Course Outcomes (COs)

Department of

Artificial Intelligence and Machine Learning

Programme Name: B.E.-Artificial Intelligence and Machine Learning

CONTENTS

2022 Scheme(UG)

Course Outcomes of Second -Year Courses

Course Name	Mathematics for Computer Science
Course Code	BCS301
Course outcomes (COs): At the end of the course the student will be able to:	
BCS301.1	Illustrate the basic concepts of– Probability distribution, Markov chain, Statistical inference and Design of experiments.
BCS301.2	Apply suitable probability distribution models and design of experiments for the given scenario in Computer science & engineering.
BCS301.3	Analyze & solve engineering problems using Statistical methodology and tools.
BCS301.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	Digital Design and Computer Organization
Course Code	BAI302
Course outcomes (COs): At the end of the course the student will be able to:	
BAI302.1	Understand Digital Logic, Processor memory and inter device communication
BAI302.2	Analyze Digital circuits,internal Organization of Memoryand understandProcessor performance
BAI302.3	Design combinational circuits and sequential circuits using Verilog code and implement interconnection of processor and peripheral devices.
BAI302.4	Optimize digital circuits using Mathematical and Verilog tools and evaluate Processor performance Including Impact of cache/Pipelining.

Course Name	Operating Systems
Course Code	BAI303
Course outcomes (COs): At the end of the course the student will be able to:	
BAI303.1	Demonstrate the structure and functions of the operating system and its needs
BAI303.2	Apply suitable techniques for management of different resources
BAI303.3	Analyze processes, threads, memory, storage and scheduling algorithms
BAI303.4	Analyze I/O management and file system, concepts of protection and security.

Course Name	Data Structures and Applications
Course Code	BAIL304
Course outcomes (COs): At the end of the course the student will be able to:	
BAIL304.1	Explore the fundamental concepts of data structures
BAIL304.2	Apply suitable operations on data structures
BAIL304.3	Design and Develop algorithms that make use of data structures
BAIL304.4	Implement solution for solving problems using high level languages with suitable data structure algorithms

Course Name	Data Structures Laboratory
Course Code	BAIL305
Course outcomes (COs): At the end of the course the student will be able to:	
BAIL305.1	Identify various linear and non-linear data structures.
BAIL305.2	Implement various operations of linear and non-linear data structure.
BAIL305.3	Analyze various operations of linear and non-linear data structure.
BAIL305.4	Experiment with appropriate tools to edit, compile, and execute programs on data structures and document it.

2021 Scheme(UG)

Course Outcomes of Second-Year Courses

Course Name	Transform Calculus, Fourier Series and Numerical Techniques
Course Code	MAT31
Course outcomes (COs): At the end of the course the student will be able to:	
MAT31.1	lustrate the concepts of– Laplace, Fourier & Z transformation, Fourier series , Numerical solutions DE & ODE and Calculus of variation .
MAT31.2	Apply the above acquired knowledge to solve the problems in engineering.
MAT31.3	Analyze the solutions of the real world problems using above techniques.
MAT31.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical suit ations .

Course Name	Data Structures and Applications
Course Code	21CS32
Course outcomes (COs): At the end of the course the student will be able to:	
21CS32.1	Explore the fundamental concepts of data structures
21CS32.2	Apply suitable operations on data structures
21CS32.3	Design and Develop algorithms that make use of data structures
21CS32.4	Implement solution for solving problems using high level languages with suitable data structure algorithms

Course Name	Analog and Digital Electronics
Course Code	21CS33
Course outcomes (COs): At the end of the course the student will be able to:	
21CS33.1	Explain the characteristics and applications of BJT,OP-Amp,555 timer and digital circuits
21CS33.2	Illustrate analog and digital circuits
21CS33.3	Design analog and digital circuits using simplifying techniques.
21CS33.4	Demonstrate and test analog and digital circuits

Course Name	Computer Organization and Architecture
Course Code	21CS34
Course outcomes (COs): At the end of the course the student will be able to:	
21CS34.1	Explain the basic organization of a computer system
21CS34.2	Experimenting the functioning of different sub systems, such as processor, input/output, and memory
21CS34.3	Analyse the different arithmetic and logical units.
21CS34.4	Illustrate hardwired control and micro programme

