First Year B.Tech (All Programs/ All Divisions) 20% Syllabus Reduction Data

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted
1	Engineering Mathematics–I	BS-11A1	First Year	1	Unit-5 Applications of Partial Differentiation
2	Engineering Physics	BS-11A2	First Year	I	Unit-3-LASERS and Fibre Optics
3	Basics of Mechanical Engineering	ES-11A1	First Year	1	Unit-6 Industrial Application of Mechanical Engineering
4	Engineering Mechanics	ES-11A2	First Year	1	Unit-6 Unit 6 Dynamics of Rigid Bodies
5	Basic Electronics Engineering	ES-11A3	First Year	I	Unit 6 Digital Electronics
6	Engineering Chemistry	BS-11B2	First Year	I	Unit-4 Polymers
7	Engineering Graphics	ES-11B1	First Year	1	Unit 2 - : Projections of Points, lines & Planes-angles made by the line with reference planes. Projections of intersecting lines, Parallel lines, perpendicular lines, and skew lines. Distance between point and line, grade and bearing of a line.
8	Basic Civil Engineering	ES-11B2	First Year	I	Unit - 6 Advances In Civil Engineering
9	Basic Electrical Engineering	ES-11B3	First Year	I	Unit 6 Electrical Installation

B.Tech (Chem Tech)20% syllabus Reduction Data

All the course teachers are required to mention that 20% part of their course content which will be excluded for the SEE in their course (2020-21)

Sr. No.	Course Title	Course Code as per syllabus	Year	Semest er	Course content omitted
1	Chemical Engineering Thermodynamics-I	CH212	S.Y.B.Tech. Chem	111	Entropy : Directionality & spontaneity of processes,Generalized compressibility charts,The thermodynamic web, Change in thermodynamic properties based on EOS
2	Material Science Technology	CH215	S.Y.B.Tech. Chem	111	Torsion equation, strength and stiffness of solid and hollow circular shafts. Transmission of power. Thin Cylindrical and spherical shells under internal fluid pressure, Lamis theory, Design of thick cylindrical shell, Thick Spherical Shell, Metal removal process; Introduction to nontraditional machining; Metal joining process Welding, Brazing and soldering
3	Engineering Mathematics-	CH213	S.Y.B.Tech. Chem	ш	Wave Equation, One dimensional heat flow equation, two dimensional heat flow, Laplace equation (Steady State)
4	Fluid Flow Operations	CH 214	S.Y.B.Tech. Chem	111	Fluidization different types of fluidization; minimum fluidization velocity; governing equation,pneumatic conveying and other industrial uses.Non-Mechanical Pumps—acid egg, steam jet ejector,air lift pump,Positive displacement pumps (rotary, piston, plunger, diaphragm pumps); pump specification; basic characteristics curves for centrifugal pumps; fan, blower and compressor.
5	Chemistry-I	CH211	SY B.Tech.Chem	111	Molecular orbital & valence bond approaches for diatomic molecules, hybridization & structure of H2O, NH3, BF3, SF6, and PCI5. Structure of coordination compounds corresponding to coordination number up to 6, types of Ligands, isomerism [geometrical, optical, ionization, linkage and coordination], theories of Bonding in coordination compounds- Werner's coordination theory, effective atomic no. (

1	Mass transfer opration -I	CH315	T Y B. Tech Chem	v	Liquid Equilibrium, coordinate systems, cross and counter current operation and its calculation, selection of contractors, .Leaching Principles, Various Types of Leaching Operations with application, Leaching and Extraction Equipment . Absorption factor and stripping factor, Tray efficiency ,design equation for packed tower ,HETP,NTU,HTU calculation for packed tower.
2	Thermal Engineering and Plant Utilities	CH311	T Y B. Tech Chem	v	Refrigeration systems, humidification and dehumidification equipments, drying and cooling tower, air blending, exhaust, ventilation, cryogenics, Importance of insulation for the process equipments, insulation materials and their effect on various materials of equipment, piping, fitting and valves, insulation for high, intermediate, low and sub zero temperatures including cryogenic insulation, determination of optimum insulation thickness
3	Inorganic Chemical Technologies	CH313	T Y B. Tech Chem	v	Basic raw materials, Chemical Conversions, White wares, Structural clay products, Manufacture of refractory, Glass raw materials, Manufacture, types and applications of glass, Manufacture of potassium, potassium chloride, potassium sulphate and potassium nitrate
4	Chemical Reaction Engineering-I	CH 312	T Y B. Tech Chem	v	Unit: VI Yield and selectivity, Parallel reactions Requirements for high yield, best operating condition for mixed and plug flow reactors, Series reactions Maximization of desired product rate in a plug flow reactor and back mixed reactor.
5	Safety in Chemical Industry	CH314	T Y B. Tech Chem	V	Hazards Identification: Process Hazards Checklists, Hazards Surveys, Hazards and Operability,Studies, Safety Reviews, Other Methods, Risk Assessment: Review of Probability Theory, Event Trees, Fault Trees, QRA and LOPA.
1	Process Modeling and Simulation	CH415	Final Year B.Tech. Chem	VII	Equilibrium and chemical kinetics,Interpolation, Lagrange interpolation, forward difference, backward difference and central difference interpolation methods,Least square approximation of functions, linear regression, and polynomial regression,Computer simulation examples, gravity flow tank, three CSTRs in series

