DEPARTMENT OF BUSINESS ADMINISTRATION

Master of Business Adminstration

Programme Outcomes, Course Outcome & Course Articulation Matrix with Tables

Programme Outcomes:

PO1:Management Knowledge– Apply knowledge of Business Management and Management specialization

PO2:Problem analysis & Decision making- Identify, formulate research literature, and analyse business Management problems

PO3:Design/development of solutions - Design solutions for complex business management problems that meet specified needs with appropriate considerations for profits- people- planet

PO4:Conduct investigations of complex problems- Conduct investigations of complex business management problems using research band knowledge, analysis of secondary data, and interpretation of the same.

PO5:Modern tool usage - Create, select, and apply appropriate techniques, resources, and IT tools, including modelling and solution generation.

PO6:The Business and society- Apply reasoning informed by contextual knowledge to areas of social, health, safety, legal, and cultural issues.

PO7:Environment and sustainability- Understand and evaluate the sustainability and impact of business management work in the solution in societal and sustainability contexts.

PO8:Ethics - Apply ethical principles and commit to professional ethics and norms of business management practice.

PO9:Individual and teamwork- Function effectively as an individual and as a member or leader in diverse teams and multi-specialization teams

PO10:Communication - Able to comprehend and write effective reports and make effective presentations, including documentation and retrieval.

PO11:Project management and finance- Demonstrate business management knowledge and understanding of business management principles.

PO12:Life-long learning- Recognize the need for and have the preparation and ability to engage in independent and lifelong learning.

SEMESTER 1 COURSES

C21101 - MANAGEMENT THEORY & PRACTICES

COURSE OUTCOMES:

CO1. Acquire the conceptual knowledge of Management and various functions of Management.

CO2. Apply managerial knowledge in real-world situations.

CO3. Develop a greater understanding of Management.

CO4. Demonstrate their exposure to recent trends in management.

CO5. Ability to understand the management process in the corporate world.

C21101 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	-	-	2	2	2	-	3	2	3	-
CO2	3	2	2	3	2	1	-	1	3	-	3	-
CO3	3	2	2	1	2	1	1	2	3	2	3	-
CO4	2	-	2	-	3	2	-	-	3	2	3	3
CO5	2	-	3	2	3	2	-	-	3	2	3	2
W.A	2.4	2	2.25	2	2.4	1.6	1.5	1.5	3	2	3	2.5

C21102 - ORGANIZATION BEHAVIOUR

COURSE OUTCOMES:

CO1. Analyze the behavior of individuals in an organization.

C02. Critically examine the potential effects of behavioral issues on an organization.

CO3. Distinguish between Teams and Groups and devise methods to enhance their functioning.

CO4. Identify and develop techniques to motivate individuals.

CO5. Assess Leadership qualities and abilities required to sustain.

C21102 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	1	3	3	2	-	3	-	1	3
CO2	2	3	3	3	2	3	3	1	3	-	3	3
CO3	3	3	3	3	3	2	2	1	3	1	2	1
CO4	3	3	3	3	3	2	1	2	3	3	1	2
CO5	3	1	3	3	3	3	3	1	3	1	2	3
W.A	2.6	2.6	3	2.6	2.8	2.6	2.2	1	3	1	1.8	2.4

C21103 - CORPORATE ECONOMICS

COURSE OUTCOMES:

CO1: To analyze the roles of managers in firms

CO2: To design the internal and external decisions to be made by managers

CO3: To think about the demand and supply conditions and assess the position of a company

CO4: Design competition strategies, including costing, pricing, product differentiation, and market environment according to the nature of products and the structures of the markets.

CO5: Make optimal business decisions by integrating the concepts of economics, mathematics, and statistics.

C21103 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
CO2	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
CO3	**3**	**2**	**2**	**1**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**
CO4	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**2**	**3**	**3**
CO5	**2**	**2**	**1**	**2**	**2**	**3**	**2**	**1**	**2**	**1**	**2**	**2**
W.A	**2.8**	**2.2**	**2.4**	**2.4**	**2.4**	**2.8**	**2.6**	**2.4**	**2.8**	**2.2**	**2.6**	**2.6**

C21104 - ACCOUNTING FOR MANAGERS

COURSE OUTCOMES:

CO1. Demonstrate the applicability of the accounting principles to prepare the accounting to understand the managerial decisions.

CO2. Demonstrate the applicability of the depreciation concept to prepare reports and make managerial decisions.

CO3. Prepare the final account reports with the accounting tools and concepts and facilitate managerial decisions.

CO4. Apply the financial statement analysis associated with financial data in the organization.

CO5. Application of accounting standards prepares the accounting and statement.

C21104 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	1	1	1	1	3	2	3	3	2
CO2	3	2	3	3	3	1	1	1	2	3	3	2
CO3	3	2	3	3	3	1	1	1	2	3	2	2
CO4	3	2	3	3	3	1	1	1	2	3	3	2
CO5	3	2	3	3	3	1	1	3	2	3	3	2
W.A	3	2	3	2.6	2.6	1	1	1.8	2	3	2.8	2

C21105 - BUSINESS COMMUNICATION

COURSE OUTCOMES:

CO1. Familiarize students with the technicalities of writing

CO2. Enable students to communicate (Written and Oral) in the English language precisely and effectively.

C21105 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	2	3	2	3	2	3	2
CO2	2	3	2	2	2	2	2	2	2	2	3	3
W.A	2.5	2.5	2.5	2.5	2.5	2	2.5	2	2.5	2	3	2.5

C21106 - STATISTICS FOR MANAGERS

COURSE OUTCOMES:

CO1: Use Tabular, Diagrammatic, and Graphical presentation in Managerial Decision Making Implementation of Summary statistics in decision making.

CO2: Derive Problem – Solution by using Correlation analysis and Regression analysis.

CO3: Make use of Probability and Distribution in Sequential Managerial analysis.

CO4: Demonstrate data collection through various Sampling techniques.

CO5: Implement Statistical decision theory for Managerial Research problems.

C21106 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	3	2	3	2	1	1	-	-	1	2	1
CO2	1	3	2	3	2	1	1	-	-	1	2	1
CO3	1	3	2	3	2	1	1	-	-	1	2	1
CO4	1	3	2	3	2	1	1	-	-	1	2	1
CO5	1	3	2	3	2	1	1	-	-	1	2	1
W.A	1	3	2	3	2	1	1	-	-	1	2	1

C21107 - COMPUTER APPLICATION FOR MANAGERS

COURSE OUTCOMES:

CO1. Perform intermediate tasks in Microsoft Excel

CO2. Apply advanced tools in Microsoft PowerPoint and Microsoft Word

C21107 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	3	2	3	2	3	3	3	2
CO2	2	3	2	3	3	2	2	2	2	2	3	3
W.A	2.5	2.5	2	3	3	2	2.5	2	2.5	2.5	3	2.5

C21108 - SKILL DEVELOPMENT 1

COURSE OUTCOMES:

CO1. Familiarize oneself with the basic skills needed for a manager.

CO2. Comprehend the art of presentation, e-mail etiquette, and data interpretation

C21108 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	1	1	-	-	-	2	2	3	2	2
CO2	2	-	-	-	-	-	-	2	1	3	1	2
W.A	2.5	-	0.5	0.5	-	-	-	0.8	0.6	1.2	0.6	0.8

SEMESTER 2 COURSES

C21201 - MARKETING MANAGEMENT

COURSE OUTCOMES:

CO1. Identify, define, and analyze the marketingproblems.

CO2. Understand Product Aggregation in the Market.

C21201 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	3	3	2	2	2	3	2	3	2
CO2	3	3	2	3	3	2	2	2	2	2	3	3
W.A	2.5	2.5	1.5	3	3	2	2	2	2.5	2	3	2.5

C21202 - HUMAN RESOURCE MANAGEMENT

COURSE OUTCOMES:

CO1. Ability to plan human resources and develop competency in job analysis.

CO2. Competency to recruit and select employees.

CO3. Competency to train people and evaluate training.

CO4. Ability to design appraisal performance systems and appraise employees' performance.

CO5. Design of compensation and salary administration.

C21202 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	-	-	3	3	3	-	1	2	3	2	2
CO2	3	-	2	2	2	2	-	3	3	2	2	-
CO3	3	-	3	-	3	2	-	2	3	3	3	3
CO4	3	2	3	3	3	2	-	3	3	3	2	-
CO5	3	3	3	2	-	3	-	2	3	-	2	-
W.A	3	2.5	2.75	2.5	2.75	2.4	-	2.2	2.8	2.75	2.2	2.5

C21203 - CORPORATE FINANCE

COURSE OUTCOMES:

CO1. Demonstrate a comprehensive knowledge of the applicability of the time value of money

CO2. Analyse and valuation of various securities which are traded in the Indian stock market

CO3. Analyse and evaluate long-term capital investment and analyzethe cost of capital to make managerial decisions.

CO4. Equipped with the knowledge of dividend decision

CO5. Analyse and estimate working capital requirements for carrying day-to-day business in an organization.

C21203 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	3	2	2	1	1	3	2	1	2	1
CO2	3	2	3	3	3	1	1	3	2	1	2	1
CO3	3	2	3	3	3	1	1	3	2	2	2	1
CO4	3	2	3	3	3	1	1	3	1	2	2	1
CO5	3	2	3	3	3	1	1	3	1	2	1	1

W.A	**3**	**2**	**3**	**2.8**	**2.8**	**1**	**1**	**3**	**1.6**	**1.6**	**1.8**	**1**

C21204 - BUSINESS RESEARCH METHODS

COURSE OUTCOMES:

CO1. Management decision-making.

CO2: Develop and design a Research Proposal.

CO3: Develop the skill to construct the Structures questionnaire and comprehend the Research Methodology.

CO4: Devise tools and methods for data collection using Sampling techniques.

CO5: Develop the skill for data analysis and interpretation and presentation of research report.

C21204 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**-**	**-**	**2**	**2**	**1**
CO2	**-**	**3**	**3**	**3**	**2**	**1**	**2**	**-**	**-**	**1**	**-**	**1**
CO3	**-**	**3**	**3**	**3**	**3**	**1**	**2**	**-**	**-**	**1**	**-**	**1**
CO4	**-**	**3**	**3**	**3**	**3**	**1**	**2**	**--**	**-**	**1**	**-**	**1**
CO5	**-**	**3**	**3**	**3**	**3**	**1**	**2**	**-**	**-**	**3**	**1**	**1**
W.A	**2.0**	**2.8**	**3.0**	**3.0**	**2.6**	**1.2**	**2**	**-**	**-**	**1.6**	**0.6**	**1.0**

C21205 - OPERATIONS MANAGEMENT

COURSE OUTCOMES:

CO1. Familiarize students with turning raw materials into deliverable products or services including both man and material

CO2. Apply different quantitative tools and techniques for decision-making in operations management.

C21205 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**
CO2	**2**	**3**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**3**
W.A	**2.5**	**2.5**	**2**	**3**	**3**	**2**	**2.5**	**2**	**2.5**	**1.5**	**3**	**1.5**

C21206 - LEGAL ASPECTS OF BUSINESS

COURSE OUTCOMES:

CO1. Analyze various laws about business organizations.

CO2. Distinguish between various foreign exchange transactions required by business organizations.

CO3. Recognize and identify the rights and responsibilities of consumers.

CO4. Explain the rights of the creator through IPR.

CO5. Review the provisions for different kinds of companies.

C21206 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	1	1	3	3	-	1	2	1
CO2	2	3	3	3	1	3	1	2	2	1	3	2
CO3	3	3	2	2	2	1	2	3	3	-	1	2
CO4	3	3	2	1	3	3	1	2	2	-	2	2
CO5	3	3	2	3	3	2	2	3	3	3	3	3
W.A	2.8	3	2.4	2.4	2	2	1.8	2.6	2.5	1	2.2	2

C21207 - SKILL DEVELOPMENT 2

COURSE OUTCOMES:

CO1. The ability of students to develop effective communication skills required for a successful manager

CO2. Evaluate the entrepreneurial thoughts

C21207 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	2	3	3	2	2	2	3	2	3	2
CO2	2	3	2	3	3	2	2	2	3	2	3	3
W.A	2.5	2.5	2	3	3	2	2	2	3	2	3	2.5

SEMESTER 3 COURSES

21C302 - ENTREPRENEURSHIP & QUALITY MANAGEMENT

COURSE OUTCOMES:

CO1. Enable the students to develop different methods that can be used to minimize uncertainties at different stages of the entrepreneurial process in a highly uncertain environment

CO2. Analyze requirements develop quality improvement programs and manage quality improvement teams.

21C302 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**3**	**1**	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**
CO2	**3**	**1**	**2**	**3**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**3**
W.A	**3.0**	**2.0**	**1.5**	**3.0**	**2.5**	**1.5**	**2.5**	**1.5**	**2.5**	**2.5**	**3.0**	**2.5**

21C301 - STRATEGIC MANAGEMENT

COURSE OUTCOMES:

CO1. Able to develop and deliver effective strategies on a given for a business firm.

CO2. Able to Develop effective planning and communication channels in Strategic Business Plans

21C301 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**2**	**3**	**1**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**
CO2	**3**	**3**	**1**	**2**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**3**
W.A	**2.5**	**3.0**	**1.0**	**2.5**	**2.5**	**1.5**	**2.5**	**1.5**	**2.5**	**2.0**	**3.0**	**2.5**

21C313 SKILL DEVELOPMENT 3

COURSE OUTCOMES:

CO1. Appreciate the reasoning capability

CO2. Sharpen employability skills

21C313 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	3	3	2	2	2	3	2	3	2
CO2	3	2	2	3	3	3	2	2	3	2	3	3
W.A	2.5	2	2	3	3	2.5	2	2	3	2	3	2.5

ELECTIVE GROUP1 - MARKETING MANAGEMENT

21C3M1 – CONSUMER BEHAVIOUR

COURSE OUTCOMES:

CO1. Distinguish between different consumer Behaviour influences and their relationships

CO2. Establish the relevance of consumer Behaviour theories and concepts to marketing decisions

21C3M1 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	3	3	2	2	2	3	2	3	2
CO2	3	3	2	3	3	2	2	2	2	2	3	3
W.A	1.67	1.67	1.00	2.00	2.00	1.33	1.33	1.33	1.67	1.33	2.00	1.67

21C3M2 – SALES & LOGISTIC MANAGEMENT

COURSE OUTCOMES:

CO1. Implement appropriate combinations of theories and concepts.

CO2. Enable students to evaluate the opportunities for improvement

CO3. Equip students to provide better customer service.

21C3M2 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	2	3	2	3	2	3	2
CO2	2	3	2	2	3	2	2	2	2	2	3	3
W.A	2.5	2.5	2.5	2.5	2	2	2.5	2	2.5	2	3	2.5

21C3M3 – ADVERTISING & SALES PROMOTION

COURSE OUTCOMES:

CO1. Distinguish different situations in the competitive environment will affect choices in target marketing

CO2. Communicate marketing information persuasively and accurately in oral, written, and graphic formats

21C3M3 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**
CO2	**2**	**3**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**3**
W.A	**1.67**	**1.67**	**1.33**	**2.00**	**2.00**	**1.33**	**1.67**	**1.33**	**1.67**	**1.67**	**2.00**	**1.67**

ELECTIVE GROUP 2 - FINANCIAL MANAGEMENT

21C3F1 – STRATEGIC FINANCIAL MANAGEMENT

COURSE OUTCOMES:

CO1. Formulate financial planning and develop insight into financial models.

