Paper Code: PS04EINS02	Total Credit: 4
Title Of Paper: Artificial Intelligence & Neural Networks	

Unit	Description in detail	Weightage (%)
I	Artificial Intelligence: Motivation, Databases & Medical Records, Mathematical Modeling & Simulation, Pattern Recognition, Bayesian Analysis, Decision Theory & Symbolic Reasoning Techniques, Knowledge Representation: Production Rules, Frames, Databases, Predicate Calculus & Semantic Nets & Temporal Data Representations.	25%
II	Knowledge Acquisition: Expert Input, Learned Knowledge, Meta-Knowledge, Knowledge based Maintenance, Reasoning Methodologies: Problem Representations, Blind Searching, Ordered Search, AND/OR Tree, Searching Game Trees, Searching Graphs, Rule base Searching, Higher Level Reasoning Methodologies & Examples in Biomedical Expert Systems.	25%
III	Validation & Evaluation: Algorithm Evaluation, Knowledge base Evaluation & System Evaluation, Genetic Algorithm: Representation Schemes, Genetic Operators, Evolution Strategies & Examples, Probabilistic Systems: Bayesian Approach, Parameter Estimation, Discriminant Analysis, Statistical Pattern Classification, Regression Analysis & Biomedical Applications.	25%
IV	Neural Networks: Modeling of Biomedical Systems, Decision Making Systems, Neural Models, Current Models, Resurgence of Neural Network Approach, Network Properties & Radial Basis Functions, Models: Classification, Association, Optimization & Self-organization, Classification Networks & Learning: Network Structure, Feature Selection, Types of Learning & Interpretation of Output, Supervised Learning: Decision Surfaces, Two-category Separation, Linearly Separable Sets, Nonlinearly Separable Sets, Multi Category Classification Problems, Relationship to Neural Network Models, Comparison of Methods & Applications.	25%

Basic Text & Reference Books:-

- Neural Networks and Artificial Intelligence for Biomedical Engineering, Donna L. Hudson, Maurice E. Cohen, Prentice Hall of India Private Limited.
- Artificial Intelligence Application Programming, M. Tim Jones, Dreamtech Press.
- Introduction to Artificial Neural Networks, S. N. Srivanandam & M. Paulraj, Vikas Publishing House Private Limited.
- Neural Networks – A Comprehensive Foundation, Simon Haykin, Pearson Education.
- An Introduction to Neural Networks, James A. Anderson, Prentice Hall of India Private Limited.