R19-REGULATIONS

COURSE TITLE	COURSE CODE	CO NO	COURSE OUTCOMES
Algebra and Calculus	**19A54101**	CO-1	**Solve** the system of linear equations, using technology to facilitate row reduction determine the rank, eigenvalues and eigenvectors **(BL-3)**
		CO-2	**Translate** the given function as series of Taylor's and Maclaurin's with remainders **(BL-3)**
		CO-3	**Acquire** the Knowledge maxima and minima of functions of several variable **(BL-1)**
		CO-4	**Apply** the techniques of **Multiple integrals** for the Area of the region bounded by curves and volume. **(BL-3)**
		CO-5	**Understand** beta and gamma functions and its relations **(BL-2)**
Chemistry	**19A51102T**	CO-1	**Illustrate** the molecular orbital energy level diagram of different molecular species.**(BL-3)**
		CO-2	**Compare** the materials of construction for battery and electrochemical sensors.**(BL-2)**
		CO-3	**Explain** the preparation, properties and applications of different polymers.**(BL-2)**
		CO-4	**Explain** the principles of spectrometry, GC and HPLC in separation of gaseous and liquid mixtures .**(BL-2)**
		CO-5	**Apply** the principle of supra molecular chemistry in application of molecular machines and switches. **(BL-3)**
Problem Solving & Programming	**19A05101T**	CO-1	Understand the peripherals, ports and connecting cables and able to assemble the system. [BL- 2]
		CO-2	Apply algorithmic approach to solve computational problems. [BL -3]
		CO-3	Apply modular approach for solving the problems by using the control structures. [BL-3]
		CO-4	Select the individual data elements to simplify solutions and provide efficient memory utilization. [BL-3]
		CO-5	Develop sorting algorithms for heterogeneous data. [BL-3]
Engineering Graphics Lab	**19A03102**	CO-1	Show the various curves applied in engineering
		CO-2	Show the projections of straight lines, projections of planes graphically

		CO-3	Show the projections of solids and sections graphically
		CO-4	Show the development of surfaces of solids graphically
		CO-5	Use the computers for drafting with Auto CAD software tool
Engineering Workshop	**19A03101**	CO-1	Apply wood working skills in real world applications.
		CO-2	Construct different parts with metal sheets in real world applications.
		CO-3	Apply fitting operations in various applications.
		CO-4	Apply different types of basic electric circuit connections.
		CO-5	Demonstrate soldering and brazing.
Chemistry Lab	**19A51102P**	CO-1	Determine the cell constant and conductance of solutions. **(BL-3)**
		CO-2	Prepare advanced polymer materials. **(BL-3)**
		CO-3	Measure the strength of an acid present in secondary batteries. **(BL-3)**
		CO-4	Analyse the IR and NMR of some organic compounds.**(BL-4)**
Problem Solving & Programming Lab	**19A05101P**	CO-1	Understand the peripherals, ports and connecting cables and able to assemble the system. [BL- 2]
		CO-2	Apply algorithmic approach to solve computational problems. [BL -3]
		CO-3	Apply modular approach for solving the problems by using the control structures. [BL-3]
		CO-4	Select the individual data elements to simplify solutions and provide efficient memory utilization. [BL-3]
		CO-5	Develop sorting algorithms for heterogeneous data. [BL-3]
Basic Electrical & Electronics Engineering	**19A02201T**	CO-1	Summarize the basic concepts of R,L,C ,voltage ,current and power of a circuit (BL-3)
		CO-2	Describe the principle, working and construction of DC Generators &Motor (BL-2)
		CO-3	Describe the construction, operation, types and equivalent circuit of a single phase transformer. (BL-2)
		CO-4	Explain the operation and characteristics of pn junction diode ,rectifiers . (BL-2)
		CO-5	Explain the working and configuration characteristics of BJT ,FET and MOSFET (BL-2)
		CO-6	Explain the operation Oscillator circuits and Op-amp applications (BL-2)
Probability and Statistics	**19A54202**	CO-1	**Summarize** the basic concepts of data science and its importance in engineering. **(BL-2)**
		CO-2	**Apply** Baye's theorem to real time problems **(BL-3)**