2	Biochemical Engineering	CH411	Final Year B Tech Chem	VI	Centrifugation, Filtration, Selection of cell separation Unit operation, Cell disruption, protein refolding. Initial purification: Precipitation, Extraction, Adsorption, Membrane processes. Final Purification and product formulation, Integration of fermentation and downstream processing operations, Reactors for immobilized enzyme systems
3	Process Equipment Design	CH413	Final Year B.Tech	VII	Design of Tall Vessels and Design for Distillation Column
4	Industrial Economics and Management	CH414	Final Year B.Tech	VII	Unit III: Nature and characteristics of Indian economy Nature and characteristics of Indian economy, Privatization – meaning, merits and demerits. Globalization of Indian economy – merits and demerits. Concepts of VAT, WTO, GATT & TRIPS agreement, Banking, Foreign exchange.
5	Elective-IAdvanced Separation Techniques	CH412.2	Final Year B.Tech	VII	Electric field assisted processes,lon exchange equilibrium ,ion movement theory
6	Elective-I Drugs & Pharmaceutical Technology	CH412.7	Final Year B.Tech	VII	Unit VI: Analytical methods and limit tests Volumetric analysis, Electrochemical Analysis, Colorimetric Analysis, UV-Visible Analysis, Flurometric analysis, Raman Spectroscopy, FTIR, Introduction to Chromatography. Limit test for Chlorides, Sulphates, Iron, Heavy Metals and Arsenic
7	Elective-I Petroleum refinery engineering	CH412.1	Final Year B.Tech	VII	Unit VI: Types and forms of corrosion, corrosion control in crude oil distillation, cracking process, design of atmospheric and vacuum distillation column

B.Tech (Civil Engg)20% syllabus Reduction Data

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted	Remarks if any
1	Engineering Mathematics-III	MA-211	S.Y.B.TECH CIVIL ENGG.	111	Unit: IV Application of Partial differential Equations Classification of PDE, Solution of Wave Equation, One dimensional heat equation and two dimensional Laplace equation by the method of separation of variables, use of Fourier series	Unit No.4 is omitted
2	Surveying	CE211	S.Y.B.TECH CIVIL ENGG.	111	Unit : VI Modern Surveying a) Photogrammetry, Objects, Applications to various fields, Aerial camera, Comparison of map & vertical photograph, Vertical tilted and oblique photographs, scale of vertical photograph, computation of length and height from the photograph, flying height, Relief displacement on vertical photograph. Mirror Stereoscope, Flight planning, Ground control, Radial line method, parallax equation, Mosaics, Photo interpretation. b) Remote sensing , basics, platform and sensors, visual image interpretation, application in Resource Exploration, Land use and Land cover analysis, application in studying natural hazards, Environmental Application c) Basics of Geographical information system (GIS) and Geographical Positioning system (GPS), applications	LAST UNIT IS OMMITT ED FROM SYLLABU S

3	Strength of Materials	CE212	S.Y.B.TECH CIVIL ENGG.	111	 Unit VI: a) Concept of Slope and Deflection of Determinate Beams: Differential Equation of the elastic curve; Concept and definition; Relation between bending moment, slope and deflection. b) Slope and Deflection in determinate Beams: Double integration method (using bracket functions) under point load, uniformly distributed loads and concentrated moments. Moment Area Method, Moment area theorems. 	LAST UNIT IS OMMITT ED FROM SYLLABU S
4	Building Construction	CE213	S.Y.B.TECH CIVIL ENGG.	111	Unit : VI Roofs and Roof coverings: Terms used. Roof and their selection, pitched roofs and their types, Timber Trusses (King Post and Queen Post), Steel Trusses types and their suitability, roof coverings and their selection. Ground and Upper floors and factors for selections of floorings: Various types of Tile flooring (Natural and Artificial Material), Concrete Flooring (Tremix Flooring) Construction of upper floors: R.C.C. slabs, R.C.C. beams and slab. Flat slab floor	LAST UNIT IS OMMITT ED FROM SYLLABU S
5	Fluid Mechanics-I	CE214	S.Y.B.TECH CIVIL ENGG.	111	Unit : VI A. Losses in Pipes: Major and Minor Losses, Concept of Equivalent Pipe, Dupit's Equation. B. Pipes in Series, Parallel and Syphon, Two Reservoir Problems, Concept of Water hammer. Surge Tanks (Function, Location and Uses).	LAST UNIT IS OMMITT ED FROM SYLLABU S
6	Design of Steel Structures	CE311	T.Y.B.TECH CIVIL ENGG	V	Unit VI Design of Roofing for an industrial building: Roofing materials, Types of trusses, Loading on roof trusses, Analysis of trusses, Design of various members of roof trusses	LAST UNIT IS OMMITT ED FROM SYLLABU

