

## I Year - 2018 SCHEME

Course Code	Course Name	Course Outcomes-On completion of this course the students will be able to
18MAT11	<b>Calculus and Linear Algebra</b>	<p>CO1: Find the angle between radius vector and tangent, Pedal Equations, curvature, radius of curvature and their applications.</p> <p>CO2: Find the Taylor's and Maclaurin's series, indeterminate forms, partial differentiation, Maxima and Minima for a function of two variables.</p> <p>CO3: Evaluate the double and triple integrals, and by changing the order of integration, using Beta and Gamma functions and their application.</p> <p>CO4: Solve linear and non-linear ordinary differential equations.</p> <p>CO5: Solve the system of linear equations and to compute the Eigen value, Eigen vectors for diagonalization</p>
18PHY12/22	<b>Engineering Physics</b>	<p>CO1: Classify various types of oscillations and their implications, the role of Shock waves in various fields Engineering and Technical fields.</p> <p>CO2: Recognize the elastic properties of materials for engineering applications.</p> <p>CO3: Realize the interrelation between time varying electric field and magnetic field, the transverse nature of the EM waves and their role in optical fiber communication.</p> <p>CO4: Compute Eigen values, Eigen functions of a particles using Time independent 1-D Schrodinger's wave equation and apprehend theoretical background of different types of laser and its applications in various fields.</p> <p>CO5: Distinguish various electrical and thermal properties of materials like conductors, semiconductors and dielectrics using different theoretical models.</p>
18ELE13/23	<b>Basic Electrical Engineering</b>	<p>CO1: Analyse D.C circuits.</p> <p>CO2: Analyse A.C circuits</p> <p>CO3: Explain the principle of operation and construction of single phase transformers. Discuss concepts of electrical wiring, circuit protecting devices and earthing</p> <p>CO4: Explain the principle of operation and construction of DC machine and its performance.</p> <p>CO5: Explain the principle of operation and construction of synchronous machines and three phase induction motors.</p>
18CIV14/24	<b>Elements of Civil Engineering and Mechanics</b>	<p>CO1: Mention the applications of various fields of Civil Engineering.</p> <p>CO2: Compute the resultant of given force system subjected to various loads.</p> <p>CO3: Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a</p>

		<p>result of the external loads.</p> <p>CO4: Locate the Centroid and compute the Moment of Inertia of regular and built-up sections.</p> <p>CO5: Express the relationship between the motions of bodies and analyze the bodies in motion.</p> <p>CO6: Apply the concepts of kinetics and kinematics, to understand about curvilinear and rectilinear motion and to analyze the various problems based on these.</p>
<b>18EGDL15/25</b>	<b>Engineering Graphics</b>	<p>CO1: Demonstrate the usage of CAD software.</p> <p>CO2: Draw orthographic projections of points, lines, planes and solids.</p> <p>CO3: Generate the development of lateral surfaces of solids.</p> <p>CO4: Covert orthographic views to isometric projections of solids and vice-versa.</p>
<b>18PHYL16/17</b>	<b>Engineering Physics Laboratory</b>	<p>CO1: Apprehend the concepts of interference of light, diffraction of light, Fermi energy and magnetic effect of current.</p> <p>CO2: Understand the principles of operations of optical fibers and Semiconductor devices such as Photodiode, and NPN transistor using Simple circuits.</p> <p>CO3: Determine elastic moduli and moment of inertia of given materials with the help of suggested procedures.</p> <p>CO4: Recognize the resonance concept and its practical applications.</p> <p>CO5: Understand the importance of measurement procedure, honest recording and representing the data, reproduction of final results.</p>
<b>18ELEL17/27</b>	<b>Basic Electrical Engineering Laboratory</b>	<p>CO1: Identify common electrical components, measuring instruments used in electrical laboratory and understand basic electrical laws such as Ohm's Law, Kirchhoff's Current Law, and Kirchhoff's Voltage Law, then, verifies the same in simple electrical circuits.</p> <p>CO2: Compare the power consumed and power factor of various types of lamps, such as Incandescent lamps, Fluorescent Lamps, and LED lamps.</p> <p>CO3: Understand the operation of two-way and three-way control of lamps in domestic wiring.</p> <p>CO4: Determine the various parameters of a choke coil, such as impedance, resistance, inductance, and quality factor.</p> <p>CO5: Establish star and delta type of connections using three numbers of single-phase loads and verify the phase and line relationships of voltage and currents.</p> <p>CO6: Determine and verify the total power consumed by a three phase star connected load using the two-wattmeter method.</p> <p>CO7: Understand the effects of open and short circuits in a simple electrical circuit.</p>
<b>18EGH18</b>	<b>Technical English-I</b>	<p>CO 1: Use grammatical English and essentials of language skills and identify the nuances of phonetics, intonation and flawless pronunciation.</p> <p>CO2: Implement English vocabulary at command and language proficiency.</p> <p>CO3: Identify common errors in spoken and written communication.</p> <p>CO4: Understand and improve the non verbal communication and kinesics.</p> <p>CO5: Perform well in campus recruitment, engineering and all other general competitive examinations.</p>

