Regulation 2017

Course Outcome Statements

Programme: B.Tech. Information Technology	
Year & Semester:	I &I
Course Code & Name:	C101 & HS8151- Communicative English
Year of Study :	2017 – 2018

Course Code and Name :C101&HS8151- Communicative English		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C101.1	Enable the development in **sharing** information about family and friends.	K3
C101.2	Strengthen general **comprehending** skills and present lucid skills in free writing.	K2
C101.3	**Understand** the basic grammar techniques and utilize it in enhancing language development.	K4
C101.4	Foster an environment for **reading** and develop good language skills.	K2
C101.5	**Develop** flair for any kind of writing with rich vocabulary and proper syntax.	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C102 &MA8151 Engineering Mathematics - I
Year of Study :	2017 – 2018

Course Code and Name : C102&MA8151 Engineering Mathematics - I		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C102.1	**Apply** both the limit definition and rules of differentiation to differentiate functions	K3
C102.2	**Apply** differentiation to solve maxima and minima problems as well as solve differential equations	K3
C102.3	**Evaluate** integrals both by using Riemann sums and by using the Fundamental Theorem ofCalculus	K4
C102.4	**Apply** integration to compute multiple integrals, area, volume, integrals in polar coordinates, inaddition to change of order and change of variables	K4
C102.5	**Evaluate** integrals using techniques of integration, such as substitution, partial fractions andintegration by parts and Determine convergence/divergence of improper integrals and evaluate convergent improper integrals	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C103 &PH8151 Engineering Physics
Year of Study :	2017 – 2018

Course Code and Name : C103&PH8151 Engineering Physics

Course Code	CO Statements	Knowledge Level
The students should be able to		
C103.1	**acquire** the knowledge on the basic properties of matterand its applications.	K1
C103.2	**acquire** the knowledge about thewave concepts, Laser and fibre optics and their applications.	K3
C103.3	**apply** knowledge on thermal properties of materials and their applications in expansion joints and heat exchangers.	K2
C103.4	**infer** knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes.	K3
C103.5	**understand**the basic knowledge of crystals, their structures and different crystal growth techniques	K4

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C104 &CY8151 Engineering Chemistry
Year of Study :	2017 – 2018

Course Code and Name : C104&CY8151 Engineering Chemistry

Course Code	CO Statements	Knowledge Level
The students should be able to		
C104.1	Gain **knowledge** on engineering materials	K1
C104.2	Gain **knowledge** on fuels	K1
C104.3	Gain **knowledge**on energy sources	K1
C104.4	Gain **knowledge**on water treatment techniques	K1
C104.5	**Understand**engineering processes and applications for further learning	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C105 &GE8151 Problem Solving and Python Programming
Year of Study :	2017 – 2018

Course Code and Name : C105&GE8151 Problem Solving and Python Programming		
Course Code	CO Statements	Knowledge Level
The students should be able to		
C105.1	**Develop** algorithmic solutions to simple computational problems	K2
C105.2	Read, write, **execute** by hand simple Python programs for solving problems	K3
C105.3	**Decompose** a Python program into functions	K2
C105.4	**Represent** compound data using Python lists, tuples, dictionaries	K2
C105.5	**Develop** python code to move data from/to files	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C106 &GE8152 Engineering Graphics
Year of Study :	2017 – 2018

Course Code and Name : C106&GE8152 Engineering Graphics		
Course Code	CO Statements	Knowledge Level
The students should be able to		
C106.1	**Familiarize** with the fundamentals and standards of Engineering graphics	K2
C106.2	**Perform** freehand sketching of basic geometrical constructions and multiple views of objects.	K3
C106.3	**Project** orthographic projections of lines and plane surfaces.	K2
C106.4	**Draw** projections and solids and development of surfaces.	K3
C106.5	**Visualize** and to project isometric and perspective sections of simple solids	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C107 &GE8161 - Problem Solving and Python Programming Laboratory
Year of Study :	2017 – 2018

Course Code and Name : C107 &GE8161 Problem Solving and Python Programming Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C107.1	**Write**, test, and debug simple Python programs.	K3
C107.2	**Implement** Python programs with conditionals and loops.	K4
C107.3	**Develop** Python programs step-wise by defining functions and calling them.	K4
C107.4	**Use** Python lists, tuples, dictionaries for representing compound data.	K4
C107.5	**Read and write** data from/to files in Python.	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & I
Course Code & Name:	C108 &BS8161 Physics and Chemistry Laboratory
Year of Study :	2017 – 2018

