



Nutan Maharashtra Vidya Prasarak Mandal's
NUTAN MAHARASHTRA INSTITUTE OF
ENGINEERING & TECHNOLOGY



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"Samarth Vidya Sankul", Vishnupuri, Telegaon Dabhade, Pune - 410507

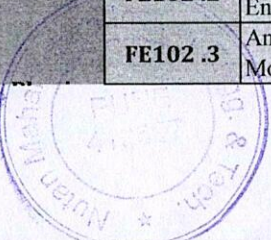
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Course Name	COS	New Course outcome Statements	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PSO1	PSO2	
Engineering Mathematics	FE101.1	Apply the essential tool of matrices and linear algebra in a comprehensive manner for analysis of system of linear equations, finding linear and orthogonal transformations, Eigen values and Eigen vectors applicable to engineering problems.	3	3	2	3	1								2	1	2
	FE101.2	Apply De-Moivre's theorem to determine roots of polynomial and can express hyperbolic, inverse hyperbolic functions.	3	3	2										2	1	
	FE101.3	Validate divergence & convergence of infinite series and evaluate higher order derivative of standard functions.	3	1	1	3									2	1	
	FE101.4	Apply Mean value theorems and Express the power series expansion of a function and evaluate limits by using Taylors and Maclaurin's series useful in the analysis of engineering problems.	3	3	2	2									3	1	
	FE101.5	Determine derivative of functions of several variables,composit function that are essential in various branches of Engineering and apply Euler's Theorem	3	2	2	2									3	1	
	FE101.6	Apply the concept of Jacobian to find partial derivative of implicit function and functional dependence and Use of partial derivatives in estimating error and approximation and finding extreme values of the function.	3	3	2	2									2	1	
		AVG OF ALL COs	3	2.5	1.8	2.4	1							2.3	1	2	
	FE102.1	Analyze interference and diffraction of light and its engineering applications.	2	2	3	1	2					1		2			
	FE102.2	Define and describe principles in Sound and their use in Engineering applications.	2	1	3	1						1		1	1		
	FE102.3	Analyze working of lasers and polarization and their use in Modern applications.	3	2	2	2	2					1		2	2		

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Engineering Physics	FE102.4	Illustrate semiconductors and their applications in semiconductor devices	2	3	2	1	2					1		2		
	FE102.5	Examining principles in quantum mechanics and their use in Engineering applications.	2	1	3		1							1		
	FE102.6	Summarize concepts of superconductivity and analyzing properties of nanomaterials and their application.	3	2	2		2							1		
		AVG OF ALL COs	2.3	1.8	2.5	1.3	1.8					1		1.5	1.5	
Fundamentals of Programming Languages I	FE103.1	Examplely the functional units of computer system, program development tools and software development process.	3	2		2	1	1						2	1	1
	FE103.2	Analyze the use of modular programming approach in diversified problem domains.	3	2	2		2		1						1	
	FE103.3	Design C programming concepts and algorithm	2	3	2				1				1	1	2	1
	FE103.4	Apply programming logic to solve real world problems	3	2	1	1	2							2	1	1
	FE103.5	Discribe use of conditional, unconditional statements, pointers, array, functions & strings in C.	3	3	2	2										
	FE103.6	Analyze and decide the effectiveness of Computer based solutions	2	3	3	1									1	2
		AVG OF ALL COs	2.7	2.5	2	1.5	1.7	1	1				1	1.7	1.2	1.3
Basic Electrical Engineering	FE104.1	To interpret and demonstrate knowledge basic concepts of electrical engineering and apply them to analyse problems based on energy conversion	3	3	3	2								2	1	
	FE104.2	Recognize basic concepts of electromagnetism and apply them to analyse problems based on magnetic circuits.	3	2	2	1	2							1	1	
	FE104.3	Recognize fundamentals of single phase transformer, electrostatics and apply the knowledge to determine performance of transformer and to analyse series and parallel capacitor circuits	3	2	2							1			1	
	FE104.4	Recognize fundamentals of alternating quantity and analyse purely resistive, inductive and capacitive circuits.	3	2	2										1	
	FE104.5	Apply the knowledge of phasor algebra in the analysis of single phase series, parallel R, L, C circuits and three phase ac circuits with star and delta connected load.	3	2	2		1					1		2	1	

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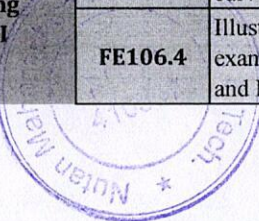
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	FE104.6	Analyze D.C. Electrical network using Kirchoff's laws, superposition theorem, Thevenin's theorem, Ohms law, star delta transformation.	3	3	3	2						1		2	1		
	AVG OF ALL COs		3	2.3	2.3	1.7	1.5					1		1.8	1		
Basic Civil and Environmental Engineering	FE105.1	List out the basic areas in civil Engineering and describe roll of civil engineer in various civil engineering projects with interdisciplinary approach .	2	2	1			2	2	2				1	1		
	FE105.2	List out the basic materials used in construction and classify the structure in substructure as well as superstructure ,with comparision automation with manual work.	3	2				2	2	2				1			
	FE105.3	Calculate area of irregular figure and elevation of various points with using Digital planimeter and dumpy level.	2	1	3	2	2					2	1	1			
	FE105.4	Define and describe the concepts of environment and analyze impacts of pollution with the help of different methods.	2						2	2	1				1	1	
	FE105.5	Construct & Draw a Building model plan using Building bye laws & provide solutions to Planning ,problems.	3	3	3	2					1				2	2	
	FE105.6	List out conventional and non cnventional energy sources and illustrate various environmental pollutions with their causes and effects.	2							2	2					1	
	AVG OF ALL COs		2.3	2	2.3	2	2	2	2	1.6	2	1	1.2	1.3			
Engineering Graphics I	FE106.1	Discuss Drawing Instruments and Visualize and Draw Projection of line &Points inclined to Horizontal plane and Vertical plane with proper dimentioning by 1st angle method	3	3	2	1	2				1	2			2	2	
	FE106.2	Visualize and Draw Projection of Plane inclined to Horizontal plan and Vertical plane with proper dimentioning by 1st angle method	3	3	2	1	1				1	2			2		1
	FE106.3	Interpret and Draw Projection of Solid including prism,pyramid,cylinder,cone and Engineering curves,Development of solid	3	3	2	1	1				1	2			2	2	
	FE106.4	Illustrate and Draw Engineering curves along with practical examples and there drawing with reduced and actual scales and Development of Solids	3	3	2	1	1				1	2			2	1	

