

Academic Lesson Plan for 3rd Semester (2023-24)

Subject: Critical Reasoning and Systems Thinking

Subject Code: AIDS 213 / AIML 213

Course: B. Tech.

Semester: 3rd

Unit: I (8 Hours)

S. No.	Topics to be Covered	No. of Lectures
1.	Introduction, foundations and principles of critical reasoning, concepts in critical reasoning	1
2.	Concepts in critical reasoning	1
3.	Analyzing and evaluating reasoning, Integrated reasoning	1
4.	Critical and uncritical reasoning	1
5.	Scientific reasoning and strategic reasoning	1
6.	Analytical reasoning	1
7.	Different kinds of biases	1
8.	Recognizing implications and drawing conclusions	1

Unit: II (8 Hours)

S. No.	Topics to be Covered	No. of Lectures
1.	Arguments and structure of an argument	1
2.	Premises and claims	1

3.	Inductive and Deductive Arguments	2
4.	Valid and invalid arguments	1
5.	Sound and unsound arguments	1
6.	Descriptions and explanations	1
7.	Clarifications, illustrations and summary	1

Unit: III (8 Hours)

S. No.	Topics to be Covered	No. of Lectures
1.	What is problem solving, problem definition	1
2.	Steps in problem solving	1
3.	Idea generation, brainstorming, Fish bone analysis	1
4.	Thinking out of the box, Lateral thinking tools and techniques	1
5.	Information and data gathering and analysis	1
6.	Evaluating and prioritizing ideas, Six thinking hats method	1
7.	Problem solving in teams, planning in teams	1
8.	Tools and applications in project and risk management	1

Unit: IV (8 Hours)

S. No.	Topics to be Covered	No. of Lectures
1.	System structures and behavior	1
2.	Abilene paradox, Fallacies in reasoning	1
3.	Barriers in critical thinking	1

4.	Cognition and perception in Indian knowledge systems (Nyaya Darshana)	1
5.	Systems thinking, operational and design thinking	1
6.	System thinking for social change	1
7.	Critical thinking, the art of asking questions	1
8.	Tools and applications in project and risk management	1