Course Name	Object Oriented Programming with JAVA Laboratory
Course Code	21CSL35
Course outcomes (COs): At the end of the course the student will be able to:	
21CSL35.1	Analyse the necessity for Object Oriented Programming paradigm over structured programming and become familiar with the fundamental concepts in OOP.
21CSL35.2	Demonstrate the ability to design and develop java programs, analyse, and interpret object-oriented data and document results
21CSL35.3	Apply object-oriented concepts using Java to develop programs
21CSL35.4	Develop user friendly applications using Console based I/O GUI/ File concepts

Course Name	Programming in C++
Course Code	21CS382
Course outcomes (COs): At the end of the course the student will be able to:	
21CS382.1	Understand the basics of object-oriented programming concepts and design a solution to a problem using class types, function operations.
21CS382.2	Apply the code reusability and extensibility functionalities using object oriented features.
21CS382.3	Analyze the file handling mechanisms and explore the Performance analysis of I/O Streams.
21CS382.4	Implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems.

Course Name	Mathematical Foundation for Computing, Probability and Statistics
Course Code	21MATCS41
Course outcomes (COs): At the end of the course the student will be able to:	
21MATCS41.1	Illustrate the fundamental concepts of– Fundamentals of logic, Relations & Functions, Graph theory, Probability distributions, Statistical methods and Sampling theory.
21MATCS41.2	Apply the acquired knowledge of - Fundamentals of logic, Relations & Functions, Graph theory, Probability distributions, Statistical methods and Sampling theory in Computer science & engineering.
21MATCS41.3	Analyze the solutions of the problem using appropriate techniques of -Fundamentals of logic, Relations & Functions, Graph theory, Probability distributions, Statistical methods and Sampling theory.
21MATCS41.4	Interpret the overall knowledge of -- Fundamentals of logic, Relations & Functions, Graph theory, Probability distributions, Statistical methods and Sampling theory.

Course Name	Design and Analysis of Algorithms
Course Code	21CS42
Course outcomes (COs): At the end of the course the student will be able to:	
21CS42.1	Analyze the performance of the algorithms, state the efficiency using asymptotic notations and analyze mathematically the complexity of the algorithm
21CS42.2	Apply Master Theorem to compute time efficiency of recursive algorithms and compare efficiency of algorithms
21CS42.3	Solve various problems using appropriate design techniques and compare efficiency of algorithms
21CS42.4	Experiment with various design techniques to solve problems

Course Name	Microcontroller and Embedded Systems
Course Code	21CS43
Course outcomes (COs): At the end of the course the student will be able to:	
21CS43.1	Describe the architectural features and instructions of ARM microcontroller.
21CS43.2	Apply the knowledge gained for Programming ARM for different applications
21CS43.3	Interface external devices with ARM microcontroller and interpret the basic hardware components and their selection method based on the characteristics and attributes of an embedded system
21CS43.4	Develop the hardware /software co-design, firmware design approaches and demonstrate the need of real time operating system for embedded system application

Course Name	Operating System
Course Code	21CS44
Course outcomes (COs): At the end of the course the student will be able to:	
21CS44.1	Demonstrate the structure and functions of the operating system and its needs
21CS44.2	Apply suitable techniques for management of different resources
21CS44.3	Analyze processes, threads, memory, storage and scheduling algorithms
21CS44.4	Analyze I/O management and file system, concepts of protection and security.

Course Name	Python Programming Laboratory
Course Code	21CSL46
Course outcomes (COs): At the end of the course the student will be able to:	
21CSL46.1	Explain programming features of python and other data structures lists, tuples and dictionaries.
21CSL46.2	Apply various features of python to solve problems
21CSL46.3	Interpret the concepts of Object-Oriented Programming as used in Python.
21CSL46.4	Explore the need for scraping websites and working with PDF, JSON and other file formats

Course Name	Web Programming
Course Code	21CS481
Course outcomes (COs): At the end of the course the student will be able to:	
21CS481.1	Understand the fundamentals of Web Technology, HTML, CSS, Javascript.
21CS481.2	Apply the CSS properties to design a web page
21CS481.3	Design the dynamic interactive web page using JavaScript.
21CS481.4	Develop a website that is attractive, interactive, dynamic, and responsive.

