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Leader in Innovative Technology

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE
COURSE OUTLINE

Code & Name	ICS 2325: Advanced Artificial Intelligence
Prerequisite	Foundations of Artificial Intelligence and Programming
Cohort	BMCS Y3S2, January – April 2023
Lecturer	Njiru N. (Mr.)
Contact	nnjiru@mmu.ac.ke, 0725737355

CSE 2325 ARTIFICIAL INTELLIGENCE

Prerequisite; Foundations of Artificial Intelligence and Programming Skills

Purpose;

To enable the student understand advance concepts and techniques in artificial intelligence and their applications.

Learning outcomes;

By the end of this course the student should be able to:

1. Explain artificial intelligence techniques and their roles in building intelligent machines
2. Describe the feasibility of applying a artificial technique for a particular problem
3. Demonstrate use of logic reasoning to handle uncertainty and solve real world problems

Course Outline

Lecture	**Topic**
Lecture 1	Overview of AI
Lecture 2	AI Types and Intelligent Agents
Lecture 3	Logic
Lecture 4	First Order Logic
Lecture 5	Machine Learning 1
Lecture 6	Machine Learning 2
Lecture 7	Reinforcement Learning
Lecture 8	Problem Solving-Search 1
Lecture 9	Uncertainity in AI
	FINAL Examination

Teaching Methodologies;

Lectures, practical sessions and tutorials.

Instructional Materials/Equipment;

1. LCD Projector
2. Whiteboard
3. Textbooks and Computers

Reference Textbooks;

1. Stuart R. & Norvig P.(2015) *Artificial Intelligence: A modern Approach (3rd ed.)* Prentice Hall. ISBN-10: 9789332543515
2. Kelleher, J. D. et. al. (2015) *Fundamentals of Machine Learning for Predictive Data Analytics: Algorithms, Worked Examples, and Case Studies(1st ed.)* MIT Press; ISBN-10: 0262029448
3. Mathur, P *(2019) Machine Learning Applications Using Python: Cases Studies from Healthcare, Retail, and Finance (1st ed)* Apress; ISBN-10: 1484237862

Course Textbooks;

1. Mohri, M. et. al. (2018) *Foundations of Machine Learning (2nd ed)* MIT Press; ISBN-10: 0262039400
2. Aggarwal, C. C (2018) *Neural Networks and Deep Learning: A Textbook (1st ed.)* Springer; ISBN-10: 3319944622
3. Shalev-Shwartz, S. & Ben-David, S.(2014) *Understanding Machine Learning: From Theory to Algorithms (1st ed.)* Cambridge University Press; ISBN-10: 1107057132

Course Journals;

1. J*ournal* of Systems Science and Complexity (JSSC)
2. International Journal of Information Technology & Computer Science (IJITCS)
3. International Journal of Computer Applications (IJCA)

Reference Journals;

1. International *Journal* of Policy Analysis and Information. Systems (IJPAI).
2. International *Journal* of Computer Science and Security (IJCSS)
3. Journal of AI Research (JAIR)