CO2. Design and Plan the capital structure

CO3. Apply different techniques of risk analysis

CO4. Critically analyses leasing decisions

CO5. Think creatively to resolve financial problems in business

21C3F1 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**1**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**
CO2	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**1**	**3**	**3**
CO3	**3**	**3**	**3**	**3**	**3**	**1**	**2**	**1**	**1**	**1**	**3**	**3**
CO4	**3**	**3**	**3**	**3**	**3**	**1**	**2**	**1**	**1**	**1**	**3**	**3**
CO5	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
W.A	**2.8**	**2.8**	**2.2**	**2.8**	**3**	**1.6**	**2.4**	**1.6**	**2**	**1.6**	**3**	**2.8**

21C3F2 – FINANCIAL MARKET & SERVICES

COURSE OUTCOMES:

CO1. Evaluate various financial products in the primary and secondary markets

CO2. Analyze the functioning of the Stock Exchange

CO3. Analyze the banking and non-banking operations

CO4. Examine the Regulatory bodies

21C3F2 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**
CO2	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
CO3	**2**	**1**	**1**	**1**	**2**	**1**	**3**	**2**	**1**	**1**	**1**	**1**

CO4	1	2	2	1	1	2	2	2	1	2	3	2
W.A	2.25	1.25	1.25	1	1.25	1.25	1.75	1.5	1	1.25	1.75	1.5

21C3F3 – INVESTMENT ANALYSIS & PORTFOLIO MANAGEMENT

COURSE OUTCOMES:

CO1. Explored different avenues of investment and applied the concept of portfolio management for better investment.

CO2. Determining the portfolio risk, and return and measuring them based on various techniques and investing in less risk and more return securities.

CO3. Equipped with the knowledge of security analysis and valuation for the right investment.

CO4. Pre and post-investment analysis using fundamental and technical analysis for better investment

CO5. Performance evaluation and style analysis of investment and portfolio revision.

21C3F3 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	1	1	1	1	2	1	1	1	2	2
CO2	3	1	3	2	3	1	2	2	1	3	3	2
CO3	3	1	3	2	3	1	2	2	1	3	3	2
CO4	3	2	3	2	2	1	2	2	1	3	3	2
CO5	3	1	3	2	2	1	2	2	1	3	3	2
W.A	3	1.2	2.6	1.8	2.2	1	2	1.8	1	2.6	2.8	2

ELECTIVE GROUP 3 - HUMAN RESOURCE MANAGEMENT

21C3H1 – PERSONAL GROWTH & INTERPERSONAL EFFECTIVENESS

COURSE OUTCOMES:

CO1. Ability to set short-term and long-term goals.

CO2. Ability to distinguish between cultures, change attitudes of people, and develop knowledge on improving job satisfaction of employees.

CO3. Develop learning skills and skills related to positive reinforcement.

CO4. Ability to identify an individual's personality type favorable or unfavorable to work performance.

CO5. Ability to identify sources and causes of conflicts and develop conflict resolution strategies.

CO6. Ability to identify causes of stress and develop stress coping strategies.

2 1C3H1 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**2**	**1**	**3**	**-**
CO2	**3**	**2**	**2**	**-**	**-**	**3**	**2**	**-**	**2**	**-**	**-**	**-**
CO3	**3**	**1**	**2**	**-**	**3**	**2**	**2**	**-**	**2**	**-**	**-**	**3**
CO4	**3**	**2**	**3**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**-**
CO5	**3**	**3**	**3**	**-**	**-**	**2**	**2**	**-**	**3**	**-**	**2**	**-**
CO6	**3**	**3**	**3**	**-**	**-**	**3**	**2**	**2**	**3**	**-**	**-**	**-**
W.A	**3**	**2.2**	**2.6**	**-**	**3**	**2.2**	**2**	**2**	**2.33**	**1**	**2.5**	**3**

21C3H2 – ORGANIZATIONAL CHANGE & DEVELOPMENT

COURSE OUTCOMES:

CO1. Develop the knowledge of planning for organizational change and apply appropriate strategies for implementing planned change.

CO2. Ability to identify the sources of resistance to change and overcome resistance to change.

CO3. Ability to apply theories of change management in the work environment.

CO4. Application of appropriate OD intervention for organizational change and development.

21C3H2 - Course Articulation Matrix												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**1**	**3**	**2**
CO2	**3**	**2**	**3**	**2**	**2**	**2**	**2**	**-**	**2**	**-**	**2**	**-**
CO3	**3**	**2**	**2**	**2**	**2**	**2**	**1**	**-**	**2**	**-**	**2**	**2**
CO4	**3**	**-**	**3**	**3**	**2**	**3**	**1**	**-**	**2**	**-**	**2**	**-**
W.A	**3**	**2.33**	**2.5**	**2.33**	**2**	**2.33**	**1.33**	**-**	**2**	**1**	**2.75**	**2**

21C3H3 – TRAINING IN ORGANIZATIONS

COURSE OUTCOMES:

CO1. Assess the importance of training in organizations.

CO2. Compute training needs analysis for organizations.

CO3. Compare and contrast different training methods.

CO4. Identify the skills required for the trainer.

CO5. Evaluate the effectiveness of training programs through various models and theories.

21C3H3 - Course Articulation Matrix												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2	3	3	2	2	2	2	3	3
CO2	3	3	3	3	2	2	2	3	3	1	3	3
CO3	3	3	3	3	3	2	2	3	3	1	3	2
CO4	2	3	2	2	2	3	3	1	3	2	3	3
CO5	3	3	3	3	2	2	2	3	3	3	1	2
W.A	2.8	3	2.8	2.6	2.4	2.4	2.2	2.4	2.8	1.8	2.6	2.6

SEMESTER 4 COURSES

21C401 - EVENT MANAGEMENT

COURSE OUTCOMES:

CO1 - Enable students to evaluate the opportunities in event management and handle problems

CO2 - Equip students to provide better services by using measuring techniques

21C401 - Course Articulation												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	2	3	1	3	2	3	2
CO2	2	3	2	2	3	2	2	2	2	2	3	3
W.A	2.5	2.5	2.5	2.5	3.0	2.0	2.5	1.5	2.5	2.0	3.0	2.5

ELECTIVE GROUP 6 - MARKETING MANAGEMENT

21C4M4 - BRAND MANAGEMENT

COURSE OUTCOMES:

CO1 - Enable the students to develop and deliver effective presentation on a given brand.

CO2 - Develop effective interpersonal communication

21C4M4 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**2**	**2**	**1**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**
CO2	**3**	**3**	**1**	**2**	**2**	**1**	**2**	**1**	**2**	**2**	**3**	**3**
W.A	**2.5**	**2.5**	**1**	**2.5**	**2.5**	**1.5**	**2.5**	**1.5**	**2.5**	**2**	**3**	**2.5**

21C4M5 - INDUSTRIAL MARKETING

COURSE OUTCOMES:

CO1 - Provide analytical skills to recognize the product manufacturing strategies that support broader marketing decisions.

CO2 - Evaluate the capacity and demand management in industrial marketing.

CO3 - Comprehend the art to explain the concept of product quality.

21C4M5 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**
CO2	**2**	**3**	**1**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**3**
CO3	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**3**	**3**
W.A	**2.7**	**2.7**	**2.0**	**2.7**	**2.7**	**2.0**	**2.3**	**2.0**	**2.3**	**2.0**	**3.0**	**2.7**

21C4M6 - SERVICES MARKETING

COURSE OUTCOMES:

CO1 - Provide analytical skills to recognize the service as strategy that support broader marketing decisions.

CO2 - Evaluate the capacity and demand management in service marketing.

CO3 - Comprehend the art to explain the concept of service quality.

21C4M6 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**2**	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**2**
CO2	**2**	**3**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**3**

CO3	3	3	3	3	3	2	2	2	2	2	3	3
W.A	2.66	2.66	2.66	2.66	3	2	2.33	2	2.33	2	3	2.66

21C4M7 - INTERNATIONAL MARKETING

COURSE OUTCOMES:

CO1 - Develop an understanding of and an appreciation for basic international marketing concepts, theories, principles, and terminology.

CO2 - Be able to demonstrate an awareness and knowledge of the impact of environmental factors (cultural, economic, institutional, legal and political) on international marketing activities.

CO3 - Be capable of identifying international customers through conducting marketing research and developing cross-border segmentation and positioning strategies.

CO4 - Be capable of developing a global marketing strategy by applying the basic concepts of product, pricing, promotion, and channels of distribution in international settings.

21C4M7 - Course Articulation												
PO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	2	1	2	2	2	3	3	2	2	2
CO4	3	2	3	3	2	3	3	2	2	2	3	3
W.A	3	2.2	2.7	2.5	2.5	2.7	2.7	2.7	2.7	2.5	2.7	2.7

ELECTIVE GROUP 7 - FINANCIAL MANAGEMENT

21C4F4 – MERGERS & ACQUISITION

COURSE OUTCOMES:

CO1 - Critically analyses Impact of Mergers and acquisition on stakeholders

CO2 - Make an informed decision with due diligence

CO3- Apply Business valuation approaches

CO4 - Evaluate purchase consideration in Mergers and Acquisition

CO5 - Analyze the Legal aspect of merger and acquisition

21C4F4 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO2	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO3	**3**	**3**	**3**	**3**	**3**	**1**	**2**	**1**	**1**	**3**	**3**	**3**
CO4	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**
CO5	**2**	**2**	**3**	**3**	**1**	**1**	**2**	**2**	**2**	**2**	**2**	**2**
W.A	**2.8**	**2.8**	**3**	**3**	**2.6**	**1.8**	**2.6**	**2.2**	**2.2**	**2.8**	**2.8**	**2.8**

21C4F5 - DERIVATIVES

COURSE OUTCOMES:

CO1 - Demonstrate a comprehensive knowledge of derivatives, its types and market structure

CO2 - Enable to select right kind of derivatives amongst forward, futures, options and swaps for risk hedging.

CO3 - Evaluate forward, futures, options pricing models for make high profit through risk hedging.

CO4 - Critically analyses trading/hedging strategies using derivatives options contracts.

CO5 - Comprehensive knowledge derivative products and their performance in Indian and global markets.

21C4F5 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**1**	**2**	**1**	**2**	**1**	**2**	**2**	**1**	**2**	**2**	**2**
CO2	**3**	**1**	**3**	**3**	**3**	**1**	**2**	**3**	**1**	**3**	**3**	**2**
CO3	**3**	**1**	**3**	**3**	**3**	**1**	**2**	**3**	**2**	**3**	**3**	**2**
CO4	**3**	**1**	**3**	**3**	**2**	**1**	**2**	**2**	**2**	**3**	**3**	**2**
CO5	**3**	**1**	**2**	**1**	**2**	**1**	**1**	**1**	**2**	**2**	**2**	**2**
W.A	**3**	**1**	**2.6**	**2.2**	**2.4**	**1**	**1.8**	**2.2**	**1.6**	**2.6**	**2.6**	**2**

21C4F6 - INTERNATIONAL FINANCE

COURSE OUTCOMES:

CO1 - Analyze the international integration of financial markets

CO2 - Critically analyses strategies to Hedge against foreign exchange exposure

CO3 - Apply financial knowledge in forecasting foreign exchange rates

CO4 - Evaluate strategies used by Multinational Corporation

21C4F6 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	3	3	3	1	2	3	3	3	3	3
CO2	3	3	3	3	3	1	2	3	2	3	3	3
CO3	3	3	3	3	3	1	3	2	2	3	3	3
CO4	3	3	3	3	2	1	2	3	3	3	3	3
W.A	3	2.75	3	3	2.75	1	2.25	2.75	2.5	3	3	3

21C4F7 - TAXATION

COURSE OUTCOMES:

CO1 - Illustrate the income of different heads and gross total income of an Individual assesse

CO2 - Illustrate the concepts and features of assessment of profits and gains of individual and corporate assesse.

CO3 - Knowledge of different types of return filing

CO4 - Comprehensive knowledge of GST and its provisions

21C4F7 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	1	2	1	2	1	1	2	2	2	2	2
CO2	3	1	3	3	3	1	1	3	2	3	3	2
CO3	3	1	3	3	3	1	1	3	2	3	3	2
CO4	3	1	3	1	3	1	1	3	2	2	3	2
CO5	3	1	2	1	1	1	1	3	2	2	3	2
W.A	3	1	2.6	1.8	2.4	1	1	2.8	2	2.4	2.8	2

ELECTIVE GROUP 8 - HUMAN RESOURCE MANAGEMENT

21C4H4 - STRATEGIC HUMAN RESOURCE MANAGMENT

COURSE OUTCOMES:

CO1 - Recognize the fundamentals of SHRM framework and analyze the overall role of SHRM in business.

CO2 - Compute the strategic planning for Human resource.

CO3 - Design the training program strategically as required for organization.

CO4 - Design and implement compensation packages for human resource.

CO5 - Gain insights on various operations of HRM at International level.

21C4H4 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**2**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**1**	**3**	**3**
CO2	**2**	**3**	**2**	**3**	**2**	**2**	**2**	**3**	**2**	**1**	**2**	**3**
CO3	**2**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**1**	**1**	**1**	**2**
CO4	**2**	**3**	**2**	**2**	**2**	**3**	**3**	**1**	**1**	**2**	**1**	**3**
CO5	**2**	**3**	**3**	**3**	**2**	**2**	**2**	**3**	**1**	**1**	**1**	**2**
W.A	**2**	**3**	**2.2**	**2.6**	**2.4**	**2.4**	**2.2**	**2.4**	**1.4**	**1.2**	**1.6**	**2.6**

21C4H5 - INDUSTRIAL LABAOUR LEGISLATION

COURSE OUTCOMES:

CO1 - Recognize the existing provisions provided under Factories Act.

CO2 - Assess the provisions under Industrial Disputes Act.

CO3 - Gain insights on payment of Gratuity Act.

CO4 - Analyze the provisions under employees' Provident Fund and Workmen's Compensation Act.

CO5 - Recognize the ILO deliberations and code of discipline in industries.

21C4H5 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**2**	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**1**	**2**	**1**
CO2	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**1**	**2**	**3**	**3**
CO3	**2**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**1**	**3**	**3**	**3**
CO4	**2**	**1**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**3**
CO5	**2**	**2**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**-**	**1**	**3**
W.A	**2**	**2.2**	**2.8**	**2.8**	**2.6**	**2.4**	**2.6**	**2.4**	**2**	**1.8**	**2.2**	**2.6**

21C4H6 - INDUSTRIAL RELATIONS

COURSE OUTCOMES:

CO1 - To familiarize with the role of management and unions in the promotions of industrial relations.

CO2 - Be acquainted with the concepts, principles and issues connected with trade unions.

CO3 - Be acquainted with the concepts, principles connected with collective bargaining.

21C4H6 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**3**	**2**	**-**	**3**	**-**	**3**	**3**	**-**	**2**	**-**
CO2	**3**	**-**	**2**	**-**	**3**	**3**	**-**	**2**	**-**	**-**	**-**	**-**
CO3	**3**	**3**	**3**	**1**	**3**	**3**	**1**	**2**	**3**	**3**	**2**	**-**
W.A	**3**	**2.5**	**2.67**	**1.5**	**3**	**3**	**1**	**2.33**	**3**	**3**	**2**	**-**

21C4H7 - MANAGING KNOWLEDGE WORKER

CO1 - Recognize the significance of knowledge workers in an organization

CO2 - Gain knowledge on effective harnessing of organizational knowledge

CO3 - Identify the role of knowledge leader in achieving team goals

CO4 - Realize the association between knowledge management and HRM practices

21C4H7 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**-**	**3**	**2**	**1**	**-**	**2**	**-**	**-**	**3**	**2**	**2**	**-**
CO2	**2**	**3**	**2**	**2**	**-**	**2**	**2**	**-**	**3**	**1**	**-**	**1**
CO3	**3**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**3**	**2**
CO4	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**1**
W.A	**2**	**2.25**	**1**	**0.75**	**-**	**1**	**0.5**	**-**	**2.25**	**0.75**	**1.75**	**1**

21C402 - PROJECT WORK

CO1 - Improve students research and personal skills

CO2 - Upgrade students experience of practical work there by enhancing professional growth and experience

CO3 - Creating valuable employees and competent job applicants to the companies

21C402 - Course Articulation												
PO/CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**1**	**3**	**2**	**3**	**2**
CO2	**2**	**3**	**2**	**2**	**3**	**2**	**2**	**2**	**2**	**2**	**3**	**3**
W.A	**1.67**	**1.67**	**1.33**	**2.00**	**2.00**	**1.33**	**1.67**	**1.33**	**1.67**	**1.67**	**2.0**	**1.67**

SBRR Mahajana First Grade College (Autonomous), PG Wing
Pooja Bhagavat Memorial Mahajana Education Centre
KRS Road,Metagalli, Mysuru-570016

Master of Computer Application
2022-2023

Programme Outcomes

PO1: Use emerging tools, techniques and skills necessary for computing in the real world.

