UNIVERSITY OF MALAWI – THE POLYTECHNIC
FACULT OF APPLIED SCIENCES

1	**Module Title**	**:** Artificial Intelligence
2	**Module Code**	**:** INT-401
3	**Department**	**:** Computing and Information Department
4	**Level**	**:** 3
5	**Credit**	**:** 10
6	**Prerequisites**	**:** DSA-301
7	**Co-requisites**	**:**

8 Module Aims

To equip students with knowledge and skills in Artificial Intelligence

9 Intended Learning Outcomes

By the end of the module students should be able to

a. Apply AI techniques to solve a problem
b. Describe standard AI techniques for problem solving
c. Discuss Artificial Intelligence concepts

10 Indicative Content

a. Introduction
    i. Introduction to AI and intelligent agents
    ii. General Concept of Knowledge.
b. Symbolic Knowledge and Reasoning
    i. Building a Knowledge Base Agent,
    ii. Propositional logic, First order logic, Inference in First order Logic,
c. Uncertain Knowledge and Reasoning
    i. Inconsistencies and uncertainties
    ii. Probabilistic reasoning
    iii. Structured knowledge
    iv. Fuzzy Logic.
d. Knowledge Organization and manipulation
    i. Search strategies
    ii. Game planning
    iii. Knowledge Organization and management.
e. Knowledge acquisition
    i. Introduction
    ii. Types of learning,
    iii. General model,
    iv. Learning automata,
    v. Genetic algorithm,
    vi. Learning by Induction,
f. Introduction to Natural Language Processing

i. Overview of Linguistics, Grammars and Languages,
ii. Basic Parsing Techniques,
iii. Semantic Analysis & Structures
iv. Natural Language generation and Systems.
v. Expert consultation
vi. Development of Expert Systems
vii. Computer vision,
viii. Robotics.

g. Logic programming
   i. Background
   ii. Representation and reasoning
   iii. Logic programs and programming styles
   iv. Programming in PROLOG.
   v. List processing, arithmetic, I/O and memory operations and databases in PROLOG.
   vi. User interface and interface engine of AI.

11 Assessment

a. 40% course work
b. 60% examinations

12 Teaching and Learning Methods

a. Lectures
b. Lab work
c. Assignments
d. Group discussions

13 Recommended Resources/Reading Lists

a. Russell and Norvig, Artificial Intelligence A Modern Approach, 2nd Edition, Prentice Hall, 2003. ISBN 0-13-790395-2
b. Dan w. Patterson Introduction to Artificial Intelligence and Expert System
c. Stuart Russell and Peter Norving Artificial Intelligence: A Modern Approach
d. E. Rich and K. Knight Artificial Intelligence