<table>
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<tr>
<th><strong>Course Code:</strong></th>
<th>F29AI</th>
<th><strong>Course Title:</strong></th>
<th>Artificial Intelligence and Intelligent Agents</th>
<th><strong>Course Co-ordinator:</strong></th>
<th>Verena Rieser/Patricia Vargas</th>
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<td><strong>Pre-requisites:</strong></td>
<td>Elementary knowledge of logic at the level of undergraduate Computer Science. Knowledge of high-level programming language concepts</td>
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| **Aims:** | ♦ To introduce the fundamental concepts and techniques of AI, including planning, search and knowledge representation  
♦ To introduce the scope, subfields and applications of AI, topics to be taken from a list including natural language processing, expert systems, robots and autonomous agents, machine learning and neural networks, and vision.  
♦ To develop skills in AI programming in an appropriate language |
| **Syllabus:** | ♦ Search algorithms (depth first search, breadth first search, uniform cost search, A* search)  
♦ constraint satisfaction problems;  
♦ games (min-max, alpha-beta pruning);  
♦ logic, resolution, introductory logic programming  
♦ knowledge representation – logic, rules, frames  
♦ goal and data-driven reasoning  
♦ practical rule-based programming  
♦ Overview of main fields of AI (Vision, Learning, Knowledge Engineering)  
♦ In depth view of one field of AI (e.g. Planning, Natural language)  
♦ Autonomous agents  
♦ Applications of AI  
♦ AI programming |
| **Learning Outcomes:** |  |
| **Subject Mastery** | Understanding, Knowledge and Subject-Specific Skills  
♦ Critical understanding of traditional AI problem solving and knowledge representation methods  
♦ Use of knowledge representation techniques (such as predicate logic and frames).  
♦ Critical understanding of different systematic and heuristic search techniques  
♦ Practice in expressing problems in terms of state-space search  
♦ Broad knowledge and understanding of the subfields and applications of AI, such as computer vision, machine learning and expert systems.  
♦ Detailed knowledge of one subfield of AI (e.g. natural language processing, planning) and ability to apply its formalisms and representations to small problems  
♦ Detailed understanding of different approaches to autonomous agent and robot architectures, and the ability to critically evaluate their advantages and disadvantages in different contexts.  
♦ Practice in the implementation of simple AI systems using a suitable language |
| **Learning Outcomes:** | Cognitive skills, Core skills and Professional Awareness  
♦ Identification, representation and solution of problems  
♦ Time management and resource organization  
♦ Research skills and report writing  
♦ Practice in the use of ICT, numeracy and presentation skills. |
| **Assessment Methods:** | Assessment: Examination: (weighting – 100%)  
Re-assessment: Examination: (weighting – 100%) |