

**St. Xavier's Catholic College of Engineering, Chunkankadai, Nagercoil - 629003.**

2020 -- 2021

**Course Outcomes**

Program:B.Tech. Information Technology

**Semester:1**

<b>Course:Physics and Chemistry Laboratory-[BS8161]</b>
Upon completion of the course, the students will.../ will be able to... CO1 : Determine different moduli of elasticity used in day to day engineering applications CO2 : Estimate the optical parameters of visible and laser sources along with their applications in various fields CO3 : Calculate the thickness of thin wire using Air wedge CO4 : Determine the water quality parameters(DO, Chloride, Cu content, Alkalinity and hardness) of the given water sample. Analyse quantitatively the metals (Fe, Na, Cu) in the given sample using potentiometer, CO5 : flame photometer and Understand how conductometric titrations are better than volumetric titrations and the skill to do the experiment
<b>Course:Engineering Chemistry-[CY8151]</b>
Upon completion of the course, the students will.../ will be able to... CO1 : describe the methods of water purification CO2 : define the terms in phase rule and adsorption CO3 : explain the types of energy resources CO4 : determine the composition and characteristics of fuels and alloys CO5 : classify the types of water, fuels and alloys
<b>Course:Problem Solving and Python Programming-[GE8151]</b>
Upon completion of the course, the students will.../ will be able to... CO1 :Describe the concepts of algorithm, data types, operators, conditional statements and files. CO2 :Write and execute simple Python programs. CO3 :Develop Python programs for complex problems. CO4 :Apply basic and compound data types, functions and files to implement Python programs CO5 :Design and analyse algorithms, modules and packages.
<b>Course:Engineering Graphics-[GE8152]</b>
Upon completion of the course, the students will.../ will be able to... CO1 :Exposed to existing national standards related to technical drawings CO2 :Understand the given Engineering drawing and interpret a three dimensional drawing CO3 :Apply the fundamentals and standards in engineering drawing through drafting exercises of geometrical solids CO4 :Identify methods of development of surfaces of different solids and understand some of the hidden geometry of the cut object CO5 :Analyze the three dimensional view of objects as perceived by the human eye
<b>Course:Problem Solving and Python Programming Laboratory-[GE8161]</b>
Upon completion of the course, the students will.../ will be able to... CO1 : Write, test and debug simple Python Programs CO2 : Implement Python Programs with conditionals and looping statements CO3 : Develop Python Programs using functions CO4 : Use Python lists,tuples ,dictionaries for representing compound data CO5 : Read and write data from/to files and write programs using python packages

**Course:Communicative English-[HS8151]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Learn vocabulary,skim and scan passages and share information related to one /oneself /family and friends.
- CO2 : Improve their telephonic conversation skills,general reading and free writing skills and language skills through preposition and conjunction
- CO3 : Acquire language skills through degrees of comparision , pronouns and direct /indirect questions comprehend short and long passages ,describe products and express opinions
- CO4 : Improve their language skills through reading ,draft e-mails and personal letters and use correct tenses in the language usage
- CO5 : Write short essays and dialogues and participate in group activities

**Course:Engineering Mathematics - I-[MA8151]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Explain the representation of a function, limit and continuity of a function.
- CO2 : Describe the techniques of differentiation, partial differentiation, integration and D.E.
- CO3 : Solve maxima and minima of one variable and two variables.
- CO4 : Compute proper integral, improper integral and multiple integrals.
- CO5 : Apply various techniques in solving differential equations.

**Course:Engineering Physics-[PH8151]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : describe the basics of Properties of matter, Waves, Laser, Optical fibers and Thermal behavior of materials to improve their engineering knowledge
- CO2 : mention the Advanced Physics concepts of quantum theory and the Characteristics of crystalline materials
- CO3 : illustrate Bending of beams, Oscillations, Thermal expansion joints and Fiber optic sensors to assess societal and safety issues
- CO4 : summarize the Types of optical fibers and losses associated with them, Wave equations, Crystal growth techniques and imperfections of crystals  
determine the Moduli of elasticity of different materials, Eigen value and Eigen function
- CO5 : of particles, Working of thermal devices and Functioning of Scanning Tunneling Microscope to enhance the development of society

