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Sri Adichunchanagiri Shikshana Trust (R)

SJB Institute of Technology

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Approved by AICTE, New Delhi,
An Autonomous Institution under Visvesvaraya Technological University, Belagavi
Accredited by NAAC with 'A+' grade, Certified by ISO 9001-2015
Recognized by UGC, New Delhi with 2(f) & 12 (B).

Department of Artificial Intelligence and Machine Learning

Course Outcomes and CO-PO-PSO Articulation Matrix

BATCH 2022-2026

SEMESTER-III

Subject: Mathematics for Computer Science	Subject Code: BCS301

Course Outcomes

CO1	Explain the basic concepts of probability, random variables, probability distribution.
CO2	Apply suitable probability distribution models for the given scenario.
CO3	Apply the notion of a discrete-time Markov chain and n-step transition probabilities to solve the given problem.
CO4	Use statistical methodology and tools in the engineering problem-solving process.
CO5	Compute the confidence intervals for the mean of the population.
CO6	Apply the ANOVA test related to engineering problems.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	3		2										2	1	1	1
CO2			3	2									1	1	1	1
CO3		2	3		2								1	1	1	1
CO4	2		3										1	2	1	1
CO5	2		3		2						2		1	1	2	1

Subject: Digital Design & Computer Organization	Subject Code: BCS302

Course Outcomes

CO1	Apply the K–Map techniques to simplify various Boolean expressions
CO2	Design different types of combinational and sequential circuits along with Verilog programs.
CO3	Describe the fundamentals of machine instructions, addressing modes and processor performance.
CO4	Explain the approaches involved in achieving communication between processor and I/O devices.
CO5	Analyze internal Organization of Memory and Impact of cache/Pipelining on Processor Performance.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	2		1										2		1	
CO2	2	3												2	2	
CO3	2			1	2									2		
CO4	1		2											2		2
CO5	2			2	1								1			2

Subject: Operating Systems		Subject Code: BCS303

Course Outcomes

CO1	Explain the structure and functionality of operating system.
CO2	Apply appropriate CPU scheduling algorithms for the given problem.
CO3	Analyze the various techniques for process synchronization and deadlock handling.
CO4	Apply the various techniques for memory management.
CO5	Explain file and secondary storage management strategies.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	1	2											1			
CO2	2	2											1			
CO3		1	2										1			
CO4		2											1			
CO5	2			1						1			1			

Subject: Data Structures and Applications		Subject Code: BCS304

Course Outcomes

CO1	Explain different data structures and their applications.
CO2	Apply Arrays, Stacks and Queue data structures to solve the given problems.
CO3	Use the concept of linked list in problem solving.
CO4	Develop solutions using trees and graphs to model the real-world problem.
CO5	Explain the advanced Data Structures concepts such as Hashing Techniques and Optimal Binary Search Trees.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	2		3									2	2	1	1	1
CO2	2		3	2								2	2	1	1	1
CO3	3		2									2	2	1	1	1
CO4	3		2									2	2	1	1	1
CO5	3		2									2	1	1	1	1

Subject: Data Structures Laboratory		Subject Code: BCSL305

Course Outcomes

CO1	Explain different data structures and their applications.
CO2	Apply Arrays, Stacks and Queue data structures to solve the given problems.
CO3	Use the concept of linked list in problem solving.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	2	1	1			1							2			
CO2	2	2	1	1		1							2			
CO3	2	2	1	1		1							2			
CO4	2	2	1	1		1							2			
CO5												2	1			

Subject: Python Programming for Data Science		Subject Code BDS306B

Course Outcomes

CO1	Describe the constructs of Python programming
CO2	Use looping and conditional constructs to build programs.
CO3	Apply the concept of data structure to solve the real-world problem.
CO4	Use the NumPy constructs for matrix manipulations
CO5	Apply the Panda constructs for data analytics.

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	3		2										2	1	1	1
CO2			3	2									1	1	1	1
CO3		2	3		2								1	1	1	1
CO4	2		3										1	2	1	1
CO5	2		3			2					2		1	1	2	1

Subject: Data Analytics with Excel												Subject Code BCS358A			
Course Outcomes															
CO1	Use advanced functions and productivity tools to assist in developing worksheets.														
CO2	Manipulate data lists using Outline and PivotTables.														
CO3	Use Consolidation to summaries and report results from multiple worksheets.														
CO4	Apply Macros and Auto filter to solve the given real-world scenario.														

