CO-PO MAPPING – B.Sc MPCS

					PROGRAM OUTCOMES														
Semester	**Course Code**	**Course Name**	**CO No.**	**Course Outcome**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
I	ENG-I	English - I A Course in Communication and Soft Skills	CO1	Use grammar effectively in writing and Speaking.			2								2				2
			CO2	Demonstrate the use of good vocabulary.	2	2								2					
			CO3	Demonstrating of writing skills.	2						2								2
			CO4	Acquire ability to use Soft Skills in professional and daily life.	2	2									2			2	
			CO5	Confidently use the tools of communication skills.		2			2		3						3		
			C06	Demonstrate good listening skills	2						2							2	2
	LSC-I	Life Skill Course - I Entrepreneurship Development (ED)	CO1	Recall the concept of Entrepreneurship, its applications and scope.	3	2					2							2	
			CO2	List the types of financial institutions that help the business at Central, State and Local Level.	2	3					1							2	
			CO3	Recall Central and State Government policies, A ware of various tax incentives.	2	3					2							1	
			CO4	Summarize on generating a broad idea for a starting an enterprise/start up.	3	1					2							2	
			CO5	Discuss on preparing a Project Report for a start up and differentiate between financial, technical analysis an business feasibility.	2	2					2							3	

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			CO6	Operate data using charts and spread sheets.	3	2					3							1	
	SDC-I	Skill Development Course - I Electrical Appliances	C01	Able to explain basic electrical circuits, AC and DC fundamentals	3					2									2
			C02	Analyse Single Phase AC Circuits and Three phase circuits, the representation of alternating quantities and determining the power in these circuits	2					2		3							
			C03	Illustrate the effects of electric shocks along with its remedies while using electrical appliances								2	2						2
			C04	To select the various protective devices used in Electrical wiring	2	3				2									
			C05	Able to acquire Basic Knowledge of various Electrical appliances like Refrigerator, Oven, Fan etc		2									2				3
			C06	Able to understand the principle and operation of Illuminating devices,	2					2					2				2
	C-IA	DIFFERNTIAL EQUATIONS	CO1	Solve linear differential equations.			2	2		3		3							
			CO2	Convert non exact homogeneous equations to exact differential equations by using integrating factors.			3	2	2			2							
			CO3	Know the methods of finding solutions of differential equations of the first order but not of the first Degree.	2			2	2			3							
			CO4	Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.			3	2	2			3							
			CO5	Demonstrate the concept and choose appropriate methods for solving differential equations.	2		3		3			3							2
	C-IB	Mechanics, Waves and Oscillations	CO1	To Demonstrate basic theories related with properties of matter and it applications to determine values of various physical quantities with matter.	2			2											
			CO2	Be able to apply knowledge of the properties of matter to explain natural physical processes and related technological advances.			2	2				2							3

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			CO3	To learn about fundamental of verbal and mathematical concepts of waves and oscillations.	2		2	2	2										
			C04	We should make the students to know their skills required to get the information from the syllabus and use them in a proper way.		1		2	2	3			2						
	C-IC	Problem solving in C	CO1	Explain the evolution and functionality of a digital computer.	2		2	2						3					
			CO2	Apply Logical skills to analyze a given problem.			2	3						2					3
			CO3	Develop an algorithm solving given problem.			2	3	2	3									
			CO4	Demonstrate ‘C’ language constructs like iterative statements, Array processing, pointers.			3	3	2	2		2							
			CO5	Experiment ‘C’ language constructs to the algorithm to write a ‘C’ language program.	2			3	3					2					
II	ENG-II	English - II	CO1	Use reading skills effectively.	2	2									2				2
			CO2	Interpret different types of texts.	2		2			2									
			CO3	Characterize what is being read.	2	2									2				
			CO4	Build up a repository of active vocabulary.		3					2				2				3
			C05	Use good writing strategies.	2		2				2								
			C06	Write well for any purpose.	2										2				
	LSC-II	Life Skill Course - II Information and Communication Technology ICT	CO1	List the literature of social networks and their properties.	3									2	3				
			CO2	Select which network is suitable for whom.	2			2						3	2				
			CO3	Explain about the skills to use various social networking sites like twitter, flickr, etc.	2			2						3	3				
			CO4	Write few GOI digital initiatives in higher education.	3									2	2				
			CO5	Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.	3			2						2	2				
			CO6	Identify and Compare internet threats and security mechanisms.	2			3						2	2				
	SDC-II(A)	Skill Development	CO1	Write the basics of survey and reporting needs and methods	3	3					2			1	1				

