

Course Outcomes:-

Course Code	Course Title	Course Outcomes
FIRST YEAR FIRST SEMESTER		
THEORY		
HU101	ENGLISH LANGUAGE & TECHNICAL COMMUNICATION	<p>CO1: Students will learn the concept of impart advanced skills of Technical Communication in English through Language Lab. Practice Sessions to 1st Semester UG students of Engineering & Technology</p> <p>CO2: Students will learn the concept of enable them to communicate confidently and competently in English Language in all spheres.</p>
PH101	Physics -1 (Gr-A)	<p>CO1: Comprehension and application of simple harmonic motion, damped vibration and forced vibration.</p> <p>CO2: Comprehension, application and demonstration of interference, diffraction and polarization of light.</p> <p>CO3: Basic knowledge and applications of LASER and Holography.</p> <p>CO4: Comprehension of evolution of quantum physics.</p> <p>CO5: Elementary idea of crystal structure, characteristics and application of X-rays.</p>
M101	Mathematics – 1	<p>CO1:- Students will get the concepts of Matrix and Successive differentiation</p> <p>CO2:- Students will get the concepts of Mean Value Theorems & Expansion of Functions</p> <p>CO3:- Students will get the concepts of Reduction formulae both for indefinite and definite integrals</p> <p>CO4:- Students will get the concepts of Calculus of Functions of Several Variables and Infinite Series</p> <p>CO5:- Students will get the concepts of Vector Algebra and Vector Calculus</p>
ES101	Basic Electrical & Electronic Engineering – I (Gr A + Gr B)	<p>CO1:- Students will be able to identify semiconductor materials, draw band-diagrams, distinguish between intrinsic and extrinsic semiconductors, n- and p-type semiconductors, calculate drift and diffusion</p>

		<p>current components.</p> <p>CO2:-Students must be able to explain the junction properties and the phenomenon of rectification, draw the I-V characteristics and identify operating points; Calculate ripple factors, efficiency of power supplies.</p> <p>CO3:-Students will be able to draw and explain the I-V characteristics of BJTs – both input and output; learn to bias transistors, both as amplifiers and switches; identify operating point</p>
ME101	Engg Mechanics	<p>CO1:- Students will get the concepts of Mechanics in engineering</p> <p>CO2:- Students will get the concepts of Vector Algebra and Two dimensional force system</p> <p>CO3:- Students will get the concepts of Equilibrium of forces in two dimensions</p> <p>CO4:- Students will get the concepts of Distributed Force</p> <p>CO5:- Students will get the concepts of Introduction to Dynamics</p> <p>CO6:- Students will get the concepts of Kinetics of particles</p>
ES191	Basic Electrical & Electronic Engineering – I (Gr A + Gr B)	<p>CO1: Perform the basic experiments; improve an basic skills and attitude which help them to apply these skills in their field of engineering.</p> <p>CO2: Understand the handling maintenance and performance of basic Instruments.</p> <p>CO3: Understand the practical knowledge of various Electronics& Electrical phenomena by demonstration of experiments.</p>
ME191	Engg Drawing & Computer Graphics(Gr-B)	<p>CO1: Model and design various basic prototypes in the carpentry trade such as Lap joint, Lap Tee joint, Dove tail joint, Mortise & Tenon joint, Cross-Lap joint.</p> <p>CO2: Design and model various basic prototypes in the trade of Welding such as Lap joint, Lap Tee joint, Edge joint, Butt joint and Corner joint.</p> <p>CO3: Students will learn the concept of to make various basic prototypes in the trade of Tin smithy such as plain Cylindrical pipe, Cylindrical pipe one</p>

		end inclined, Cylindrical pipe both ends Inclined, Hexagonal pipe one end inclined, and funnel preparations.
HU181	Language Laboratory	<p>CO1: To develop listening skills and its sub skills through language lab audio device.</p> <p>CO2: To acquire various experience on speaking skills and its sub skills.</p> <p>CO3: To practice different master linguistic and paralinguistic features.</p> <p>CO4: To practice conversation using language lab audio visual input.</p> <p>CO5: To participate in group discussion through audio visual input and acquainting them with key strategies for success.</p> <p>CO6: To enhance writing skills and its sub skills.</p>
PH.191	Physis-1 Lab	<p>CO1: Application , demonstration of experiments on geometrical and physical properties of light as for example dispersive power, interference and diffraction</p> <p>CO 2: Application, demonstration of experiments on general properties of matter as for example elasticity and conductivity.</p> <p>CO 3: Demonstration of experiments on electricity</p>
XC181	Extra Curricular Activities (NSS/NCC/NSO etc)	<p>CO1: To create awareness in social issues.</p> <p>CO2: To participate in mass education program.</p> <p>CO3: To develop some proposals for local slum area development and waste disposal.</p> <p>CO4: To create environmental awareness.</p> <p>CO5: To participate in relief and rehabilitation work during natural calamities.</p>
FIRST YEAR SECOND SEMESTER		
THEORY		
CS201	Basic Computation & Principles of Computer Programming	CO1:- Students will learn the concept of fundamentals of Computer, Arithmetic & logic gates, Assembly language, high level language, compiler and assembler and operating systems , Algorithm & flow chart.

