

MCA (5th Sem) Schedule for Personal Contact Program (Regular Mode) Venue: IKGPTU Main Campus Kapurthala						
Time	9.00 AM-10.00 AM	10.00 AM-11.00 AM	11.00 AM- 12.00 PM	12.00 PM-1.00 PM	2.00 PM-3.00 PM	3.00 PM-4.00 PM
Date	MCA 501 Artificial Intelligence	MCA 502 DAA	MCA 503 WT	MCA 504 00A&D UML	MCA 505 WT(lab)	MCA 506 00A&D UML(lab)
14-Mar-20	Introduction: Intelligence, Foundations of artificial intelligence(AI). History of AI: Turing Test, The underlying assumption, and AI techniques, Level of Model	Data Structures: Quick revision of Data Structures- stacks, queues, trees, heaps, sets and graphs. Trees	XML: Introduction to XML, XML Basics, XML Syntax and Editors, documents, Elements, Attributes.	Object orientation and Development, OO Benefits, Abstraction, OO Modeling.		
15-Mar-20	Problems, Problem Space and Search: defining the problem as a state space search, Production System, Problem Characteristics, Production System and its characteristics. Water Jug problem and its space search	Binary Search trees, Optimal BS Trees, AVL Trees, RB Trees, Hashing	Creating: XML documents, Document Type Definitions (DTD), XML Schemas (XSD)	The Three Models: Class Modeling (Objects and Classes, Relationships, Generalization and Inheritance, Association, Aggregation, Constraints, Packages)		
21-Mar-20	Un-informed Search: Depth First search, Breadth First Search its advantages and disadvantages. InformedSearchStrategies:HeuristicfunctionsBest firstsearch, A*algorithm, Depth first Search, Breadth first search, Best First Search, advantages and disadvantages of informed search techniques.	Algorithms: What is an algorithm? Analyzing algorithms, order arithmetic, Time and space complexity of an algorithm, comparing the performance of different algorithms for the same problem.	XML Namespaces, XML Document Object Model, XSLT. Use of XSLT with XML	State Modeling (Events, States, Transitions and Conditions, State and Behavior, Concurrency) and Interaction Modeling (Use case models, Sequence and Activity)		
22-Mar-20	Iterative deepening, Game playing- Perfect decision game, imperfect decision game, evaluation function, alphabeta pruning	Different orders of growth. Asymptotic notation. Polynomial vs. Exponential running time. Principles of Algorithm Design	Introduction to Ajax, Use of Ajax in Website. Introduction to jQuery, Overview, retrieving page content, manipulating page content, working with events.	System and Process, SDLC, Creation of SRS document: Requirement Specification, Documentation and SDLC Models. Domain and Application Analysis (Class, State and Interaction Models)		
28-Mar-20	Knowledge Representation: Characteristics and knowledge representation Issues: representation and mapping. Reasoning: Propositional Logic, predicate logic(first order logic) FOPL, logical reasoning,	Basic Algorithm Design Techniques: Divide-and-conquer, Greedy, Randomization, backtracking, and dynamic programming. Example problems and algorithms illustrating the use of these techniques	PHP :Server-side web scripting, Installing PHP, Adding PHP to HTML, Syntax and Variables	System Design (Subsystems, Global Resources, Conditions, Priorities) Using design patterns (Abstraction-Occurrence, General Hierarchy, Player Role, Singleton,Observer, Delegation, Adapter and Proxy Patterns)	The software lab will be based upon the course Web Technologies (MCA-505)	The software lab will be based on UML
29-Mar-20	forward chaining, backward chaining: representing simple facts in logic, representing instance and IS A relationships, resolution principle with examples. Clausal form Representation. Inference	Sorting and searching: Insertion and selection sort, Binary search in an ordered array.	Passing information between pages, Strings, Arrays and Array Functions, Numbers, Basic PHP errors / problems	Class Design (Use cases, algorithms, refactoring, design optimization, inheritance adjustment)		
4-Apr-20	Uncertainty: Basic probability, Bayes rule, Belief networks, Default reasoning, Fuzzy sets and fuzzy logic: Decision making- Utility theory, utility functions, Decision theoretic expert systems	Sorting algorithms such as Merge sort, Quick sort, Heap sort, Radix Sort, and Bubble sort with analysis of their running times	Advanced PHP and MySQL: PHP/MySQL Functions, Displaying queries in tables, Building Forms from queries	UML Diagram: Use case diagram, Class diagram, Object diagrams, Aggregation activities on real objects (Aggregation, Generalization relations, Association and multiplicity)		
5-Apr-20	Weak-slot and-filler structures: Frames, Strong slot and filler structures: Conceptual dependency, scripts.	Lower bound on sorting	String and Regular Expressions, Sessions, Cookies and HTTP, Type and Type Conversions, E-Mail	Activity diagram(Activity and state diagram), Interaction Diagram(Sequence diagram, Collaboration diagram, Component diagram.)		

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11-Apr-20	Communication: Communication among agents, formal grammar, parsing, grammar.	Graphs and NP-completeness: Graph traversal: breadth-first search(BFS) and depth-first search (DFS).	Introduction to Web Services, Use of Web Services, Types of Web Services	OO Methodologies (Structured Analysis, Structured Design (SA/SD), Jackson Structured Development (JSD), Information Modeling Notations) OMT as SE Methodology, OO Impact, OO Style (Reusability, Extensibility, Robustness, Programming-in-the-large)		
12-Apr-20	Language processing and its problems, discourse and pragmatic processing.	Applications of BFS and DFS. Shortest paths in graphs: Dijkstra algorithm. Definition of class NP, P, NP-hard and NP-complete problems.	Introduction to Content Management System CMS (Types, Usages, Benefits).	User centric design and usability principles, Reverse Engineering, Difficulties and risks in use-case modeling and UI design, System testing and maintenance. Use of open source tools for UML Design such as Plant UML, Argo UML		