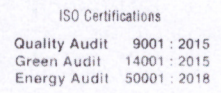
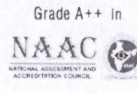


CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY

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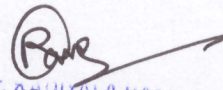
DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE OUTCOMES

COURSE OUTCOME STATEMENTS OF THE COURSES OF REGULATIONS

R-20

M.Tech. (AI&DS)


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Institute Vision

To be a center of excellence in technical education and research

Institute Mission

To address the emerging needs through quality technical education and advanced research

Department Vision

To be a center of excellence in the field of Information Technology that yields pioneers and research experts who can contribute for the socio-economic development of the nation.

Department Mission

- To impart state-of-the-art value based education in the field of Information Technology.
- To collaborate with industries and research organizations and excel in the emerging areas of research.
- To imbibe social responsibility in students.
- To motivate students to be trend setters and techno preneurs.

Program Educational Objectives (PEOs)

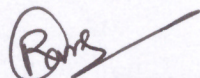
Post graduates of AI & DS will be able to

1. Undertake careers in industry involving innovation and problem solving using Artificial Intelligence and Data Science technologies
2. Possess research orientation and adopt lifelong learning.

Program Specific Outcomes (PSOs)

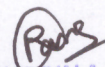
After successful completion of the program, students will be able to:

1. Develop solutions to real world problems in the emerging areas of Manufacturing, Agriculture, Health-care, Education and Cyber Security.
2. Systematically investigate and provide Artificial Intelligence and Data Science based solutions in multidisciplinary domains.

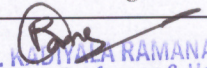

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I. M.Tech. AI &DS Course Outcomes Statements: R-20 Regulation

S.No	Course Code	Name of the Course	Course outcomes
2020-21 – I Semester			
1. *Program Core-1			
2. *Program Core-2			
3. *Program Elective-1			
4. *Program Elective-2			
5.	20MEM103	Research Methodology and IPR (Mandatory Course)	<ol style="list-style-type: none"> 1. Define research problem, review, and assess the quality of literature from various sources 2. Improve the style and format of writing a report for technical paper/ Journal report, understand and develop various research designs 3. Collect the data by various methods: observation, interview, questionnaires 4. Analyze problem by statistical techniques: ANOVA, F-test, Chi-square 5. Understand apply for patent and copyrights
6. *Audit Course-1			
7. *Laboratory-1 (Based on Core-1)			
8. *Laboratory-2 (Based on Core-2)			
9. *Laboratory-3 (Based on Elective-2)			
2020-21 – II Semester			
1. *Program Core-3			
2. *Program Core-4			
3. *Program Elective-3			
4. *Program Elective-4			
5. *Audit Course-2			
6. *Laboratory-4 (Based on Core-3)			
7. *Laboratory-5 (Based on Core-4)			
8. *Laboratory-6 (Based on Elective-4)			
9.	20ITC107	Mini Project with Seminar	<ol style="list-style-type: none"> 1. Formulate a specific problem and give solution. 2. Develop model/models either Theoretical/practical/numerical form. 3. Solve, interpret/correlate the results and discussions. 4. Conclude the results obtained. 5. Write the documentation in standard format.
2020-21 – III Semester			
1. *Program Elective-5			
2. *Open Elective			
3.	20ITC108	Dissertation/Phase-I	<ol style="list-style-type: none"> 1. Students will be exposed to self-learning various topics. 2. Students will learn to survey the literature such as books, National/international refereed journals and contact resource persons for the selected topic of research. 3. Students will learn to write technical reports. 4. Students will develop oral and written communication skills to present. 5. Student will defend their work in front of technically qualified audience.
2020-21 – IV Semester			
1.	20ITC109	Dissertation/Phase-II	<ol style="list-style-type: none"> 1. Students will be able to use different experimental techniques and will be able to use different software/