18MAT21	<b>Advanced calculus and numerical methods</b>	<p>CO1: Find the velocity, acceleration, gradient, curl and divergence</p> <p>CO2: Solve linear ordinary differential equations.</p> <p>CO3: Form and solve partial differential equations.</p> <p>CO4: Solve the infinite series and power series solutions.</p> <p>CO5: Solve algebraic and transcendental equations, interpolating polynomials, Intermediate values and evaluation of integrals using appropriate numerical techniques.</p>
18CHE12/22	<b>Engineering Chemistry</b>	<p>CO1: Analyze use of thermodynamics concepts to understand and to calculate potential value and nature of different classes of batteries applications.</p> <p>CO2: Analyze the understand nature of corrosion of different metals, causes and their protection through different techniques.</p> <p>CO3: Analyze calorific value of solid or liquid fuel and understand utilization of various energy sources.</p> <p>CO4: Explain the source sand effects of environmental pollution, the knowledge of waste management and assessment of water quality parameters</p> <p>CO5: Use instruments for various quantitative analysis and prepare the nonmaterial's and their applications.</p>
18CPS13/23	<b>C Programming for Problem Solving</b>	<p>CO1: Illustrate simple algorithms from the different domains such as mathematics, physics, etc.</p> <p>CO2: Construct a programming solution to the given problem using C.</p> <p>CO3: Identify and correct the syntax and logical errors in C programs.</p> <p>CO4: Modularize the given problem using functions and structures.</p>
18ELN14/24	<b>Basic Electronics</b>	<p>CO1: Apply the Knowledge of Semiconductor diode for designing Regulated power supply Using Rectifier, filter and IC regulator.</p> <p>CO2: Describe the construction, working and operation of JFET, MOSFET also discusses the Operating Principles of SCR with the Phase control application.</p> <p>CO3: Explain the Various Op-Amp parameters and using Op-amp design basic application like Inverting, non-inverting amplifier, Integrator differentiator etc.</p> <p>CO4: Use BJT for applications like amplifier and switch for power control, Describe the Principles operation of feedback amplifier and oscillators.</p> <p>CO5: Explain the different number system and their conversions and construct simple combinational and sequential logic circuits using Flip-Flops.</p> <p>CO6: Describe the basic principle of operation of communication system and mobile phones.</p>
18ME15/25	<b>Elements of Mechanical Engineering</b>	<p>CO1: Explain various sources of energy and conversion, basics of thermodynamics and properties of steam.</p> <p>CO2: Describe the principles &amp; operations of boilers, hydraulic turbines and hydraulic pumps.</p> <p>CO3: Describe principles and operations of internal combustion engines, refrigeration and air-conditioning.</p> <p>CO4: Explain basics of engineering materials and various joining</p>

