

Course Code: F29AI	Course Title: Artificial Intelligence and Intelligent Agents	Course Co-ordinator: Verena Rieser/ Patricia Vargas
Pre-requisites:	Elementary knowledge of logic at the level of undergraduate Computer Science. Knowledge of high-level programming language concepts	
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	<i>Understanding, Knowledge and Subject-Specific Skills</i> ♦ 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: Personal Abilities:	<i>Cognitive skills, Core skills and Professional Awareness</i> ♦ 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%)