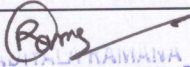

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			<p>computational/analytical tools.</p> <p>2. Students will be able to design and develop an experimental set up/ equipment/test rig.</p> <p>3: Students will be able to conduct tests on existing set ups/equipments and draw logical conclusions from the results after analyzing them.</p> <p>4. Students will be able to either work in a research environment or in an industrial environment.</p> <p>5. Students will be conversant with technical report writing and will be able to present and convince their topic of study to the engineering community.</p>
* Program Core			
1.	20MTC101	Mathematical Foundations of Data Science	<p>1. Identify the Basis and Dimension of vector space.</p> <p>2. Calculate the Rank and Nullity of linear transformation.</p> <p>3. Determine the stochastic measures for the process.</p> <p>4. Infer the estimation of the statistical observations.</p> <p>5. Analysing appropriate model for the raw data.</p>
2.	20ITC101	Artificial Intelligence	<p>1. Understand the basics of AI and concept of Intelligent Agent.</p> <p>2. Compare the Searching techniques</p> <p>3. Understand and apply the first order and second order predicate Logic to infer the knowledge</p> <p>4. Analyze classical and real world planning approaches</p> <p>5. Understand the uncertainty and apply the probabilistic reasoning models</p>
3.	20ITC102	Introduction to Data Science	<p>1. Comprehend the process of Data Science.</p> <p>2. Understand machine learning and handle large unstructured data.</p> <p>3. Make use of the packages Numpy, Pandas and interact with Web API and databases.</p> <p>4. Choose suitable pre-processing techniques to process raw data.</p> <p>5. Interpret the data from visualisations.</p> <p>6. Apply appropriate group and aggregation operations.</p>
4.	20ITC103	Machine Learning	<p>1. Understand the concepts of Machine learning and Concept learning</p> <p>2. Build classification algorithms and artificial neural networks and evaluate the accuracy.</p> <p>3. Examine the Bayesian classifier and its variants for predicting the probabilities.</p> <p>4. Design solutions based on optimization using genetic algorithms.</p> <p>5. Develop search control knowledge by inductive and analytical learning</p> <p>6. Understand reinforcement learning and choose the best learning mechanism to the problem.</p>
*Program Elective-1, Elective-3 and Elective-5 Courses (without Lab)			
1.	20ITE101	Soft Computing	<p>1. Understand soft computing techniques and their role in building intelligent machines.</p> <p>2. Demonstrate fuzzy logic and reasoning to handle</p>


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			<p>uncertainty and solve engineering problems.</p> <ol style="list-style-type: none"> 3. Apply genetic algorithms to provide optimized solutions. 4. Explain rough set theory and swarm intelligence techniques to solve problems. 5. Build real time applications using soft computing techniques
2.	20ITE102	Cloud Computing	<ol style="list-style-type: none"> 1. Understand different types of cloud computing concepts and the techniques. 2. Determine the issues related to scaling, capacity planning and load balancing. 3. Assess the cloud infrastructure, information security and compliance issues. 4. Analyse the Portability and Interoperability issues of cloud virtualization. 5. Evaluate the importance of SOA and cloud database technology.
3.	20ITE103	Information Retrieval Systems	<ol style="list-style-type: none"> 1. Understand different Information Retrieval models. 2. Evaluate the performance of queries for retrieval of data. 3. Analyze the methods for efficient information retrieval. 4. Perform text operations and build indices. 5. Analyze searching techniques and understand Parallel and Distributed IR models.
4.	20ITE104	Time Series Analysis & Forecasting	<ol style="list-style-type: none"> 1. Distinguish between time series and non-time series data and choose the right approach to solve a given problem 2. Select the appropriate techniques for a time series problem based on the internal structures of the given data. 3. Pre-process and visualize time series data through re sampling, group-by, and calculation of moving averages 4. Extract estimated trend and noise based on the parameters related to time series signal composition such as the presence of trend, seasonality, and residual noise. 5. Describe Autoregressive models which include moving average (MA), autoregressive (AR), Auto Regressive Moving Average (ARMA), and Auto Regressive Integrated Moving Average (ARIMA) for predicting future trends. 6. Develop forecasting models for time series data using different RNNs such as Vanilla RNN, Gated Recurrent Units, and Long Short-Term Memory units
5.	20ITE105	Social Network Analytics	<ol style="list-style-type: none"> 1. Understand the basics of social network analysis. 2. Analyze Ontology representation of social network data. 3. Apply supervised and unsupervised algorithms on social networks.