PO2: Identify, formulate and solve complex computing problems to achieve substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domains.

PO3: Analyse problems, suggest appropriate solutions and justify propositions for effective decision making in the professional field.

PO 4: Develop strong critical thinking skills to assess why certain solutions might not work and to save time incoming up with the right approach in the field of computing.

PO 5: Create, select and apply appropriate techniques and latest Information Technology tools to forecast an outcome by utilizing data that is available.

PO 6: Understand and assess societal, environmental, health, safety,legal, and cultural issueswithin local and global contexts, and the consequential responsibilities relevant to professionalcomputingpractices.

PO7: Develop and imbibe the principles of ethics and values in profession.

PO8: Communicate effectively and efficiently as an individual, and as a member, or leader to present the technical knowledge in multi-disciplinary settings.

PO9: Study and review literature, reports prepare documentation and make inferences to design better systems.

PO10: Recognize and realize the need for, and develop an ability to engage in lifelong learning.

SBRR Mahajana First Grade College(Autonomous),PGWing

Pooja Bhagavat Memorial Mahajana Education Centre

KRS Road, Metagalli, Mysuru-570016

Master of Computer Application

Programme Structure &Syllabus

w.e.f.2022-2023

List of Hard Core Courses

Sl.No.	Course Title	Credit Pattern			Credits	Course Code
		L	T	P		
1	Mathematical Foundations for Computer Applications	4	0	0	4	22BH01
2	Advanced Computer Networks	3	1	0	4	22BH02
3	Data Structures and Algorithms	3	0	1	4	22BH03
4	Operating System	3	1	0	4	22BH04
5	Software Engineering	3	1	0	4	22BH05
6	Object Oriented Programming with Java	3	0	1	4	22BH06
7	Python Programming	3	0	1	4	22BH07
8	Minor Project	0	1	3	4	22BH08
9	Dissertation Work	0	2	10	12	22BH09

List of Soft Core Courses

Sl.No.	Course Title	Credit Pattern			Credits	Course Code
		L	T	P		
1	Data Communication and Networks	3	1	0	4	22BS01
2	Advanced Database Management System	3	0	1	4	22BS02
3	Cloud Computing	4	0	0	4	22BS03
4	System Analysis and Design	3	1	0	4	22BS04
5	Web Technologies	2	1	1	4	22BS05
6	Cryptography and Network Security	3	1	0	4	22BS06
7	Theory of Languages and Automata	3	0	1	4	22BS07
8	Probability and Statistics	3	1	0	4	22BS08
9	Fundamentals of Internet of Things	3	1	0	4	22BS09
10	Mobile Application Development with Android	3	0	1	4	22BS10
11	Linux Programming	3	0	1	4	22BS11
12	Information Retrieval	3	0	1	4	22BS12
13	Big Data Analytics	3	0	1	4	22BS13
14	Machine Learning using Python	3	0	1	4	22BS14
15	Advanced Java	3	0	1	4	22BS15
16	Management Information Systems	3	1	0	4	22BS16
17	Business Intelligence	3	1	0	4	22BS17
18	Entrepreneurship Development	3	1	0	4	22BS18
19	Communication Skills	3	1	0	4	22BS19
20	Professional Ethics and Human Values	3	1	0	4	22BS20
21	Cyber security	3	1	0	4	22BS21
22	Simulation and Modeling	3	0	1	4	22BS22
23	Artificial Intelligence	3	1	0	4	22BS23

Listof Open Elective Courses

Sl.No.	Course Title	Credit Pattern			Credits	Course Code
		L	T	P		
1	World Wide Web	3	1	0	4	22BE01
2	E-Commerce	3	1	0	4	22BE02
3	Office Automation	3	1	0	4	22BE03

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HC MATHEMATICAL FOUNDATIONS FOR COMPUTER APPLICATIONS 4:0:0

Outcomes:

- Develop an ability to implement various techniques of mathematical logic.
- Capability to apply the concepts of set theory.
- Ability to enhance the knowledge of algebraic structures towards computer applications.
- Ability to correlate the concepts of graph theory in computer applications.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	3	2	1	1	1	-	1	2
CO2	3	3	3	2	1	1	-	-	1	2
CO3	3	3	3	2	2	1	-	-	1	1
CO4	3	3	3	3	2	1	1	3	1	2
Weighted Average	3	3	3	2.25	1.5	1	1	3	1	1.75

1: Low, 2: Moderate,3: High

HC ADVANCED COMPUTER NETWORKS 3:1:0

Outcomes:

- To employ the mechanism of Reference models and TCP/IP.
- To understand the role of Transport Layer in computer networks.
- Employ the techniques of TCP/IP.
- Comprehend the internal working mechanism of IPSecurity.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2	2	2	1	-	1	1	2
CO2	3	2	2	2	2	1	1	1	1	2
CO3	2	2	2	2	1	2	1	1	1	2
CO4	3	3	3	2	2	2	1	1	2	2
Weighted Average	2.75	2.25	2.25	2	1.75	1.5	1	1	1.25	1.5

1: Low, 2: Moderate,3: High

HC **DATA STRUCTURES AND ALGORITHMS** **3:0:1**

Outcomes:

- Analyse algorithms and algorithm correctness.
- Summarize searching and sorting techniques.
- Describe stack, queue and linked list operation.
- Solve the problems by writing algorithms using fundamental data structures.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	2	3	3	2	1	--	--	-	1	3
CO2	3	2	2	2	3	-	-	--	-	1
CO3	3	2	2	2	2	-	-	-	-	1
CO4	2	3	2	2	2	1	2	1	1	1
Weighted Average	2.5	2.5	2.25	2	2	1	2	1	1	1.5

1: Low, 2: Moderate,3: High

HC **OPERATING SYSTEM** **3:1:0**

Outcomes

- Understand the usage of the operating system components and its services.
- Employ the concepts of process management.
- Employ the concepts of Memory Management
- Apply the file handling concepts in OS perspective.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	2	1	-	-	--	-	3	2	1
CO2	-	3	1	2	-	-	-	3	2	1
CO3	-	3	1	2	-	-	-	3	2	1
CO4	1	3	1	2	2	2	2	3	2	1
Weighted Average	1	2.75	1	2	2	2	2	3	2	1

1: Low, 2: Moderate, 3: High

HC **SOFTWARE ENGINEERING** **3:1:0**

Outcomes

- Gain an understanding to work in one or more significant application domains.
- Develop an ability to work as an individual and as part of a multidisciplinary team to develop and deliver quality software.
- Demonstrate an understanding of and apply the current theories, models, and techniques that provide a basis for the software lifecycle.
- Demonstrate an ability to ensure Software Quality Assurance.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	1	2	2	2	1	2	1	3	2
CO2	2	1	2	2	2	1	1	1	2	1
CO3	2	2	3	2	3	1	1	1	2	1
CO4	2	1	2	2	1	1	2	1	2	2
Weighted Average	2.25	1.25	2.25	2	2	1	1.5	1	2.25	1.5

1: Low, 2: Moderate, 3: High

HC **OBJECT ORIENTED PROGRAMMING WITH JAVA** **3:0:1**

Outcomes:

- Use the syntax and semantics of java programming language and basic concepts of OOP.
- Apply the class fundamentals, arrays, inheritance and polymorphism to develop reusable programs.
- Apply the concepts of packages, interfaces and exception handling to develop efficient and error free codes.
- Build applications using the concepts of multi threading and files.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2	1	1	1	-	-	-	-
CO2	3	2	3	3	1	-	-	-	-	-
CO3	3	3	3	3	1	-	-	-	-	-
CO4	3	2	1	1	1	-	2	2	2	2
Weighted Average	3	2.25	2.25	2	1	1	2	2	2	2

1: Low, 2: Moderate, 3: High

HC **PYTHON PROGRAMMING** **3:0:1**

Outcomes:

- Develop algorithmic solutions to simple computational problems.
- Read, write, execute by hand simple Python programs.
- Structures implement Python programs for solving problems.
- Decompose a Python program into functions.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	2	2	2	2	2	1	1	-	-	2
CO2	2	2	2	2	2	1	1	-	-	1
CO3	3	2	2	1	2	-	-	1	1	1
CO4	3	2	2	2	2	-	-	-	-	1
Weighted Average	2.5	2	2	1.75	2	1	1	1	1	1.25

1: Low, 2: Moderate, 3: High

HC **MINOR PROJECT** **0:1:3**

Outcomes:

- Understanding the emerging trends of new technologies by conducting a survey of several available literature in the preferred field of study.
- Develop real time Projects by comparing the several existing solutions for a research challenge.
- Demonstrate an ability to work in teams and manage the process of building the project within the stipulated time.
- Report and present the findings of the research study/project conducted in the preferred domain.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	-	-	3	-	2	2	2	-	-	3
CO2	3	-	-	3	2	2	2	-	-	3
CO3	-	-	-	-	2	2	2	3	-	3
CO4	-	3	-	-	2	2	2	-	3	3
Weighted Average	3	3	3	3	2	2	2	3	3	3

1: Low, 2: Moderate, 3: High

HC **DISSERTATION WORK** **0:2:10**

Outcomes:

- Develop basic algorithm steps as a solution to a real-life problem.
- Implement algorithms using latest tools that contribute to the software solution of the project using different tools.
- Analyse, interpret, test and validate experimental results.
- Develop research/technical report with enhanced writing/ communication skills following ethical practices.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	-	3	3	2	-	2	-	-	-	3
CO2	3	3	3	2	3	2	-	-	-	3
CO3	-	-	3	2	-	2	-	-	3	3
CO4	-	-	-	-	-	2	3	2	3	3
Weighted Average	3	3	3	2	3	2	3	2	3	3

1: Low, 2: Moderate, 3: High

SC **DATA COMMUNICATION AND NETWORKS** **3:1:0**

Outcomes:

- Understand and implement various types of transmissions in wired and wireless communications
- Study and develop the aspects of communication channels of Data Link Layer.
- Understand Design & apply various routing protocols of the Networks Layer.
- Design applications using the protocols of Transport & application Layer.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	-	-	3	-	-	-	-	2	-	2
CO2	-	-	3	-	-	-	-	2	-	1
CO3	3	2	-	3	-	2	-	2	-	3
CO4	3	2	-	3	3	-	3	2	3	3
Weighted Average	3	2	3	3	3	2	3	2	3	2.25

1: Low, 2: Moderate, 3: High

SC **ADVANCED DATABASE MANAGEMENT SYSTEM** **3:0:1**

Outcomes:

- Determine the basic concepts, E-R Mapping and SQL basic commands.
- Demonstrate the techniques of SQL, FD and Normalization.
- Develop Indexing, ACID and Transaction.
- Describe NoSQL database and Postgre SQL.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	2	1	1	-	-	-	-	-
CO2	2	3	3	2	1	1	-	-	-	-
CO3	3	3	3	2	2	1	2	1	1	1
CO4	2	3	2	2	3	2	2	-	1	2
Weighted Average	2.25	2.75	2.5	1.75	1.75	1.33	2	1	1	1.5

1: Low, 2: Moderate, 3: High

SC **CLOUD COMPUTING** **4:0:0**

Outcomes:

- Demonstrate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications.
- Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud.
- Identify the cloud services for the individuals.
- Acquire the knowledge on the core issues of cloud computing such as security, privacy, and interoperability.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	-	1	2	3	3	2	3	3	3
CO2	2	-	1	2	2	3	2	2	2	2
CO3	2	1	1	1	2	1	1	2	2	2
CO4	1	-	2	3	2	1	1	2	-	1
Weighted Average	1.75	1	1.25	2	2.25	2	1.5	2.25	2.33	2

1: Low, 2: Moderate, 3: High

SC **SYSTEM ANALYSIS AND DESIGN** **3:1:0**

Outcomes:

- Gather data for analysis and specify the requirements of a system.
- Design system components and environments.
- Build general and detailed models that assist programmers in implementing a system.
- Design a user interface for data input and output, as well as controls to protect the system and its data.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	-	3	-	-	-	2	-	3	-
CO2	3	-	3	-	2	2	-	3	3	-
CO3	3	-	3	2	-	-	2	3	3	3
CO4	3	3	3	2	2	2	2	3	3	3
Weighted Average	3	3	3	2	2	2	2	3	3	2

1: Low, 2: Moderate, 3: High

SC **WEB TECHNOLOGIES** **2:1:1**

Outcomes:

- Develop an ability to implement HTML5 pages using fundamental tags.
- Able to develop style sheet using CSS for a given problem.
- Able to extend Java Script to validate a form with event handler for a given problem.
- Able to develop websites using web frameworks and content management systems

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	2	3	2	2	2	-	2	2	1
CO2	3	3	3	3	3	2	-	2	2	1
CO3	3	3	3	3	3	2	-	2	2	2
CO4	3	3	3	3	3	3	2	2	3	3
Weighted Average	2.75	2.75	3	2.75	2.75	2.25	2	2	2.25	1.75

1: Low, 2: Moderate, 3: High

SC **CRYPTOGRAPHY AND NETWORK SECURITY** **3:1:0**

Outcomes:

- Implement the principles and practices of cryptographic techniques.
- Build simple cryptosystems by applying encryption algorithms.
- Comprehend secure identity management (authentication), message authentication, and digital signature techniques.
- Employ the authentication protocol and web security methods.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	3	3	3	2	-	1	2	3
CO2	3	3	3	3	3	2	-	1	2	3
CO3	3	2	3	3	3	2	1	1	2	3
CO4	3	2	3	3	3	3	1	1	2	3
Weighted Average	3	2.5	3	3	3	2.25	1	1	2	3

1: Low, 2: Moderate, 3: High

SC **THEORY OF LANGUAGES AND AUTOMATA** **3:0:1**

Outcomes:

- Acquire a fundamental understanding of the core concepts in automata theory and formal languages.
- Design grammars and automata (recognizers) for different language classes.
- Identify formal language classes and prove language membership properties.
- Prove and disprove theorems establishing key properties of formal languages and automata.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	2	3	3	3	1	-	-	-	2	2
CO2	2	3	3	3	1	2	-	2	1	2
CO3	2	3	3	3	1	-	-	-	1	2
CO4	2	3	3	3	1	2	2	2	1	2
Weighted Average	2	3	3	3	1	2	2	2	1.25	2

1: Low, 2: Moderate, 3: High

SC **PROBABILITY AND STATISTICS** **3:1:0**.

Outcomes:

- Apply axioms and theorems to describe events and compute probabilities also identify the types of random variables and calculate relevant probabilities.
- Analyse the different Techniques in Continuous Probability Distribution.
- Describe an appropriate statistical model for the given data and compute population

parameters using appropriate estimators.