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	FE106.5	Observe,Interprete and draw Orthographic Projections of given pictorial view by 1st angle method, Sectional Orthographic Projection with proper dimentioning	3	3	2	1	1			1	2			2	1	
	FE106.6	Visualize and Construct Isometric scale ,projections of simple solids and objects, and Isometric view with proper dimentioning	3	3	3	1	1			1	2			2	1	
	AVG OF ALL COs		3	3	2.2	1	1.2			1	2			2	1.4	1
Workshop Practices	FE107.1	Analyze different materials and its properties like workability, formability and machinability.	2		1					2	1			1		
	FE107.2	Adapt and develop hands on experince on wood working with hand tools and machines.	2		3		2			2	2	2		1		
	FE107.3	Adapt and develop hands on experince of marking, cuttuing, shearing, drilling, tapping, etc.	1		3		2			2	2	2		1		
	FE107.4	Adapt and develop hands on experince on various types of joining processes.	1	3	2		2			2	2	2		1		
	FE107.5	Interpret safety in workshop practice and develop safe working habits.						3		2	2			1		
	FE107.6	Describe with different process like forging, molding, plumbing and PCB making.	1				2			2	2			1		
	AVG OF ALL COs		1.4	3	2.3		2	3		2	1.8	2		1		
Engineering Mathematics II	FE108.1	Determine the solution of Ordinary Differential Equation of First order First degree Differential Equation.	3	3	2	2								1	2	1
	FE108.2	summarize various physical processes such as Newtons law of cooling,Electric Circuit,Rectilinear motion,Heat Tranfer in the form of Differential equation and solve it.	3	3	2	2								1	1	1
	FE108.3	Evaluate Fourier series for continous and discrete systems and anylze integrals functions for real time applications.	3	3	3	3								1	1	1
	FE108.4	Sketch Cartesian ,Polar ,Parametric Curves and measure their arc length using integral calculus.	3	3	2	1								1	1	1



	FE108.5	Apply the concepts of solid geometry and Determine the equations of sphere, cone and cylinder in a comprehensive manner.	3	3	2	1								1	1	1	
	FE108.6	Evaluate multiple integrals and apply it to find area bounded by curves, volume bounded by surfaces, Centre of gravity and Moment of inertia.	3	3	2	1								1	1	1	
		AVG OF ALL COs	3	3	2.2	1.7								1	1.2	1	
Engineering Chemistry	FE109.1	Analyze and develop solutions to engineering problems using the concepts of Hardness & Alkalinities related to industrial and drinking water.	2	1	2	1								1			
	FE109.2	Examining electroanalytical techniques for rapid and reliable measurements & its applications by using concepts pH metric and conductometric titrations	2	1	1									1			
	FE109.3	Illustrate techniques of synthetic and speciality polymers	2	1	2												
	FE109.4	Apply the concepts of extraction ,purifications & isolation of various fractions from fossil fuels.	2	1	2												
	FE109.5	Summarize & explain the chemistry of Carbon and hydrogen isotopes/ allotropes and illustration of its applications in preparation of various nanomaterials	2														
	FE109.6	Summarize concepts and mechanisms of wet and dry corrosion and develop solutions for preventing corrosions in industry.	2	1	1												
		AVG OF ALL COs	2	1	1.6	1								1			
Fundamentals of Programming Languages II	FE110.1	Illustrate the programming concepts using microprocessor & microcontroller.	2	2	1					1				1	2	3	1
	FE110.2	Design & developed advanced programming skill using multiple framework	3	3	2	2	3			1				1	2	1	
	FE110.3	Describe different concept of operating system & fundamentals of data structure.	2	2	1	2	1			1				1	1		
	FE110.4	Apply to solve realtime problem using embedded programming concepts	3	3	3	2	2			1				1	2	2	1
	FE110.5	Describe & implement basic of andriod SDK	3	3	3	1	2			1				1	2		1

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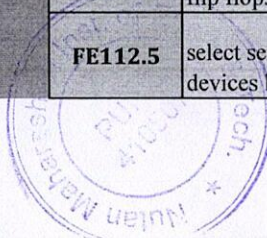
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	FE110.6	Develop realtime android based application using embedded programming concept	3	3	3	1	2			1		1	2	1	1
		AVG OF ALL COs	2.7	2.7	2.2	1.6	2			1		1	1.8	1.8	1
Engineering Mechanics	FE111.1	Determine resultant force and moment of force for given system of forces and apply basic principles of mechanics to analyze force problems and Determine centroid of plane lamina and wire bends and apply laws of friction to calculate coefficient of friction.	3	3	3	2					2	1	1	1	
	FE111.2	Applying kinematical equations to determine unknown values of distance, time and velocity.	3	3	3	2						1			1
	FE111.3	Calculate polar coordinates and range of projectiles .	3	3	3	3					2	1			
	FE111.4	Applying equations related to work,power ,energy,impulse ,momentum and impulse momentum principles of particle to determine the unknown values of distance ,time and velocity.	3	3	3	3					2				
	FE111.5	Calculate support reactions of simple and compound beam, determine resultant of concurrent and parallel space forces using conditions of equilibrium.	3	3	3	2					2				
	FE111.6	Analyze the plane trusses by method of joints and method of sections including two force members ,multiforce members and cables subjected to point loads.	3	3	3	3									
			AVG OF ALL COs	3	3	3	2.5					2	1	1	1
Basic Electronics Engineering	FE112.1	Define ,Describe and analyze basic electronic components such as semiconductors diodes	3									1	1	2	
	FE112.2	Describe and analyze types of semiconductor diodes and distinguish BJT with MOSFET.	3	1								1	1	1	
	FE112.3	Build and test analog circuits using OPAMP	3	2	2							1		1	
	FE112.4	Build and test digital circuits using universal/basic gates and flip flops.	3	2	2							1	1	1	
	FE112.5	select sensors for specific applications and describe power devices like SCR	3			1									1

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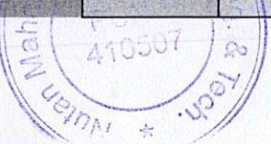