		<p>processes of metals.</p> <p>CO5: Describe power transmission methods by belt and gear drives and estimation of velocity ratios.</p> <p>CO6: Explain different machining processes by lathe, milling machines and basics of CNC machines and robotics</p>
<b>18CHEL16/26</b>	<b>Engineering Chemistry Laboratory</b>	<p>D1: Handling different types of instruments for analysis of materials using small Quantities of materials involved for quick and accurate results.</p> <p>D2: Carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results.</p>
<b>18CPL17/27</b>	<b>C Programming Laboratory</b>	<p>D1: Write algorithms, flowcharts and program for simple problems.</p> <p>D2: Correct syntax and logical errors to execute a program.</p> <p>D3: Write iterative and wherever possible recursive programs.</p> <p>D4: Demonstrate use of functions, arrays, strings, structures and pointers in problem solving</p>
<b>18EGH28</b>	<b>Technical English-II</b>	<p>CO1: Improve the functional effectiveness through better workplace communication skills.</p> <p>CO2: Acquire basic proficiency in English reading and listening, comprehensions, writing and speaking skills.</p> <p>CO3: Write campus recruitment exams, engineering competitive exams and all other general competitive exams.</p> <p>CO4: Improve business and technical communication skills and technical writing skills.</p>

## II Year - 2017 SCHEME

Course Code	Course Name	Course Outcomes-On completion of this course the students will be
17BT31	Engineering Mathematics-III	CO1 : Use of periodic signals and Fourier series to analyze circuits. CO2: Explain the general linear system theory for continuous-time signals and systems using the Fourier Transform. CO3: Analyze discrete-time systems using convolution and the z-transform. CO4: Use appropriate numerical methods to solve algebraic and transcendental equations and also to calculate a definite integral CO5: Use curl and divergence of a vector function in three dimensions, as well as apply the Green's Theorem, Divergence Theorem and Stokes' theorem in various applications CO6: Solve the simple problem of the calculus of variations
17BT32	Unit Operations	CO1: Explain the Rheological behavior of fluids. CO2: Explain the principle of flow measuring instruments and analyze the application of Bernoulli equation. CO3: Describe the principles of various unit operations like size reduction, sedimentation, filtration and mixing . CO4:Comprehend the heat governing laws and explain the working heat transfer equipments. CO5:Analyse the various mass transfer operations.
17BT33	Biochemistry	CO1:Understand the basic types of chemical reactions and biomolecules CO2:Understand and analyze high energy molecules and Photosynthesis CO3:Understand about transport mechanism across the cell membrane and analyse its regulation CO4:Understand the basic metabolic pathways of CHO, Lipids, amino acid and nucleic acids and analyse their regulations
17BT34	Microbiology	CO 01:Know about bio molecules CO 02:Understanding basic metabolic pathways CO 03: Understand metabolic regulations
17BT35	Cell biology & Genetics	CO1: To gather a contemporary knowledge of cytoskeletons. CO2: To be able to understand cell structure and function. CO3: students will be able to understand genetics and population genetics. CO4: Gather knowledge on basis of inherited disorders.
17BT36	Basics of computer application	CO1: Understand C- language with updated tool CO2: Apply the basic concepts of MATLAB, Internet. CO3:Use the software with special reference to biotechnological applications

