VIGNAN's INSTITUTE OF INFORMATION TECHNOLOGY
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(Approved by AICTE-New Delhi & Affiliated to JNTUK, Kakinada)
Beside VSEZ, Duvvada, Vadlapudi Post, Gajuwaka, Visakhapatnam - 530 049.

VIIT/PO/2020/11/3 **Date: 27.11.2020**

Sub: List of new courses introduced program-wise during the period 2020-21

Ref.: 1. Minutes of the 7th Meeting of Academic Council held on **25th July 2020.**
2. Minutes of the 8th Meeting of Academic Council held on **23rd October 2020.**

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The curriculum of all programmes offered by VIGNAN INSTITUTE OF INFORMATION TECHNOLOGY undergoes major revision once in 2-3 years based on the feedback from stakeholders. The list of new courses introduced programme-wise during year 2020-21 are shown in the **Annexure I.**

Principal
(Dr. B. ARUNDHATI)

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Annexure-1

LIST OF NEW COURSES INTRODUCED PROGRAM-WISE DURING THE ACADEMIC YEAR 2020-21

Sl. No.	Programme Code	Programme Name	Course Code	Course Name	Skill description (New)
1	1	B.Tech-Civil Engineering	1003201100	Engineering Mechanics	**Employability :** It gives thorough understanding of the forces, centre of gravity, moment of inertia and kinematics of different bodies and their applications in engineering field. 1.Forces : Coplanar Concurrent Forces – Resultant – Moment of Force and its Application 2.Friction : coefficient of friction, cone of friction. Applications 3.Area moments of Inertia
2	1	B.Tech-Civil Engineering	1005201100	Problem Solving and Programming using C	**Employability:** 1.Design and develop well-structured programs using C language 2.Write compile and debug Programs in C language
3	1	B.Tech-Civil Engineering	1000201110	Technical English Communication Lab	**Employability Skills:** The students will be able to acquire various skills which enhance their employability. The course gives an ample platform for the student to practice Listening and Speaking Skills which contributes in enhancing communication Skills.
4	1	B.Tech-Civil Engineering	1005201110	Problem Solving and Programming using C Lab	**Skill Development :** Design and develop well-structured programs using C language Write compile and debug Programs in C language.
5	1	B.Tech-Civil Engineering	1000201101	Engineering Physics	**Skill Development:** It provides the understanding on nonmaterial and their production techniques, determination of crystal structures, characterization of acoustics design and production methods of ultrasonics. 1. Crystal structure determination 2. Methods of preparation of nanomaterials
6	1	B.Tech-Civil Engineering	1000201111	Engineering Physics Lab	**Skill Development:** It provide the knowledge on determination of frequency of stretched string, numerical aperture of optical fiber, density of crystal, velocity of ultrasonics waves and wavelength of laser source 1. Melde's experiment 2. Numerical aperture of optical fiber 3. Lattice constant 4. Ultrasonic interferometer 5. Laser light diffraction by grating
7	1	B.Tech-Civil Engineering	1001192120	Surveying	**Skill Development :** The ability 1.To understand and interpret data. 2. Lateral and logical thinking. 3.Cutting-edge IT skills and confidence with new technology. 4.Problem solving and analysis.
8	1	B.Tech-Civil Engineering	1001192100	Building Materials and Construction	**Skill development :** The construction materials and technology covered include: cement, concrete reinforcement, bricks and mortars, additives, corrosion technology, ceramics, timber, steel, polymers, glass fibres, recycled materials, bamboo, rammed earth, non-conventional building materials, bituminous materials.
9	1	B.Tech-Civil Engineering	1001192121	Strength of Materials	**Skill Development :** The field of strength of materials, also called mechanics of materials, typically refers to various methods of calculating the stresses and strains in structural members, such as beams, columns, and shafts.

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10	1	B.Tech-Civil Engineering	1001192122	Fluid Mechanics	**Skill Development :** It has applications in a wide range of disciplines, including mechanical, civil, chemical and biomedical engineering, geophysics, oceanography, meteorology, astrophysics, and biology.
11	1	B.Tech-Civil Engineering	1001192101	Building Planning & Drawing	**Skill Development :** Deals with good ventilation, thermal comfort, and acoustic requirements when planning a building.
12	1	B.Tech-Civil Engineering	1001201200	Surveying	**Skill Development :** Survey is used in the preparation of maps which help in location of hills, valleys, rivers, boundaries, roads, and railway. It also helps in setting up of plan for roads and railways.
13	1	B.Tech-Civil Engineering	1003201101	Engineering Drawing	Employability: It gives thorough understanding of the curves, projection of solids, isometric projections and thier applications in design engineering. 1.Curves used :Ellipse, parabola, hyperbola 2.Orthographic projections:projection of points and lines 3.Projection of solids: Prisms, pyramids, cones and cylinders. 4.Isometric projections :Conversion of isometric views to orthographic views 5.Conversion of orthographic views to isometric views
14	1	B.Tech-Civil Engineering	1000201201	Transforms & Vector Calculus	**Skill development:** Understand mathematical tools required in the analysis of problems in Engineering and Scientific Professions.To determine the Fourier coefficients of a given function & analyze the characteristics and properties of Fourier transforms. Extend the concept of integration to two and three dimensions and support it through applications in engineering mechanics and calculus to vector functions and to compute line, surface and volume integrals. 1. Fourier Series and Transforms 2. Multiple integrals 3. Vector Differentiation and Integration
15	1	B.Tech-Civil Engineering	1001201210	Surveying Lab	**Skill Development :** Survey is used in the preparation of maps which help in location of hills, valleys, rivers, boundaries, roads, and railway.
16	1	B.Tech-Civil Engineering	1000201160	Engineering Exploration	**Employability:** It gives hands on experience of mechanical, electrical and electronic devices. 1. AC to DC conversion 2. Full adder using logic gates 3. MIT app design 4. Interfacing of electronic components, sensors and devices 5. Construction of bridges
17	1	B.Tech-Civil Engineering	1000201200	Engineering Chemistry	Unit-2: Fuel Technology particularly coal analysis and associated techniques useful in the adopting innovative strategies in the power sector Unit-3: Corrosion prevention techniques useful in the metal processing units Unit-4: Knowledge on different functioning, properties Unit-5: Engineering materials and its novel applications essential in the current scenerio,
18	1	B.Tech-Civil Engineering	1000201210	Engineering Chemistry Lab	Analysis of samples with use of titrations are skill oriented techniques essential in the determination of characteristics of samples and helpful to get employment in the research laboratories, QC departments etc.
19	1	B.Tech-Civil Engineering	1000192110	Communication Skills Lab	**Employability:** The students will be able to acquire various skills which enhance their employability.The course gives an ample platform for the student to practice Listening and Speaking Skills which contributes in enhancing communication Skills.
20	1	B.Tech-Civil Engineering	1020192100	Employability Readiness Program-I	**Skill Development** : skill development helps in placements also helps in Entrepreneurship
21	1	B.Tech-Civil Engineering	1020192101	Public Administration	**Employability :** Helps in preparation for civil services which leads to employability

22	1	B.Tech-Civil Engineering	1020192102	Foreign Linguistic - French	**Employability**: The students will be able to acquire various skills which enhance their employability Skill.
23	1	B.Tech-Civil Engineering	1001192200	Structural Analysis	**Skill Development :** Determine the effect of loads on the physical structures and their components.
24	1	B.Tech-Civil Engineering	1001192220	Transportation Engineering	**Skill Development :**Transportation engineering, primarily involves planning, design, construction, maintenance, and operation of transportation facilities.
25	1	B.Tech-Civil Engineering	1001192221	Hydraulics and Hydraulic Machinery	**Skill Development :** Hydraulic machines use liquid fluid power to perform work. Heavy construction vehicles are a common example.
26	1	B.Tech-Civil Engineering	1001192222	Environmental Engineering	**Skill Development :** Application of scientific and engineering principles to improve and maintain the environment to protect human health, protect nature's beneficial ecosystems, and improve environmental-related enhancement of the quality of human life.
27	1	B.Tech-Civil Engineering	1001192170	Mini Project-I (EPICS/Societal Relevant Project)	**Employability :** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.Implementation of real-time projects to serve the societal needs which helps in placements
28	1	B.Tech-Civil Engineering	1000192130	Environmental Science	**Employability:** It gives a complete knowlege about the process of Environmental Impact assesment and Auditing Process through which they opt thier carrer as as an environmental auditor and EIA experts Uniit 5 : EIA and EA
29	1	B.Tech-Civil Engineering	1001174101	Estimation and Contracts	**Skill Development :** 1.Estimation of buildings: detailed estimates of buildings 2.Working out data for various items of work over head, 3.Reinforcement estimation: reinforcement bar bending and bar requirement schedules.
30	1	B.Tech-Civil Engineering	1001174102	Water Resource Engineering-II	**Skill Development :** 1.Methods of economic section and maximum permissible velocity 2.Design principles of Sarda type fall 3.Design of impervious floors for subsurface flow
31	1	B.Tech-Civil Engineering	1001174103	Geotechnical Engineering – II	**Skill Development :** 1.Geophysical explorations 2.Stability analysis by Swedish arc method 3.Terzaghi's theory - IS methods
32	1	B.Tech-Civil Engineering	1001174104	Environmental Engineering-II	**Skill Development :** It gives thorough understanding of the processes, properties, performance and applications of sewage treatment plant 1. Sewage characteristics 2. Sewage treatment 3. Design of treatment plant 4. Sludge management
33	1	B.Tech-Civil Engineering	1001174105	Advanced Structural Engineering	**Skill Development :** 1.Analysis design of RCC Retaining walls 2.Analysis and Design of RCC underground and elevated Water Tanks 3.Analysis and Design of Flat Slabs- Concept of grid floor 4.Analysis and Design of Bunkers and Silos,Transmission Towers- Principles and procedures
34	1	B.Tech-Civil Engineering	1001174106	Urban Hydrology	**Skill Development :** 1.Open channel, underground drains, 2.Appurtenances, pumping, source control
35	1	B.Tech-Civil Engineering	1001174107	Ground Improvement Techniques	**Skill Development :** 1.In-situ densification Methods in granular soils 2.Methods of dewatering 3.In-situ Densification methods in cohesive soils

36	1	B.Tech-Civil Engineering	1001174108	Pavement Analysis and Design	**Skill Development :** 1.Wheel load stresses, Soil sub grade, Western guard's analysis 2.Design of rigid pavements, IRC method for Rigid Pavement by standard procedure from IRC 58 3.Design Pickett's corner load theory and influence charts
37	1	B.Tech-Civil Engineering	1001174109	Remote Sensing & GIS Applications	**Skill Development :** 1.Visual interpretations, digital image processing-digital,Land use/land cover classification systems 2.Earthquakes, Landslides, cyclones and Floods – Hazard Zonation, Risk assessment 3.Relief and Rehabilitation measures
38	1	B.Tech-Civil Engineering	1001174110	Industry orientated course (BIM/TEKLA /REVIT/E-TAB/CYCLO NE)	**Skill Development:** It is using to design and modeling of structures using computer applications
39	1	B.Tech-Civil Engineering	1001174121	GIS & CAD Lab	**Employability :** 1.Creation of thematic maps, 2.Applications of GIS in Transportation Engineering
40	1	B.Tech-Civil Engineering	1001174122	Design & Drawing of Hydraulic Structures	**Skill Development :** 1.Design and drawing of Canal drop-Notch type 2.Design and drawing of Under tunnel 3.Design and drawing of Syphon aqueduct type III
41	1	B.Tech-Civil Engineering	1005172105	Data Structures through C	**Skill Development** : Helps in understanding 1.Array 2.Linked List 3.Stack 4.Queue 5.Binary Tree
42	1	B.Tech-Civil Engineering	1099174101	Entrepreneu rship Development	**Entrepreneurship :** 1.Entrepreneurship process 2.Steps involved in setting up a business 3.Sources of finance Registration Process 4.Business Idea Generation
43	1	B.Tech-Civil Engineering	1001174201	Soil Dynamics and Foundations	**Skill Development:** To calculate various properties of soil like SBC, dry density, shear strength etc.
44	1	B.Tech-Civil Engineering	1001174202	Construction Technology and Management	**Skill Development:** 1.Construction equipment – economic considerations – earthwork equipment– excavation equipment- power shovels, back hoe, drag line, clamshell bucket-excavating and earthmoving 2.Calculation of truck production – compaction equipment – types of compaction rollers. 3.Construction methods – earthwork – piling – placing of concrete
45	1	B.Tech-Civil Engineering	1001174203	Prestressed Concrete	**Skill Development :** 1.Loss of Pre-stress in pre-tensioned and post tensioned members, 2.Analysis of prestress, Resultant Stresses at a section-pressure line, 3.Design for Flexural resistance- Types of flexural failure – Code procedures, 4.Codal provisions- Anchorage zone Stresses in Post tensioned members

46	1	B.Tech-Civil Engineering	1001174204	Bridge Engineering	**Skill development:** 1.Wheel load on slab- effective width method- slabs supported on two edges, 2.Design of interior panel of slab- Guyon's – Massonet Method –Hendry- Jaegar Methods- Courbon's theory- Pigeaud's method, 3.Elements of plate girder and their design-web- flange- intermediate stiffener- vertical stiffeners- bearing stiffener, 4.Analysis of piers- Wing walls- Design problems
47	1	B.Tech-Civil Engineering	1001174205	Environmental Impact Assessment and Management	**Skill Development:** 1.Systems approach to water resources planning and management 2.Application of linear programming in water resources, 3.Application for resource allocation
48	1	B.Tech-Civil Engineering	1001174206	Solid and Hazardous Waste Management	**Skill Development:** 1. Physical, chemical and biological characteristics, 2.Waste generation and handling at source Functional elements of solid waste management., 3.Composting: definition-methods of composting, 4.Design and Operation of landfills
49	1	B.Tech-Civil Engineering	1001174207	Water Resources Systems Planning and Management	**Skill Development:** 1.Systems approach to water resources planning and management 2.Application of linear programming in water resources, 3.Application for resource allocation
50	1	B.Tech-Civil Engineering	1001174208	Transportation Planning	**Skill Development:** 1.Land use transportation planning; systems approach-Stages-Inventory of Existing Conditions-Difficulties in implementation 2. Methods of trip distribution; Growth and Synthetic Models, Calibration 3.All-or-Nothing Assignment, Multipath Traffic Assignment, Capacity- Restrained Traffic Assignment
51	1	B.Tech-Civil Engineering	1001174231	Main Project	**Employability:** It helps students to builds societal centric projects that enables him employable by exploring new designs/new models
52	1	B.Tech-Civil Engineering	1001174251	Technical Seminar	**Employability:** It tests student understanding of the courses for the entire program and helps him a gateway for choosing right carrer
53	1	B.Tech-Civil Engineering	1001174261	Comprehensive Viva	**Employability:** It tests student understanding of the courses for the entire program and helps him a gateway for choosing right carrer
54	1	B.Tech-Civil Engineering	1001174281	Internship	**Employability:** To provide exposure and confidence towards working environment which increases Employability.
55	2	B.Tech-Electrical and Electronics Engineering	1000201100	Mathematics -I	**SKill Development:** This course provides mathematical knowledge required to analyze problems encountered in differential equations, mathematical modeling and the apply differential equations in Laplace transform to obtain solution of differential equations with given boundary values 1.Higher order differential equations 2.Differential equation using Laplace transforms
56	2	B.Tech-Electrical and Electronics Engineering	1000201103	Solid State Physics	**Skill development:** It provides the knowledge of structural, electrical, magnetic and semiconducting properties of materials and superconducting devices. 1.Intrinsic semiconductors and extrinsic semiconductors 2.Dielectric constant 3.Classification of magnetic materials 4.Crystal structure determination 5.Hall effect