		CO-3	**Interpret** the properties of normal distribution and its applications **(BL-2)**
		CO-4	**Explain** the concept of estimation, interval estimation and confidence intervals **(BL-2)**
		CO-5	**Apply** the concept of testing hypothesis for small samples to draw the inferences **(BL-3)**
Applied Physics	**19A56101T**	CO-1	Identify the importance of the optical phenomenon i.e. interference, diffraction and polarization related to its Engineering applications (BL2)
		CO-2	Explain the significant concepts of dielectric and magnetic materials which lead to potential applications in the emerging micro devices (BL2)
		CO-3	Understand the basic concepts of electromagnetic waves and its propagation in optical fibers along with its Engineering applications (BL2)
		CO-4	Describe the importance of semiconductors in the functioning of electronic devices (BL2)
		CO-5	Illustrate the basic properties of superconductors and nanomaterials (BL2)
Data Structures	**19A05201T**	CO-1	Analyze the given algorithm to find the time and space complexities
		CO-2	Construct the linked lists for various applications
		CO-3	Apply trees for indexing
		CO-4	Apply various graph traversal methods to applications
		CO-5	Develop Algorithm for Sorting large files of data
Communicative English - I	**19A52101T**	CO-1	Understand the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English(BL -2)
		CO-2	Apply grammatical structures to formulate sentences and correct word forms (BL - 3)
		CO-3	Analyze discourse markers to speak clearly on a specific topic in informal discussions(BL - 4)
		CO-4	Implement reading/listening texts and to write summaries based on global comprehension of these texts.(BL - 3)
		CO-5	RECOGNIZE a coherent paragraph interpreting a figure/graph/chart/table(BL - 2)
Computer Science and Engineering Workshop	**19A05202**	CO-1	Construct a computer from its parts and prepare it for use
		CO-2	Develop Documents using Word processors, presentations using the presentation tool and computations using spreadsheet tool
		CO-3	Design Graphics, Videos and Web pages
		CO-4	Connect computer using wired and wireless

			connections
		CO-5	Connect things to computers
Communicative English - I Lab	**19A52101P**	CO-1	To remember and understand the different aspects of the English language proficiency with emphasis on LSRW skills (BL -1)
		CO-2	To apply communication skills through various language learning activities(BL - 3)
		CO-3	To analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension.(BL- 4)
		CO-4	To Analyze and exhibit acceptable etiquette essential in social and professional settings(BL -4)
		CO-5	To understand awareness on mother tongue influence and neutralize it in order to improve fluency in spoken English (BL -2)
Basic Electrical & Electronics Engineering Lab	**19A52101P**	CO-1	Verify Kirchoff's Laws & Superposition theorem.
		CO-2	Perform testing on AC and DC Machines.
		CO-3	Describe construction, working and characteristics of diodes, transistors and operational amplifiers
		CO-4	Demonstrate how electronic devices are used for applications such as rectification, switching and amplification
		CO-5	Build different building blocks in digital electronics using logic gates
Applied Physics Lab	**19A56101P**	CO-1	Understand the concepts of interference/diffraction and role of optical fiber parameters in communication (BL1)
		CO-2	Recognize the importance of energy gap in the study of conductivity and hall effect in a semiconductor (BL2)
		CO-3	Illustrate the magnetic and dielectric materials applications (BL2)
		CO-4	Apply the principles of semiconductors in various electronic devices (BL3)
Data Structures Lab	**19A05201P**	CO-1	Make use of appropriate data structure for solving the problem
		CO-2	Design new data types
		CO-3	Illustrate the working of stack and queue
Mathematical Foundations of Computer Science	**19A54303**	CO-1	Describe the connectives, normal forms and theory of inference for problem solving through mathematical logic. (BL-2)
		CO-2	Illustrate discrete structures, relations, functions and recursion for set theory. (BL-2)
		CO-3	Illustrate the fundamental principles of counting, inclusion, exclusion and generating functions to solve combinatorial problems and permutations. (BL - 2)
		CO-4	Able to solve homogeneous and non homogeneous

