

Department of Computer Science and Business System

List of Course Outcomes for 2019 Regulation

Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
1	1 st Year and 1 st Semester	U19HS102	BUSINESS COMMUNICATION AND VALUE SCIENCE I	1. CO1: (Remember) Remember the need for life skills and values 2. CO2: (Understand) Recognize own strengths and opportunities 3. CO3: (Apply) Apply the life skills to different situations. 4. CO4: (Understand) Understand the basic tenets of communication. 5. CO5: (Apply) Apply the basic communication practices in different types of communication
2		U19MA103	DISCRETE MATHEMATICS	1. CO1: (Apply) Apply principles and fundamental concepts of inference theory in proving and testing the logics 2. CO2: (Apply) Use induction techniques, generating functions and basics of counting principle to solve mathematical statements 3. CO3: (Apply) Apply integrated approach to set theory and Boolean algebra provide a firm basis. 4. CO4: (Apply) Examine the types of circuits in a graph, the existence of isomorphism and sketch the Euler and Hamiltonian paths and circuits in a graph 5. CO5: (Apply) Evaluate the functions to get the surface area and volume using multiple integral.
3		U19MA104	LINEAR ALGEBRA	1. CO1: (Apply) Apply basic concepts of Matrix method to solve linear equations. 2. CO2: (Apply) Apply analytical concepts and numerical methods of matrix to solve linear equations and basic applications in Image Processing and Machine Learning using the concept of Singular value decomposition and Principal component analysis 3. CO3: (Apply) Understanding the concepts of vector space and its properties to solve engineering problems. 4. CO4: (Analyze) Analyze the characteristics of a linear system with Eigen values and vectors. 5. CO5: (Analyze) Analyze the systems by vector space techniques.
4		U19PH101	ENGINEERING PHYSICS	1. CO1: (Apply) Learn the basic of properties of matter and its applications 2. CO2: (Apply) Acquire knowledge on the concepts of optical devices and their applications in fibre optics 3. CO3: (Apply) Have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers. 4. CO4: (Apply) Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes. 5. CO5: (Understand) Understand the basics of quantum structures and their applications in spintronics and carbon electronics.
5		U19CS101	PROBLEM SOLVING USING C	1. CO1: (Understand) Understand appropriate looping and conditional constructs for given problems 2. CO2: (Understand) Understand pointers, arrays and strings to solve complex problems 3. CO3: (Understand) Understand Structures, unions and files for problem solving 4. CO4: (Understand) Understand problem solving techniques to real world problems 5. CO5: (Understand) Understand use of functions to build modular programming
6		U19PH111	PHYSICS LABORATORY	1. CO1: (Understand) Understand the various experiments in the areas of optics, mechanics and thermal physics will nurture the students in all branches of Engineering. 2. CO2: (Apply) Interpret and formulate experiments in engineering physics.
7		U19GE111	ENGINEERING PRACTICES LABORATORY	1. CO1: (Apply) Fabricate and experiment with Mechanical and Carpentry components and pipe connections. 2. CO2: (Apply) Use fabrication tools to join and assembling the structures. 3. CO3: (Apply) Identify and Illustrate the various parts of pumps, plumbing works, welding and machine tools. 4. CO4: (Apply) Apply electrical & electronic fundamentals to understand basic circuit elements and emerging technologies 5. CO5: (Apply) Use electrical fundamentals to solve domestic / industrial wiring faults.