Course Code and Name : C108&BS8161 Physics and Chemistry Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C108.1	**Apply** the principle of optics and Laser in engineering field	K4
C108.2	**Calculate** band gap of a semiconductor and velocity of sound waves.	K3
C108.3	**Determines** Young's modulus of beam and Rigidity modulus of thin wire.	K5
C108.4	**Analysis** the effect of chlorides in water DO present in sample water	K1
C108.5	**Identify** basicity , acidity and pH of the material	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C109&HS8251 Technical English
Year of Study :	2017 – 2018

Course Code and Name :C109&HS8251 Technical English		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C109.1	**Breakdown** the ideas in to its elementary constituents, analyze and act after a meaning full thought process.	K2
C109.2	**Analyze** the phrase and passage and explicitly pass on the ideas meaning fully.	K3
C109.3	Manage to **interpret** the given phrase or the graphical rendering and review the contents well individually or as a group.	K3
C109.4	Concentrate on the communication aspect of complicated ideas and **respond** positively.	K2
C109.5	**Debate** the issues and find the rudiments of the problem individually and as a group.	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C110&MA8251 Engineering Mathematics - II
Year of Study :	2017 – 2018

Course Code and Name :C110 & MA8251 Engineering Mathematics - II		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C110.1	**Understand**Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices	K2
C110.2	**Understand**Gradient, divergence and curl of a vector point function and related identities	K2
C110.3	**Evaluation** of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification	K3
C110.4	**Understand**Analytic functions, conformal mapping and complex integration	K2
C110.5	**Understand**Laplace transform and inverse transform of simple functions, properties, various related theorems, and application to differential equations with constant coefficients	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C111&PH8252 Physics for Information Science
Year of Study :	2017 – 2018

Course Code and Name : C111&PH8252 Physics for Information Science

Course Code	CO Statements	Knowledge Level
The students should be able to		
C111.1	**Gain** knowledge on classical and quantum electron theories, and energy band structures	K4
C111.2	**Acquire** knowledge on basics of semiconductor physics and its applications in various devices,	K2
C111.3	**Get** knowledge on magnetic properties of materials and their applications in data storage	K3
C111.4	Have the necessary **understandi**ng on the functioning of optical materials for optoelectronics,	K2
C111.5	**Understand** the basics of quantum structures and their applications in carbon electronics.	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C112&BE8255 Basic Electrical, Electronics and Measurement Engineering
Year of Study :	2017 – 2018

Course Code and Name : C112&BE8255 Basic Electrical, Electronics and Measurement Engineering

Course Code	CO Statements	Knowledge Level
The students should be able to		
C112.1	**Discuss** the essentials of electric circuits and analysis.	K3
C112.2	**Discuss** the basic operation of electric machines and transformers	K3
C112.3	**Introduction** of renewable sources and common domestic loads.	K1
C112.4	**understand** the fundamentals of electronic circuit constructions.	K2
C112.5	**Introduction** to measurement and metering for electric circuits	K1

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C113&IT8201 Information Technology Essentials
Year of Study :	2017 – 2018

Course Code and Name :C113&IT8201 Information Technology Essentials		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C113.1	**Design** and deploy web-sites	K3
C113.2	**Design** and deploy simple web-applications	K3
C113.3	**Create** simple database applications	K6
C113.4	**Develop** information system	K4
C113.5	**Describe** the basics of networking and mobile communications	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C114&CS8251 Programming in C
Year of Study :	2017 – 2018

Course Code and Name :C114&CS8251 Programming in C		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C114.1	**Develop** simple applications in C using basic constructs	K3
C114.2	**Design** and implement applications using arrays and strings	K3
C114.3	**Develop** and implement applications in C using functions and pointers.	K3
C114.4	**Develop** applications in C using structures.	K4
C114.5	**Design** applications using sequential and random access file processing	K4

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C115&GE8261 Engineering Practices Laboratory
Year of Study :	2017 – 2018

Course Code and Name :C115&GE8261 Engineering PracticesLaboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C115.1	**Fabricate** carpentry components and pipe connections including plumbing works and Usewelding equipment's to join the structures	K2
C115.2	**Carry out** the basic machining operationsand Make the models using sheet metal works	K2
C115.3	**Illustrate** on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings	K2
C115.4	**Measure** the electrical quantitiesin basic home electrical works and appliances	K2
C115.5	**Elaborate** on the components, gates, soldering practices	K2

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C116&CS8261 C Programming Laboratory
Year of Study :	2017 – 2018

