen immense focus and growth in recent years with a vast range of applications, from intelligent search algorithms to self-driving cars, permeating throughout our society. The potential future impact of artificial intelligence is tremendous with many arguing that it could be the biggest event in human history. This unit helps you gain an understanding of the key developments in this area as well as an appreciation of the changing technological landscape and its impact on our society.

### **What you will learn on the unit**

This unit will introduce you to concepts in the area of artificial intelligence. You will learn about the current developments in the field through case studies and you will gain an appreciation for the challenges as well as opportunities in this area. The unit will primarily focus on an agent-oriented approach to software engineering and will introduce the key concepts and models in the field. Intelligent agents, interactions between agents and the context in which they operate will be explored. Case studies of practical applications of intelligent agents and multi-agent systems will be used, and you will be introduced to pertinent design and development techniques. You will gain hands on experience in developing intelligent agents and testing them in a simulated environment.

### **How you will learn**

This unit emphasises putting theory into practice and so you will learn by completing weekly lab-based practical sessions. These sessions will introduce you to the key concepts and will provide you with opportunities to develop your knowledge and skills. Each lab session will consist of computer problems of increasing challenge and scope and where appropriate collaborative working will be encouraged.

### **How much time the unit requires**

This unit is a 20-credit unit and students are expected to study for 200 hours (which equates to 10 hours per credit).This total learning time is made up of contact time, directed learning tasks, independent learning and assessment activity.

### **How you will be assessed**

#### **Tasks which help you to learn and prepares you for summative tasks (Formative):**

You will have the opportunity to complete activities throughout the unit which develop your understanding and provide opportunities for feedback. Activities will consist of practical challenges, mini-projects, quizzes, classroom interactions and, where appropriate, group work. Feedback will take the form of reflective commentary on how you are doing and suggestions to support you to improve.

#### **Tasks which count towards your degree (Summative):**

The unit has two summative assessments each of which will require you to develop a solution for a problem given by a specification or problem description and which requires intelligent algorithms or agents. You will be assessed on your understanding and application of implementing intelligent algorithm or agents.

The first assessment will require you to implement a series of algorithms and write a report discussing their implementation. This will be an individual assessment where you will be required to use a version-controlled repository during development and in line with best practice.

The second assessment will require you to develop a software product in the form of a multi-agent simulation with the history of development captured in a version-controlled repository. The product you will build is intended to simulate a real-world problem. You will be required to consider legal, social, ethical and professional issues as appropriate and relevant to your software product. This assessment will be group work although you will be marked individually for your contribution.

#### **When assessment does not go to plan** You will have the opportunity to retake assessments where it cannot be demonstrated that the learning outcomes of the original assessment have been achieved. Reassessment will involve improving the original attempt for the original brief and re-submitting your solution in line with the university’s policies on re-assessment.

### **What you will be able to do after the unit**

1. Evaluate the appropriate use of artificial intelligence in computing.
2. Apply technical knowledge, concepts and skills to the design and construction of an intelligent agent and deploy it within a simulated environment.
3. Evaluate the performance of deployed intelligent agent.
4. Reflect on the impact and application of artificial intelligence in a business application.
5. Apply modern software development methodologies and agent-oriented programming techniques, utilise appropriate tools and demonstrate industry practice.

### **How this relates to the dimensions of Solent’s Real-world curriculum framework**

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| --- | --- | --- |
| Dimensions | How students learn | How students are assessed |
| Students are challenged to think in critical, creative and applied ways | Students will learn about current artificial intelligence theory and practice through case studies and practical implementation. | Students will complete a real-world problem-based assessment that requires the implementation of artificial intelligence. |
| Students are inspired to do research through inquiry, curiosity and problem-solving | Students will carry out independent and collaborative tasks that will involve researching theory and designing algorithms. | Students will design intelligent algorithms that are informed by research and which will form a part of their portfolio. |
| Students experience an intellectually stimulating curriculum which inspires them to learn for life | The application of theories and intelligent algorithms and their application in providing solution to real life problems that stimulate students intellectually | Students will produce artefacts that will demonstrate their skills in olving real world problems |
| Students learn from authentic, engaging and programmatic assessment | The assessment is a real world problem which will be informed by current industry practice. | Problem based assessment involves report on how given problems can be resolved through taught concepts. |

### **Summative assessment details**

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| AE1 | Weighting: | 50% |
|  | Assessment type: | Portfolio Report with Supporting Artefacts |
|  | Aggregation: | Aggregated to AE2 |
|  | Length/duration: | 2000 words |
|  | Online submission: | Yes |
|  | Grade marking: | Yes |
|  | Anonymous marking: | Yes |

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| --- | --- | --- |
| AE2 | Weighting: | 50% |
|  | Assessment type: | Software Product with Report |
|  | Aggregation: | Aggregated to AE1 |
|  | Length/duration: | 2000 words |
|  | Online submission: | Yes |
|  | Grade marking: | Yes |
|  | Anonymous marking: | Yes |

### Unit Author: Prins Butt

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| Unit Title: Introduction to Artificial Intelligence | | | |
| Credit Points: | 20 | Unit Code: | COM526 |
| FHEQ Level: | 5 | School/Service | SMAT |
| Unit Delivery Model: | CD | Max/Min student numbers | N/A |
| Unit Leader: | Prins Butt | | |
| HECOS code | 100359 | | |

### Unit change history:

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| --- | --- | --- | --- |
| Unit Approved/Year Implemented/Code | July 2019 | 2020/21 | COM526 |
| Unit modified/Year Implemented/Code |  |  |  |
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