			recurrence relations.(BL-3)
		CO-5	Develop graph theory models of data structures and state machines to solve problems of connectivity and constraints.(BL - 3)
Digital Logic Desig	**19A05301**	CO-1	Use number systems, binary codes and Boolean algebra to implement digital circuits. (BL-3)
		CO-2	Apply minimization techniques on Boolean expressions. (BL-3)
		CO-3	Design combinational circuits using logic gates. (BL-3)
		CO-4	Analyze synchronous sequential circuits. (BL-4)
		CO-5	Classify the programmable logic devices & circuits. (BL-2)
Design Thinking	**19A99304**	CO-1	Develop different design ideas.
		CO-2	Explain the innovation and benefits of design thinking.
		CO-3	Identify the idea generation techniques to solve wicked problems.
		CO-4	Discuss the design thinking process in IT and agile software development.
		CO-5	Explain design techniques related to variety of software services.
Database Management Systems	**19A05302T**	CO-1	Design a data base for a real world information system.
		CO-2	Create transactions which preserve the integrity of the database.
		CO-3	Generate the tables for a database.
		CO-4	Organize the data to process and optimize the queries.
		CO-5	Recognize the principles of database transaction management and database recovery.
Object Oriented Programming Through Java	**19A05303T**	CO-1	Solve real world problems using OOP techniques.
		CO-2	Apply code reusability through inheritance.
		CO-3	Develop applications by using parallel streams for better performance.
		CO-4	Build GUI and handle event generated by user interactions.
		CO-5	Use the JDBC API to access data base

Python Programming	**19A05304T**	CO-1	Apply the features of python language in various real applications.
		CO-2	Select appropriate data structure of python for solving a problem.
		CO-3	Design programs for manipulating strings.
		CO-4	Design object oriented programs using python for solving real world problems
		CO-5	Apply modularity to programs
Universal Human Values	**19A52301**	CO-1	Comprehend themselves, and their surroundings (family, society, nature) . [BL-2]
		CO-2	Relate more responsibility in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind. [BL -2]
		CO-3	Use better critical ability [BL-3]
		CO-4	Relate what they have understood (human values, human relationship and human society). [BL -3]
		CO-5	Use what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction. [BL-3]
Database Management Systems Lab	**19A05302P**	CO-1	Design a database of any real world problem
		CO-2	Define the database SQL queries.
		CO-3	Implement the PL/SQL programs.
Object Oriented Programming Through Java Lab	**19A05303P**	CO-1	Recognize the java programming environment.
		CO-2	Develop efficient programs using multi threading.
		CO-3	Extend the programming functionality supported by java.
Python Programming Lab	**19A05304P**	CO-1	Design solutions to mathematical problems.
		CO-2	Organize the data for solving the problems.
		CO-3	Develop python program for numerical and text based problems.
Environmental Science	**19A99301**	CO-1	Apply various water conservation methods and conservation of other natural resources also.
		CO-2	Identify the importance of environmental education for protection of life cycles of various bio systems
		CO-3	Explain innovative methods for controlling of environmental pollution
		CO-4	Analyze environmental issues related to society and find solutions for environmental problems.