Course Code and Name :C116&CS8261 C Programming Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C116.1	**Develop** C programs for simple applications making use of basic constructs, arrays and strings.	K3
C116.2	**Develop** C programs involving functions, recursion, pointers, and structures.	K3
C116.3	**Design** applications using sequential and random access file processing	K3
C116.4	**Develop** C programs involving recursive functions	K3
C116.5	**Develop** C programs involving pointers, and structures.	K3

Programme: B.Tech. Information Technology	
Year & Semester:	I & II
Course Code & Name:	C117&IT8211 Information Technology Essentials Laboratory
Year of Study :	2017 – 2018

Course Code and Name :C117&IT8211 Information Technology Essentials Laboratory

Course Code	CO Statements	Knowledge Level
The students should be able to		
C117.1	**Design** interactive websites using basic HTML tags, different styles, links and with all basic control elements	K3
C117.2	**Create** client side and server side programs using scripts using PHP.	K3
C117.3	**Design** dynamic web sites and handle multimedia components	K3
C117.4	**Create** applications like Personal Information System with PHP connected to database.	K4
C117.5	**Implement** the technologies behind computer networks and mobile communication	K4

Programme: B.Tech. Information Technology	
Year & Semester:	II& III
Course Code & Name:	C201&MA8351 Discrete Mathematics
Year of Study :	2018 – 2019

Course Code and Name :C201&MA8351 Discrete Mathematics

Course Code	CO Statements	Knowledge Level
The students should be able to		
C201.1	Have **knowledge** of the concepts needed to test the logic of a program.	K1
C201.2	**understand**to identify structures on many levels.	K2
C201.3	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.	K2
C201.4	Be **aware** of the counting principles.	K2
C201.5	Be **exposed** to concepts and properties of algebraic structures such as groups, rings and fields	K2

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C202 & CS8351 Digital Principles and System Design
Year of Study :	2018 – 2019

Course Code and Name :C202&CS8351 Digital Principles and System Design		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C202.1	**Simplify** Boolean functions using KMap	K3
C202.2	**Design** and Analyze Combinational and Sequential Circuits	K4
C202.3	**Implement** designs using Programmable Logic Devices	K4
C202.4	**Write** HDL code for combinational Circuits	K3
C202.5	**Write** HDL code for Sequential Circuits	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C203&CS8391 Data Structures
Year of Study :	2018 – 2019

Course Code and Name :C203&CS8391 Data Structures		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C203.1	**Implement** abstract data types for linear data structures.	K2
C203.2	**Apply** the different linear data structures to problem solutions.	K3
C203.3	**Apply** the different non-linear data structures to problem solutions.	K3
C203.4	**Critically analyze** the various sorting algorithms	K4
C203.5	**Develop** C code for common data structure elements	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C204&CS8392 Object Oriented Programming
Year of Study :	2018 – 2019

Course Code and Name :C204&CS8392 Object Oriented Programming		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C204.1	**Develop** Java programs using OOP principles	K3
C204.2	**Develop** Java programs with the concepts inheritance and interfaces	K3
C204.3	**Build** Java applications using exceptions and I/O streams	K3
C204.4	**Develop** Java applications with threads and generics classes	K4
C204.5	**Develop** interactive Java programs using swings	K4

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C205&EC8394 Analog and Digital Communication
Year of Study :	2018 – 2019

Course Code and Name :C205&EC8394 Analog and Digital Communication		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C205.1	**Apply** analog communication techniques.	K3
C205.2	**Use** data and pulse communication techniques.	K2
C205.3	**Analyze** Source and Error control coding.	K4
C205.4	**Utilize** multi-user radio communication	K2
C205.5	**Apply** digital communication techniques	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C206&CS8381 Data Structures Laboratory
Year of Study :	2018 – 2019

Course Code and Name :C206&CS8381 Data Structures Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C206.1	**Write** functions to implement linear and non-linear data structure operations	K3
C206.2	**Suggest** appropriate linear / non-linear data structure operations for solving a given problem	K4
C206.3	**Appropriately** use the linear data structure operations for a given problem	K3
C206.4	**Appropriately** use the non-linear data structure operations for a given problem	K4
C206.5	**Apply** appropriate hash functions that result in a collision free scenario for data storage	K4

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C207&CS8383 Object Oriented Programming Laboratory
Year of Study :	2018 – 2019

Course Code and Name :C207&CS8383 Object Oriented Programming Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C207.1	**Develop** and implement Java programs for simple applications that make use of classes, packages and interfaces.	K3
C207.2	**Develop** and implement Java programs with arraylist	K3
C207.3	**Develop** and implement Java programs for exception handling and multithreading	K4
C207.4	**Design** applications using file processing, generic programming.	K3
C207.5	**Design** applications using event handling	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C208&CS8382 Digital Systems Laboratory
Year of Study :	2018 – 2019