**Semester:2**

**Course:Basic Electrical,Electronics and Measurement Engineering-[BE8255]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Investigate the different AC/DC Electric Circuits.
- CO2 : Illustrate the characteristics and functions of Electric Machines and Transformers
- CO3 : Investigate the Renewable Sources, Domestic Loads and Protection.
- CO4 : Comprehend the fundamentals of Electronic Circuit and applications.
- CO5 : Understand the concept about Measurement and Metering for electric circuits

**Course:Programming in C-[CS8251]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Develop simple applications in C using basic constructs

CO2 : Design and implement applications using arrays and strings
CO3 : Develop and implement applications in C using functions and pointers.
CO4 : Develop applications in C using structures
CO5 : Design applications using sequential and random access file processing
<b>Course:Engineering Practices Laboratory-[GE8261]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Develop carpentry components and pipe connections
CO2 : Demonstrate basic machining operations
CO3 : Construct the models using sheet metal.
CO4 : Create basic electrical circuits for home applications.
CO5 : Infer foundry, smithy and soldering works.
<b>Course:Technical English-[HS8251]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Read technical texts and write area specific texts effortlessly
CO2 : Listen and comprehend lectures and talks in their area of specialization successfully
CO3 : speak appropriately and effectively in varied formal and informal contexts
CO4 : Write reports and winning job applications
CO5 : Participate in group discussions
<b>Course:Engineering Mathematics II-[MA8251]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Define the basic concepts of matrices, vectors, analytic function and Laplace transform.
CO2 : Explain the properties of matrices and vector differential operators.
CO3 : Understand the basics of Laplace transform for elementary functions and line integral of analytic functions.
CO4 : Apply diagonalization of matrices in quadratic form and Laplace transform in differential equations.
CO5 : Evaluate analytic function, vector and complex integration using various methods.
<b>Course:Physics for Information Sciences-[PH8252]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Mention the electron transport properties of conductors, basic principles of semiconductors and magnetic properties of materials
CO2 : Describe the optical properties of materials and principles of nano devices
CO3 : Summarize classical and quantum concepts of conducting materials, Physics of semiconducting devices and magnetic principles used in computer field
CO4 : Illustrate the functioning of various optoelectronic and nano devices
CO5 : Demonstrate the applications of semiconductor, magnetic, optical and quantum devices in engineering field
<b>Course:Information Technology Essentials-[IT8201]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Design websites using HTML
CO2 : Design web applications using PHP
CO3 : Create database applications using PHP and MySQL
CO4 : Develop personal information systems
CO5 : Describe basics of networking and mobile communications
<b>Course:Information Technology Essentials Laboratory-[IT8211]</b>
Upon completion of the course, the students will.../ will be able to...

- CO1 : Design interactive websites using HTML
- CO2 : Create client side and server side programs using PHP
- CO3 : Design dynamic web sites and handle multimedia components
- CO4 : Create applications with PHP connected to database
- CO5 : Create Personal Information System

**Course:C Programming Laboratory-[CS8261]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Develop C programs for simple applications making use of basic constructs, arrays and strings.
- CO2 : Develop C programs involving functions, recursion, pointers, and structures.
- CO3 : Design applications using sequential and random access file processing.

**Semester:3**

**Course:Digital Principles and System Design-[CS8351]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Perform arithmetic operations in any number system and simplify the Boolean expression using K-map.
- CO2 : Design and analyze combinational circuits.
- CO3 : Design the synchronous and asynchronous sequential circuits.
- CO4 : Analyze the synchronous and asynchronous sequential circuits.
- CO5 : Implement memory arrays using programmable logic devices.

**Course:Data Structures Laboratory-[CS8381]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Implement List ADT
- CO2 : Implement Non linear data Structures
- CO3 : Knowledge of heap, search tree data structures
- CO4 : Implement graph data structures
- CO5 : Implement searching, sorting and hashing techniques

**Course:Digital Systems Laboratory-[CS8382]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Implement simplified combinational circuits using basic logic gates
- CO2 : Implement combinational circuits using MSI devices
- CO3 : Implement sequential circuits like registers and counters
- CO4 : Implement asynchronous sequential circuits.
- CO5 : Simulate combinational and sequential circuits using HDL

**Course:Object Oriented Programming Laboratory-[CS8383]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Explain concepts of classes, packages, interfaces, arraylist, exception handling and file processing.
- CO2 : Apply the concepts of classes, packages, interfaces, arraylist, exception handling and file processing.
- CO3 : Apply the concepts of multithreading to develop concurrent programs.
- CO4 : Create applications using file processing, generic programming and event handling.
- CO5 : Design interactive applications using Graphics packages.