		CO-5	Analyze the effects of increasing human population as well as health's associated problems
Number Theory and Applications	**19A54401**	CO-1	Find The Solution by applying the properties of factorization, the division algorithm, greatest common divisors,(L-1)
		CO-2	Solvet he linear diplontic equation by using congruence methods.(L-3)
		CO-3	Solve the system of linear congruence equations by using the matrix method. (L-3)
		CO-4	Develop the file storage and tournament schedules by using hashing functions, Round-robin methods(L-6)
		CO-5	Develop security codes by encryption methods(L-6)
Computer Organization	**19A05401**	CO-1	Identify the structure function and characteristics of computer systems
		CO-2	Develop the design of various functional units and components of computers.
		CO-3	Experiment with elements of modern instructions sets and their impact on processor design.
		CO-4	Explain the function of each element of a memory hierarchy.
		CO-5	Compare different methods for computer I/O.
Design and Analysis of Algorithms	**19A05402T**	CO-1	Describe the Concepts of Algorithms and Divide and Conquer technique for real time problem solving. (BL-2)
		CO-2	Illustrate Greedy method and Dynamic programming techniques for developing solutions of a given problem. (BL-3)
		CO-3	Apply the Backtracking Techniques for problem solving in trees and graphs. (BL - 3)
		CO-4	Solve the graph based problems through Branch and Bound techniques. (BL - 3)
		CO-5	Develop the algorithms for NP-Hard and NP-Complete problems. (BL - 3)
Entrepreneurship	**19A52401**	CO-1	Develop the nature of entrepreneurship.
		CO-2	Identify the function of the entrepreneur in the successful.
		CO-3	Find an entrepreneurial business idea.
		CO-4	Search personal attributes that enable best use of entrepreneurial opportunities.
		CO-5	Execute entrepreneurial leadership and management style.
Operating	**19A05403T**	CO-1	Construct the fundamentals of windows & Unix commands

Systems		CO-2	Apply the scheduling algorithm for given problem.
		CO-3	Apply the process synchronization concepts using semaphores, bankers algorithm for the given solution.
		CO-4	Develop the various methods in memory allocation and page replacement algorithm.
		CO-5	Make use of various operating system file system.
Software Engineering	**19A05404T**	CO-1	Explain the process to be followed in SDLC.
		CO-2	Define formulate and analyze a problem.
		CO-3	Apply design and testing principles to software project development & design methodology.
		CO-4	Apply the project management and analysis principles software development.
		CO-5	Knowledge about software development life cycle and problem articulation.
Operating Systems Lab	**19A05403P**	CO-1	Demonstrate the fundamentals Unix commands and system calls.
		CO-2	Apply FCFS, SJF, Priority, Round Robin scheduling algorithms.
		CO-3	Experiment an algorithm to detect and avoid deadlock.
Software Engineering Lab	**19A05404P**	CO-1	Acquaint with historical and modern software methodologies
		CO-2	Explain the phases of software projects and practice the activities of each phase
		CO-3	Adopt skills such as distributed version control, unit testing, integration testing, build management, and deployment
Biology For Engineers	**19A99302**	CO-1	Explain about cells& their structure and function, different types of cells & tissues and basics for classification of living organisms.
		CO-2	Explain about bio molecules-structure, function classification and their role in living organisms.
		CO-3	Explain briefly about human physiology.
		CO-4	Explain about DNA, pass and preserve vital information in living organisms.
		CO-5	To know and apply biological principles is different technologies for the production of medicines, through DNA technology.
Formal Languages and Automata Theory	**19A05501**	CO-1	Explain Finite Automata concepts, languages, grammars, and computational models BL[2]
		CO-2	Construct regular expression for the given Finite Automata BL[2]
		CO-3	Discuss concepts of Context Free Grammars like Chomsky,Greibach Normal form and Pumping Lemma theorem BL[2]
		CO-4	Demonstrate Pushdown Automata concepts BL[2]
		CO-5	Explain the concepts in Designing of Turing