17BTL37	<b>Unit Operation Laboratory</b>	<p>CO1. Able to apply the basic principles of fluid mechanics and to analyze the flow measurement instruments.</p> <p>CO2. Ability to analyze fluid flow problems with the application of the momentum and energy equations CO3.Able to assess principles of sedimentation, filtration and mass transfer operations through experiments.</p> <p>CO4. Students will learn about the diffusional mass transfer</p>
17BTL38	<b>Microbiological Lab</b>	<p>CO1:Able to use different Microbiological Lab equipments like autoclave, incubators, LAF, microscopes,oven etc.</p> <p>CO2: Able to prepare the media and use for the cultivation of the microorganisms</p> <p>CO3: Able to perform laboratory experiments for the isolation ,identification and characterization of microorganisms CO4: Able to carry out experiments for the enumeration and staining.</p>
17CPH39/49	<b>Constitution of India, Professional Ethics and Human Rights</b>	<p>CO1: Have general knowledge and legal literacy about Indian Constitution and there by it helps to take up competitive examinations &amp; to manage/face complex societal issues in society.</p> <p>CO2: Understand state and central policies( Union and State Executive), fundamental Rights &amp; their duties.</p> <p>CO3: Understand Electoral Process, Amendments and special provisions in Constitution.</p> <p>CO4: Understand powers and functions of Municipalities, Panchayats and Co-operative Societies, with Human Rights and NHRC.</p> <p>CO5: Understand Engineering &amp; Professional ethics and responsibilities of Engineers</p>
17BT41	<b>BioStatistics &amp; Bio modeling</b>	<p>CO 01: Fit a suitable curve for the tabulated data by the method of least squares, find correlation coefficients and analyze</p> <p>CO2: Apply different types of tests to test the hypothesis relating to small samples. CO3: Appreciate the concepts of probability, distributions and various stochastic process.</p> <p>CO4: Perform modeling and simulations experiments for select biological processes using appropriate data.</p> <p>CO5: Study the importance of modeling and simulations for biological problems.</p>
17BT42	<b>Biochemical Thermodynamics</b>	<p>CO1. State &amp; describe the concepts of system, surrounding, process, laws of thermodynamics and entropy.</p> <p>CO2. Explain the PVT behavior of fluids &amp; gases, equations of state for real gases and heat effects accompanying chemical reactions.</p> <p>CO3. Explain the different thermodynamic properties ,their relations and thermodynamic diagrams.</p>

		CO4. Determine the partial molar properties & explain criteria of phase, biochemical reaction equilibrium and equilibrium conversion.
<b>17BT43</b>	<b>Molecular Biology</b>	CO 01: Explain replication, transcription and translation processes with underlying differences in prokaryotic and eukaryotic systems. CO 02: Elaborate importance of genetic recombination with special reference to bacterial system. CO 03: Outline DNA damage and repair mechanisms
<b>17BT44</b>	<b>Bioprocess Principles and Calculations</b>	CO1: Discuss the significance of material and energy balance for bioprocess technology. CO2: Solve problems related to material and energy balance to give solutions for bioprocess development. CO3 Develop the flow-sheet for general processes operating in bioprocess industry. CO4: Appreciate the stoichiometry of microbial growth and product formation involved in bioprocess technology
<b>17BT45</b>	<b>Structural Biology</b>	CO1:Present the foundational principles of macromolecular structure and function. CO2: Apply diverse techniques that enable the elucidation of molecular structure, their organization, stability, associations and functionalities.
<b>17BT46</b>	<b>Clinical Biochemistry</b>	CO1:Discuss the biochemistry and pathophysiology associated with various disorders of metabolism and inborn errors of metabolism. CO2:Assess the clinical manifestations of renal, hepatic, pancreatic, gastric and intestinal functions and elevation of enzymes. CO3:Assess the clinical manifestations associated to hormonal disturbances CO4:Discuss the medical problems associated with blood and mechanism of detoxification in body
<b>17BTL47</b>	<b>Cell and Molecular Biology Laboratory</b>	CO 01:To be able to understand the mitotic and meiotic cell divisions; CO 02: To be able to carry out somatic cell fusion; CO 03: To separate DNA and run various fragments through electrophoresis
<b>17BTL48</b>	<b>Clinical Biochemistry lab</b>	CO1: Know about biomolecules with special reference to physiological samples. CO2: Determine the levels of metallic ions, fats and oils and other biomolecules