Course Outcomes of Third-Year Courses

Course Name	Automata Theory and Compiler Design
Course Code	21CS51
Course outcomes (COs): At the end of the course the student will be able to:	
21CS51.1	Explain the core concepts of automata theory and theory of computation and the structure of compiler.
21CS51.2	Apply the concepts of automata theory and theory of computation to design the different phases of compiler.
21CS51.3	Design regular and context free grammars for different classes of language and make use of these concepts in compiler design.
21CS51.4	Design computation models for problems in Automata theory and adaptation of such model in the field of compilers.

Course Name	Computer Networks
Course Code	21CS52
Course outcomes (COs): At the end of the course the student will be able to:	
21CS52.1	Understand the basic needs of communication system
21CS52.2	Interpret the communication challenges and its solution
21CS52.3	Identify and organize the communication system network components
21CS52.4	Design communication networks for user requirements

Course Name	Database management system
Course Code	21CS53
Course outcomes (COs): At the end of the course the student will be able to:	
21CS53.1	Outline the components of DBMS, Identify and define database objects to build ER diagram for database.
21CS53.2	Summarize relational model concepts, enforce integrity constraint on a database and Construct an Entity-Relationship (E-R) model from specifications along with the
21CS53.3	Make use of Structured Query Language (SQL) for database manipulation and Develop simple application to interact with databases.
21CS53.4	Apply the normalization process for effective database design, demonstrate components of transaction processing, recovery strategies and choose different concurrency control

Course Name	Principles of Artificial Intelligence
Course Code	21AI54
Course outcomes (COs): At the end of the course the student will be able to:	
21AI54.1	Gain the basic knowledge of AI in relevance to simple real world problems
21AI54.2	Be able to apply the understand role of AI in various problem solving using informed and uninformed strategies.
21AI54.3	Able to understand and apply inference strategies for various applications.
21AI54.4	Explain and apply the use of AI agents to formulate knowledge based sentences and use of probability in various inference techniques .

Course Name	DBMS laboratory with mini project
Course Code	21CSL55
Course outcomes (COs): At the end of the course the student will be able to:	
21CSL55.1	Apply the database concepts, technology and create the relations by specifying primary and foreign keys.
21CSL55.2	Construct a database by using data definition, data manipulation and control languages
21CSL55.3	Design a Database application and retrieve the values with the help of queries using SQL.
21CSL55.4	Implement, analyse and evaluate the project developed for an application

Course Name	Software engineering and Project Management
Course Code	21CS61

Course outcomes (COs): At the end of the course the student will be able to:

21CS61.1	Understand the activities involved in software engineering
21CS61.2	Explain the basics of object-oriented concepts and build a suitable class model using modeling techniques
21CS61.3	Describe various software testing methods and to understand the importance of agile methodology and DevOps
21CS61.4	Illustrate the role of project planning and quality management in software development

Course Name	Data Science and its applications
Course Code	21AD62

Course outcomes (COs): At the end of the course the student will be able to:

21AD62.1	Identify and demonstrate data using visualization tools
21AD62.2	Make use of Statistical hypothesis tests to choose the properties of data, curate and manipulate data.
21AD62.3	Utilize the skills of machine learning algorithms and techniques and develop models
21AD62.4	Experiment with social network analysis and make use of natural language processing skills to develop data driven applications

Course Name	Machine Learning
Course Code	21AI63

Course outcomes (COs): At the end of the course the student will be able to:

21AI63.1	Understand the fundamental concepts of Machine Learning and Concept Learning.
21AI63.2	Apply Machine Learning and classification methods to a real-world project.
21AI63.3	Analyze various training models in Machine Learning, including the implementation of the SVM algorithm.
21AI63.4	Demonstrate the application of Machine Learning concepts in constructing decision tree structures and implementing Ensemble Learning, such as Random Forest.