			Machines and decidability and undecidability BL[2]
Artificial Intelligence	**19A05502T**	CO-1	**Identify the importance of AI and intelligent agent related to its environment BL[2]**
		CO-2	**Explain the concepts of Solving Problems by searching to solve the problems by systematically BL[2]**
		CO-3	**Explain the conceptts of Reinforcement and Natural Language Processing BL[2]**
		CO-4	**Discuss the concepts invloved in developing programs that translate from one language to another, or recognize spoken words BL[2]**
		CO-5	**Explain the role of Robot in various applications and identify philosophical issues in AI BL[2]**
Object Oriented Analysis Design & Testing	**19A05503T**	CO-1	**Apply the basic concepts of object-oriented techniques BL[2]**
		CO-2	**Design the user's views, contexts and diagrams using UML Modeling Techniques BL[3]**
		CO-3	**Identify the basic issues in reusable design and recognize the basic design patterns [1]**
		CO-4	**Apply OOAD methodology concepts using UML BL[3]**
		CO-5	**Design various test cases for OOAD problems BL[3]**
Computer Networks	**19A05504T**	CO-1	**Explain basic concepts of Computer Networks BL[2]**
		CO-2	**Explain the Principles of Network Applications like HTTP,FTP, DNS etc BL[2]**
		CO-3	**Identify the transport layer services and select the appropriate transport protocol BL[1]**
		CO-4	**Discuss the concepts of Internet Protocol , Virtual Circuits and Routing algorithems BL[2]**
		CO-5	**Identify various concepts & issues of MAC and Error-Detection and**

			Correction Techniques BL[1]
WEB TECHNOLOGIES	**19A05505b**	CO-1	**Apply standard tags of HTML , CSS and different tools like to design webpage attractively BL[3]**
		CO-2	**Apply Java Script, DOM ,DHTML and JSON for Client Side Programming BL[3]**
		CO-3	**Develop Server Side Programming using Servlets,JSP and various constructs for Database Connectivity BL[3]**
		CO-4	**Develop PHP Programs using WAMP and XAMPP Server BL[3]**
		CO-5	**Apply the AJAX and WEB SERVICES concepts for real-time application development BL[3]**
Technical Communication and Presentation Skills	**19A52506a**	CO-1	**Realize the need and importance of technical communication.(BL2)**
		CO-2	**Evaluate the different aspects of non-verbal communication.(BL2)**
		CO-3	**Apply the awareness of features of effective writing. (BL2)**
		CO-4	**Plan, prepare and present individual and group presentations.(BL 2)**
		CO-5	**Evaluate different kinds of methods used for effective presentations.(BL 3)**
Artificial Intelligence Laboratory	**19A05502P**	CO-1	**Explore the methods of implementing algorithms using artificial intelligence techniques BL[3]**
		CO-2	**Illustrate search algorithms BL[3]**
		CO-3	**Demonstrate building of intelligent agents BL[3]**
Computer Networks Laboratory	**19A05504P**	CO-1	**Apply computer networking tools BL[3]**
		CO-2	**Illustrate the working of networking commands BL[3]**
		CO-3	**Simulate computer networks using Ethereal Tool and JAVA BL[3]**
Object Oriented Analysis Design &Testing Lab	**19A05503T**	CO-1	**Design the Model of the software system using UML diagrams BL[3]**
		CO-2	**Apply object-oriented methodology in software design BL[3]**
		CO-3	**Apply testing techniques for object-**

			oriented software BL[3]
Socially Relevant Project	**19A05507**	CO-1	**Demonstrate the contributions to the National/Societal development goals and priorities. BL[2]**
		CO-2	**Extend the Skills through effective application of theoretical concepts BL[2]**
		CO-3	**Build necessary skills as designers and learn about complementary material for human- centered design. BL[3]**
Mandatory course: Constitution of India	**19A99501**	CO-1	**Describe the historical background of the constitution making and its importance for building a democratic India BL[1]**
		CO-2	**Describe the functioning of three wings of the government ie., executive, legislative and judiciary. BL[1]**
		CO-3	**Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy BL[3]**
Cryptography & Network Security	**19A05601**	CO-1	**Apply computer security concepts and encryption techniques to enhance the security in a communication model. *[BL-3]***
		CO-2	**Implement Synchronous and Asynchronous key cryptosystems. [BL -3]**
		CO-3	**Apply hash functions and authentication codes to preserve integration and confidentiality of a message *[BL-3*]**
		CO-4	**Understand Email Security and IPSec Practices. *[BL-2]***
		CO-5	**Design secure applications and risk free computer system. *[BL-3]***
Big Data Analytics	**19A05602T**	CO-1	**Describe Hadoop concepts for storage and analysis of big data (BL-2)**
		CO-2	**Illustrate Hadoop Distributed File Systems for data storage and also prepare Map Reduce programs. (BL-3)**
		CO-3	**Develop the Map Reduce Programming for building distributed programs on**