Course Code and Name : C208&CS8382 Digital Systems Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C208.1	**Implement** simplified combinational circuits using basic logic gates	K3
C208.2	**Implement** combinational circuits using MSI devices	K3
C208.3	**Implement** sequential circuits like registers and counters	K3
C208.4	**Simulate** combinational circuits using HDL	K3
C208.5	**Simulate** sequential circuits using HDL	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & III
Course Code & Name:	C209&HS8381 Interpersonal Skills/Listening & Speaking
Year of Study :	2018 – 2019

Course Code and Name : C209&HS8381 Interpersonal Skills/Listening & Speaking		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C209.1	**Listen and react** by giving verbal and non verbal feedback	K2
C209.2	**make** effective contribution in Group Discussions	K1
C209.3	Compare and Contrast the ideas from multiple choices and **summarize**	K3
C209.4	**Respond** confidently in both Formal and Informal conversations	K1
C209.5	To Greet and to **respond** to Greetings	K5

Programme: B.Tech. Information Technology	
Year & Semester:	II& IV
Course Code & Name:	C210&MA8391 Probability and Statistics
Year of Study :	2018 – 2019

Course Code and Name :C210&MA8391 Probability and Statistics		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C210.1	**Understand** the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.	K2
C210.2	**Understand** the basic concepts of one- and two-dimensional random variables and apply in standard distributions which can describe real life phenomenon	K2
C210.3	**Apply** the concept of testing of hypothesis for small and large samples in real life problems.	K3
C210.4	**Apply** the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control	K3
C210.5	**Infer** sampling distributions and statistical techniques used in engineering and management problems.	K2

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C211&CS8491 Computer Architecture
Year of Study :	2018 – 2019

Course Code and Name :C211&CS8491 Computer Architecture		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C211.1	**Understand** the basics structure of computers, operations and instructions.	K2
C211.2	**Design** arithmetic and logic unit.	K4
C211.3	**Understand** pipelined execution and design control unit.	K2
C211.4	**Understand** parallel processing architectures.	K2
C211.5	**Understand** the various memory systems and I/O communication	K2

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C212&CS8492 Database Management Systems
Year of Study :	2018 – 2019

Course Code and Name :C212&CS8492 Database Management Systems

Course Code	CO Statements	Knowledge Level
The students should be able to		
C212.1	**Classify** the modern and futuristic database applications based on size and complexity	K2
C212.2	**Map** ER model to Relational model to perform database design effectively	K3
C212.3	**Write** queries using normalization criteria and optimize queries	K3
C212.4	**Compare** and contrast various indexing strategies in different database systems	K3
C212.5	**Appraise** how advanced databases differ from traditional databases	K2

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C213&CS8451 Design and Analysis of Algorithms
Year of Study :	2018 – 2019

Course Code and Name :C213&CS8451 Design and Analysis of Algorithms

Course Code	CO Statements	Knowledge Level
The students should be able to		
C213.1	**Design** algorithms for various computing problems.	K3
C213.2	**Analyze** the time complexity of algorithms.	K4
C213.3	**Analyze** the space complexity of algorithms.	K4
C213.4	**Critically analyze** the different algorithm design techniques for a given problem.	K4
C213.5	**Modify** existing algorithms to improve efficiency	K4

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C214 & CS8493 Operating Systems
Year of Study :	2018 – 2019

Course Code and Name :C214&CS8493 Operating Systems		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C214.1	**Analyze** various scheduling algorithms.	K4
C214.2	**Understand** deadlock, prevention and avoidance algorithms.	K2
C214.3	**Compare** and contrast various memory management schemes.	K2
C214.4	**Understand** the functionality of file systems.	K2
C214.5	**Compare** iOS and Android Operating Systemsand Perform administrative tasks on Linux Servers.	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C215&GE8291 Environmental Science and Engineering
Year of Study :	2018 – 2019

Course Code and Name :C215&GE8291 Environmental Science and Engineering		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C215.1	**understand** environment, ecosystems and biodiversity.	K2
C215.2	**understand** causes, effects and control measures of environmental pollution	K2
C215.3	**understand** effective usage of natural resources	K2
C215.4	**understand** social issues related to environments	K2
C215.5	**compare** population growth, variation among nations	K2

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C216&CS8481 Database Management Systems Laboratory
Year of Study :	2018 – 2019