Course Name	Machine Learning Laboratory
Course Code	21AIL66

Course outcomes (COs): At the end of the course the student will be able to:	
21AIL66.1	Understand the importance of Fundamentals of Machine Learning algorithm
21AIL66.2	Demonstrate various Machine Learning Algorithm using different dataset.
21AIL66.3	Analyze the working of different machine learning algorithm using different data sets.
21AIL66.4	Compare and contrast the principles of different algorithm in the context of machine learning.

Course Outcomes for Fourth Year Courses

Course Name	Advanced AI and ML
Course Code	**21AI71**
Course outcomes (COs): At the end of the course the student will be able to:	
21AI71.1	Gain a strong understanding of the fundamentals of Intelligent Agents in Artificial Intelligence.
21AI71.2	Apply the principles of reasoning with Uncertain Knowledge to make informed decisions in AI contexts.
21AI71.3	Analyze the role of Explanation-Based Learning in solving AI problems, assessing its effectiveness and limitations.
21AI71.4	Demonstrate the effective application of Machine Learning algorithms to solve real-world problems, showcasing practical AI problem-solving skills.

Course Name	Cloud Computing
Course Code	**21CS72**
Course outcomes (COs): At the end of the course the student will be able to:	
21CS72.1	Understand and analyse various cloud computing platforms and service provider
21CS72.2	Illustrate various virtualization concepts.
21CS72.3	Identify the architecture, infrastructure and delivery models of cloud computing.
21CS72.4	Understand the Security aspects of CLOUD and develop cloud applications.

18 Scheme (UG)
Course Outcomes for Second Year

Course Name	Transform Calculus,Fourier Series & Numerical Techniques
Course Code	18MAT31
Course outcomes (COs): At the end of the course the student will be able to:	
18MAT31.1	Illustrate the concepts of– Laplace, Fourier & Z transformation, Fourier series, Numerical solutions of ODE and Calculus of variation .
18MAT31.2	Apply the above acquired knowledge to solve the problems in engineering.
18MAT31.3	Analyze the solutions of the real world problems using above techniques.
18MAT31.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	Data structures and applications
Course Code	18CS32
Course outcomes (COs): At the end of the course the student will be able to:	
18CS32.1	Explore the fundamental concepts of data structures.
18CS32.2	Apply suitable operations on data structures
18CS32.3	Develop algorithms that make use of data structures
18CS32.4	Implement solution for solving problems using high level languages

Course Name	Analog and digital electronics
Course Code	18CS33
Course outcomes (COs): At the end of the course the student will be able to:	
18CS33.1	Recognize the application and working of Analog devices, Amplifiers and Converters.
18CS33.2	Illustrate different methods for Boolean expression minimization like Kmap method, Quine-Mclusky method .
18CS33.3	Implementation of combinational circuit using different application.
18CS33.4	Construct components of sequential circuits and their applications using kmap method.

Course Name	Computer organization
Course Code	18CS34
Course outcomes (COs): At the end of the course the student will be able to:	
18CS34.1	Explain the basic organization of a computer system
18CS34.2	Demonstrate functioning of different sub systems, such as processor, input/output, and memory
18CS34.3	Illustrate hardwired control and micro programmed control, pipelining, and other computing systems.
18CS34.4	Design and analyse simple arithmetic and logical units

Course Name	Software engineering
Course Code	18CS35
Course outcomes (COs): At the end of the course the student will be able to:	
18CS35.1	Outline software engineering principles and activities involved in building large software programs. Identify ethical and professional issues and explain why they are of concern to software engineers.
18CS35.2	Explain fundamentals of object-oriented concepts using UML.
18CS35.3	Apply the Knowledge of system models for design and development of software.
18CS35.4	Plan the software testing strategy and use various metrics for evolution process and apply the techniques, skills, modern engineering tools for project planning and identify software quality parameters using measurements and metrics

Course Name	Discrete Mathematical Structures
Course Code	18CS36

Course outcomes (COs): At the end of the course the student will be able to:

