1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
001	B.Tech (CSE)	BS-PH101	Physics-I (Gr-A)	Students will be familiar with :
				1. Basic concepts of mechanics
				2. Bragg's Law and introduction to the principles of lasers, types of lasers and applications.
				3. Various terms related to properties of materials such as, permeability, polarization,etc.
				4. Some of the basic laws related to quantum mechanics as well as magnetic and dielectric properties of materials.
				5. Simple quantum mechanics calculations.
001	B.Tech (CSE)	BS-CH101	Chemistry-1	**Course Outcomes**
				The course will enable the student to:
				1. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
				2. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
				3. Rationalise bulk properties and processes using thermodynamic considerations.
				4.Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
				5. Evaluate structure, colour and magnetic properties of coordination complexes.
				6. List major chemical reactions that are used in the synthesis of molecules and explain isomerism considering the stereochemical aspect.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
001	B.Tech (CSE)	BS-M101	Mathematics –IA	**Course Outcomes:**
				1. Apply the concept and techniques of differential and integral calculus to determine curvature and evaluation of different types of improper integrals.
				2. Understand the domain of applications of mean value theorems to engineering problems.
				3. Learn different types of matrices, concept of rank, methods of matrix inversion and their applications.
				4. Understand linear spaces, its basis and dimension with corresponding applications in the field of computer science.
				5. Learn and apply the concept of eigen values, eigen vectors, diagonalisation of matrices and orthogonalization in inner product spaces for understanding physical and engineering problems
001	B.Tech (CSE)	ES-EE101	Basic Electrical Engineering	**Course Outcomes**
				To understand and analyze basic electric and magnetic circuits
				To study the working principles of electrical machines and power converters.
				To introduce the components of low voltage electrical installations
001	B.Tech (CSE)	ES-ME191	Engineering Graphics & Design(Gr-A)	**Course Outcomes**
				Introduction to engineering design and its place in society
				Exposure to the visual aspects of engineering design
				Exposure to engineering graphics standards

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				Exposure to solid modelling
001	B.Tech (CSE)	ES-ME192	Workshop/Manufacturing Practices(Gr-B)	**Laboratory Outcomes**
				Upon completion of this laboratory course, students will be able to fabricate components with their own hands.
				They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
				By assembling different components, they will be able to produce small devices of their interest.
001	B.Tech (CSE)	BS-M201	Mathematics-II	**Course Outcomes:**
				Learn the ideas of probability and random variables, various discrete and continuous probability distributions with their properties and their applications in physical and engineering environment.
				Understand the basic ideas of statistics with different characterisation of a univariate and bivariate data set.
				Apply statistical tools for analysing data samples and drawing inference on a given data set.
001	B.Tech (CSE)	ES-CS201	Programming for problem solving	**Course Outcomes**
				To formulate simple algorithms for arithmetic and logical problems.
				To translate the algorithms to programs (in C language).
				To decompose a problem into functions and synthesize a complete program using divide and conquer approach.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				To use arrays, pointers and structures to formulate algorithms and programs.
				To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.
				To apply programming to solve simple numerical method problems, namely rot finding of function, differentiation of function and simple integration.
001	B.Tech (CSE)	BS-CH201	Chemistry-1(Gr-A)	**Course Outcomes**
				The course will enable the student to:
				1. Analyse microscopic chemistry in terms of atomic and molecular orbitals and intermolecular forces.
				2. Rationalise bulk properties and processes using thermodynamic considerations.
				3. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques
				4. Rationalise periodic properties such as ionization potential, electronegativity, oxidation states and electronegativity.
				5. List major chemical reactions that are used in the synthesis of molecules.
				6. List major chemical reactions that are used in the synthesis of molecules and explain isomerism considering the stereochemical aspect.
001	B.Tech (CSE)	ES-CS291	Programming for problem solving	**Laboratory Outcomes**
				To formulate the algorithms for simple problem