Course Code and Name :C216&CS8481 Database Management Systems Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C216.1	**Use** typical data definitions and manipulation commands.	K3
C216.2	**Design** applications to test Nested and Join Queries	K3
C216.3	**Implement** simple applications that use Views	K3
C216.4	**Implement** applications that require a Front-end Tool	K3
C216.5	**Critically analyze** the use of Tables, Views, Functions and Procedures	K4

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C217&CS8461 Operating Systems Laboratory
Year of Study :	2018 – 2019

Course Code and Name :C217&CS8461 Operating Systems Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C217.1	**Compare** the performance of various CPU Scheduling Algorithms	K2
C217.2	**Implement**Semaphores, Deadlock avoidance and Detection Algorithms	K3
C217.3	**Create** processes and implement IPC	K2
C217.4	**Analyze** the performance of the various Page Replacement Algorithms	K4
C217.5	**Implement** File Organization and File Allocation Strategies	K3

Programme: B.Tech. Information Technology	
Year & Semester:	II & IV
Course Code & Name:	C218&HS8461 Advanced Reading and Writing
Year of Study :	2018 – 2019

Course Code and Name :C218&HS8461 Advanced Reading and Writing		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C218.1	**Read** and evaluate the text intelligently	K2
C218.2	**Understand** parts of speech and use appropriate connectives in writing a paragraph	K1
C218.3	**write** effective job application letter	K3
C218.4	Implement speed **reading** techniques	K1
C218.5	Perform **critical thinking** in various professional contexts	K5

rogramme: B.Tech. Information Technology	
Year & Semester:	III &V
Course Code & Name:	C301&MA8551 Algebra and Number Theory
Year of Study :	2019 – 2020

Course Code and Name :C301&MA8551 Algebra and Number Theory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C301.1	**Apply** the basic notions of groups, rings, fields which will then be used to solve related problems	K3
C301.2	**Explain** the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts	K2
C301.3	**Demonstrate** accurate and efficient use of advanced algebraic techniques	K3
C301.4	**Demonstrate** their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text	K3
C301.5	**Apply** integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject	K3

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C302&CS8591 Computer Networks
Year of Study :	2019 – 2020

Course Code and Name :C302&CS8591 Computer Networks		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C302.1	**Understand** the basic layers and its functions in computer networks.	K2
C302.2	**Evaluate** the performance of a network and understand the basics of how data flows from one node to another.	K3
C302.3	**Analyze** and design routing algorithms.	K2
C302.4	**Design** protocols for various functions in the network.	K3
C302.5	**Understand** the working of various application layer protocols	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C303&EC8691 Microprocessors and Microcontrollers
Year of Study :	2019 – 2020

Course Code and Name :C303&EC8691 Microprocessors andMicrocontrollers		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C303.1	**Understand**about 8086 microprocessor	K2
C303.2	**Execute** programs based on 8086 microprocessor.	K3
C303.3	**Design** Memory Interfacing circuits.	K3
C303.4	**Design** and interface I/O circuits.	K3
C303.5	**Design** and implement 8051 microcontroller based systems	K3

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C304&IT8501 Web Technology
Year of Study :	2019 – 2020

Course Code and Name :C304&IT8501 Web Technology		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C304.1	**Design** simple web pages using markup languages like HTML and XHTML.	K3
C304.2	**Create** dynamic web pages using DHTML and java script that is easy to navigate and use.	K3
C304.3	**Program**server side web pages that have to process request from client side web pages.	K3
C304.4	**Represent** web data using XML and develop web pages using JSP.	K3
C304.5	**Understand** various web services and how these web services interact	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C305&CS8494 Software Engineering
Year of Study :	2019 – 2020

Course Code and Name :C305&CS8494 Software Engineering		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C305.1	**Identify** the key activities in managing a software project.	K2
C305.2	**understand** process models and Analysis Modeling.	K2
C305.3	**Apply** systematic procedure for software design and deployment.	K2
C305.4	**Compare** and contrast the various testing and maintenance.	K3
C305.5	**Manage** project schedule, estimate project cost and effort required	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C306&Open electiveOCE551 Air Pollution and Control Engineering
Year of Study :	2019 – 2020

Course Code and Name :C306&Open electiveOCE551 Air Pollution and Control Engineering

Course Code	CO Statements	Knowledge Level
The students should be able to		
C306.1	**Understanding** of the nature and characteristics of air pollutants, noise pollution and basic concepts of air quality management	K2
C306.2	**Identify**, formulate and solve air and noise pollution problems	K3
C306.3	**Design** stacks and particulate air pollution control devices to meet applicable standards	K3
C306.4	**Select** control equipments.	K3
C306.5	**Ensure** quality, control and preventive measures	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C307& EC8681 Microprocessors and Microcontrollers Laboratory
Year of Study :	2019 – 2020