**Course:Data Structures-[CS8391]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Implement the list ADT and apply for complex engineering issues  
CO2 : Implement stack and queue ADT for having a high level of understanding  
CO3 : Knowledge of heap, search tree data structures and implement tree ADT  
CO4 : Analyse and implement graph data structures  
CO5 : Apply searching, sorting and hashing techniques

**Course:Object Oriented Programming-[CS8392]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Describe OOP concepts and characteristics in Java.  
CO2 : Apply the principles of packages, inheritance and interfaces to write java programs.  
CO3 : Develop Java applications using exceptions and I/O streams.  
CO4 : Develop Java applications with threads and generics classes.  
CO5 : Develop interactive Java applications using graphics packages.

**Course:Analog and Digital Communication-[EC8394]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Apply analog communication techniques  
CO2 : Find the data and pulse communication techniques  
CO3 : Apply digital communication techniques  
CO4 : Analyze Source and Error Control Coding  
CO5 : Utilize multi user radio communication systems

**Course:Interpersonal Skills/Listening and Speaking-[HS8381]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Listen and respond appropriately  
CO2 : Speak clearly with proper stress and intonation  
CO3 : Make effective presentations  
CO4 : Participate in group discussions  
CO5 : Participate confidently and appropriately in conversations both formal informal

**Course:Discrete Mathematics-[MA8351]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Have knowledge of the concepts needed to test the logic of a program  
CO2 : Be aware of the counting principles  
CO3 : Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.  
CO4 : Be exposed to concepts and properties of algebraic structures such as groups, rings and fields  
CO5 : Have an understanding in identifying structures on many levels and being exposed to concepts and properties of algebraic structures such as groups, rings and fields

**Semester:4**

**Course:Design and Analysis of Algorithms-[CS8451]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Describe the algorithm design techniques to solve the problems.

CO2 : Explain the algorithm analysis techniques to assess the complexity of an algorithm.  
CO3 : Identify algorithm design techniques to solve real world problems.  
CO4 : Solve problems using suitable algorithm design techniques.  
CO5 : Analyze the time and space complexity of different computing algorithms.

**Course:Operating Systems Laboratory-[CS8461]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Workwith UNIX commands and shell programming  
CO2 : Implement the various scheduling algorithms  
CO3 : Implement process creation and Inter process communication  
CO4 : Implement Deadlock avoidance and Deadlock Detection algorithms  
CO5 : Implement Page replacement algorithms, File organization and File allocation strategies

**Course:Database Management Systems Laboratory-[CS8481]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Understand data definitions and data manipulation commands  
CO2 : Apply the use of nested and join queries  
CO3 : Apply the use of nested and join queries  
CO4 : Familiar with the use of a front end tool  
CO5 : Understand design and implementation of typical database applications

**Course:Computer Architecture-[CS8491]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : describe the basic structure and operations of a digital Computer.  
CO2 : Design arithmetic and logic unit  
CO3 : Design and analyze pipelined control units  
CO4 : Evaluate the concept of parallel processing Architecture  
CO5 : Classify the various memory systems and I/O communication.

**Course:Database Management Systems-[CS8492]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Classify the modern and futuristic database applications based on size and complexity.  
CO2 : Classify the modern and futuristic database applications based on size and complexity.  
CO3 : Write queries using normalization criteria and optimize queries.  
CO4 : Compare indexing strategies in different database systems.  
CO5 : Appraise how advanced databases differ from traditional databases.

**Course:Operating Systems-[CS8493]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Define process, scheduling, memory and file systems.  
CO2 : Explain semaphore, memory management ,directory management and virtualization techniques.  
CO3 : Apply the CPU scheduling, page replacement, deadlock detection and disk scheduling algorithms.  
CO4 : Compare the memory management schemes, file systems and different OS.  
CO5 : Analyze CPU scheduling, page replacement, and disk scheduling algorithms.

**Course:Environmental Science and Engineering-[GE8291]**

Upon completion of the course, the students will.../ will be able to...  
CO1 : Outline the importance of environmental education and ecosystem.