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				To translate given algorithms to a working and correct program
				To be able to correct syntax errors as reported by the compilers
				To be able to identify and correct logical errors encountered at run time
				To be able to write iterative as well as recursive programs
				To be able to represent data in arrays, strings and structures and manipulate them through a program
				To be able to declare pointers of different types and use them in defining self-referential structures.
				To be able to create, read and write to and from simple text files.
001	B.Tech (CSE)	HM-HU 201	English	**Course Outcomes**
				The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
001	B.Tech (CSE)	HM-HU 291	Language Laboratory	**Course Outcomes**
				The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
001	B.Tech (CSE)	BS-CH291	Chemistry-1 (Gr-A) Lab	**Course Outcomes**
				The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.
				Determine the strength of an acid using conductometric method.
				Determine the strength of an acid using pH-metric methods.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				Evaluate partition coefficient of a substance between two immiscible liquids and evaluate the amount of acetic acid absorbed by charcoal.
				Measure some physical property like surface tension and viscosity of different solutions at room temperature
				Estimate the amount of an ion present in a given solution using argentometric methods and amount of dissolved oxygen (in mg/l) present in a given water sample using volumetric method.
				Determine the cell constant and conductance of different solutions
001	B.Tech (CSE)	ES-ME291	Engineering Graphics & Design(Gr-A)	**Course Outcomes**
				Introduction to engineering design and its place in society
				Exposure to the visual aspects of engineering design
				Exposure to engineering graphics standards
				Exposure to solid modelling
001	B.Tech (CSE)	ES-ME292	Workshop/Manufacturing Practices(Gr-B)	**Laboratory Outcomes**
				Upon completion of this laboratory course, students will be able to fabricate components with their own hands.
				They will also get practical knowledge of the dimensional accuracies and dimensional tolerances possible with different manufacturing processes.
				By assembling different components, they will be able to produce small devices of their interest.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
001	B.Tech (CSE)	ESC 301	Analog and Digital Electronics	**Course Outcomes**
				ESC-301.1 Realize the basic operations of different analog components.
				ESC-301.2 Realize basic gate operations and laws Boolean algebra.
				ESC-301.3 Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
001	B.Tech (CSE)	PCC-CS301	Data Structure & Algorithms	**Course Outcomes:**
				PCC-CS301.1 Differentiate how the choices of data structure & algorithm methods impact the performance of program.
				PCC-CS301.2 Solve problems based upon different data structure & also write programs.
				PCC-CS301.3 Identify appropriate data structure & algorithmic methods in solving problem.
				PCC-CS301.4 Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing
				PCC-CS301.5 Compare and contrast the benefits of dynamic and static data structures implementations.
001	B.Tech (CSE)	PCC-CS302	Computer Organisation	**Course Outcomes:**
				PCC-CS302.1 Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
				PCC-CS302.2 Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				PCC-CS302.3 Perform different operations with sequential circuits.
				PCC-CS302.4 Understand memory and I/O operations.
001	B.Tech (CSE)	BSC 301	Mathematics-III (Differential Calculus)	**Course Outcomes:**
				BSC-301.1 Express a logic sentence in terms of predicates, quantifiers, and logical connectives.
				BSC-301.2 Apply the rules of inference and methods of proof including direct and indirect proof forms, proof by contradiction, and mathematical induction.
				BSC-301.3 Use tree and graph algorithms to solve problems
				BSC-301.4 Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra.
001	B.Tech (CSE)	HSMC 301	Economics for Engineers (Humanities-II)	**Course Outcomes:**
				HSMC-301.1 Make different economic decisions and estimate engineering costs by applying different cost estimation models.
				HSMC-301.2 Create cash flow diagrams for different situations and use different interest formulae to solve associated problems.
				HSMC-301.3 Take decisions regarding different engineering projects by using various criteria like rate of return analysis, present worth analysis, cost-benefit analysis etc.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				HSMC-301.4 Incorporate the effect of uncertainty in economic analysis by using various concepts like expected value, estimates and simulation.
				HSMC-301.5 Understand the concepts of depreciation and replacement analysis and solve associated problems.
				HSMC-301.6 Understand the process of inflation and use different price indices to adjust for its effect.
				HSMC-301.7 Apply the various concepts of Accounting like balance sheet and ratio analysis.
				HSMC-301.8 Understand the scope of Finance and the role of financial planning and management.
001	B.Tech (CSE)	ESC 391	Analog and Digital Electronics	**Course Outcomes:**
				ESC-301.1 Realize the basic operations of different analog components.
				ESC-301.2 Realize basic gate operations and laws Boolean algebra.
				ESC-301.3 Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
001	B.Tech (CSE)	PCC-CS391	Data Structure & Algorithms	**Course Outcomes:**
				PCC-CS301.1 Differentiate how the choices of data structure & algorithm methods impact the performance of program.
				PCC-CS301.2 Solve problems based upon different data structure & also write programs.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				PCC-CS301.3 Identify appropriate data structure & algorithmic methods in solving problem.
				PCC-CS301.4 Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing
				PCC-CS301.5 Compare and contrast the benefits of dynamic and static data structures implementations.
001	B.Tech (CSE)	PCC-CS392	Computer Organisation	**Course Outcomes:**
				PCC-CS302.1 Understand basic structure of digital computer, stored program concept and different arithmetic and control unit operations.
				PCC-CS302.2 Understand basic structure of different combinational circuits- multiplexer, decoder, encoder etc.
				PCC-CS302.3 Perform different operations with sequential circuits.
				PCC-CS302.4 Understand memory and I/O operations.
001	B.Tech (CSE)	PCC-CS393	IT Workshop (Sci Lab/MATLAB/Python/R)	**Course Outcomes:**
				To master an understanding of scripting & the contributions of scripting languages
				Design real life problems and think creatively about solutions
				Apply a solution in a program using R/Matlab/Python.
				To be exposed to advanced applications of mathematics, engineering and natural sciences to program real life problems.
001	B.Tech (CSE)	PCC- CS401	Discrete Mathematics	**Course Outcome(s)**