		<p>CO2:- Students will learn the concept of C character set identifiers and keywords, data type & sizes, variable names, declaration, statements</p> <p>CO3:- Students will learn the concept of Arithmetic operators, relational and logical operators, type, conversion, Standard input and output, formatted output and input</p> <p>CO4:- Students will learn the concept of Flow of Control and program Structures</p> <p>CO5:- Students will learn the concept of Arrays, Pointers, Structures Union and Files</p>
CH201	Chemistry -1(Gr- A)	<p>CO1: Concept of Thermodynamic system.</p> <p>CO2: Idea of Reaction Dynamics and Solid state Chemistry.</p> <p>CO3: General idea of Electrochemistry.</p> <p>CO4: Basic idea of Structure and reactivity of Organic molecule.</p> <p>CO5: Overview of Industrial Chemistry.</p>
M201	Mathematics – 2	<p>CO1:- Students will learn the concept of Ordinary differential equations (ODE)- First order and firstdegree</p> <p>CO2:- Students will learn the concept of ODE- Higher order and first degree</p> <p>CO3:- Students will learn the concept of Basics of Graph Theory</p> <p>CO4:- Students will learn the concept of Tree</p> <p>CO5:- Students will learn the concept of Improper Integral</p>
ES201	Basic Electrical& Electronic Engineering – II	<p>CO1:- Students will learn the concept of electrostatics</p> <p>CO2:- Students will learn the concept of DC Machines</p> <p>CO3:- Students will learn the concept of Single phase transformer</p> <p>CO4:- Students will learn the concept of phase induction motor</p> <p>CO5:- Students will learn the concept of Three phase system</p> <p>CO6:- Students will learn the concept of General structure of electrical power system</p>
ME201	Engineering Thermodynamics & Fluid Mechanics	<p>CO1:- Students will learn the concept of Basic Concepts of Thermodynamics</p> <p>CO2:- Students will learn the concept of Heat and</p>

		<p>Work</p> <p>Definition & units of thermodynamic work</p> <p>CO3:- Students will learn the concept of Ideal Equation of State, processes, Real Gas, Ideal Gas</p> <p>CO4:- Students will learn the concept of Properties of Pure Substances p-v & P-T diagrams of pure substance</p> <p>CO5:- Students will learn the concept of 1st Law of Thermodynamics Definition of Stored Energy & Internal Energy 1st Law of Thermodynamics for cyclic processes</p> <p>Non Flow Energy Equation</p> <p>CO6:- Students will learn the concept of 2nd Law of Thermodynamics Definition of Sink, Air standard Cycles for IC engines Otto cycle</p> <p>CO9:- Students will learn the concept of Properties & Classification of Fluids Ideal & Real fluids, Newton's law of viscosity</p>
PRACTICAL		
CS291	Basic Computation & Principles of Computer Programming	<p>CO1:- Students will learn the concept of DOS System commands and Editors</p> <p>CO2:- Students will learn the concept of UNIX system commands and vi</p> <p>CO3:- Students will learn the concept of Simple Programs and demonstrate control structure 5. Programs involving functions and recursion</p> <p>CO4:- Students will learn the concept of Programs involving the use of arrays with subscripts, pointers structures and files.</p>
CH291	Chemistry -1(Gr- A)	<p>CO1: Students will learn the concept of determine the alkalinity in a given water sample.</p> <p>CO2: Students will learn the concept of determination of calcium and magnesium hardness of a given water sample separately.</p> <p>CO3: Students will learn the concept of determination of the value of the rate constant for the hydrolysis of ethyl acetate catalyzed by hydrochloric acid.</p> <p>CO4: Students will learn the concept of Conductometric titration for determination of the strength of a given HCL solution by titration against a Standard NaOH solution.</p>