8		U19CS111	PROBLEM SOLVING USING C LABORATORY	1. CO1: (Apply) Solve problems using data types and operators 2. CO2: (Apply) Apply appropriate looping and conditional constructs for given C programs 3. CO3: (Apply) Use functions to build modular programs 4. CO4: (Apply) Use appropriate IDE and tools to write, compile, debug and execute a C Program. 5. CO5: (Apply) Implement structures, unions and File Operations

Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
9	1 st Year and 1 st Semester	U19EM101	SOFT SKILLS	1. CO1: (Apply) Apply the basic personality traits in social activity for future working environment 2. CO2: (Apply) Apply receptiveness and get customized to today's corporate world 3. CO3: (Analyze) Analyze and mingle with different types of people to overcome and eradicate fear 4. CO4: (Apply) Create a team environment in the classroom to measure their individual team player skills 5. CO5: (Apply) Create a vivid vision about their behaviour and discipline in future and through which they can measure themselves in socializing
10	1 st Year and 2 nd Semester	U19HS103	BUSINESS COMMUNICATION AND VALUE SCIENCE II	1. CO1: (Understand) Understand tools of structured written communication and basics of presentation skills 2. CO2: (Apply) Apply the basic concept of speed reading, skimming and scanning. 3. CO3: (Understand) Understand and identifying the individual personality types and their role in a team along with the concept of morality and diversity. 4. CO4: (Apply) Recognize the concept of outward behavior and internal behavior 5. CO5: (Apply) Organize an event to generate awareness and get support for a cause through communicative ability
11		U19MA105	PROBABILITY AND STATISTICS	1. CO1: (Apply) Apply the basic probability concepts for random variables and random experiments. 2. CO2: (Apply) Apply various standard distributions applicable to engineering which can describe real life phenomenon. 3. CO3: (Apply) Apply the functions of two dimensional random variables through its probability values. 4. CO4: (Apply) Acquire knowledge in descriptive statistics. 5. CO5: (Apply) Apply statistical tests in testing of hypothesis.
12		U19CS102	PYTHON PROGRAMMING	1. CO1: (Apply) Write python programs using appropriate data types 2. CO2: (Apply) Develop modular programs using functions 3. CO3: (Understand) Understand the object oriented concepts 4. CO4: (Apply) Solve problems using list, tuple and dictionary 5. CO5: (Apply) Apply exception handling concepts to various problems
13		U19CS201	DATA STRUCTURES	1. CO1: (Understand) Comprehend the working of linear data structures and identify their applications. 2. CO2: (Apply) Apply recursion on specific applications. 3. CO3: (Understand) Understand the various tree data structures for efficient storage and retrieval of data. 4. CO4: (Apply) Employ graph data structure for solving real world problems. 5. CO5: (Apply) Apply suitable methods for efficient data access through hashing.
14		U19CB101	FUNDAMENTALS OF ECONOMICS	1. CO1: (Apply) Understand basic principles and concepts microeconomics and apply them to solve the business problems 2. CO2: (Apply) Explain the behaviour and performance of an economy of a nation. 3. CO3: (Understand) Understand the concepts of banking and central bank's monetary policy in economic development of a nation.. 4. CO4: (Understand) Understand the behaviour of firms operating in perfect and imperfect completions. 5. CO5: (Understand) Understand the nuances of planning commission, five year plan and finance commission.
15		U19EE101	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	1. CO1: (Understand) Revise the basic concepts in electrical and electronics engineering 2. CO2: (Understand) Explain the basic laws governing electric circuits, operation of electrical and electronic devices and digital circuits. 3. CO3: (Understand) Summarize the various applications of electrical machines and electronic devices. 4. CO4: (Apply) Apply the laws and concepts to predict the performance of electrical circuit and machines. 5. CO5: (Apply) Identify the operating characteristics of semiconductor devices, analog and digital circuits
16		U19CS112	PYTHON PROGRAMMING LABORATORY	1. CO1: (Apply) Use Python shell and IDE to write and debug simple Python programs 2. CO2: (Apply) Use Python lists, tuple, dictionaries for representing compound data. 3. CO3: (Apply) Identify appropriate packages and modules for different problems 4. CO4: (Apply) Choose the appropriate conditional and looping 5. CO5: (Apply) Create simple applications using python
17		U19CS211	DATA STRUCTURES LABORATORY	1. CO1: (Apply) Apply linear data structures to solve problems. 2. CO2: (Apply) Implement the concept of trees and graphs using non-linear data structures. 3. CO3: (Apply) Select suitable tree algorithms for efficient data storage and retrieval with better time complexity. 4. CO4: (Apply) Apply linear and non-linear data structure and develop a real time software application. 5. CO5: (Apply) Apply the different hashing data structure for efficient data storage.

Sl No.	Year & Semester	Course Code	Course Name	Course Outcome				
18		U19MA208	STATISTICAL MODELLING	1. CO1: (Understand) Classify the sampling techniques.				
				2. CO2: (Understand) Understand the basic concepts of linear statistical models.				
				3. CO3: (Understand) Gain familiarity in estimate of statistical data.				
				4. CO4: (Understand) Expertise in non-parametric methods.				
				5. CO5: (Apply) Apply knowledge of time series analysis in economics and engineering fields.				
				19		U19CSPC202	DATABASE MANAGEMENT SYSTEMS	1. CO1: (Apply) Use fundamentals of data models and depict a database system
								2. CO2: (Apply) Implement relational databases for various business requirements.
								3. CO3: (Apply) Analyse and implement the properties of database.
4. CO4: (Apply) Use the application technology for various evaluation techniques and recovery process in database storage.								