			<ol style="list-style-type: none"> 4. Interpret the semantic content of social media data. 5. Build social network model for real time applications.
6.	20ITE106	Block Chain Technology	<ol style="list-style-type: none"> 1. Outline the concepts of block chain technology. 2. Understand the bit coin, working with consensus in Bitcoin. 3. Develop knowledge about designing and building Permissioned block chains. 4. Describe the concepts of Cryptocurrency, Ethereum virtual machine, Cryptocurrency regulations. 5. Design smart contract using Hyperledger Fabric frameworks.
7.	20ITE107	Intelligent Bio Informatics	<ol style="list-style-type: none"> 1. Recognize the purpose of molecular biology and challenges in the Bioinformatics 2. Analyse the importance of Artificial Intelligence and its techniques related to bioinformatics. 3. Enumerate different techniques of classification and clustering with respect to bioinformatics applications 4. Comprehend the methods related to neural network and genetic algorithms. 5. Elaborate the concepts of Genetic Programming, Cellular Automata and Hybrid methods
8.	20ITE108	Recommender Systems	<ol style="list-style-type: none"> 1. Understand the fundamentals of information retrieval and recommender systems 2. Analyze collaborative filtering and model based recommenders. 3. Identify suitable content based recommenders and understand the concept of user profiling. 4. Design and apply hybrid recommendation system for a particular application. 5. Evaluate recommender systems by means of various measures in different application domains
9.	20ITE109	Reinforcement Learning	<ol style="list-style-type: none"> 1. Understand the concepts of Reinforcement Learning, Multi Armed Bandits and Finite Markov Decision process. 2. Apply Monte Carlo, Temporal Difference methods for policy evaluation and prediction. 3. Analyze the Tabular Methods and On-policy Prediction with Approximation. 4. Understand On-policy Control and Off-policy Methods with Approximation. 5. Apply Eligibility Traces, Policy Gradient Methods to improve the performance of reinforcement learning.
10.	20ITE110	GPU Computing	<ol style="list-style-type: none"> 1. Outline the developments in the evolution of multi-core architectures and parallel programming paradigms feature vectors for the Images. 2. Comprehend the various programming languages and libraries for parallel computing platforms. 3. Use of profiling tools to analyse the performance of

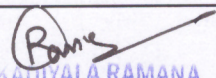

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			<p>applications by interpreting the given data.</p> <ol style="list-style-type: none"> Compare and contrast the features of parallel programming languages such as OpenMP and CUDA. Write parallel programs using OpenMP and CUDA. Evaluate efficiency trade-offs among alternative parallel computing architectures for an efficient parallel Application design.
11.	20ITE111	Scalable Algorithms and Systems for Data Analysis	<ol style="list-style-type: none"> Outline the characteristics of massive data and primitives of scalable algorithms. Apply geometric and clustering techniques for local computation of data. Solve large scale data science problems related to link analysis and finding similar items. Examine the need of scalable systems for large scaledata science such as web advertising and recommendation systems. Determine useful information to be gained by analyzing the large-scale data that is derived from social networks.
*Program Elective-2 and Elective-4 Courses (with Lab)			
1.	20ITE112	Digital Image Processing and Analysis	<ol style="list-style-type: none"> Explain the fundamentals of digital image processing, colour models and intensity transformations Demonstrate smoothing and sharpening in both spatial and frequency domains, image restoration and reconstruction Demonstrate the usage of wavelets and other image transforms Compare image compression methods Huffman Coding, Arithmetic Coding, LZW Coding, Block Transform Coding Recommend proper use of morphological and segmentation algorithms Build an image pattern classification system using feature extraction and image pattern classification techniques
2.	20ITE113	Cyber Security	<ol style="list-style-type: none"> Describe legal and global perspectives of Cybercrimes and inspect how criminals plan the attacks. Examine phishing techniques ,keyloggers, spywares, password cracking methods and types of thefts used in cybercrimes. Determine the challenges of various vulnerability mechanisms and Injection Tools. Demonstrate how Network Defense tools is used in investigations. Experiment with security tool that will test a web site for thousands of possible security issues like dangerous files, mis-configured services, vulnerable scripts and other issues.
3.	20ITE114	Big Data Analytics	<ol style="list-style-type: none"> Perform data analysis in Hadoop framework.