		CO5: Determination of dissolved oxygen present in a given water sample.
ES291	Basic Electrical & Electronic Engineering – II	<p>CO1: Students will learn the concept of Calibration of ammeter and voltmeter.</p> <p>CO1: Students will learn the concept of Open circuit and Short circuit test of a single phase Transformer.</p> <p>CO1: Students will learn the concept of No load characteristics of D.C shunt Generators</p> <p>CO1: Students will learn the concept of Starting and reversing of speed of a D.C. shunt</p> <p>CO1: Students will learn the concept of Speed control of DC shunt motor.</p> <p>CO1: Students will learn the concept of Measurement of power in a three phase circuit by two wattmeter method.</p>
ME291	Workshop Practice (Gr-B)	<p>CO1: Students will learn the concept of Lines, Lettering, Dimensioning, Scales</p> <p>CO2: Students will learn the concept of geometrical construction and curves;</p> <p>CO3: Students will learn the concept of projection of points, lines, surfaces</p> <p>CO4: Students will learn the concept of projection of solids</p> <p>CO5: Students will learn the concept of drawing isometric view from orthogonal/ sectional views of simple solid objects</p> <p>CO6: Students will learn the concept of full and half sectional views of solids</p> <p>CO7: Students will learn the concept of computer aided drafting</p>
SECOND YEAR THIRD SEMESTER		
THEORY		
HU301	Values & Ethics in Profession	<p>CO1:- Students will get the concepts of Science, Technology , Engineering and Social and Professional Activities</p> <p>CO2:- Students will learn Effects of Technological Growth</p> <p>CO3:- Students will get the concepts of Ethics of Profession</p> <p>CO4:- Students will learn the Nature of Profession and Human Values and ethics of responsibility.</p>

PH301	Physics-2	<p>CO1:-Basic idea of vector calculus.</p> <p>CO2:- Comprehension and applications of electrostatics.</p> <p>CO3:- Complete knowledge and applications of magnetostatics & time varying field.</p> <p>CO4:- Brief idea of electromagnetic field theory.</p> <p>CO5:- Comprehension and applications of quantum mechanics (1-D problems).</p> <p>CO6:- Comprehension and applications of statistical mechanics.</p>
CH301	Basic Environmental Engineering & Elementary Biology;	<p>CO1:- Student will get the knowledge of General Basic ideas of environment</p> <p>CO2:- Student will get the knowledge of Environmental degradation, Elements of ecology, Structure and function of ecosystem, Biogeochemical Cycle and Biodiversity.</p> <p>CO3:- Student will get the knowledge of Air pollution and control Atmospheric Composition</p> <p>CO8:- Student will get the knowledge of Energy balance, Green house effects, Lapse rate, Atmospheric dispersion, Definition of pollutants and contaminants, Primary and secondary pollutants, Depletion Ozone layer</p> <p>CO8:- Student will get the knowledge of Water Pollution and Control, Land Pollution, Noise Pollution and Environmental Management</p>
CS301	Analog & Digital Electronics	<p>CO1:-1. Student will get the knowledge of Amplifiers and a stable & Monostable Multivibrators</p> <p>CO2:- Student will get the knowledge of Pre-requisite of Digital Electronics</p> <p>CO3:- Student will get the knowledge of Binary Number System & Boolean Algebra</p> <p>CO3:- Student will get the knowledge of Combinational & Sequential Circuits, Registers, counters</p> <p>CO5:- Student will get the knowledge of A/D and D/A conversion techniques, some Logic families(TTL, ECL, MOS and CMOS)</p>
CS302	Data Structure & Algorithm	<p>CO 1: Student will get the knowledge of asymptotic notations to analyze the consumption</p>

		<p>of resources (time/space) of an algorithm.</p> <p>CO 2: Effective implementation of stack, queue and list ADT to manage the memory using static and dynamic allocations.</p> <p>CO 3: Student will get the knowledge of binary search tree to design applications like expression trees.</p> <p>CO 4: Student will get the knowledge of graphs for solving real life problems like shortest path</p> <p>CO 5: Student will get the knowledge of comparison-based search algorithms and sorting algorithms.</p> <p>CO 6: Identify appropriate data structure and algorithm for a given contextual problem and develop in C.</p>
CS303	Computer Organization	<p>CO1: Student will get the knowledge of Analyze the designing process of combinational and sequential circuits</p> <p>CO2: Demonstrate understanding of how to Design of ALU.</p> <p>CO3: Identify the addressing modes used in macro instructions.</p> <p>CO4: Demonstrate understanding of control unit and memory organization.</p> <p>CO5: Demonstrate understanding of instruction pipelining and RISC architectures</p>
PRACTICAL		
PH391	Physics-2	<p>CO 1.Application and demonstration of experiments on quantum physics.</p> <p>CO 2.Application and demonstration of experiments on thermoelectricity and di-electric.</p> <p>CO3. Application and demonstration of experiments on solid state physics and electromagnetism</p> <p>CO4.Demonstration of experiments on atomic physics.</p>
CS391	Analog & Digital Electronics	<p>CO1: Demonstrate understanding of how to Design a Class A amplifier and a Phase-Shift Oscillator</p> <p>CO2:Demonstrate understanding of how to Design a Full Adder using basic gate</p> <p>CO3:Demonstrate understanding of how to Realize of RS / JK / D flip flops using logic gates</p>

		and Synchronous Up/Down counter CO4: Demonstrate understanding of how to Design of Shift Register using J-K / D Flip Flop and MOD-N Counter
CS392	Data Structure & Algorithm	CO1: Implementation of array operations CO2: Implementation of stack, queue and list ADT to manage the memory using static and dynamic allocations CO3: Implementation of binary search tree to design applications like expression trees CO4: develop code for real life problems like shortest path and MST using graph theory. CO5: Implementation of comparison-based search algorithms and sorting algorithms.
CS393	Computer Organization	CO1:- Familiarity with IC-chips, e.g Multiplexer ,Decoder, Encoder Comparator CO2:- Demonstrate understanding of how to Design an Adder/Subtractor composite unit . CO3:- Demonstrate understanding of how to Design a BCD adder. CO4:- Demonstrate understanding of how to Design of a 'Carry-Look-Ahead' Adder circuit. CO5:- Demonstrate understanding of how to Use a multiplexer unit to design a composite ALU . CO6:- Demonstrate understanding of how to Use ALU chip for multibit arithmetic operation. CO7:- Demonstrate understanding of how to Implement read write operation using RAM IC.
SECOND YEAR FOURTH SEMESTER		
THEORY		
M(CS)401	Numerical Methods	CO1:- Student will get the knowledge of Approximation in numerical computation CO2:- Student will get the knowledge of Interpolation CO3:- Student will get the knowledge of Numerical integration CO4:- Student will get the knowledge of Numerical solution of a system of linear equations CO5:- Student will get the knowledge of Numerical solution of Algebraic equation CO6:- Student will get the knowledge of

		Numerical solution of ordinary differential equation
M401	Mathematics-3	<p>CO1:- Student will get the knowledge of Probability and Probability distributions</p> <p>CO2:- Student will get the knowledge of Sampling theory</p> <p>CO3:- Student will get the knowledge of Testing of Hypothesis</p> <p>CO4:- Student will get the knowledge of Advanced Graph Theory</p> <p>CO5:- Student will get the knowledge of different types of Algebraic Structures</p>
CS401	Communication Engg & Coding Theory	<p>CO1:- Student will get the knowledge of Communication system, Analog Modulation & Demodulation, Noise, SNR Analog-to</p> <p>CO2:- Student will get the knowledge of Digital Transmission:</p> <p>CO3: Student will get the knowledge of Digital Carrier Modulation & Demodulation Techniques</p> <p>CO4: Student will get the knowledge of Information Theory & Coding</p>
CS402	Formal Language & Automata Theory	<p>CO1: The student will be able to define a system and recognize the behavior of a system. They will be able to minimize a system and compare different systems.</p> <p>CO2: Student will convert Finite Automata to regular expression. Students will be able to check equivalence between regular linear grammar and FA.</p> <p>CO3: Students will be able to minimize context free grammar. Student will be able to check equivalence of CFL and PDA. They will be able to design Turing Machine.</p> <p>CO4:- Students will be able to design Turing machine.</p>
CS403	Computer Architecture	<p>CO1:- Student will get the knowledge of basic computer architecture</p> <p>CO2:- Student will get the knowledge of Hierarchical memory technology</p> <p>CO3:- Student will get the knowledge of Instruction-level parallelism</p> <p>CO4:- Student will get the knowledge of Multiprocessor architecture and Non von</p>

		Neumann architectures
PRACTICAL		
HU481	Technical Report Writing & Language	<p>CO1:- To inculcate a sense of confidence in the students.</p> <p>CO2:- To help them become good communicators both socially and professionally.</p> <p>CO3:- To assist them to enhance their power of Technical Communication</p>
M(CS)491	Lab Practice	<p>CO1:- Demonstrate understanding of Newton forward /backward, Lagrange's interpolation.</p> <p>CO2 Demonstrate understanding of numerical integration using Trapezoidal rule, Simpson's 1/3 rule, Weddle's rule.</p> <p>CO3:- Demonstrate understanding of numerical solution of a system of linear equations using Gauss elimination and Gauss-Seidel iterations.</p> <p>CO4:- Demonstrate understanding of numerical solution of Algebraic Equation by Regular-falsi and Newton Raphson methods.</p> <p>CO5:- Demonstrate understanding of ordinary differential equation: Euler's and Runge-Kutta methods.</p> <p>CO6:- Demonstrate understanding of Software Packages: Matlab / Scilab / Labview / Mathematica.</p>
CS491	Communication Engg & Coding Theory	<p>CO1:- Generation of Amplitude Modulation (Design using transistor or Balanced Modulator Chip (to view the wave shapes)</p> <p>CO2:- Generation of FM using VCO chip (to view the wave shapes)</p> <p>CO3:- Generation of PAM</p> <p>CO4:- Generation of PWM & PPM (using IC 555 Timer)</p>
CS492	Software Tools	<p>CO1:- Demonstrate understanding of Visual Basic/VC++ & Concept about form Project, Application, Tools, Toolbox, Controls & Properties</p> <p>CO2:- Case studies of any real world software with the help of visual programming aids.</p>
CS493	Computer Architecture	<p>CO1:- Demonstrate understanding of HDL introduction</p> <p>CO2:- Demonstrate understanding of Basic</p>