### III Year Biotechnology

Course Code	Course Name	Course Outcomes-On completion of this course the students will be
17BT51	<b>Biokinetics and Bioreaction Engineering</b>	CO1: Discuss about the different models of chemical reactions and various factors affecting to the reaction rate. CO2:Design of performance equations for the different reactor CO3:To study the performance and distinguish between the different types of ideal and non ideal reactors CO4:To determine enzyme activity, To study the fundamentals of Microbial growth kinetics and its stoichiometry CO5:To describe medium requirements and medium formulation for the optimal bio process
17BT52	<b>Genetic Engineering</b>	CO1:Explain & compare the different vectors & enzymes used in the construction of recombinant DNA in Genetic engineering CO2:Choose & explain specific techniques like PCR, Blotting & construction of libraries CO3:Differentiate between & learn the different gene/DNA transfer techniques CO4:Outline the various methods of producing transgenic organisms CO5:Summarize the applications of genetic engineering for the welfare of mankind & society
17BT53	<b>Immunotechnology</b>	CO1: Outline the molecular and cellular mechanisms involved in the development and regulation of the immune response. CO2: Describe the cause, challenges and treatment of Immune System Pathologies and Dysfunctions CO3: Apply the major immunological laboratory techniques and their applications to both clinical analysis and experimental research.
17BT54	<b>Bioinformatics</b>	CO 01: Know the relevant online resources, databases and software tools CO 02: Understand the underlying concepts of Bioinformatics CO 03: Apply alignment and modelling tools CO 04:Analyse biological data using phylogenetic, predictive and comparative methods CO 05:Design in silico various biomolecules. .
17BT553	<b>Animal</b>	CO1: Explain the basic principles and techniques in

	<b>Biotechnology</b>	<p>genetic engineering, gene transfer techniques for animals and animal cell lines.</p> <p>CO:2 Gain knowledge about the recent advances in animal breeding.</p> <p>CO3: Explain the contribution ‘Functional genomics’ is making and is likely to make in animal biotechnology now and in future.</p> <p>CO4: Appraise the role of biotechnology in animal science for sustainable eco-system and human welfare.</p>
<b>17BT563</b>	<b>Biotechnology for sustainable Environment</b>	<p>CO 1: Apply reasoning to identify the components of environmental eco systems and effect of pollutant on environment.</p> <p>CO2: Characterize the various parameters of water , waste water and solid waste from their sources to provide valid conclusions.</p> <p>CO3: Understand the impact of recovery , recycle of the useful resources from wastes by adopting advanced techniques to demonstrate the need for sustainable development.</p> <p>CO4: Identify and Demonstrate the knowledge to use suitable equipment for abatement and control of air and noise pollution.</p>
<b>17BTL57</b>	<b>Genetic Engineering and Immunotechnology Laboratory</b>	<p>CO1: To experimentally verify various theoretical concepts of Immunodiagnostic techniques like agglutination, precepitation, immunoelectrophoresis, qualitative analysis, ELISA, seperation of lymphocytes and immunoblot.</p> <p>CO2: To plan and interpret the various genetic engineering techniques for the isolation of NA, quantification , purity check, amplification and gene cloning. CO3: To apply and infer these techniques in research.</p>
<b>17BTL58</b>	<b>Bioinformatics Laboratory</b>	<p>CO 01:Understand fundamental concepts of bioinformatics</p> <p>CO 02: Apply online resource tools solve sequence alignment problems</p> <p>CO 03: Design primers and peptide sequences</p>

