Quantum University, Roorkee

Course Outcomes for the Syallbus 2022-24 Batch

rogram Name **Master of Technology in Computer Science & Engineering**

Course Name **Advanced Discrete Structure**

Course Code **CS4106**

Unit-wise	Descriptions	BL	Employability
CO1	Ability to apply mathematical logic to solve problems	2	Emp
CO2	Understand sets, relations, functions and discrete	2	S
CO3	Able to use logical notations to define and reason about	2	S
CO4	Able to formulate problems and solve recurrence	2	En
CO5	Able to model and solve real world problems using	1	None

Course Name **Advanced Design and Analysis of Algorithm**

Course Code **CS4107**

Unit-wise	Descriptions	BL	Employability
CO1	Express combinatorial problems as maximumflow/minim	3	**s**
CO2	Perform reductions to prove NP-completeness.	3	**Emp**
CO3	Explain what NP-completeness means and does not mea	2	**Emp**
CO4	Devise algorithms that solve NP-complete problems on re	2	**Emp**
CO5	Use linear programming to obtain approximation algorith	2	**Emp**

Course Name **Computer Network and Distributed Systems**

Course Code **CS4108**

Unit-wise	Descriptions	BL	Employability
CO1	Explain in a concise manner how the Internet is construct	2	**s**
CO2	Reason about design choices at different layers in the TCP	3	**Emp**
CO3	Use standard tools to debug a network path and work in	3	**Emp**
CO4	Explain basic data and net security.	3	**Emp**
CO5	Theorize about different types of limitations in an Interne	3	**Emp**

Course Name **Advanced Operating System**

Course Code **CS4109**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Hands-on experience with the development of a specific	2	s
CO2	Designing the evaluation plan to test the developed syste	2	S
CO3	Learning the recent development of Operating Systems	2	Emp
CO4	Identifying the major research challenges in current resea	3	Emp
CO5	Working in a team and presenting the results by oral pres	3	Emp

Course Name **Advanced Computer Architecture**

Course Code **CS4110**

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Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	To make students know about the Parallelism concepts in	2	s
CO2	To give the students an elaborate idea about the differen	2	S
CO3	To introduce the advanced processor architectures to the	2	Emp
CO4	To make the students know about the importance of mul	3	Emp
CO5	To study about data flow computer architectures	3	Emp

Course Name **Advanced Operating System Lab**
Course Code **CS4141**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	To understand the challenges of the system software in m	3	Emp
CO2	To promote research activities to uphold in the theory an	3	Emp
CO3	To develop scientific writing skills through a series of labo	3	Emp

Course Name **Advanced Data Base Management System**
Course Code **CS4208**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Explain and evaluate the fundamental theories for advan	3	s
CO2	Design and implement parallel database systems with eva	3	S
CO3	Assess and apply database functions of distributed databa	3	Emp
CO4	Evaluate different database designs and architecture.	2	Emp
CO5	Administer and analyze database with query optimization	2	Emp

Course Name **Advanced Database Management System Lab**
Course Code **CS4241**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understand, appreciate and effectively explain the under	2	s
CO2	Design and implement a database schema for a given pro	2	Emp
CO3	Normalize a database	2	Emp

Course Name **Web Technology**
Course Code **CS4209**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Describe the concepts of World Wide Web, and the requi	2	S
CO2	Develop web pages using the HTML and CSS features with	3	S
CO3	Use the JavaScript to develop the dynamic web pages.	3	Emp
CO4	Construct simple web pages in PHP and to represent data	2	Emp
CO5	Use server side scripting with PHP to generate the web p	3	Emp

Course Name **Advanced Theory of Computation**
Course Code **CS4210**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Interpret the mathematical foundations of computation i	2	S
CO2	Construct the abstract machines including finite automat	3	S
CO3	Make use of pumping lemma to show that a language is n	3	Emp
CO4	Construct the grammar for any given finite automata, pus	2	Emp
CO5	Outline the characteristics of P, NP and NP Complete pro	3	Emp

Course Name **Software Process & Management**
Course Code **CS4215**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Identify the different project contexts and suggest an app	2	S
CO2	Practice the role of professional ethics insuccessful softw	3	S
CO3	Identify and describe the key phases of project managem	3	Emp
CO4	Determine an appropriate project management approach	2	Emp
CO5	Comparative analysis on Process Vs Product metrics.	3	Emp