5. CO5: (Apply) Use non-structured database systems in application development.								
20		U19CS203	OBJECT ORIENTED PROGRAMMING	1. CO1: (Apply) Understand and apply the features of object oriented programming paradigm and Java Semantics				
				2. CO2: (Apply) Identify and apply appropriate object oriented concepts of java in problem solving by adhering to Java Coding standards				
				3. CO3: (Apply) Apply concepts of java collections API for the given scenario				
				4. CO4: (Apply) Apply multithreading concepts in concurrent application development				
				5. CO5: (Apply) Use relevant exception-handling mechanisms to ensure uninterrupted flow of application.				
21		U19IT201	SOFTWARE ENGINEERING	1. CO1: (Apply) Apply appropriate software engineering model for a given development scenario.				
				2. CO2: (Apply) Apply appropriate requirement engineering techniques for real time projects.				
				3. CO3: (Apply) Compare and choose the suitable design models for the given application scenario.				
				4. CO4: (Apply) Modelling the application based on the customer requirements.				
				5. CO5: (Apply) Apply the testing principles to software project development.				
22	2 nd Year and 3 rd Semester	U19IT301	COMPUTER ARCHITECTURE	1. CO1: (Understand) Choose appropriate instruction set architecture and addressing modes used in a processor.				
				2. CO2: (Understand) Apply the knowledge of arithmetic operations to perform calculations.				
				3. CO3: (Understand) Understand Design and analyze pipelined control units.				
				4. CO4: (Understand) Understand parallel processing architectures.				
				5. CO5: (Understand) Understand performance of memory systems.				
23		U19MC201	ENVIRONMENTAL SCIENCES	1. CO1: (Analyse) Analyse human interaction for the sustainability of a social eco-system.				
				2. CO2: (Analyse) Examine the impact of pollution and hazardous chemical on environment and human health.				
				3. CO3: (Analyse) Inspect the effect of different wastes and chemical on the environment and its mitigation methods.				
				4. CO4: (Apply) Identify the application of natural resources for creating a good eco-system.				
				5. CO5: (Analyse) Apply the basic concepts to understand various environmental issues.				
24		U19CSLC202	DATABASE MANAGEMENT SYSTEMS LABORATORY	1. CO1: (Apply) Develop ER model for the given problem.				
				2. CO2: (Apply) Apply appropriate SQL constraints to a business case.				
				3. CO3: (Apply) Utilize relational database using simple and complex queries in Structured Query Language (SQL).				
				4. CO4: (Apply) Formulate procedural language queries (PL/SQL) to the given scenario.				
				5. CO5: (Apply) Apply database connectivity concepts in an application development scenario.				
25		U19CS213	OBJECT ORIENTED PROGRAMMING LABORATORY	1. CO1: (Apply) Use JRE, JDK and Java-IDE's				
				2. CO2: (Apply) Select the required Object oriented mechanism				
				3. CO3: (Apply) Use relevant exception-handling mechanisms exception				
				4. CO4: (Apply) Model the real world problems for efficient outcomes using concurrency concepts				
				5. CO5: (Apply) Apply concepts of java collections API for the given scenario				
26		U19IT211	SOFTWARE ENGINEERING LAB	1. CO1: (Analyze) Analyze problem statements to identify the requirements of real time scenarios.				
				2. CO2: (Apply) Examine project scope, objectives and perform project planning.				
				3. CO3: (Create) Develop software design solutions for the given problem domain.				
				4. CO4: (Apply) Identify the deliverables in various phases of SDLC.				
				5. CO5: (Apply) Apply various testing techniques on the deliverables.				

Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
27	2 nd Year and 4 th Semester	U19MA209	COMPUTATIONAL STATISTICS	1. CO1: (Understand) Understand the basic concepts of Statistical techniques and multivariate regression models. 2. CO2: (Understand) Understand the basic concepts of Discriminant analysis and Principal component analysis 3. CO3: (Understand) Understand the concepts of factor analysis and segmentation analysis. 4. CO4: (Apply) Implement Python and Data wrangling techniques in Computational Statistics 5. CO5: (Apply) Interpretation of data aggregation and create visualizations using Python.