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7	Transportation Engineering-I	CE312	T.Y.B.TECH CIVIL ENGG	V	UNIT VI Introduction: Terminology, Airport Classification ICAO, components of an aircraft, aircraft characteristics. Airport Planning: Airport surveys, Site selection, Airport Obstructions, layouts, zoning laws, Environmental considerations. Air Traffic Control: VFR, IFR, Visual aids, airport lighting and marking. Runways: Orientation, wind rose, Basic runway length, Geometric design, Airport capacity, Runway patterns. Taxiways: Layout, geometrical standards, exit taxiways. Terminal Buildings: Site selection, facilities, aprons, parking systems and Heliport	LAST UNIT IS OMMITT ED FROM SYLLABU S
8	Geotechnical Engineering-I	CE313	T.Y.B.TECH CIVIL ENGG	V	 Unit VI: a) Lateral Earth Pressure Limit analysis and limit equilibrium methods, effect of wall movement on earth pressure, earth pressure at rest, Rankine's State of plastic equilibrium, submerged backfill, backfill with uniform surcharge, backfill with sloping, Surface, Coulomb's theory. b) Stability of Slopes Slope classification, slope failure, modes of failure. Infinite slope in cohesive and cohesionless soil, slope stability analysis using Swedish Slip Circle Method. Note- More emphasis would be given on basic fundamentals in the course work. 	LAST UNIT IS OMMITT ED FROM SYLLABU S

9	Environmental Engineering-l	CE314	T.Y.B.TECH CIVIL ENGG	V	UNIT V Filtration: Theory of filtration, Mechanism of filtration, filter materials, Types of filters-Rapid gravity filter, slow sand-filter and pressure filter. Components, materials, underdrainage system, working and cleaning of filters, operational troubles, Design of filters. Theory of disinfection-Factors affecting efficiency of disinfection. Types of disinfectants, Mathematical relationship governing disinfections variables. Theory of chlorination, break point chlorination, bleaching powder estimation. Water softening methodslime-soda, ion exchange method and Demineralization.	UNIT No. 5 IS OMMITT ED FROM SYLLABU S
10	Construction Management	CE315	T.Y.B.TECH CIVIL ENGG	V	Unit 6- Site Layout ,Factors affecting, Typical layout few major construction projects. Safety Engineering,Accident cost, Injury sources and causes, Effective safety programs occupational health hazards, Personal protective equipment, Preparation of safety programs for construction works. Introduction to MIS and its Application in Civil Engineering Industry.	LAST UNIT IS OMMITT ED FROM SYLLABU S
11	Design of RCC Structures-I	CE411	FINAL YEAR B.TECH CIVIL ENGG	VII	UNIT VI Isolated column footing, axial load, uni-axial and biaxial moments. Eccentric footing, Footing in difficult soil conditions	LAST UNIT IS OMMITT ED FROM SYLLABU S
12	Structural Dynamics and Earthquake Engineering	CE412	FINAL YEAR B.TECH CIVIL ENGG	VII	UNIT VI New Techniques in Aseismic Design Base Isolation technique, Seismic dampers	LAST UNIT IS OMMITT ED FROM

						SYLLABU S
13	Estimating and Costing	CE413	FINAL YEAR B.TECH CIVIL ENGG	VII	UNIT VI Valuation: Purpose, Value and Cost, Price, Market value, Potential value, Sentimental value, Scrap value etc. Real estate, rent fixation, Tenure of land, Free hold and lease hold property, Sinking fund, Depreciation, Capitalized value and Annualized value of an old building.	LAST UNIT IS OMMITT ED FROM SYLLABU S
14	Water Resources Engineering-II	CE414	FINAL YEAR B.TECH CIVIL ENGG	VII	UNIT VI River Training Works Hydraulics of alluvial rivers, meandering, aggradations and degradation, river training, necessity, river training works and bank protection, various measures and their design and construction principles. Hydro Power General features of Hydro-power, types of development, general layouts of different types, Assessment of power potential, main components of Hydro-power schemes. Types and selection of turbines, setting of turbines, cavitation.	LAST UNIT IS OMMITT ED FROM SYLLABU S
15	ENERGY EFFICIENT AND COST- EFFECTIVE BUILDING TECHNOLOGY	CE429	FINAL YEAR B.TECH CIVIL ENGG	VII	Unit IV Introduction to design of load bearing structures Stresses in masonry under compression, Factors influencing compressive strength of masonry, Strength of masonry under compression, Bond strength in masonry, Elastic properties, Design of masonry under vertical gravity loads	UNIT No. 4 IS OMMITT ED FROM SYLLABU S

B.Tech (CST) 20% Syllabus Reduction Data

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted
1	Engineering Mathematics-III	MA211	Second Year	III	Unit V : Artificial variables Techniques
2	Discrete Mathematical Structure	CS211	Second Year	III	Unit VI :Graph Theory
3	Digital System and Microprocessor	CS212	Second Year	III	Unit VI: Interrupt and DMA Transfer
4	Data Structures with C	CS213	Second Year	III	Unit:VI Basic concepts of graph theory
5	Data Communication	CS214	Second Year	III	Unit VI :Data Link Layer: Framing:
6	System Programming	CS311	Third Year	V	Unit VI: Software Tools
7	Computer Algorithm	CS312	Third Year	V	Unit V Backtracking
8	Operating System-I	CS313	Third Year	V	Unit VI: I/O System
9	Software Engineering	CS314	Third Year	V	Unit VI: Software Quality & Project Monitoring and Control
10	Computer Graphics and Multimedia Technique	CS315	Third Year	V	Unit VI: Multimedia Application
11	Advanced Computer Architecture	CS411	Final Year	VII	Unit VI: Parallel Programming Models
12	Advanced Database Management System	CS412	Final Year	VII	Unit IV: Application development & Administration
13	Distributed Systems	CS413	Final Year	VII	Unit VI: Distributed Operating Systems
14	Network Engineering	CS414	Final Year	VII	Unit VI :Linux
15	Internet of Things	CS415	Final Year	VII	Unit VI: IoT Platforms