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57	2	B.Tech-Electrical and Electronics Engineering	1000201104	Mathematics -II	Skill Development : Apply numerical methods for finding a root of an equation, Interpolation & numerical techniques for solving ordinary differential equations & integration and many complicated expressions occurring in Electrical & Mechanical systems can be elegantly simplified. 1. Numerical solution for finding a root of an equation 2.Interpolation 3.Determinants and solution of linear equations 4. Eigen values and eigen vectors
58	2	B.Tech-Electrical and Electronics Engineering	1003201110	Engineering Workshop	**Skill development:** It impart hands-on practice on basic engineering trades and skills. 1. Carpentry:Saw the wood and develop the required kind of job piece 2.Fitting:Saw the Steel and develop the required kind of job piece 3.Black smithy:Prepare the cold worked/hot worked job piece and mould it accordingly 4.House wiring:Design and develop the switch lamp system for a given configuration
59	2	B.Tech-Electrical and Electronics Engineering	1000201112	Solid State Physics lab	**Skill Development:** It provide the knowledge on Analysis of characteristics of PN, Zener diode, solar cell, thermistor, dielectric materials and identification of type of semiconductor and estimation of carrier concentration. 1. V-I characteristics of p-n junction diode, Zener diode 2.Hall effect 3. Characteristics of thermistor 4. Solar cell 5.Dielectric constant
60	2	B.Tech-Electrical and Electronics Engineering	1002192100	Fundamentals of signals and systems	**Employability:** Basic knowledge on signals and case studies given and solved to enhance the application of theory 1.Transfer function of a LTI system. 2.Properties of Fourier series(without proofs) 3.Application of Fourier series analysis to simple electric circuits
61	2	B.Tech-Electrical and Electronics Engineering	1002192120	Electrical Machines-I	**Employability:** It gives through understanding of principle of operation, performance, testing methods and applications of DC machines and transformers 1.Construction and principle of operation of DC generator 2.Testing of DC machines - brake test, Swinburne's method -- retardation test . 3.Types and constructional details - principle of operation 4.Tests on single phase transformers
62	2	B.Tech-Electrical and Electronics Engineering	1002192101	Electro Magnetic Fields	**Employability:** Basic knowledge in magnetic fields 1.Gauss's law & applications 2.Magnetic Levitation principles. 3.Behavior of Conductors and Insulators 4.Application of Electromagnetic meta Materials
63	2	B.Tech-Electrical and Electronics Engineering	1004192122	Basic Electronic Devices and Circuits	**Employability:** It gives knowledge on electronic devices and Realization of rectifiers, amplifiers and oscillators 1.Operation and characteristics of p-n junction diode 2.Rectifier circuits and operation 3.Characteristics of transistor (CE, CB and CC configurations) 4.RC phase shift oscillator and wein bridge oscillator
64	2	B.Tech-Electrical and Electronics Engineering	1002192102	Electrical Circuit Analysis-II	**Employability:** Case studies given and solved to enhance the application of Electrical circuits 1.analysis of balanced three phase circuits - measurement of active and reactive power. 2.Two wattmeter methods for measurement of three phase power 3.Z, Y, ABCD and Hybrid parameters and their relations

65	2	B.Tech-Electrical and Electronics Engineering	1002201200	Electrical Circuit Analysis-I	**Employability:** It gives the basic knowledge on signals and case studies given and solved to enhance the application of theory 1.Kirchhoff's Laws, Nodal Analysis, Mesh Analysis 2.Maximum Power Transfer theorem, Thevenin's theorem 3.Power Factor and its significance Real, Reactive and apparent Power
66	2	B.Tech-Electrical and Electronics Engineering	1000201102	Technical English Communication	**Employability Skills:** The students will be able to acquire various skills which enhance their employability Skill. The students are given platform to practice Reading and Writing comprehension. **Topics:** Reading Comprehension, Essay Writing, Letter Writing, Paraphrasing, Abstract Writing, Powerpoint Presentation, Note Making
67	2	B.Tech-Electrical and Electronics Engineering	1002201211	Electrical Circuit Analysis-I Lab	**Skill development:** Lab Experiments conducted to enhance the practical knowledge 1.Nodal Analysis, Mesh Analysis 2.Maximum Power Transfer theorem, Thevenin's theorem
68	2	B.Tech-Electrical and Electronics Engineering	1000201120	Game, Sports and Yoga	**Skill development:** It helps to enhance the focus, stress management, physical and mental health and fitness. 1.Life skills 2.Breathing techniques 3.Cricket 4.Volley ball 5.Foot ball 6.Running
69	2	B.Tech-Electrical and Electronics Engineering	1000201105	Applied Chemistry	**Employability:** 1) Employment opportunities in the electrochemistry allied sectors like batteries, fuel-cell etc. 2) Nanomaterials and its composition is a vibrant knowledge for understanding the preparation of nanostructures with different functionalities. R&D laboratories, nano-based industries showed the employment
70	2	B.Tech-Electrical and Electronics Engineering	1000201113	Applied Chemistry Lab	**Skill development:** Analysis of samples with use of titrations are skill oriented techniques essential in the determination of characteristics of samples and helpful to get employment in the research laboratories, QC departments etc.
71	2	B.Tech-Electrical and Electronics Engineering	1002192201	Power Generation Engineering And Economics	**Employability:** the study of differnet types of power plants like conventional and non conventional and various tariff methods is used for caluclation power generation cost 1. Thermal Power Stations: Brief description of TPS and Components 2.Nuclear Power Stations: Principle of operation of nuclear reactor. 3. Economics of Power Generation and Tariff Methods
72	2	B.Tech-Electrical and Electronics Engineering	1099192200	Management Science	**Employability:** 1.Demand forecasting 2.Cost-Volume-Profit Analysis 3.Market Strategies 4.PERT/CPM
73	2	B.Tech-Electrical and Electronics Engineering	1002192220	Electrical Machines-II	**Employability:** It gives understanding of principles, performance and applications of three-phase induction motor, synchronous generators and synchronous motors. 1.Construction details of cage and wound rotor machines and principle of operation 2.Speed control of induction motor with V/f constant method 3.Single phase induction motors – Constructional features and equivalent circuit 4.Construction, Operation and Voltage Regulation of Synchronous generator

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74	2	B.Tech-Electrical and Electronics Engineering	1004192203	Analog Electronics	**Employability:** Case studies given and solved to enhance the application of Analog electronics 1.High pass, low pass RC circuits, their response for sinusoidal, step, ramp, and square inputs 2.Inverting and Non-Inverting amplifiers, differentiator, Integrator, Instrumentation amplifier 3.Mono-stable and astable multi vibrators using IC 555 and it's Applications. 4.Advantages of active filters over passive filters, Design & Analysis of Butterworth active filters
75	2	B.Tech-Electrical and Electronics Engineering	1002192221	Control Systems	**Employability:** It gives the design and modeling. Analysis of simple PD, PID controllers 1.Transfer Function of DC Servo motor - AC Servo motor-Synchro, transmitter and receiver 2.Effects of proportional derivative, proportional integral systems, proportional derivative integral systems 3.Transfer function from the Bode Diagram- Polar Plots, Nyquist Stability criterion 4.Design of compensators using Bode plots
76	2	B.Tech-Electrical and Electronics Engineering	1002192170	Mini Project-I (EPICS/Societal Relevant Project)	**Skill Development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools
77	2	B.Tech-Electrical and Electronics Engineering	1002174101	Utilization of Electrical Energy	**Employability:** Traction motor operating principles and characteristics in terms of speed, temperature, and load conditions 1.Starting and running characteristics of electric drives–Speed control 2.Induction heating and dielectric heating 3.Laws of illumination–Polar curves–Integrating sphere–Lux meter 4.Special features of traction motor,basic principle ofMagnetic levitation trains
78	2	B.Tech-Electrical and Electronics Engineering	1002174102	Programmable Logic Controller	**Employability:** PLC allowed learners to get industry-specific information. 1.CPU processor, programming equipment, I/O modules and interfaces 2.Using ladder logic, develop control algorithms for PLCs. 3.On delay timer instruction – Off delay timer instruction – Timer instructions 4.Control of the water level indication – Monitor of the alarm – Control of the conveyor motor
79	2	B.Tech-Electrical and Electronics Engineering	1002174103	Power System Operation & Control	**Employability:** To investigate how various components in the power system's control work. 1.Power System Operating Conditions 2.System hardware configuration – SCADA and EMS functions 3.Solution by direct method and λ-iteration method 4.Speed-load characteristics – load sharing between two synchronous machines in parallel
80	2	B.Tech-Electrical and Electronics Engineering	1002174104	Switchgear and Protection	Employability: Basic concepts and functioning of several types of circuit breakers and relays are presented. 1. Elementary principles of arc interruption– Restriking Voltage and Recovery voltages– Restriking phenomenon 2. Relays classification–Instantaneous– DMT and IDMT types– Applications of relays 3. Differential Protection for generator– Rotor faults and abnormal conditions 4. Basic operation of Static over current relays– Static distance relay– Micro processor based digital relays

81	2	B.Tech-Electrical and Electronics Engineering	1002174105	Distributed Generation and Microgrids	Employability: To provide information regarding distributed generating technologies and their grid interconnection. 1. Topologies and the concept of distributed generations (DG) or distributed energy resources (DERs).2. Issues with grid connections for grid-connected operation of different types of DG systems 3. Source switching using SCR-based static switches and power quality requirements 4. Microgrid protection and stability analysis
82	2	B.Tech-Electrical and Electronics Engineering	1002174106	Advanced Control Systems	**Employability:** The scope of this study is to look at state space, nonlinear systems, phase planes, and Lyapunov stability analysis. 1.Controllable canonical forms and observable canonical forms are two types of canonical forms. 2.Design of state feedback control through pole placement. state observers 3.Lyapunov's direct technique for linear and nonlinear systems 4.Control and state variable inequality constraints
83	2	B.Tech-Electrical and Electronics Engineering	1004174105	IoT & its Applications	**Employability:** Analyze the communication protocols and standards used in IoT and implement the real time IoT applications. 1. Use various sensors and actuators for IoT applications. 2. Develop applications for the Internet of things.
84	2	B.Tech-Electrical and Electronics Engineering	1005172104	Java Programming	**Employability:** 1.Relate the procedural and object paradigm, with real world entities 2.Exception handling 3.Multithreading mechanisms helps to create efficient software application 4.Design various layouts along with applet usage.
85	2	B.Tech-Electrical and Electronics Engineering	1005172201	Data Base Management Systems	**Employability :** 1.Create, maintain and manipulate a relational database using SQL. 2.Design and build database system for a given real world problem.
86	2	B.Tech-Electrical and Electronics Engineering	1099173201	Entrepreneurship Development	**Entrepreneurship:** 1.Entrepreneurship process 2.Steps involved in setting up a Business 3.Sources of financeRegistration Process 4.Business Idea Generation
87	2	B.Tech-Electrical and Electronics Engineering	1002174121	Electrical Simulation Lab	**Skill Development:** To simulate integrator, differentiator, boost, buck, full convertor, and PWM inverter circuits 1.Single-phase full converter simulation with RLE loads and single phase AC voltage controller simulation with RL loads 2.Single phase inverter simulation with PWM control 3. Integrator & Differentiator circuits using op-amp
88	2	B.Tech-Electrical and Electronics Engineering	1002174122	Power Systems & Simulation Lab	**Skill Development:** Practical understanding of how various components of the electricity system work 1.Fault Analysis was used to determine the sequence impedances of a three-phase alternator. 2.The Gauss-seidel technique was used to study load flow. 3.Controlling the frequency of the load with and without a controller 4.Characteristics of a three-phase alternator with an infinite bus bar in terms of power angle
89	2	B.Tech-Electrical and Electronics Engineering	1002174201	Digital Control Systems	**Employability:** Due to various their capacity to reliably conduct complicated computations at rapid rates, digital controllers have become attractive. 1.Analog and digital control systems: an overview 2.Finding inverse z-transforms 3.Discrete time systems are represented in state space. 4.Modified routh's stability criterion and jury's stability test

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90	2	B.Tech-Electrical and Electronics Engineering	1002174202	HVDC Transmission	**Employability:** The importance of HVDC transmission systems, analysis of HVDC converters, faults and protection, harmonics and filters are all covered in this course. 1.Apparatus required for HVDC Systems - Types of HVDC Links 2.Converters with 6 and 12 pulses have different performance characteristics. 3.Starting and stopping of DC link - Power Control 4.AC Harmonics Calculation and the Effect of Pulse Number on Harmonics
91	2	B.Tech-Electrical and Electronics Engineering	1002174203	Electrical Distribution Systems	**Employability:** This course was created to meet the current demands of the Power System Distribution Networks. 1.Relationship between the load factor and loss factor 2.Benefits and approaches for locating substations in the best possible place 3.Design Considerations of distribution feeders 4.Effect of series capacitors and AVB/AVR
92	2	B.Tech-Electrical and Electronics Engineering	1002174204	Smart Grid Technologies	**Employability:** This program introduces the Smart Grid idea, a comparison of traditional and Smart Grid electrical grids, and several Smart Grid technologies. 1.Definitions, Concept of Smart Grid, and Need for Smart Grid 2.Real Time Pricing, Smart Appliances, Automatic Meter Reading (AMR) 3.IEDs (Intelligent Electronic Devices) and its use in monitoring and protection 4.Concept of micro grid, need & applications of microgrid, formation of microgrid
93	2	B.Tech-Electrical and Electronics Engineering	1002174205	Flexible Alternating Current Transmission Systems	**Employability:** Different types of Flexible AC Transmission System Controllers are examined. 1.Basic types of FACTS controllers 2.Voltage harmonics for a s 4. ingle-phase bridge converter 3.Mid-point voltage regulation for line segmentation 4.Transient stability enhancement and power oscillation damping
94	2	B.Tech-Electrical and Electronics Engineering	1002174206	Power System Reforms	**Employability:** This course presents the principles and concerns surrounding power system changes, with the goal of calculating Available Transfer Capacity (ATC) 1.Key issues in electric utilities 2.Time Information System Structure of OASIS 3.Introduction to congestion management 4.Electricity price volatility electricity price indexes
95	2	B.Tech-Electrical and Electronics Engineering	1002174207	Condition Monitoring of Electrical Equipments	**Employability:** Electrical equipment, such as transformers and spinning machineries, are subject to condition monitoring.
96	2	B.Tech-Electrical and Electronics Engineering	1002174281	Internship	**Skill Development:** Internships enable students to get in-depth knowledge of a topic relevant to their field of study. 1. A self-study report, duly authorized by the industry supervisor / guide
97	2	B.Tech-Electrical and Electronics Engineering	1002174251	Technical Seminar	**Skill Development:** The student can gather information on a specific issue and write a technical report demonstrating his knowledge of the subject.
98	2	B.Tech-Electrical and Electronics Engineering	1002174261	Comprehensive Viva	**Skill Development:** Intends to evaluate the students' grasp of various courses they learned during their B.Tech degree programme.
99	2	B.Tech-Electrical and Electronics Engineering	1002174231	Main Project	**Skill Development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools

100	3	B.Tech-Mechanical Enginnering	1000192100	Complex Variables & Statistical Methods	**Skill Development:** Develops the theory of functions of a complex variable, emphasizing their geometric properties and indicating some applications and extend the concept of integration to two and three dimensions and support it through applications in engineering mechanics to vector functions and to compute line, surface and volume integrals. 1.Complex variables 2.Complex Integration and Residues 3.Hypothesis testing for large and small samples
101	3	B.Tech-Mechanical Enginnering	1003192120	Materials Engineering	**Employability:** It helps for the improvement, proper selection and effective utilization of materials which is essential to satisfy the ever increasing demands of the society 1.Structure of Metals: grain boundaries, effect of grain boundaries on the properties of metal / alloys – determination of grainsize 2.Equilibrium Diagrams: Alloys, substitutional and interstitial solid solutions 3.Cast Irons and Steels: Structure and properties of cast iron,Classification of steels 4.Heat treatment of Alloys:Annealing, normalizing, hardening 5.Ceramic and composite materials: definition, properties and applications of the above,Classification of composites
102	3	B.Tech-Mechanical Enginnering	1003192121	Mechanics of Solids	**Employability:** It expected to understand the different stresses induced in beams, thin cylinders, thick cylinders, columns for engineering applications 1.Draw stress-strain curves for various engineering materials. 2.Estimate transverse deflection of beams for various loading and boundary conditions. 3.Analyze thermal stresses for statically determinate and indeterminate structures. 4.Plot shear stress distribution for different cross sections. 5.Calculate rigidity modulus of circular shafts.
103	3	B.Tech-Mechanical Enginnering	1003192100	Thermodynamics	**Employability:** It expected to understand the application of thermodynamic principles to the design and optimization of engineering systems, like Internal Combustion engines and Air compressors 1.Studying various types of engine and testing engine performance 2.Compute the engine performance under given conditions mathematically. 3.Using exhaust gas recirculation technique and also using catalytic convertor and Particulate filter to reduce HC NOx CO and PM emissions. 4.Assembly and Dismantling of engine to study various part of engine like carbretor, fuel injection system, piston and engine block, connecting rod, crank timing chain. lubrication system etc. 5.To perform testing on air compressor and compute it performance under different conditions.
104	3	B.Tech-Mechanical Enginnering	1003192122	Fluid Mechanics & Fluid Machines	**Employability:** To impart basic knowledge and understanding about the properties of fluids, its kinematic and dynamic behavior for engineering applications. 1.Dynamic behaviour of fluid 2.Energy &Momentum equations 3.Velocity diagrams of the turbines 4.Design considerations of the pumps 5.Characteristic curves of turbines and pumps.
105	3	B.Tech-Mechanical Enginnering	1003192170	Mini Project-I (EPICS/Socie	**Skill Development :** Problem solving skills by implementing real-time problems choosen from industry/ field survey through modern tools.

				tal Relevant Project)	
106	3	B.Tech-Mechanical Enginnering	1002201201	Basic Electrical and Electronics Engineering	**Skill Development :** Circuit design, Apply linear systems theory and analysis, Develop electrical schematics.
107	3	B.Tech-Mechanical Enginnering	1002201210	Basic Electrical and Electronics Engineering Lab	**Skill Development :** Hardware knowledge, Problem-solving and critical thinking, Testing knowledge, Communication skills.
108	3	B.Tech-Mechanical Enginnering	1003192200	Kinematics of Machinery	**Employability:** To understand the nature and role of the kinematics of machinery, the mechanisms and machines 1.Making simple model of any mechanism 2.Evaluate acceleration any mechanism 3.Making of cam and follower mechanism model 4.Desgn and developent of 4 bar mechanism 5.Design and develop diffrent gear drive mechanisms 6.Compute velocity and acceleration of links in mechanisms
109	3	B.Tech-Mechanical Enginnering	1003192220	Applied Thermodynamics-I	**Skill Development :** Covers topics ranging from energy and temperature to reversibility and entropy, the first and second laws of thermodynamics, and the properties of ideal gases.
110	3	B.Tech-Mechanical Enginnering	1003192221	Manufacturing Processes	**Employability:** To understand the nature and role of the kinematics of machinery, the mechanisms and machines 1.Making simple model of any mechanism 2.Evaluate acceleration any mechanism 3. Making of cam and follower mechanism model 4.Desgn and developent of 4 bar mechanism 5.Design and develop diffrent gear drive mechanisms 6. Compute velocity and acceleration of links in mechanisms
111	3	B.Tech-Mechanical Enginnering	1003192222	Machine Drawing	**Skill development:** To gain skill to prepare the assembly of various machine or engine components and miscellaneous machine components. 1. Students are able to understand and draw various machine components and their conventional representations. 2. Students are in a position to identify the parts and their applications & find the scope of various machine elements such as screwed fasteners, riveted joints, keyed joints, shaft couplings, etc. 3. Students can identify and list the parts and able to draw an assembly drawing from the individual part drawings of a machine parts with proper dimensions. 4. Students can identify and list the parts and able to draw an assembly drawing from the individual part drawings of a engine parts with proper dimensions. 5. Students can identify and list the parts and able to draw an assembly drawing from the individual part drawings of a valves with proper dimensions.
112	3	B.Tech-Mechanical Enginnering	1003174101	CAD/CAM	**Employability:** Understand the basic fundamentals of computer aided design and manufacturing 1.Computers in industrial manufacturing 2. geometric models, geometric construction models, curve representation methods 3.Computer aided quality control:Inspection methods-contact and noncontact types, 4.PART PROGRAMMING FOR NC MACHINES 5. FMS-Introduction, Equipment, Tool management systems, Layouts, FMS Control

113	3	B.Tech-Mechanical Enginnering	1003174102	Automobile Engineering	**Employability:** To get knowledge in the automobile parts and thier functions used in automobile applications 1.Components of four wheeler automobile 2.Transmission system: Clutches,gear box, propeller shaft, differntial 3.Steering system:steering geometry 4.Electrical system 5.Engine meission control and devices
114	3	B.Tech-Mechanical Enginnering	1003174103	Power Plant Engineering	**Employability:** Providing knowledge of power generation through different prime movers viz steam, ICGT, Hydro, nuclear and hybrid systems along with their economics and environmental considerations 1.Steam power plant:plant layout,design and construction 2.Internal combustion and gas turbine plants 3.Hydro lectric power plant 4.Nuclear power station 5.Power plant instrumentation and control
115	3	B.Tech-Mechanical Enginnering	1003174104	Fundamentals of Acoustics & Vibration	**Employability:** To understand terminology in vibration and acoustics 1.Relevance of and need for vibrational analysis 2.Free and forced vibrations of multi-degree freedom systems in longitudinal, torsional and lateral modes 3.Torsional vibrations - Longitudinal vibration of rods 4.Speed of Sound, Wavelength, Frequency, and Wave Number 5.Sound Level Meters, Intensity Level Meters
116	3	B.Tech-Mechanical Enginnering	1003174105	Optimization and Reliability	**Entrepreneurship:** This provides understanding of the approaches and techniques to assess and improve process and/or product reliability 1.Optimization techniques 2.Numericalmethods 3.Genetic algorithm and programming 4.Optimization in design and manufacturing 5.Reliability: design for reliability
117	3	B.Tech-Mechanical Enginnering	1003174106	Refrigeration & Air Conditioning	**Employability:** understand the basic cycles of various refrigerating systems, their performance evaluation along with details of system components and refrigerant properties. 1.Unit of refrigeration and C.O.P. – Mechanical refrigeration 2.Simple vapour compression refrigeration cycle – COP 3.REFRIGERANTS – Desirable properties – classification 4.VAPOR ABSORPTION SYSTEM: Calculation of maximum COP 5.AIR CONDITIONING SYSTEMS: Classification of equipment, cooling, heating humidification and dehumidification
118	3	B.Tech-Mechanical Enginnering	1003174107	Gas Dynamics & Jet Propulsion	**Employability:** To understand the basic principles of gas dynamics and its importance in jet propulsion applications 1.Gas dynamics: control volume and system approaches,classification of fluid flow based on mach number 2.Governing equations for isentropic flow of a perfect gas - critical flow 3.Steady one dimensional flow with heat transfer in constant area ducts- governing equations 4.Rankine Hugoniat equations - Prandtl's velocity relationship 5.Propulsion: Air craft propulsion: - types of jet engines

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119	3	B.Tech-Mechanical Enginnering	1003174108	CNC Machine Tools	**Employability:** To understand the basic fundamentals of numerical control (NC) machine tools and computer numerical control (CNC) machine tools 1.Features of NC Machines Fundamentals of numerical contro 2.Manual programming-Basic concept,APT programming, 3 DDA integrator, hardware interpolators for linear and circular interpolator, DDA software interpolators 4.Tooling for CNC machines 5.Microcontrollers
120	3	B.Tech-Mechanical Enginnering	1003174109	Quality and Reliability Engineering	**Employability:** basic understanding of the approaches and techniques to assess and improve process and/or product quality and reliability 1.Quality value and engineering 2.Statistical process control X, R, p, c charts, other types of control charts 3.Acceptance sampling by variables and attributes 4.Quality function deployment – house of quality, QFD matrix 5.Reliability – Evaluation of design by tests
121	3	B.Tech-Mechanical Enginnering	1003174110	Composite Materials	**Employability:** basic understanding of the the concept of composite, differentiate the different types of composite and their reinforcements for engineering applications 1.Definition and Classification of Composites, MMC, PMC, CMC 2.Particulate fillers-importance of particle shape and size. Matrix resins-thermoplastics and thermosetting matrix resins 3.Fabrication techniques: pultrusion, filament winding, prepreg technology 4.Properties and performance of composites: Properties and microstructure of high-strength fiber materials 5.Failure criteria: Hygrothermal stresses, bending of composite plates, analysis of sandwich plates
122	3	B.Tech-Mechanical Enginnering	1003174111	Condition Monitoring	**Employability:** Designed to introduce the benefits and opportunities of machine health Monitoring and covers a range of techniques. 1.Basic motion: Amplitudes, period, frequency, basic parameters: Displacement, velocity, acceleration, units 2.Transducers and mounting methods, data acquisition using instrumentation recorders 3.Fault Diagnosis, Interpreting vibration measurements for common machine faults 4.Basics of oil analysis, monitoring condition of oil, lubricant analysis, physio – chemical properties 5.Ultrasonic monitoring (leak, crack nd thickness) basics of ultrasonic monitoring , ultrasonic theory, test taking philosophy
123	3	B.Tech-Mechanical Enginnering	1003174112	Computational Fluid Dynamics	**Employability:** applying various numerical techniques for solving different engineering problems involving fluid flow 1.Number system and errors, representation of integers, fractions, floating point arithmetic 2.Solution of a system of simultaneous linear algebraic equations, iterative schemes of matrix inversion 3.Steady flow, dimensionless form of momentum and energy equations, stokes equation 4.Finite differences, discretization, consistency, stability, and fundamentals of fluid flow 5.Linear interpolation and quadratic interpolation

124	3	B.Tech-Mechanical Enginnering	1003174113	Green Engineering Systems	**Employability:** To impart knowledge on alternative sources of energy, green energy systems and processes and provides the theory and working principles of probable sources of renewable and green energy systems that are environmentally friendly 1.Role and potential of new and renewable sources 2.Solar energy storage and applications 3.Principles of bio-conversion, anaerobic/aerobic digestion ,Geo thermal energy, Ocean energy 4.Energy effiecient systems 5.Energy effcient processes
125	3	B.Tech-Mechanical Enginnering	1003174114	Computer Graphics	**Skill Development:** use of the components of a graphics system and become familiar with building approach of graphics system components and algorithms 1.Application areas of computer graphics 2.Points and lines, line drawing algorithms 3.Viewing coordinate reference frame, window to view-port coordinate transformations, viewing function 4.Translation, rotation, scaling, reflection and shear transformation and composite transformations 5.Design of animation sequence, general computer animation functions, raster animation, computer animation languag
126	3	B.Tech-Mechanical Enginnering	1003174115	Additive Manufacturing	**Employability:** To impart knowledge on Additive Manufacturing, classifications, models, specifications of various Additive Manufacturing Techniques 1. Selection of a suitable Rapid prototyping system for engineering analysis and planning. 2. Selection of a suiable Rapid tooling process. 3. Learn about different Rapid prototyping data formats and softwares 4. Understand 3 D printing technology 5. Know about the application of 3D printers in biomedical industry.
127	3	B.Tech-Mechanical Enginnering	1003174121	CAD/CAM Lab	**Skill development:** fundamental knowledge on using various design & analytical tools like NX design, CATIA, ANSYS, FLUENT, Hyperworks, etc., for Engineering Simulation 1.Development of part drawings for various components 2.Generation of various 3D models through protrusion, revolve, shell sweep. creation of various features 3.Analysis of 2D and 3D designed components 4.Machining of simple components on NC lathe and Mill 5.CNC programming for milled components using FANUC Controller
128	3	B.Tech-Mechanical Enginnering	1003174122	Vibration and Acoustics Lab	**Skill development:** Fundamental knowledge on determine natural frequency of beams, plates and cavity. 1.natural frequency of a given cantilever beam in free vibration 2.The effect of damping with various materials for a given cantilever specimen in free vibration 3.Structural vibrations of a given plate 4.Structure borne noise of a wooden plate 5.Damping co-efficient and natural frequency for a given cantilever beam using impact hammer
129	3	B.Tech-Mechanical Enginnering	1003174123	Simulation Lab(Mat-Lab Tools)	**Skill development:** To impart programming exposure on the various functions in Matlab. Also, to impart knowledge on the solving capabilities on various numerical problems. 1.MATLAB basics, 2.Dealing with vectors and matrices, 3.Graphing-Functions of one variable and two Variables 4.Neural Network Tool box – Training and testing. 5.Basic plotting: Creating simple plots, Adding titles, axis labels, and annotation