Course Code and Name :C307&EC8681 Microprocessors andMicrocontrollers Laboratory

Course Code	CO Statements	Knowledge Level
The students should be able to		
C307.1	**Write** ALP Programmes for fixed and Floating Point and Arithmetic operations	K3
C307.2	**Interface** different I/Os with processor	K3
C307.3	**Generate** waveforms using Microprocessors	K3
C307.4	**Execute** Programs in 8051	K3
C307.5	**Explain** the difference between simulator and Emulator	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C308&CS8581 Networks Laboratory
Year of Study :	2019 – 2020

Course Code and Name : C308&CS8581 Networks Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C308.1	**Implement** various protocols using TCP and UDP.	K3
C308.2	**Compare** the performance of different transport layer protocols.	K3
C308.3	**Use** simulation tools to analyze the performance of various network protocols.	K3
C308.4	**Analyze** various routing algorithms.	K3
C308.5	**Implement** error correction codes	K3

Programme: B.Tech. Information Technology	
Year & Semester:	III & V
Course Code & Name:	C309&IT8511 Web Technology Laboratory
Year of Study :	2019 – 2020

Course Code and Name : C309&IT8511 Web Technology Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C309.1	**Design** simple web pages using markup languages like HTML and XHTML.	K3
C309.2	**Create** dynamic web pages using DHTML and java script that is easy to navigate and use.	K3
C309.3	**Program** server side web pages that have to process request from client side web pages.	K3
C309.4	**Represent** web data using XML and develop web pages using JSP.	K3
C309.5	**Understand** various web services and how these web services interact	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C310&IT8601 Computational Intelligence
Year of Study :	2019 – 2020

Course Code and Name :C310&IT8601 Computational Intelligence		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C310.1	**Provide** a basic exposition to the goals and methods of Computational Intelligence.	K2
C310.2	**Study** of the design of intelligent computational techniques.	K2
C310.3	**Apply** the Intelligent techniques for problem solving	K3
C310.4	**Improve** problem solving skills using the acquired knowledge in the areas of, reasoning, natural language understanding.	K2
C310.5	**Improve** problem solving skills using the acquired knowledge in the areas ofcomputer vision, automatic programming and machine learning.	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C311&CS8592 Object Oriented Analysis and Design
Year of Study :	2019 – 2020

Course Code and Name :C311&CS8592 Object Oriented Analysis and Design		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C311.1	**Express** software design with UML diagrams	K3
C311.2	**Design** software applications using OO concepts.	K3
C311.3	**Identify** various scenarios based on software requirements	K3
C311.4	**Transform** UML based software design into pattern based design using design patterns	K3
C311.5	**Understand** the various testing methodologies for OO software	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C312&IT8602 Mobile Communication
Year of Study :	2019 – 2020

Course Code and Name :C312&IT8602 Mobile Communication

Course Code	CO Statements	Knowledge Level
The students should be able to		
C312.1	**Explain** the basics of mobile telecommunication system	K2
C312.2	**Illustrate** the generations of telecommunication systems in wireless network	K2
C312.3	**Understand** the architecture of Wireless LAN technologies	K2
C312.4	**Determine** the functionality of network layer and Identify a routing protocol for a given Ad hocnetworks	K3
C312.5	**Explain** the functionality of Transport and Application layer	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C313&CS8091 Big Data Analytics
Year of Study :	2019 – 2020

Course Code and Name :C313&CS8091 Big Data Analytics

Course Code	CO Statements	Knowledge Level
The students should be able to		
C313.1	**Work** with big data tools and its analysis techniques	K3
C313.2	**Analyze** data by utilizing clustering and classification algorithms	K4
C313.3	Learn and **apply** different mining algorithms and recommendation systems for large volumes of data	K3
C313.4	**Perform** analytics on data streams	K3
C313.5	**Learn** NoSQL databases and management.	K2

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C314&CS8092 Computer Graphics and Multimedia
Year of Study :	2019 – 2020

Course Code and Name :C314&CS8092 Computer Graphics and Multimedia		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C314.1	**Apply** two dimensional transformations in two dimensional graphics.	K3
C314.2	**Apply** three dimensional transformations in design of three dimensional graphics	K3
C314.3	**Apply**Illumination ,color models and clipping techniques	K3
C314.4	**Understood** Different types of Multimedia File Format	K3
C314.5	**Design** Basic 3d Scenes using Blender	K3