B.Tech (ECT)20% syllabus Reduction Data

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted
1	Engineering Mathematics- 3	EC 211	Second Year	3	UNIT-IV Fourier series and Fourier transform Fourier series- Fourier Cosine series, Fourier sine series, Half range cosine series, half range sine series, full range series, Fourier transforms- Fourier sine and cosine transforms, complex form of Fourier integral, Finite Fourier sine and cosine transforms.
2	Electrical Technology	EC 212	Second Year	3	UNIT.5 Special purpose MachinesAC/DC Tachogenerators, single phase induction and stepper motors.UNIT.6 Basic of Power transmission and distribution Operation of different power plants using block diagram-different terminologies like load factor, diversity factor, plant utilization factors etc. Classification of transmission lines, transmission line parameters, ABCD constants, Voltage regulation, Ferranti effect, efficiency of transmission line. 3- phase 3-wire and 3-phase 4-wire distribution system, feeders, distributors, main lines, comparison of various distribution systems.
3	Electronics Circuit Analysis & Design- 1	EC 213	Second Year	3	UNIT V. Voltage Amplifier-H-Parameters, Hybrid model for transistor (CE, CB& CC configuration), Generalized H-parameter analysis of transistor amplifier. UNIT VI. Design of Amplifiers Design of multistage RC coupled amplifier, Low frequency response Effect of emitter bypass capacitor(CE) & Coupling capacitor(Cc), Amplifier response to square wave, percentage Sag calculation, High frequency response: Hybrid p model , Derivation for CE short circuit & resistive current gain, ß cutoff, cutoff frequency, approximate amplifier high freq. response to square wave, gain bandwidth product. Design of direct and transformer coupled amplifiers, feedback in amplifiers

4	Network Analysis	EC 214	Second Year	3	UNIT.4. NETWORK FUNCTIONS Laplace transform, Transform of a voltage and current, Transform of circuit elements, Network functions, Poles and zeros of the network functions, Pole zero plot, Physical significance of poles and zeroes, Stability, Two-port network parameters in the frequency domain Transient response: - step input response in RL circuit, step input response in R-C circuit, step input response in R-L-C circuit, ac transients.UNIT.5. FILTERS-Design and analysis of constant K, M derived and composite filters (low pass, high pass, band pass, and band stop filters): T and PI sections.
5	Digital Techniques	EC 215	Second Year	3	 UNIT.6. Logic Families and Memory Technology : Digital IC specification terminology, Logic families: TTL, CMOS, ECL families, Interfacing of TTL to CMOS & CMOS to TTL. Memory Technology: Memory organization, Expanding memories, Classification of Memory. UNIT.5. Shift Registers and Counters : Counter: Classification, Ripple or asynchronous counter, Effect of propagation delay in ripple counters, up-down counter, Design of Mod-n counter, synchronous counter, Ring counter, Johnson counter. Introduction to FSM.
6	Digital Communication Technology	EC311	Third Year	5	UNIT.3 Baseband Data Communication Introduction, Baseband pulse shaping, Shaping of transmitted spectrum , Baseband signal receiver, Integrate and Dump filter, optimum filter, matched filter transfer function, correlate filter transfer function, Inter symbol interference, Equalization , Eye Diagrams , Synchronization: bit, symbol and frame. UNIT.4 Digital Carrier Modulation and Detection Schemes Probability of errors and comparison of noise performances in ASK, FSK, PSK.

7	Electromagnetic Fields	EC312	Third Year	5	UNIT.5 Propagation of Electromagnetic Waves Wave Propagation in Dielectric & Conducting Media, Wave Equations for Sinusoidal Time Variations, Characteristics of Plane Wave in Pure Dielectric Media and Conducting Media. Reflection of Electromagnetic Wave for Normal and Oblique Incidence, Polarization, Poynting Theorem and Power Flow in Electromagnetic Field, Skin Depth, Phase Velocity and Group Velocity, Boundary Conditions.UNIT.3 Steady Magnetic Field- Magnetic Scalar & Vector Potential, Current Carrying Conductors in Magnetic Fields, Torque on Loop, Energy Stored in Magnetic Field, Boundary Conditions for Magnetic Field.			
8	Microcontrollers	EC313	Third Year	5	UNIT V. Programming PIC microcontrollers-assembly language programming, UNIT VI. PIC families and MPLAB development tools Overview of PIC microcontroller derivatives with comparison. MPLAB development environment, programming, debugging, simulation tools.			
9	Signals & Systems	EC314	Third Year	5	UNIT.6 Z-Transform Basic principles of z-transform, z-transform definition, region of convergence, properties of ROC, Properties of z-transform, Poles and Zeros, inverse z- transform using residue Theorem, power Series expansion and partial fraction expansion, Computation of Impulse response & Transfer function using Z Transform, stability of LTI Systems, system realization of LTI system in Z domain. Applications: solution of difference equation.UNIT.5 Laplace Transform-stability in S domain, system realization of LTI system in S domain. Application: solution of electronics circuit, solution of differential equation.			
10	Computer Networks and Data communication	EC315	Third Year	5	UNIT.VI Network Layer : IPv4 address, IPv4 subnetting, IPv6 address, Transition from IPv4 to IPv6, Routing Protocols (RIP, OSPF, BGP), congestion control algorithms, QoS. UNIT.V Wired and Wireless LANS addressing mechanism,zigbee, wifi,			

