

CO-PO-PSOs Mappings for Civil Engineering I B.Tech I Semester

GR20A1001-Linear Algebra and Single Variable Calculus (C101)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Compute the rank of a matrix to determine the existence of solutions of a linear algebraic system	H	H	H	M	M	H	M			M	H	H	H	M
2. Determine the eigenvalues and eigenvectors of a square matrix which arise in several engineering applications	H	H	H	M	M	H	M			M	H	H	H	H
3. Determine approximate solution of over determined systems using the pseudo inverse.	H	H	H	M	M	H	M			M	H	H	M	M
4. Develop the skill of determining optimal values of multivariable functions using classical methods.	H	M	H	M	M	H	M			M	H	H	H	M
5. Apply the definite integral concept for various computational problems in geometry.	H	H	H	M	M	H	M			M	H	M	M	H
GR20A1004- ENGINEERING PHYSICS (C102)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Apply the principles of interference and diffraction of light in engineering applications.	H	H	H	M	M	M	H	H	H	H	M	H	M	M
2. Analyze the properties of Laser and its propagation in different types of optical fibers.	M	H	H	M	H	M	H	H	M	H	M	M	M	M
3. Classify materials based on the theory of Kronig Penn model.	H	M	M	H	M	H	M	M	H	M	H	H	M	M
4. Understand the nature and characterization of nanomaterials and its applications.	M	H	H	M	M	M	H	H	H	H	M	H	H	H
5. Comprehend the concepts of acoustics and non-destructive testing in solving engineering problems	H	M	H	M	M	H	M	H	H	M	H	M	H	H
GR20A1006 – ENGLISH (C103)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. use English Language effectively in spoken and written forms.	M	H	M	M		H	H	M	M	M	M	M	M	M
2. comprehend the given texts and respond appropriately.	M	M	M	M	H	M	H	M	M	M	M	M	M	M
3. communicate confidently in various contexts and different cultures.	M	M	M	H	H	M	H	M	H	M	M	M	H	M
4. acquire proficiency in English including reading and listening comprehension, writing and speaking skills.	M	M	M	M	M	M	H	M	M	M	M	M	M	H
5. demonstrate the skills needed to participate in a conversation that builds knowledge collaboratively by listening carefully and respect others point of view	M	M	M	M	M	M	H	M	M	M	M	M	H	M
GR20A1007 - PROGRAMMING FOR PROBLEM SOLVING (C104)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. To write algorithms and to draw flowcharts and remember and reuse the fundamentals of C language.	H	H	H	M	H	M	H	H	H	H	M	H	H	M
2. To apply decision making statements and arrays to solve problems.	H	H	H	H	M	M	H	H	H	H	H	M	H	M
3. To illustrate the need for strings and functions in problem solving.	M	H	M	H	H	M	H	M	H	H	H	H	H	M
4. To implement pointers and structures in writing programs.	H	M	H	H	M	H	H	H	H	M	H	H	H	M
5. To illustrate working with files and pre-processor directives in c.	H	M	H	M	H	M	M	H	H	M	H	M	H	M
GR20A1010 - ENGINEERING GRAPHICS (C105)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Familiarize with BIS standards and conventions used in Engineering Graphics.	M		H	M			M		M				H	

2. 2. Draw various engineering curves like ellipse, parabola, cycloids and involutes		M				M					M			M
3. etc and construct various reduced scales like plain, diagonal and vernier scales	H				H			M		M		M	M	
4. 3. Differentiate between first angle and third angle methods of projection and		H		H			M		H		H			H
5. distinguish parallel and perspective projection.			M		M	H		M		H		H	M	
GR20A1013 - ENGINEERING PHYSICS LAB(C106)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	Pso 1	Pso 2
1. Evaluate the frequency of tuning fork, spring constant through coupled oscillation and analyze the resonance phenomena in LCR circuit	H	M	H	M	H	M	H	H	H	H	M	M	M	M
2. Compare the rigidity modulus of wires of different materials using Torsional pendulum.	H	H	H	H	M	M	H	H	H	H	H	M	M	M
3. Interpret the properties of light like interference and diffraction through experimentation.	H	H	H	H	H	H	M	M	H	H	H	H	M	M
4. Asses the characteristics of Lasers and infer the losses in optical fibers.	H	M	H	H	H	H	H	H	H	H	H	M	H	H
5. Identify the type of semiconductor by measuring energy gap	H	H	H	M	H	M	M	H	H	M	H	M	M	
GR20A1016 - PROGRAMMING FOR PROBLEM SOLVING LAB (C107)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Formulate the algorithms for simple problems and translate algorithms to a working and correct program.	H	H	H	M	M	H	H	H	H	H	M	H	H	M
2. Identify, analyse and correct syntax and logical errors encountered during coding..	H	H	H	H	M	M	H	H	H	H	H	M	H	H
3. Interpret and implement programs using branching and looping statements..	H	M	M	H	M	H	M	M	H	H	H	H	H	M
4. Represent and manipulate data with arrays, strings and structures and use pointers.	H	M	H	H	M	M	H	H	H	H	H	H	H	M
5. Create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused	H	H	H	M	M	H	M	H	H	M	H	M	H	H
GR20A1015 - ENGLISH LANGUAGE AND COMMUNICATION SKILLS (C108)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. interpret the role and importance of various forms of communication skills	M	M	M	H	M	M	H	M	M	M	M	M	H	M
2. demonstrate the skills needed to participate in a conversation that builds knowledge collaboratively by listening carefully and respect others point of view.	M	M	M	H	M	M	M	M	M	M	M	M	M	M
3. utilize various media of verbal and non-verbal communication with reference to various professional contexts	M	M	H	H	H	M	H	M	M	M	M	M	M	H
4. recognise the need to work in teams with appropriate ethical, social and professional responsibilities.	M	M	M	H	H	H	H	M	M	M	M	M	M	M
5. evaluate and use a neutral and correct form of English.	M	M	M	H	M	M	H	M	M	M	M	M	M	M
GR20A1020 - DESIGN THINKING (C109)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. The students understand how to identify an Opportunity from a Problem		H	H	H	H		H							
2. Students will be able to frame a Product/Service Idea	H	H	H									H		
3. The students can explore how to empathize with the customers	H	H	H	H	H	H	H	H	H	H	H	H		
4. The student will be able to design and develop a Prototype	H	H	H	H	H	H	H	H	H	H	H	H	M	H
5. Students will be able to pitch their idea and get hands on experience in designing Hvalue proposition		H	H					H		H	H	H	M	M

I B.Tech II Semester

GR20A1002 - DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS(C110)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Classify the differential equations of first order and solve them analytically by suggested methods	H	H	H	M	M	H	M			M	H	H	H	H
2. Solve linear differential equations of higher order under various forcing functions	H	H	H	M	M	H	M			M	H	H	H	H
3. Evaluate double and triple integrals and apply them to some problems in geometry and mechanics.	H	H	H	M	M	H	M			M	H	H	H	H
4. Apply vector differential operators on scalar and vector fields and apply them to solve some field related problems	H	M	H	M	M	H	M			M	H	H	H	H
5. Apply classical vector integral theorems for fast evaluation of work done around closed curves and flux across closed surfaces	H	H	H	M	M	H	M			M	H	M	H	H
GR20A1005- ENGINEERING CHEMISTRY (C111)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Analyze microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.	H		M			M			M					
2. Relate electromagnetic spectra used for exciting different molecular energy levels in various spectroscopic techniques and their application in medicine and other fields.	H	M		M		M				M				H
3. Recognise various problems related to electrochemistry and corrosion in industry and is able to explain different prevention techniques and apply concepts of chemistry in engineering	H	M	H	H				H	M		H	M	M	H
4. Know the origin of different types of engineering materials used in modern technology and Interpret different problems involved in industrial utilization of water.	H	M	M	M	H	H	H	M			H	M	M	H
5. Understand the processing of fossil fuels for the effective utilization of chemical energy.	H	H	H	M		M	M	M			H			H
GR20A1009 - ENGINEERING MECHANICS (C112)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Determine resultant of forces acting on a body and analyze equilibrium of a body subjected to a system of forces.	H		M					M					M	M
2. Solve problem of bodies subjected to friction	H	M		M				M			M			
3. Find the location of centroid and calculate moment of inertia of a given section.	H		M		M	M	M	H				M	M	H
4. Determine the forces in the members of the trusses	H		M				H	M		H			H	M
5. Solve problems using work energy equations for translation, fixed axis rotation and plane motion of rigid bodies.	H				M				M				M	M
GR20A1011- DATA STRUCTURES (C113)														
COs/POs	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Analyze basic concepts of data structures, computation complexity and implement various searching and sorting techniques.	H	H	H	H	M	M	H	M	H	H	M	H	H	M
2. Apply various operations on linear data structures Stack and Queue and their applications.	H	M	H	H	M	M	H	H	M	H	H	H	H	M
3. Develop algorithms for operations on linked lists and convert them to programs.	M	H	H	M	M	H	H	M	H	H	H	H	M	H
4. Apply various operations on non-linear data structure tree	H	M	H	M	M	H	H	H	H	H	H	H	M	M
5. Implement various graph traversals techniques and idea of hashing.	H	M	H	M	H	M	M	H	H	H	H	M	M	M