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C315& IT8076 Software Testing
Year of Study :	2019 – 2020

Course Code and Name :C315& IT8076 Software Testing		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C315.1	**Design** test cases suitable for a software development for different domains.	K3
C315.2	**Prepare** test planning based on the document	K2
C315.3	**Document** test plans and test cases designed	K2
C315.4	Use automatic **testing** tools	K3
C315.5	Develop and **validate** a test plan	K3

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C316&CS8662 Mobile Application Development Laboratory
Year of Study :	2019 – 2020

Course Code and Name :C316&CS8662 Mobile Application Development Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C316.1	**Develop** mobile applications using GUI and Layouts.	K4
C316.2	**Develop** mobile applications using Event Listener.	K4
C316.3	**Develop** mobile applications using Databases.	K4
C316.4	**Develop** mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS.	K4
C316.5	**Analyze and discover** own mobile app for simple needs	K4

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C317&CS8582 Object Oriented Analysis and Design Laboratory
Year of Study :	2019 – 2020

Course Code and Name :C317&CS8582 Object Oriented Analysis and Design Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C317.1	**Perform** OO analysis and design for a given problem specification.	K3
C317.2	**Identify** and map basic software requirements in UML mapping.	K3
C317.3	**Improve** the software quality using design patterns	K3
C317.4	**explain** the rationale behind applying specific design patterns	K2
C317.5	**Test** the compliance of the software with the SRS.	K4

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C318&IT8611 Mini Project
Year of Study :	2019 – 2020

Course Code and Name :C318&IT8611 Mini Project		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C318.1	**Use** literature to identify the objective, scope and the concept of the work	K2
C318.2	**Apply** suitable methods and materials to carry out experiments	K4
C318.3	**Discuss** the results obtained to derive conclusions	K4
C318.4	Defend the work by **preparing** a report as per the prescribed format	K2
C318.5	**Demonstrate** the experimental output	K5

Programme: B.Tech. Information Technology	
Year & Semester:	III & VI
Course Code & Name:	C319 & HS8581 Professional Communication
Year of Study :	2019 – 2020

Course Code and Name :C319&HS8581 Professional Communication		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C319.1	**classify** the content material and make effective presentations	K2
C319.2	**Employ** adequate soft skills to successfully execute the job on hand	K2
C319.3	**respond** favorably to the values of others opinion and manage difficult situations in group discussions wisely	K2
C319.4	**execute** various skills in grooming for any profession	K2
C319.5	**display** the body language in a very pleasant manner and react to even tough situations with ease	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV&VII
Course Code & Name:	C401&MG8591 Principles of Management
Year of Study :	2020 – 2021

Course Code and Name :C401&MG8591 Principles of Management

Course Code	CO Statements	Knowledge Level
The students should be able to		
C401.1	**understand**about Management principles and Organizations	K2
C401.2	**understand**about planning of management	K2
C401.3	**understand**about organizing and staffing of Organisation	K2
C401.4	**understand**about leading and directing of Management	K2
C401.5	**understand**about controlling and have same basic knowledge on international aspect of management	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C402&CS8792 Cryptography and Network Security
Year of Study :	2020 – 2021

Course Code and Name :C402&CS8792 Cryptography and Network Security

Course Code	CO Statements	Knowledge Level
The students should be able to		
C402.1	**Understand** the fundamentals of networks security, security architecture, threats andvulnerabilities	K2
C402.2	**Apply** the different cryptographic operations of symmetric cryptographic algorithms	K3
C402.3	**Apply** the different cryptographic operations of public key cryptography	K3
C402.4	**Apply** the various Authentication schemes to simulate different applications.	K3
C402.5	**Understand** various Security practices and System security standards	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C403&CS8791 Cloud Computing
Year of Study :	2020 – 2021

Course Code and Name :C403&CS8791 Cloud Computing

Course Code	CO Statements	Knowledge Level
The students should be able to		
C403.1	**Articulate** the main concepts, key technologies, strengths and limitations of cloud computing	K1
C403.2	**Learn** the key and enabling technologies that help in the development of cloud	K2
C403.3	**Develop** the ability to understand and use the architecture of compute and storage cloud,service and delivery models	K3
C403.4	**Explain** the core issues of cloud computing such as resource management and security.	K2
C403.5	**Evaluate and install** appropriatecloud technologies, algorithms and approaches for implementation .	K4

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C404&Open Elective II OME752 Supply Chain Management
Year of Study :	2020 – 2021