- Describe the Tests of Hypotheses, Types of errors, test for Significance, regression and curve fitting

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	2	3	3	2	3	1	-	-	2	2
CO2	2	3	3	3	3	-	2	-	2	2
CO3	2	3	3	3	3	1	-	-	1	2
CO4	2	3	3	3	3	-	2	2	2	2
Weighted Average	2	3	3	2.75	3	2	2	2	1.75	2

1: Low, 2: Moderate, 3: High

SC **FUNDAMENTALS OF INTERNET OF THINGS** **3:1:0**

Outcomes:

- Interpret the impact of IoT networks in new architectural models.
- Compare and contrast the deployment of smart objects and technologies to connect the mass network.
- Elaborate the need of IoT Access Technologies.
- Identify the application of IoT in Smart and Connected Cities and Public Safety.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	2	2	2	-	-	-	2	2
CO2	2	2	2	2	2	-	-	-	2	2
CO3	3	3	3	2	2	2	-	-	2	2
CO4	2	3	2	1	2	2	1	1	2	2
Weighted Average	2.5	2.75	2.25	1.75	2	2	1	1	2	2

1: Low, 2: Moderate, 3: High

SC **MOBILE APPLICATION DEVELOPMENT WITH ANDROID** **3:0:1**

Outcomes:

- Build sample android application.
- Develop user interfaces for android applications.
- Develop android applications to share data between different applications.
- Deploy android applications.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	2	3	2	2	2	1	2	2
CO2	3	3	3	3	3	2	2	2	2	2
CO3	3	3	3	3	2	3	2	2	3	3
CO4	3	3	3	3	3	2	2	2	3	3
Weighted Average	3	3	2.75	3	2.50	2.25	2	1.75	2.5	2.5

1: Low, 2: Moderate, 3: High

SC **LINUX PROGRAMMING** **3:0:1**

Outcomes:

- Work confidently in Linux environment with an understanding of the architecture and shell programming.
- Work with sed/awk and gain ability to write programs using file and directory related system calls
- Ability to handle processes using process related system calls
- Ability to write communicating programs using different IPC mechanisms and Berkeley sockets.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	1	-	-	2	-	2	1	1
CO2	3	2	1	-	-	-	-	2	1	1
CO3	3	2	1	1	-	-	2	2	1	1
CO4	3	2	1	1	2	-	2	2	1	1
Weighted Average	3	2	1	1	2	2	2	2	1	1

1: Low, 2: Moderate, 3: High

SC **INFORMATION RETRIEVAL** **3:0:1**

Outcomes:

- Locate relevant information in large collections of data.
- Impart features of retrieval systems for Text data.
- Analyze the performance of retrieval systems using test collection.
- Implement different clustering algorithms.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	3	2	-	2	2	2	2	1	1
CO2	-	3	3	2	2	-	2	2	1	1
CO3	1	3	3	2	2	-	2	2	1	1
CO4	1	3	3	2	2	-	2	2	1	1
Weighted Average	1	3	2.75	2	2	2	2	2	1	1

1: Low, 2: Moderate, 3: High

SC **BIG DATA ANALYTICS** **3:0:1**

Outcomes:

- Apply the Data Analytics Life Cycle to real life cases.
- Process Data with Hadoop.
- Apply the necessary techniques for data analytics.
- Demonstrate Data Analysis using R.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	2	2	2	3	1	2	-	-	-
CO2	3	3	2	3	3	1	2	1	2	1
CO3	3	2	3	3	3	2	2	2	3	3
CO4	3	2	3	3	3	2	2	2	3	3
Weighted Average	3	2.25	2.5	2.75	3	1.5	2	1.25	2	1.75

1: Low, 2: Moderate, 3: High

SC **MACHINE LEARNING USING PYTHON** **3:0:1**

Outcomes:

- Identify the need for Machine Learning using Python, appropriate data frames and its operations.
- Ability to build and validate linear regression models
- Ability understand different classification techniques and build classification models
- Ability to use unsupervised learning techniques to cluster data and Apply Scikit library for Machine Learning.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	3	3	3	2	2	2	3	3
CO2	3	3	3	3	3	2	2	2	3	3
CO3	3	3	3	3	3	3	2	2	3	3
CO4	3	3	3	3	3	2	2	2	3	3
Weighted Average	3	3	3	3	3	2.25	2	2	3	3

1: Low, 2: Moderate, 3: High

SC **ADVANCED JAVA** **3:0:1**

Outcomes:

- Develop component-based Java software using Java Beans.
- Develop server-side programs in the form of servlets.
- Implement Entity Java bean in stateless and state full environment.
- Employ the concepts of EJB and JAR files.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	3	2	-	1	3	-	-	2	-	2
CO 2	3	2	2	2	3	2	-	2	2	3
CO 3	3	3	3	2	3	2	2	2	2	3
CO 4	3	2	2	1	3	2	2	2	2	3
Weighted average	3	2.25	1.75	1.5	3	2	2	2	1.5	2.75

1: Low, 2: Moderate, 3: High

SC **MANAGEMENT INFORMATION SYSTEMS** **3:1:0**

Outcomes:

- Explain the role of IS in business.
- Ability to explain different enterprise management and functional management systems in business.
- Identify the applications of e-commerce and issues of e-commerce.
- Understand decision support systems.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	-	2	2	1	1	2	2	2	1
CO2	2	-	2	2	2	2	2	2	2	1
CO3	1	2	3	3	2	1	2	2	2	1
CO4	1	2	3	3	2	1	2	2	2	1
Weighted Average	1.5	2	2.5	2.5	1.75	1.25	2	2	2	1

1: Low, 2: Moderate, 3: High

SC **BUSINESS INTELLIGENCE** **3:1:0**

Outcomes:

- Acquire the knowledge on Business Intelligence methodologies.
- Comprehend the User models of Business Intelligence in real time scenarios.
- Employ the life cycle strategies on various BI capabilities.
- Compare and contrast various BI implementations in major companies.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	2	2	1	1	2	-	2	2	1	1
CO 2	3	2	1	2	2	-	2	2	1	1
CO 3	3	3	1	2	2	2	2	2	1	1
CO 4	3	3	1	1	2	2	2	2	1	1
Weighted Average	2.75	2.5	1	1.5	2	2	2	2	1	1

1: Low, 2: Moderate, 3: High

SC **ENTREPRENEURSHIP DEVELOPMENT** **3:1:0**

Outcomes:

- Analyze the history and need for entrepreneurship
- Employ the functions of women and rural entrepreneurship
- Inculcating the behaviors of entrepreneurs
- Comprehend the need and importance of management

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	2	-	3	2	2	2	1	1	1	1
CO2	1	-	1	1	2	2	1	2	1	2
CO3	-	-	2	1	-	2	1	1	1	1
CO4	-	3	1	1	1	1	1	3	2	1
Weighted Average	1.5	3	1.75	1.5	1.66	1.75	1	1.75	1.25	1.25

1: Low, 2: Moderate, 3: High

SC COMMUNICATION SKILLS 3:1:0

Outcomes:

- Understand and apply knowledge of human communication and language processes as they occur across various contexts from multiple perspectives.
- Understand and evaluate key theoretical approaches used in the interdisciplinary field of communication.
- Find, use, and evaluate primary academic writing associated with the communication discipline.
- Communicate effectively orally and in writing.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	-	-	-	-	2	-	3	3	2	3
CO 2	-	-	3	3	2	3	-	3	3	3
CO 3	-	3	3	-	2	2	-	3	3	3
CO 4	3	-	3	3	-	2	-	3	3	3
Weighted Average	3	3	3	3	2	2.33	3	3	2.75	3

1: Low, 2: Moderate, 3: High

SC PROFESSIONAL ETHICS AND HUMAN VALUES 3:1:0

Outcomes:

- Implement the aspects of Human Values.
- Interpret the ethics of engineering and its associated responsibilities.
- Employ the code of ethics in their profession.
- Display the awareness of Global issues in Ethics.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	-	-	-	-	-	2	3	2	-	3
CO2	-	2	-	-	3	2	3	2	-	3
CO3	-	-	3	-	-	2	3	2	-	3
CO4	3	-	-	3	-	2	3	2	3	3

Weighted Average	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**3**	**3**

1: Low, 2: Moderate, 3: High

SC **CYBER SECURITY** **3:1:0**

Outcomes:

- Understand the concept of cyber crime and offenses.
- Analyze the problems relating to cyber-crimes using mobile phones.
- Demonstrate the various attacks of cyber-crime.
- Understand and apply Computer Forensic sat problem areas.

Course articulation matrix:

PO / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
CO1	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**1**	**1**	**1**
CO2	**3**	**2**	**3**	**3**	**2**	**2**	**1**	**1**	**1**	**1**
CO3	**2**	**2**	**-**	**2**	**2**	**1**	**1**	**1**	**1**	**-**
CO4	**1**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**-**
Weighted Average	**2**	**2**	**2.33**	**2**	**2**	**1.5**	**1**	**1**	**1**	**1**

1: Low, 2: Moderate, 3: High

SC **SIMULATION AND MODELING** **3:0:1**

Outcomes:

- Analyze the different Components of System and identify the Applications of Simulation.
- Implement different algorithms associated with generation of Random numbers and test for Random numbers.
- Implement different methods of generating the Random Variants.
- Analyze the different techniques in Verification and Validation of simulation models and the output analysis for different types of Simulations.

Course articulation matrix:

PO / CO	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**
CO1	**2**	**1**	**1**	**1**	**1**	**1**	**-**	**1**	**2**	**2**
CO2	**3**	**3**	**3**	**3**	**3**	**-**	**-**	**1**	**1**	**1**
CO3	**2**	**2**	**2**	**2**	**2**	**-**	**-**	**-**	**1**	**1**
CO4	**2**	**2**	**2**	**1**	**2**	**-**	**2**	**-**	**1**	**1**
Weighted Average	**2.25**	**2**	**2**	**1.75**	**2**	**1**	**2**	**1**	**1.25**	**1.25**

1: Low, 2: Moderate, 3: High

SC **ARTIFICIAL INTELLIGENCE** **3:1:0**

Outcomes:

- Express the modern view of AI and its foundation.
- Illustrate Search Strategies with algorithms and Problems.
- Implement Proportional logic and apply inference rules.
- Apply suitable techniques for NLP and Game Playing.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	3	3	3	3	3	3	2	2	2	3
CO2	3	3	3	3	3	3	3	2	3	3
CO3	3	3	3	3	3	3	2	2	2	3
CO4	3	3	3	3	3	3	2	2	3	3
Weighted Average	3	3	3	3	3	3	2.25	2	2.5	3

1: Low, 2: Moderate, 3: High

OE **WORLDWIDEWEB** **3:1:0**

Outcomes:

- Understand the working scheme of the Internet and World Wide Web.
- Evaluate the various protocols of the Internet.
- Comprehend and demonstrate the application of Hypertext Mark-up Language(HTML).
- Apply the various security tools and understand the need of security measures.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	2	1	1	-	-	-	-	2	-	2
CO2	2	1	1	2	-	-	-	2	-	2
CO3	2	1	1	2	1	-	-	2	2	2
CO4	2	2	2	2	1	1	2	2	2	2
Weighted Average	2	1.25	1.25	2	1	1	2	2	2	2

1: Low, 2: Moderate, 3: High

OE **E-COMMERCE** **3:1:0**

Outcomes:

- Analyse the impact of E-commerce on business models and strategy
- Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational structures.
- Assess electronic payment systems and its securities.
- Recognize and discuss global E-commerce issues.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	2	2	2	2	2	1	2	2	2
CO2	2	2	2	2	2	1	1	2	1	1
CO3	2	-	1	1	2	1	1	2	1	1
CO4	2	-	2	2	2	1	1	2	1	2
Weighted Average	1.75	2	1.75	1.75	2	1.25	1	2	1.25	1.5

1: Low, 2: Moderate, 3: High

OE **OFFICE AUTOMATION** **3:1:0**

Outcomes:

- Understand the basics of computer hardware and software.
- Prepare documents of different types.
- Ability to develop and use spreadsheets for tabulating and analyzing for productivity.
- Prepare presentations.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO1	1	1	1	1	1	-	-	2	-	1
CO2	1	1	1	1	1	1	2	2	2	1
CO3	1	1	1	1	1	1	2	2	2	1
CO4	1	1	1	1	1	1	2	2	2	1
Weighted Average	1	1	1	1	1	1	2	2	2	1

1: Low, 2: Moderate, 3: High

SBRR MAHAJANA FIRST GRADE COLLEGE
[AUTONOMOUS]
(Accredited by NAAC with 'A' grade)
POST GRADUATION WING

Pooja Bhagavat Memorial Mahajana Education Centre

Affiliated to the University of Mysore

KRS Road, Metagalli, Mysuru-570016

DEPARTMENT OF STUDIES IN COMMERCE

Program Outcomes

PO1: Enhance the in-depth knowledge of various fields of business and commerce such as Accounting, International Accounting, Financial derivatives, Business Environment, international business, Research Methodology, and Tax planning, etc.,

PO2: Provide practical knowledge to deal with the day-to-day activities of the business by using the techniques like an industrial visit, internship, case study analysis, field visit, role play, etc.,

PO3: Inculcate the knowledge of the application of information technology in the field of Commerce.

PO4: Educate the students on business ethics, values, and the responsibility of business towards society to contribute the society at large.

PO5: Encourage the students to develop an interest in Research.

PO6: Build the strong communication skills and interpersonal skills among the students.

PO7: Build team spirit among the students to face the real-life situations in their career.

PO8: Imparting career enhancement skills by providing training in various competitive exams**.**

I SEMESTER
ADVANCED ACCOUNTING

Course Outcome:

CO1: Provides detailed insight into various Indian accounting standards

CO2: Stages and process of standards settings by ICAI in India along with compliance and applicability of accounting standards in India.

CO3: Understand the difference between Accounting Standard, IFRS, IASB and FASB and also gain knowledge on Convergence of Indian Accounting Standards with IFRS

CO4: Understand financial disclosures and preparation of accounting reporting.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	3	3	-	1	1	-	-	-
CO3	3	2	-	-	-	-	-	-
CO4	3	3	-	-	1	-	-	-
Weighted Average	**3**	**2.25**	-	**0.25**	**1**	-	-	-

HC02: FINANCIAL MANAGEMENT

Course Outcome:

CO1: Know the relativity of capital investment decisions and financial Policies to business valuations.

CO2: Application of different methods of cost of capital to ascertain the overall cost of capital of the firm,

CO3: Application of financial leverage to form long-term financial policies for business.

CO4:Ascertain common investment criteria and project cash flows with associated corporate project evaluation.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	3	-	3	-	-	-
CO2	3	3	3	-	3	-	-	-
CO3	3	3	-	1	3	-	-	-
CO4	3	3	3	-	3	-	-	-
Weighted Average	**3**	**3**	**2.25**	**0.25**	**3**	-	-	-

SC 03: MARKETING MANAGEMENT

Course Outcomes:

CO: Learn the Importance of how Demographic, Cultural and Institutional factors Shape the Global Marketing Environment

CO2: Depict Various Methods through which a firm can promote Its products in markets and be able to make All the necessary decisions needed for promoting the product in markets.

CO3: Develop Self-Leadership Strategies to Enhance Personal and Professional Effectiveness.

CO4 Figure Out the Implications of Current Trends in Social Media Marketing and Emerging Marketing Trends.

CO5: Portray decisions related to designing channel as well as physical distribution systems for making available the products in the markets.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	2		3	-	-	-
CO2	3	3	-	-	-	-	-	-
CO3	-	-	-	-	-	3	3	-
CO4	2	3	3	-	-	-	-	-
CO5	-	3	-	-	-	-	-	-
Weighted Average	**1.6**	**2.4**	**1**	**-**	**0.6**	**0.6**	**0.6**	**-**

HC 04: HUMAN RESOURCE MANAGEMENT

Course Outcome:

CO1: Understanding of the concept, functions and process of human Resource management.
CO2: Provide practical knowledge on preparation of job description and job specification.
CO3: Enhance the practical knowledge on human resource planning in an organization.
CO4: Design and formulate various HRM processes such as Recruitment, Selection, Training, Development, Performance appraisals.
CO5: Understanding of compensation and reward system adopted in an organization.

CO6: Understanding the adoption of E-HRM practices in an organization.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	2	-	-	-	-
CO2	1	3	-	-	-	-	-	-
CO3	1	3	-	-	-	-	-	-
CO4	2	3	-			2		2
CO5	3	3	-	-	-	-	-	-
CO6	2	-	2	-	-	-	-	-
Weighted Average	**2**	**2**	**0.33**	**0.33**	-	**0.33**	-	**0.33**

SC01: INTERNATIONAL BUSINESS ENVIRONMENT

Course Outcomes:

CO1. Learn the dynamics of the international business environment from a competitive and economic perspective.

CO2. Depict the various provisions relating to international trade and investment theories, and Transnational Corporations and its recent trends in TNCs.

CO3. Know about the international investments and recent trends in FDI Flows.

CO4. Outline the International business ethics and International Management.

CO5. Portray the approaches towards social responsibility and institutionalizing social responsibility.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	3	-	-	1	-	-	-
CO3	2	3	-	-	2	-	-	-
CO4	2	-	-	3	1	-	-	-
CO5	1	2	-	3	2	-	-	-
Weighted Average	2	2	-	1.2	1.2	-	-	-

SC 02: STATISTICS FOR BUSINESS DECISIONS

Course Outcomes

CO 1: Development of logical reasoning ability in students.

CO 2: Knowledge about the applicability of various parametric and non-parametric tests for analysis of data.

CO 3: Ability to use SPSS to solve statistical problems.

CO 4 : Ability to make decisions under uncertain business situations through analysis.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	3	-	-	-	-	-	3
CO2	1	1	2	-	3	-	-	-
CO3	1	2	3	-	3	-	-	3
CO4	-	2	-	-	3	-	-	-
Weighted Average	**1**	**2**	**1.25**	-	**2.25**	-	-	**1.5**

SC03: ADVANCED AUDITING

Course Outcomes

CO-1: Knowing the Indian Auditing Standards and Audit Procedures.

CO-2: Learning the auditing practice of different sectors.

CO-3: Preparation of audit report as per CARO 2016.

CO-4: Practice of audit through online.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	2	-	-	-	-
CO2	3	3	-	-	-	-	-	-
CO3	-	3	-	-	-	3	-	-
CO4	-	3	2	-	-	-	-	-
Weighted Average	**1.5**	**2.25**	**0.5**	**0.5**	-	**0.75**	-	-

II SEMESTER

HC05: ORGANISATIONAL BEHAVIOUR

Course Outcomes:

CO1. Comprehend the conceptualframe work of managementand Organizational behavior

CO2. Understanding the complexities associated with management of individual behavior and group behavior in the organization.

CO3. Application of various motivational theories in anchoring the behaviour of employees in an organization

CO4. Apply creative, critical and reflective thinking to address organizational opportunities and challenges.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	3	-	-	-	-	3	-
CO3	2	3	-	-	-	3	2	-
CO4	2	3	-	-	-	2	3	2
Weighted Average	**2.25**	**2.75**	**-**	**-**	**-**	**1.25**	**2**	**0.5**

HC06: CORPORATE GOVERNANCE

COURSE OUTCOME:

CO1: Know the Conceptual framework of Corporate Governance around the world and in India,

CO2: Enhancing the Knowledge on Ethics in Business and the Code of Conduct practiced in various Corporations.

CO3: Learn the efforts of governments and various committees in enacting good governance systems in Indian Corporations,

CO4: Realize the roles and responsibilities of CEO, CFO, Company Secretary and other key managerial personnel

CO5: Identify and understand the various Corporate Social Responsibility activities taken up by the Indian corporate sector.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	3	-	-	-	-
CO2	3	2	-	3	-	-	2	-
CO3	3	-	-	-	-	-	-	-
CO4	3	2	-	2	-	-	-	-
CO5	2	1	-	3	-	-	-	-
Weighted Average	**2.8**	**1.4**	-	**2.2**	-	-	**0.4**	-

HC07: INTERNATIONAL BUSINESS

Course Outcome:

CO1: Identify the key aspects of international trade and calculate its potential gains to participating nations.

CO2: Recognize the characteristics of foreign exchange markets

CO3: Identify the different countries currency regimes around the world.

CO4: Evaluate cross-border investment opportunities, and describe a multinational firm's decision-making process

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	2	-	-	-
CO2	3	2	-	-	-	-	-	1
CO3	2	3	-	-	2	-	-	
CO4	2	3	-	-	3	-	-	-
Weighted Average	**2.5**	**2.5**	-	-	**1.75**	-	-	**0.25**

SC 04: CAPITAL MARKET INSTRUMENTS

1.Course Outcomes:

CO-1: learning conceptual and practical knowledge on Capital market and its operations in India

CO-2: Valuation of financial securities like bond, debenture and stocks.

CO-3: Mechanism and application of forwards/futures, options, financial swaps.

CO-4: Learn online trading mechanism of derivatives instruments.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	-	-	-	-	-
CO2	1	3	2	-	3	-	-	-
CO3	3	3	-	-	2	-	-	-
CO4		3	3	-		-	-	3
Weighted Average	**1.75**	**3**	**1.25**	-	**1.25**	-	-	**0.75**

SC 05: SERVICES MARKETING

1. Course Outcome:

CO1: Learn the Concept of Services and intangible products

CO2: Comprehend the characteristics of service industry

CO3: Visualise the significance of service innovation and design

CO4: Employ various modes of service delivery in service organizations

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	2	-	-	-
CO2	3	2	-	-	2	-	-	-
CO3	3	2	2	-	3	-	-	-
CO4	2	3	-	-	-	-	-	-
Weighted Average	**2.75**	**2.75**	**0.5**	**-**	**1.75**	**-**	**-**	**-**

SC 06 : PORTFOLIO MANAGEMENT

Course Outcomes

CO-1: Know the various investment avenues available for investment and assess the risk and return associated with investments alternatives.

CO-2: Application of fundamental and technical analysis for security valuation

CO-3: Enhance the knowledge in various theories of portfolio analysis, construction and performance evaluation of portfolios

CO-4: Acquire the practical knowledge on online trading of different financial securities.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	2	-	2	-	-	
CO2	2	3	3	-	3	-	-	2
CO3	3	3	2	-	3	-	-	
CO4		3	2	-	-	-	-	2
Weighted Average	**2**	**3**	**2.25**	**-**	**2**	**-**	**-**	**1**

SC 07: MANAGEMENT INFORMATION SYSTEM

1. **Course Outcome:**

CO1: Learn the significance of Management Information Systems in Businesses

CO2: Gain knowledge on effective management of information

CO3: Learn about the Enterprise Resource Planning models

CO4: Understand the significance of Management Information System in Supply Chain Management

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-
CO3	2	-	3	-	-	-	-	-
CO4	3	2	-	-	2	-	-	-
Weighted Average	2.75	1.5	0.75	-	0.5	-	-	-

OE01: STOCK MARKETS AND INVESTEMENT DECISIONS

Course Outcomes:

CO1: Enhancing the knowledge on theoretical and practical concepts of Indian stockmarkets and Stock Market Instruments

CO2: Understanding the Trading mechanism in stock market

CO3: Analyze the Stock price movement using BSE-SENSEX and NSE-NIFTY asbenchmark indices

CO4: Learning online trading mechanism

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	2	-	-	-	-	1
CO2	1	3	3	-	-	-	-	3
CO3	1	2	2	-	3	-	-	1
CO4	-	-	3	-	-	-	-	2
Weighted Average	**1.25**	**2**	**2.5**	-	**0.75**	-	-	**1.75**

OE 2 : MANAGEMENT OF ENTERPRISES

Course Outcomes:

CO1: Familiar with the concepts related to management of enterprises.

CO2: Recognize the significance of planning and organizing in Management of Enterprises.

CO3: Analyze the implications of coordination in effective management of enterprises

CO4: Realise the complexities in controlling of organizational activities through feedback, budgeting and various audit systems.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	2	-	-	-	2	2	-
CO3	2	1	-	-	-	3	3	-
CO4	2	3	1	-	-	-	-	-
Weighted Average	**1.25**	**2**	**0.25**	**-**	**-**	**1.25**	**1.25**	**-**

III SEMESTER

HC 08 : BUSINESS RESEARCH METHODS

Course Outcome:

CO1: Identify the Research problems in the area of Business and Commerce

CO 2: Write a literature review that synthesizes and evaluates literature in a specific topic area to justify a research question

CO 3: Apply appropriate research design and methods to address a specific research question and acknowledge the ethical implications of the research

CO 4: Develop a research proposal/research paper on the basis their study.

CO 5: Present and defend a research proposal/ research paper.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	2	-	3	-	-	-
CO2	3	3	-	-	3	1	-	-
CO3	-	3	3	3	3	-	-	-
CO4	3	-	3	-	2	3	-	-
CO5	-	3	3	-	3	3	-	-
Weighted Average	**1.8**	**2.4**	**2.2**	**0.6**	**2.8**	**1.4**	-	-

HC 09: OPERATIONS RESEARCH

Course Outcomes:

CO 1: Application of Linear Programming in cost minimization and profit maximization

CO 2: Conceptual knowledge and practical applications on Transportation and Assignments

CO 3: Understand the usage of game theory andSimulation for Solving Business Problems

CO4: Understand the applicability of replacement model in cost analysis

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	3	2	-	2	-	-	-
CO2	3	3	-	-	-	-	-	-
CO3	2	3	-	-	-	-	-	-
CO4	3	3	-	-	-	-	-	-
Weighted Average	**2.5**	**3**	**0.5**	-	**0.5**	-	-	-

SC08: ENTREPRENEURSHIP DEVELOPMENT

Course Outcomes:

CO 1: Understanding the distinct entrepreneurial traits.

CO 2: Know the parameters to assess opportunities and constraints for new business ideas.

CO 3: Understand the systematic process to select and screen a business idea.

CO 4: Design strategies for successful implementation of ideas.

CO 5: Write a business plan.

CO 6: know the role of Central and State Government institutions in the development ofEntrepreneurship in India.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	1	-	-	-	-	-	-
CO2	1	3	-	-	2	-	-	-
CO3	2	2	-	-	-	-	-	-
CO4	1	3	-	-	-	-	-	-
CO5	2	2	-	-	3	3	-	3
CO6	2	3	-	-	-	-	-	-
Weighted Average	**1.83**	**2.33**	-	-	**0.83**	**0.50**	-	**0.50**

SC 09 : INTERNATIONAL HUMAN RESOURCE MANAGEMENT

Course Outcomes:

CO 1: Demonstrate an understanding of key terms, theories/concepts andpractices within the field of IHRM

CO 2: Develop and ability to undertake qualitative and quantitative research andapply this knowledge in the context of an independently constructed work

CO 3: Identify and appreciate the significance of ethical issues in HR practicesand the management of people in the workplace.

CO 4: Critically appraise the impact of cultural and contextual factors in shapinghuman resource practices in MNCs

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	-
CO2	1	2	-	-	3	-	-	-
CO3	3	2	-	2	-	-	-	-
CO4	3	2	-	2	-	-	-	-
Weighted Average	**2.5**	**1.5**	-	**1**	**0.75**	-	-	-

SC 10 :: INTERNATIONAL FINANCIAL MANAGEMENT

Course Outcomes

CO-1: Enhance the knowledge on international financial environment.

CO-2: Understanding of Balance of Payment in Indian Scenario

CO-3: Practical approach on determination of foreign exchange rates

CO-4: Application of capital budgeting, cost of capital and working capital management in international transactions.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	2	-	-	2	-	-	-
CO3	1	3	-	-	2	-	-	-
CO4	2	3	1	-	2	-	-	-
Weighted Average	**2**	**2.5**	**0.25**	-	**1.5**	-	-	-

SC 11 : PROJECT MANAGEMENT

Course Outcomes:

CO-1: Students would learn project **planning, analysis and implementation.**

CO-2:Describe the method of generating project ideas and screening them

CO-3: Students would learn to prepare a detailed project plan.

CO-4: To understand various financial and technical aspects regarding project management.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	-	-	-	-	-
CO2	2	3	-	-	3	-	-	-
CO3	3	3	-	-	3	-	-	-
CO4	3	2	-	-	-	-	-	-
Weighted Average	**2.75**	**2.75**	**-**	**-**	**1.5**	**-**	**-**	**-**

SC 12: ELECTIVE GROUP A-BUSINESS TAXATION

PAPER1: GOODS AND SERVICES TAX AND CUSTOMS DUTY

Course Outcomes

CO-1: Overview of Good and Services Tax system and structure in India.

CO-2: Practical application of levy, collection, valuation and ITC under GST

CO-3: Filing of online GST return

CO-4: Understanding the concept of Custom's duty, its valuation and duty drawback in India

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	3	3	-	1	-	-	3
CO3	3	3	3	-	-	-	-	3
CO4	3	3	2	-	-	-	-	-
Weighted Average	**2.75**	**2.75**	**2**	-	**0.25**	-	-	**1.5**

SC 13 : ELECTIVE GROUP B – FINANCIAL ACCOUNTING

PAPER-1: ACCOUNTING FOR SPECIAL TRANSACTIONS

Course Outcomes:

CO 1: Know the measurement and disclosure of Interim Financial Reporting and Segment Reporting.

CO 2: Recognize the accounting concept relating to levy of income tax

CO 3: Prepare accounting for Goods and Services Tax.

CO 4: Know and understand fair value and its applications in Accounting.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	3	2	-	-	-	-	-	-
CO3	2	3	2	-	-	-	-	-
CO4	3	3	-	-	-	-	-	-
Weighted Average	**2.75**	**2.5**	**0.5**	**-**	**-**	**-**	**-**	**-**

SC 14 - ELECTIVE GROUP C: FINANCIAL MANAGEMENT

PAPER-1: CORPORATE RESTRUCTURING

Course Outcomes:

After completion of this course, the students would be able to

CO-1: Familiar with the concept of corporate restructuring and major forms of corporate restructuring.

CO-2: Analyze the process of value creation under different forms of Merger and Acquisition

CO-3: Appraise the operational & financial performance of Merger and Acquisition

CO-4: Recognize the various legal aspects regarding mergers/amalgamations and acquisitions/takeovers

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	-
CO2	2	3	-	-	3	-	-	-
CO3	2	3	-	-	3	-	-	-
CO4	2	2	-	-	-	-	-	-
Weighted Average	2.25	2	-	-	1.5	-	-	-

SC15 - ELECTIVE GROUP D: HUMANRESOURCE MANAGEMENT

PAPER1: STRATEGIC MANAGEMENT OF HUMAN RESOURCES

Course Outcomes:

CO 1: Understand and discuss concepts of SHRM.

CO 2: Application of SHRM techniques in various organizational situations

CO 3: Evaluate the strengths and weaknesses of SHRM practices in organizations.

CO 4: Identify and assess ethical, environmental and/or sustainability considerations in SHRM decision-making and practice.

CO 5: Enlighten top executives on linkages between global and domestic HRM

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	-	-	-	-	-
CO2	1	3	-	-	2	-	-	-
CO3	1	3	-	-	2	-	-	-
CO4	2	2	-	3	1	-	-	-
Weighted Average	**1.75**	**2.75**	-	**0.75**	**1.25**	-	-	-

SC16 - ELECTIVE GROUP E: MANAGEMENT ACCOUNTING

PAPER 1: MARGINAL COSTING AND DECISION MAKING

Course Outcomes

CO-1: Application of tools and techniques of marginal costing in managerial decision making

CO-2: Practical knowledge on overhead analysis and itsappropriate Applicability

CO-3 : Enhance knowledge on application of Costing standards in Cost Audits.

CO-4: Preparation of Break-Even chart for taking managerial decisions.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	3	-	-	2	-	-	-
CO2	2	3	-	-	-	-	-	-
CO3	2	3	-	-	2	-	-	-
CO4	2	3	2	-	-	-	-	-
Weighted Average	**2**	**3**	**0.5**	-	**1**	-	-	-

IV SEMESTER

HC 10: INTERNATIONAL ACCOUNTING

Course Outcome:

CO1: Familiarize and understand the International Financial Reporting Standards (IAS or IFRS) and its application.

CO2: Application of different types of financial exposures in IFRS.

CO3: Enhance the knowledge on the Transfer Pricing policy in international business

CO4: Application of XBRL software in financial reporting.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	-	2	-	-	-
CO2	2	3	2	-	-	-	-	-
CO3	3	3	-	-	-	-	-	-
CO4	2	3	3	-	-	-	-	3
Weighted Average	**2.5**	**3**	**1.25**	-	**0.5**	-	-	**0.75**

HC 11 : STRATEGIC MANAGEMENT

Course Outcome:

CO 1 : Enlightening the top echelons on the linkages between vision, mission and strategies

CO 2 : Develop strategies keeping core competencies acquired over the years

CO 3 : Develop competitive building blocks and design approaches to increase Competitiveadvantage

CO 4 : Enlighten all stake holders on the linkages between strategy formulation,implementation and evaluation

CO 5 : Identify endogenous and exogenous forces influencing strategic decision making

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	-
CO2	-	2	-	3	-	-	-	-
CO3	-	3	-	2	-	-	-	-
CO4	-	3	-	-	-	-	-	-
Weighted Average	**0.75**	**2**	-	**1.25**	-	-	-	-

SC 17: FOREIGN EXCHANGE MANAGEMENT

Course Outcomes

CO-1: Acquisition of conceptual knowledge on international monetary system

CO-2: Overview on FOREX management and FOREX reserve

CO-3: Application of hedging against foreign exchange exposure

CO-4: Forecasting foreign exchange rates using various techniques.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	-
CO2	3	2	-	-	3	-	-	-
CO3	2	2	-	-	2	-	-	-
CO4	1	3	-	-	2	-	-	-
Weighted Average	**2.25**	**1.75**	-	-	**1.75**	-	-	-

SC 19 - ELECTIVE GROUP A: BUSINESS TAXATION

PAPER 2: CORPORATE TAX LAW AND PLANNING

Course Outcomes

CO-1: Knowing overview of corporate tax system in India

CO-2: Exposure on practical approaches towards taxable income of the company

CO-3: Application of Income tax rules in managerial decisions such as, make or buy, dividend decisions, etc.

CO-4: Online filing of returns for corporate assesse

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	-	-	-	-	-	-
CO2	2	3	-	-	-	-	-	-
CO3	3	3	-	-	-	-	-	-
CO4	2	3	3	-	-	-	-	3
Weighted Average	**2.5**	**2.75**	**0.75**	-	-	-	-	**0.75**

SC 20: ELECTIVE GROUP B – FINANCIAL ACCOUNTING

PAPER 2: CONTEMPORARY AREAS OF FINANCIAL ACCOUNTING

Course Outcomes:

CO1: Provide Detailed insight of Human resource Accounting.

CO2: Understand concept of Accounting for Bonus shares, right shares and dividend.

CO3: Application of different methods of Inflation accounting.

CO4: Understand the concept of environmental accounting.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	-	-	-	-	-	-
CO2	2	1	-	-	-	-	-	-
CO3	1	3	-	-	-	-	-	-
CO4	3	3	-	2	-	-	-	-
Weighted Average	**2**	**2.25**	-	**0.5**	-	-	-	-

SC 21 -ELECTIVE GROUP C: FINANCIAL MANAGEMENT

PAPER 2: FINANCIAL DERIVATIVES

Course Outcomes:

CO1 Understand the various financial derivative instruments such as options, futures, swaps and other derivative securities.

CO2 Application of derivative instruments in managing the risk of investing and hedging activity at the individual and the corporate level.

CO3 Comprehend the economic environment in which derivative instruments operate.

CO4 Employ theoretical valuation methods to pricing of financial derivative instruments by using different valuation models

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	-	-	-
CO2	2	3	1	-	2	-	-	2
CO3	2	2	-	-	-	-	-	
CO4	2	3	1	-	2	-	-	1
Weighted Average	**2.25**	**2**	**0.5**	-	**1**	-	-	**0.75**

SC 22 -ELECTIVE GROUP D: HUMAN RESOURCE MANAGEMENT

PAPER 2:INDUSTRIAL RELATIONS & COLLECTIVE BARGAINING

Course Outcomes:

CO1: Gain the theoretical, practical and ethical perspective on various aspects of Industrial Relations.

CO2: Aware of the present state of Industrial Relations in India.

CO3: Realise the various processes and procedures of handling Employee Relations.

CO4: Acquaint with the concepts, principles and issues connected with Trade Unions, Collective Bargaining and Grievance redressal

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	3	-	-	-	-
CO2	2	3	-	-	-	-	-	-
CO3	2	3	-	-	-	3	-	-
CO4	3	3	-	-	-	-	-	-
Weighted Average	**2.5**	**3**	**-**	**0.75**	**-**	**0.75**	**-**	**-**

SC23 - ELECTIVE GROUP E: MANAGEMENT ACCOUNTING

PAPER 2: COST MANAGEMENT

Course Outcomes

At the end of the course, the students will be able to know:

CO-1: Application of tools and techniques in activity-based cost for managerial decision

CO-2: Practical approaches on cost volume profit analysis

CO-3; Theoretical and practical approaches on various Pricing strategies

CO-4: Application of operation research and statistical tools in cost management.

Course Articulation Matrix

CO\PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	3	-	-	2	-	-	-
CO2	2	3	-	-	2	-	-	-
CO3	3	3	-	-	3	-	-	-
CO4	2	3	3	-	3	-	-	3
Weighted Average	**2.25**	**3**	**0.75**	**-**	**2.5**	**-**	**-**	**0.75**

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DEPARTMENT OF BIOCHEMISTRY

M.Sc. in Bio Chemistry

Course outcomes and course Articulation Matrix with tables

Programme Outcomes:

1. Develop an abilityto acquirein-depththeoretical and practicalknowledgeof Biochemistry
2. To demonstrate an understanding of structure and metabolism of biological macromolecules and tounderstandthe regulation and disorders ofmetabolic pathways.
3. The principles of bioenergetics and enzyme catalysis;
4. Understanding of metabolic pathway among prokaryotes and eukaryotes.
5. Gainproficiencyinlaboratorytechniquesinbiochemistryandbiologicalsciences likeimmunology,physiology, molecularbiology,enzymologyandbiotechnology.
6. Develop an ability to understand the technical aspects of existing technologies and to providecost efficient solutions that help in addressing the biological and medical challenges faced bymankind.
7. The practical skills are improved which help their research experienceamongacademicor industrial R&D programs.
8. Understand the published literature by using online and offline methods; to be able to apply thescientific method to the processes of experimentation and hypothesis testing.
9. Develop an abilityto translate knowledge of Biochemistry to address environmental, intellectual, societal, and ethicalissuesthrough innovativethinkingand research strategies.
10. Develop an ability to put forward the scientific perception to a person/ community belonging tonon-sciencebackground.
11. To inculcateskillsforteachinginacademicinstitutionsforundergraduateand postgraduate students.
12. Developconfidenceintakingcompetitiveexaminationinthefieldoflifesciencesb othinIndia andabroadso that theycan pursue higher education.

I Semester courses

21F101 FUNDAMENTALS OF BIOCHEMISTRY

Course outcomes

1. Knowledge of Chemistry of biomolecules.
2. The fundamental principles in sequencing of DNA.
3. Importance of biomolecules in the biological system.
4. Structure and function of enzymes.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	2	2	2	2	3	3	3	3	3
CO2	2	2	2	1	2	2	2	3	3	3	3	3
CO3	2	2	1	2	2	2	2	3	3	3	3	3
CO4	2	1	2	2	2	2	2	3	3	3	3	3

21F102 TECHNIQUES IN BIOLOGY

Course outcomes

1. Techniques in Biology.
2. The fundamental principles in cell homogenization.
3. Importanceofbioanalyticaltechniques.
4. Significanceofradiochemistryandmass spectroscopy.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	2	2	2	2	2	3	3	3	3	3
CO2	2	2	2	1	2	2	2	3	3	3	3	3
CO3	2	2	1	2	2	2	2	3	3	3	3	3
CO4	2	1	2	2	2	2	2	3	3	3	3	3

21F103 MOLECULAR CELL BIOLOGY

Course outcomes

1. Structuralandfunctionalcomponents ofacell.
2. Role of cell cycle and its regulation.
3. Phytochemicalsincancertreatment andstemscells.
4. Receptorsofsignaling pathways.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F104 PRACTICAL 1A

Course outcomes

1. Proficiencyinlaboratorytechniquesinbiologicalsciences.
2. Practical applications of various chromatography techniques in separation of bioactive compounds.
3. Estimation of different biomolecules using colorimeter.
4. Proficiencyinpreparingatourreportdocumentaftervisitingbiology-basedindustriesandresearch institutes.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F105 PRACTICAL 1B

Course outcomes

1. Proficiencyinmicroscopic examination of cells.
2. Proficiency molecular cellbiology experiments.
3. Proficiency in solving genetic problems.
4. Proficiencyin presenting aseminaron aspecific topic anddiscuss theconcept.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F106 GENETICS

Course outcomes

1. Modelorganisms availabletostudygenetics.
2. Mutationandmutagenesis.
3. Detailedaccountontransposableelementsandtranspositions.
4. TypesofDNArecombinationandDNArepair.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F107 MICROBIOLOGY

Course outcomes

1. Identification of bacteria through Bergy's manual.
2. The fundamentals of antibiotics.
3. The beneficial and harmful effects of microorganisms.
4. Knowledge about emerging infectious diseases

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

II Semester courses

21F201 MOLECULAR BIOLOGY

Course outcomes

1. The idea about the principles behind molecularbiology.
2. Understand the molecular tools and its application in basic research and applied research in various fields of life sciences.
3. Understand regulation of gene expression.
4. Significance of non-coding RNA.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F202 METABOLISM OF CARBOHYDRATES

Course outcomes

1. Chemistry of carbohydrate metabolism.
2. The fundamental thermodynamic principles in metabolism.
3. Importance of carbohydrate metabolism.
4. Role of hormones in the regulation of carbohydrate metabolism.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F203 BIOORGANIC AND BIOINORGANIC CHEMISTRY

Course outcomes

1. The basics in chemistry.
2. Theories of coordination complexes
3. To understand the organic reactions.
4. Different types of heterocyclic compounds

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F204 PRACTICAL 2A

Course outcomes

1. Proficiencyin laboratorytechniques inmolecular biologyand energymetabolism.

2. Proficiencyintheexperimentsto articulatethemetabolicpathways.
3. Efficacyin testingthemarkersforhealth and disease.
4. Proficiencyinrealtimefunctioningoftheindustriesandinstitutesofnationala ndinternationalrepute.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	2	3	2	3	3	3	3	3	3

21F205 PRACTICAL 2B

Course outcomes

1. Proficiencyin isolation of cell organelles and its assessment.
2. Proficiencyinisolation of biomolecules and its analysis.
3. Clinical relevance of biomolecules.
4. Isolation and understanding the significance of various lipids.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	2	3	2	3	3	3	3	3	3

21F206 METABOLISM OF LIPIDS

Course outcomes

1. The basics of metabolism.
2. Role of lipids in metabolism.
3. Role of lipid mediators.
4. Interactions among the metabolic enzymes.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

III Semester courses

21F301 IMMUNOLOGY

Course outcomes

1. Organs, tissues, cells and molecules of the immune system
2. The immunological methods used to detect the disease
3. How the knowledge of immunology can be transferred into clinical decision-making throughcase studies presented in class.
4. Importance of immunological techniques

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F302 ENZYMOLOGY

Course outcomes

1. Chemistry of enzyme catalysis.
2. Enzyme kinetics.

3. Comparison of Isozymes to Multifunctional enzymes
4. Regulation of enzyme activity

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F303 PRACTICAL 3A

Course outcomes

1. Proficiencyin laboratorytechniques in immunology.
2. Proficiency in understand the clinical significance of different end products of metabolism.
3. Proficiencyin laboratorytechniques inamino acid metabolism
4. Proficiencyinpreparingatourreportdocumentaftervisitingimmunologyorb iologybasedindustries and research institutes.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	2	3	2	3	3	3	3	3	3

21F304 PRACTICAL 3B

Course outcomes

1. Proficiencyin enzyme isolation and purification techniques.
2. Proficiency in enzyme kinetics.
3. Proficiency in assessmentofclinicallyrelevantenzymes.
4. Proficiencyinunderstandingaresearcharticleinthefieldof Biochemistryandrelatedstrea ms,andpresent as aplatform presentation.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	2	3	2	3	3	3	3	3	3

21F305 METABOLISM OF NUCLEIC ACID

Course outcomes

a. Chemistry of nucleic acid metabolism. .
b. Importance of nucleic acid metabolism.
c. Mechanism of photosynthesis and nitrogen metabolism.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

21F306 METABOLISM OF AMINO ACIDS AND PROTEINS

Course outcomes

1. Chemistry of nucleic acid metabolism.
2. Importance of nucleic acid metabolism.
3. Mechanism of photosynthesis
4. Nitrogen metabolism.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

IV Semester courses

21F401 PROJECT WORK

Course outcomes

1. Enhanced laboratoryskills.
2. Efficiency in identifying a research problem and plan a research work.
3. Appropriate review of literature and selection of proper laboratory methods.
4. Applicationand importanceof statistics.
5. Maketheappropriate conclusionsoftheresearchdata.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	3	2	2	3	3	3	3	3	3
CO2	2	2	3	2	2	2	3	3	3	3	3	3
CO3	2	2	3	2	2	2	3	3	3	3	3	3
CO4	2	2	2	2	2	2	3	3	3	3	3	3

21F403 BIOTECHNOLOGY

Course outcomes

1. Understand the principle and methodology employed in the growth of microorganisms
2. Understand the various parameters affecting the growth of industrially important microorganisms.
3. Understand the importance of plant and animal cell culture to produced therapeutically important secondarymetabolites
4. Understand the applications of industrial fermenters.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	3	2	2	3	3	3	3	3	3
CO2	2	2	3	2	2	2	3	3	3	3	3	3
CO3	2	2	3	2	2	2	3	3	3	3	3	3
CO4	2	2	2	2	2	2	3	3	3	3	3	3

DEPARTMENT OF BIOTECHNOLOGY

M.Sc. in Biotechnology

Course Outcomes and Course Articulation Matrix with Tables

Programme Outcomes:

1.The programme focuses on basic understanding in the diverse fields of biotechnology.

2. The programme emphasis on scientific research and its industrial applications.

3. The programme gives emphasis on skill development and research training in the field of biotechnology.

4. It enables the students to plan, design, execute, analyze, and solve industrial and research associated problems.

5. The objective of this programme is to make students competitive.

6. This programme is designed in such a way that they attain successful career in industries, research and academic institutions.

7. The programmes comprehend and integrate theoretical and practical skills.

8. The programme imparts knowledge in basic and applied disciplines of biotechnology.

9. The students are motivated to develop a research plan to solve biotechnological problems.

10. The Programme enhances the ability to design new biotechnological products

11. The students can apply knowledge of biotechnology in an integrated manner.

12. The Programme is designed in such a way that the student is trained enough to take employment in diverse areas of biotechnology as well as for further higher studies.

I Semester courses

Molecular Cell Biology (FCHC:): 22D101

Course Outcomes

1.The structures and purposes of basic components of prokaryotic and eukaryoticcells,especially macromolecules, membranes, and organelles.

2. Cell cycle and cellular processes.

3. Concept of cancer biology and signal transduction.

4. Phytochemicals in cancer treatment and stems cells.

Course Articulation Matrix

SEMESTER I												
Course Name : MOLECULAR CELL BIOLOGY (FCHC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	2	2	2	3	2	3	3	3	3	3	3	3
CO2	2	2	2	3	2	3	2	2	2	2	3	3
CO3	2	2	2	3	2	3	2	2	2	2	3	3
CO4	2	2	2	3	2	3	2	2	2	2	3	3
Weighted Average	**2**	**2**	**2**	**3**	**2**	**3**	**2.25**	**2.25**	**2.25**	**2.25**	**3**	**3**

PRACTICAL IB:Molecular Cell Biology: 22D105

Course Outcome:

1. Structure of prokaryotic and eukaryotic cells using staining techniques
2. Structure of cellular organelle.
3. Enumeration & Measurement of cell.
4. Analysis of growth curve

Course Articulation Matrix

SEMESTER I												
Course Name : PRACTICAL - IB												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

FUNDAMENTALSOF BIOCHEMISTRY (FCHC): 22D102

Course Outcome:

1. The basics of biomolecules.
2. Functions of biomolecules in the biological system.
3. Interactions among the biomolecules in the nature.
4. The fundamental principles in sequencing of DNA.