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			<ol style="list-style-type: none"> 2. Build applications using MapReduce. 3. Model the data using NoSQL and MongoDB. 4. Perform analysis on large datasets using Pig and Hive. 5. Develop machine learning solutions in Spark.
4.	20ITE115	Augmented and Virtual Reality	<ol style="list-style-type: none"> 1. Describe the basic concepts of Virtual Reality and 3D Computer Graphics. 2. Apply 3D manipulation techniques in Virtual Reality. 3. Analyze Development Tools and Frameworks in Virtual Reality. 4. Develop a Virtual Reality application. 5. Evaluate Augmented Reality Systems
5.	20ITE116	Predictive Analytics with R	<ol style="list-style-type: none"> 1. Comprehend predictive modeling and assess the performance 2. Apply regression techniques and analyse the performance 3. Demonstrate Support Vector Machines and build an efficient networking model 4. Analyze ensemble methods by choosing Tree based classifiers 5. Select appropriate probabilistic Graphic models and identify topics through topic modeling
6.	20ITE117	Natural Language Processing	<ol style="list-style-type: none"> 1. Comprehend the concept of natural language processing, its challenges and applications. 2. Demonstrate skills in natural language processing using Natural Language Toolkit (NLTK). 3. Build and evaluate classifiers for textual data. 4. Analyze linguistic structure of text and build feature based grammar. 5. Determine the semantics of sentences using WordNet and Treebank.
7.	20ITE118	Robotic Process Automation	<ol style="list-style-type: none"> 1. Describe the Automation Anywhere Enterprise Platform, Architecture, Components and its features. 2. Demonstrate various Basic Commands to build Bots for automating simple processes. 3. Apply manipulation techniques for data extraction and integration. 4. Select the appropriate Recorders for web scrapping and capturing objects. 5. Analyze various aspects of Meta Bots in Visual captures.
8.	20ITE119	Deep Learning	<ol style="list-style-type: none"> 1. Illustrate the working principle of neural networks, deep learning and their challenges. 2. Understand training of deep feed forward network and Partially Observable Markov Decision Process. 3. Identify the challenges in Neural Network optimization and apply Convolution Neural Network. 4. Analyze the usage of Recurrent Neural Networks for sequential analysis. 5. Implement deep learning algorithms for real-world