- CO2 : Explain Environmental Pollution and it's prevention
- CO3 : Discuss the conservation of natural resources
- CO4 : Categorize the social and environmental problems
- CO5 : Summarize the need to control population for sustainable development

**Course:Advanced Reading and Writing-[HS8461]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : At the end of the course learners will be able to :Write different types of essays
- CO2 : Write winning job applications
- CO3 : Read and evaluate texts critically
- CO4 : Display critical thinking in various professional contexts.
- CO5 : provide more opportunities to develop project and proposal writing skills.

**Course:Probability and Statistics-[MA8391]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
- CO2 : Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
- CO3 : The students will have a clear perception of the power of numerical techniques and ideas.
- CO4 : The students would be able to demonstrate the applications of these techniques to problems drawn from industry, management and other engineering fields.
- CO5 : Have the notion of sampling distributions and statistical techniques used in engineering and management problems.

**Semester:5**

**Course:Software Engineering-[CS8494]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Describe the software development and testing principles.
- CO2 : Summarize the concepts of requirements analysis and software design.
- CO3 : Compare different software process models and testing methods.
- CO4 : Apply systematic procedure for software design and deployment.
- CO5 : Explain project management, project cost estimation techniques.

**Course:Networks Laboratory-[CS8581]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Implement protocols using TCP and UDP.
- CO2 : Compare the performance of transport layer protocols.
- CO3 : Analyze the performance of network protocols using simulation tools.
- CO4 : Analyze network layer routing algorithms.
- CO5 : Implement error correction codes

**Course:Computer Networks-[CS8591]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Describe the seven layers of osi reference model in computer networks.
- CO2 : Compute the performance of a network using packet drop and throughput.
- CO3 : Analyze the data flow in network layer of computer networks
- CO4 : Apply the routing algorithms in transport layer of the network

CO5 : Analyze the working principle of application layer protocols.

**Course:Microprocessors and Microcontrollers Laboratory-[EC8681]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Write ALP Programmes for fixed and Floating Point and Arithmetic operations

CO2 : Interface different I/Os with processor

CO3 : Generate waveforms using Microprocessors

CO4 : Execute Programs in 8051

CO5 : Explain the difference between simulator and Emulator

**Course:Microprocessors and Microcontrollers-[EC8691]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Understand programs based on 8086 microprocessor

CO2 : Describe the Memory Interfacing circuits

CO3 : Interface Input/output circuits

CO4 : Realize architecture and programming language of 8051 microcontroller

CO5 : Design 8051 microcontroller based systems

**Course:Web Technology-[IT8501]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Design simple web pages using markup languages like HTML and XHTML.

CO2 : Create dynamic web pages using DHTML and JavaScript.

CO3 : Implement server side scripts to process request from client side web pages.

CO4 : Develop web pages using JSP representing web data using XML.

CO5 : Describe various web services and the interaction between them.

**Course:Web Technology Laboratory-[IT8511]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Design simple web pages using HTML and CSS

CO2 : Create dynamic web pages using HTML and JavaScript

CO3 : Generate server-side scripting to process request from the client

CO4 : Develop JSP pages with web data representation using XML

CO5 : Design web services using WSDL and SOAP

**Course:Algebra and Number Theory-[MA8551]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Describe the efficient use of advanced algebraic techniques and Number theory

CO2 : Prove simple theorems about the statements proven by the text in advanced algebraic techniques and Number theory

CO3 : Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts

CO4 : Apply the basic notions of groups,rings,fields which will then be used to solve related problems

CO5 : Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject

**Course:Air Pollution and Control Engineering-[OCE551]**

Upon completion of the course, the students will.../ will be able to...

CO1 : Describe the nature and characteristics of air pollution,noise pollution and basic concepts of air quality management

CO2 : explain and solve air and noise pollution problems



CO3 : design stack and particulate air pollution control devices  
 CO4 : detect air pollution control equipments  
 CO5 : design indoor air pollution control devices