			clusters of computers.(BL - 3)
		CO-4	**Demonstrate the Hadoop environment for setting up the clusters to run jobs. (BL - 2)**
		CO-5	**Analyze the Big Data by using the tools like Hive, Spark and Hbase (BL - 3)**
English Communication	**19A52601T**	CO-1	Comprehend the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English (BL 2)
		CO-2	Use grammatical structures to formulate sentences and correct word forms (BL 3)
		CO-3	Relate discourse markers to speak clearly on a specific topic in informal discussions (BL 2)
		CO-4	Comprehend reading/listening texts and to write summaries based on global comprehension of these texts. (BL2)
		CO-5	Explain a coherent paragraph interpreting a figure/graph/chart/table (BL 1)
Professional Elective-II (MOOCS) Compiler Design	**19A05603 a**	CO-1	**Identify the passes of compiler to create target program from the intermediate representation. (BL-2)**
		CO-2	**Describe the Lexical Analysis with LEX tool for generating tokensof a program. (BL-2)**
		CO-3	**Construct the parse tables by applying top-down and bottom-up parsing methods to examine the syntax of program constructs. (BL-3)**
		CO-4	**Demonstrate the intermediate code generation concept to translate the source code into the machine code. (BL-2)**
		CO-5	**Analyze the optimization of code technique to generation of a target code of various programs. (BL-4)**
Open Elective-II Soft Skills	**19A52604a**	CO-1	**Apply various soft skills in day to day life and in workplace BL[3]**
		CO-2	**Apply various Intrapersonal Skill techniques to know the self. BL[3]**
		CO-3	**Apply interpersonal skills through etiquettes BL[3]**

		CO-4	**Apply verbal skills in corporate climate. BL[3]**
		CO-5	**Recognize the importance of verbal and non verbal skills BL[1]**
Humanities Elective-I	**19A02704a**	CO-1	Understand the role and responsibilities of a managerial economist in modern business scenario.(BL-2)
		CO-2	Apply the demand of a product by using demand forecasting methods.(BL-3)
		CO-3	Apply the Break Even Point (BEP) with the help of production and cost analysis.(BL-3)
		CO-4	Understand their learning's about competitive markets and business economic environment.(BL-2)
		CO-5	Analyze the process of preparing financial statements to know financial position of the firm.(BL-4)
Big Data Analytics Laboratory	**19A05602P**	CO-1	Apply the concepts of Hadoop distributions, configuring to perform File management tasks BL[3]
		CO-2	Experiment Map Reduce in Hadoop frameworks BL[3]
		CO-3	Apply Big Data Analytics approaches for building Hadoop programs for real- time applications BL[3]
English Communication lab	**19A52601P**	CO-1	Apply the knowledge of structure and style in a presentation, identify the audience and make note of key points BL[3]
		CO-2	Apply Listening, Speaking, Reading and Writing skills in corporate climate BL[3]
		CO-3	Debate in group discussions using appropriate conventions and language strategies BL[4]
Socially Relevant Project	**19A05605**	CO-1	Demonstrate the contributions to the National/Societal development goals and priorities. BL[2]
		CO-2	Extend the Skills through effective application of theoretical concepts BL[2]
		CO-3	Build necessary skills as designers and learn about complementary material for human- centered design. BL[3]
Mandatory Course: Research Methodology	**19A99601**	CO-1	Apply the basic concepts of research and research problem BL[3]
		CO-2	Apply methods of data collection, sampling and design survey questionnaires for a research Problem BL[3]
		CO-3	Apply the knowledge of Correlation and Regression Analysis to get the results BL[3]
		CO-4	Apply various Statistical Inference for data analysis BL[3]