CO-PO-PSO Mapping

COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
CO1	1	1		1	1				1				1	1		
CO2	1	1		1	1				1				1	1		
CO3	1	1		1	1				1				1	1		
CO4	1	1		1	1				1				1	1		
CO5	1	1		1	1				1				1	1		

HOD 20/12/2023

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Course Outcomes and CO-PO-PSO Articulation Matrix Batch 2022-26
Semester-IV

Subject: Analysis & Design of Algorithms	Subject Code: BCS401

Course Outcomes

CO1	Apply asymptotic notational method to analyze the performance of the algorithms in terms of time complexity.
CO2	Demonstrate divide & conquer approaches and decrease & conquer approaches to solve computational problems.
CO3	Make use of transform & conquer and dynamic programming design approaches to solve the given real world or complex computational problems.
CO4	Apply greedy and input enhancement methods to solve graph & string based computational problems.
CO5	Analyse various classes (P,NP and NP Complete) of problems
CO6	Illustrate backtracking, branch & bound and approximation methods.

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	1	2	2						1			2	1		
CO2	1	2	2						1			2	1		
CO3	1	2	2	2					1			2	1		
CO4	1	2	2	2					1			2	1		
CO5	1	2	2	2					1			2	1		
CO6	1	2	2	2					1			2	1		

Subject: Artificial Intelligence	Subject Code: BAD402

Course Outcomes

CO1	Apply knowledge of agent architecture, searching and reasoning techniques for different applications.
CO2	Compare various Searching and Inferencing Techniques
CO3	Develop knowledge base sentences using propositional logic and first order logic.
CO4	Describe the concepts of quantifying uncertainty
CO5	Use the concepts of Expert Systems to build applications

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3										1	2		
CO2		2			2								2		
CO3	2												1		
CO4	2	2			2								2		
CO5			3	1									1		

Subject: Database Management Systems														Subject Code: BCS403		

Course Outcomes

CO1	Describe the basic elements of a relational database management system
CO2	Design entity relationship for the given scenario.
CO3	Apply various Structured Query Language (SQL) statements for database manipulation.
CO4	Analyse various normalization forms for the given application.
CO5	Develop database applications for the given real world problem.
CO6	Understand the concepts related to NoSQL databases

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2			3								3		
CO2	3	3			3								3		
CO3	3	3	2		3							3	3		
CO4	3	3	3		3								3		
CO5	3	3											3		
CO6	3		3		3							3	3		

Subject: Analysis & Design of Algorithms Lab														Subject Code: BCSL404		

Course Outcomes

CO1	Develop programs to solve computational problems using suitable algorithm design strategy.
CO2	Compare algorithm design strategies by developing equivalent programs and observing running times for analysis (Empirical).
CO3	Make use of suitable integrated development tools to develop programs
CO4	Choose appropriate algorithm design techniques to develop solution to the computational and complex problems.
CO5	Demonstrate and present the development of program, its execution and running time(s) and record the results/inferences.

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1		1				1		2	2	2	
CO2	2	2	3	1		1				1		2	2	2	
CO3	2	2	3	2		1				1		2	2	2	
CO4	2	2	3	2		1				1		2	2	2	
CO5	2	2	3	2		1				1		2	2	2	

Subject: Discrete Mathematical Structures														Subject Code: BCS405A		

Course Outcomes

CO1	Apply concepts of logical reasoning and mathematical proof techniques in proving theorems and statements.
CO2	Demonstrate the application of discrete structures in different fields of computer science.
CO3	Apply the basic concepts of relations, functions and partially ordered sets for computer representations.

CO4	Solve problems involving recurrence relations and generating functions.
CO5	Illustrate the fundamental principles of Algebraic structures with the problems related to computer science & engineering.

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2										1			
CO2	3	2										1			
CO3	3	2										1			
CO4	3	2										1			
CO5	3	2										1			

Subject: Julia	**Subject Code:** BDSL456D

Course Outcomes

CO1	Apply concepts of data types, selection, and looping constructs of the Julia programming language.
CO2	Demonstrate the use of strings, functions, arrays, and matrix operations in problem-solving.
CO3	Develop programs involving data structures to handle multi-valued data items.
CO4	Apply packages to generate plots of mathematical functions and equations.

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	3										1		2
CO2	3	2		3									1	1	
CO3	3	2											1		1
CO4	1	2	1		2	2	3	1					1		2

Subject: Biology For Computer Engineers	**Subject Code:** BBOC407

Course Outcomes

CO1	Elucidate the basic biological concepts via relevant industrial applications and case studies
CO2	Evaluate the principles of design and development, for exploring novel bioengineering projects
CO3	Corroborate the concepts of biomimetics for specific requirements
CO4	Think critically towards exploring innovative biobased solutions for socially relevant problems

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2					1	2	1				1			
CO2	2					1	2	1				1			
CO3	2					1	2	1				1			
CO4	2					1	2	1				1			

Subject: Universal Human Values (UHV)	**Subject Code:** BUHK408

Course Outcomes

CO1	They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.

CO2	They would have better critical ability.
CO3	They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).
CO4	It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction

CO-PO-PSO Mapping

	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1								3		3					
CO2		3								3					
CO3								3							
CO4								3		3					

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