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				PCC-CS401.1 Express a logic sentence in terms of predicates, quantifiers, and logical connectives
				PCC-CS401.2 Derive the solution for a given problem using deductive logic and prove the solution based on logical inference
				PCC-CS401.3 Classify its algebraic structure for a given a mathematical problem,
				PCC-CS401.4 Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra
				PCC-CS401.5 Develop the given problem as graph networks and solve with techniques of graph theory.
001	B.Tech (CSE)	PCC-CS 402	Computer Architecture	**Course Outcomes:**
				PCC-CS402.1 Learn pipelining concepts with a prior knowledge of stored program methods
				PCC-CS402.2 Learn about memory hierarchy and mapping techniques.
				PCC-CS402.3 Study of parallel architecture and interconnection network
001	B.Tech (CSE)	PCC- CS403	Formal Language & Automata Theory	**Course Outcomes:**
				PCC-CS403.1 Write a formal notation for strings, languages and machines.
				PCC-CS403.2 Design finite automata to accept a set of strings of a language.
				PCC-CS403.3 For a given language determine whether the given language is regular or not.
				PCC-CS403.4 Design context free grammars to generate strings of context free language.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				PCC-CS403.5 Determine equivalence of languages accepted by Push Down Automata and languages generated by context free grammars
				PCC-CS403.6 Write the hierarchy of formal languages, grammars and machines.
				PCC-CS403.7 Distinguish between computability and non-computability and Decidability and undecidability.
001	B.Tech (CSE)	PCC- CS404	Design & Analysis of Algorithms	**Course Outcomes**
				PCC-CS404.1 For a given algorithms analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.
				PCC-CS404.2 Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.
				PCC-CS404.3 Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide-and-conquer algorithms. Derive and solve recurrence relation.
				PCC-CS404.4 Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. For a given problems of dynamic-programming and
				PCC-CS404.5 develop the dynamic programming algorithms, and analyze it to determine its computational complexity.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				PCC-CS404,6 For a given model engineering problem model it using graph and write the corresponding algorithm to solve the problems.
				PCC-CS404.7 Explain the ways to analyze randomized algorithms (expected running time, probability of error).
				PCC-CS404.8 Explain what an approximation algorithm is. Compute the approximation factor of an approximation algorithm (PTAS and FPTAS).
001	B.Tech (CSE)	BSC 401	Biology	**Course Outcomes**
				BSC-401.1 Describe how biological observations of 18th Century that lead to major discoveries.
				BSC-401.2 Convey that classification per se is not what biology is all about but highlight the underlying criteria, such as morphological, biochemical and ecological
				BSC-401.3 Highlight the concepts of recessiveness and dominance during the passage of genetic material from parent to offspring
				BSC-401.4 Convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine
				BSC-401.5 Classify enzymes and distinguish between different mechanisms of enzyme action.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				BSC-401.6 Identify DNA as a genetic material in the molecular basis of information transfer.
				BSC-401.7 Analyse biological processes at the reductionistic level
				BSC-401.8 Apply thermodynamic principles to biological systems.
				BSC-401.9 Identify and classify microorganisms.
001	B.Tech (CSE)	MC401	Environmental Sciences	**Course Outcomes:**
				MC-401.1 To understand the natural environment and its relationships with human activities.
				MC-401.2 To apply the fundamental knowledge of science and engineering to assess environmental and health risk.
				MC-401.3 To develop guidelines and procedures for health and safety issues obeying the environmental laws and regulations.
				MC-401.4 Acquire skills for scientific problem-solving related to air, water, noise& land pollution.
001	B.Tech (CSE)	PCC-CS 492	Computer Architecture	**Course Outcomes:**
				PCC-CS402.1 Learn pipelining concepts with a prior knowledge of stored program methods
				PCC-CS402.2 Learn about memory hierarchy and mapping techniques.
				PCC-CS402.3 Study of parallel architecture and interconnection network
001	B.Tech (CSE)	PCC- CS501	Compiler Design	**Course Outcomes:**
				Understand given grammar specification develop the lexical analyser