		<p>digital logic base programming with HDL</p> <p>CO3:- Demonstrate understanding of 8-bit Addition, Multiplication, Division</p> <p>CO4:- Demonstrate understanding of 8-bit Register design</p> <p>CO5:- Demonstrate understanding of Memory unit design and perform memory operations.</p> <p>CO6:- Demonstrate understanding of 8-bit simple ALU design</p> <p>CO7:- Demonstrate understanding of 8-bit simple CPU design</p> <p>CO8:- Demonstrate understanding of Interfacing of CPU and Memory</p>
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THIRD YEAR FIFTH SEMESTER

THEORY

HU501	Economics for Engineers	<p>CO1:- Awareness of Economic Decisions Making process and Engineering Costs & Estimation</p> <p>CO2:- Students will get the knowledge of Cash Flow, Interest and Equivalence</p> <p>CO3:- Students will get the knowledge of Inflation And Price Change and Economic Decision Trees</p> <p>CO4:- Students will get the knowledge of Depreciation, Capital Allowance Methods, Replacement and Cost Accounting</p>
CS501	Design & Analysis of Algorithm	<p>CO1:- Students will get the knowledge of basic algorithm, Complexity Analysis</p> <p>CO2:- Students will get the knowledge of Algorithm Design Techniques</p> <p>CO3:- Students will get the knowledge of Lower Bound Theory and Disjoint set manipulation</p> <p>CO4:- Students will get the knowledge of Graph traversal algorithm and String matching problem:</p> <p>CO5:- Students will get the knowledge of Amortized Analysis, Network Flow, Notion of NP-completeness And Approximation Algorithms:</p>
CS502	Microprocessors & Microcontrollers	<p>CO1:- Students will get the knowledge of Microcomputer based system</p> <p>CO2:- Students will get the knowledge of Microcontrollers and their advantages and disadvantages</p>

		<p>CO2:- Students will get the knowledge of Assembly language programming</p> <p>CO3:- Students will get the knowledge of The 8086 microprocessor</p> <p>CO4: Students will get the knowledge of Memory interfacing with 8085, 8086</p>
CS503	Discrete Mathematics	<p>CO1:- Students will get the knowledge of Introduction to Propositional Calculus</p> <p>CO2:- Students will get the knowledge of Theory of Numbers</p> <p>CO3:- Students will get the knowledge of Counting Techniques</p> <p>CO4:- Students will get the knowledge of Graph Coloring</p>
FREE ELECTIVE		
CS504D	Object Oriented Programming	<p>CO1:- Students will get the knowledge of object oriented programming the properties</p> <p>CO2:- Students will get the knowledge of Difference between OOP and other conventional</p> <p>CO3:- Students will get the knowledge of Basic concepts of object oriented programming using Java Implementation</p> <p>CO4:- Students will get the knowledge of Class & Object properties and Basic concepts of java programming</p> <p>CO5:- Students will get the knowledge of Reusability , Exception handling & Multithreading</p> <p>CO6:- Students will get the knowledge of Applet Programming (using swing)</p>
PRACTICAL		
CS591	Design & Analysis of Algorithm	<p>Note:Programming Language used C</p> <p>CO1: Student will get the practical knowledge of Divide and Conquer algorithms, Dynamic Programming, Backtracking Algorithms.</p> <p>CO2: Student will get the practical knowledge of Greedy method and Graph Traversal Algorithms</p>
CS592	Microprocessors & Microcontrollers	<p>CO1: Study of Prewritten programs on 8085 trainer kit using the basic instruction set, Familiarization with 8085 simulator on PC.</p> <p>CO2:Programming knowledge using kit or Simulator</p>

