Subject Code	Subject Name	Credits
26CS512	COGNITIVE COMPUTING AND ARTIFICIAL GENERAL INTELLIGENCE	4

Course Objectives:

1. To introduce the fundamental concepts of cognitive computing and artificial intelligence.
2. To understand the principles of machine learning, natural language processing, and cognitive architectures.
3. To study the concepts and development of Artificial General Intelligence (AGI).
4. To explore the applications, challenges, and ethical issues related to cognitive computing and AGI.

Learning Objectives:

After completion of the course the students will be able to:

1. Students will be able to explain the concepts of cognitive computing and artificial general intelligence.
2. Students will be able to analyse AI techniques and their applications in intelligent systems.

Unit I - Introduction to Cognitive Computing and Artificial Intelligence (12 Hrs.)

Concept of Cognitive Computing-Evolution of AI and Intelligent Systems-Differences between Narrow AI and Artificial General Intelligence-Characteristics of Cognitive Systems-Applications of Cognitive Computing

Unit II - Foundations of Cognitive Computing (12 Hrs.)

Knowledge Representation-Machine Learning Basics-Natural Language Processing (NLP)-Pattern Recognition-Cognitive Architecture-Human–Computer Interaction in Cognitive Systems

Unit III - Artificial General Intelligence (AGI) Concepts (12 Hrs.)

Introduction to Artificial General Intelligence-Characteristics and Goals of AGI-Difference between AGI and Artificial Narrow Intelligence-Cognitive Models for AGI-Learning and Reasoning AGI Systems

UNIT IV - Technologies and Architectures for AGI (Hrs.)

Deep Learning and Neural Networks-Reinforcement Learning-Cognitive Architectures for AGI-Hybrid AI Systems-Knowledge Graphs and Semantic Technologies

UNIT V - Applications and Ethical (12 Hrs.)

Issues in Social Media Analysis Marketing and Business Intelligence-Social Media Monitoring and Brand Analysis-Recommendation Systems-Fake News Detection-Privacy, Security, and Ethical Issues in Social Media-Future Trends in Social Media and Web Analytics

Reference Books:

1. Artificial Intelligence: A Modern Approach, Stuart Russell and Peter Norvig, Pearson
2. Cognitive Computing: Theory and Applications, Srinivasa Rao and Raju Chaudhary,Springer
3. Artificial General Intelligence,Ben Goertzel,Springer
4. OpenAI – https://openai.com