18CS36.1	Illustrate the concepts of– Logic, principles of counting, Relations and Functions, Recurrence relation and Graph theory .
18CS36.2	Apply the above acquired knowledge to solve the problems in Computer science and engineering.
18CS36.3	Analyze the solutions of the real world problems using above suitable techniques.
18CS36.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	Analog and digital electronics laboratory
Course Code	18CSL37

Course outcomes (COs): At the end of the course the student will be able to:

18CSL37.1	Demonstrate the working of various basic gates.
18CSL37.2	Design various analog circuit using different ICS and other components and test for the given appropriate inputs.
18CSL37.3	Implement combinational and sequential circuit using different ics, flip flops and registers.
18CSL37.4	Experiment various analog and digital circuits using appropriate simulation tool.

Course Name	Data structures laboratory
Course Code	18CSL38

Course outcomes (COs): At the end of the course the student will be able to:	
18CSL38.1	Identify various linear and non-linear data structures
18CSL38.2	Implement various operations of linear and non-linear data structure.
18CSL38.3	Analyse various operations of linear and non-linear data structure.
18CSL38.4	Experiment with appropriate tools to edit, compile, and execute programs on data structures and document it

Course Name	Constitution of India, professional ethics & Cyber law
Course Code	18CPC39/49

Course outcomes (COs): At the end of the course the student will be able to:	
18CPC39.1/49.1	Have constitutional knowledge and legal literacy.
18CPC39.2/49.2	Understand the profession and Professional ethics and responsibilities of an Architect/Engineer / Management person.
18CPC39.3/49.3	Know the fundamental political structure & codes, procedures, powers, and duties of Indian government institutions, fundamental rights, directive principles, and the duties of citizens.
18CPC39.4/49.4	Understand engineering ethics and their responsibilities, identify their individual roles and ethical responsibilities towards society.

Course Name	Complex Analysis, Probability And Statistical Methods
Course Code	18MAT41

Course outcomes (COs): At the end of the course the student will be able to:	
18MAT41.1	Illustrate the concepts of– complex functions, transformation, Probability distributions and Statistical methods.
18MAT41.2	Apply the above acquired knowledge to solve the problems in engineering.
18MAT41.3	Analyze the solutions of the real world problems using above techniques.
18MAT41.4	Interpret the overall knowledge gained to demonstrate the problems arising in practical situations.

Course Name	Design and analysis of algorithms
Course Code	18CS42

Course outcomes (COs): At the end of the course the student will be able to:	
18CS42.1	Explain various computational problem-solving techniques
18CS42.2	Apply appropriate method to solve a given problem
18CS42.3	Describe various methods of algorithm analysis
18CS42.4	Estimate the performance of various algorithms

Course Name	Operating systems
Course Code	18CS43

Course outcomes (COs): At the end of the course the student will be able to:

18CS43.1	Demonstrate the structure and functions of the operating system and its needs
18CS43.2	Apply suitable techniques for management of different resources.
18CS43.3	Analyze processes, threads, memory, storage and scheduling algorithms.
18CS43.4	Analyze I/O management and file system, concepts of protection and security.

Course Name	Micro controller and embedded systems
Course Code	18CS44

Course outcomes (COs): At the end of the course the student will be able to:

18CS44.1	Understand the fundamentals and architecture of ARM based systems.
18CS44.2	Interpret the basic hardware components and their selection method based on the characteristics and attributes of an embedded system
18CS44.3	Explain ARM instructions, embedded system design and need of Operating system for Embedded system design
18CS44.4	Write assembly language programs/ embedded C program for suitable purposes

Course Name	Object oriented concepts
Course Code	18CS45
Course outcomes (COs): At the end of the course the student will be able to:	
18CS45.1	Understand the basics of object-oriented programming using C++ and JAVA.
18CS45.2	Apply object-oriented concepts to write C++/Java programs.
18CS45.3	Develop Java programs using Classes, Inheritance, interface, Exception handling and multi-threaded concepts to solve real world problems.
18CS45.4	Develop GUI applications using Swing components and Event handling mechanisms