Course Name **Data Mining and Data Warehousing**
Course Code **CS4211**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understand warehousing architectures and tools for syste	2	S
CO2	Understand KDD process for finding interesting pattern fr	3	S
CO3	Remove redundancy and incomplete data from the datas	3	Emp
CO4	Characterize the kinds of patterns that can be discovered	2	Emp
CO5	Discover interesting patterns from large amounts of data	3	Emp

Course Name **Modeling and Simulation**
Course Code **CS4212**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Students will understand the techniques of modeling in t	2	S
CO2	knowledge about a system and develop the capability to	3	S
CO3	Students will learn different types of simulation techn	3	Emp
CO4	Students will learn to simulate the models for the purpos	2	Emp
CO5	Students will understand the techniques Turing Machine	3	Emp

Course Name **Neural Networks**
Course Code **CS4216**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understand the difference between biological neuron an	2	S
CO2	Understand the application areas of neural networks	3	S
CO3	Understand building blocks of Neural Networks.	3	Emp
CO4	Develop neural network models	2	Emp
CO5	Design and develop applications using neural networks.	3	Emp

Course Name **Soft Computing**
Course Code **CS4213**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Develop intelligent systems leveraging the paradigm of so	2	S
CO2	Implement, evaluate and compare solutions by various so	3	S
CO3	Recognize the feasibility of applying a soft computing me	3	Emp
CO4	Design the methodology to solve optimization problems	2	Emp
CO5	Design hybrid system to revise the principles of soft comp	3	Emp

Course Name **Artificial Intelligence**
Course Code **CS4214**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understand the informed and uninformed problem types	2	S
CO2	Apply difficult real life problems in a state space represen	3	S
CO3	Design and evaluate intelligent expert models for percep	3	Emp
CO4	Formulate valid solutions for problems involving uncertai	2	Emp
CO5	Demonstrate and enrich knowledge to select and apply A	3	Emp

Course Name **Pattern Recognition**
Course Code **CS 4304**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Explain and compare a variety of pattern classification, st	2	S
CO2	Summarize, analyze, and relate research in the pattern re	3	S
CO3	Apply performance evaluation methods for pattern recog	3	Emp
CO4	Apply pattern recognition techniques to real-world proble	2	Emp
CO5	Implement simple pattern classifiers, classifier combinati	3	Emp

Course Name **: Information System & Audit**
Course Code **CS 4305**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understanding of Governance and Management of Infor	2	S
CO2	Understanding of IS acquisition, development and imple	3	S
CO3	Understanding of IS operations, maintenance and suppor	3	Emp
CO4	Understanding of a protection of information assets audit	2	Emp
CO5	Understanding of a BC and DR audit	3	Emp

Course Name **Multimedia and Graphics**
Course Code **CS4306**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Utilize and optimize graphic file formats and their individ	2	S
CO2	Relate the primary features of pixel resolution and color	3	S
CO3	Utilize industry standard development tools for design an	3	Emp
CO4	Create, edit, and optimize graphic images for use in vario	2	Emp
CO5	Understand the use of user interfaces	3	Emp

Course Name **Cyber Laws**
Course Code **CS4303**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Make Learner Conversant With The Social And Intellectua	2	S
CO2	Explore The Legal And Policy Developments In Various Co	3	S
CO3	Develop The Understanding Of Relationship Between Co	3	Emp
CO4	Give Learners In Depth Knowledge Of Information Techno	2	Emp
CO5	Make Study On Various Case Studies On Real Time Crime	3	Emp

Course Name **Research Methodology**
Course Code **ME4307**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Understand research problem formulation.	2	S
CO2	Analyze research related information	3	S
CO3	Follow research ethics	3	Emp
CO4	Understand that today's world is controlled by Computer,	2	Emp
CO5	Understanding that when IPR would take such important	3	Emp

Course Name **Research Methodology Lab**
Course Code **ME4340**

Unit-wise Course Outcome	Descriptions	BL Level	Employability (Emp)/ Skill(S)/ Entrepreneurship (Emt)/ None (Use , for more than One)
CO1	Students should be able to understand and use the Basics Excel commands	3	S,Em
CO2	Students should be able to understand the Graphical presentation of data -Histogram, frequency polygon, pie-charts and bar diagrams	4	S
CO3	Students should be able to understand the SPSS, layout, menu and analyzing the data using different statistical techniques.	4	S