	FE112.6	Define and describe basic principles of communication systems.	3												1	1		
		AVG OF ALL COs	3	1.7	2	1									1	1	1.2	
Basic Mechanical Engineering	FE113.1	Define ,discuss and distinguish functions of mechanical elements, mechanism of power transfer through belt, rope, chain and gear drives.	3	3											1	1		
	FE113.2	Illustrate engineering materials, their properties,and applications of these materials in engineering .	2	2											1	1		
	FE113.3	Review and Analyze manufacturing processes as casting, forging, sheet metal working.	2	2	2										1	1		
	FE113.4	Illustrate the functions and operations of machine tools including lathe, milling, shaping, drilling and grinding machines.	3	2	2		2								1	1		
	FE113.5	Discuss and describe the basics of thermodynamics with comparison of the temperature and pressure measurement equipments	2	2			1								1	1		
	FE113.6	Describe the basics of thermal power plant ,power producing devices and power absorbing devices.	3	2					1							1		
		AVG OF ALL COs	2.5	2.2	2		1.5		1						1	1		
Engineering Graphics II	FE114.1	Interpret knowledage about CAD Software, its advantages and application	3	2	2	1	3									2	1	
	FE114.2	Construct and draw various types of solids (3-D objects) using CAD	3	3	3	1	3									2	2	
	FE114.3	Construct and draw various types of engineering curves using CAD	3	2	3	2	2									2		
	FE114.4	Construct and draw various types of development of solids using CAD	3	3	3	2	3									2	1	
	FE114.5	Construct and draw various types of view of orthographics projections using CAD	3	2	3	1	2									2		1
	FE114.6	Construct and draw various types of Isometric views and projection using CAD	3	3	3	2	2									2	1	
		AVG OF ALL COs	3	2.5	2.8	1.5	2.5								2	1	1.5	
SEMESTER III			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PS01	PS02		

Discrete Mathematics	CE201.1	Solve real world problems logically using appropriate set, function, and relation models and interpret the associated operations and terminologies in context	2	3	2	2	3						3	2		2
	CE201.2	Specify, manipulate and apply equivalence relations; construct and use functions and apply these concepts to solve new problems.	3	3		3	3						3	3		2
	CE201.3	Calculate numbers of possible outcomes using permutations and combinations; to model and analyze computational process using combinatorics.	3	3	3	2	3						3	2		2
	CE201.4	Model and solve computing problems using graph and solve problems using appropriate algorithms.	3	3	3	3	3	2					3	2		2
	CE201.5	Model and solve computing problems using tree and use particular algorithms.	2	2	3	3	2							2		2
	CE201.6	Analyze the properties of binary operations, apply abstract algebra in coding theory and evaluate the algebraic structures.	2	3	2	2	2									2
		AVG OF ALL COs	2.5	2.8	2.6	2.5	2.7	2					3	2.2		2
Digital Electronics and Logic Design	CE202L.1	Design and implement Combinational digital circuits using Algebraic simplifications methods.	3	2	2					3	2	2			2	
	CE202L.2	Design and Implement Sequential digital circuits as per the specifications.	3	2	2	1	1			3	2	3		1		
	CE202L.3	Construct ASM Chart and demonstrate the digital systems using VHDL.	2	2	2	1	1			3	3	2				2
	CE202L.4	Describe different types of Programmable logic devices(PLD's).	2	1	2					1	1					2
	CE202L.5	Illustrate the working of logic families & Apply the knowledge to select the logic families IC packages as per the design specifications.	2	2	1					1		2		1		
	CE202L.6	Differentiate between Microprocessor and Microcontroller 8051 to develop a minimum embedded system for simple real world application.	2	2	2					1	2					1
		AVG OF ALL COs	2.3	1.8	1.8	1	1			2	2	2.3		1	1.7	2
	CE203L.1	Design algorithmic solution for programming problems and analyze time and space complexity of program.	2	3	2	2							2	2	2	2
	CE203L.2	Demonstrate the use of Linear Data Structures Using Sequential Organization.	2	3	3	2	3						2	2	2	2

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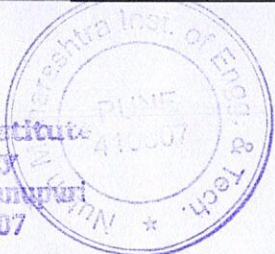


Data Structures and Algorithms	CE203L.3	Discriminate the use of Linked list for performing various operations such as insertion, deletion, searching, sorting.	2	3	3	2	2					2	3	2	2	2
	CE203L.4	Comprehend and Apply principles of Stack to solve computational problem.	2	3	3	3	2					3	3	2	2	
	CE203L.5	Illustrate and Apply principles of Queue to solve computational problem.	2	2	2	3	3					2	2	2	2	
	CE203L.6	Demonstrate and Implement various sorting and searching algorithms.	2	2	2	3	3					3	2			
AVG OF ALL COs			2	2.7	2.5	2.5	2.6					2.3	2.3	2	2	2
Computer Organization and Architecture	CE204.1	Analyze the structure, function, characteristics and arithmetic operations of computer systems.	3	2	3	3	2								3	3
	CE204.2	Analyze the function of each element of a memory hierarchy	2	1	3	3	2								3	3
	CE204.3	Demonstrate the basic knowledge of I/O devices and Direct Memory Access	3	1	3	1	2								2	3
	CE204.4	Identify the elements of modern instructions sets and explain their impact on processor design.	3	3	3	2	1								2	3
	CE204.5	Ability to Demonstrate Instruction level parallelism and superscalar processors with Design Issues	2	1	3	3	1								2	3
	CE204.6	Evaluate various design of the Basic Processing Unit of a digital computer system	3	1	2	2	1								2	3
AVG OF ALL COs			2.7	1.5	2.8	2.3	1.5							2.3	3	
Object Oriented Programming	CE205L.1	Illustrate basic concepts of object-oriented design techniques and principles.	3	1	3	2	2					2	2	2	2	1
	CE205L.2	Apply the concepts of classes, methods inheritance and polymorphism to write programs C++.	2	3	2	2	2					3	2	2		
	CE205L.3	Use virtual and pure virtual function and complex programming situations.		3												
	CE205L.4	Implement generic classes and handle exceptions using C++.	3	3	3	1	2					3	2	2	2	