Course Name	Data communication
Course Code	18CS46
Course outcomes (COs): At the end of the course the student will be able to:	
18CS46.1	Enables students to understand the operation of the components in a data communication network and the functional relationships of these components.
18CS46.2	Understand basics of data communication, networking, switching, internet and their importance.
18CS46.3	Analyze the services and features of various protocol layers in data networks.
18CS46.4	Analyse the different protocols and IEEE 802.xx standards

Course Name	Design and analysis of algorithms laboratory
Course Code	18CSL47

Course outcomes (COs): At the end of the course the student will be able to:

18CSL47.1	Design algorithms using appropriate design techniques
18CSL47.2	Implement a variety of algorithms such as sorting, graph related problems, combinatorial, etc., in a high level language
18CSL47.3	Analyze and compare the performance of algorithms using language features
18CSL47.4	Apply and implement learned algorithm design techniques and data structures to solve real world problems

Course Name	Microcontroller and embedded systems laboratory
Course Code	18CSL48

Course outcomes (COs): At the end of the course the student will be able to:

18CSL48.1	Recall ARM instruction set to develop programs
18CSL48.2	Demonstrate the application development for ARM microcontroller using Keil Micro version - 4
18CSL48.3	Develop and test Assembly level program using ARM7TDMI/LPC2148 Keil Uvision-4 tool/compiler
18CSL48.4	Make use of ARM embedded C programs to interface external devices.

Course Outcomes of Third-Year Courses

Course Name	Management and entrepreneurship for IT industry
Course Code	18CS51
Course outcomes (COs): At the end of the course the student will be able to:	
18CS51.1	Understand the meaning of directing, Leadership styles, motivation theories, and communication and to establish controlling methods
18CS51.2	Understand the meaning and function of Entrepreneur, the role of Entrepreneur in the economic development and to identify business opportunities along with feasibility studies
18CS51.3	Understand the procedure to prepare project report and to study Enterprise Resource Planning
18CS51.4	Understand the Micro and small enterprise and to Infer the importance of intellectual property rights and relate the institutional support

Course Name	Python programming
Course Code	18AI52
Course outcomes (COs): At the end of the course the student will be able to:	
18AI52.1	Understand the syntax and semantics of Python programming language, including the ability to read and interpret Python code and write basic programs that utilize variables, conditional statements, loops, and functions.
18AI52.2	Apply data structuring techniques using Python's built-in data types such as lists, tuples, and dictionaries to organize and manipulate data effectively.
18AI52.3	Demonstrate the use of built-in functions and libraries in Python to navigate the file system, read and write files, and work with various file formats such as Excel, PDF, and Word.
18AI52.4	Develop proficiency in Object-Oriented Programming concepts and design patterns in Python, including the creation of classes, objects, and inheritance, to build modular, reusable, and maintainable software solutions

Course Name	Database management system
Course Code	18CS53
Course outcomes (COs): At the end of the course the student will be able to:	
18CS53.1	Outline the components of DBMS, Identify and define database objects to build ER diagram for database.
18CS53.2	Summarise relational model concepts, enforce integrity constraint on a database and Construct an Entity-Relationship (E-R) model from specifications along with the transformation of the conceptual
18CS53.3	Make use of Structured Query Language (SQL) for database manipulation and Develop simple application to interact with databases.
18CS53.4	Apply the normalization process for effective database design, demonstrate components of transaction processing, recovery strategies and choose different concurrency control mechanisms of DBMS"

Course Name	Automata Theory And Computability
Course Code	18CS54
Course outcomes (COs): At the end of the course the student will be able to:	
18CS54.1	Explain the fundamental understanding of the core concepts in automata theory and Theory of Computation.
18CS54.2	Explain different types of automata, formal languages and classification of problems based on different models of computation
18CS54.3	Demonstrate and compare different types of automata and formal languages for computational model.
18CS54.4	Apply appropriate automata theory and families of automaton such as FSM, PDA, TM etc. for modelling and solving real time computing problems