			problems and evaluate their performance.
9.	20ITE120	Internet of Things	<ol style="list-style-type: none"> 1. Describe the terminology, protocols, Communication models and APIs of IoT. 2. Analyze the various IoT enabling technologies, Levels, M2M and Domain specific Applications. 3. Design IoT platform and interpret the Case Studies. 4. Develop IoT applications using Raspberry Pi3. 5. Create web applications using Django frame work.
10.	20ITE121	Advanced Algorithms	<ol style="list-style-type: none"> 1. Understand the basic data structures and analyze time and space complexities of algorithms. 2. Identify appropriate algorithmic strategy for solving problems and understand basics of graphs. 3. Analyse shortest path algorithms in weighted graphs and flow control techniques in Network flows. 4. Understand text processing concepts and cryptographic algorithms. 5. Formulate computational geometry solutions using Range Trees, Quad trees and Convex Hulls.
*Audit Course – 1 and 2			
1.	20EGA101	English for Research Paper Writing	<ol style="list-style-type: none"> 1. Interpret the nuances of research paper writing. 2. Differentiate the research paper format and citation of sources. 3. To review the research papers and articles in a scientific manner. 4. Avoid plagiarism and be able to develop their writing skills in presenting the research work. 5. Create a research paper and acquire the knowledge of how and where to publish their original research papers.
2.	20CEA101	Disaster Mitigation and Management	<ol style="list-style-type: none"> 1. Ability to analyse and critically examine existing programs in disaster management regarding vulnerability, risk and capacity at different levels 2. Ability to understand and choose the appropriate activities and tools and set up priorities to build a coherent and adapted disaster management plan 3. Ability to understand various mechanisms and consequences of human induced disasters for the participatory role of engineers in disaster management 4. To understand the impact on various elements affected by the disaster and to suggest and apply appropriate measures for the same 5. Develop an awareness of the chronological phases of disaster preparedness, response and relief operations for formulating effective disaster management plans and ability to understand various participatory approaches/strategies and their application in disaster management


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3.	20EEA101	Sanskrit for Technical Knowledge	<ol style="list-style-type: none"> 1. Develop passion towards Sanskrit language 2. Decipher the latent engineering principles from Sanskrit literature 3. Correlates the technological concepts with the ancient Sanskrit history. 4. Develop knowledge for the technological progress 5. Explore the avenue for research in engineering with aid of Sanskrit
4.	20ECA101	Value Education	<ol style="list-style-type: none"> 1. Gain necessary Knowledge for self-development 2. Learn the importance of Human values and their application in day to day professional life. 3. Appreciate the need and importance of interpersonal skills for successful career and social life 4. Emphasize the role of personal and social responsibility of an individual for all-round growth. 5. Develop a perspective based on spiritual outlook and respect women, other religious practices, equality, non-violence and universal brotherhood.
5.	20EGA102	Indian Constitution and Fundamental Rights	<ol style="list-style-type: none"> 1. Understand the making of the Indian Constitution and its features. 2. Understand the Rights of equality, the Right of freedom and the Right to constitutional remedies. 3. Have an insight into various Organs of Governance - composition and functions. 4. Understand powers and functions of Municipalities, Panchayats and Co-operative Societies. 5. Understand Electoral Process, special provisions.
6.	20ITA101	Pedagogy Studies	<ol style="list-style-type: none"> 1. Illustrate the pedagogical practices followed by teachers in developing countries both in formal and informal classrooms. 2. Examine the effectiveness of pedagogical practices. 3. Understand the concept, characteristics and types of educational research and perspectives of research. 4. Describe the role of classroom practices, curriculum and barriers to learning. 5. Understand Research gaps and learn the future directions.
7.	20EGA103	Stress Management by Yoga	<ol style="list-style-type: none"> 1. To understand yoga and its benefits. 2. Enhance Physical strength and flexibility. 3. Learn to relax and focus. 4. Relieve physical and mental tension through asanas 5. Improve work performance and efficiency.


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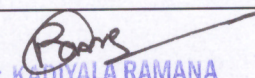
8.	20EGA104	Personality Development Through Life's Enlightenment Skills	<ol style="list-style-type: none"> 1. Develop their personality and achieve their highest goal of life. 2. Lead the nation and mankind to peace and prosperity. 3. To practice emotional self regulation. 4. Develop a positive approach to work and duties. 5. Develop a versatile personality
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***Laboratory-1 and Laboratory-3 (Based on Core Courses)**