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Course - II Survey & Reporting	CO2	Discuss on designing of a questionnaire	2	3					2			1	1				
			CO3	Demonstrate on a simple and valid survey and Collect data	2	3					3			1	2				
			CO4	Summarize on interpret data and submit report.	2	3					3			1	2				
	SDC-II(B)	Skill Development Course - II Business Communication	CO1	Identify the types of business communication and correspondence	3	2								2	2				
			CO2	List the processes like receiving, filing and replying	2	3								1	1				
			CO3	Explain about preparing good business communications	2	3								2	2				
			CO4	Write about organizational communication requirements and presentations.	3	1								1	2				
			CO5	Discuss search engine, payment gateways and SEO techniques.	3	2								1	2				
	C-2A	THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY	CO1	get the knowledge of planes.	2			2	2										2
			CO2	Basic idea of lines, sphere and cones.	2			2	2	3									
			CO3	Demonstrate the properties of planes, spheres and cones.	2		2	2	2			2							
			CO4	Express the problems geometrically and then to get the solution.			2	3	2	2									2
	C-2B	Wave Optics	CO1	Demonstrate the nature of light and principles of laser and holography.	2					2			2	3					
			CO2	Characterize the intensity variation of light due to interference, diffraction and polarization.	1				2	2									2
			CO3	Solve problems in optics by selecting the appropriate equations and performing numerical or analytical calculations.			2	2	2	2									
			CO4	Student can able to operation of optical devices including polarizers, interferometers, and lasers.	2		1	2		3									2
	C-2C	DATA STRUCTURES USING C	CO1	Demonstrate available data structure for data storage and processing.	2			2	2					2					
			CO2	Classify & Comprehend data structure and their real-time applications – stack, queue, linked list, trees and graph.			2	3	3	2				2					

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			CO3	Select a suitable data structure for an application.			2	3	2	2			2	2					
			CO4	Demonstrate ability to implement different sorting and search methods.	2			3	2			3							2
			CO5	Have knowledge on data structure basic operations like insert, delete, search, update and traversal.	2		3	2				2		3					3
			CO6	Design and develop problems using various data structure.			2	2	2	2				3					
			C07	Implement the applications of algorithms for sorting, pattern matching etc				2	3	2	2								
III	ENG-III	English - III	C01	Speak fluently in English.	2	2					2							2	2
			C02	Participate confidently in any social interaction.		2					3							2	
			C03	Face any professional discourse.	2							2							
			C04	Demonstrate critical thinking.	2		2											2	
			C05	Enhance conversational skill by observing the professional interviews.		2			2		3							2	2
	LSC-III(A)	Life Skill Course -III Environmental Education (EE)	C01	Demonstrate the nature, components of an ecosystem and that humans are an integral part of nature.			3			3	2	2	2						2
			C02	Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment.	2					2		3	2						3
			C03	Justify the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities.				2		2			3			2	2		
			C04	Discuss the laws/ acts made by government to prevent pollution, to protect biodiversity and environment a s a whole.			2							2			3		2
			C05	Acquaint with international agreements and national movements, and realize citizen's role in protecting environment and nature.	2		3		2								2		3