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Object Oriented Programming

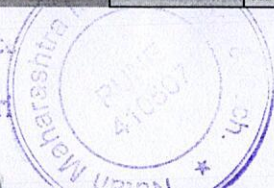
	CE205L.5	Develop programs for File handling in C++.	3	3	3	2	2					2	2	2	3	
	CE205L.6	Exemplify basic principles of Standard Template Library using C++ language.	3	2	1		2					2	2	2	1	
		AVG OF ALL COs	2.8	2.5	2.4	1.75	2					2.4	2	2	2	1
Soft Skills	CE206.1	Become more effective individual through goal/target setting, self motivation and practicing creative thinking						1	2	3	3	1	2	2		2
	CE206.2	Develop concept of communication and speaking skills						1	2	3	2	3	2	2		2
	CE206.3	Design the effective resume as per industry requirement and Write precise briefs or reports and technical documents						2	3	3	2	3	3	3		2
	CE206.4	Develop and nurture the soft skills of the students through individual and group activities.						2	1	3	1	3	3	1		2
	CE206.5	Develop the way to improve Stress and Time Management						2		3	1	3	1	1		2
	CE206.6	expose students to right attitudinal and behavioral aspects and to build the same through activities.						2	1	3	2	3	2	2		2
		AVG OF ALL COs						1.7	2	3	1.8	2.7	2.2	1.8		2
SEMESTER IV			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PS01	PS02
Engineering Mathematics III	CE207.1	Solve higher order linear differential equation using appropriate techniques for modelling, analyzing of electrical circuits and control systems.	3	3	2	3	2							2	1	
	CE207.2	Solve problems related to Fourier transform, Z-transform and applications to Communication systems and Signal processing.	3	3	3	3	2							2		
	CE207.3	Solve Probability and Probability Distributions and Statistics problem by various methods like correlation, Coefficient of correlation and Regression.	3	3	2	3	2							2		1
	CE207.4	Solve probability theory for analysis and prediction of a given data as applied to machine intelligence.	3	3	2	3	2							2		



	CE207.5	Represent vector differentiation , analyze the vector fields and apply to Electro-Magnetic fields.Solve problem related to vector integration by Greens theorem, Stokes theorem and Gauss Divergence theorem. Which gives relations between line ,surface and Volume Integrals and apply it to Electro-Magnetic fields.	3	3	2	3	2							2	1		
	CE207.6	Analyze conformal mappings, transformations and perform contour integration of complex functions in the study of electrostatics and signal processing.	3	3	2	3	2							2			
	AVG OF ALL COs		3	3	2.2	3	2							2	1	1	
Computer Graphics	CE208L.1	Apply fundamental concepts and practical skills in computer graphics	3	3	3		1			3	3			3	3		
	CE208L.2	Develop the competency related to Computer Vision and Windowing and clipping	3	3	3	3	2			1			3	3		1	
	CE208L.3	Implement and use classic and modern algorithms of computer graphic to 3-D geometry, 3D modeling and 3D object Representation	3	3	3	3	3				1	2		3	3	2	
	CE208L.4	Demonstrate graphics programming skills for different animation techniques & virtual reality.	3	3	3	3	3				3	3			3	2	
	CE208L.5	Acquire practical skills on additional advanced concepts of hidden surfaces & lines.	2	3	3	1	1				3	3		1	1	3	1
	CE208L.6	Gain knowledge of various concepts of Curves and Fractals	3	3	3	3	3				3	3			3	2	
	AVG OF ALL COs		2.8	3	3	2.6	2.2				2.3	2.8	2.3	2.7	2.4	1	
Advanced Data Structures	CE209L.1	Demonstrate basic terminologies of tree data structure and implement tree traversal techniques.	3	3	3	2	2								3	2	2
	CE209L.2	Represent graph with adjacency matrix and implement graph traversal methods, greedy algorithm for computing minimum spanning tree.	3	3	2	2	3								2	2	2
	CE209L.3	Illustrate advanced data structures to solve complex problems in various domains.	3	3	3	3	3	2							2	2	2
	CE209L.4	Design symbol tables, OBST and AVL tree.	3	3	2	2	3	2							2	2	

	CE209L.5	Describe and implement Indexing technique and various search Trees.	3	3	2	2	2	2							1	2	
	CE209L.6	Demonstrate different File Organization structures like Sequential file organization, Direct Access File, Indexed sequential file organization and Linked Organization.	3	3	2	2	3								1		
		AVG OF ALL COs	3	3	2.3	2.2	2.7	2							1.8	2	2
Microprocessor	CE210L.1	Comprehend/ acquire the knowledge of the programmer's model of advanced processors and its memory organization	3	3			2	1							1		
	CE210L.2	Illustrate the functionality and concept of memory management and apply instruction set to develop assembly language programs	3	3	2		2		1						1	1	
	CE210L.3	Relate the system level features to implement multitasking and protection in 386 processor	3	2	2	3	2	1	1						1		2
	CE210L.4	Identify and handle Exceptions and Interrupts for better resource utilization	3	3	2	2			1						1	2	
	CE210L.5	Apply and Identify debugging and testing techniques confined to 80386 DX.	2	2	2												
	CE210L.6	Construct different mathematical operations such as trigonometric, floating point and statistical using Co-processor.	3	3	3											1	
		AVG OF ALL COs	2.8	2.7	2.2	2.5	2	1	1						1	1.3	2
Principles of Programming Languages	CE211.1	Develop logical thinking and apply basic principles of programming languages	3	3	2	2	3					2			3	3	2
	CE211.2	Design and develop computer programs by making use of suitable data structures and algorithms	3	3	3	3	3					2			2	3	3
	CE211.3	Design and develop programs using Object Oriented Programming language : Java	3	3	3	3	3					2			3	3	3
	CE211.4	Design and develop applications using inheritance, encapsulation, and polymorphism	3	3	3	3	3					2			3	3	3

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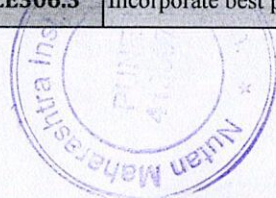
	CE211.5	Apply concepts of Applet and Multithreading for robust application development	3	3	3	3	3				2			3	3	3
	CE211.6	Design and develop programs using basic concepts of Functional and Logical programming paradigm.	3	3	3	3	3				2			3	3	3
		AVG OF ALL COs	3	3	2.8	2.8	3				2			2.8	3	2.8
SEMESTER V			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PS01	PS02
Theory of Computation	CE301.1	Construct finite automata and its variants to solve computing problems.	2	1	3	3					3	3	2	2	2	
	CE301.2	Write regular expressions for the regular languages and finite automata.	2	3			2				3	3				3
	CE301.3	Identify types of grammar, design and simplify Context Free Grammar.		2		3					2		2		3	
	CE301.4	Design and analyze Turing machines for formal languages.	3	3	2	2					2	3		2	2	3
	CE301.5	Construct Pushdown Automata machine for the Context Free Language.			2	3	2				2	3	2	3	2	3
	CE301.6	Design and analyze decidable, undecidable problems complexity classes.	3	2	2	3					3	3	2			
		AVG OF ALL COs	2.5	2.2	2.3	2.8	2				2.5	3	2	2.3	2.3	3
Database Management Systems	CE302L.1	Design E-R Model for given requirements and convert the same into database tables.	3	3	3	2	1				2	3		3	1	
	CE302L.2	Use database techniques such as SQL & PL/SQL	3	3	3	3	2				3	3	1	3	2	1
	CE302L.3	Use modern database techniques such as NOSQL.		3	3	3	3				3	3	1	3	1	
	CE302L.4	Explain transaction Management in relational database System.	3	3	3	3	3				2	2		1	2	
	CE302L.5	Describe different database architecture and analyses the use of appropriate architecture in real time environment		2	3	2	3							1	1	
	CE302L.6	Use advanced database Programming concepts	3	3	3	3	3				2	2		3		1
		AVG OF ALL COs	3	2.8	3	2.7	2.5				2.4	2.6	1	2.3	1.5	1