**Semester:6**

<b>Course:Big Data Analytics-[CS8091]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Work with big data tools and its analysis techniques          CO2 : Analyze data by utilizing clustering and classification algorithms          CO3 : Learn and apply different mining algorithms and recommendation systems for large volumes of data          CO4 : Perform analytics on data streams          CO5 : Learn NoSQL databases and management.</p>
<b>Course:Computer Graphics and Multimedia-[CS8092]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Describe the basic concepts of computer graphics and multimedia          CO2 : Explain the concepts of illumination, color models and clipping techniques          CO3 : Apply two dimensional and three dimensional transformations for graphics primitives          CO4 : Apply clipping techniques for graphics primitives          CO5 : Develop applications based on multimedia and hypermedia</p>
<b>Course:Object Oriented Analysis and Design Laboratory-[CS8582]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Illustrate OO analysis and design for a given problem specification.          CO2 : Draw Unified Modelling Language diagrams for a given real world problem.          CO3 : Analyse the software quality using design patterns.          CO4 : Applying specific design patterns for a given problem specification.          CO5 : Examine the compliance of the real world system with the software requirement specification.</p>
<b>Course:Object Oriented Analysis and Design-[CS8592]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Draw Unified Modelling Language based diagrams for the real world systems          CO2 : Design given real world system with object oriented concepts.          CO3 : Identify use cases from real world systems.          CO4 : Design creational, structural and behavioural design patterns.          CO5 : Use software testing methodologies for object oriented software.</p>
<b>Course:Mobile Application Development Laboratory-[CS8662]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Identify the components and structure of mobile application development frameworks for Android and Windows OS based mobile          CO2 : Design basics concepts and issues of development of mobile applications          CO3 : Implement various mobile applications using emulators          CO4 : Summarize the capabilities and limitations of mobile devices          CO5 : Deploy applications to hand-held devices</p>
<b>Course:Intellectual Property Rights-[GE8075]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p>

CO1 : Define different types of Intellectual Property Rights
CO2 : Classify different Intellectual Property Rights
CO3 : Identify importance of Trademark & Copy Right Laws
CO4 : Explain importance of Patents, Trade Secret Laws
CO5 : Explain importance of Patents, Trade Secret Laws
<b>Course:Professional Communication-[HS8581]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Make effective presentations
CO2 : Participate confidently in group discussion
CO3 : Attend job interviews and be successful in them
CO4 : Develop adequate Soft Skills required for the workplace
CO5 : Develop a long term career plan- making career changes
<b>Course:Software Testing-[IT8076]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Define basic testing principles and techniques for software development
CO2 : Explain various levels of testing and strategies for a test case design problem
CO3 : Apply testing methods for any pseudo code.
CO4 : Summarize test results based on test plan.
CO5 : Describe test automation tools for different testing stages
<b>Course:Computational Intelligence-[IT8601]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 :Describe the fundamental goals, methods, and techniques in Computational Intelligence
CO2 :Apply the Intelligent searching techniques for problem-solving
CO3 :Solve the problems using perception, reasoning and learning techniques
CO4 :Explore Computational Intelligence techniques for information retrieval
CO5 :Compute intelligent computational system using machine learning techniques
<b>Course:Mobile Communication-[IT8602]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Explain the basics of mobile telecommunication system
CO2 : Illustrate the generations of telecommunication systems in wireless network
CO3 : Understand the architecture of Wireless LAN technologies
CO4 : Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks
CO5 : Explain the functionality of Transport and Application layer
<b>Course:Mini Project-[IT8611]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 On Completion of the mini project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology

### Semester:7

<b>Course:Advanced Topics on Databases-[CS8071]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the relational databases concepts and skills to optimize database performance in practice.