		CO-5	Design a research paper without any ethical issues BL[3]
Comprehensive online examination	**19A05606**	CO-1	Demonstrate knowledge in the Computer science and Information technology domain. (BL-2)
		CO-2	Demonstrate the domain knowledge of computer science & engineering to enhance their professional skills in practice. (BL-2)
		CO-3	Illustrate the overall knowledge in the relevant field of Engineering acquired over 4 years of study in the undergraduate program.(BL-2)
Internet of Things	**19A05701T**	CO-1	Interpret the design principles that govern connected devices [BL2]
		CO-2	Develop simple applications using Raspberry Pi and Arduino [BL3]
		CO-3	Evaluate and develop a solution for a given application using APIs [BL3]
		CO-4	Build the business model [BL]
		CO-5	Interpret the manufacturing techniques [BL2]
Software Testing	**19A05702T**	CO-1	Illustrate the purpose of testing and adequacy assessment using control flow and path testing techniques. (BL-2)
		CO-2	Demonstrate the strategies in dataflow testing to find the test paths of a program. (BL-2)
		CO-3	Identify the boundary points using Domain testing to access appropriate output of a system. (BL-3)
		CO-4	Simplify the path from flow graph using reduction procedure of a program. (BL-4)
		CO-5	Demonstrate the states and state graph strategies of a program. (BL-2)
Professional Elective-III-Agile Methodology	**19A05703c**	CO-1	Interpret importance of Agile and the philosophy behind being Agile *[BL-2]*
		CO-2	Apply the XP practices to excel the programmers as mindful developers [BL -3]
		CO-3	Explain the importance of documentation and process of pushing software into production *[BL-3*]
		CO-4	Apply the practices that allow controlling the chaos of endless possibility. *[BL-3]*
		CO-5	Apply Extreme Programming methods for real-time situations *[BL-3]*
Open Elective-III-Software Testing	**19A52701b**	CO-1	Understand the concepts of Solar Radiation and solar collectors (BL-2)
		CO-2	Understand the concept of PV effect in silicon cells and characteristics (BL-2)
		CO-3	Understand the basics of wind energy conversion system and its design (BL-2)
		CO-4	Interpret the concept of geo thermal energy and its applications. (BL-2)
		CO-5	Understand the concept of biomass energy, Ocean

			energy and fuel cell (BL-2)
Humanities Elective-II	**19A52701b**	CO-1	Demonstrate the fundamental knowledge of Management, administration, organization. (BL2)
		CO-2	understand the role of management in Production (BL2)
		CO-3	Explain the importance of human resources for an organization.(BL2)
		CO-4	Outline the strategy formulation and implementation and project management techniques. (BL2)
		CO-5	Explain the contemporary issues in the management.(BL2)
Software Testing Lab	**19A05702P**	CO 1	Choose the sensors and actuators for an IoT application (BL-3)
		CO 2	Use the cloud platform and APIs for IoT application (BL3)
		CO 3	Prepare solutions for a given IoT application (BL-3)
Internet of Things Lab	**19A05701P**	CO 1	Choose the sensors and actuators for an IoT application (BL-3)
		CO 2	Use the cloud platform and APIs for IoT application (BL3)
		CO 3	Pepare solutions for a given IoT application (BL-3)
Industrial Training/SkillDevelopment/Research Project	**19A05705**	CO 1	Apply new technology or sharpen skills in relevant field
		CO 2	Relate the Skills attained in association with Industry working in relevant technology
		CO 3	Build an Industry Level Project during the training