Course Articulation Matrix

SEMESTER I												
Course Name : FUNDAMENTALSOF BIOCHEMISTRY(FCHC)												
PO / **CO**	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	2	2	2	2	2	2	2	2	2	3	3
CO2	3	2	2	2	2	2	2	3	2	2	3	3
CO3	3	2	2	2	2	2	2	2	3	3	3	3
CO4	3	2	2	2	2	2	2	2	3	3	3	3
Weighted Average	**3**	**2**	**2**	**2**	**2**	**2**	**2**	**2.25**	**2.5**	**2.5**	**3**	**3**

PRACTICAL IA: FUNDAMENTALSOF BIOCHEMISTRY: 22D104

Course Outcome:

1. Understanding the normality and molarity concepts.
2. Methodology applied to prepare buffers and solutions.
3. Estimating the carbohydrates, proteins and aminoacids.
4. Analysis of saponification and iodine value in lipids.

Course Articulation Matrix

SEMESTER I												
Course Name: PRACTICAL – IA												
PO / CO	**PO -1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

TECHNIQUES IN BIOLOGY (FCHC): 22D103

Course Outcome:

1. This paper is designed to give a brief introduction to most of the techniques used in the field of biological analyses.
2. Nevertheless, the topics in this paper are to be taught compendiously.
3. The fundamental principles in cell homogenization.
4. Importance of bioanalytical techniques.

Course Articulation Matrix

SEMESTER I												
Course Name : TECHNIQUES IN BIOLOGY (FCHC)												
PO / CO	PO-1	PO-II	PO-111	PO-IV	PO-V	PO-VI	PO-VII	PO-VIII	PO-XI	PO-X	PO-XI	PO-XII
CO1	3	3	2	3	2	3	2	2	2	2	3	3
CO2	3	3	2	3	2	3	2	2	2	2	3	3
CO3	3	3	2	3	2	3	2	2	2	2	3	3
CO4	3	3	2	3	2	3	2	2	2	2	3	3
Weighted Average	**3**	**3**	**2**	**3**	**2**	**3**	**2**	**2**	**2**	**2**	**3**	**3**

PRACTICAL IA: TECHNIQUES IN BIOLOGY: 22D104

Course Outcome:

1. Hands on training in chromatographic techniques
2. Analysis of biomolecules using spectroscopic techniques
3. Estimating the enzymes and their activity.
4. The concepts of homogenization and sedimentation and working of centrifugation techniques.

Course Articulation Matrix

SEMESTER I												
Course Name : PRACTICAL - IA												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

MICROBIOLOGY (FCSC): 22D107

Course Outcome:

1. The characteristics of microbes, their taxonomy and diversity.
2. The growth of microbes and their control.
3. The relationship between microbes and environment.
4. The beneficial and harmful effects of microorganisms.

Course Articulation Matrix

SEMESTER I												
Course Name : MICROBIOLOGY												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	2	3	2	3	3	3	2	3	2	3
CO2	3	3	2	3	2	3	3	3	2	3	2	3
CO3	3	3	2	3	2	3	3	3	2	3	2	3
CO4	3	3	2	3	2	3	3	3	2	3	2	3
Weighted Average	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**3**

PRACTICALS IB: MICROBIOLOGY: 22D105

Course Outcome:

1. Performing different aseptic techniques to grow microorganisms.
2. Identification of cultured microorganisms using staining techniques.
3. Determine the microbes using microscopic and biochemical analysis.
4. Understanding practically the role of antibiotics.

Course Articulation Matrix

SEMESTER I												
Course Name: PRACTICAL - IB												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	2	3	2	3	3	3	2	3	2	3
CO2	3	3	2	3	2	3	3	3	2	3	2	3
CO3	3	3	2	3	2	3	3	3	2	3	2	3
CO4	3	3	2	3	2	3	3	3	2	3	2	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

II Semester courses

MOLECULAR BIOLOGY (FCHC): 22D201

Course outcome:

1. To understand biological activities and metabolism at DNA and protein level
2. The course gives an in-depth insight into the molecular aspects of life - the central dogma.
3. It explains molecular aspects of genes and its regulation- genome- gene expressions heredity- recombination- protein synthesis- molecular basis of diseases- mutations genetic analysis etc.
4. Understand the molecular tools and its application in basic research and applied research in various fields of life sciences.

Course Articulation Matrix

SEMESTER II												
Course Name : MOLECULAR BIOLOGY(FCHC)												
PO / CO	PO-1	PO-II	PO-111	PO-IV	PO-V	PO-VI	PO-VII	PO-VIII	PO-XI	PO-X	PO-XI	PO-XII
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

PRACTICALS IIA: MOLECULAR BIOLOGY: 22D203

Course Outcome:

1. Perfuming the methodology applied to extract DNA & RNA from different sources.
2. Methods applied to purify the nucleic acids,
3. Estimation of extracted and purified DNA & RNA
4. Determining the purity, concentration and applying it for different digests and ligates.

Course Articulation Matrix

SEMESTER II												
Course Name : PRACTICAL - IIA												
PO / CO	PO-1	PO-II	PO-111	PO-IV	PO-V	PO-VI	PO-VII	PO-VIII	PO-XI	PO-X	PO-XI	PO-XII
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

GENETIC ENGINEERING (FCHC): 22D202

Course Outcome:

1. To understand cloning and expression vectors.
2. Methods involved in gene manipulation and techniques of gene analysis.
3. The vast knowledge of gene editing.
4. The knowledge about the Ex vivo and in vivo gene therapy

Course Articulation Matrix

SEMESTER II												
Course Name : GENETIC ENGINEERING (FCHC)												
PO / **CO**	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

PRACTICAL IIA: GENETIC ENGINEERING: 22D203

Course Outcome: Students should study this paper to know –

1. Performing the competent cell preparation.
2. Isolating the plasmid and inducing the gene expression.
3. Determining the protease activity in extracted protein.
4. Producing the recombinant protein.

Course Articulation Matrix

SEMESTER II												
Course Name : PRACTICAL - IIA												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

MOLECULAR DIAGNOSTICS(FCSC): 22D205

Course Outcome:

1. The course focuses on learning and understanding how the various molecular techniques that were studied can be developed and utilized in diagnosis.
2. The course explains common analytical techniques and molecular techniques related to the development and use of diagnostics.
3. Students learn about the clinical applications of molecular diagnostic in patients with infectious disease.
4. They can find their future focus in biotechnology companies developing and marketing Diagnostic kits.

Course Articulation Matrix

SEMESTER II												
Course Name : MOLECULAR DIAGNOSTICS(FCSC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

PRACTICALS IIB: MOLECULAR DIAGNOSTICS: 22D204

Course Outcome:

1. The diagnosis of different hormones
2. The practical training of genome resolution and analysis
3. The metagenomic approach to identify the microbes.
4. Learning the techniques involved in microbial diagnosis such as PCR, ELISA.

Course Articulation Matrix

SEMESTER II												
Course Name : PRACTICAL - IIB												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

FOOD AND ENVIRONMENTAL BIOTECHNOLOGY(SC): 22D206

Course Outcome:

1. The knowledge about fermentation and fermented products and nutrition.
2. The functional foods and genetically modified foods.
3. The detailed account of Environment and bioremediation of pollutants.
4. The knowledge of phytoremediation

Course Articulation Matrix

SEMESTER II												
Course Name : FOOD AND ENVIRONMENTAL BIOTECHNOLOGY (SC)												
PO / **CO**	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	2	3	2	3	3	3	2	3	2	3
CO2	3	3	2	3	2	3	3	3	2	3	2	3
CO3	3	3	2	3	2	3	3	3	2	3	2	3
CO4	3	3	2	3	2	3	3	3	2	3	2	3
Weighted Average	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**3**

Practical II B: FOOD AND ENVIRONMENTAL BIOTECHNOLOGY: 22D204

Course Outcome:

1. The methods of water and soil sampling.
2. The determination of impurities in water.
3. Estimating the BOD & COD of water
4. Methods to understand food adulterants and contaminates.

Course Articulation Matrix

Course Name : PRACTICAL - IIB												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

III Semester courses

PLANT BIOTECHNOLOGY(HC): 22D301

Course Outcome:

1. The goal of this course is to introduce biotechnology methods in plants.
2. Handling of classical and modern plant biotechnology processes.
3. And understanding breeding of healthy plants for improved characteristics and plants for biomolecule production.
4. The application in pharmaceutical and food industry, in agriculture and in ecology.

Course Articulation Matrix

SEMESTER III												
Course Name : PLANT BIOTECHNOLOGY(HC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	3	3	2	2	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**

ANIMAL BIOTECHNOLOGY (HC): 22D302

Course Outcome:

1. Culturing of animal cells and steps in production of transgenic animals
2. Techniques in animal cell culture
3. Cloning of animals
4. Approaches for tissue engineering

Course Articulation Matrix

SEMESTER III												
Course Name : ANIMAL BIOTECHNOLOGY(HC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	3	3	2	2	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**

IMMUNOLOGY (FCHC): 22D303

Course Outcome:

1. Role of immune system in maintaining health
2. Cellular and molecular basis of immune responses
3. How immune responses are triggered and regulated
4. How the knowledge of immunology can be transferred into clinical decision-making through case studies presented in class.

Course Articulation Matrix

SEMESTER III												
Course Name : IMMUNOLOGY (FCHC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	3	3	3	3	3
CO 4	3	3	3	3	3	2	2	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**

PRACTICAL III: 22D304

Course Outcome:

1. Hands on training in plant tissue culture
2. Performing the production of synthetic seeds.
3. Performing cell culture techniques.
4. Performing immunotechniques.

Course Articulation Matrix

SEMESTER III												
Course Name : PRACTICAL - III												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

NATURAL PRODUCTS AND DRUG DISCOVERY (SC): 22D305

Course Outcome:

1. The prospects of Natural products in 21st Century.
2. The use of different natural sources for discovery of drug.
3. To perform molecular modelling.
4. Regulatory guidelines for preclinical studies

Course Articulation Matrix

SEMESTER III												
Course Name : NATURAL PRODUCTS AND DRUG DISCOVERY (SC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	2	2	3	3	3	3	3
CO2	3	3	3	3	3	2	2	3	3	3	3	3
CO3	3	3	3	3	3	2	2	3	3	3	3	3
CO4	3	3	3	3	3	2	2	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**

BIOSTATISTICS AND BIOINFORMATICS (SC): 22D306

Course Outcome:

1. Knowledge of basic statistical methods to solve problems.
2. Students are taught to operate various statistical software packages.
3. The in-depth knowledge about the bioinformatics.
4. Understanding about the sequence analysis tools and also about the drug discovery.

Course Articulation Matrix

SEMESTER III												
Course Name : BIOSTATISTICS AND BIOINFORMATICS (SC)												
PO / **CO**	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

IV Semester Courses

PROJECT WORK (HC): 22D401

Course Outcome:

1. Focuses on skill development

2. Promotes research training in the field of biotechnology

3. To enable students to plan, design, execute, analyze,

4. Ability to solve industrial and research associated problems.

Course Articulation Matrix

SEMESTER IV												
Course Name : PROJECT WORK (HC)												
PO / CO	PO-1	PO-II	PO-111	PO-IV	PO-V	PO-VI	PO-VII	PO-VIII	PO-XI	PO-X	PO-XI	PO-XII
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

MOLECULAR PLANT PATHOLOGY (SC): 22D402

Course Outcome:

1. The concepts of plant pathology
2. The host pathogen interaction.
3. The genetics of plant diseases and resistance.
4. Application of molecular biology to conventional disease control strategies

Course Articulation Matrix

SEMESTER IV												
Course Name : MOLECULAR PLANT PATHOLOGY(SC)												
PO / CO	**PO-1**	**PO-II**	**PO-111**	**PO-IV**	**PO-V**	**PO-VI**	**PO-VII**	**PO-VIII**	**PO-XI**	**PO-X**	**PO-XI**	**PO-XII**
CO1	3	3	2	3	2	3	3	3	2	3	2	3
CO2	3	3	2	3	2	3	3	3	2	3	2	3
CO3	3	3	2	3	2	3	3	3	2	3	2	3
CO 4	3	3	2	3	2	3	3	3	2	3	2	3
Weighted Average	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**3**

SBRR Mahajana First Grade College (Autonomous), PG Wing
Pooja Bhagavat Memorial Mahajana Education Centre
KRS Road,Metagalli, Mysuru-570016

Programme Outcomes–M.Sc.Computer Science

PO1: Apply the theoretical knowledge of Mathematics to design and develop models to solve real-time problems.

PO2: Apply skills learnt in emerging technologies to construct and implement software systems of varying complexities.

PO3: Communicate and engage effectively with diverse systems, processes and people to construct computer based solutions to problems.

PO4: Recognize the need for and develop effective communication skills to engage in continuing professional development.

PO5: Demonstrate the understanding of the concepts learnt relating to professional, ethical, legal, and social issues and responsibilities in real-life.

PO6: Develop strong programming skills to implement research projects.

SBRRMAHAJANA FIRSTGRADE COLLEGE (Autonomous)
POSTGRADUATE WING
(Accredited by NAAC with 'A' grade)

Pooja Bhagavat Memorial Mahajana Education Centre.
Affiliated to University of Mysore.

Scheme and Syllabi for M.Sc.in Computer Science
w.e.f. 2022-23

I Semester

Sl. No	Course Title	Type	Credits			Corse Code
			L	T	P	
1	Discrete Mathematical Structures	HC	3	1	0	22J1H1
2	Advanced Data Structures	HC	3	1	0	22J1H2
3	Database Technologies	HC	3	0	1	22J1H3
Soft Core Courses(Chooseatmost2Courses)						
1	Java Programming	SC	3	0	1	22J1S1
2	Operating Systems	SC	3	1	0	22J1S2
3	Web Technologies	SC	2	1	1	22J1S3
4	Computer Graphics	SC	2	1	1	22J1S4
5	Computer Architecture	SC	4	0	0	22J1S5
6	Numerical Algorithms	SC	4	0	0	22J1S6

IISemester

Sl.No	Course Title	Type	Credits			Corse Code
			L	T	P	
1	Design And Analysis of Algorithms	HC	2	1	1	22J2H1
2	Python Programming	HC	3	0	1	22J2H2
3	Data Communication & Networks	HC	3	1	0	22J2H3
Soft Core Courses(Chooseatmost2Courses)						
1	System Software	SC	3	0	1	22J2S1
2	Communication Skills	SC	4	0	0	22J2S2
3	Professional Ethics and Values	SC	3	1	0	22J2S3
4	Pattern Recognition	SC	3	1	0	22J2S4

5	Big Data Analytics	SC	3	0	1	22J2S5
	World Wide Web	OE	3	1	0	22J2E1

III Semester

Sl.No	Course Title	Type	Credits			Corse Code
			L	T	P	
1	Theory of Languages	HC	3	1	0	22J3H1
2	Machine Learning	HC	3	0	1	22J3H2
3	Minor Project	HC	0	1	3	22J3H3
Soft Core Courses(Chooseatmost2Courses)						
1	Artificial Intelligence	SC	3	1	0	22J3S1
2	Digital Image Processing	SC	3	0	1	22J3S2
3	C# Programming	SC	3	0	1	22J3S3
4	Android Programming	SC	3	0	1	22J3S4
5	Software Engineering	SC	3	1	0	22J3S5
	E-Commerce	OE	3	1	0	22J3E1

IV Semester

Sl.No	Course Title	Type	Credits			Corse Code
			L	T	P	
1	Dissertation	HC	0	2	10	22J4H1
Soft Core Courses(Chooseatmost2Courses)						
1	Compiler Construction	SC	3	1	0	22J4S1
2	Advanced Database Management System	SC	2	1	1	22J4S2
3	Data Mining	SC	3	0	1	22J4S3
	Office Automation	OE	3	1	0	22J4E1

HC **DISCRETE MATHEMATICAL STRUCTURES** **[3:1:0]**

Outcomes:

- Apply the concepts of set theory, logic, quantifiers and relations in specifying and solving problems.
- Identify the quantifiers and their uses and Make use of fundamentals of logic theory.
- Apply the mathematical induction principle and different methods to solve the given problem.
- Make use of basic concepts of graph theory to solve the given problem.