28		U19CS204	OPERATING SYSTEMS	1. CO1: (Understand) Use the appropriate concepts of operating system for resource utilization 2. CO2: (Understand) Choose the relevant process and thread concepts for solving synchronization problems 3. CO3: (Understand) Compare different types of page replacement algorithms in memory management 4. CO4: (Understand) Experiment the performance of different algorithms used in management of memory, file and I/O and selects the appropriate one. 5. CO5: (Understand) Demonstrate different device and resource management techniques for memory utilization with security mechanisms
29		U19CS301	INTERNET PROGRAMMING	1. CO1: (Understand) Explain the history of the internet and related internet concepts 2. CO2: (Apply) Create basic website using HTML and CSS 3. CO3: (Apply) Design and implement server side programs using Servlets and JSP 4. CO4: (Understand) Describe the representation of data using XML Technology 5. CO5: (Understand) Demonstrate the working of MVC pattern using Spring, Hibernate and Maven Technologies
30		U19CB201	INTRODUCTION TO INNOVATION, IP MANAGEMENT AND ENTREPRENEURSHIP	1. CO1: (Understand) Understand the conceptual knowledge of innovation. 2. CO2: (Understand) Understand the importance of IP. 3. CO3: (Understand) Understand the training models and the management practices. 4. CO4: (Understand) Learn the techniques of entrepreneurship. 5. CO5: (Apply) Implement, evaluate and control the process of entrepreneurship.
31		U19MC202	INDIAN CONSTITUTION AND TRADITION	1. CO1: (Understand) Understand the characteristics of the Constitution of India 2. CO2: (Understand) Understand the fundamental rights and duties 3. CO3: (Understand) Understand the federal structure and distribution of legislative and financial powers 4. CO4: (Understand) Understand the constitutional amendments and emergency provisions 5. CO5: (Understand) Understand the fundamental right to equality, freedom, life and personal freedom
32		U19CS214	OPERATING SYSTEMS LABORATORY	1. CO1: (Apply) Use different LINUX commands and implement shell programming. 2. CO2: (Apply) Simulate various system calls used for process and file management. 3. CO3: (Apply) Implement process synchronization techniques and inter process communication mechanisms. 4. CO4: (Analyze) Analyze various system programs under Linux to make use of operating system concepts. 5. CO5: (Evaluate) Evaluate the performance of different file allocation strategies and select the appropriate one.
33		U19CS311	INTERNET PROGRAMMING LABORATORY	1. CO1: (Apply) Use Cascading style sheets to implement a variety of presentation effects in HTML including explicit positioning of elements 2. CO2: (Apply) Create dynamic web pages by incorporating java script in HTML 3. CO3: (Apply) Develop interactive web pages using server side programming languages 4. CO4: (Apply) Construct web pages using XML 5. CO5: (Apply) Design web pages using web services
34		U19HS201	BUSINESS COMMUNICATION AND VALUE SCIENCE III	1. CO1: (Apply) Identify the best practices of technical writing & apply technical writing in real life scenarios. 2. CO2: (Understand) Apply the basic principles of SWOT & life positions. 3. CO3: (Apply) Respect pluralism in cultural spaces. 4. CO4: (Apply) Identify the common mistakes made in cross-cultural communication. 5. CO5: (Apply) Understand the power of motivation in real life



Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
35	2 nd Year and 4 th Semester	U19EM201	VERBAL AND SOFT SKILLS	1. CO1: (Apply) Inculcate rhetorical skills to build confidence level.
				2. CO2: (Apply) Creative employability attribution for campus interview.
				3. CO3: (Apply) Improve verbal skills through vocabularies.
				4. CO4: (Apply) Develop comprehending ability in various contexts.
				5. CO5: (Apply) Improve sentence formation by collaborative learning methods.
36	Language Electives	U19HS111	BUSINESS ENGLISH	1. CO1: (Apply) Apply different conversation techniques in day to day communication