130	3	B.Tech-Mechanical Enginnering	1003174124	Mechatronics Lab	**Skill development:** To impart knowledge in Measure load, displacement and temperature using analog and digital sensors 1.DYNA 1750 Transducers Kit 2.PLC PROGRAMMING 3.AUTOMATION STUDIO software 4.MATLAB Programming
131	3	B.Tech-Mechanical Enginnering	1003174131	Mechanical Synthesis Project	**Skill Development:** To impart the fundamental knowledge on design and fabrication of mechanical mechanisms 1.Design of Mechanical Synthesis project 2. Develop the links and assembly drawing of mechanism 3.Fabrication of Mechanical Synthesis project
132	3	B.Tech-Mechanical Enginnering	1003174201	Production Planning and Control	**Employability:** An understanding of the concepts of production and service systems 1.Objectives and functions of production planning and control 2.Forecasting – importance of forecasting - types of forecasting, their uses 3.Inventory management – functions of inventories 4.Routing – definition – routing procedure –route sheets – bill of material 5.Dispatching – activities of dispatcher – dispatching procedure
133	3	B.Tech-Mechanical Enginnering	1003174202	Advanced Materials	**Employability:** Understand the mechanics of different materials 1Introduction, classification: 1.Polymer matrix composites, metal matrix composites, ceramic matrix composite 2.Polymer composites, thermoplastics, thermosetting plastics 3.Micro mechanical analysis oflamina 4.Functionally graded materials 5.Nano materials
134	3	B.Tech-Mechanical Enginnering	1003174203	Nano-Technology	**Employability:** Understand the basic scientific concepts of nanoscience. Understand the properties of nano materials, characterization of materials, synthesis and fabrication 1.Classification of nano materials 2.Mechanical properties, electrical properties, dielectric properties, thermal properties, magnetic properties, opto electronic properties 3.PVD and CVD 4.X-Ray diffraction and Scherrer method, scanning electron microscopy, transmission electron microscopy, scanning probe microscopy, atomic force microscopy, piezo response microscopy 5.Applications in material science, biology and medicine, surface science, energy and environment.
135	3	B.Tech-Mechanical Enginnering	1003174204	Thermal Equipment Design	**Employability:** This impart the mechanism of convection heat transfer by 3 modes namely Conduction, Convection, Radiation and their governing equations 1.Tubular heat exchangers, Plate heat exchangers, Gasketed plate heat exchanger, spiral plate heat exchanger 2.LMTD method for heat exchanger analysis 3.Shell & Tube Heat Exchangers 4.Calculation of a horizontal condenser 5.Direct Contact Heat Exchanger
136	3	B.Tech-Mechanical Enginnering	1003174205	Industrial fire and Safety	**Employability:** To create awareness among students about Fire safety and Fire prevention 1.Different types of safety systems and equipments 2.Emergency planning, Safety inventory systems 3.Accident prevention methods, Safety committee 4.Classification of fire 5.Fire protective clothing

137	3	B.Tech-Mechanical Enginnering	1003174206	Mechatronics	**Employability:** Understand various elements of a mechatronic system and concept of signal conditioning and digital signal Processing. 1.Mechatronics systems – elements & levels of mechatronics system 2.PN junction diode, BJT, FET, DIAC, TRIAC and LEDs 3.Hydraulic and pneumatic actuating systems 4.Digital electronics and systems, digital logic control, microprocessors and micro controllers, programming 5.System and interfacing and data acquisition
138	3	B.Tech-Mechanical Enginnering	1003174207	Design for Manufacture	**Employability:** Understand the concepts of various manufacturing methods with sheet metal, joining methods, automation 1.Design for the life cycle total product life of consumer goods-design considerations 2.General design recommendations for machined parts. 3.General design considerations for casting-casting tolerance-use of solidification 4.Design factors for forging 5.Design guidelines for machining and joining of plastics
139	3	B.Tech-Mechanical Enginnering	1003174208	Un Conventional Machining Processes	**Employability :** understand the principle, mechanism of metal removal of various unconventional machining processes 1.Classification of modern machining processes – considerations in process selection, applications 2.Fundamentals of electro chemical machining 3.General principle and applications of Electric Discharge Machining, 4.Electron Beam Machining, Laser Beam Machining 5.Abrasive jet machining, Water jet machining
140	3	B.Tech-Mechanical Enginnering	1003174209	Non-Destructive Evaluation	**Employability:** Knowledge in concepts of various NDE techniques using radiography, ultrasonic's, liquid penetrates, magnetic patches and Eddy currents 1.Radiographic test, Sources of X and Gamma Rays 2.Principle of Wave Propagation, Reflection, Refraction, Diffraction 3.Liquid Penetrant Test,Principle of Eddy Current 4.Magnetic Materials, Magnetization of Materials 5fundamentals to infrared and thermal testing
141	3	B.Tech-Mechanical Enginnering	1003174281	Internship	**Skill development:** Internships help students to acquire in depth knowledge about a particular topic related to the program of study. Such extensive work is expected to create a platform for a job or further research in the chosen area
142	3	B.Tech-Mechanical Enginnering	1003174251	Technical Seminar	**Skill Development:** It will help to collect the information on a specialized topic and prepare a technical report, showing his/her understanding over the topic, and submit to the department.
143	3	B.Tech-Mechanical Enginnering	1003174261	Comprehensive Exam	**Skill Development:**The Comprehensive Viva aims to assess the students' understanding in various subjects he / she studied during the B.Tech course of study
144	3	B.Tech-Mechanical Enginnering	1003174231	Main Project	**Skill development:** Students will able to get knowledge in and expertise in the concerned area of project and help the students to gain knowledge in particlualr project field.
145	4	B.Tech-Electronics and Communication Engineering	1004201110	Basic Electronic Workshop	**Skill Development :** It gives thorough understanding of the basics of Electronics. 1.Passsive and active components 2.Signal Sources 3.Soldering practice 4.Measuring equipment.
146	4	B.Tech-Electronics and Communication Engineering	1004192121	Analog Communications	**Skill Development :** A data transmitting technique in a format that utilizes continuous signals to transmit data including voice, image, video

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147	4	B.Tech-Electronics and Communication Engineering	1004192101	Switching Theory and Logic Design	**Skill development :** Boolean laws and theorems
148	4	B.Tech-Electronics and Communication Engineering	1004201200	Switching Theory and Logic Design	**Employability :** Design of Logical Circuits using Universal gates and Basic Gates
149	4	B.Tech-Electronics and Communication Engineering	1000201202	Complex Variables and Vector Calculus	**Skill development:** Develops the theory of functions of a complex variable, emphasizing their geometric properties and indicating some applications and extend the concept of integration to two and three dimensions and support it through applications in engineering mechanics to vector functions and to compute line, surface and volume integrals. 1.Complex variables 2.Complex Integration and Residues 3.Vector calculus
150	4	B.Tech-Electronics and Communication Engineering	1004201210	Switching Theory and Logic Design Lab	**Skill Development :** Design of logical circuits using universal gates and basic gates and Reduction of Boolean function using K-maps.
151	4	B.Tech-Electronics and Communication Engineering	1000201203	Wave Optics and Semiconductor Physics	**Skill development:** It provides the knowledge of basic quantum mechanics, to set up one-dimensional Schrodinger's wave equation and superconductor properties to realize working principles of superconducting devices 1. Intrinsic semiconductors and extrinsic semiconductors 2. Hall Effect 3. Particle in a one-dimensional box 4. Schrodinger time independent wave equations
152	4	B.Tech-Electronics and Communication Engineering	1000201211	Wave Optics and Semiconductor Physics Lab	Skill Development: It provide the knowledge on Analysis of the voltage vs. current characteristics of PN, Zener diode, solar cell and thermistor and identification of type of semiconductor and estimation of carrier concentration. 1. V-I characteristics of p-n junction diode, Zener diode 2. Hall effect 3. Characteristics of thermistor 4. Solar cell
153	4	B.Tech-Electronics and Communication Engineering	1004192220	Analog Electronic Circuits – 1	**Skill Development :** Provide the knowledge for the analysis of transistor circuits. Develop skills to design the basic electronic circuits like amplifiers and oscillators.
154	4	B.Tech-Electronics and Communication Engineering	1004192221	Digital IC Applications	**Skill Development :** Focuses on analysis, design and applications of modern digital integrated circuits.
155	4	B.Tech-Electronics and Communication Engineering	1004192200	Introduction to Python Programming	**Employability :** Install Python IDE and run basic Python scripts and develop front end GUI using Visualization Libraries and Multithreading techniques.
156	4	B.Tech-Electronics and Communication Engineering	1004192201	Electromagnetic Waves and Transmission Lines	**Skill Development :**Become proficient with analytical skills for understanding propagation of electromagnetic waves in different media.
157	4	B.Tech-Electronics and Communication Engineering	1004192202	Random Variables and Stochastic Process	**Skill Development :** Focus on concepts like random variables, stochastic processes, time series,

158	4	B.Tech-Electronics and Communication Engineering	1004192270	Mini Project-I (EPICS/Societal Relevant Project)	**Skill Development :** The project will be carried out for the wellness of society. Students will understand how to write and report the findings.
159	4	B.Tech-Electronics and Communication Engineering	1004174102	Digital Image Processing	**Employability:** Identify and choose appropriate transform for a specific applications. 1. Apply frequency Domain filtering techniques for image enhancement. 2. Implement algorithms for enhancement, restoration, compression etc
160	4	B.Tech-Electronics and Communication Engineering	1004174103	Microwave Engineering	**Employability :** Through the designing of Antenna for wireless communication. 1.Rectangular Waveguides 2.Circulur Waveguides 3.Microwave tubes 4.Waveguide Attenuators
161	4	B.Tech-Electronics and Communication Engineering	1004174104	Optical Communications	**Employability :** Through the knowledge of Optical Communications . 1.Ray theory transmission 2.Optical fiber Connectors 3.Optical Receiver 4.Link power budget
162	4	B.Tech-Electronics and Communication Engineering	1004174106	System Design through Verilog	**Employability :** It gives thorough design of the Digital system using Verilog HDL programming. 1.module, simulation and synthesis tools 2.Gate level modeling 3.Behavoiral modelling 4.Data flow modeling
163	4	B.Tech-Electronics and Communication Engineering	1004174107	Embedded Systems Design	**Entrepreneurship :** Through the design the embedde systems. 1.Communication Interface 2.Embedded Firmware design approaches 3.Temperature display system 4.Smartphone operated home automation
164	4	B.Tech-Electronics and Communication Engineering	1004174108	Global Positioning System(GPS)	**Employability :** It gives thorough the knowledge of basic principles and applications of GPS 1.The Evolution of GPS 2.GPS system segments 3.GAGAN architecture 4.GPS Applictions
165	4	B.Tech-Electronics and Communication Engineering	1004174109	Artificial Intelligence	**Employability :** Through the knowledge of biggest artificial intelligence developments 1.Artificial General Intelligence 2.Multi-Layer Perceptron's 3.Machine Learning 4.Three Basic Machine Learning Algorithms
166	4	B.Tech-Electronics and Communication Engineering	1004174110	Speech Processing	**Skill development :** Through the knowledge on speech production and perception along with processing of speech signal. 1.speech production and perception 2.Short-term Fourier transform (STFT) 3.Hidden Markov Models 4.Speech coding
167	4	B.Tech-Electronics and Communication Engineering	1004174111	Micro Electromechanical Systems (MEMS)	**Employability :** It gives through the MEMS design methodologies, modelling of MEMS 1.MEMS and Microsystems 2.Scaling Laws in Miniaturization 3.Photolithography 4.Bulk Micromachining

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168	4	B.Tech-Electronics and Communication Engineering	1004174121	Microwave engineering & Optical Communications Lab	**Skill development :** Through the characteristics of microwave source and optical sources. 1.Reflex Klystron Characteristics 2.Attenuation Measurement 3.Scattering parameters of Magic Tee. 4.Characterization of LED.
169	4	B.Tech-Electronics and Communication Engineering	1004174122	Digital Image Processing Lab	**Employability :** Through the experimental learning of Image processing Systems 1. Image Transforms 2. Image Enhancement 3. Image Compression 4. Image Segmentation
170	4	B.Tech-Electronics and Communication Engineering	1004174202	Electronic Measurements and Instrumentation	**Employability :** Through the concept of measuring electrical parameters using various instruments. 1. Spectrum Analysers 2. Q-meter 3. Piezo Electric transducers 4.Data Acquisition Systems
171	4	B.Tech-Electronics and Communication Engineering	1004174203	Radar Systems	**Employability:** Through the knowledge of Radar Systems. 1.Radar range Equation 2.CW and Frequency Modulated Radar 3.MTI and Pulse Doppler Radar 4.Tracking with Radar
172	4	B.Tech-Electronics and Communication Engineering	1004174204	Data Science	**Employability:** Through the concept of probability distributions for statistical modelling. 1. Statistical modelling, probability distributions 2. Linear Regression, - k-Nearest Neighbours 3. Feature Generation 4.Social networks as graphs
173	4	B.Tech-Electronics and Communication Engineering	1004174205	Low Power VLSI Design	**Employability :** It gives through
174	4	B.Tech-Electronics and Communication Engineering	1004174206	Wireless Communication and Networking	**Employability :** Through the concepts ofmultiple access schemes used in wireless communications 1.Co channel Interference and system capacity 2. Free Space Propagation Model 3.Small–Scale Fading and Multipath 4.Nonlinear Equalization Least Mean Square Algorithm
175	4	B.Tech-Electronics and Communication Engineering	1004174207	Pattern Recognition	**Skill Development :** Through the Design cycle of pattern recognition. 1.Design cycle of pattern recognition. 2.Maximum Likelihood Estimation 3.K-Nearest Neighbor Estimation 4.Unsupervised Clustering Algorithm.
176	4	B.Tech-Electronics and Communication Engineering	1004174281	Internship	**Employability :** Through the acquiring knowledge from real-world and industry
177	4	B.Tech-Electronics and Communication Engineering	1004174251	Technical Seminar	**Skill development:** It will help to collect the information on a specialized topic and prepare a technical report, showing his/her understanding over the topic, and submit to the department.
178	4	B.Tech-Electronics and Communication Engineering	1004174261	Comprehensive Exam	**Employability :** Tthrough the test of knowledge of all courses.
179	4	B.Tech-Electronics and Communication Engineering	1004174231	Main Project	**Skill development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools

180	5	B.Tech-Computer Science and Engineering	1005192101	Digital Logic Design	**Skill Development:** 1. Solve typical number base conversions. 2. Develop the various types of sequential logic circuits like flip flops, registers and counters.
181	5	B.Tech-Computer Science and Engineering	1005192120	Data structures through c	**Skill Development:** 1.Apply the concept of linear and nonlinear data structures to various applications. 2.Analyze and implement operations on linked lists and demonstrate their applications. 3.Able to implement real time applications on Stacks and Queues.
182	5	B.Tech-Computer Science and Engineering	1005192121	Java Programming	**Employability:** 1.Relate the procedural and object paradigm, with real world entities 2.Exception handling 3.Multithreading mechanisms helps to create efficient software application 4.Design various layouts along with applet usage.
183	5	B.Tech-Computer Science and Engineering	1005192170	Mini project-I (EPICS/Societal Relevant Project)	**Skill Development :**The project will be carried out for the wellness of society. Students will understand how to write and report the findings.
184	5	B.Tech-Computer Science and Engineering	1005192100	Discrete Mathematical Structures	**Skill Development:** 1. Solving various types of problems on sets & relations. 2. Understand some basic Properties of trees, graphs and related discrete structures. 3. Solving a problem in recursive manner and estimation of time complexity.
185	5	B.Tech-Computer Science and Engineering	1005201200	Object Oriented Programming through C++	**Employability:** 1.Create simple programs using classes 2.Objects in c++ and implement object oriented programs in c++
186	5	B.Tech-Computer Science and Engineering	1005201201	Computer Organization	**Employability:** 1.Design and analyze logic circuit 2.interpret any instruction and write various instruction formats
187	5	B.Tech-Computer Science and Engineering	1005201202	Web Design	**Entrepreneurship:** 1.World Wide Web, Web Standards 2.HTML Tags and Attributes 3.HTML Tags and Attributes 4.HTML Document Structure 5.Introduction to HTML5 6.Creating Style Sheet 7.Client side and server side scripting
188	5	B.Tech-Computer Science and Engineering	1005201210	Object Oriented Programming through C++ Lab	**Employability:** 1.Create simple programs using classes and objects in c++ 2.Implement object oriented programs in c++
189	5	B.Tech-Computer Science and Engineering	1005201211	Web Design Lab	**Entrepreneurship:** 1.Implement the various CSS 2.Design the Login and Registration forms and apply CSS 3.Login form validation using java script 4.Working with GET and POST method mechanism to interact server using PHP script

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190	5	B.Tech-Computer Science and Engineering	1000201204	Applied Physics	It provides the knowledge on superconductor properties to realize working principles of superconducting devices and construction of lasers, diodes and logic gates. 1. Intrinsic semiconductors and extrinsic semiconductors 2. Hall Effect 3. Ruby laser & He- Ne laser 4. p-n junction diode & Zener diode 5. Logic gates and Half adder and Full adder circuits
191	5	B.Tech-Computer Science and Engineering	1000201212	Applied Physics Lab	"Skill Development: It provide the knowledge on Analysis of the voltage vs. current characteristics of PN, Zener diode, solar cell and Laser, optical fiber, thermistor and identification of type of semiconductor and estimation of carrier concentration. 1. V-I characteristics of p-n junction diode, Zener diode 2. Numerical aperture of optical fiber 3. Hall effect 4. Characteristics of thermistor 5. Solar cell
192	5	B.Tech-Computer Science and Engineering	1005192220	Advanced Data structures	**Employability:** Describe and implement a variety of advanced data structures like hash tables, priority queues, balanced search trees, graphs.
193	5	B.Tech-Computer Science and Engineering	1005192200	Computer Organization and Architecture	**Employability:** 1.Design and analyze logic circuit 2.interpret any instruction and write various instruction formats
194	5	B.Tech-Computer Science and Engineering	1005192221	Database Management Systems	**Employability:** 1.Create, maintain and manipulate a relational database using SQL. 2.Design and build database system for a given real world problem.
195	5	B.Tech-Computer Science and Engineering	1005192201	Software Engineering	**Employability:** 1.Apply the appropriate process models for the application development of SDLC 2.analyze the strategies for coding and testing phase in Software product development
196	5	B.Tech-Computer Science and Engineering	1005192202	Formal Languages and Automata Theory	**Skill Development :** Deals with the mathematical abstraction ... challenging exercises designed to hone the analytical skills of students.
197	5	B.Tech-Computer Science and Engineering	1005174101	Cryptography and Network Security	**Employability:** Build secured applications using sockets and TCP/IP. Apply Algorithms for factoring and discrete logarithms, cryptographic protocols, hash functions, authentication, key management, key exchange, signature schemes, Email and web security.
198	5	B.Tech-Computer Science and Engineering	1099172106	Managerial Economics and Financial Analysis	**Entrepreneurship:** 1.Demand forecasting 2.Cost-Volume-Profit Analysis 3.Market Structures 4.Methods of Appraising
199	5	B.Tech-Computer Science and Engineering	1005174102	Machine Learning	**Employability:** Apply basic principles of AI in solutions that require problem solving,inference, perception, knowledge representation, and learning. 1.Develop models based on well-known supervised, unsupervised and semi-supervised learning. 2.Develop real time applications based on Classification, Regression and SVM.

200	5	B.Tech-Computer Science and Engineering	1005174103	Big Data Analytics	**Employability:** Create and build applications for Big Data analytics. 1. Analyse large scale data using MAPREDUCE programming which includes JAVA and HADOOP frameworks. 2. Develop applications using PIG and Hive.
201	5	B.Tech-Computer Science and Engineering	1005174104	Mobile Ad-hoc Networks	**Skill Development:** Able to develop algorithms/protocols for Manets and WSN.
202	5	B.Tech-Computer Science and Engineering	1005174105	Software Project Management	**Employability:** Implement the project plans through managing people, communications and change. 1. Develop the skills for tracking and controlling software deliverables and identify and asses Risks in the project. 2. Make a list of possible risks and prepare a mitigation plan. 3. Identify the customer requirements and define the process of developing the product.
203	5	B.Tech-Computer Science and Engineering	1012172201	Computer Graphics	**Employability:** Apply different 2D and 3D transformation techniques & viewing technologies to real world problems.
204	5	B.Tech-Computer Science and Engineering	1005174106	Cloud Computing	**Employability:** Develops cloud based software applications on top of cloud platforms, storage systems and backup strategies for cloud based data. 1. Evaluate the concepts of various virtualization technologies. 2. Deploy applications over commercial cloud computing infrastructures. 3. Identify security and privacy issues in cloud computing.
205	5	B.Tech-Computer Science and Engineering	4010173509	Software Testing Methodologies	**Employability:** Test the software using domain testing and Logic Based Testing and apply the software testing tools for real world applications.
206	5	B.Tech-Computer Science and Engineering	1005174121	Cryptography and Network Security Lab	**Employability:** Apply Encryption techniques. 1. Implement Caesar Cipher technique, Message Authentication Codes. 2. Develop Caesar Cipher technique, Play fair Cipher. 3.Implement DES, BLOWFISH, AES, RSA encryption and Decryption techniques.
207	5	B.Tech-Computer Science and Engineering	1005174122	Big Data Analytics Lab	**Employability:** Apply data modeling techniques to large data sets. 1.Installation of Hadoop. 2.Develop programs using Pig, Hive. 3.Implement programs using Map reduce for different applications.
208	5	B.Tech-Computer Science and Engineering	1005174201	Fundamentals of Block Chain Technology	**Skill Development:** Develop applications using a Bitcoin technology. 1.Double Spending Problem, 2.Proof of work, 3.Merkle Tree
209	5	B.Tech-Computer Science and Engineering	1005174202	Software Architecture and Design Patterns	**Skill Development:** Design creational and structural patterns. 1.Develop the architecture by using ATAM and CBAM methods. 2.Implement design patterns and provide solutions to real world software design problems.
210	5	B.Tech-Computer Science and Engineering	1005174203	Distributed Systems	**Skill Development:** It gives knowledge about various IPC mechanisms in distributed systems and remote procedure calls helps to Interpret inter-process communication. 1.Inter process communication, Sockets, 2.UDP Datagram Communication, TCP Stream Communication; 3.External Data Representation and Marshalling; 4.Client Server Communication; Group Communication-IP Multicast

211	5	B.Tech-Computer Science and Engineering	1005174204	Optimization Techniques	**Skill Development:** Analyze, and solve mathematical models that represent real-world problems. 1.Network Analysis using Critical Path Method (CPM) ,Project Evaluation and Review Technique (PERT). 2.Transportation problem. Finding basic feasible solutions – Northwest corner rule, least cost method and Vogel's approximation method. Optimality test: the stepping stone method and MODI method
212	5	B.Tech-Computer Science and Engineering	1005174205	Concurrent and parallel programming	**Skill Development:** Apply Multithreaded programming using Java threads, Java concurrency constructs, Intel Threading Blocks, Open MPI. 1.Threads and monitors, sleeping; Interconnect, memory, caches, cache-conscious programming; Multicore and multithreaded architectures, hardware synchronization instructions. 2.Performance optimization tools: perf and jRAPL.
213	5	B.Tech-Computer Science and Engineering	1005174281	Internship	**Employability:** Provides exposure and confidence towards working environment which increases Employability.
214	5	B.Tech-Computer Science and Engineering	1005174251	Technical seminar	**Skill Development:** Helps in grooming on latest concepts and also to develop communication skill.
215	5	B.Tech-Computer Science and Engineering	1005174261	Comprehensive Viva	**Employability**: Gaining of knowledge on various courses increases Employability
216	5	B.Tech-Computer Science and Engineering	1005174231	Main Project	**Employability:** Shows the skill in related area of the project which leads to employability.
217	12	B.Tech-Information Technology	1012192170	Mini Project - I (EPICS - Engineering Projects in Community Service)	**Employability:** Helps students to learn and explore societal problems
218	12	B.Tech-Information Technology	1012192200	Automata Theory & Complier Design	**Employability :** 1.DFA, NFA 2.Context free Grammars 3.Semantic Analysis: Semantic Errors, Chomsky hierarchy of languages and recognizers 4.Code Generation: Issues in the design of code Generation
219	12	B.Tech-Information Technology	1012174101	Mobile Computing	**Skill Development :** 1.Able to understand the MAC. 2.Knowledge on IP 3.Knowledge on recent advancements and issues in mobile communications
220	12	B.Tech-Information Technology	1012174102	Advanced Operating Systems	**Skill Development :** 1.Knowledge on different types latest operating systems. 2.Able to establish the client server communication. 3.Identify the deadlocks. 4.Increasing the system security using techniques
221	12	B.Tech-Information Technology	1012174103	Information Retrieval Systems	**Skill Development :** 1.Study and analyse the information needs 2.Know how to choose the source of information 3.Helps in selecting the most appropriate search algorithms

222	12	B.Tech-Information Technology	1012174104	Multimedia Programming	**Employability :** 1.Hyper Text. Images- Graphics, Digitized Documents, 2.Static and Dynamic Huffman Coding, Arithmetic Coding. 3.Graphics Interchange Format (GIF), Tagged Image File Format (TIFF), Digitised 4.Documents, JPEG. H.263 Video Compression 5.Entertainment Applications
223	12	B.Tech-Information Technology	1012174105	Management Information Systems	**Entrepreneurship :** This course provide different markup, css and scripting skills to design websites which leads to place in various companies and it can also leads to become an entrepreneur.
224	12	B.Tech-Information Technology	1012174106	Decision Support System	**Entrepreneurship:** Managerial, decision making skills can develop and can become a entreoreneur
225	12	B.Tech-Information Technology	1012174201	Cyber Security	**Employability :** 1.Classifications of Cybercrimes, Cybercrime: The Legal Perspectives 2.Attacks on Mobile/Cell Phones, Steganography 3.DoS and DDoS Attacks, 4.SQL Injection, Digital Signatures and the Indian IT Act 5.Forensics Analysis of E-Mail and Digital Forensics Life Cycle
226	12	B.Tech-Information Technology	1012174202	Software Quality Assurance	**Employability :** 1.Project Software Quality Components 2.Integrating Quality Activities in the Project Life Cycle 3.Instructing and Certification. 4.identify appropriate test generation strategies 5.The Software Quality Assurance
227	12	B.Tech-Information Technology	1012174281	Internship	**Skill Development :** 1.Improve technical knowledge. 2.Increase effective communication skill. 3.Enhanced Managerial skills 4.Expertise in project based learning.
228	12	B.Tech-Information Technology	1012174251	Technical Seminar	**Skill Development :** 1.Improves communication skills. 2.Knowledge on Latest technologies 3.Build the confidence level 4.Able to implement projects by using latest technologies
229	12	B.Tech-Information Technology	1012174261	Comprehensive Viva	**Employability :** 1.Improve the presentation skill. 2.Knowledge on latest topics. 3.Increase effective communication skill. 4.Expertise in Conceptual skill.
230	12	B.Tech-Information Technology	1012174231	Main Project	**Employability :** 1.Improve technical knowledge. 2.Increase effective communication skill. 3.Enhanced Managerial skills 4.Expertise in project based learning.

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231	15	M.Tech-Machine Design	2015192150	Industrial Robotics	**Employability:** 1.The main goal of introducing robotic systems and automated robotics into production processes is to substitute or automate human labour in areas or activities where its use is unprofitable, dangerous, or a source of error. 2.Enterprises minimize the percentage of rejections and improve efficiency by improving the speed and precision of daily operations by reducing the human element in certain respects. 3.Additionally, the use of industrial robots decreases the risk of injury and harm to workers' health in especially complex and dangerous areas of work. Soon, all activities relating to conditions detrimental to human health should be moved to robots. 4.Additionally, the use of industrial robots decreases the risk of injury and harm to workers' health in especially complex and dangerous areas of work. Soon, all activities relating to conditions detrimental to human health should be moved to robots. 5.To enhance the life of production machines
232	15	M.Tech-Machine Design	2015192151	Advanced Optimization Techniques	**Employability:** 1.Very helpful for industries to determine the optimal parameters and improve the process and quality of products. 2.Explain the fundamental knowledge of Linear Programming and Dynamic Programming problems. 3.Use classical optimization techniques and numerical methods of optimization. 4.Use classical optimization techniques and numerical methods of optimization. 5.Enumerate fundamentals of Integer programming technique and apply different techniques to solve various optimization problems arising from engineering areas.
233	15	M.Tech-Machine Design	2015192152	Additive Manufacturing	**Employability:** 1.describe additive manufacturing and explain its advantages and disadvantages, 2.explain the processes used in additive manufacturing for a range of materials and applications, 3.understand the role of additive manufacturing in the design process and the implications for design, 4.describe the effects of surface finish and microstructural properties on behaviour for components produced using additive manufacturing. 5. display an awareness of residual stresses that may occur during additive manufacturing and their effects.
234	15	M.Tech-Machine Design	2015192153	Mechanics of Composite Materials	**Employability:** 1.The objective for this course is to develop an understanding of the design, processing, and behavior of composite materials. 2.This understanding will include concepts such as linear elastic analysis, anisotropic material behavior, damage criteria, and the analysis of laminated plates. 3.Undertake a design project involving application of fiber reinforced laminates by using computer software. 4.Develop relationships of mechanical and hygrothermal loads applied to a laminate to strains and stresses in each lamina 5.Design laminated structures such as plates and thin pressure vessels subjected to in-plane and hygrothermal loads Introduce other mechanical design issues in laminated composites

