F2A1-ASM Master of Science in Artificial Intelligence with Speech and Multimodal Interaction

PROGRAMME DETAILS
Programme Code: F2A1-ASM
Department: Computer Science
Main Award: MSC - Master of Science
Full Award Title: Master of Science in Artificial Intelligence with Speech and Multimodal Interaction
Level: Postgraduate Taught

LOCATION OF STUDY
<table>
<thead>
<tr>
<th>Location</th>
<th>Y</th>
<th>Scottish Borders</th>
<th>N</th>
<th>Orkney</th>
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<tr>
<td>Dubai</td>
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<td>Collaborative Learning Partner</td>
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ASSOCIATED AWARDS
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<tr>
<th>Programme Code</th>
<th>Award</th>
<th>Title</th>
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<tr>
<td>F2A1-ASM</td>
<td>MSC</td>
<td>Master of Science in Artificial Intelligence with Speech and Multimodal Interaction</td>
</tr>
<tr>
<td>F2A2-ASM</td>
<td>PGDIP</td>
<td>Postgraduate Diploma in Artificial Intelligence with Speech and Multimodal Interaction</td>
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<tr>
<td>F2A3-ZZZ</td>
<td>PGCERT</td>
<td>Postgraduate Certificate in Computer Science</td>
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ACCREDITATION
N/A

LEARNING OUTCOMES – SUBJECT MASTERY
Understanding, Knowledge and Cognitive Skills

- Critical understanding of the main theories, principles and concepts relating to the domain of artificial intelligence including terminology, conventions, standards and methodologies.
- Understanding and use of a significant range of the main skills, techniques and practices in intelligent software engineering, and a range of specialised skills, research and investigation techniques, and practices in speech and multimodal interaction informed by current practices within the AI and HCI domains.
- Broad and deep knowledge of the AI areas of data mining, machine learning, search and optimization, intelligent agents, knowledge representation and inference, planning, as well as application-based knowledge and skills relating to speech and multimodal interaction, and specialist knowledge and skills in applications relating to a number of specialist areas such as automation, biologically inspired computation, conversational agents, data visualization and analytics, robotics, spoken language processing and virtual reality.

Scholarship, Enquiry and Research (Research Informed Learning)

- Extensive, detailed and critical understanding of at least one specialist area within the domain of AI application development obtained through researching the background to a substantial and challenging AI engineering project that incorporates a multimodal spoken interface by personal scholarship, design and development of a detailed AI solution.
- Detailed knowledge and understanding of intelligent software engineering relating to spoken and multimodal interface application developments as well as the practical skills in how to exploit them in support of original and creative AI application development.
Specialist and critical knowledge, understanding and skills in a number of mainstream and specialist areas within the domain of AI application development including automation, conversational agents, robotics, spoken language processing, data mining and data visualization.

**LEARNING OUTCOMES – PERSONAL ABILITIES**

**Industrial, Commercial and Professional Practice**

- Demonstrate critical awareness of current issues within AI application development, and make informed judgements about them in the light of relevant professional standards.
- Demonstrate an awareness of professional and research issues in the AI discipline, and an ability to critique current techniques and practice.

**Autonomy, Accountability and Working With Others**

- Work autonomously and within teams, as appropriate, demonstrating a capability for both taking and critically reflecting on roles and responsibilities.
- Develop and utilise advanced problem-solving skills and techniques in the shared development of original and creative solutions to general and specialist AI engineering issues.
- Develop and demonstrate skills and techniques in communication with peers and academic/industrial staff, using a range of appropriate methods to suit different levels of knowledge and expertise within the audience.

**Communication, Numeracy & Information and Communications Technology**

- Develop and demonstrate the ability to communicate and present the main issues involved in AI application development to a literate audience with appropriate use of modern presentational tools and aids.
- Demonstrate appropriate use of methods of calculation and estimation involved in planning AI engineering solutions and solving speech and multimodal interface design of such AI applications.

**APPROACHES TO TEACHING AND LEARNING**

This programme is offered in a traditional campus-based, cohort model. Within the timetable, courses offer traditional lecture-based materials, small group tutorials and a variety of laboratory-based practicals. Students are expected to complete coursework in groups, teams and pairs, as well as individually, and courses offer a range of types of coursework for assessment, from discursive essay-style assignments to code design and generation. In some courses, team teaching approaches are adopted to provide additional support and variety, and electronic support, in the form of email lists, newsgroups and bulletin boards are widely used to disseminate information and support student communication and practice.

**EDUCATIONAL AIMS OF THE PROGRAMME**
F2A1-ASM Master of Science in Artificial Intelligence with Speech and Multimodal Interaction

- Detailed knowledge and critical understanding of the main areas of artificial intelligence (including theories, principles and concepts).
- Significant range of principal and specialist skills, techniques and practices in the AI domain.
- Specialist knowledge of AI techniques as they apply to developing interactive multimodal and spoken interfaces.
- Ability to critically review existing practice and develop original and creative solutions to problems within the AI and spoken multimodal interface domain.
- Ability to communicate and work effectively with peers and academic staff in a variety of tasks, demonstrating appropriate levels of autonomy and responsibility.
- Ability to plan and execute a significant project of research, investigation or development in a specialist area within artificial intelligence, demonstrating extensive, detailed and critical understanding of that specialism.