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	LSC-III(B)	Life Skill Course -III Analytical Skills(AS)	C01	Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills.	2		2	2	2										
			C02	Acquire competency in the use of verbal reasoning.			2	2	2			2							2
			C03	Apply the skills and competencies acquired in the related areas.			2	2		2									
			C04	Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outstand the campus.			2	3	3	3									2
	SDC-III	Skill Development Course - III Online Business	CO1	Identify the online business and its advantages and disadvantages	3	3					2			3	2			2	
			CO2	Recall new channels of marketing, their scope and steps involved	3	3					2			2	1			2	
			CO3	Summarize the procurement, payment process, security and shipping in online business	3	3					2			2	2			1	
			CO4	Develop new marketing tools for online business	2	2					2			2	1			2	
			CO5	List the search engine, payment gateways and SEO techniques.	3	2					3			3	2			2	
	C-IIIA	ABSTRACT ALGEBRA	CO1	Acquire the basic knowledge and structure of groups, subgroups and cyclic groups.	2			2	2	3									
			CO2	Get the significance of the notation of a normal subgroups.				2	2	3		2							
			CO3	Get the behavior of permutations and operations on them.				2	2										2
			CO4	Study the homomorphisms and isomorphisms with applications.			2	3	3			2							
			CO5	Demonstrate the ring theory concepts with the help of knowledge in group theory and to prove the theorems	2			2	2	3									
			CO6	Demonstrate the applications of ring theory in various fields.	2			2	2	3									

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	C-IIIB	Heat and thermodynamics	CO1	Ability to perform experiments and interpret the results of observations, including making an assessment of experimental uncertainties.	2			2	2			3							
			CO2	Ability to test the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental physics.				2				2							
			CO3	Demonstrate the theories learnt and the skills acquired to solve real time problems.				2				3	2						3
			CO4	Demonstrate the concepts and significance of the various physical phenomena.	1			2				2							2
	C-IIIC	Database Management System	CO1	Demonstrate the Gain knowledge of data base and DBMS.	2			2	2			3							
			CO2	Demonstrate the fundamental concepts of DBMS with special emphasis on relational data model.			2	2		2				3					
			CO3	Demonstrate normalization theory and apply such knowledge to the normalization of a data base.				2		2				3					2
			CO4	Build the Model database using ER diagrams and design data base schemes based on the model.				2		2				3					2
			CO5	Build the Design a small data base using SQL.				2		3		2		3					
			CO6	Build, Store, retrieve data in database.				2	2	2				2					2
IV	C-IV A1	Mathematics Real Analysis	CO1	Get clear idea about the real numbers and real valued functions.	2		2	3	2	2									
			CO2	Obtain the skills of analyzing the concepts and choose appropriate methods for testing convergence of a sequence/ series.			2	3	2	2									
			CO3	Test the continuity and differentiability and Riemann integration of a function.			2	2	2										3
			CO4	Know the geometrical interpretation of mean value theorems.	3			2	2	2									2

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	C-IV A2	Linear Algebra	CO1	Demonstrate the concepts of vector spaces, subspaces, basis, dimension and their properties.	2			2	2	2									2
			CO2	Demonstrate the concepts of linear transformations and their properties.	3		2	2	3	2									
			CO3	Demonstrate Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods.			2	2	3										2
			CO4	Learn the properties of inner product spaces and determine orthogonality in inner product spaces.	2			2	2										2
	C-IV B1	Electricity, Magnetism & Electronics	CO1	Learn about Gauss lam and solve the electric field and magnetic field for various geometric objects and to learn basic electronic concepts in analog and digital theory.				3				2	2	2					
			CO2	Explain all the topics of Experiments, Concepts and Derivations to the student.	1			2				2							
			CO3	Apply the principles of electronics in day to day life.					2	3	2								3
			CO4	Design plans to enrich the students with creative, logical and analytical skills.			2	2			2								
	C-IV B2	Modern Physics	CO1	To Design awareness on the topic of Atomic & Molecular Physics, Quantum mechanics, nuclear physics, and solid state physics.	2							3			2				
			CO2	To be Explain all the topics of Experiments, Concepts and Derivations to the student.			2					3		2					
			CO3	Explain the basic principles of quantum mechanics and use to Atomic, Molecular structure of energy levels etc..		2	3					2							2
			CO4	Design plans to enrich the students with creative, logical and analytical skills.					2		2								2
	C- IV C1	Object oriented programming using java	CO1	Demonstrate the benefits of a well-structured program.	2			3	2					2					
			CO2	Demonstrate different computer programming paradigms.			2	2	2					2					