11	Audio and Video Engineering	EC411	Fourth Year	7	UNIT V. Colour TV- EHT generation: circuit explanation for line output stage using transistor or IC in Colour TV; Comparisons between NTSC, PAL and SCAM Systems.UNIT VI. Cable Television Working principle and specification of following components : Dish antenna, LNBC, Multiplexer, Attenuators Connectors (two ways and three ways), Amplifier and cable; MATV, CATV and CCTV; Design concept for cable TV network; Block diagram of dB meter with working principle; Direct to Home System (DTH) Introduction and Block Diagram.	
12	Industrial & Power Electronics	EC412	Fourth Year	7	UNIT-VI Industrial Electronics High frequency heating: Induction Heating, Di-electric heating - Basic Print Applications. Electric welding: Introduction, Resistance welding, energy sto welding. Ultrasonic wave generation, AC voltage stabilizer, UPS - basic configuration and types.UNIT-IV Inverters-3-phase bridge inverter (120 an mode of conduction) Voltage control of 1-phase and 3-phase inverter, har reduction techniques.	
13	ARM & Embedded systems	EC413	Fourth Year	7	UNIT – V MEMORY MANAGEMENT UNIT Memory architecture, Memory access sequence, translation process, access permissions, domains, AbortsUNIT-VI EMBEDDED SYSTEMSHardware software co design, Case study: Adaptive cruise control system in car.	
14	Microwave Engineering	EC414	Fourth Year	7	Unit V: Hybrid and Monolithic MICs Hybrid MIC: Definition, characteristics, comparison with conventional circuits, Materials: substrate, conductor dielectric & resistive material; HMIC fabrication Process steps. Monolithic MIC: Definition, MMIC growth, thin film formation, wafer process steps. Fields of application and limitations.Unit IV: Microwave Generation-Semiconductor Devices: Microwave tunnel diode, PIN diodes, Gunn effect, RWH Theory, Gunn diode, IMPATT diode.	
15	El-1 (Internet of Things)	EC415	Fourth Year	7	Unit 6- M2M protols for utility metering Introduction to M-bus, wireless M-bis, ANSI C 12 suite, DLMS/COSEM	

B.Tech (Food Tech)20% syllabus Reduction Data

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted			
1	Principles of Food Preservation	FT211	S.Y. B.Tech (Food Tech)	111	Recent methods for food preservation: Pulsed electric field processing, high pressure processing, processing by using ultrasound, dielectric, ohmic and infrared heating etc			
2	Food Chemistry	FT214	S. Y. B.Tech (Food Tech)	111	Vitamins & Minerals Vitamins: Classification of Vitamins, Structure of Vitamins, Sources of Vitamins, properties, effect of processing on Vitamins and deficiency problems of Vitamins. Minerals : Classification, Structure, Sources and properties of minerals, effect of processing on of Minerals and deficiency problems of minerals.			
3	Food Microbiology	FT213	S.Y. B.Tech (Food Tech)	111	Food poisoning: Intoxication, Food borne illness			
4	Heat Transfer	FT215	S. Y. B.Tech (Food Tech)	111	Heat Exchange equipment: Double pipe heat exchangers. Individual and overall heat transfer coefficient, LMTD, Variable overall Heat transfer coefficient, fouling factors, Shell & tube heat exchangers, LMTD correction factors, Extended surface heat exchangers, Fin efficiency and fin effectiveness.			
5	Engineering Mathematics III	FT212	S.Y. B.Tech (Food Tech)	111	Applications of Partial Differential Equations: Classification of PDE, Solutions of wave equation, one dimensional heat equation and two dimensional Laplace equation by method of seperation of variables, use of Fourier series.			
6	Fruits & Vegetables Processing Technology	FT312	T.Y. B.Tech (Food Tech)	v	Technology of beverages: Juices and pulps, RTS, concentrates, squashes, cordials, nectars, carbonated beverages			
7	Food Process Engineering-II	FT314	T.Y. B.Tech (Food	V	Crystallization: Theory and principles of Crystallization, nucleation, crystal growth, crystallization equipment, applications of crystallization in food processing.			

			Tech)		
8	Food Packaging	FT311	T.Y. B.Tech (Food Tech)	v	Novel Food Packaging: Packaging of Space food, Retort able pouches, Controlled and Modified atmosphere Packaging, Active packaging, Edible Packages etc
9	Dairy Technology	FT313	T.Y. B.Tech (Food Tech)	v	Hygiene & Sanitation in Dairy Industry: Hygiene, Sanitation & cleaning in Dairy Industry
10	Process Instrumentation, Dynamics & Control	FT315	T.Y. B.Tech (Food Tech)	V	Other control strategies: Feed forward controller - design with steady state model, design with dynamic model, combination of feed forward-feedback structure, Cascade control structure - analysis and design, Ratio control, split range control, selective control, override control, auctioneering control.
11	Meat, Poultry and Fish Processing Technology	FT 411	Final Year B. Tech (Food Tech)	VII	Fish:Fish Types, examination, care in handling & transportation, processing, freezing, canning salting& drying of fish. Fish sauce and protein concentrates.
12	Legume and Oilseed Technology	FT 412	Final Year B. Tech (Food Tech)	VII	Oil extraction and Refining of oils : Oil extraction methods: mechanical Pressing. Solvent extraction process: principle, pretreatment - breaking, cracking, flaking, extraction principle and Desolventization. Factors affecting the extraction process. Refining of oils : Refining, degumming, neutralization, bleaching, filtration, deodorization of oils and their principles and process controls.
13	Food Quality & Safety Management	FT 412	Final Year B. Tech (Food Tech)	VII	Sensory Evaluation: Introduction of sensory evalutation, panel screening, Sensory and instrumental analysis in quality control, IPR and patents.

