1.1.3 & 1.2.1

Supporting Documents

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Mapping of Courses to Employability/ Skill Development

Department: Computer Science and Engineering
Program: B.Tech. (Computer Science and Engineering)
BTCS(type code) : (type course name)

CO No.	CO Statements (U	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning	Focus on	Assessment Tools to Measure Attainment of CO
CO1	Identify classes, objects, members of a class and the relationships among them needed to solve a specific problem operators	3	3	3	3	2	3	0	0	0	0	1	3	3	3	1	0			MSTs, ESE, Class/Quiz Tests
CO2	Demonstrate the concept of constructors and destructors. And create new definitions for some of the operators	3	3	3	3	1	2	0	0	1	0	1	3	3	3	1	0			MSTs, ESE, Class/Quiz Tests

CO3	Create function templates, overload function templates	3	3	3	3	1	1	0	0	1	0	1	3	3	3	1	0		MSTs, ESE, Class/Quiz Tests
CO4	Understand and demonstrate the concept of data encapsulation, inheritance, polymorphism with virtual functions	3	3	3	3	2	2	0	0	3	0	3	3	3	3	1	0		
CO5	Demonstrate the concept of file operations, streams in C++ and various I/O manipulators	3	3	3	3	2	2	0	0	3	0	3	3	3	3	1	0		

Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
S(401-18) : Discrete Mathematics

CO No.	CO State	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning	Focus on	Assessment Tools to Measure Attainment of CO
CO1	To be able to express logical sentence in terms of predicates, quantifiers, and logical connectives	3	3	3	2		1	1		1				2				Understan	mployabili	MSTs, ESE, Class/Quiz Tests
CO2	To derive the solution for a given problem using deductive logic and prove the solution based on logical inference	3	3	3	3		1			2		1		2				Design	mployabili	MSTs, ESE, Class/Quiz Tests

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CO	Description																			
CO3	For a given a mathematical problem, classify its algebraic structure	3	3	3	2					1				1	1			Design	mployabili	MSTs, ESE, Class/Quiz Tests
CO4	To evaluate Boolean functions and simplify expressions using the properties of Boolean algebra	3	3	3	3		2			2	2	1	1	1				Design	mployabili	MSTs, ESE, Class/Quiz Tests
CO5	To develop the given problem as graph networks and solve with techniques of graph theory.	3	3	3	3	1	2	1	1	2	2	2	2	2	2	2	1	Design	mployabili	MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(506-18) : Software Engineering Lab

CO No.	CO Stater	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level(understand/ analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1																				MSTs, ESE, Class/Quiz Tests
CO2																				MSTs, ESE, Class/Quiz Tests
CO3																				MSTs, ESE, Class/Quiz Tests
CO4																				

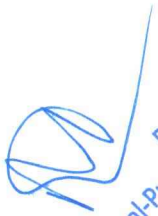Note * : CO's are not defined in Syllabus

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
(02-18UC) : Artificial Intelligence

CO No.	CO Statement	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/ analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Understand different types of AI agents.	3	2	2	2	1	1	1		1	2	2	2	2	1			Understand	Employability	MSTs, ESE, Class/Quiz Tests
CO2	Develop different types of various AI search algorithms.	3	3	3	3	3	2	2	1	2	2	2	3	3	3	3	1	Create	Entrepreneurship	MSTs, ESE, Class/Quiz Tests
CO3	Construct simple knowledge-based systems and to apply knowledge representation.	3	3	3	3	3	2	2		2	2	2	3	3	3	3	1	Design	Entrepreneurship	MSTs, ESE, Class/Quiz Tests
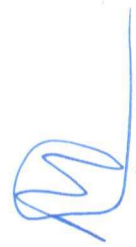
CO	Description																			
CO4	Convert intermediate representation in contest to understand learning.	3	2	2	2	3	3	2	1	2	3	3	3	3	3	3		Understand and Des	Entrepreneurship	MSTs, ESE, Class/Quiz Tests
CO5	Apply for various techniques for Expert Systems.	3	2	2	3	3	2	2		2	2	3	3	3	3	2		Understand and Des	Entrepreneurship	MSTs, ESE, Class/Quiz Tests

Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
06-18UC) : Speech and Natural Language Processing

CO No.	CO State	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level(understand/analyse/deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
																				MSTs, ESE, Class/Quiz Tests
CO1																				MSTs, ESE, Class/Quiz Tests
CO2																				MSTs, ESE, Class/Quiz Tests
CO3																				
CO4																				

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS : (Adhoc & Sensor Networks lab)

CO No.	CO State	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level (understand/analyse / deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO		
																		understand	Employability			
CO1	To understan	3				2				2				3				understand	Employability			
CO2	To understan	3								2				3				develop	Employability			
CO3	To understan	3		2	2	1								3								
CO4	To develop wireless sensor systems for different applications	3	2	3	2	1	1	2				1		3	2			Design	Employability	MSTs, ESE, Class/Quiz Tests		

Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) BTCS 709-18 (Computer Vision Lab)

CO No.	CO Stater	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analys e/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1		3	2	3	3	3	3	3	2	3	3	1	3	3	3	2	2			MSTs, ESE, Class/Quiz Tests
CO2		3	3	3	3	3	3	3	1	3	3		3	3	3	3	1			MSTs, ESE, Class/Quiz Tests
CO3		3	2	3	3	3	3	3	1	3	3	1	3	3	3	2	1			MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) : BTCS 523-18 (Computational Biology Lab)

CO No.	CO Statem	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1		3	2	1	2	3	3	2	1	3	3		2	3	2	2	1			MSTs, ESE, Class/Quiz Tests
CO2		3	2	2	3	3	3	3	1	3	3		3	3	2	2	2			MSTs, ESE, Class/Quiz Tests
CO3		3	3	3	3	3	3	3	2	3	3		3	3	3	3	1			MSTs, ESE, Class/Quiz Tests
CO4		3	3	3	3	3	3	3	1	3	3	1	3	3	3	2	1			MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) BTCS 705-18 (Deep Learning Lab)

CO No.	CO Stater	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analyse/deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1		3	2	3	3	3	3	3	1	3	3		3	3	2	2	1			MSTs, ESE, Class/Quiz Tests
CO2		3	3	3	3	3	3	3	2	3	3		3	3	2	2	1			MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(612-18UC) Data Warehousing and Data Mining

CO No.	CO Statements (Data Warehousing and Data Mining)	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level(understand/analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Understand the functionality of the various data mining and data warehousing component	3	3	3	3	3	3	2	1	1	2	2	1	2	1	2		Understand	Employability	MSTs, ESE, Class/Quiz Tests
CO2	Appreciate the strengths and limitations of various data mining and data warehousing models	3	3	2	3	2	3	2	2	1	1	1	3	2	2	2		Understand	Employability	MSTs, ESE, Class/Quiz Tests
CO3	Explain the analyzing techniques of various data	3	2	2	3	2	3	2	1	2	1	2	2	3	1	2	1	Design	Entrepreneurship	MSTs, ESE, Class/Quiz Tests
CO4	Describe different methodologies used in data mining and data ware housing.	3	3	3	3	3	3	1	2	1	2	1	2	2	2	2		Understand	Entrepreneurship	MSTs, ESE, Class/Quiz Tests
CO5	Compare different approaches of data ware housing and data mining with various technologies.	3	3	2	2	3	2	3	2	1	1	2	1	2	1	1	1	Compare	Entrepreneurship	MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) : (type course name)

CO No.	CO Statei	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(under stand/analy se/ deisgn etc)	Focus on Employability / Entrepreneur ship	Assessment Tools to Measure Attainment of CO
CO1	To know the basics of ERP	3	3	3	2	2	2	3			2	2	2	2	2	2		2	2	MSTs, ESE, Class/Quiz Tests
CO2	To understa nd the key implemen tation issues of ERP	3	3	3	2	2	2	3			2	2	2	2	2	2		2	2	MSTs, ESE, Class/Quiz Tests
CO3	To know the business modules of ERP	3	3	3	2	2	2	3			2	2	2	2	2	2		2	2	MSTs, ESE, Class/Quiz Tests
CO4	To be aware of some popular products in the area of ERP	3	3	3	2	2	2	3			2	2	2	2	2	2		2	2	

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS : (Graph theory Lab)

CO No.	CO State	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level(understand/ analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Solve problem	3		3	3	3				2				3		2		Apply	Employability	MSTs, ESE, Class/Quiz Tests
CO2	Solve problem	3	3	3	3	3				2				3		2		Apply	Employability	
CO3	Solve problem	3	3	3	3	3				2				3			1	Apply	Employability	
CO4	Model real w	3	2	3	3	3	2			2		1		3	2			Design	Employability	

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS : (Graph Theory)

CO No.	CO Statem	Engineering Knowledge PO-a	Problem Analysis PO-b	Design/development of solutions PO-c	Conduct investigations of complex problems PO-d	Modern tool usage PO-e	The engineer and society PO-f	Environment and sustainability PO-g	Ethics PO-h	Individual and team work PO-i	Communication PO-j	Project management and finance PO-k	Life-long Learning PO-l	Honing Domain Knowledge PSO-m	Innovation and design PSO-n	Entrepreneurship Skills PSO-o	Ethical values PSO-p	Learning Level(understand/analyse/deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Identify indu	3			3									3				understand	Employability	MSTs, ESE, Class/Quiz Tests
CO2	Reason from	3	3	3	3									3				Design	Employability	
CO3	Apply theore	3	3	3	3	2	1							3				Apply	Employability	

