Course Code: BTCS602-18	Course Title: Artificial Intelligence	3L:0T:0P	3Credits

Detailed Contents:

UNIT 1: **Introduction (3 Hours)**

Concept of AI, history, current status, scope, agents, environments, Problem Formulations, Review of tree and graph structures, State space representation, Search graph and Search tree.

UNIT 2: Search Algorithms

Random search, Search with closed and open list, Depth first and Breadth first search, Heuristic search, Best first search, A* algorithm, Game Search.

UNIT 3: Probabilistic Reasoning

Probability, conditional probability, Bayes Rule, Bayesian Networks- representation, construction and inference, temporal model, hidden Markov model.

UNIT 4: Markov Decision process

MDP formulation, utility theory, utility functions, value iteration, policy iteration and partially observable MDPs.

UNIT 5: Reinforcement Learning

Passive reinforcement learning, direct utility estimation, adaptive dynamic programming, temporal difference learning, active reinforcement learning- Q learning**.**

Course Code: BTCS605-18	Course Title: Artificial Intelligence Lab	0L:0T:2P	1Credits

Detailed List of Tasks:

[1] Write a program to conduct uninformed and informed search.

[2] Write a program to conduct game search.

[3] Write a program to construct a Bayesian network from given data.

[4] Write a program to infer from the Bayesian network.

[5] Write a program to run value and policy iteration in a grid world.

[6] Write a program to do reinforcement learning in a grid world