				2. CO2: (Apply) Practice effective listening techniques during conversations.
				3. CO3: (Apply) Develop good reading practice
				4. CO4: (Apply) Report ideas and concepts in an effective manner
				5. CO5: (Apply) Articulate effectively during discussions and presentations
37	Language Electives	U19HS112	BASIC JAPANESE	1. CO1: (Understand) Recognize and write Japanese alphabet
				2. CO2: (Understand) Speak using basic sounds of the Japanese language
				3. CO3: (Apply) Apply appropriate vocabulary needed for simple conversation in Japanese language
				4. CO4: (Apply) Apply appropriate grammar to write and speak in Japanese language
				5. CO5: (Apply) Comprehend the conversation and give correct meaning
38	Language Electives	U19HS113	BASIC GERMAN	1. CO1: (Understand) Recognize and write German alphabet
				2. CO2: (Understand) Speak using basic sounds of the German language
				3. CO3: (Apply) Apply appropriate vocabulary needed for simple conversation in German language
				4. CO4: (Apply) Apply appropriate grammar to write and speak in German language
				5. CO5: (Apply) Comprehend the conversation and give correct meaning
39	Industry Oriented Courses	U19IC301	ETHICAL HACKING	1. CO1: (Apply) Install, configure, use and manage hacking software on a closed network environment
40		U19IC302	INTRODUCTION TO PAS	2. CO2: (Apply) Identify tools and techniques to carry out a penetration testing.
				3. CO3: (Apply) Assess an environment using foot printing.
				1. CO1: (Understand) Understand basics ofSalesforce
				2. CO2: (Apply) Experiment with SFDC administration and customization
41	U19IC303	ANGULAR JS	3. CO3: (Understand) Understand SFDC security	
			1. CO1: (Apply) Understand and apply the concepts of object oriented Angular scripting languages.	
			2. CO2: (Apply)Identify and apply Angular Components.	
42	U19IC304	TENSOR FLOW	3. CO3: (Apply) Apply concepts of Angular Derivatives.	
			1. CO1: (Apply) Apply the basic concepts of data manipulation	
			2. CO2: (Apply) Experiment with various tensor Operations and Functions	
43	U19IC305	GROOVY ON GRAILS	3. CO3: (Apply) Make use of the Classification techniques	
			1. CO1: (Understand) Work with Groovy strings, closures, and collections	
			2. CO2: (Apply) Build unit and functional tests for web applications	
				3. CO3: (Apply) Select Grails plugins to add functionality



Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
44	Industry Oriented Courses	U19IC306	KUBERNETES & DOCKER	1. CO1: (Understand) Understand the basics of Kubernetes
				2. CO2: (Apply) Create Kubernetes clusters and deploy it
				3. CO3: (Understand) Understand services and scheduling
45		U19IC307	REACT	1. CO1: (Apply) Understand and apply the concepts of React scripting languages.
				2. CO2: (Apply) Identify lifecycle and apply React Components.
				3. CO3: (Apply) Apply concepts of event and SASS.
46		U19IC308	JAVA FRAMEWORKS	1. CO1: (Apply) Determine the object oriented programming concepts
				2. CO2: (Apply) Simulate the mathematical functionality with the help of operators
				3. CO3: (Apply) Develop Web applications using Framework
47	U19IC309	CLOUD COMPUTING	1. CO1: (Apply) Understand the basic concepts of Cloud Computing	
			2. CO2: (Apply) Apply Storage and Networking Concepts in Cloud.	
			3. CO3: (Apply) Apply Scaling and Security in clouds	
48	U19IC312	COMPUTER NETWORK AND APPLICATION	1. CO1: (Apply) Use the theoretical skills in network applications development into practice and design internet socket programming.	
			2. CO2: (Understand) Demonstrate the relevant components and tools of modern networks.	
			3. CO3: (Analyze) Analyze the requirements for a given organizational structure and select the appropriate networking architecture and technologies.	
49	U19IC601	INTRODUCTION TO MOBILE APP DEVELOPMENT	1. CO1: (Apply) Apply the basic concepts of mobile applications	
			2. CO2: (Apply) Experiment with android application components	
			3. CO3: (Apply) Make use of the Communications Via Network and the Web	
50	U19IC602	HADOOP	1. CO1: (Understand) Understand the Hadoop architecture and work on Hadoop framework and its ecosystems.	
			2. CO2: (Understand) Understand the Big Data Hadoop using Map-reduce programming and CRUD operations in Hadoop framework.	
			3. CO3: (Understand) Understand the architecture of HIVE and HIVEQL, HBASE and apply knowledge in various technologies.	
51	U19IC603	SCALA	1. CO1: (Understand) Understand the fundamentals of Scala	
			2. CO2: (Apply) Experiment with Object Orientation in Scala	
			3. CO3: (Apply) Implement various programs using List, Array and Maps	