PRINCIPLES OF COGNITIVE SCIENCE

UNIT I – Basic Concepts

Fundamental concepts- Interdisciplinary perspective - Representations – Computations - Architecture of mind- memory –reasoning - problem solving

Unit II – Philosophical and Psychological approach

Philosophical approach: Mind body problem – Monism-Dualism – Functionalism – Knowledge acquisition- Emergent property Dennett's multiple draft theory –Psychological Approach: Voluntary approach – Structuralism – Functionalism – Gestalt approach – Psychoanalytic approach – Behaviorist approach

UNIT III - Cognitive approach

Modularity – Template matching theory – Feature detection theory – Computational theory of vision – Feature integration theory – Theories of Attention- Theory of pattern recognition Memory – Types of memory – Memory models – Visual Imaging – Problem solving

UNIT IV – Other approaches

Network approach: ANN – Topologies – Connectionist approach – semantic networks

Linguistic approach: Language Acquisition – deprivation – Wernicke Geschwind model – Speech recognition

Artificial Intelligence: Machine representation of Knowledge – Machine reasoning – Logical reasoning – Inductive reasoning – Expert systems – Fuzzy logic – ID3 algorithm

UNIT V – Extensions to cognitive science

Brains – Emotions – Consciousness – Body, world and dynamic systems

Issues in cognitive science – Enhancing cognitive science – Multiagent systems

References:

1. Cognitive Science An introduction to the study of mind, Jay Friedenberg and Gordon silverman, Sage Publications, 2006
2. The MIT Encyclopedia of The Cognitive sciences, Robert A.Wilson and Franck C.Keil, MIT Press, 1999.
3. Mind Introduction to Cognitive science, Paul Thagard, MIT Press, 2005