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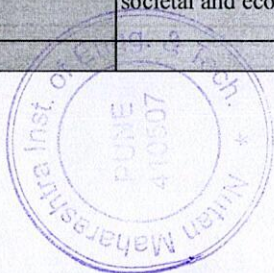
Software Engineering & Project Management	CE303.1	Design a process model for a developing a software project.	3	3	3	2	3			3	1		3	3	1	2
	CE303.2	Classify software applications and identify unique features of various domains.	3	2	3	1	2			3	1		3	3	2	
	CE303.3	Design test cases of a software system.	3	3	3	3	3			3	3		3	3	3	2
	CE303.4	Illustrate basics of IT Project management.	3	1	3	1	1			3	1		3	3		
	CE303.5	Execute a project considering the risk management for Planning and scheduling.	3	3	3	2	3			3	2		3	3	2	1
	CE303.6	Apply quality attributes in software development life cycle.	3	3	3	3	3			3	2		3	3	2	
		AVG OF ALL COs	3	2.5	3	2	2.5			3	1.7		3	3	2	1.67
Information Systems & Engineering Economics	CE304.1	Describe the importance of various forms of an Information Systems and its application to an organization.	3	3		2	2			3	3	3	3			3
	CE304.2	Learn the role of vendor management and understand ethical, social and privacy issues in IT governance.	2		3					3	3	3	3			3
	CE304.3	Study Information System Development and Project Management.	2	3	3		2			3	3	3	3			
	CE304.4	Design and Analyse the engineering economics in decision making for earning and evaluating.	3	3	2					3	2	3		3	3	
	CE304.5	Analyze the effects of inflation , economic equivalence of the project and calculate the present worth of a project		3	3	2				3	2	3	3			
	CE304.6	Adapt perfect decisions for investment in business projects to reduce the tax.	3						3	3	3	3	3	3	3	
		AVG OF ALL COs	2.6	3	2.8	2	2	3	3	3	3	2.7	3	3	3	3
Skills Development	CE306.1	Evaluate problems and analyse data using current technologies in a wide variety of business and organizational contexts.			3	1	1			3	1	3	3	3	3	1
	CE306.2	Create data-driven web applications.	1	1	3	1	3			3	2	3	3	3	3	2
	CE306.3	Incorporate best practices for building applications.	1	1	3	1	2			3	3	3	3	3	3	2

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Lab	CE306.4	Employ Integrated Development Environment (IDE) for implementing and testing of software solution.		3	3	3	3			3	2	3	3	3	1	
	CE306.5	Construct and evaluate professional skill development techniques.		2	1	1				3	3	3	3	3		3
	CE306.6	Develop projects to provide solution for different real-life problems.	3	3	3	3	3			2	2	3	3	3	3	3
		AVG OF ALL COs	1.7	2	2.7	1.7	2.4			3	2.2	3	3	3	2.6	2.2
Computer Networks	CE305L.1	Summarize fundamental concepts of Computer Networks, architectures, protocols and technologies	3		3		3			2	3	2	2	2	2	2
	CE305L.2	Demonstrate design issues, flow control and error control	3	3	3		3			2	3			2	2	2
	CE305L.3	Illustrate the working of MAC network protocols & its IEEE standards.	3	2	3	3	3			2	3		2	2	2	2
	CE305L.4	Analyze data flow between TCP/IP model using Network Layer & demonstrate different addressing schemes routing and switching algorithms.	3	3	3	2	3			2	3	2		3	2	
	CE305L.5	Analyze data flow between TCP/IP model using Transport Layer & implement client-server applications using sockets	3	2	3	2	2			3	3	2		2	2	
	CE305L.6	Analyze data flow between TCP/IP model using Application Layer & illustrate role of application layer protocols.	3	2	3	2				2	3	2		2	3	
		AVG OF ALL COs	3	2.4	3	2.3	2.8			2	3	2	2	2.2	2.2	2
SEMESTER VI			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PSO1	PSO2
Design & Analysis of Algorithms	CE307.1	Formulate the problem on design and analysis of algorithms	3	3	2	1								1	1	
	CE307.2	Analyze the asymptotic performance of algorithms	3	2	1	2		1						1	1	
	CE307.3	Decide and apply algorithmic strategies to solve given problem	2	1	2	1		1						1	2	
	CE307.4	Find optimal solution by applying various methods	3	2	2	2	2							1	2	1
	CE307.5	write mathematical modelling of algorithms for problem solving.	3	2	2	1	2							1		
	CE307.6	solve problems for multi-core or distributed or concurrent/Parallel/Embedded environments	3	2	2	2	2							1	2	

		AVG OF ALL COs	2.8	2	1.8	1.5	2	1					1	1.6	1		
Systems Programming & Operating System	CE308L.1	Describe the basic concepts of System Software. Analyze and implement Pass and Phase concepts for assembler design	3	3		3	3					2	3	3	3	3	
	CE308L.2	Analyze and synthesize macro processor design using efficient data structures.	2	3		3						2	3	3	3	3	
	CE308L.3	Study of language translator and tools viz. LEX, YACC to implement lexical analysis and syntax analysis.	3		3	3	2					2	3	3	3		3
	CE308L.4	Study and Implement operating system functions to improve performance of operating system.	3				3					2	3	3	3		3
	CE308L.5	Summarize the programming model for memory management and simulate the algorithms for performance analysis.	3		3	2	3	3				2	3	3	3	3	3
	CE308L.6	Study and implement the I/O management and file management.	3	3								2	3	3			
		AVG OF ALL COs	2.8	3	3	2.8	2.8	3				2	3	3	3	3	3
Embedded Systems & Internet of Things	CE309L.1	Use fundamentals of IoT and embedded system which includes essential design strategy, process modelling & communications API's	3	1	2							1			1	3	
	CE309L.2	Apply & design different designing methodology for implementation of IOT applications	2	2	3							1		3		3	2
	CE309L.3	Develop comprehensive approach towards building small low cost embedded IoT system	1	2	2							1			3	2	3
	CE309L.4	Analyse IOT Protocols for making IoT devices communication.		2	1	2	3					2	1	2	2		2
	CE309L.5	Design cloud based IoT Systems	3		3		3					2	1		2	3	2
	CE309L.6	Learn real world application scenarios of IoT along with its societal and economic impact using case studies	3	2	1	2						2	2	2	3		3
		AVG OF ALL COs	2.4	1.8	2	2	3					1.5	1.33	2.33	2.2	2.75	2.4