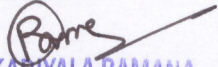
1.	20MTC102	Mathematical Foundations of Data Science Lab	<ol style="list-style-type: none"> 1. Identify and setup program development environment. 2. Implement the algorithms using R programming language constructs. 3. Identify and rectify the syntax errors and debug program for semantic errors. 4. Solve problems in a statistical approach using functions. 5. Implement file operations.
2.	20ITC104	Artificial Intelligence Lab	<ol style="list-style-type: none"> 1. Solve AI problems through Python Programming 2. Demonstrate an intelligent agent 3. Evaluate Search algorithms 4. Build knowledge representation system and infer knowledge from it. 5. Apply probabilistic reasoning on data.
3.	20ITC105	Introduction to Data Science Lab	<ol style="list-style-type: none"> 1. Identify appropriate data structures for storing and processing the data. 2. Choose suitable data type to handle real time data and explain file formats. 3. Apply pre processing techniques on raw data 4. Interpret the data from visualisations. 5. Build supervised and unsupervised models to solve real world problems.
4.	20ITC106	Machine Learning Lab	<ol style="list-style-type: none"> 1. Build classification algorithms and artificial neural networks and evaluate the accuracy. 2. Examine the Bayesian classifier and its variants for predicting the probabilities. 3. Design solutions based on optimization using genetic algorithms. 4. Implement k-means, k-nearest and SVM algorithms. 5. Understand reinforcement learning and choose the best learning mechanism to the problem.

***Laboratory-2 and Laboratory-4 (Based on Elective-2 and Elective-4 Courses)**

1.	20ITE122	Digital Image Processing and Analysis Lab	<ol style="list-style-type: none"> 1. Demonstrate the gray level intensity transformations 2. Demonstrate the smoothing and sharpening operations in both the spatial and frequency domains, image restoration and reconstruction 3. Demonstrate the usage of wavelets and other image transforms
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			<ol style="list-style-type: none"> 4. Compare image compression methods Huffman Coding, Arithmetic Coding, LZW Coding, Block Transform Coding 5. Evaluate the use of morphological and segmentation algorithms 6. Build an image pattern classification system
2.	20ITE123	Cyber Security Lab	<ol style="list-style-type: none"> 1. Examine Port scanning to determine what services are running on the systems that have been identified. 2. Illustrate the Netcat and Open VAS and uses such as simple sniffing abilities, port redirection. 3. Demonstrate SQL injection technique often used to attack data driven applications. 4. Experiment with Cross-site Scripting (XSS) is a client-side attack that leverages the user's browser to execute malicious code. 5. Design and develop intrusion prevention system capable of real-time traffic analysis and packet logging.
3.	20ITE124	Big Data Analytics Lab	<ol style="list-style-type: none"> 1. Understand Hadoop working environment 2. Work with big data applications in multi node clusters 3. Write scripts using Pig to solve real world problems. 4. Write queries using Hive to analyse the datasets 5. Use Spark working environment.
4.	20ITE125	Augmented and Virtual Reality Lab	<ol style="list-style-type: none"> 1. Build AR and VR Apps with Unity 2. Develop Mobile VR in Unity 3. Demonstrate Augmented Reality SpacePose Tracking and Environment Detections 4. Design the UX in Augmented Reality 5. Create AR Content with Unity and Vuforia
5.	20ITE126	Predictive Analytics in R Lab	<ol style="list-style-type: none"> 1. Demonstrate the basic functions and implement R packages and commands 2. Apply regression analysis methods and infer the problems 3. Develop applications of neural networks and evaluate the techniques 4. Evaluation of ensemble methods 5. Build a system to perform topic modeling on real time datasets
6.	20ITE127	Natural Language Processing Lab	<ol style="list-style-type: none"> 1. Apply the concept of natural language processing (NLP) using Natural Language Toolkit (NLTK). 2. Build text corpora with tokenization, Stemming, Lemmatization and apply visualization techniques. 3. Evaluate the classifiers and choose the best classifier. 4. Access WordNet and Treebank and apply regular expression pattern recognition methods. 5. Create Artificial Intelligence applications for text data.
7.	20ITE128	Robotic Process Automation Lab	<ol style="list-style-type: none"> 1. Demonstrate the process of writing, compiling and