14	Elective –I (Beverages Technology)	FT 415	Final Year B. Tech (Food Tech)	VII	Packaged drinking water: Definition, types, manufacturing processes, quality evaluation and raw and processed water, BIS quality standards of bottled water; mineral water, natural spring water, flavoured water, carbonated water.
15	Elective –I(Functional Food and Nutraceuticals)	FT 415	Final Year B. Tech (Food Tech)	VII	Development of Functional Foods : Low sugar,low calorie foods.
16	Food Biotechnology	FT 414	Final Year B. Tech (Food Tech)	VII	Improvement Techniques in Fermented foods: Traditional fermented foods like idli, dosa etc. Soy fermented foods. Other foods like beer, wine, distilled liquor vinegar.

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted
1	Numerical Methods	70214	SY	111	Mathematical Programming Linear Optimization problems, Standard and Canonical forms, Basic solutions and feasible solutions, Optimal solutions by simplex method, Artificial Variables, Big M-method, Dual simplex method.
2	Electrical Technology and Computer Programming C++	70215	SY	111	Electrical Measuring Instruments and electrical Heating Principle construction and application of PMMC, Electronic energy meter, Types of electric heating- Introduction, resistance ovens, and High frequency eddy current heating. Overloading: Function overloading with various data types, arguments; operator overloading: assignment operator; arithmetic and comparison operators. Polymorphism: Virtual functions; Abstract Base Classes, Constructor under Inheritance, Destructor under inheritance.
3	Engineering Thermodynamics	70216	SY	111	Unit V: Availability and Irreversibility Sources of energy, Available and unavailable energy, availability of energy entering a system, Availability of closed system, Availability in a steady flow processes, The Second –Law Efficiency
4	Manufacturing Engineering. – I	70217	SY	111	Grinding 1. Classification, grinding wheels, wheel marking, wheel selection, wheel mounting, wheel balancing, Grinding wheels- Abrasives, bonds and bonding processes, grit, grade and structure of wheel, types of grinding machines. 2. Honing, lapping, super finishing, buffing and burnishing processes.

B.Tech (Mech Engg)20% syllabus Reduction Data

5	Fluid Mechanics	70218	SY	ш	Advanced topics a) Dimensional Analysis: Dimensional homogeneity, Raleigh's method, Buckingham's theorem, Model analysis, similarity laws and dimensionless numbers. b) Introduction to boundary layer theory and its analysis. c) Forces on Submerged bodies: Drag and lift.	
6	Machine Design – I	70840	ТҮ	V	Design of welded joints Types of welded joints, eccentrically loaded joints, welded joints subjected to bending moment.	
7	Theory of Machines – II*	70841	ΤY	V	Mechanical Vibrations Basic concepts and definitions; vibration measuring parameters- displacement, velocity, and acceleration, Single degree of freedom system, SHM, Undamped free vibrations, damped free vibrations, Types of damping. Forced Vibration: Effect of excitation, Excitation due to reciprocating and rotating unbalance, Vibration isolation and transmissibility	
8	Energy Engineering	70842	ΤY	V	 a) Geothermal Energy Sources and application of geothermal energy, various types of geothermal power plants. b) Tidal Energy Tidal energy available in India, suitable locations, study of various tidal energy power plants, and characteristics of turbines required. Introduction to Wave Energy, Phenomenon of wave generation. 	
9	Manufacturing Engineering. – II**	70843	ТҮ	v	Introduction advanced manufacturing · CNC Technology and CNC tooling: Introduction, Construction and working of CNC, DNC and machining center., Automatic Tool Changer (ATC) and Automatic pallet changer (APC). · Rapid prototyping – concept, advantages, applications, study of 3D printing, file formats.	

10	Heat and Mass Transfer	70844	ТҮ	V	Radiation Nature of thermal radiation, definitions of absorptivity, reflectivity, transmissivity, monochromatic emissive power, total emissive power and emissivity. Concept of black body and gray body. Kirchhoff laws, Wien''s law and Planck''s law. Deduction of Stefan Boltzmann equation. Lambert''s cosine rule, Intensity of radiation. Energy change by radiation between two black surfaces with non-absorbing medium in between and in absence of reradiating surfaces. Geometric shape factor. Energy exchange by radiation between two gray surfaces without absorbing medium and absence of radiation and radiosity. Radiation network method, network for two surfaces
11	Refrigeration and Air- conditioning	74154	Final Year	VII	HEATING AND COOLING LOAD CALCULATION: Air Conditioning system, Different heat sources, Load analysis RSHF, GSHF, ESHF, Factors forming the load on air conditioning systems, Different Air Conditioning System: Central Station Air Conditioning System, Unitary Air Conditioning System, District Air Conditioning System and Self Contained Air Conditioner, Components related to Air Conditioning System, Transport Air Conditioning: Air Conditioning System for Automobiles, Railway, Marine.
12	Hydraulics and Pneumatics	74156	Final Year	VII	a) Hydraulic and Pneumatic servo system for linear and rotary motion. b) Maintenance, troubleshooting and safety of hydraulic and pneumatic systems. c) Introduction to fluidics – study of simple logic gates, turbulence, amplifiers. Pneumatic sensors, applications.

13	Machine Design – III	74155	Final Year	VII	Design of Material handling system: Design of belt and chain conveyors – Power requirement, Selection of belt and chain, Design of tension take up unit, Idler pulley Optimum Design: Objectives of optimum design- Johnsons Method of Optimum Design (MOD),Adequate and optimum design. Primary, Subsidiary and Limit equations- Optimum design with normal specifications of simple machine elements like tension bar, transmission shaft, helical spring.Introduction to optimum design with Langrange Multiplier.
14	Manufacturing Engineering III	74157	Final Year	VII	Maintenance & Reliability: Concept of preventive & breakdown maintenance, maintenance cost, optimal preventive maintenance simple replacement modelsindividual and group replacement, MAPI - methods, reliability definitions, failure analysis and curve, systems reliability- series parallel, redundancy, methods of improving reliability, MTBF, MTTR, Maintainability, availability.
15	Elective – I Operations Research	74160	Final Year	VII	a) Decision Theory: Pay off and regret tables, decision rules, decisions under uncertainty and risk, decision tree. b) Network Techniques: Shortest Path Model- Systematic Method, Dijkstra's Algorithm, Floyd's Algorithm

M.Tech (CSTech)20% syllabus Reduction Data

All the course teachers are required to mention that 20% part of their course content which will be excluded for the SEE in their course (2020-21)

Sr.		Course Code as per			
No.	Course Title	syllabus	Year	Semester	Course content omitted
1	Mathematical Foundation of Computer Science	CS 511	First	I	Computational Complexity
2	Design and Analysis of Algorithms	CS 512	First	1	Hypercube Algorithms
3	Artificial Neural Network	CS 513	First	1	Learning
4	Advanced Database System	CS 514	First	1	Security Issues and Performance measure In Databases
5	Advanced Operating Systems	CS 515	First	1	Case Study

M.Tech (Ele.Tech)20% syllabus Reduction Data

		Course Code as			
		per			
Sr. No.	Course Title	syllabus	Year	Semester	Course content omitted
1	High Speed Analog Design	C11	2020-21	1	Unit VI Case study of AD600 Dual Channel X-amp, AD641 monolithic log amplifier.
2	Reconfigurable Platforms & HDL	C12	2020-21	1	Unit VI Direct communication, Third party communication, Bus based communication, Circuit switching, Network on chip, Dynamic network on chip, Partial reconfigurable design.
3	Communication Networks	C13	2020-21	1	Unit VI Bluetooth, 802.11. HiperLAN2, GPRS and Edge Services, UMTS, 3G, Beyond 3G: integrated 4G services. Access technologies: last mile, xDSL, Reviews of packet switching, Advanced topics in Computer Networking Multimedia over a Network, Streaming over Internet, Streaming over wired and wireless Network, Wireless Sensor Networks, Wireless Home Networks
4	Elective-I Advanced Computer Architecture	E14	2020-21	1	Case studies – Intel Multi-core architecture – SUN CMP architecture - heterogenous multi-core processors – case study: IBM Cell Processor Unit V Design issues
5	Elective-II (open Elective*) Automotive Embeded systems	E15	2020-21	I	Unit VI Case study- cruisecontrol of car. Artificial Intelligence and engine management

M.Tech (Energy Tech)20% syllabus Reduction Data

Sr.		Course Code as	No. a	C	
NO.	Course litle	per syllabus	Year	Semester	Course content omitted
1	Energy Resources and Their	FTC 1-1	1	1	Linit - 2 Global Scene
				•	
2	Biomass and its Conversion Technologies	ETC 1-2	1	1	Unit -6 Biomass productivity
3	Solar Photovoltaic Energy Conversion	ETC 1-3	1	1	Unit – 5 Market analysis and economics of SPV system
1	Wind Energy & Small Hydronouver Systems		1	1	Linit & Drainat Contracto
4	wind Energy & Small Hydropower Systems		I	I	Unit -6 .Introduction and use of different
5	Solar Passive Architecture	ETE 2-2	1	1	building simulation software for modeling of buildings spaces
1	Solar Thermal Energy Conversion	ETC 2-1	1	2	Unit -5 Performances of solar collectors
2	Energy Management And Audit	ETC 2-2:	1	2	Unit -6 Electrical and Thermal Energy Management
3	Energy Efficiency In Thermal & Electrical Utilities	ETC 2-3	1	2	Unit -6 DG Set System
4	Power Plant Engineering	ETE 3-3	1	2	Unit - 7 Energy Storage, Unit - 8 Economics of Electricity Generation
5	Energy Modeling & Project Management	ETE 4-2	1	2	Unit -5 Project Evaluation & Management