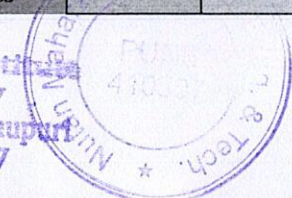
Software Modeling and Design	CE310.1	Analyse & Design the problem statement (SRS) and choose proper design technique for web-based/ desktop application	3	3	2					2	2		2	3		
	CE310.2	Design and analyse an application using UML modelling as fundamental tool.	1		3	1	2			2			1	2	3	3
	CE310.3	Exemplify the concept of object-oriented development, and create a dynamic behavioural model for the system using appropriate modern tool		2	3		3			2				2	2	3
	CE310.4	Use Architectural design for real world software application development .		2	3	2				2	2				2	3
	CE310.5	Apply different design patterns to understand reusability in Object Oriented design	2	2	1						3			2	2	2
	CE310.6	Adopt and apply appropriate modern testing tool for testing web-based/desktop application	3		3	1	3			2	1			3	1	3
		AVG OF ALL COs	2.3	2.3	2.5	1.3	2.7			2	2	1	2.2	2.2	2.8	
Web Technology	CE311L.1	Implement and analyze behaviour of web pages using HTML and CSS	2	3	3	2	3		2	2			2	2	2	
	CE311L.2	Apply the Client Side technologies for web development	3	2	3	3	2		2	3			2	3	2	
	CE311L.3	Analyze Server Side technologies Servlet and JSP	3		2		2		2	2	3		2	2	2	
	CE311L.4	Apply the Server Side technologies PHP and AJAX for web development	2	2	3		3		2	3	2		2	3	2	
	CE311L.5	Apply the Client and Server Side framework Angular JS and Structs.	2	2	3		3		2	2	2		2	2	2	
	CE311L.6	Analyze the Web services and Content Management System.	3	3	3	3	3		2	3	2		3	3	2	
		AVG OF ALL COs	2.5	2.4	2.8	2.7	2.7		2	2.5	2.3	2.2	2.5	2		
	CE312.1	explore the basic principles of communication and active, empathetic listening, speaking and writing techniques	1	2			1						3	2	3	
	CE312.2	Establish motivation for any topic of interest and develop a thought process for technical presentation.	2		3	3		1					3		3	2

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Seminar & Technical Communication	CE312.3	Organize a detailed literature survey and build a document with respect to technical publications	3		2		3	2				3		3	2	3
	CE312.4	Analysis and comprehension of proof-of-concept and related data for seminar	2	3			3						2			
	CE312.5	Effective presentation and improve soft skills	2			2	3	3				3		3	2	3
	CE312.6	explore the student with new technologies ,researches, products , algorithms, services	2	1		3	3	3				3	3	3	2	3
		AVG OF ALL COs	2	2	2.5	2.7	2.6	2.3				3	2.3	3	2	3
SEMESTER VII			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PS01	PS02
High Performance Computing	CE401.1	Describe different parallel architectures, inter-connect networks, programming models	2	2	2	2	2								2	1
	CE401.2	Develop an efficient parallel algorithm to solve given problem	3	3	3	2	2	2							2	1
	CE401.3	Analyse and measure performance of modern parallel computing systems	2	2	2	3	3	3							1	2
	CE401.4	Build the logic to parallelize the programming task	3		2		2									2
	CE401.5	Describe models used in Parallel Computing	2	2	2	2	2	2							2	1
	CE401.6	Explore issues in Sorting in Parallel Computing	2	2	2	2	2	2							2	1
		AVG OF ALL COs	2.3	2.2	2.2	2.2	2.2	2.3							1.8	1.3
Artificial Intelligence and Robotics	CE402.1	Identify and apply suitable Intelligent agents for various AI applications	3	3	3	2	2	2						2	2	1
	CE402.2	Design smart system using Informed /uninformed search & heuristic search	3	3	3	2	2	2						2	2	
	CE402.3	Identify knowledge based associate and represent it using ontological engineering	2	2	2	2	2							2	2	1

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	CE402.4	Apply suitable algorithms to solve AI Problems	2	2	2	3	3	3						2	2	1
	CE402.5	Build concept of Logic and reasoning and with respect to AI	3	3	3	2	2	2						2	2	1
	CE402.6	Explore Various areas in which Robotics can be used	1	1	1	2	2	2						2	2	
		AVG OF ALL COs	2.3	2.3	2.3	2.2	2.2	2.2						2	2	1
Data Analytics	CE403.1	Inculcate Big data primitives, life cycle phases with different mathematical models .	2	3		2	2							2	2	
	CE403.2	Analyse apply different Statistic methods for Business Analytic	2	3		3	2							2	2	2
	CE403.3	Develop problem solutions using association rule & regression methods	2	3	3		2						2	3	3	2
	CE403.4	Apply different classification Algorithm		2	3	2	1							2		2
	CE403.5	Analyze the requirements, problems, and strategies for various data visualisation methods used in analytical techniques.		3	3	3	3				1	1	3	2	3	
	CE403.6	Analyse use of different Advanced Analytics-Technology and Tools for big data analytics		3			3						2	3		3
		AVG OF ALL COs	2	2.8	3	2.5	2.2				1	1.7	2.5	2.3	2.4	
Elective I- Data Mining and warehousing	CE404D.1	Compare various data pre-processing and cleaning techniques	3	2	2											
	CE404D.2	Compare various data warehousing techniques	3	2	2											
	CE404D.3	Apply algorithmic techniques to measure data similarity and dissimilarity in data engineering	3	3	3	2	3				2			2	2	3
	CE404D.4	Apply basic, intermediate and advanced techniques to mine the data in data mining	3	3	3	3	3				2			2	2	3
	CE404D.5	Explore and analyze the hidden patterns in the data	3	3	3	3	3				2			2	2	3