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				Design a given parser specification design top-down and bottom-up parsers
				Develop syntax directed translation schemes
				Develop algorithms to generate code for a target machine
001	B.Tech (CSE)	PCC- CS502	Operating System	**Course Outcomes:**
				1. Create processes and threads.
				2. Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time.
				3. For a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the access time. Design and implement file management system.
				4. For a given I/O devices and OS (specify) develop the I/O management functions in OS as part of a uniform device abstraction by performing operations for synchronization between CPU and I/O controllers.
001	B.Tech (CSE)	PCC- CS503	Object Oriented Programming	**Course Outcomes:**
				1. Specify simple abstract data types and design implementations,using abstraction functions to document them.
				2. Recognise features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity.

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				3. Name and apply some common object-oriented design patterns and give examples of their use.
				4. Design applications with an event-driven graphical user interface.
001	B.Tech (CSE)	HSMC-501	Introduction to Industrial Management (Humanities III)	**Course Outcomes:**
				1. Interpret given organization structure, culture, climate and major provisions offactory acts and laws.
				2. Explain material requirement planning and store keeping procedure.
				3. Plot and analyze inventory control models and techniques.
				4. Prepare and analyze CPM and PERT for given activities.
				5. List and explain PPC functions.
001	B.Tech (CSE)	PEC-IT501A	Elective I : Theory of Computation	**Course Outcomes:**
				1. Define a system and recognize the behavior of a system. They will be able to minimize a system and compare different systems
				2. Convert Finite Automata to regular expression. Students will be able to check equivalence between regularlinear grammar and FA.
				3. Minimize context free grammar. Student will be able to check equivalence of CFL and PDA.
				4. They Will be able to design Turing Machine.
				5. Design Turing machine.
001	B.Tech (CSE)	PCC- CS601	Database Management Systems	**Course Outcomes:**

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				1. For a given query write relational algebra expressions for that query and optimize the developedexpressions
				2. For a given specification of the requirement design the databases using E R method andnormalization.
				3. For a given specification construct the SQL queries for Open source and Commercial DBMS - MYSQL, ORACLE, andDB2.
				4. For a given query optimize its execution using Query optimizationalgorithms
				5. For a given transaction-processing system, determine the transaction atomicity, consistency, isolation, anddurability.
				6. Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.
001	B.Tech (CSE)	PCC- CS602	Computer Networks	**Course Outcomes:**
				1. Understand research problem formulation.
				2. Analyze research related information
				3. Follow research ethics
				4. Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
				5. Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
001	B.Tech (CSE)	PEC-IT601 A	Elective II : Advanced Algorithms	**Course Outcomes:**

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				1. Analyze the complexity/performance of different algorithms.
				2. Determine the appropriate data structure for solving a particular set of problems.
				3. Categorize the different problems in various classes according to their complexity.
				4. Students should have an insight of recent activities in the field of the advanced datastructure.
001	B.Tech (CSE)	PEC-IT601B	Distributed Systems	**Course Outcomes:**
				1. Design trends in distributed systems.
				2. Apply network virtualization.
				3. Apply remote method invocation and objects
001	B.Tech (CSE)	PEC-IT602B	Data Warehousing and Data Mining	**Course Outcomes:**
				Study of different sequential pattern algorithms
				Study the technique to extract patterns from time series data and it application in real world.
				Can extend the Graph mining algorithms to Web mining
				Help in identifying the computing framework for Big Data
001	B.Tech (CSE)	PEC-IT602C	Human Computer Interaction	**Course Outcomes:**
				Differentiate between various software vulnerabilities.
				Software process vulnerabilities for an organization.
				Monitor resources consumption in a software.
				Interrelate security and software development process.
001	B.Tech (CSE)	PEC-CS701A	Quantum Computing	**Course Outcomes:**

1.1 List of courses offered across all programs during last five years				
Program code	**Program Name**	**Course code**	**Course Name**	**Course Outcome**
				knowledge of Vector spaces, Matrices, Quantum state, Density operator and Quantum
		OEC-CS801A	Big Data Analytics	**Course Outcomes:**
				Describe big data and use cases from selected business domains
				Explain NoSQL big data management
				Install, configure, and run Hadoop and HDFS
				Perform map-reduce analytics using Hadoop
				Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics