Academic Year: 2023-2024 Institute/ Branch Name: Symbiosis School of Biological Sciences Programme Name: Master of Science (Biotechnology) Color Code Description:

| Global | National / Local | Regional / National |
|--------|------------------|---------------------|

| Sr. No. | GA No. | Graduate Attributes | PO No. | Programme Outcomes |
|------------|--------|--|--------|--|
| 1 | GA1 | Scholarship: research, inquiry and lifelong learning | P01 | Knowledge & communication skills: Gain knowledge on subjects and topics in effective manner using different modes of communication. |
| 2 | GA1 | Scholarship: research, inquiry and lifelong learning | PO2 | Critical thinking: Apply the knowledge of biotechnology to analyse and evalua |
| 3 | GA1 | Scholarship: research, inquiry and lifelong learning | P03 | Innovation: Discover new concepts to bridge gaps in our understanding of the techniques. Provide biotechnological solutions to the challenges faced at local |
| 4 | GA2 | Global citizenship: ethical, social and professional understanding | P04 | Human values: Understand and appreciate human diversity. Develop profession industry. Learn to work in teams and groups. |
| 5 | GA3 | Eco-literate: sensitivity towards a sustainable environment | P05 | Environment and sustainability: Sense the impact of human development on e to mitigate environmental deterioration. Identify means for sustainable develo |
| 6 | GA4 | Employability: equipped with skills, attributes, leadership and entrepreneurial qualities that society needs; being capable of making a contribution to society through earning a living | P06 | Employability: Gain skills that will fetch jobs in the biotechnology industry. Ga |

| Sr. No. | Semester | Institute Course Code | Catalog Course Code | Title | Course Outcome No | Course Outcome Statement | P01 | P02 | P03 | P04 | P05 | P06 |
|------------|----------|--------------------------|---------------------------|--|-------------------------|---|----------|------------|------------|------------|------------|------------|
| 1 | SEM III | 0403420302 - PR | TH4109 | Practicals in Bioanalytical Techniques | C01 | Students should be able to understand and practice the principles of bioanalytical techniques. | Strong-H | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 1 | | | | | CO2 | Students should be able to display proficiency in handling sophisticated analytical instruments in academic setup | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H | Moderate-M |
| 1 | | | | | CO3 | To learn the analysis of compounds related to health (e.g. drugs, metabolites). | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| 1 | | | | | CO4 | Students should be able to learn interpretation of chromatograms and spectra | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H |
| 2 | SEM III | 0403420304 - PP | TH4118 | Virology | CO1 | Value the ethical issues associated with applications of stem cell therapy. | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M | Strong-H |
| 2 | | | | | CO2 | Sense ethics related issues in research on infectious agents like viruses. | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 2 | | | | | CO3 | Gain knowledge on virus-host cell interaction and their effects at the cellular and molecular level | Strong-H | Moderate-M | Strong-H | Moderate-M | Weak-L | Moderate-M |

biotechnology domain & express thoughts in an

ate current gaps

e biotechnology field. Invent new methods and l and global levels.

ional ethics for working in the biotechnology

environment. Develop biotechnological solutions opment.

Gain entrepreneurial skills to create jobs.

| Sr. No. | Semester | Institute Course Code | Catalog Course Code | Title | Course Outcome No | Course Outcome Statement | P01 | P02 | P03 | P04 | P05 | PO6 |
|------------|----------|--------------------------|---------------------------|---|-------------------------|--|------------|------------|------------|------------|------------|------------|
| 2 | | | | | CO4 | Learn various strategies implemented to control and prevent viral infections | Strong-H | Moderate-M | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 2 | | | | | CO5 | Value the ethical issues associated with applications of stem cell therapy. | Moderate-M | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| 3 | SEM III | 0403420303 - PP | TH4112 | Practicals in Immunology and Virology | CO1 | Students should be able to learn the techniques used for the identification and quantification of antibodies and antigens. | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Strong-H |
| 3 | | | | | CO2 | Students should be able to experience in virus propagation, harvesting and identification using tissue culture and chicken eggs. | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M | Strong-H |
| 3 | | | | | CO3 | To develop inquisitiveness and creativity through discussions on applications of immunological techniques in diagnostics and research worldwide. | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Strong-H |
| 3 | | | | | CO4 | To sensitize the importance of precautionary measures in experiments with virus and ethics related to animal and human experiments. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Weak-L |
| 3 | | | | | CO5 | Understand the importance of virus-related research for dealing with the viral infections. | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Weak-L |
| 4 | SEM III | 0403420301 - PP | TH4100 | Bioprocess Engineering | CO1 | Students will have understanding of Bioprocess design and operations. | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M | Strong-H |
| 4 | | | | | CO2 | Students will be able to analyze the economics of bioprocess, applications and also current national and international scenario. S | Strong-H | Strong-H | Strong-H | Moderate-M | Weak-L | Strong-H |
| 4 | | | | | CO3 | Student will able to work in the area of bioenergy such as biofuel, biopower and bioproducts | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Strong-H |
| 4 | | | | | CO4 | Student will able to implement the ideas to design the new bioprocess. | Moderate-M | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H |
| 4 | | | | | CO5 | Student will able to solve the problems faced during operation of bioprocess. | Moderate-M | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H |
| 4 | | | | | CO6 | Students will have more training and job options | Moderate-M | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H |
| 5 | SEM III | 0403420306 - PP | TH4106 | Introduction to Laboratory Animal Science | C01 | To sensitize the ethical use of laboratory animals and alternatives to animal models. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H |
| 5 | | | | | CO2 | TO learn the management practices of laboratory animals. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Weak-L |
| 5 | | | | | CO3 | Students should be able to learn handling of commonly used laboratory animals. | Strong-H | Moderate-M | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 5 | | | | | CO4 | Students should be able to learn methods of detection of bacterial and viral infections in laboratory rodent and other animal colonies. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Strong-H |

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|------------|----------|--------------------------|---------------------------|--|-------------------------|--|------------|------------|------------|------------|------------|------------|
| 6 | SEM III | 0403420307 - PP | TH4117 | Stem Cell Biology | C01 | List the properties that define a stem cell | Strong-H | Moderate-M | Strong-H | Weak-L | Strong-H | Moderate-M |
| 6 | | | | | CO2 | Discuss different types of stem cells based upon their origin and pluripotency | Strong-H | Moderate-M | Strong-H | Weak-L | Weak-L | Moderate-M |
| 6 | | | | | CO3 | Use knowledge of the intrinsic and extrinsic factors that are critical for stem cell regulation | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 6 | | | | | CO4 | Examine the potential clinical uses of stem cells and the possible challenges that need to be overcome. | Moderate-M | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 6 | | | | | C05 | Value the ethical issues associated with applications of stem cell therapy | Moderate-M | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| 7 | SEM III | 0403420305 - PP | T1656 | Intellectual Property Rights | C01 | Students should be able to define and discuss key Intellectual Property Rights concepts. | Strong-H | Strong-H | Moderate-M | Strong-H | Weak-L | Weak-L |
| 7 | | | | | CO2 | Students should be able to discuss distinct contribution of intellectual property law to the protection of human creativity, innovation, and efforts | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Weak-L |
| 7 | | | | | CO3 | Students should be able to identify and differentiate basic types of intellectual property defined by law. | Moderate-M | Moderate-M | Strong-H | Strong-H | Weak-L | Weak-L |
| 7 | | | | | CO4 | Students should be able to discuss Patent Act, Copyright, Trademark, and, Design Act in the learning and research process. | Strong-H | Strong-H | Moderate-M | Strong-H | Weak-L | Weak-L |
| 8 | SEM III | 0403420309 - PP | TH4096 | Advanced Genomics and Proteomics | CO1 | List the techniques and their applications in genomic and proteomic analysis | Strong-H | Strong-H | Moderate-M | Weak-L | Strong-H | Moderate-M |
| 8 | | | | | CO2 | Explain the principle of genomic and proteomic techniques and compare them for applications, advantages, and limitations | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 8 | | | | | CO3 | Analyze the results of genomic and proteomic data | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Weak-L |
| 8 | | | | | CO4 | Evaluate the experimental design in omics analysis | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 9 | SEM III | 0403420310 - PP | TH4102 | Environmental Biotechnology | C01 | Explain the role of microorganisms and plants to mitigate environmental pollution | Strong-H | Strong-H | Moderate-M | Weak-L | Strong-H | Moderate-M |
| 9 | | | | | CO2 | Apply the concepts of environmental biotechnology for bioremediation. | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 9 | | | | | CO3 | Examine the latest developments, research and industrial scope of environmental biotechnology | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Weak-L |
| 9 | | | | | CO4 | Identify various concepts in environmental management and threat assessment. | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 10 | SEM III | 0403420311 - PP | T4820 | Project (Part I) | C01 | The student should be able to outline project proposal. | Moderate-M | Moderate-M | Strong-H | Moderate-M | Strong-H | Weak-L |
| 10 | | | | | CO2 | The student should be able to analyze the research findings in the relevant area of the project. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| 10 | | | | | CO3 | The student should be able to construct the hypothesis for the research problem identified. | Strong-H | Moderate-M | Weak-L | Strong-H | Strong-H | Moderate-M |

| 10 | | | | | CO4 | The student should be able to plan the experiments to support the hypothesis. | Strong-H | Weak-L | Moderate-M | Moderate-M | Strong-H | Strong-H |
|----|--------|-------------------|-------|-------------------|-----|--|------------|------------|------------|------------|------------|------------|
| 10 | | | | | CO5 | The student should be able to interpret the results. | Strong-H | Weak-L | Strong-H | Strong-H | Moderate-M | Moderate-M |
| 11 | SEM IV | 403420402 - PP | T4820 | Project (Part II) | C01 | The student should be able to outline project proposal. | Moderate-M | Moderate-M | Strong-H | Moderate-M | Strong-H | Weak-L |
| 11 | | | | | CO2 | The student should be able to analyze the research findings in the relevant area of the project. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| 11 | | | | | CO3 | The student should be able to construct the hypothesis for the research problem identified. | Strong-H | Moderate-M | Weak-L | Strong-H | Strong-H | Moderate-M |
| 11 | | | | | CO4 | The student should be able to plan the experiments to support the hypothesis. | Strong-H | Weak-L | Moderate-M | Moderate-M | Strong-H | Strong-H |
| | | | | | CO5 | The student should be able to interpret the results. | Strong-H | Weak-L | Strong-H | Strong-H | Moderate-M | Moderate-M |
| 12 | SEM IV | 403420401 - PP | T4820 | Project | C01 | The student should be able to outline project proposal. | Moderate-M | Moderate-M | Strong-H | Moderate-M | Strong-H | Weak-L |
| 12 | | | | | CO2 | The student should be able to analyze the research findings in the relevant area of the project. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Moderate-M |
| | | | | | CO3 | The student should be able to construct the hypothesis for the research problem identified. | Strong-H | Moderate-M | Weak-L | Strong-H | Strong-H | Moderate-M |
| | | | | | CO4 | The student should be able to plan the experiments to support the hypothesis. | Strong-H | Weak-L | Moderate-M | Moderate-M | Strong-H | Strong-H |
| | | | | | CO5 | The student should be able to interpret the results. | Strong-H | Weak-L | Strong-H | Strong-H | Moderate-M | Moderate-M |

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|------------|----------|--------------------------|---------------------------|------------------------------------|-------------------------|---|------------|------------|------------|------------|------------|------------|
| 13 | SEM I | 0403420101 - PP | TH4099 | Biochemistry | C01 | To study and understand structures and functions of biomolecules | Strong-H | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 13 | | | | | CO2 | To be able to relate and understand the integrated nature of metabolism | Strong-H | Strong-H | Strong-H | Weak-L | Moderate-M | Moderate-M |
| 13 | | | | | CO3 | To understand underlying principles of regulation of metabolism | Strong-H | Strong-H | Strong-H | Weak-L | Weak-L | Moderate-M |
| 14 | SEM I | 0403420102 - PR | TH4110 | Practicals in Biochemistry | C01 | Demonstrate expertise in bacterial isolation and classification. | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H | Strong-H |
| 14 | | | | | CO2 | Students should be able to plan, perform and interpret microbiology experiments. | Strong-H | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M |
| 14 | | | | | CO3 | Students should be able to analyse the factors affecting bacterial growth. | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M |
| 14 | | | | | CO4 | Students should be able to evaluate antimicrobial resistance through MIC. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Strong-H |
| 15 | SEM I | 0403420103 - PP | TH4098 | Advance Molecular Biology | C01 | Explain processes involved in the flow of genetic information. | Strong-H | Strong-H | Strong-H | Strong-H | Weak-L | Moderate-M |
| 15 | | | | | CO2 | Interpret the results obtained from molecular biology experiments | Moderate-M | Moderate-M | Strong-H | Strong-H | Weak-L | Weak-L |
| 15 | | | | | CO3 | Compare and contrast molecular pathways in eukaryotes and prokaryotes. | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Moderate-M |
| 15 | | | | | CO4 | Evaluate the results of the molecular biology experiments. | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M | Strong-H |
| 16 | SEM I | 0403420104 - PP | TH4107 | Microbiology | C01 | Student should be able to explain the factors affecting microbial growth, microbial interactions, antimicrobial interactions and outbreak investigations. | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 16 | | | | | CO2 | Student should be able to communicate applied microbiology related studies and data effectively to audiences in written and oral formats. | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Moderate-M |
| 16 | | | | | CO3 | Student should be able to critically evaluate relevant scientific literature in applied microbiology and demonstrate comprehension of the nature, scope and technical issues through written and oral tasks. | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M | Weak-L |
| 17 | SEM I | 0403420105 - PR | TH4114 | Practicals in Molecular Biology | C01 | The student should be able to perform core genetics and molecular biology laboratory techniques. | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H | Strong-H |
| 17 | | | | | CO2 | Student should be able to collect, organize, analyze, evaluate and interpret data using appropriate quantitative methods, and communicate information in a variety of written and oral formats. | Strong-H | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H |
| 17 | | | | | CO3 | Student should be able to explain and interpret the results obtained using various Molecular Biology techniques. | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Strong-H |
| 17 | | | | | CO4 | Student should be able to work and learn effectively both independently and collaboratively. | Strong-H | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M |

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|-----------|----------|--------------------------|---------------------------|--|-------------------------|---|------------|------------|------------|------------|------------|------------|
| 18 | SEM I | 0403420106 - PP | TH4116 | Research Methodology and Biostatics | C01 | To understand and formulate a research problem | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M | Weak-L |
| 18 | | | | | CO2 | To analyze the different scientific research designs and methods | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 18 | | | | | CO3 | To familiarize about the set up a research study | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Weak-L |
| 18 | | | | | CO4 | To relate Biostatistics methods required in Scientific Research | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 18 | | | | | CO5 | To understand and appreciate research and publication Ethics | Strong-H | Moderate-M | Strong-H | Weak-L | Moderate-M | Weak-L |
| 19 | SEM I | 0403420107 - PP | TH4103 | Genetic Analysis | CO1 | Explain the laws of genetics, population genetics, and methods used in structural and functional genomics | Strong-H | Moderate-M | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 19 | | | | | CO2 | Identify the type of inheritance, estimate allele/genotype/phenotype frequency and calculate linkage distance | Moderate-M | Strong-H | Moderate-M | Strong-H | Weak-L | Moderate-M |
| 19 | | | | | CO3 | Estimate the probability of inheritance. Analyze the DNA fingerprinting data. Analyze if the population is in a state of equilibrium. | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M | Moderate-M |
| 19 | | | | | CO4 | Evaluate the results, conclusion, hypotheses based on the genetic analysis | Moderate-M | Strong-H | Moderate-M | Weak-L | Moderate-M | Weak-L |
| 20 | SEM II | 0403420201 - PR | TH4113 | Practicals in Microbiology | C01 | Students will be able to demonstrate expertise in bacterial isolation and classification. | Strong-H | Strong-H | Moderate-M | Strong-H | Weak-L | Moderate-M |
| 20 | | | | | CO2 | Students will be able to plan, perform and interpret microbiology experiments. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H |
| 20 | | | | | CO3 | Student will be able to analyse the factors affecting bacterial growth. | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L |
| 20 | | | | | CO4 | Students will be able to evaluate antimicrobial resistance through MIC. | Strong-H | Moderate-M | Strong-H | Strong-H | Strong-H | Strong-H |
| 21 | SEM II | 0403420202 - PP | TH4097 | Advanced Immunology | C01 | To discuss the characteristic features and functions of organs, cells and molecules of the immune system. | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 21 | | | | | CO2 | To interpret how the immune system acquires the ability to recognize/differentiate between self and non-self and what factors lead to malfunction as seen in immune disorders. | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L |
| 21 | | | | | CO3 | To analyze the molecular mechanisms of the immunological responses. | Strong-H | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 21 | | | | | CO4 | To evaluate the cellular and molecular factors leading to abnormal immune responses | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M |
| 22 | SEM II | 0403420203 - PP | TH4101 | Cell Biology | C01 | Students will be able to list characteristics of eukaryotic cells. | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |

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|------------|----------|--------------------------|---------------------------|--|-------------------------|--|----------|------------|------------|------------|------------|------------|
| 22 | | | | | CO2 | Students will be able to explain the organisation, mechanism(s) of cellular communication and regulation of cell division in eukaryotic cells. | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M | Moderate-M |
| 22 | | | | | CO3 | Students will be able to demonstrate the functional characteristics of a eukaryotic cell. | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Weak-L |
| 22 | | | | | CO4 | Students will be able to compare the cellular and molecular differences between a functionally normal and deregulated cell. | Strong-H | Moderate-M | Weak-L | Strong-H | Weak-L | Moderate-M |
| 23 | SEM II | 0403420204 - PP | TH4104 | Genetic Engineering | CO1 | To enlist various tools and techniques in recombinant DNA technology | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Moderate-M |
| 23 | | | | | CO2 | To explain how recombinant DNA technology can be used for certain applications. | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 23 | | | | | CO3 | To compare various methods of genome editing and transgenesis | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M | Moderate-M |
| 23 | | | | | CO4 | To illustrate the most successful examples of the use of recombinant DNA technology for the benefit of mankind | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L |
| 24 | SEM II | 0403420205 - PR | TH4108 | Practicals in Animal Tissue Culture | CO1 | To sensitize the ethical use of laboratory animals and alternatives to animal models. | Strong-H | Strong-H | Moderate-M | Strong-H | Moderate-M | Strong-H |
| 24 | | | | | CO2 | To learn the management practices of laboratory animals. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Weak-L |
| 24 | | | | | CO3 | Students should be able to learn handling of commonly used laboratory animals. | Strong-H | Moderate-M | Moderate-M | Moderate-M | Strong-H | Moderate-M |
| 24 | | | | | CO4 | Students should be able to learn methods of detection of bacterial and viral infections in laboratory rodent and other animal colonies. | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M | Strong-H |
| 25 | SEM II | 0403420206 - PR | TH4115 | Practicals in Recombinant DNA Technology | CO1 | Student should be able to perform core recombinant DNA technology laboratory techniques with main focus on molecular cloning. | Strong-H | Weak-L | Moderate-M | Strong-H | Strong-H | Strong-H |
| 25 | | | | | CO2 | Student should be able to collect, organize, analyze, evaluate and interpret data using appropriate quantitative methods, and communicate information on laboratory aspect of recombinant DNA technology in a variety of written and oral formats. | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Strong-H |
| 25 | | | | | CO3 | Student should be able to explain and interpret results obtained using various recombinant DNA technology techniques. | Strong-H | Strong-H | Moderate-M | Strong-H | Strong-H | Moderate-M |
| 25 | | | | | CO4 | Student should be able to work and learn laboratory aspect of recombinant DNA technology effectively both independently and collaboratively. | Strong-H | Strong-H | Strong-H | Weak-L | Moderate-M | Strong-H |
| 26 | SEM II | 0403420207 - PR | TH4111 | Practicals in Bioinformatics | CO1 | The student should be able to explain the principles of DNA and protein sequencing techniques and techniques of quantitative estimation of gene / protein expression. | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H |

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| 26 | | | | | CO2 | The student should be able to apply various tools in bioinformatics for analysis of biological data. | Strong-H | Strong-H | Strong-H | Weak-L | Moderate-M | Strong-H |
| 26 | | | | | CO3 | The student should be able to analyze sequences of biomolecules using existing tools and compare the contrast the techniques for their advantages and limitations. | Strong-H | Strong-H | Moderate-M | Weak-L | Moderate-M | Strong-H |
| 26 | | | | | CO4 | The student should be able to evaluate the results obtained and the hypothesis drawn from the analysis of biological data using bioinformatics tools. | Strong-H | Strong-H | Strong-H | Moderate-M | Moderate-M | Strong-H |
| 27 | SEM II | 0403420208 - PP | TH4105 | Genomics, Proteomics and Bioinformatics | C01 | The student should be able to explain the principles of DNA and protein sequencing techniques and techniques of quantitative estimation of gene / protein expression. | Strong-H | Strong-H | Moderate-M | Moderate-M | Moderate-M | Weak-L |
| 27 | | | | | CO2 | The student should be able to apply various tools in bioinformatics for analysis of biological data. | Strong-H | Strong-H | Moderate-M | Weak-L | Weak-L | Moderate-M |
| 27 | | | | | CO3 | The student should be able to analyze sequences of biomolecules and compare the contrast the techniques for their advantages and limitations. | Strong-H | Strong-H | Moderate-M | Moderate-M | Weak-L | Strong-H |
| 27 | | | | | CO4 | The student should be able to evaluate the results obtained and the hypothesis drawn from the analysis of biological data using bioinformatics tools. | Strong-H | Moderate-M | Strong-H | Moderate-M | Weak-L | Moderate-M |
| 28 | SEM II | 0403420209 - PP | T4005 | Integrated Disaster Management* | C01 | To enable student understand various types of disasters, its preparedness and management. | Weak-L | Weak-L | Moderate-M | Moderate-M | Moderate-M | Strong-H |
| 28 | | | | | CO2 | To instill knowledge on reducing disasters and capacity building through community participation. | Strong-H | Moderate-M | Weak-L | Strong-H | Strong-H | Moderate-M |
| 28 | | | | | CO3 | To train students to perform First aid and CPR in an emergency | Moderate-M | Strong-H | Moderate-M | Strong-H | Strong-H | Strong-H |