Course Name	Principles Of Artificial Intelligence
Course Code	18AI55

Course outcomes (COs): At the end of the course the student will be able to:	
18AI55.1	Apply the basic knowledge of AI to write simple search algorithms to solve real world problems
18AI55.2	Able to list various AI applications and will be able to appreciate the need of predicate logic and apply the same to solve basic AI problem
18AI55.3	Able to apply, analyze different control and reasoning strategies for gaming applications to solve knowledge based engineering problems
18AI55.4	Develop knowledge base sentence using FOL and various other representations and apply the same to solve advanced problems using various planning strategies to develop an Expert system

Course Name	Mathematics For Machine Learning
Course Code	18AI56

Course outcomes (COs): At the end of the course the student will be able to:	
18AI56.1	Understand the skills and knowledge in linear algebra to get more out of machine learning.
18AI56.2	Analyse the vector calculus required to build many common machine learning techniques.
18AI56.3	Analyse the probability and distribution in statistics to build machine learning applications.
18AI56.4	Implement the basic theoretical properties of optimization problems, for applications in machine learning

Course Name	Artificial Intelligence Laboratory
Course Code	18AIL57

Course outcomes (COs): At the end of the course the student will be able to:

18AIL57.1	Explain the various search algorithms and reasoning strategies used to solve some of the basic AI problems using python programming language.
18AIL57.2	Evaluate and analyse various search algorithms used to solve the AI problems.
18AIL57.3	Install the requried software and use different modules / libraries/packages to solve the problem
18AIL57.4	Implement and demonstrate the working of some of the AI algorithms and specify and explain the algorithms / theory/ strategies used in the record books.

Course Name	DBMS Laboratory With Mini Project
Course Code	18CSL58

Course outcomes (COs): At the end of the course the student will be able to:

18CSL58.1	Apply the database concepts, technology and create the relations by specifying primary and foreign keys.
18CSL58.2	Construct a database by using data definition, data manipulation and control languages
18CSL58.3	Design a Database application and retrieve the values with the help of queries using SQL.
18CSL58.4	Implement, analyse and evaluate the project developed for an application

Course Name	Machine Learning
Course Code	18AI61

Course outcomes (COs): At the end of the course the student will be able to:

18AI61.1	Explain the basic theory of Machine Learning.
18AI61.2	Illustrate the use of different techniques and Algorithms of ML in problem-solving.
18AI61.3	Apply appropriate ML techniques to learn concept learning, Decision tree, and Artificial neural networks.
18AI61.4	Apply appropriate ML algorithms for Classification, Regression , Reinforcement learning Problems.

Course Name	Digital image processing
Course Code	18AI62

Course outcomes (COs): At the end of the course the student will be able to:18AI62

18AI62.1	Explain the fundamentals of Digital Image Processing techniques.
18AI62.2	Explain the different transformation techniques and Algorithms in DIP
18AI62.3	Explain, and compare appropriate DIP techniques and demonstrate Image Enhancement, Restoration, Color image processing, Morphological processing, and Segmentation.
18AI62.4	Apply appropriate DIP algorithms and Transformations to solve various Image-processing problems in different image-processing applications

Course Name	Java For Mobile Applications
Course Code	18AI63

Course outcomes (COs): At the end of the course the student will be able to:

18AI63.1	To interpret the need for advanced java concepts like enumeration, collection, type of string handing and android programming concepts .
18AI63.2	To demonstrate the advanced constructor in java and Android programming
18AI63.3	To illustrate the java and Android programming concepts like annotation, algorithm for collection, string buffer methods in Java and linking activities in android programming.
18AI63.4	To implement a solution for a given problem using suitable java and Android programming concepts.

Course Name	Web Programming
Course Code	18AI643

Course outcomes (COs): At the end of the course the student will be able to:

18AI643.1	Understand the fundamental concepts of different types of web technologies.
18AI643.2	Apply basic skills to construct simple web pages using client and Server-Side technologies.
18AI643.3	Develop hands-on experience using on HTML, CSS, JavaScript, PHP and jQuery, AJAX using different IDE
18AI643.4	Implement real-time application using markup languages, server-side programming and Web Services