235	15	M.Tech-Machine Design	2015192154	Vehicle Dynamics	**Employability:** It gives through understanding of the vehicle dynamics and characterstics for automobile applications 1.Various kinds of vehicles: motions mathematical modelling 2.Mechanics of pnematic tyres: Tyre properties, tractive effort,longitudenal slip 3.Performance of vehicle:braking performance 4.Steering geometry, testing of handling characterstics 5.Vehicle characterstics: Human response vibrations.optimum design for ride comfort
236	15	M.Tech-Machine Design	2015192160	Operations Research	**Employability:** It gives through understanding of operation research 1.Optimization Techniques: General L.R Formulation, Simplex Techniques, Sensitivity Analysis 2.Formulation of a LPP: dual simplex method - sensitivity analysis - parametric programming 3.Nonlinear programming problem : CPM/PERT 4.Scheduling and sequencing: Geometric Programming
237	15	M.Tech-Machine Design	2015192170	Project Phase -I/ Industrial Project #	**Skill development :** It gives Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
238	15	M.Tech-Machine Design	2015192270	Project Phase -II	**Skill development :** It gives Problem solving skills by implementing real time problems choosen from the society or industries.
239	19	B.Tech-Electronics and Computer Engineering	1099192100	Managerial Economics and Financial Analysis	**Entrepreneurship:** 1.Demand forecasting 2.Cost-Volume-Profit Analysis 3.Market Structures 4.Methods of Appraising
240	19	B.Tech-Electronics and Computer Engineering	1000191202	Probability and Statistics	**Employability :** The concepts of stat explore employability skills that are helpful for both private and public sector Jobs.
241	19	B.Tech-Electronics and Computer Engineering	1004192120	Electronic Devices & Circuits	**Skill Development :** 1.Diode Characteristics 2.UJT 3.Rectifiers 4.BJT 5.FET 6.Biasing,Low Frequency Transistor
242	19	B.Tech-Electronics and Computer Engineering	1012192120	Python Programming	**Employability :** Understand the basic terminology used in computer programming to write, compile and debug programs in python language 1.Install Python IDE and run basic Python scripts 2.Develop front end GUI using Visualization Libraries and Multithreading techniques
243	19	B.Tech-Electronics and Computer Engineering	1004192100	Signals & Systems	**Skill Development :** 1.Fourier Series & Fourier Transforms 2.Signal Transmission through Linear Systems 3.Ideal LPF, HPF and BPF 4.Laplace Transforms & Z-Transforms
244	19	B.Tech-Electronics and Computer Engineering	1019192100	Digital System Logic Design	**Skill Development :** 1.ASCII code, Excess -3 code, Gray code, Error detection and correction 2.Adder - subtractor, Decimal Adder, multiplier, comparator, decoders, encoders, multiplexers, demultiplexers. 3.Flip-flops 4.Registers and Counters
245	19	B.Tech-Electronics and Computer Engineering	1019192170	Mini Project-I (EPICS/Societal Relevant	**Employability :**Shows the skill in related area of the project which leads to employability

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				Project)	
246	19	B.Tech-Electronics and Computer Engineering	1019201200	Fundamentals of Digital Logic Design	**Employability:** It gives thorough understanding of the curves, projection of solids ,isometric projections and thier applications in design engineering. 1.Curves used : ellipse,parabola,hyperbola 2.Orthographic projections:projection of points and lines 3.Projection of solids: prisms, pyramids, cones and cylinders. 4.Isometric projections :Conversion of isometric views to orthographic views 5.Conversion of orthographic views to isometric views
247	19	B.Tech-Electronics and Computer Engineering	1019201210	IT Workshop	**Skill Development :** 1.Assembling, Disassembling 2.Install Operating Systems 3.MS-Office / OpenOffice 4.Configuring TCP/IP 5.LATEX
248	19	B.Tech-Electronics and Computer Engineering	1002201202	Network Analysis	**Employability:** Basic knowledge on signals and case studies given and solved to enhance the application of theory.
249	19	B.Tech-Electronics and Computer Engineering	1005201212	Data Structures Lab	**Employability:** 1.Design and develop well-structured programs using C language 2.Write compile and debug Programs in C language
250	19	B.Tech-Electronics and Computer Engineering	1019192200	Electrical Technology and Instrumentation	**Employability :** 1.DC MACHINES 2.DC Motors 3.TRANSFORMERS 4.INDUCTION MACHINE 5.MEASURING INSTRUMENTS 6.SENSORS AND ACTUATORS
251	19	B.Tech-Electronics and Computer Engineering	1019192201	Principles of Communications	**Employability :** 1.Fourier Spectrum 2.Amplitude Modulation 3.FDM 4.Angle Modulation 5.FM receiver 6.PWM and PPM, TDM
252	19	B.Tech-Electronics and Computer Engineering	1019192220	Computer Operating System	**Skill Development :** 1.Types of operating systems 2.Threading Issues 3.Scheduling Algorithms 4.Virtual Memory 5.Page-Replacement Algorithms 6.Deadlock 7.File sharing, Protection,Free Space Mgmt, Disk Scheduling
253	19	B.Tech-Electronics and Computer Engineering	1019192221	Pulse and Digital Circuits	**Skill Development :** 1.LINEAR WAVESHAPING 2.NON- LINEAR WAVE SHAPING 3.Multivibrator 4.TIME BASE GENERATORS 5.SAMPLING GATES
254	19	B.Tech-Electronics and Computer Engineering	1019174101	Data Communication and Computer Networks	**Employability :** 1.Telephone Networks and Circuits 2.Network Topologies WAN, LAN, MAN 3.TCP/IP Reference Model 4.Elementary Data Link Protocols 5.Sliding Window Protocols 6.The Internet Protocols: UDP &TCP

255	19	B.Tech-Electronics and Computer Engineering	1019174102	Advanced Computer Architecture	**Employability :** 1.Parallel Processing 2.Computer Arithmetic 3.Shared Memory Multiprocessors, Distributed Memory Multicomputer 4.CISC scalar Processors, RISC scalar Processors 5.Instruction Pipeline Design: Instruction Execution Phases
256	19	B.Tech-Electronics and Computer Engineering	1004174201	Satellite Communications	**Employability : T**hrough the concepts of Frequency allocations, Applications, and Future Trends of Satellite Communications. 1.Frequency allocations for Satellite Services 2.Frequency allocations for Satellite Services 3.Attitude and orbit control system 4.MULTIPLE ACCESS
257	19	B.Tech-Electronics and Computer Engineering	1019174103	System Programming	**Employability :** 1.Software Hierarchy 2.Life Cycle of a Source Program 3.Symbol Tables 4.Macro and Macro Processors 5.Linkers and Loaders 6.Interpreters & Editors
258	19	B.Tech-Electronics and Computer Engineering	1019174104	Fundamentals of Data Mining and Data Warehousing	**Employability :** 1.Data Summarization, Data Cleaning, Data Integration and Transformation, Data Reduction 2.Data Warehouse Architecture 3. Decision Tree Induction 4.Types of Clusters 5.K-Means algorithm 6.DBSCAN algorithm Patterns
259	19	B.Tech-Electronics and Computer Engineering	1019174105	Structural Digital Design	**Skill Development :** 1.Design of Digital Hardware 2.CAD Tools, Introduction to VHDL 3.Introduction to Verilog 4.VHDL for combinational circuits 5.LOGIC CIRCUIT DESIGN USING VERILOG
260	19	B.Tech-Electronics and Computer Engineering	1012172205	Object Oriented Analysis and Design using UML	**Skill Development :** 1.Classes and Objects 2.Conceptual model of UML(UML Diagrams) 3.Class & Object Diagrams 4.State Chart,Activity& Deployment digarams
261	19	B.Tech-Electronics and Computer Engineering	1019174106	Analog IC Design	**Skill Development :** 1.Integrated circuit Layout, CMOS Device Modeling 2.Design of Two-Stage Op Amps 3.Measurement Techniques of OP Amp 4.Ring Oscillators, LC Oscillators, Voltage Controlled Oscillators
262	19	B.Tech-Electronics and Computer Engineering	1019174121	Digital Signal Processing Lab	**Skill Development :** 1.FILTERS 2.IMAGE PROCESSING 3.MATLAB for image segmentation 4.MATLAB for image morphology
263	19	B.Tech-Electronics and Computer Engineering	1019174122	IoT Lab	**Employability :** 1.Raspberry Arduino/Pi 2.python programs on Arduino/Pi 3.two switches and switch on corresponding LEDs 4.Switch on a relay at a given time using cron 5.status of a bulb at a remote place (on the LAN) through web

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264	19	B.Tech-Electronics and Computer Engineering	1019174201	Introduction to Embedded Systems	**Skill Development :** 1.Serial communication devices, Parallel device ports 2.Embedded Firmware design approaches, Embedded Firmware development languages 3.Fundamental Issues in Hardware Software Co-Design 4.Integration of Hardware and Firmware 5.The integrated development environment, Boundary Scan
265	19	B.Tech-Electronics and Computer Engineering	1019174202	Digital IC Design	**Skill Development :** 1.Pseudo NMOS Logic 2.Realizing Boolean expressions using NMOS gates and CMOS gates 3.Designing with Transmission gates 4.Dynamic Logic Circuits 5.RAM array organization
266	19	B.Tech-Electronics and Computer Engineering	1019174203	Automata Theory & Compiler Design	**Skill Development :** 1.Finite Automata: DFA, NFA 2.Context Free grammars and parsing 3.S-attributed and L-attributed grammars 4.Semantic Errors 5.Dynamics Storage Allocation Techniques
267	19	B.Tech-Electronics and Computer Engineering	1019174204	Advanced Microcontrollers	**Employability :** 1.ARM Design Philosophy 2.ARM Processor Families 3.Architectural Overview On-chip Flash program memory 4.General Purpose I/O 5.Timers and Counters 6.Bus serial I/O Controller, SPI- Serial I/O Controller
268	19	B.Tech-Electronics and Computer Engineering	1019174205	Real Time Operating Systems	**Skill Development :** 1.Memory Management 2.OS Security Issues 3.RTOS mCOS-II, RTOS Vx Works 4.Automatic Chocolate Vending Machine (ACVM) Using Mucos RTOS 5. Robots 6.Smart Card 7.Window XP Embedded, Unix/Linux Programming
269	19	B.Tech-Electronics and Computer Engineering	1019174206	Wireless Sensor Networks	**Employability :** 1.Single-Node Architecture 2.Energy Consumption of Sensor Nodes 3.Network Architecture 4.Physical Layer and Transceiver Design 5.MAC Protocols for Wireless Sensor Networks Design 6.ROUTING PROTOCOLS
270	19	B.Tech-Electronics and Computer Engineering	1004174101	Cellular and Mobile Communications	**Employability:** Through the knowledge of cellular System 1.Operation of Cellular Systems 2.Concept of Frequency Reuse Channels 3.Co-channel interference 4.Hand Offs and Dropped Calls
271	19	B.Tech-Electronics and Computer Engineering	1019174281	Internship	**Employability :** Provides exposure and confidence towards working environment which increases Employability.
272	19	B.Tech-Electronics and Computer Engineering	1019174251	Technical Seminar	**Skill Development :** Helps in grooming on latest concepts and also to develop communication skill
273	19	B.Tech-Electronics and Computer Engineering	1019174261	Comprehensive Viva	**Employability :** Gaining of knowledge on various courses increases Employability
274	19	B.Tech-Electronics and Computer Engineering	1019174231	Main Project	**Skill Development :** Shows the skill in related area of the project which leads to employability.

275	22	M.Tech-Transport Engineering	2022192150	Financial and Economic Analysis of Transportation Projects	**Entrepreneurship:** Financial analysis of transportaion systems
276	22	M.Tech-Transport Engineering	2022192151	Highway Safety Engineering	**Skill Development :** knowledge in design of efficient roadways
277	22	M.Tech-Transport Engineering	2022192152	Computational Techniques in Transportation Engineering	**Employability:** Get informative and knowledge on Computational applications in TE
278	22	M.Tech-Transport Engineering	2022192160	MOOCs	**Skill Development :** It helps in placements also helps in Entrepreneurship
279	22	M.Tech-Transport Engineering	2022192170	Dissertation-I/ Industrial Project #	**Employability :** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
280	22	M.Tech-Transport Engineering	2022192270	Dissertation-II	**Employability :** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
281	25	M.Tech-Software Engineering	2025192150	Object Oriented Software Engineering	**Skill Development :** Analyzing the formally specified problem statement with Modeling Concepts and methodologies. 1.Modeling with UML. 2.Configuration Management and Project Management. 3.Methodologies.
282	25	M.Tech-Software Engineering	2025192151	Artificial Intelligence	**Employability :** Applying different exhaustive and heuristic search algorithms in AI applications of gaming, theorem proving, NLP. 1.Heuristic search techniques 2.Axiomatic system 3.Advanced knowledge representation techniques 4.Building expert systems
283	25	M.Tech-Software Engineering	2025192152	User Interface Design	**Employability :** Analyze a user interface from a communication perspective with graphical user interface. 1.Windows new and Navigation schemes selection of window. 2.Multimedia. 3.speech recognition digitization and generation. 4.Popularity of graphics.
284	25	M.Tech-Software Engineering	2025192160	MOOCS	**Skill Development:** To get knowledge on MOOCS courses to improves skill.
285	25	M.Tech-Software Engineering	2025192170	Dissertation-I/ Industrial Project#	**Skill Development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
286	25	M.Tech-Software Engineering	2025192270	Dissertation-II	**Skill Development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
287	38	M.Tech-Digital Electronics and Communication Systems	2070192150	Detection & Estimation Theory	**Skill Development:** 1.Random Processes 2.Detection Theory 3.Linear Minimum Mean-Square Error Filtering 4.Estimating the Parameters of Random Processes from Data.
288	38	M.Tech-Digital Electronics and Communication Systems	2070192151	Advanced Digital Signal Processing	**Employability :** 1.Applications of Multi Rate Signal Processing 2.Non-Parametric Methods of Power Spectral Estimation 3.Parametric Methods of Power Spectrum Estimation 4.Implementation of Digital Filters

289	38	M.Tech-Digital Electronics and Communicatio n Systems	2070192152	Coding Theory and Applications	**Skill Development :** 1.Coding for Reliable Digital Transmission and Storage 2.Convolutional Codes 3.Burst –Error-Correcting Codes 4.BCH – Codes.
290	38	M.Tech-Digital Electronics and Communicatio n Systems	2070192160	MOOCs-2	**Employability :** The certficate of this online courses will help the students to broaden their knowledge and it will help at the time of interview as well as to broaden their knowledge at the time of their research work in 2nd year.
291	38	M.Tech-Digital Electronics and Communicatio n Systems	2038192170	Dissertation Phase -I	**Skill Development :** In this phase of the research work, student will able to understand about the research problem, literature survey and they will find a suitable research problem, the method and tools for their research work.
292	38	M.Tech-Digital Electronics and Communicatio n Systems	2038192152	Coding Theory and Applications	**Skill Development :** 1. Coding for Reliable Digital Transmission and Storage 2.Convolutional Codes 3.Burst –Error-Correcting Codes 4.BCH – Codes
293	38	M.Tech-Digital Electronics and Communicatio n Systems	2038192270	Dissertation Phase -II	**Skill Development :** At the end of this phase, students will able to write the research article like conference and journals.
294	40	M.Tech-Information Technology	2040192150	Deep Learning	**Employability :** Feed forward neural network, Deep Neural Networks, Recurrent Neural Network, and Deep Belief Network Auto encoders, Tensor Flow, Caffe, Theano, Torch.
295	40	M.Tech-Information Technology	2040192151	Embedded Computing	**Employability :** An example of bootloader operations - Inter-process communication, Inter-process communication architecture, Direct memory access (DMA), The Virtual File System (VFS) abstraction, VFS functions, Syncing Memory Regions to Disk, Networking Machines with TCP/IP, IPv4 Addressing, IPv6 Addressing.
296	40	M.Tech-Information Technology	2040192152	Ethical Hacking	**Employability :** 1.The Registry, Baby Sitter Programs. 2.Secure your Desktop Icons and Settings. HTTP Basic Authentication 3.Cracking Other Passwords. 4.Unshift() and Shift(), Splice(), Default Variables 5.Virus Working
297	40	M.Tech-Information Technology	2040192153	Digital marketing	**Employability :** 1.Dynamic Document content CSS for DHTML. 2.Implications of Advertising on the search Network. 3.Mobile Marketing, Mobile Advertising, M-Commerce. 4.Marketing Strategy, Content Marketing, Content Marketing in India.
298	40	M.Tech-Information Technology	2040192160	Python Programmin g	**Employability :** Control Flow, Data Structures-Functions-Overriding Methods, String Pattern Matching, Multithreading, GUI Programming.
299	40	M.Tech-Information Technology	2040192161	Web Technologies	**Employability :** 1.Pattern Matching using Regular Expressions 2.Introduction to AJAX, Integrating PHP and AJAX. 3.Working with forms and Databases such as MySQL. 4.Regular expressions, Subroutines. 5.Retrieving documents from the web with Perl. 6.Pattern Matching. Overview of Rails.
300	40	M.Tech-Information Technology	2040192162	Artificial Intelligence	**Employability :** heuristic search techniques, iterative-deepening a*, constraint satisfaction, natural deduction system, proportional logic, knowledge representation using frames, inference rules for fuzzy propositions, fuzzy systems. support vector machines, multi layered forward networks, design issues of artificial neural networks.