17BT61	<b>Bio-business and entrepreneurship</b>	<p>CO 01 :Identify potential entrepreneurship opportunity in biotechnology</p> <p>CO 02:Effectively plan a project with a work plan, budget and schedule</p> <p>CO 03:Assess the government strategies and schemes for startups</p> <p>CO 04: Understand the concepts of bioethics, biosafety and Regulatory norms</p>
17BT62	<b>Bioprocess control and automation</b>	<p>CO 01: Understand the basics of process dynamics principles and instrumentation</p> <p>CO 02: Study various types of input functions and its response for first order systems</p> <p>CO 03: Study various types of input functions and its response for second order systems</p> <p>CO 04: Perform computational modelling to study different types of controllers</p> <p>CO 05: Analyse different control algorithms</p>
17BT63	<b>Enzyme technology &amp; biotransformation</b>	<p>CO 01: Discuss the biochemistry and pathophysiology associated with various disorders of metabolism and inborn errors of metabolism.</p> <p>CO 02:Assess the clinical manifestations of renal, hepatic, pancreatic, gastric and intestinal functions and elevation of isoenzymes.</p> <p>CO 03: Assess the clinical manifestations associated to hormonal disturbances</p> <p>CO 04: Describe the medical problems associated with blood and mechanism of detoxification in body</p>
17BT64	<b>Bioprocess equipment design &amp; CAED</b>	<p>CO 01:Know the different components of the heat exchangers and their working.</p> <p>CO 02: Do detailed design and drawing of DPHE, STHE and condenser.</p> <p>CO 03: Know the function of Fermenter and Packed bed distillation column.</p> <p>CO 04:..Design and draw the Fermenter, Packed column distillation using software (solid edge).</p>
17BT65	<b>Cell Culture Techniques</b>	<p>CO 01: Differentiate between the various sources of cells to be used in cell culture techniques</p> <p>CO 02: Correlate between different biological samples and understand the importance of different media in tissue culture</p> <p>CO 03: Comprehend the applications of plant, animal and microbial cell culture in industry, healthcare and environment.</p>

<p><b>17BT662</b></p>	<p><b>Nanobiotechnology</b></p>	<p>CO1:Define nanobiotechnology as an emerging field and its scope in various field</p> <p>CO2:Know and analyze the techniques involved in understanding the nanoparticles</p> <p>CO3:Understand nanotechnology in diagnostics, drug delivery systems, and toxicity studies</p> <p>CO4:Understand nanotechnology in microfluidics and biomems CO5:Understand the application of biomolecules and systems in nanotechnology</p>
<p><b>17BTL67</b></p>	<p><b>Bioprocess control &amp; automation laboratory</b></p>	<p>CO 01- Classify automatic process control systems and solve problems related to Laplace Transform.</p> <p>CO 02- Deduce transfer function for various systems as well as analyze and interpret the responses.</p> <p>CO 03- Comprehend the working principle of various controllers, final control elements and solve related problems.</p> <p>CO 04- Analyze the stability of system using different tools and techniques.</p> <p>CO 05- Measure and control the various physical parameters using controllers.</p>
<p><b>17BTL68</b></p>	<p><b>Biokinetics and enzyme technology laboratory</b></p>	<p>CO 01: State and define the nature of the reaction, rate of the reaction, rate constant and enzyme activity.</p> <p>CO 02: Compare the rate of reaction for different reactors; know the ethical responsibilities that come with conducting experiments and communicating data.</p> <p>CO 03: Use the design equations for predicting the reactor performance.</p> <p>CO 04:Compose the RTD data to identify non idealities in different reactor configuration</p>

#### IV Year Biotechnology

Course Code	Course Name	Course Outcomes-On completion of this course the students will be
17BT71	<b>Fermentation technology</b>	<p>CO1: Describe the factors affecting secondary metabolite production and its industrial importance.</p> <p>CO2: Describe the importance, basic requirements of downstream processing for biochemical product recovery and summarize the effect of change in unit's operations on the process.</p> <p>CO3: Illustrate how emerging technologies would benefit the bio chemical product recovery and show the likely benefits it would have over the traditional operations</p> <p>CO4: Analyzing product recovery techniques for high-purity protein production.</p>
17BT72	<b>Genomics &amp; proteomics</b>	<p>CO1: Students are able to understand genome database &amp; genome project. CO2: To gather knowledge about genomics and genome management. CO3: Able to understand structural genomics and genome analysis.</p> <p>CO4: Able to understand proteomics and proteome analysis.</p>
17BT73	<b>Bioreactor Design Concepts</b>	<p>CO 01: State the basic concepts of plant Biotechnology in plant tissue culture, media, tools of genetic engineering in producing transgenic plants (For eg., disease resistant).</p> <p>CO 02: Explain the role &amp; importance of plant Biotechnology in BNF, mechanism of signal transduction in plants &amp; molecular farming.</p> <p>CO 037: Describe the role, importance &amp; applications of plant tissue culture, molecular farming, transgenic plants, Bioinsecticides, Biofertilizers &amp; algal technologies with suitable examples</p>