Sr. No.	Course Title	Course Code as per syllabus	Year	Semester	Course content omitted
1	Research Methodology (Audit)	ESTC 10	M.Tech-I	1	Unit 5 : Techniques of Hypotheses, Parametric or Standard Tests: 4Hrs Basic concepts, Tests for Hypotheses I and II, Important parameters, Limitations of the tests of Hypotheses, Chi-square Test, Comparing Variance, as a non-parametric Test, Conversion of Chi to Phi, Caution in Using Chi- square test Unit 6 :Analysis of Variance and Co-variance 4Hrs ANOVA, One way ANOVA, Two Way ANOVA, ANOCOVA, Assumptions in ANOCOVA, Multivariate Analysis Technique, Classification of Multivariate Analysis, factor Analysis, R-type Q Type Factor Analysis, Path Analysis
2	Physico-Chemical and Biological Treatment Processes	ESTC 11	M.Tech- I	1	Unit 4 : 8 HRS, Adsorption processes, causes and types of adsorption, influencing factors, adsorption equilibria and development of adsorption isotherms, activated carbon adsorption kinetics, analysis and design of GAC and PAC contactors. Ion exchange, exchange materials, exchange capacity, ion exchange chemistry and reactions, applications for hardness and TDS removal, design of ion exchange softener, Introduction to membrane processes
3	Remote Sensing and GIS Applications in Environmental Engineering	ESTC 12	M.Tech-I	1	Unit 5 : 1 HR GIS project design and management. Unit 6 : 7 HRS GIS applications: Forestry, Bio-diversity, Environment, Soil resource management, Hydrological modelling, Public utilities (water distribution, sewerage, solid waste management).

M.Tech (Enviro.Sci & Tech)20% syllabus Reduction Data

4	Solid and Hazardous Waste Management	ESTC 13	M.Tech-I	1	Unit 6: 8 HRS Definition and identification of Hazardous Wastes, Sources and Characteristics of hazardous wastes, Hazardous waste in municipal waste, Hazardous waste regulations and legislations, Minimization of Hazardous wastes, Handling and storage of Hazardous wastes, Hazardous Waste Treatment technologies, Physical, chemical & thermal methods of stabilizations, Solidification, Chemical Fixation & encapsulation, Incineration of Hazardous waste landfills, Reclamation of Hazardous waste landfill sites. Radioactive waste management
5	Elective -I : Energy and Environment	ESTE 11	M.Tech- I	1	Unit 6: 8 HRS Heat Energy recovery systems: Approaches to waste Energy Utilization, Equipment, Utilization System, objective, principles of heat transfer, Gas to Gas heat transfer, Gas to Liquid heat transfer, Recovery of waste heat in coil coating, Non- conventional liquid fuels, Heat recovery by Cogeneration.
6	Elective -II : Operational Health and Safety Management	ESTE 23	M.Tech- I	1	Unit5: 2 HRS Job safety analysis - examples, Plant safety inspection - objectives and types check procedure inspection report. Unit 6 : 6HRS Requirements for and benefits of the provision of information, instruction, training and supervision. Factors to be considered in the development of effective training programmes. Importance of training-identification of training needs- Principles and methods of effective training methods –programme, seminars, conferences, competitions – method of promoting safe practice - motivation – communication - role of government agencies and private consulting agencies in safety training – creating awareness, awards, celebrations, safety posters, safety displays, safety pledge, safety incentive scheme, safety campaign – Domestic Safety and Training – safety training to workers. Feedback and evaluation mechanism.

M.Tech (Food Tech)20% syllabus Reduction Data

		Course Code			
Sr.		as per			
No.	Course Title	syllabus	Year	Semester	Course content omitted
					Analysis of Variance and Co-variance:
					ANOVA, One way ANOVA, Two Way ANOVA, ANOCOVA,
					Assumptions in ANOCOVA, Multivariate Analysis Technique, 4
			M.Tech First		Classification of Multivariate Analysis, factor Analysis, R-type Q
			Year (Food		Туре
1	Research Methodology (Audit)	68096	Tech	I I	Factor Analysis, Path Analysis
	Advances in Food Engg. And		M.Tech First		Modified atmosphere, enzymatic processing and hurdle
	Technology		Year (Food		technology. Advanced Membrane
2		68097	Tech)	1	Technology for water and liquid foods and effluent treatment.
	Advances in Food Science and				Nutraceutical aspects of food :Functional foods and
	Nutrition				nutraceuticals with attributes to control
					cardiovascular diseases, cancer, obesity, ageing etc. Food
					components and nutrients affecting
					immune systems, behaviour and performance; Functional
			M.Tech First		aspects of dietary fibre, amino acids &
			Year (Food		peptides, lactic acid bacteria, antioxidants, vitamins, fatty acids
3		68098	Tech)	I	etc.
			M.Tech First		Safety and legislative aspects of packaging: Regulatory
	Novel Techniques in Food		Year (Food		considerations, plastic, metal, paper and
4	Packaging	68099	Tech)	<u> </u>	glass packaging, bar coding and labeling.
					Minimally processed fruits and vegetables:Concept of hurdle
			M.Tech First		technology,thermal heating approach
	Elective-I (Modern techniques in		Year (Food		to minimal processing, high frequency heating, microwave
5	fruits and vegetable processing)	68101	Tech)		heating and ohmic heating
			M.Tech First		Waste utilization from dairy processing industries. Hygiene and
	Elective-II (Advances in processing		Year (Food		sanitation practices in dairy
6	of dairy technology)	68103	Tech)		industry.