301	40	M.Tech-Information Technology	2040192163	Internet of Things	**Employability :** 1.Functional blocks of an IoT ecosystem, of IEEE 802.15.4, 802.15.4g, 802.15.4e, 1901.2a, 802.11ah 2.BLE-Bluetooth Low Energy Protocol, Low Energy Architecture. 3.Interfaces and Raspberry Pi with Python Programming. 4.Networking-Bluetooth Smart Technology Introduction to mbedTM Platform 5.Smart Parking Architecture and Smart Traffic Control.
302	40	M.Tech-Information Technology	2040192164	Machine Learning	**Employability :** 1.Machine Learning Techniques. Occam's Razor Principle and Over fitting Avoidance Heuristic Search 2.K-Nearest Neighbor Classifier Logistic Regression for Classification Tasks, Regression by Support vector Machines. 3.The error correction delta rule. 4.Decision trees, ID3, C4.5, and CART decision trees
303	40	M.Tech-Information Technology	2040192165	Advanced Data Structures	**Employability :** Hashing, Skip Lists, Trees, Text Processing, computational geometry methods for efficiently solving the new evolving problem.
304	40	M.Tech-Information Technology	2040192170	Dissertation-I / Indusrtial Project	**Employability :** 1. Improve technical knowledge. 2.Increase effective communication skill. 3.Enhanced Managerial skills 4.Expertise in project based learning.
305	40	M.Tech-Information Technology	2040192270	Dissertation-II	**Employability :** 1.Improve technical knowledge. 2. Increase effective communication skill. 3.Enhanced Managerial skills 4.Expertise in project based learning.
306	42	M.Tech-Power and Industrial Drives	2042192150	Digital Signal Processing Controlled Drives	**Employability :** It gives case studies, application of the controllers. 1.Clarke's and Park's Transformations : Review and implementation of transformation techniques using TMS320LF2407 DSP 2.PWM techniques : Implementation of Sine-triangle and SVPWM techniques. 3.BLDC Motor : Principle of operation with Drive control and using DSP 4.PMSM : Principle of operation with Drive control and using DSP
307	42	M.Tech-Power and Industrial Drives	2042192151	Smart Grid Technologies	**Employability :** It gives information and knowledge about Smart grid. 1.Introduction: Evaluation, Concept, Need and Functions of Smart grids. 2.Smart Grid Technologies : Smart meters, Real time pricing, Smart appliances, Automation, Smart substations. 3.Microgrids : Concept, Need and Application of Microgrids 4.Power Quality Management : Various power quality issues of Grid connected Renewable Energy Sources, Power Quality Conditioners.
308	42	M.Tech-Power and Industrial Drives	2042192152	Modeling & Simulation of PowerElectronic Systems	**Employability :** It gives case studies, application of the Simulation techniques in Power Electronic Systems. 1.Introduction : Computer simulation - its challenges, Simulation Process, Mechanics, Solution techniques. 2.Simulation of Power Electronics Converters : Nodal Analysis, Spare Tableau Approach, NR Method, Transient Analysis, Equivalent Circuit Approach 3.Switching Function: Application, Properties of Switching functions, VI relations in switched circuits, 3-phase VSI, Matrix Converter
309	42	M.Tech-Power and Industrial Drives	2042192160	MOOCs	**Skill development :** Promotes advanced knowledge

310	42	M.Tech-Power and Industrial Drives	2042192161	Renewable Energy Systems	**Employability :** It gives information and knowledge about Renewable Energy Sources. 1.Fundamentals of Energy Systems : Energy conservation principle, Energy scenario, Solar radiation 2.Solar Thermal Systems : Liquid flat plate collectors, Solar air heaters, PV modules - Construction, MPPT - P&O technique. 3.Wind Energy: Sources, Wind patterns, types of turbines, Betz coefficeient 4.Hydro & Tidal Power systems: Working principle, Classification of Hydro systems, Kinetic energy equation, Turbines for tidal power, Wave power devices.
311	42	M.Tech-Power and Industrial Drives	2042192162	Optimization Techniques	**Employability :** It gives information and knowledge about Optimization techniques. 1.Classical Optimization Techniques: Optimization problem, design vector, constraints, classification of optimization problems 2.Classical Optimization Techniques: Single variable, multi variable Optimization, necessary and sufficient conditions, Kuhn-Tucker conditions 3.Linear and Nonlinear Programming: Simplex algorithm, Duality in Linear programming, One dimentional minimization methods, Penality function method 4.Swarm INtelligence systems: Characteristic features of PSO procedure of global version, parameters of PSO
312	42	M.Tech-Power and Industrial Drives	2042192163	Programmable Logic Controller	**Employability :** It gives knowledge on progrmmable logic controllers. 1.PLC Basics: PLC system, I/O modules, construction of PLC ladder diagrams 2.PLC Programming: Input instructions, Digital logic gates, Boolean algebra system, Ladder diagrams and sequence listing 3.Timers and Counters: On delay and Off delay timer instruction, Incremental encoder, Counter applications. 4.Program control and other instructions: Jump instructions and sub routines, Data manipulation, transfer operation, compare instruction
313	42	M.Tech-Power and Industrial Drives	2042192170	Dissertation-I/ Industrial Project #	**Employability :** It gives Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
314	42	M.Tech-Power and Industrial Drives	2042192270	Dissertation-II	**Employability :** It gives Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
315	54	B.Tech-Artificial Intelligence and Data Science	1000201106	Calculus	**Skill development:**To find the characteristics and maxima and minima of function of one and two variables and to make use of the concept of work done against a vector field, circulation and flux using vector calculus. 1. Maxima and minima 2. Double and triple integral, areas and volumes 3. vector differentiation and integration
316	54	B.Tech-Artificial Intelligence and Data Science	1000201107	Linear Algebra	**Skill development :** Apply Matrices in solving system of linear algebraic equations and many complicated expressions occurring in Electrical & Mechanical systems which can be elegantly simplified. 1. Matrices and linear system of equations 2. Eigen values and Eigen vectors
317	54	B.Tech-Artificial Intelligence and Data Science	1000201108	Physics of Materials	**Skill Development :** It gives thorough understanding of the processes, properties, performance and applications of materials. 1. Optical Fiber Sensors : construction & working of Temperature, Pressure and Liquid level sensors 2. Superconductivity : Properties, applications 3. Semiconductors : Hall effect & its applications 4. Nanomaterials : Methods & applications

318	54	B.Tech-Artificial Intelligence and Data Science	1005201203	Data Structures	**Employability :** 1.Apply the concept of linear and nonlinear data structures to various applications. 2.Analyze and implement operations on linked lists and demonstrate their applications. 3.Able to implement real time applications on Stacks and Queues.
319	54	B.Tech-Artificial Intelligence and Data Science	1000201205	Statistics for Data Science-I	**Employability:** 1.Analyze statistical data using measures of central tendency, dispersion and location. 2.Recognize discrete and continuous variables and Evaluate the properties of Random Experiments 3.Apply discrete and continuous probability distributions to solve statistical problems. 4.Apply the different sampling methods for designing and selecting a sample from a population.
320	54	B.Tech-Artificial Intelligence and Data Science	1000201214	R Programming for DataScience	**Employability :** **1.Use R for statistical programming, computation, graphics, and modeling** **2.Write functions and use R in an efficient way** **3.Able to expand their knowledge of R on their own.**
321	54	B.Tech-Artificial Intelligence and Data Science	1000201213	Physics of Materials Lab	**Skill Development:** It provide the knowledge on Analysis of characteristics of PN, Zener diode, solar cell, dielectric material and Laser, optical fiber and identification of type of semiconductor and estimation of carrier concentration. 1. V-I characteristics of p-n junction diode, Zener diode 2. Numerical aperture of optical fiber 3. Hall effect 4. Solar cell
322	58	M.Tech-Computer Science and Engineering	2058192150	Deep Learning	**Skill Development:** Ability to develop real world problems using deep learning algorithms.
323	58	M.Tech-Computer Science and Engineering	2058192151	Social Network Analysis	**Employability:** 1.Ability to design social web applications 2.Develop human intelligence with machine processing
324	58	M.Tech-Computer Science and Engineering	2058192152	MOOCs-1	**Skill Development :** Ability to demonstrate and develop new skills to enhace their knowledge
325	58	M.Tech-Computer Science and Engineering	2058192160	MOOCs-2	**Skill Development :** Ability to demonstrate and develop new skills to enhace their knowledge
326	58	M.Tech-Computer Science and Engineering	2058192170	Dissertation-I/ Industrial Project #	**Skill Development :** Enhance the skill in related area of the project which leads to employability.
327	58	M.Tech-Computer Science and Engineering	2058192270	Dissertation-II	**Skill Development:** Problem solving skills by implementing real time problems choosen from industry/ field survey through modern tools.
328	58	M.Tech-Computer Science and Engineering	2058191154	Internet of Things	**Skill Development:** 1.To apply various protocols of IoT. 2.Design a PoC of an IoT system using Rasperry Pi/Arduino. 3. Apply data analytics and use cloud offerings related to IoT.
329	58	M.Tech-Computer Science and Engineering	2058191254	Principles of Computer Security	**Employability:** Ability to apply the symmetric block encryption algorithms. 1.Apply denial-of-service attack, nature of flooding attacks, distributed denial- of-service attacks 2. Design securing Unix/Linux systems, Windows systems, and security in virtualized systems

330	70	M.Tech-Electronics and Communicatio n Engineering	2070192170	Dissertation Phase -I	**Skill Development :** In this phase of the research work, student will able to understand about the research problem, literature survey and they will find a suitable research problem, the method and tools for their research work.
331	70	M.Tech-Electronics and Communicatio n Engineering	2070192270	Dissertation Phase -II	**Skill development:** Students will able to get knowledge in and expertise in the concerned area of project and help the students to gain knowledge in particualar project field.
332	1E-00	MBA-Master of Business Administration	3099192100	Strategic Management	**Entreprenuership:** 1.Introduction: Vision, Mission, Goals, Objectives, Policies 2.Environmental Scanning and leadership: Strategies and Competitive advantages 3.Strategy Formulation : Formulation of strategy at Corporate 4.Global level Strategies and Strategy Implementation : Culture and Leadership Strategies
333	1E-00	MBA-Master of Business Administration	3099192101	Legal Aspects Of Business	**Skill development:** 1.Importance of Commercial Law: The Indian Contracts Act, 1872 2.Sales of Goods Act: Goods and Services Tax Act 2017. 3.Negotiable Instruments Act, 1881: Kinds of a Negotiable Instruments 4.Company Act 1956- Amendments in Companies Act 2013
334	1E-00	MBA-Master of Business Administration	3099192102	Business Ethics & Corporate Governance	**Employability:** 1.Importance of Business & Management Ethics: Ethical Decision Making 2.Impact of Globalization on Indian business ethics: Ethical Attitudes of Managers 3.Ethics in Functional Management: Ethics in HRM & Finance 4.Corporate Governance: SEBI Initiatives
335	1E-00	MBA-Master of Business Administration	3099192170	Case Study	**Skill development:** Case Study is based on field survey i.e., society/corporate/ business/ Government/ NGO's in the Third Semester. For the case study, the student shall collect the information on a specialized topic and prepare a detailed report, showing his understanding over the topic, and submit to the department.
336	1E-00	MBA-Master of Business Administration	3099192150	Product Management (Marketing)	**Entreprenuership:** 1.Product Concept-Product types: Product Portfolio Analysis and Development of product mix. 2.New Product Development: Designing and managing services 3.Concept of Branding: Brand extension and Brand Building 4.Marketing Organization for new product introduction: Customer Relationship Management
337	1E-00	MBA-Master of Business Administration	3099192151	Promotion And Distribution Management (Marketing)	**Entreprenuership :** 1.Introduction to sales Promotional: Sales Promotion Strategies 2.Introduction to Advertisement : types of advertisement for consumer 3.Introduction to Distribution Management: Emergence of Marketing Channel Structures 4.Channel Institutions and Designing Channel System: Channel Design Decisions
338	1E-00	MBA-Master of Business Administration	3099192152	Investment Analysis And Portfolio Management (Fin) (Elective)	**Entreprenuership :** 1.Concept of Investment Education: Calculation of SENSEX and NIFTY 2.Return and Risk: Risk Return Trade-off 3.Investment Analysis: Fundamental Analysis and Technical Analysis 4.Portfolio Analysis and Selection: Selection of Optimal Portfolio