GR20A1014- ENGINEERING CHEMISTRY LAB (C114)														
COs/Pos	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Ability to perform experiments illustrating the principles of chemistry relevant to the study of science and engineering.	H	H	H	H		M	M	H	M	M	M	M		M
2. Determination of parameters like hardness and chloride content in water	H	H	H	H	M	M	M	H	M	M	H	M	M	M
3. Understand the kinetics of a reactions from a change in concentrations of reactants or products as a function of time.	H	M	H			M	M	M	M	M				
4. Measurement of redox potentials and conductance	H	M				M	M	M	M	M				M
5. Synthesize a drug molecule as an example of organic synthesis methods widely used in industry.	H	M	M			M		M		M		M		H
GR20A1009- DATASTRUCTURES LAB (C115)														
COs/Pos	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Formulate the algorithms for sorting problems and translate algorithms to a working and correct program	H	H	H	M	M	M	H	H	H	H	M	H	H	M
2. Implement stack and queue data structures and their applications	H	H	H	H	M	M	H	H	H	H	H	M	H	H
3. Interpret linked list concept to produce executable codes.	M	H	M	H	M	H	M	M	H	H	H	H	H	M
4. Develop working procedure on trees using structures, pointers and recursion.	H	M	H	H	M	M	H	H	M	H	H	H	H	M
5. Implements graph traversal techniques	H	M	H	M	H	H	M	H	H	M	H	M	H	H
GR20A1019- ENGINEERING Workshop (C116)														
COs/Pos	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Develop various trades applicable to industries / Manufacturing practices.	H	H	H	M	M	M	H	H	H	H	M	H	M	M
2. Create Hands on experience for common trades.	H	H	H	M	M	M	H	H	H	H	H	M	M	M
3. Improve to fabricate components with their own hands.	H	H	H	H	H	H	M	M	H	H	H	H		H
4. Develop practical knowledge on the dimensional accuracies and dimensional tolerances possible with various manufacturing processes.	H	H	H	M	M	M	H	H	H	H	H	H		M
5. To build the requirement of quality of work life on safety and organizational needs	H	M	M	H	M	M	M	H	H	M	H	M	M	M
GR20A1021- LIFE SKILLS AND PERSONALITY DEVELOPMENT (C117)														
COs/Pos	1	2	3	4	5	6	7	8	9	10	11	12	PSO 1	PSO 2
1. Apply the concept of Time Management to his own day to day life. They will also learn to cope with Information Overload, which has become a serious problem for the digital generation. They will be in a position to withstand harmful peer pressure, and steer themselves towards attaining their own objectives in the four years time they spend in the college.				M	M	M	M	M						
2. Apart from understanding the importance of English language skills in a globalized world, they will learn the methodologies as to how they can master English Language skills. They will become familiar with the communication skills and etiquette, body language, non-verbal communication and they will start applying these concepts in their day to day life. This will help them to become thorough professionals in their career.				M	M	M	H	M						
3. Large number of students are ignorant about the need for personal health management and the need to stay away from addictions. After this course, they will get a complete understanding of the biological basis behind these concepts. This will help them to maintain a robust health through out their life and it will also keep them away from addictions like drug addiction, alcohol addiction & video games addiction. They will learn the techniques of stress management as well.				M	M	M		M						
4. They would start cultivating some good hobbies which will help them to maintain ideal work-life balance throughout their life. The students would start discarding bad habits & will start picking up good habits. Further, they will learn the techniques of holding difficult conversations and negotiations, which is an important skill set in the 21st century world.				M	M	M		M						
5. They will develop the aptitude for finding creative solutions to problems and they will come to realize the importance of continuous and lifelong learning in a fast changing technological landscape. They will appreciate why collaboration and team working skills are important for success in a modern world.				M	M	M		M	H				M	M