<p>CO2 : Compare the types of databases.</p> <p>CO3 : Implement intelligent databases and data models.</p> <p>CO4 : Explain the concepts of emerging databases.</p> <p>CO5 : Design efficient algorithms in solving practical database problems</p>
<b>Course:Internet of Things-[CS8081]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Explain the concept of IoT</p> <p>CO2 : Analyze various protocols for IoT</p> <p>CO3 : Design a PoC of an IoT system using Raspberry Pi/Arduino</p> <p>CO4 : Apply data analytics and use cloud offerings related to IoT</p> <p>CO5 : Analyze applications of IoT in real-time scenario</p>
<b>Course:Cloud Computing-[CS8791]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Explain the concept of cloud computing</p> <p>CO2 : Explore the evolution of cloud from the existing technologies.</p> <p>CO3 : Explain the various issues in cloud computing</p> <p>CO4 : Use the current cloud technologies.</p> <p>CO5 : Describe the emergence of cloud as the next generation computing paradigm</p>
<b>Course:Cryptography and Network Security-[CS8792]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Compare the fundamentals of networks security, security architecture, threats and vulnerabilities</p> <p>CO2 : Apply the different cryptographic operations of symmetric cryptographic algorithms</p> <p>CO3 : Apply the different cryptographic operations of public key cryptography</p> <p>CO4 : Apply the various Authentication schemes to simulate different applications</p> <p>CO5 : Summarize various Security practices and System security standards</p>
<b>Course:Total Quality Management-[GE8077]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Explain the Quality concepts</p> <p>CO2 : Summarize the TQM principles and continuous process improvement</p> <p>CO3 : Apply TQM tools and techniques to measure the quality</p> <p>CO4 : Apply TQM tools and techniques for continuous process improvement</p> <p>CO5 : Discuss the challenges in Quality Management Systems</p>
<b>Course:FOSS and Cloud Computing Laboratory-[IT8711]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Configure various virtualization tools such as Virtual Box, VMware workstation</p> <p>CO2 : Design and deploy a web application in a PaaS environment</p> <p>CO3 : Learn how to simulate a cloud environment to implement new schedulers</p> <p>CO4 : Install and use a generic cloud environment that can be used as a private cloud</p> <p>CO5 : Manipulate large data sets in a parallel environment</p>
<b>Course:Security Laboratory-[IT8761]</b>
<p>Upon completion of the course, the students will.../ will be able to...</p> <p>CO1 : Develop code for classical Encryption Techniques to solve the problems</p> <p>CO2 : Analyze cryptosystems by applying symmetric and public key encryption algorithms</p> <p>CO3 : Develop codes for authentication algorithms</p> <p>CO4 : create a signature scheme using Digital signature standard</p>

CO5 : Use open source tools to Demonstrate the network security system
<b>Course:Principles of Management-[MG8591]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the basics of management and its types, skills, management roles, types of business organization and current trends in business.
CO2 : Demonstrate the managerial functions.
CO3 : Explain the nature, types and purpose of planning, organizing, directing and controlling.
CO4 : Compare the organization structures, authorities and responsibilities, human resource management and training and development.
CO5 : Analyze individual and group behavior, motivation theories, job satisfaction types and theories of leadership and formulate best control methods.
<b>Course:Systems Engineering-[OME753]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 :Describe the process, methods, life cycle and practices of systems engineering.
CO2 :Apply fundamental methods and tools of systems engineering for developing simple, complex and real world projects.
CO3 :Analyze systems using systems engineering approaches to increase the performance and to make optimal decisions.
CO4 :Design a system, component, or process to meet desired needs within realistic constraints.
CO5 :Apply the techniques, skills, and modern engineering tools to design system or product.

### Semester:8

<b>Course:Information Retrieval Techniques-[CS8080]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the techniques and models of Information Retrieval Techniques
CO2 : Use an open source search engine framework and explore its capabilities
CO3 : Apply appropriate method of classification and clustering
CO4 : Infer the innovative features of search engine.
CO5 : Elaborate the working of recommender system.
<b>Course:Professional Ethics in Engineering-[GE8076]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Interpret the core human values that shape the ethical behaviour of an engineer
CO2 : Develop skills to solve various moral issues using ethical theories
CO3 : Experiment with ethical issues related to engineering.
CO4 : Infer various social issues, industrial standards, code of ethics and role of professional ethics in engineering
CO5 : Illustrate the ethics of multinational cooperation and global social responsibility
<b>Course:Project Work-[IT6811]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : On completion of project, the students will be in a position to take up a problem and find solution by formulating a proper methodology.
<b>Course:Information Security-[IT8073]</b>
Upon completion of the course, the students will.../ will be able to...
CO1 : Describe the basic concepts of Information Security

- CO2 : Explain the ethical and professional issues in Information Security  
CO3 : Explore the aspects of risk management  
CO4 : Illustrate standards in Information Security  
CO5 : Summarize the technological aspects of Information Security

**Course:Web Design and Management-[IT8078]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : Design ebsite using HTML  
CO2 : Design website using CSS  
CO3 : Design website using JS  
CO4 : Design responsives sites  
CO5 : Manage web apps

**Course:Project Work-[IT6811]**

Upon completion of the course, the students will.../ will be able to...

- CO1 : On completion of project, the students will be in a position to take up a problem and find solution by formulating a proper methodology.