Course No.	Type	Subject	L	T	P	Credits	CA	MS	ES	CA	ES	Pre-requisites
CACSE54	ED	Knowledge Based System	3	1	0	4	25	25	50			DAA, Artificial Intelligence

COURSE OUTCOMES

1. Develop a general understanding of A. I. concepts and KBS and use the various search mechanisms to solve a problem.
2. Understand knowledge acquisition techniques and use knowledge representation methods.
3. Use inference techniques to improve prediction and decision support.
4. Apply artificial intelligence methods such as fuzzy learning, Bayes' method etc., to handle uncertainty.
5. To utilize the system for solving real time problems.

COURSE CONTENTS

UNIT-1

Introduction to Intelligence and Artificial Intelligence, Overview of Artificial Intelligence, History of Artificial Intelligence, Characteristics of AI Programs, Symbolic processing, Knowledge Representation, Search, Heuristics, Applications of Artificial Intelligence
Search: Process of Searching, Representing search problems, Search strategies, Uninformed (blind) search, Informed (heuristic) search

UNIT-2

Introduction to Knowledge Based System: Data, Information and knowledge, Types of knowledge, Types of knowledge based systems. Knowledge Representation: Definition, Knowledge representations schemes, Logic Representation, Prepositional logic, Predicate logic, Logic Programming, Introduction to PROLOG, Semantic networks, Frames

UNIT-3

Productions and Rule based systems: Architecture of a Production System, Execution in a Production System, Comparison of the Various Knowledge Schemes
Knowledge Acquisition: Sources of Knowledge, Categories of Knowledge Acquisition Methods, Top-Down Methods and Bottom-Up Methods, Knowledge Acquisition Modes
Base techniques of knowledge-based systems: rule-based techniques, inductive techniques, hybrid techniques, symbol-manipulation techniques, case-based techniques

UNIT-4

Expert Systems: Definition, Structure of An Expert System, A methodology for the development of expert system, Expert System Shells, Case-based reasoning (CBR), Case, Case – indexing
Main components of case-based systems
Inference: Definition, Inference Strategies in Artificial Intelligence Applications
Rule-based inference controls: Forward chaining, Backward chaining

UNIT-5

Knowledge Based Systems Software Lifecycles: Software Life Cycles, Characteristics of KBS Projects, Commonalities in KBS, The Waterfall Model, KADS Methodology
Uncertainty: AI classification of uncertainty, Handling Uncertainty, Confidence/Certainty Factors, Bayes' Theorem

SUGGESTED READINGS

1. Gonzalez, A. J. and Dankel, D. D. The Engineering of Knowledge-based Systems. Prentice Hall, 1993. ISBN-10: 0132769409, ISBN-13: 978-0132769402.
2. Durkin, J., Expert Systems: Design and Development. Prentice Hall, New York, NY, 1994. ISBN-10: 0023309709, ISBN-13: 978-0023309700.
3. Russell, S. and Norvig, P. Artificial Intelligence: A Modern Approach. Third edition. Prentice Hall. 2010. ISBN-10: 0136042597, ISBN-13: 978-0136042594.
4. Puppe, F. Systematic Introduction to Expert Systems: Knowledge Representations and Problem-Solving Methods. Springer. 2011. ISBN-10: 3642779735, ISBN-13: 978-3642779732.
5. Mitchell, T. Machine Learning. McGraw-Hill. 1997. ISBN-10: 0070428077, ISBN-13: 978-0070428072.

Course No.	Type	Subject	L	T	P	Credits	TCA	TMS	TES	Pre-requisites
CACSE55	**ED**	**Human Computer Interface**	**3**	**1**	**0**	**4**	**25**	**25**	**50**	**Computer Architecture, Computer Graphics**

COURSE OUTCOMES

1. To be able to understand the importance of designing interactive products those are usable.
2. To be able to communicate effectively about requirements, design, and evaluation activities related to interactive products.
3. To be able to evaluate an interactive product using suitable techniques.
4. To be able to incorporate the convenient user interfaces in different devices.
5. To be able to understand the emerging technology in hardware and their usages

COURSE CONTENTS

UNIT-1

Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design.

The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

UNIT-2

Design process – Human interaction with computers, importance of human characteristics human consideration, human interaction speeds, understanding business junctions.

UNIT-3

Screen Designing : Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design.

UNIT-4