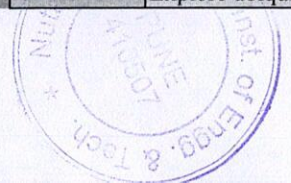
	CE404D.6	Optimize the mining process by choosing best data mining technique	3	3	3	3	3					2			2	2	3	
		AVG OF ALL COs	3	2.7	2.7	2.8	3					2			2	2	3	
Elective I- Software Architecture and Design	CE404B.1	Discuss the Software Architecture life cycle and Software Architecture Engineering Design View	1	1	1	1										1	1	
	CE404B.2	Compare and discuss Software Architecture quality attributes	2	2	2	2	2									2	2	
	CE404B.3	Design software architecture using various design patterns	2	2	2	2	3									2	2	2
	CE404B.4	Design software architecture using structural patterns	2	2	2	2	3									2	2	2
	CE404B.5	Describe various client side technologies	2	2	2	2	2									2	2	2
	CE404B.6	Describe various server side technologies	2	2	2	2	2										1	2
		AVG OF ALL COs	1.8	1.8	1.8	1.8	2.4								2	1.7	1.8	
Elective II- Software Testing & Quality Assurance	CE405B.1	Describe fundamental concepts in software testing such as manual testing, automation testing and software quality assurance.	1	1	1	1										1	1	
	CE405B.2	Design and develop project test plan, test cases, test data, and conduct test operations.	2	2	2	2	2									2	2	
	CE405B.3	Apply recent automation tool on various software for testing.	2	2	2	2	3									2	2	2
	CE405B.4	Discuss basics of Selenium tool, IDE, web driver and selenium grid.	2	2	2	2	3									2	2	2
	CE405B.5	Apply different approaches of quality management, assurance, and quality standard to software system.	2	2	2	2	2									2	2	2
	CE405B.6	Apply and analyze effectiveness of software quality tools.	2	2	2	2	2									1	2	
		AVG OF ALL COs	1.8	1.8	1.8	1.8	2.4								1.8	1.8	1.8	

Laboratory Practice I	CE406.1	Implement Parallel Reduction using Min, Max, Sum and Average operations, Parallel Sorting Algorithms for Vector and Matrix Operations, parallel algorithm utilizing all available resources, Parallel Search Algorithm utilizing all available resources.	2	2	2	2	2				2	2	2		2	2
	CE406.2	Develop mini project on Compression Module (Image/Video)/GenericCompression/Encoding/Database Query Optimization.	2	2	2	2	2				2	2	2		2	2
	CE406.3	Implement Tic-Tac-Toe/ 3 missionaries and 3 cannibals problem/ 8-puzzle problem using A* algorithm.	2	2	2	2	2				2	2	2		2	2
	CE406.4	Develop elementary Chabot for suggesting investment as per the customers need.	2	2	2	2	2				2	2	2		2	2
	CE406.5	Use Heuristic Search Techniques to Implement Hill-Climbing Algorithm, Best first search (Best-Solution but not always optimal) and A* algorithm (Always gives optimal solution).	1	2	3	3	3	1		3	3	3	3	1	3	3
	CE406.6	Download and study the Iris flower dataset or any other dataset into a Data Frame.	2	2	2	2	2				2	2	2		2	2
AVG OF ALL COs			1.8	2	2.2	2.2	2.2	1		3	2.2	2.2	2.2	1	2.2	2.2
Laboratory Practice II	CE407.1	Express the analysis and design of an application	2	2	2	2	3			2			3	2	3	3
	CE407.2	Specify functional semantics of an application	2	2	2	2	3			2			3	2	3	2
	CE407.3	Select and use appropriate architectural styles and software design patterns	2	2	2	2	3			2			3	2	3	2
	CE407.4	Design and develop project test plan, design test cases, test data, and conduct test operations	2	3	2	2	3			2			3	2	3	3
	CE407.5	Apply recent automation tool for various software testing for testing software	2	2	2	2	3			2			3	2	3	2
	CE407.6	Apply and analyse effectiveness Software Quality Tools	2	3	2	2	3			2			3	2	3	3
AVG OF ALL COs			2	2.3	2	2	3			2			3	2	3	2.5
SEMESTER VIII			PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l	PS01	PS02

Machine Learning	CE408.1	Analyze human learning aspects and relate it with machine learning concepts.	3	2	2	3	2				1			2	3	2	
	CE408.2	Analyze and apply different preprocessing methods to prepare training data set for machine learning.	3	3	2	2	3				1						
	CE408.3	Design and implement Linear regression and Logistic regression machine learning algorithm.	3	3	3	3	3				1			2	3	3	
	CE408.4	Analyse and implement Naïve Bayes and Support Vector Machine	3	3	2	3	1				1			2	3	3	
	CE408.5	Implement different learning models And Learn Meta classifiers	3	3	2	3	2				1			2	3	3	
	CE408.6	Analyze and apply different Clustering Techniques and learn deep learning concepts	2	3	2	2	1				1			2	3	3	
		AVG OF ALL COs	2.8	2.8	2.2	2.7	2			1			2	3	2.8		
Information and Cyber Security	CE409.1	Gauge the security protections and limitations provided by today's technology.	3	3	2	2				2			2	2			
	CE409.2	Identify information security and cyber security threats.	3	3	2	2		2		2			2	2	2		
	CE409.3	Analyse threats in order to protect or defend it in cyberspace from cyber-attacks.	3	3	2	2		2		2			2	2	2		
	CE409.4	Build appropriate security solutions against cyber-attacks.	2	3	2	2				2			2	2	2	2	
	CE409.5	Explore Concepts of Intrusion Detection Systems	2	2		2	2			2				2			
	CE409.6	Aware about different concepts in Cyber security area	2	2		2	2			2				2			
		AVG OF ALL COs	2.5	2.66	2	2	2	2		2			2	2	2		
	CE410C.1	Inculcate basic theory, tools and techniques of Embedded System.	3	2	2	2		2					3	3			