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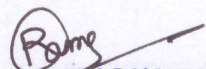
			<p>executing task bots.</p> <ol style="list-style-type: none"> 2. Implement task bots using various Basic Commands for automating simple processes. 3. Develop task bots using manipulation commands for data extraction and integration. 4. Solve real world problems using exceptional concepts. 5. Construct MetaBots using API's and Visual captures.
8.	20ITE129	Deep Learning Lab	<ol style="list-style-type: none"> 1. Understand the concepts of feed forward and backward Neural Networks. 2. Build deep learning models using libraries such as Tensor Flow, Keras and interpret the results. 3. Understand the significance of regularization methods and apply them in training deep neural networks. 4. Build Convolution Neural Networks on applications such as image classification. 5. Implement Recurrent Neural Networks based on the application requirement.
9.	20ITE130	Internet of Things Lab	<ol style="list-style-type: none"> 1. Implement Python programming on Raspbian platform. 2. Demonstrate IoT applications using LEDs and Switches on Raspberry Pi3. 3. Experiment with various Sensors on Raspberry Pi3. 4. Design IoT based systems using Raspberry Pi3. 5. Develop cloud based IoT Applications.
10.	20ITE131	Advanced Algorithms Lab	<ol style="list-style-type: none"> 1. Understand the implementation of basic data structures like stacks, queues, search trees and balanced trees. 2. Identify appropriate algorithmic paradigm to find the optimal solution. 3. Analyze the algorithms to find the shortest path in weighted graphs. 4. Apply appropriate string pattern matching technique and flow control techniques. 5. Implement Cryptographic techniques to ensure security.

***Open Elective Courses**

1.	20CSO101	Business Analytics	<ol style="list-style-type: none"> 1. To understand the basic concepts of business analytics 2. Identify the application of business analytics and use tools to analyze business data 3. Become familiar with various metrics, measures used in business analytics 4. Illustrate various descriptive, predictive and prescriptive methods, and techniques 5. Model the business data using various business analytical methods and techniques
2.	20MEO102	Introduction to Optimization Techniques	<ol style="list-style-type: none"> 1. Formulate a linear programming problems (LPP) 2. Build and solve Transportation Models and Assignment Models. 3. Apply project management techniques like CPM and


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			<p>PERT to plan and execute project successfully</p> <p>4. Apply queuing and inventory concepts in industrial applications</p> <p>5. Apply sequencing models in industries</p>
3.	20CEO101	Cost Management of Engineering Projects	<p>1. Acquire in-depth knowledge about the concepts of project management and understand the principles of project management.</p> <p>2. Determine the critical path of a typical project using CPM and PERT techniques.</p> <p>3. Prepare a work break down plan and perform linear scheduling using various methods.</p> <p>4. Solve problems of resource scheduling and levelling using network diagrams.</p> <p>5. Learn the concepts of budgetary control and apply quantitative techniques for optimizing project cost.</p>
4.	20MEO101	Industrial Safety	<p>1. Identify the causes for industrial accidents and suggest preventive measures.</p> <p>2. Identify the basic tools and requirements of different maintenance procedures.</p> <p>3. Apply different techniques to reduce and prevent Wear and corrosion in Industry.</p> <p>4. Identify different types of faults present in various equipments like machine tools, IC Engines, boilers etc.</p> <p>5. Apply periodic and preventive maintenance techniques as required for industrial equipments like motors, pumps and air compressors and machine tools etc</p>
5.	20MEO103	Composite Materials	<p>1. Classify and characterize the composite materials.</p> <p>2. Describe types of reinforcements and their properties.</p> <p>3. Understand different fabrication methods of metal matrix composites.</p> <p>4. Understand different fabrication methods of polymer matrix composites.</p> <p>5. Decide the failure of composite materials.</p>
6.	20EEO101	Waste to Energy	<p>1. Understand the concept of conservation of waste</p> <p>2. Identify the different forms of wastage</p> <p>3. Chose the best way for conservation to produce energy from waste</p> <p>4. Explore the ways and means of combustion of biomass</p> <p>5. Develop a healthy environment for the mankind</p>


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