339	1E-00	MBA-Master of Business Administration	3099192153	Banking And Insurance (Fin) (Elective)	**Skill development:** 1.Bank Funds: assessment of credit worthiness of a prospective borrower 2.Regulation & Innovations in Banking System: Capital, Basel Accords I, II, III and IV 3.Introduction to Insurance: Risk Management Tool 4.Insurance: Life and General: Tax treatment of Life Insurance
340	1E-00	MBA-Master of Business Administration	3099192154	Compensation And Performance Management (Hr) (Elective)	**Employbility :** 1.Compensation:Designing a compensation system 2.Wage concepts and theories: wage theories 3.Wage and Salary administration: The Minimum Wages Act 1948 4.Performance Management: Competency mapping
341	1E-00	MBA-Master of Business Administration	3099192155	Management Of Industrial Relations (Hr) (Elective)	**Employbility :** 1.Industrial Relations Management: Labour Market 2.Trade Unions: Trade union Act -1926 3.Social Security: Employee provident fund Act 4.Employee Grievance: Settlement of Grievances
342	1E-00	MBA-Master of Business Administration	3099192180	Employability Skills-III	**Employbility :** 1. Group Discussion 2. Cover Letter and Resume Writing 3. Vocabulary Building 4. Listening comprehension
343	1E-00	MBA-Master of Business Administration	3099192256	MOOCs	**Skill development:** Students have to do 12 weeks course from NPTEL SWAYAM platform . They ned to select subjects which are out of the curriculum.
344	1E-00	MBA-Master of Business Administration	3099192200	Logistic and Supply Chain Management	**Employability:** 1.Supply Chain management: Emerging trends and challenges in logistics and supply chain management 2.Measuring logistics costs and performance:Customer profitability analysis 3.Logistics and Supply chain relationships: Logistics service alliances 4.Coordination in Supply Chain: Lack of Supply Chain Coordination and the Bullwhip effect
345	1E-00	MBA-Master of Business Administration	3099192201	Entrepreneurship Development	**Entrepreneurship:** 1.Entrepreneurship:Role of Entrepreneurship 2.Training: Sources and Methods of Ideas Planning and Development of Programs 3.Planning and Evaluation of Projects: Feasibility Study 4.Institutional support to entrepreneur and MSMEs: Financial Institutions-Commercial Banks, Entrepreneurial Development Institutes
346	1E-00	MBA-Master of Business Administration	3099192250	Services Marketing (MARKETING)	**Employability:** 1.Introduction: New Service development process 2.Key Dimensions of Services Marketing: Service Quality Gap 3.Management of Services Marketing: Service Target Segments and Positioning strategies 4.Customer relationship marketing: Customer Development Process
347	1E-00	MBA-Master of Business Administration	3099192251	Consumer Behavior (MARKETING)	**Skill development :** 1.Introduction to Consumer Behavior: Models of Buyer Behavior 2.Communication and Consumer Behavior: Consumer Decision Processes 3.Consumerism: Impact of online Marketing on Consumer Behavior 4.Consumer Protection: Consumer Protection Act 1986

348	1E-00	MBA-Master of Business Administration	3099192252	International Financial Management (FIN) (ELECTIVE)	**Employability:** 1.Management of Exchange: Sources and Uses of foreign exchange: Foreign Exchange Market mechanism 2.Global Financial Management: Foreign direct investment (FDI) 3.Risk Management in MNCs: Measurement and techniques of interest rate risk management 4.Global Indebtedness and Tax environment: - Nature and Magnitudes of External Debt
349	1E-00	MBA-Master of Business Administration	3099192253	Financial Risk Management (FIN)	**Skill development:** 1.Introduction to Risk Management:Identification of Risks 2.Measurement of Risks:Measurement of Credit Risk 3.Management of Risks:Risk Management Tools 4.Risk Management in banking sector: Risk management in banks
350	1E-00	MBA-Master of Business Administration	3099192254	Global Human Resource Management (HR) (ELECTIVE)	**Employability:** 1.Introduction: A Global HR Perspective in New Economy-Challenges of Globalization 2.Managing International Assignments: Recent trends in international staffing 3.Cross Culture Management: Cross Culture Communication and Negotiation 4.Global Strategic Advantages through HRD: Challenges in Creation of New Jobs through Globalization
351	1E-00	MBA-Master of Business Administration	3099192255	Management of Change and Development (HR)	**Employability:** 1.Mapping change: Total project management model (TPMM)- Learning organization 2.Organization Development (OD): Challenges of OD Practitioners. 3.Negotiated Change: Negotiated flexibility, productivity bargaining 4.Team Building: Groupthink: effective decision making techniques for teams and groups
352	1E-00	MBA-Master of Business Administration	3099192270	Major Project & Comprehensive Viva	**Skill development:** A student has to undergo practical training through major project in a Corporate Enterprise i.e., society/corporate/business/Government/ NGO's based on field survey after the second Semester during summer vacation.
353	1E-00	MBA-Master of Business Administration	3099192280	Employability Skills-IV	**Skill development:** 1.Personality Development 2.Cross-Cultural Communication 3.Writing Skills - Technical Report Writing/ Project Proposals 4.Interview Skills
354	1F-00	MCA-Master of Computer Application	4098201100	Computer Organization	**Employability:** 1.Arithmetic Operations Decoders, Encoders. 2.The role of Stacks and Queues in computer programming equation. 3.Enabling and Disabling Interrupts,
355	1F-00	MCA-Master of Computer Application	4098201102	Statistical Programming with R	**Employability :** RPrograming is an all -inclusive training program that aims at building a skill-set to tackle real-world data analysis challenges as a data.engineer. 1.Measures of Tendency 2.Distributions
356	1F-00	MCA-Master of Computer Application	4098201120	Programming & Data Structures	**Employability:** HW and SW Concepts, Control Structures, Functions, files, text and binary files, Time complexity, Space complexity, Trees.
357	1F-00	MCA-Master of Computer Application	4098201121	OOPS Through Java	**Employability :** Encapsulation, Inheritance and Polymorphism, Method overriding, Abstract classes, Exception handling
358	1F-00	MCA-Master of Computer Application	4098201122	Database Management Systems	**Employability:** Having practical skills in the use of databases and database management systems leads to employability.

359	1F-00	MCA-Master of Computer Application	4098201200	Software Engineering	**Employability:** 1.Software development process models Planning a software project, design, unit testing 2.Testing: Testing concepts, testing process, black-box testing, white-box testing and metrics. 3.The components of Software Quality Assurance system
360	1F-00	MCA-Master of Computer Application	4098201201	Data Warehousing and Data Mining	**Employability:** Major issues in Data Mining. Data Preprocessing Associations, and Correlations
361	1F-00	MCA-Master of Computer Application	4098201202	Computer Networks	**Employability:** Network layer Routing Algorithms, IP protocols, Network Security, Security Mechanisms.
362	1F-00	MCA-Master of Computer Application	4098201220	Python Programming	**Employability:** Python packages, Introduction to PIP, Installing Packages via PIP, Using Python Packages. Brief Tour of the Standard Library
363	1F-00	MCA-Master of Computer Application	4098201221	Advanced Java & Web Technologies	**Employability:** JSP Application Development, Database Access.
364	1F-00	MCA-Master of Computer Application	4098201222	UNIX Programming	**Employability:** The File system –The Basics, File Handling Utilities, Shell Programming-Shell Variables
365	1F-00	MCA-Master of Computer Application	4098201270	Mini Project	**Employability :** Implementation of real-time projects to serve the societal needs.
366	1F-00	MCA-Master of Computer Application	4098201280	Seminars	**Skill Development:** 1.Improve the presentation skill. 2.Knowledge on latest topics. 3.Increase effective communication skill. 4.Expertise in Conceptual skill.
367	1F-00	MCA-Master of Computer Application	4098201101	Discrete Mathematical Structures & Graph Theory	**Skill Development:** It gives through understanding the study of mathematical logic concepts to identify the solutions for various problems using recurrence relations and the learning achievement of graph theory application is able to understand the problem. 1)mathemarical logic 2)generating functions and recurrence relations 3)graph theory
368	1F-00	MCA-Master of Computer Application	4098192100	Advanced Java & Web Technologies	**Employability :** 1.JSP Application Development, 2.Database Access
369	1F-00	MCA-Master of Computer Application	4098192101	Object Oriented Analysis and Design	**Skill Development:** 1.Apply knowledge software engineering methods 2.Ability to identify, formulate and solve software development problems 3.Ability to use the graphical UML representation using tools 4.Implementation using IBM's Rational Rose or Microsoft's Vision.
370	1F-00	MCA-Master of Computer Application	4098192102	UNIX Programming	**Employability:** The File system –The Basics, File Handling Utilities, Shell Programming-Shell Variables
371	1F-00	MCA-Master of Computer Application	4098192103	Principles and Practices of Management	**Entrepreneurship :** Able to learn managerial skills that helps for placements
372	1F-00	MCA-Master of Computer Application	4098192104	Design and Analysis of Algorithms	**Employability:** Analysis-Space complexity, Time complexity, Minimum cost spanning trees, Reliability design.
373	1F-00	MCA-Master of Computer Application	4098192110	Advanced Java & Web Technologies Lab	**Employability:** Write a program by using JDBC to execute a SQL query for a database and display the results.

374	1F-00	MCA-Master of Computer Application	4098192111	Object Oriented Analysis and Design Lab	**Skill Development :** 1.Design various patterns and able to solve design problems 2.Implement design solutions using creational patterns. 3.Construct design solutions by using structural and behavioral patterns
375	1F-00	MCA-Master of Computer Application	4098192112	UNIX Programming Lab	**Employability:** Program using basic network commands 1.Program to implement inter process communication using pipes 2.Write a shell script to list all of the directory files. in a directory 3.Write a shell script that copies multiple files to a directory 4.Program using TCP sockets (Client and Server) 5.Program using UDP sockets (Client and Server)
376	1F-00	MCA-Master of Computer Application	4098192200	Computer Networks	**Employability:** Network layer Routing Algorithms: IP protocols, Network Security. Security Mechanisms.
377	1F-00	MCA-Master of Computer Application	4098192201	Python Programming	**Employability:** Python packages, Introduction to PIP, Installing Packages via PIP, Using Python Packages. Brief Tour of the Standard Library.
378	1F-00	MCA-Master of Computer Application	4098192202	Data warehousing and Mining	**Employability:** Major issues in Data Mining. Data Preprocessing Associations, and Correlations
379	1F-00	MCA-Master of Computer Application	4098192250	Statistical Programming with R	**Employability:** RPrograming is an all -inclusive training program that aims at building a skill-set to tackle real-world data analysis challenges as a data.engineer. 1.Measures of Tendency 2.Distributions
380	1F-00	MCA-Master of Computer Application	4098192251	Network Programming	**Employability:** standard internet services, Crashing and Rebooting of server host shutdown of server host.
381	1F-00	MCA-Master of Computer Application	4098192252	Cloud Computing	**Employability:** Cloud Computing Cloud Resource Management and Scheduling Cloud Security.
382	1F-00	MCA-Master of Computer Application	4098192253	Software Project Management	**Employability:** 1.Project Control and Process instrumentation 2.Project Organizations and Responsibilities Work Flows of the process Software Economics
383	1F-00	MCA-Master of Computer Application	4098192254	Artificial Intelligence	**Employability:** Machine Learning & ANN
384	1F-00	MCA-Master of Computer Application	4098192255	Mobile Application Development	**Employability:** Cellular networks Call handling 3G /4G/5G technology Security in Ad-hoc network
385	1F-00	MCA-Master of Computer Application	4098192210	Python Programming Lab	**Employability:** Files, Functions
386	1F-00	MCA-Master of Computer Application	4098192211	Data Warehousing and Mining Lab	**Employability:** 1.Apply various pre-processing techniques and classification algorithms on different domains of data 2.Build decision making systems using data mining algorithms for a given real time data set.
387	1F-00	MCA-Master of Computer Application	4098192212	Soft Skills Lab	**Employability:** Writing Skills – Technical Report Writing/Project Proposals Presentations-Group &Individual
388	1F-00	MCA-Master of Computer Application	4098192270	Mini Project	**Employability:** Implementation of real-time projects to serve the societal needs
389	1F-00	MCA-Master of Computer Application	4098192280	NPTEL or equivalent – (Audit Course)	**Skill Development :** Helps to gain advanced knowledge

390	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201100	Fundamentals of AI and Machine Learning	**Employability:** Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
391	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201150	Design and Analysis of Algorithms	**Skill Development:** Focus on the design and construction of algorithms
392	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201151	Database System: Design and Implemntation	**Employability:** Create, maintain and manipulate a relational database using SQL. Design and build database system for a given real world problem.
393	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201152	Digital Image Processing	**Skill Development:** Identify and choose appropriate transform for a specific applications. 1.Apply frequency Domain filtering techniques for image enhancement 2.Implement algorithms for enhancement, restoration, compression etc
394	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201153	Python for Data Science	**Employability:** Understand the basic terminology used in computer programming to write, compile and debug programs in python language 1.Install Python IDE and run basic Python scripts 2.Develop front end GUI using Visualization Libraries and Multithreading techniques"
395	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201154	Statistics and R Programming	**Employability:** Students can Learn and how to solve problems using R
396	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201155	Digital Signal Processing	**Skill Development:** Skill enhancements helps in placements and Programming using MATLAB.
397	AC	M.Tech-Artificial Intelligence and Machine Learning	2000201100	Research Methodology and IPR	**Employability:** Understand the meaning of 'research' and 'research methodology' in the humanities.
398	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201110	Python Lab	**Employability:** Install Python IDE and run basic Python scripts and develop front end GUI using Visualization Libraries and Multithreading techniques.
399	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201111	Machine Learning Lab	**Employability**: Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.
400	AC	M.Tech-Artificial Intelligence and Machine Learning	2000201130	Soft Skills	**Skill Development:** Students will acquire various skills related to employability like Participation in GD and Oral Communication.
401	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201200	Deep Learning and its Applications	**Skill Development:** Learn data augmentation, various deep learn architectures which helps to solve real world problems
402	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201201	Modelling and Simulation	**Employability** :Case Studies will be given and solve to enhance applications of theory.

403	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201250	Machine Learning and NLP	**Employability:** Able to Understand the text categorisation and Develop Applications to Natural Language Processing - Feature extraction Word senses revisited. Practical activities.
404	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201251	AI for Game Programming	**Employability:** Students able to understand algorithms like- Path finding Graph, Dijkstra, A*, World Representations, Improving on A*,Goal-Oriented Behavior, Rule-Based Systems,The Design, Shooters, Driving, Real-Time Strategy, Sports, Turn-Based Games.
405	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201252	Game theory	**Employability:** Students will apply Rationality Terminology and Notation Nash Equilibrium- Strategic Games
406	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201253	Machine Learning In Computer Vision	**Employability:** Students able to learn about the Various Probalistic Algorithms, Object Detection Techniques and apply on the Various Practical World Case Studies.
407	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201254	Computational Intelligence	**Employability:** Students learn about the various optimization techniques- Like Genetic Algorithm, Swarm Optimization to perform well in the large datasets.
408	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201255	Reinforcement Learning	**Skill Development:** Effective Use of Machine learning tool boxes helps in improving skill.
409	AC	M.Tech-Artificial Intelligence and Machine Learning	20AC201210	Deep Learning Lab	**Employability:** Students able to learn about the google Colab, Keras Frame works which will be useful to solve the real world applications.

Principal