		<p>CO3:Program using IN/OUT instructions and 8255 PPI on the trainer</p> <p>CO4: Programming knowledge of Serial communication between two trainer kits</p> <p>CO4:Study of Prewritten programs on 8051 Microcontroller Kit using the basic instruction</p>
CS593	Programming Practices using C++	<p>CO1: Student will get the practical knowledge of UNIX/Linux Operating System commands</p> <p>CO2: Student will get the practical knowledge of C++</p> <p>CO3:Student will get the practical knowledge of implementation (like Dynamic memory allocation and Linked Lists etc) using C++.</p>
CS594D	Object Oriented Programming (IT)	<p>CO1: Implement Object Oriented Programming Concepts(class, constructor, overloading, inheritance, overriding) in java.</p> <p>CO2: Use and create packages and interfaces in a Java program</p> <p>CO3: Use graphical user interface in Java programs</p> <p>CO4: Create Applets</p> <p>CO5: Implements exception handling in Java.</p> <p>CO6: Implement Multithreading in java.</p> <p>CO7: Use of Input/output Streams in java.</p>
THIRD YEAR SIXTH SEMESTER		
THEORY		
HU601	Principles of Management	<p>CO1:- Students will get the knowledge of Basic management concepts</p> <p>CO2:- Students will get the knowledge of Management, Society ,People Management and Managerial Competencies</p> <p>CO3:- Students will get the concepts of Leadership, Decision making and Economic, Financial & Quantitative Analysis</p> <p>CO4:- Students will get the concepts of Customer Management and Operations & Technology Management</p>
CS601	Data Base Management System	CO1:- Students will get the concepts of DBMS,

		<p>Data Models(like Entity-Relationship Model, relational Databases), and Database</p> <p>.</p> <p>CO2:- Students will get the concepts of Relational Algebra, Relational Calculus</p> <p>CO3:- Students will get the concepts of SQL and Integrity Constraints</p> <p>CO4:- Students will get the concepts Normalization using funtional dependencies</p> <p>CO5:- Students will get the concepts of RDBMS</p> <p>CO6:- Students will get the concepts of File Organization & Index Structures</p>
CS602	Computer Networks	<p>CO1:- Students will get the concepts of Data Communication and Networking, Reference models</p> <p>CO2:- Students will get the concepts of error detection & correction methods</p> <p>CO3:- Students will get the concepts of Internetworking & devices, Routing techniques</p> <p>CO4:- Students will get the concepts of protocols like DNS, SMTP, SNMP, FTP, HTTP etc.</p> <p>CO5:- Students will get the concepts of Security</p> <p>CO6:- Students will get the concepts of some Modern topics(like ISDN services & ATM)</p>
CS603	Operating System	<p>CO1:- Students will get the concepts of Operating system, advantage and disadvantage of OS</p> <p>CO2:- Students will get the concepts of Process Management ,CPU scheduling algorithms and Process Synchronization.</p> <p>CO3:- Students will get the concepts of Deadlocks</p> <p>CO4:- Students will get the concepts of Memory Management techniques, Virtual Memory and , page replacement algorithms</p> <p>CO5:- Students will get the concepts of Storage Management, Disk Management and disk scheduling</p> <p>CO6:- Students will get the domain concepts of Protection & Security</p>
CS604B	Computer Graphics	<p>CO1:- Students will get the concepts of Graphics display devices, different types of graphics drawing algorithms.</p> <p>CO2:- Students will get the concepts of 2D and 3D Geometrical Transformations</p>

		<p>CO3:- Students will get the concepts of Viewing, Curves and surfaces</p> <p>CO4:- Students will get the concepts of Hidden Line/surface elimination techniques</p> <p>CO5:- Students will get the concepts of some Scan Conversion algorithms</p> <p>CO6:- Students will get the concepts of Illumination and Shading Models</p>
CS605C	Multimedia Technology (IT)	<p>CO1:- Students will get the concepts of Multimedia Systems</p> <p>CO2:- Students will get the concepts of Text, Audio Text and Audio tools</p> <p>CO3:- Students will get the concepts of MIDI Image and Video Image , synchronization accuracy specification factors</p> <p>CO4:- Students will get the concepts of Storage models and Access Techniques of Multimedia devices</p> <p>CO5:- Students will get the concepts of Image segmentation and video segmentation</p> <p>CO6:- Students will get the concepts of Document Architecture, Content Management and the application of multimedia</p>
PRACTICAL		
CS691	Data Base Management System Lab	<p>CO1:- To study of Creating Database</p> <p>CO2:- To study of Table and Record Handling SQL commends</p> <p>CO3:- To study of Retrieving Data from a Database</p> <p>CO4:- To study of Creating and manipulating Views</p>
CS692	Network Lab	<p>CO1: Familiarization with transmission media,connector,Hubs,Switches and installation of NIC.</p> <p>CO2: Implementation of client server applications with TCP/UDP Socket Programming in a standalone machine</p> <p>CO3: Implementation of client server applications with TCP/UDP Socket Programming in a network.</p> <p>CO4: Implementation of a Prototype Multithreaded Server</p>
CS693	Operating System Lab	<p>CO1: Demonstrate understanding of Shell programming</p>