Elective III-ERTOS	CE410C.2	Recognize and classify embedded and real-time systems	3	3		1								2	2	
	CE410C.3	Design communication bus protocols used for embedded and real-time systems.	2	3	1									2		
	CE410C.4	Classify and exemplify scheduling algorithms	3	3	3	2	2							1	1	
	CE410C.5	Apply software development process to a given RTOS application	3	3	1	3	1							1	2	
	CE410C.6	Design a RTOS based application	3	3	3	3	2	1	2					3	3	3
		AVG OF ALL COs	2.8	2.8	2	2.2	1.7	1.5	2				2	2.2	3	
Elective III- Soft Computing and Optimization Algorithms	CE410D.1	Compare various soft Computing techniques	3	2	2											
	CE410D.2	Apply fuzzy algorithms for expert systems	3	3	2	2	2				1					
	CE410D.3	Apply fuzzy logic and systems to design expert systems	3	3	3	2	3				2			2	2	3
	CE410D.4	Apply evolutionary computing techniques for scientific application	3	3	3	3	3				2			2	2	3
	CE410D.5	Apply genetic algorithm technique for scientific and commercial application	3	3	3	3	3				2			2	2	3
	CE410D.6	Apply swarm intelligence technique for engineering problems	3	3	3	3	3				2			2	2	3
			AVG OF ALL COs	3	2.8	2.7	2.6	2.8			1.8			2	2	3
Elective IV- CC	CE411C.1	Learn basics of cloud computing, PaaS, IaaS and IDaaS.	1	1	1	1								2	1	1
	CE411C.2	Discuss cloud file system, cloud storage and security in cloud.	2	2	2	2								1	1	1
	CE411C.3	Study implementation levels of virtualization, virtualization of CPU, memory and IO devices and virtualization for data.	2	2	2	2									1	1
	CE411C.4	Study and create various amazon web services.	1	2	1	2	2								1	1
	CE411C.5	Explore ubiquitous Clouds and the Internet of Things.	1	2	2	2									1	1

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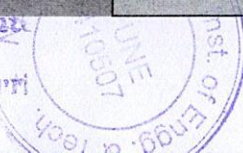


	CE411C.6	Explore future trends of cloud computing.	1	1				1					2	1	1	
		AVG OF ALL COs	1.3	1.7	1.6	1.8	2	1					1.7	1	1	
Laboratory Practice III	CE412.1	Implement supervised machine learning algorithmic strategy to solve problems.	3	3	3	3	3			2			2	1	2	2
	CE412.2	Implement unsupervised machine learning algorithmic strategy to solve problems.	3	3	3	3	3			3			1	1	2	2
	CE412.3	Design and developed Mini-Project by using Machine learning	3	3	3	3	3			1			2	1	3	3
	CE412.4	Implemen Data Encryption Techniques	3	3	3	3	3			3			2	1	2	2
	CE412.5	Implemen Public Key Cryptography algorithm	3	3	3	3	3			2			2	1	2	2
	CE412.6	Develop a web site with Security Requirements .	3	3	3	3	3			2			1	1	3	3
		AVG OF ALL COs	3	3	3	3	3			2			1.7	1	2.3	2.3
Laboratory Practice IV	CE413.1	Solve given assignment on Embedded and Real Time Operating System.									2	2				
	CE413.2	Implement Simulation/ Design, planning and modeling of a Real-Time / Embedded System for any application (mini project).	1	2	3	3	3	1		3	3	3	3	1	3	3
	CE413.3	Solve given assignment on Cloud Computing.									2	2				
	CE413.4	Develop mini project to Setup your own cloud for Software as a Service (SaaS) over the existing LAN without HDFS.	1	2	3	3	3	1		3	3	3	3	1	3	3
	CE413.5	Develop mini project to Setup your own cloud for Software as a Service (SaaS) over the existing LAN with HDFS.	1	2	3	3	3	1		3	3	3	3	1	3	3
	CE413.6	Develop mini project for a web site and demonstrate how the Implement the basic operations may be like to upload and download file on/from cloud in encrypted form.	1	2	3	3	3	1		3	3	3	3	1	1	1
		AVG OF ALL COs	1	2	3	3	3	1		3	2.7	2.7	3	1	2.5	2.5
	CE411D.1	Apply basic, intermediate and advanced techniques to analysis the data	3	3	1	1								3	2	

BI	CE411D.2	Analyze the output generated by the process of Business Intelligence	3	3	1	1									3		
	CE411D.3	Explore the hidden patterns in the data	3	2	2										3		1
	CE411D.4	Optimize the mining process by choosing best Business Intelligence technique	3	2	1										3	2	
	CE411D.5	Compare and Contrast Classification & Unsupervised Learning	3	1	1										3		
	CE411D.6	Able to design the BI applications	3	1	3	3									3		1
	AVG OF ALL COs			3	2	1.5	1.7								3	2	1
HCI	CE411B.1	able to Introduce the field of human-computer-interaction study.	2	1	2										2		
	CE411B.2	Gain an understanding of the human part of human-computer-interactions.	2	1	1										2		
	CE411B.3	Design and evaluate effective human-computer-interactions	2	1	3										2		
	CE411B.4	Study HCI models and theories.	2	1											2		
	CE411B.5	Explain HCI design processes.	2	1											2		
	CE411B.6	Apply HCI to real life use cases.	2	1	3										2		
	AVG OF ALL COs			2	1	2.3									2		
PSW-I	CE415.1	Solve real life problems by applying knowledge.	3	2	2	2	3	1	1	2	1	2	1	2	3	3	
	CE415.2	Design effective, methodologies to solve real world problems with effective communication and accountability	2	3	3	2	3	1	1	1	2	2	3	2	3	3	
	CE415.3	Analyze alternative approaches, apply and use most appropriate one for feasible solution.	1	3	1	1	1	1	1	1	1	2	2	2	3	3	
	CE415.4	Participate effectively in multi-disciplinary and heterogeneous teams exhibiting team work						1	2	2	3	2	1	2	3	3	

PSW-I

Principal



	CE415.5	Inter-personal relationships, conflict management and leadership quality							1	1	2	3	3	3	3	3	
	CE415.6	Write precise reports and technical documents in a nutshell.	1	1	2	1	2	2	1	3	2	3	2	3	3	3	
	AVG OF ALL COs		1.8	2.3	2	1.5	2.3	1.2	1	2	2	2.3	2	2.3	3	3	
PSW-II	CE414.1	Show evidence of independent investigation	2	1		3	2	1	1	2	3	1	2	2	3	3	
	CE414.2	Critically analyze the results and their interpretation.	2	2		2	3			3	3	3	2	2	3	3	
	CE414.3	Report and present the original results in an orderly way and placing the open questions in the right perspective	1	2	2	1	2	2	2	1	2	3	3	2	3	3	
	CE414.4	Link techniques and results from literature as well as actual research and future research lines with the research.	2	2	2	1		2	1	2	2	3	2	2	2	3	
	CE414.5	Appreciate practical implications and constraints of the specialist subject	2	1	1	2	2	1	2			3	3	3	2	3	2
	CE414.6	Design and Implement solutions to real time problems	2	2	3	2	3	2	1	2	3	1	3	2	3	3	
	AVG OF ALL COs		1.8	1.7	2	1.8	2.4	1.6	1	2	2.7	2.3	2.5	2	2.8	2.8	

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