Course Name	Machine Learning Laboratory

Course Code	18AIL66
Course outcomes (COs): At the end of the course the student will be able to:	
18AIL66.1	Analyse and demonstrate various Hypothesis Testinng Algorithms.
18AIL66.2	Analyse and Demonstrate Pre-processing (Data Cleaning, Integration and Transformation) activity
18AIL66.3	Implement and Demonstrate ML classification, regression Algorithms.
18AIL66.4	Experiment with appropriate tools to edit, compile, and execute programs on ML and document it

Course Name	Digital Image Processing Laboratory With Mini Project
Course Code	18AIL67
Course outcomes (COs): At the end of the course the student will be able to:	
18AIL67.1	Explain the fundamentals of digital image processing techniques.
18AIL67.2	Analyse various techniques and transforms used to solve the DIP problems.
18AIL67.3	Install the required software and use different modules/libraries/packages to solve the problem using digital image processing techniques, transforms and algorithms.
18AIL67.4	Implement and demonstrate the working of some of the DIP algorithms and specify and explain the algorithms/theory/ techniques used in the record books and through the mini-project report.

Course Name	Mobile Application Development Laboratory
Course Code	18AIL68
Course outcomes (COs): At the end of the course the student will be able to:	
18AIL68.1	Build an application using Android development environment.
18AIL68.2	Experiment with the method of storing, sharing and retrieving the data in Android Applications.
18AIL68.3	Examine responsive user interface across wide range of devices.
18AIL68.4	Create a mobile Application by using various components like activity, views, services, content providers and receivers.

Course Outcomes of Fourth -Year Courses

Course Name	Advanced Artificial Intelligence
Course Code	18AI71

Course outcomes (COs): At the end of the course the student will be able to:	
18AI71.1	Gain the knowledge about intelligent agents ,the use of uncertain and probabilistic knowledge ,inference and reasoning, perception and language modeling used in AI
18AI71.2	Describe the role of AI agents in problem solving using perception,language modeling,uncertain and probabilistic reasoning techniques.
18AI71.3	Apply various AI problem solving strategies to solve real world problems
18AI71.4	Explain various computing algorithms and apply the knowledge to develop AI based applications

Course Name	Advanced Machine Learning
Course Code	18AI72

Course outcomes (COs): At the end of the course the student will be able to:	
18AI72.1	Understand the fundamentals of ML algorithms, HMM, Recommendation systems and neural networks
18AI72.2	Apply the concepts of ML algorithms to solve the real world problems
18AI72.3	Analyze the ML algorithms.
18AI72.4	Compare the performance of different ML algorithm and derive the inference.

Course Name	Cloud Computing and Virtualization
Course Code	18AI734

Course outcomes (COs): At the end of the course the student will be able to:

18AI734.1	Compare the strengths and limitations of cloud computing
18AI734.2	Identify the architecture, infrastructure and delivery models of cloud computing
18AI734.3	Demonstrate the working of VM and VMM on any cloud platforms(public/private), and run a software service on that
18AI734.4	Identify the known threats, risks, vulnerabilities and privacy issues associated with Cloud based IT services.

Course Name	Business Intelligence
Course Code	18AI744

Course outcomes (COs): At the end of the course the student will be able to:

18AI744.1	Apply the concept of data and business to understand decision support systems and business intelligence framework.
18AI744.2	Illustrate the significance of computerized decision support, models for decision making, data warehouse process view, knowledge management activities and knowledge engineering
18AI744.3	Design the architecture of BI, data warehouse ,the mathematical modelling behind decision support and development of expert system and explore knowledge management approaches and its implementation.
18AI744.4	Describe Work system view of decision support ,sensitivity analysis, areas suitable for application of expert system, data warehouse extraction , transformation and load(ETL) process, information technology in knowledge management and areas suitable for application of expert system .

Course Name	AI and ML Application Development Laboratory
Course Code	18AIL76

Course outcomes (COs): At the end of the course the student will be able to:

18AIL76.1	Understand the fundamentals concepts of supervised, unsupervised and Reinforcement Algorithms
18AIL76.2	Demonstrate the working of various ML algorithms
18AIL76.3	Apply the concepts of ML algorithms to solve real world problems.
18AIL76.4	Compare, Analyze and Implement mini-project using ML algorithms and present the ideas of the work carried out.