		<p>CO2: Demonstrate understanding of how to starting a new process, replacing a process image, duplicating a process image, waiting for a process, zombie process.</p> <p>CO3: Demonstrate understanding of how to send signals,</p> <p>CO4: Demonstrate understanding of how to synchronize processes</p> <p>CO5: Demonstrate understanding of Inter-process communication</p>
CS681	Seminar	<p>CO1: To identify various real world problems.</p> <p>CO2: To develop and enhance leadership skills.</p> <p>CO3: To improving communication skills, presentation skills and other soft skills.</p>
FOURTH YEAR SEVENTH SEMESTER		
THEORY		
CS701	Software Engineering	<p>CO1: To illustrate different phases of developing high end software in an industry.</p> <p>CO2: To recognize different techniques of software testing, reusability of software and software maintenance.</p> <p>CO3: To identify different challenges in maintaining or updating old software.</p> <p>CO4: To justify the strategies for testing, reusability etc. to reduce cost of development and / or maintenance.</p> <p>CO5: To demonstrate the role and responsibilities of software engineers in various phases of software development.</p>
CS702	Compiler Design	<p>CO1:-Students will get the concepts of Compilers</p> <p>CO2:- Students will get the concepts of The actual roles of the lexical analyzer</p> <p>CO3:- Students will get the concepts of different Parsing techniques and Construction of syntax trees</p> <p>CO4:- Students will get the concepts of Type checking</p> <p>CO5:- Students will get the concepts of Run time environments</p> <p>CO6:- Students will get the concepts of</p>

		Intermediate code generation, Code optimization and Code generations.
CS703A	Pattern Recognition	<p>CO1: To explain the concept of pattern recognition and its different phases.</p> <p>CO2: To discuss on the idea of feature extraction and different approaches towards prototype selection.</p> <p>CO3: To illustrate the Support Vector Machine and its application in real life problem solving.</p>
CS703B	Soft Computing	<p>CO1: To explain the fuzzy sets, fuzzy logic systems and its various applications in real life problem solving.</p> <p>CO2: To illustrate the concept of Artificial Neural Network and its applications.</p> <p>CO3: To discuss on the concept of Genetic Algorithm and its various applications.</p> <p>CO4: To elaborate the basics of Simulated Annealing, Tabu search, Ant colony optimization (ACO), Particle Swarm Optimization (PSO).</p>
CS703C	Artificial Intelligence	<p>CO1:- Students will get the concepts of Artificial intelligence</p> <p>CO2:- Students will get the concepts of Intelligent Agents And issues in the design of search programs.</p> <p>CO3:- Students will get the concepts of Search techniques Adversarial search And Heuristic search strategies.</p> <p>CO4:- Students will get the concepts of And Knowledge & reasoning of predicate logic and Representing knowledge using rules, Probabilistic reasoning,</p> <p>CO5:- Students will get the concepts Natural Language processing , Learning and Expert Systems Planning</p> <p>CO6:- Students will get the concepts of Basic knowledge of programming language like Prolog & Lisp.</p>
CS703D	Image Processing	<p>CO1: To discuss on the basics of digital image processing and digital image formation.</p> <p>CO2: To illustrate different mathematical</p>

		<p>preliminaries to deal with digital image processing.</p> <p>CO3: To explain the concept of Image restoration and image segmentation.</p>
CS-704A	Distributed Operating System	<p>CO1:- Students will get the concepts of Distributed System And Operating System Structures</p> <p>CO2:- Students will get the concepts of Inter-process communication and Limitations of distributed Systems.</p> <p>CO3:- Students will get the concepts of Distributed Mutual Exclusion and Distributed Deadlock Detection algorithm.</p> <p>CO4:- Students will get the concepts of Protection and Security and Distributed file systems.</p> <p>CO5:- Students will get the concepts of Distributed Shared Memory and CORBA</p>
CS 705A	Internet Technology	<p>CO1:- Students will get the concepts of internet technology</p> <p>CO2:- Students will get the concepts of HTML , PERL</p> <p>CO3:- Students will get the concepts Client-Server programming In Java, Network security techniques</p> <p>CO4:- Students will get the concepts of Internet Telephony and Multimedia Applications</p>
PRACTICAL		
HU781	Group Discussion	<p>CO1: To enhance general knowledge and public speaking capability.</p> <p>CO2: To improving thinking and reaction capabilities on any instant topic.</p> <p>CO3: To empower communication and soft skills.</p> <p>CO4: To develop leadership and personal development skills.</p>
CS791	Software Engineering Lab	<p>CO1: To prepare requirement document for standard application problems in standard format.</p> <p>CO2: To prepare project schedules and accordingly generate Gantt chart and PERT chart.</p> <p>CO3: To implement Use Case diagram, Class diagram, Sequence diagram and prepare Software Design Document using tools like Rational Rose.</p>