<p><b>17BT743</b></p>	<p><b>Lab to industrial scaling</b></p>	<p>CO1:Understand the basic concepts of fermentation, fermentation as a biochemical process, types of fermentation &amp; fermentation products .with process parameters &amp; economics of fermentation  CO2:Understand the use of medium raw materials, explain the methods of sterilization, optimization, inoculum preparation  CO3:Understand the fermenter design, aeration &amp; agitation  CO4: Understand the process parameters &amp; economics of fermentation.  CO5:Describe the upstream &amp; downstream processes used in fermentation industry</p>
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<p><b>17BT73</b></p>	<p><b>Plant biotechnology</b></p>	<p>CO-1: State the basic concepts of plant tissue culture and their applications, media preparation, tools of genetic engineering in producing transgenic plants (For eg.,disease resistant)</p> <p>CO-2: State the applications of plant genetic engineering in production transgenic plants to with stand abiotic and biotic stress and discuss ethical and social issues regarding genetically-modified crops</p> <p>CO-3: Describe the role, importance &amp; applications of tissue culture in molecular farming</p> <p>CO-4: Explain the mechanism of signa transduction and nitrogen fixation in plants</p> <p>CO-5: Acquaint with principles, technical requirement, scientific and commercial applications in algal technologies with suitable examples</p>
<p><b>17BT752</b></p>	<p><b>Forensic sciences</b></p>	<p>CO 01: Learn about forensic science as a field of study, discuss about history and development, role and responsibilities of forensic scientist</p> <p>CO 02: Analysis of physical evidence, biological evidence, firearm evidence, and evidence examination</p> <p>CO 03: Investigation, collection and packing of evidence and legal guidelines CO 04: Learn about ethics in forensic science and ethical dilemmas, Application of computers in forensic science</p> <p>CO 05: Characterization of the evidence and interpretation of the crime scenes</p>

17BTL77	<b>Fermentation laboratory</b>	<p>CO1: Know about Product enrichment operation using different methods.</p> <p>CO2: Able to Estimate level of secondary metabolites production in fermented broth</p> <p>CO3: Able to identify and characterize protein.</p>
17BTL78	<b>Plant biotechnology laboratory</b>	<p>CO-1: State the basic concepts of plant tissue culture and their applications, media preparation, tools of genetic engineering in producing transgenic plants (For eg., disease resistant)</p> <p>CO-2: State the applications of plant genetic engineering in production transgenic plants to with stand abiotic and biotic stress and discuss ethical and social issues regarding genetically-modified crops</p> <p>CO-3: Describe the role, importance &amp; applications of tissue culture in molecular farming</p> <p>CO-4: Explain the mechanism of signal transduction and nitrogen fixation in plants</p> <p>CO-5: Acquaint with principles, technical requirement, scientific and commercial applications in algal technologies with suitable examples</p>
17BT81	<b>Clinical &amp; Pharmaceutical Biotechnology</b>	<p>CO 01: Explain the significance of pharmaco-kinetic models, pharmaco-dynamic principles, various dosage forms and formulation</p> <p>CO 02 :Understand the specific techniques used in biotherapy &amp; clinical Biotechnology</p> <p>CO 03: Comprehend specific applications of pharmaceutical &amp; clinical Biotechnology</p>

<b>17BT82</b>	<b>Regulatory affairs in Biotech Industry</b>	CO 01: Outline the importance of the quality and compliance in the biotech industry CO 02: Comprehend the various regulatory guidelines and rules as well as the organizations governing the same
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