ASSESSMENT POLICIES

Postgraduate programmes consist of two phases:

- A taught phase, consisting of a set of 8 taught courses, some mandatory and some optional, defined in the programme structure, which the students will study over two semesters. Assessment of the taught phase is through a variety of methods including coursework and/or examination. Students must submit all elements of assessment before being permitted to progress.
- A dissertation phase, consisting of two stages: an appropriate technical research project and project dissertation report, and a poster and demonstration based presentation.
- Students will normally complete the taught phase, at which point progression to the dissertation phase is dependent on assessed performance. To progress students must meet the criteria stipulated in point 9 below in the taught material.
- Students meeting the required standards for Masters in the taught phase (set out in point 9 below) will be permitted to progress to the dissertation phase.
- Students meeting the required standards for Postgraduate Diploma and Postgraduate Certificate (set out in point 9 below) in the taught phase, but not meeting the Masters standard, will not be permitted to progress to the dissertation phase. Students may be recommended to graduate with a Postgraduate Diploma or a Postgraduate Certificate at this point.
- Students failing to meet the required standards for Postgraduate Diploma and Postgraduate Certificate (set out in point 9 below) in coursework and examination in the taught phase will not be permitted to progress to the dissertation phase, nor will they be eligible for any award.
- Any student will be able to retake the assessment of up to a maximum of 3 courses at the next opportunity, subject to payment of the appropriate fees to the University, and may be required to do so to obtain the necessary credits for completion of their programme or for progression. Students may only resit courses for which their examination grade is E or F (or a D but only if that is required for them to qualify for an MSc
F2A1-ASM Master of Science in Artificial Intelligence with Speech and Multimodal Interaction

The method of reassessment for each course is specified in the appropriate course descriptor.

## PROGRAMME STRUCTURE

### Mandatory Courses

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<tr>
<th>Edinburgh/Orkney/SCB</th>
<th>Malaysia</th>
<th>Dubai</th>
<th>ALP</th>
<th>IDL</th>
<th>Coll. Partner</th>
<th>Stage</th>
<th>Semester</th>
<th>Phase</th>
<th>Course Code</th>
<th>Course Title</th>
<th>SCQF Cr</th>
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<td>F21DL</td>
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<td>X</td>
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<td>F29AI</td>
<td>Artificial Intelligence and Intelligent Agents</td>
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<td>F21CA</td>
<td>Conversational Agents and Spoken Language Processing</td>
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<td>F21RP</td>
<td>Research Methods and Project Planning</td>
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<td>F21MP</td>
<td>Masters Project and Dissertation</td>
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### Optional Courses

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<td>Data Visualisation and Analytics</td>
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<td>3D Graphics and Animation</td>
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<td>Advanced Interaction Design</td>
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<td>Software Engineering Master Class</td>
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## COMPOSITION NOTES(PG)

8 taught courses (4 mandatory and 4 optional) plus a dissertation

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<table>
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<tr>
<td>Mandatory Credits</td>
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<td>Optional Credits</td>
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AWARDS, CREDITS AND CRITERIA (PG)

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<th>Awards, Credits and Levels</th>
<th>Overall Credits</th>
<th>Specific Requirements</th>
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<tbody>
<tr>
<td>Masters Degree</td>
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<td>180 SCQF credits including a minimum of 150 credit at Level 11</td>
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<tr>
<td>Postgraduate Diploma</td>
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<td>120 SCQF credits including a minimum of 90 credit at Level 11</td>
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<td>Postgraduate Certificate</td>
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<td>60 SCQF credits including a minimum of 40 credit at Level 11</td>
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Award Requirements

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<th>Award Requirements</th>
<th>Total Course Passes</th>
<th>Overall Mark</th>
<th>Overall Grade</th>
<th>Basis of Overall Mark/Grade</th>
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<tr>
<td>Master (Distinction)</td>
<td>8+Dissertation</td>
<td>70</td>
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<td>Credit Weighted Average greater than or equal 70% over 8 courses at grades A-C plus a Dissertation at grade A.</td>
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<td>Master</td>
<td>8+Dissertation</td>
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<td>C</td>
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<td>Certificate</td>
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<td>Credit Weighted Average greater than or equal 40% over 4 courses at grades A-E</td>
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DURATION OF STUDY

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<th>IN MONTHS</th>
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<td>Masters</td>
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<tr>
<td>Certificate</td>
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RE-ASSESSMENT (PG)

1. A student who has been awarded a Grade E or F in a course may be re-assessed in that course. A student who has been awarded a Grade D in a course may be re-assessed in that course in order to proceed to or be eligible to receive the award of Masters.
2. A student shall be permitted only one re-assessment opportunity in a maximum of three taught courses. The opportunity for re-assessment in four or more taught courses shall be at the discretion of the Progression Board.
3. Any further re-assessment opportunities in a course will require the approval of the Postgraduate Studies Committee.
4. A student may be permitted, at the discretion of the Progression Board, to be re-assessed in the dissertation, project or other supervised research component of the course of study.

PROGRESSION TO DISSERTATION/PROJECT

In accordance with University Regulations, to progress to Masters level a minimum of Grade C is required.