		<p>CO4: To estimate the project size and design Test script / Test plan.</p> <p>CO5: To compute Process and Product Metrics.</p>
CS793A	Pattern Recognition Lab	<p>CO1: To implement efficient algorithms for nearest neighbour classification.</p> <p>CO2: To construct decision trees.</p> <p>CO3: To implement of Linear Discriminant Function and Support Vector Machines.</p>
CS793B	Soft Computing Lab	<p>CO1: To solve real life problems using Fuzzy Logics.</p> <p>CO2: To design different Artificial Neural Network models for solving real life problems.</p> <p>CO3: To represent and solve various real life problems using Genetic Algorithm.</p>
CS793C	Artificial Intelligence lab	<p>CO1:- Students will learn Programming using PROLOG</p> <p>CO2:- Students will learn Programming using LISP</p>
CS793D	Image Processing Lab	<p>CO1: To deal with various gray scale and color images.</p> <p>CO2: To analyze different images using histogram equalization.</p> <p>CO3: To implement various concepts like nonlinear filtering, edge detection using operators, 2 D DFT and DCT etc.</p> <p>CO4: To apply segmentation using watershed transform.</p>
CS795A	Internet Technology	<p>CO1: To use the Applet, Java Script and Perl in web design.</p> <p>CO2: To write programs for the communication between the client and the server.</p> <p>CO3: To create web pages using HTML and XML.</p>
CS792	Industrial Training	<p>CO1: To increase exposure to industries.</p> <p>CO2: To be accustomed with working environment in industries.</p> <p>CO3: To get the opportunity to work with live projects.</p>
CS794	Project-1	<p>CO1: Students will get the concepts of real world problems</p> <p>CO2: Students will get the concepts of design</p>

		<p>methodologies & its implementation</p> <p>CO3: Students will get the concepts of testing methodologies & its implementation</p> <p>CO4: Students will get the concepts of Advanced programming techniques</p> <p>CO5: Students will get the concepts of Technical report writing</p>
FOURTH YEAR EIGHTH SEMESTER		
THEORY		
HU801A	Organizational Behaviour	<p>CO1: To be familiarized with various aspects of organizational behavior, personality and attitude, perception, motivation etc.</p> <p>CO2: To explain about group behavior, communication and leadership.</p> <p>CO3: To analyze various features of leadership and organizational politics.</p>
HU801B	Project Management	<p>CO1: To analyze various concepts project management, project planning and project scheduling.</p> <p>CO2: To implement the concept of Time Cost Tradeoff Analysis, Resource Allocation and Levelling.</p> <p>CO3: To familiarize with project life cycle, project cost and project quality management.</p> <p>CO4: To explain the overview of Software Project Characteristics and Management and IT in projects.</p>
CS801D	Cryptography and Network Security	<p>CO1: To discuss on various types of attacks and their characteristics.</p> <p>CO2: To illustrate the basic concept of encryption and decryption for secure data transmission.</p> <p>CO3: To Analyze and compare various cryptography techniques.</p> <p>CO4: To explain the concept of digital signature and its applications.</p> <p>CO5: Proposing new strategies to secure data communication.</p>
CS802E	E-Commerce(IT)	<p>CO1:- Students will get the concepts of Electronic Commerce :</p> <p>CO2:- Students will get the concepts of E –</p>

		<p>Governance.</p> <p>CO3:- Students will get the concepts of Supply Chain Management</p> <p>CO4:- Students will get the concepts of Digital certificates, Digital signatures.</p> <p>CO5:- Students will get the concepts of Enterprise Resource Planning (ERP)</p>
PRACTICAL		
CS891	Design Lab / Industrial problem related practical training	<p>CO1: To prepare students industry ready through various spoken tutorials.</p> <p>CO2: To learn about industry application of various programming languages like C, C++, Java, PHP and MySQL etc.</p>
CS892	Project-2	<p>CO1: Students will get the concepts of real world problems</p> <p>CO2: Students will get the concepts of design methodologies & its implementation</p> <p>CO3: Students will get the concepts of testing methodologies & its implementation</p> <p>CO4: Students will get the concepts of Advanced programming techniques</p> <p>CO5: Students will get the concepts of Technical report/thesis writing</p>
CS893	Grand Viva	<p>CO1: To evaluate overall technical knowledge and industry readiness.</p> <p>CO2: To go under a virtual environment of technical interview.</p> <p>CO3: To analyze various application of computer science in real life problem solving.</p>