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			CO3	Demonstrate underlying principles of object – oriented programming in java	3		2	2	2					2					
			CO4	Develop problem-solving and programming skill using OOP concepts				2	2	3		2							2
			CO5	Develop the ability to solve real-world problems through software development high-level programming language like java			2	2		3		2			2				2
	C-IV C2	Operating Systems	CO1	Know computers system resources and the roll of operating system in resource management.	2			2	2					3					
			CO2	Demonstrate operating system architectural design and its services.	2		2	3	2										
			CO3	Gain knowledge of various types of operating system including Unix and Android.			2	3	2					2					
			CO4	Demonstrate various process management concepts including scheduling, synchronization, and deadlocks.			2	2	3	2									3
			CO5	Have a basic knowledge about multithreading.	2		2	2		3									
			CO6	Comprehend different approaches for memory management .			2	3		2									2
			C07	Understand and identify potential threats to operating systems and the security features design to guard against them.			2	3		2									2
			C08	Specify objectives of modern operating systems and describe how operating systems have evolved over time.	2		2	3						2					
			C09	Describe the functions of a contemporary operating system	2		2	3						2					
V	C-V A1	Numerical Methods	C01	Demonstrate the subject of various numerical methods that are used to obtain approximate solutions	2			2	3	2		2							
			C02	Demonstrate various finite difference concepts and interpolation methods.	2			2	2	2		3							

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			C03	Workout numerical differentiation and integration whenever and wherever routine methods are not applicable.				2	2	2		2							2
			C04	Find numerical solutions of ordinary differential equations by using various numerical methods.	2			2	2			2							
			C05	Justify the accuracy of numerical methods.	2			2	2	2									2
	C- V A2	Mathematical Special Functions	C01	Demonstrate the Beta and Gamma functions, their properties and relation between these two functions, Demonstrate the orthogonal properties of Chebyshev polynomials and recurrence relations.	2			2	3										2
			C02	Find power series solutions of ordinary differential equations			3	2	2	2		2							
			C03	solve Hermite equation and write the Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.	2		2	2				2							
			C04	Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, Demonstrate the orthogonal properties of Legendre Polynomials.			2	2	2			3							
			C05	Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function Demonstrate the orthogonal properties of Bessel unction.			2	2	2			2							
	C-V B1	Applications of Electricity & Electronics	C01	Identify various components present in Electricity& Electronics Laboratory.	2			2				2							
			C02	Acquire a critical knowledge of each component and its utility (like resistors, capacitors, inductors, power sources etc.).				2				2							

			CO No.	Course Outcome	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
			C03	Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements				2				2							
			C04	Demonstrate the need & Functionality of various DC & AC Power sources.				2		2		3							3
			C05	Comprehend the design, applications and practices of various electrical & Electronic devices and also their trouble shooting.				2				3							2
	C- V B2	Electronic Instrumentation	C01	Identify various facilities required to set up a basic Instrumentation Laboratory.				2				2	2						
			C02	Acquire a critical knowledge of various Electrical Instruments used in the Laboratory.				2				3							
			C03	Demonstrate skills of using instruments like CRO, Function Generator, Multimeter etc. through hands on experience.				2				2							2
			C04	Demonstrate the Principle and operation of different display devices used in the display systems and different transducers				2		2		2							2
			C05	Comprehend the applications of various biomedical instruments in daily life like B.P.meter, ECG, Pulse oximeter etc. and know the handling procedures with safety and security.				2		3		3							
	C- V C1	Web Interface Designing Technologies	C01	Demonstrate and appreciate the web architecture and services.	2			2	2					3					
			C02	Gain knowledge about various components of a website.				3	2			3		2					
			C03	Demonstrate skills regarding creation of a static website and an interface to dynamic website.				3	2					3					2
			C04	Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.	2			2	2					2					
	C- V C2	Web Applications Development	C01	Write simple programs in PHP.	2			3	2					2					
			C02	Demonstrate how to use regular expressions, handle exceptions, and validate data using PHP.	2			2	2					3					

		using PHP& MYSQL	**CO No.**	**Course Outcome**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
			C03	Use Built functions and construct User defined functions in PHP programming.				3	2					3	2				
			C04	Write PHP scripts to handle HTML forms.				2	2					2	2				
			C05	Write programs to create dynamic and interactive web based applications using PHP and MYSQL.				2	3					3					
			C06	Know how to use PHP with a MySQL database and can write database driven webpages.				2	3	2				3					2