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) Microprocessor & Assembly Language Programming Lab

CO No.	CO State	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analyse/deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1		3	2	3	3	3	3	2		3	3	1	3	3	2	1				MSTs, ESE, Class/Quiz Tests
CO2		3		3	3	3	3	1		3	3		3	3	2	2				MSTs, ESE, Class/Quiz Tests
CO3		3	1	3	3	3	3	1		3	3		3	3	3	1				MSTs, ESE, Class/Quiz Tests
CO4		3	1	3	3	3	3	3	1	3	1		3	3	3	1				MSTs, ESE, Class/Quiz Tests
CO5		3	1	3	3	3	3	1		2	3		3	3	2	1				MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS(type code) Microprocessor & Assembly Language Programming

CO No.	CO Statement	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analyse/deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1		3	2	3	3	3	3	2	1	3	3	2	3	3	3	2	1			
CO2		3	2	3	3	3	3	2	1	2	3		3	3	3	2				MSTs, ESE, Class/Quiz Tests
CO3		3	3	3	3	3	3	2		2	3	1	3	3	3	2	1			MSTs, ESE, Class/Quiz Tests
CO4		3	3	3	3	3	3	3	2	3	3	2	3	3	3	2	1			MSTs, ESE, Class/Quiz Tests
CO5		3	1	3	3	3	3	3	1	3	3	1	3	3	3	1	1			MSTs, ESE, Class/Quiz Tests
CO6		3	1	3	3	3	3	3		3	3		3	3	3	1				MSTs, ESE, Class/Quiz Tests

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partment Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
717-18UC : Parallel Computing

CO No.	CO Stater	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(underst and/analyse/ deisgn etc)	Focus on Employability / Entrepreneurshi p	Assessment Tools to Measure Attainment of CO
CO1	To develop an understa nding of various basic concepts associate d with parallel computin g environm ents.	3	2	3	2	3	2	2	2	3	2	2	3	3	2	1	2	Understand and	Employability	MSTs, ESE, Class/Quiz Tests

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CO	Objective																	
CO2	To understand the effects that issues of synchronization, latency and bandwidth have on the efficiency and effectiveness of parallel computing applications.	3	3	3	3	2	2	2		2	2	2	3	3	2	2	Understand and Employability	MSTs, ESE, Class/Quiz Tests
CO3	To gain experience in a number of different parallel computing paradigms including memory passing, memory sharing, data-parallel and other approaches.	3	3	3	3	2	3	2		2	2	2	3	3	3	3	Understand and Employability	MSTs, ESE, Class/Quiz Tests
CO4	To earn experience in designing and testing parallel computing solutions to programming problems.	3	3	3	3	3	3	3	2	3	2	3	3	3	3	3	2	Understand and Employability	MSTs, ESE, Class/Quiz Tests

CO5	To develop improved communication and collaborative skills. Symbolic Logic & Logic Processing	3	3	3	3	3	2	3	2	3	3	2	3	3	3	3	2	Understand and Employability	MSTs, ESE, Class/Quiz Tests

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Department Computer Science and Engineering
Program : B.Tech. (Computer Science and Engineering)
BTCS 607) : (Simulation and Modeling Lab)

CO No.	CO Statements	PO-a Engineering Knowledge	PO-b Problem Analysis	PO-c Design/development of solutions	PO-d Conduct investigations of complex problems	PO-e Modern tool usage	PO-f The engineer and society	PO-g Environment and sustainability	PO-h Ethics	PO-i Individual and team work	PO-j Communication	PO-k Project management and finance	PO-l Life-long Learning	PSO-m Honing Domain Knowledge	PSO-n Innovation and design	PSO-o Entrepreneurship Skills	PSO-p Ethical values	Learning Level(understand/analyse/ deisgn etc)	Focus on Employability / Entrepreneurship	Assessment Tools to Measure Attainment of CO
CO1	Students will learn to simulate the models for the purpose of optimum control by using software	3	2	2	2	2	2	2	1	3	1	1	3	3	1	2	1	3		3 MSTs, ESE, Class/Quiz Tests
CO2	The student will be able to appreciate the utility of the tools like ANSYS or FLUENT in solving real time problems and day to day problems.	3	3	3	3	2	1	2	2	3	2	3	3	3	1	1	2	3		3 MSTs, ESE, Class/Quiz Tests
CO3	Use of these tools for any engineering and real time applications.	3	3	3	3	3	2	2	2	2	2	3	3	3	2	3	2	3		3 MSTs, ESE, Class/Quiz Tests

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| CO4 | Acquire knowledge on utilizing these tools for a better project in their curriculum as well as they will be prepared to handle industry problems with confidence when it matters to use these tools in their employment. | 3 | 2 | 2 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 32 | | 3 | | 3 | |