Course Code and Name :C404&Open Elective II OME752 Supply Chain Management

Course Code	CO Statements	Knowledge Level
The students should be able to		
C404.1	**Understand**Role of Logistics and Supply chain Management	K2
C404.2	**understand**supply chain network design	K2
C404.3	**Understand** Role of transportation in supply chain	K2
C404.4	**Understand**sourcing and coordination in supply chain	K2
C404.5	**Understand**The role IT in supply chain	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C405& IT8075 Software Project Management
Year of Study :	2020 – 2021

Course Code and Name : C405&Professional Elective IIIT8075
Software Project Management

Course Code	CO Statements	Knowledge Level
The students should be able to		
C405.1	**Understand** Project Management principles and gain extensive knowledge about the basic project management concepts, framework and theprocess models	K2
C405.2	Obtain adequate **knowledge** about software process models and software effort estimationtechniques	K2
C405.3	**Estimate** the risks involved in various project activities	K3
C405.4	**Define** the checkpoints, project reporting structure, project progress and tracking mechanismsusing project management principles	K2
C405.5	**Learn** staff selection process and the issues related to people management	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C406 & CS8079 HUMAN COMPUTER INTERACTION
Year of Study :	2020 – 2021

Course Code and Name :C406&Professional Elective III CS8079HUMAN COMPUTER INTERACTION		
Course Code	CO Statements	Knowledge Level
The students should be able to		
C406.1	Design effective dialog for HCI	K3
C406.2	Design effective HCI for individuals and persons with disabilities	K3
C406.3	Assess the importance of user feedback	K2
C406.4	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites	K2
C406.5	Develop meaningful user interface	K3

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C407&IT8711 FOSS and Cloud Computing Laboratory
Year of Study :	2020 – 2021

Course Code and Name :C407&IT8711 FOSS and Cloud Computing Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C407.1	**Configure** various virtualization tools such as Virtual Box, VMware workstation.	K3
C407.2	**Design** and deploy a web application in a PaaS environment.	K3
C407.3	**Learn** how to simulate a cloud environment to implement new schedulers.	K2
C407.4	**Install and use** a generic cloud environment that can be used as a private cloud.	K2
C407.5	**Manipulate** large data sets in a parallel environment.	K3

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VII
Course Code & Name:	C408&IT8761 Security Laboratory
Year of Study :	2020 – 2021

Course Code and Name :C408&IT8761 Security Laboratory		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C408.1	**Develop** code for classical Encryption Techniques to solve the problems.	K3
C408.2	**Build** cryptosystems by applying symmetric and public key encryption algorithms.	K4
C408.3	**Construct** code for authentication algorithms.	K3
C408.4	**Develop** a signature scheme using Digital signature standard.	K3
C408.5	**Demonstrate** the network security system using open source tools	K3

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VIII
Course Code & Name:	C409 & GE8076 Professional Ethics in Engineering
Year of Study :	2020 – 2021

Course Code and Name : C409& GE8076 Professional Ethics in Engineering

Course Code	CO Statements	Knowledge Level
The students should be able to		
C409.1	**Apply** ethics in society	K2
C409.2	**Discuss** theethical issues related to engineering	K2
C409.3	**Discuss** theethical issues related to society	K2
C409.4	**Realize** the responsibilities in the society	K2
C409.5	**Realize** the rights in the society	K2

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VIII
Course Code & Name:	C410& CS8080 Information Retrieval Techniques
Year of Study :	2020 – 2021

Course Code and Name : C410 & CS8080 Information Retrieval Techniques

Course Code	CO Statements	Knowledge Level
The students should be able to		
C410.1	**Use** an open source search engine framework and explore its capabilities	K2
C410.2	**Apply** appropriate method of classification	K3
C410.3	**Apply** appropriate method of clustering	K3
C410.4	**Design** and implement innovative features in a search engine	K3
C410.5	**Design** and implement a recommender system	K3

Programme: B.Tech. Information Technology	
Year & Semester:	IV &VIII
Course Code & Name:	C411&IT8811 Project Work
Year of Study :	2020 – 2021

Course Code and Name :C411& IT8811 Project Work		
Course Code	**CO Statements**	**Knowledge Level**
The students should be able to		
C411.1	**Use** literature to identify the objective, scope and the concept of the work	K2
C411.2	**Apply** suitable methods and materials to carry out experiments	K5
C411.3	**Discuss** the results obtained to derive conclusions	K4
C411.4	**Defend** the work by preparing a report as per the University format	K2
C411.5	**Compile** the experimental information to publish in journals/conference	K5