Course Articulation Matrix

PO / CO	PO1	PO2	PO 3	PO4	PO5	PO6
CO1	3	1	2	1	1	1
CO2	3	1	2	1	1	1
CO3	3	2	2	1	1	2
CO4	3	2	2	1	1	1
Weighted Average	3	1.5	2	1	1	1.25

1: Low,2: Moderate,3: High

HC **ADVANCED DATA STRUCTURES** **[3:1:0]**

Outcomes:

- Understand the ADT specification of dictionary data structure, priority queue and binary search trees.
- Perform insertion, deletion and searching operation on dictionary, priority queue and binary search trees.
- Perform the sorting using external sorting.
- Identify the applications of string matching algorithms and tries.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	3	1	2	1	1	1
CO2	1	2	2	1	2	1
CO3	3	2	2	1	1	2
CO4	2	2	1	1	1	1

Weighted Average	**2.25**	**1.75**	**1.75**	**1**	**1.25**	**1.25**

1: Low,2: Moderate,3: High

HC **DATABASE TECHNOLOGIES** **[3:0:1]**

Outcomes:

- Comprehend data models and schemas in DBMS.
- Use SQL-the standard language of relational databases.
- Understand the functional dependencies and design of the database.
- Understand the concept of Transaction and Query processing.

Course articulation matrix:

PO / **CO**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**
CO1	**1**	**2**	**2**	**1**	**1**	**1**
CO2	**2**	**3**	**3**	**1**	**2**	**2**
CO3	**1**	**2**	**1**	**1**	**1**	**1**
CO4	**1**	**2**	**1**	**1**	**1**	**-**
Weighted Average	**1.25**	**2.25**	**1.75**	**1**	**1.25**	**1**

1: Low,2: Moderate,3: High

SC **JAVA PROGRAMMING** **[3:0:1]**

Outcomes:

- Understand different aspects of object oriented paradigm and programming fundamentals.
- Build programs using programming basics, class fundamentals and reusable code using inheritance and polymorphism.
- Model solutions using files and interfaces.
- Develop efficient and error free applications using packages and exceptions.

Course articulation matrix:

PO / **CO**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**
CO1	**1**	**3**	**2**	**1**	**2**	**3**
CO2	**1**	**3**	**2**	**1**	**2**	**3**

CO3	**1**	**3**	**3**	**1**	**2**	**3**
CO4	**1**	**3**	**3**	**1**	**2**	**3**
Weighted Average	**1**	**3**	**2.5**	**1**	**2**	**3**

1: Low,2: Moderate,3: High

SC **OPERATING SYSTEMS** **[3:1:0]**

Outcomes:

- Able to comprehend the operating system components and its services
- Able to understand how process is created and various process related components of the operating system.
- Able to comprehend how memory management and virtual memory management is done.
- Able to understand different file and directory structures and how files are stored in secondary storage.

Course articulation matrix:

PO / **CO**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**
CO1	**1**	**3**	**1**	**1**	**1**	**1**
CO2	**1**	**3**	**1**	**1**	**1**	**1**
CO3	**1**	**3**	**1**	**1**	**1**	**1**
CO4	**1**	**3**	**1**	**1**	**1**	**1**
Weighted Average	**1**	**3**	**1**	**1**	**1**	**1**

1: Low,2: Moderate,3: High

SC **WEB TECHNOLOGIES** **[2:1:1]**

Outcomes:

- Develop an ability to implement HTML5 pages using fundamental tags.
- Develop style sheet using CSS for a given problem.
- Illustrate Java Script to validate a form with event handler for a given problem.
- Determine PHP in the back-end for database connectivity, web frame works and content management systems.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	-	3	-	1	1	1
CO2	-	3	-	1	1	1
CO3	1	3	2	1	1	1
CO4	1	3	2	1	1	1
Weighted Average	1	3	2	1	1	1

1: Low,2: Moderate,3: High

SC COMPUTERGRAPHICS [2:1:1]

Outcomes:

- Able to identify and use various graphics hardware, basic coordinate representations, functions and scan conversion algorithms.
- Able to implement various filled area primitives, 2D transformations and viewing
- Able to implement 2D clipping algorithms 3D geometric transformations.
- Able to implement 3D viewing, spline curves and visible surface detection

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	3	3	1	1	1	1
CO2	3	3	1	1	1	1
CO3	3	3	1	1	1	1
CO4	3	3	1	1	1	1
Weighted Average	3	3	1	1	1	1

1: Low,2: Moderate,3: High

SC COMPUTERARCHITECTURE [4:0:0]

Outcomes:

- Develop an ability to understand the concept of cache mapping techniques.
- Develop an ability to understand basics of organizational and architectural issues of a

digital computer.

- Acquire knowledge and understanding the theory of Digital Design and Computer Organization to provide an insight to basic computer components.
- Develop an ability to conceptualize instruction level parallelism.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	1	1	1	1	1	1
CO2	1	1	1	1	-	-
CO3	1	1	1	1	-	-
CO4	1	1	1	1	-	-
Weighted Average	1	1	1	1	1	1

1: Low,2: Moderate,3: High

SC **NUMERICAL ALGORITHMS** **[4:0:0]**

Outcomes:

- Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions.
- Apply numerical methods to obtain approximate solutions to mathematical problems.
- Derive numerical methods for various mathematical operations and tasks such as solution of non-linear equations, numerical integration and ordinary differential equations.
- Gain an understanding of interpolation and statistical methods.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	3	1	-	-	1	-
CO2	3	-	1	-	-	-
CO3	3	-	-	-	-	-
CO4	3	-	-	1	-	1
Weighted Average	3	1	1	1	1	1

1:Low,2: Moderate,3: High

HC **DESIGN AND ANALYSIS OF ALGORITHMS** **[2:1:1]**

Outcomes:

- Compare between different data structures. Pick an appropriate data structure for a designsituation.AnalyzePerformance ofalgorithmsusingasymptotic analysis.
- Describe the divide-and-conquer paradigm and explain when an algorithmic design situationcalls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conqueralgorithms. Derive and solve recurrences describing the performance of divide-and-conqueralgorithms.
- Describe the greedy paradigm and dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize greedy algorithms, and analyze them.
- Describe the backtracking paradigm and branch and bound paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	3	-	1	-	1	-
CO2	3	1	-	1	2	-
CO3	3	-	-	-	2	1
CO4	3	-	-	-	2	-
Weighted Average	3	1	1	1	1.75	1

1: Low,2: Moderate,3: High

HC **PYTHON PROGRAMMING** **[3:0:1]**

Outcomes:

- Demonstrate the use of the built-in objects of Python
- Demonstrate significant experience with the Python program development environment.
- Understand and implement the basic methods of python modules likeNumPy,and Pandas.
- Visualize data using Matplotlib module.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	3	2	1	1	2	3

CO2	**3**	**3**	**1**	**1**	**3**	**3**
CO3	**-**	**3**	**1**	**1**	**2**	**1**
CO4	**2**	**2**	**1**	**1**	**2**	**3**
Weighted Average	**2**	**2.5**	**1**	**1**	**2.25**	**2.5**

1: Low,2: Moderate,3: High

HC **DATA COMMUNICATION & NETWORKS** **[3:1:0]**

Outcomes:

- Understand and implement various types of transmissions in wired and wireless communications
- Study and develop the aspects of communication channels of Data Link Layer.
- Understand Design& apply various routing protocols of the Networks Layer.
- Design applications using the protocols of Transport & application Layer.

Course articulation matrix:

PO / **CO**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**
CO1	**1**	**3**	**3**	**-**	**2**	**2**
CO2	**1**	**-**	**3**	**2**	**-**	**-**
CO3	**1**	**3**	**3**	**3**	**-**	**-**
CO4	**1**	**2**	**3**	**2**	**3**	**3**
Weighted Average	**1**	**2.66**	**3**	**2.33**	**2.5**	**2.5**

1: Low,2: Moderate,3: High

SC **SYSTEM SOFTWARE** **[3:0:1]**

Outcomes:

- Develop an Ability to master the design of assembler.
- Able to understand various issues related to processing macros.
- Able to understand different loaders schemes, and related issues.
- Develop ability to write simple lexical analyser and parser with Lex and Yacc.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	1	2	2	1	1	3
CO2	1	2	2	1	1	3
CO3	1	3	2	1	1	3
CO4	3	3	2	1	1	3
Weighted Average	1.5	2.5	2	1	1	3

1: Low,2: Moderate,3: High

SC COMMUNICATION SKILLS [4:0:0]

Outcomes:

- Understand and apply knowledge of human communication and language processes as they occur across various contexts from multiple perspectives.
- Understand and evaluate key theoretical approaches used in the interdisciplinary field of communication.
- Find, use, and evaluate primary academic writing associated with the communication discipline.
- Communicate effectively orally and in writing.

Course articulation matrix:

PO / CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6
CO1	-	-	2	3	1	-
CO2	1	-	3	-	2	2
CO3	-	3	3	3	-	-
CO4	1	2	3	3	2	3
Weighted Average	1	2.5	2.75	3	1.66	2.5

1: Low,2: Moderate,3: High

SC PROFESSIONAL ETHICS AND HUMAN VALUES [3:1:0]

Outcomes:

- Implement the aspects of Human Values.
- Interpret the ethics of engineering and its associated responsibilities.

- Employ the code of ethics in their profession.
- Display the awareness of Global issues in Ethics.

Course articulation matrix:

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	-	1	2	3	1
CO2	1	1	1	2	3	1
CO3	1	1	1	2	3	1
CO4	1	1	1	2	3	1
Weighted Average	1	1	1	2	3	1

1: Low,2: Moderate,3: High

SC PATTERNRECOGNITION [3:1:0]

Outcomes:

- Acquire the knowledge on basics of pattern recognition systems
- Demonstrate the techniques of estimations and component analysis.
- Implement different supervised learning techniques.
- Implement different unsupervised learning techniques.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	-	-	-	1	-
CO2	3	-	-	-	3	1
CO3	3	1	-	-	3	-
CO4	3	-	1	1	3	-
Weighted Average	3	1	1	1	2.5	1

1: Low,2: Moderate,3: High

SC **BIG DATA ANALYTICS** **[3:0:1]**

Outcomes:

- Apply the Data Analytics Life Cycle to real life cases.
- Process Data with Hadoop.
- Apply the necessary techniques for data analytics.
- Demonstrate Data Analysis using R.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	-	3	1	-	1	1
CO2	-	3	1	-	1	1
CO3	1	3	1	-	1	1
CO4	1	3	1	1	1	1
Weighted Average	1	3	1	1	1	1

1: Low,2: Moderate,3: High

OE **WORLD WIDE WEB** **[3:1:0]**

Outcomes:

- Understand the working scheme of the Internet and World Wide Web.
- Evaluate the various protocols of the Internet.
- Comprehend and demonstrate the application of Hypertext Mark-up Language(HTML).
- Apply the various security tools and understand the need of security measures.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	1	1	-	-	1
CO2	1	1	1	-	-	-
CO3	1	1	2	1	1	-

CO4	**1**	**2**	**2**	**1**	**1**	**-**
Weighted Average	**1**	**1.25**	**1.5**	**1**	**1**	**1**

1: Low,2: Moderate,3: High

HC **THEORY OF LANGUAGES** **[3:1:0]**

Outcomes:

- Acquire a fundamental understanding of the core concepts in automata theory and formal languages
- Develop ability to model grammars and automata (recognizers)for different language classes.
- Develop an ability to identify formal language classes and prove language membership properties.
- Develop an ability to prove and disprove theorems establishing key properties of formal languages and automata.

Course Articulation Matrix

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	**3**	**1**	**1**	**-**	**-**	**1**
CO2	**3**	**1**	**1**	**1**	**-**	**1**
CO3	**2**	**1**	**1**	**1**	**1**	**1**
CO4	**3**	**1**	**1**	**-**	**1**	**1**
Weighted Average	**2.75**	**1**	**1**	**1**	**1**	**1**

1: Low,2: Moderate,3: High

HC **MACHIN ELEARNING** **[3:0:1]**

Outcomes:

- Identify the need for Machine Learning using Python, appropriate data frames and its operations.
- Ability to build and validate linear regression models
- Ability understand different classification techniques and build classification models
- Ability to use unsupervised learning techniques to cluster data and Apply Scikit library for Machine Learning.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	3	1	-	1	1
CO2	3	3	1	-	1	1
CO3	3	3	1	1	1	1
CO4	3	3	1	1	1	1
Weighted Average	2.5	3	1	1	1	1

1: Low,2: Moderate,3: High

HC **MINOR PROJECT** **0:1:3**

Outcomes:

- Understanding the emerging trends of new technologies by conducting a survey of several available literatures in the preferred field of study.
- Develop real time Projects by comparing the several existing solutions for a research challenge.
- Demonstrate an ability to work in teams and manage the process of building the project within the stipulated time.
- Report and present the findings of the research study/project conducted in the preferred domain.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	1	3	-	-	-	-
CO2	1	3	-	-	-	3
CO3	-	-	3	3	-	3
CO4	-	-	-	3	2	3
Weighted Average	1	3	3	3	2	3

1: Low,2: Moderate,3: High

SC **ARTIFICIAL INTELLIGENCE** **[3:1:0]**

Outcomes:

- Understand the basic concepts of AI.
- Understand the fundamentals of knowledge representation, inference and theorem proving.
- Represent knowledge of the world using logic and infer new facts from that knowledge.
- Explain how Artificial Intelligence enables capabilities that are beyond conventional technology.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	2	2	2	3
CO2	3	3	3	2	1	3
CO3	3	3	3	2	1	3
CO4	3	3	3	2	1	3
Weighted Average	3	3	2.75	2	1.25	3

1: Low,2: Moderate,3: High

SC **DIGITAL IMAGE PROCESSING** **[3:0:1]**

Outcomes:

- Demonstrate the concepts of digital image processing.
- Learn different techniques employed for the enhancement of images using spatial domain.
- Learn different techniques employed for the enhancement of images using frequency domain.
- Implement the techniques of image segmentation.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	-	1	-	2	-
CO2	3	-	-	1	3	-
CO3	3	1	-	1	3	1

CO4	**3**	**1**	**-**	**-**	**3**	**-**
Weighted Average	**3**	**1**	**1**	**1**	**3.5**	**1**

1:Low,2: Moderate,3: High

SC **C# PROGRAMMING** **[3:0:1]**

Outcomes:

- Acquire the knowledge of.NET framework.
- Develop an ability to write programs in C#.
- Implement the extended OOP's concept in C# environment.
- Develop applications using standard C# libraries.

Course Articulation Matrix

PO / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	**-**	**3**	**1**	**-**	**-**	**2**
CO2	**-**	**2**	**1**	**1**	**-**	**1**
CO3	**1**	**3**	**2**	**-**	**1**	**1**
CO4	**1**	**3**	**2**	**-**	**-**	**2**
Weighted Average	**1**	**2.75**	**1.5**	**1**	**1**	**1.5**

1: Low,2: Moderate,3: High

SC **ANDROID PROGRAMMING** **[3:0:1]**

Outcomes:

- Build sample android application.
- Develop user interfaces for android applications.
- Develop android applications to share data between different applications.
- Deploy android applications.

Course Articulation Matrix

PO / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**

CO1	**2**	**3**	**2**	**-**	**1**	**1**
CO2	**3**	**3**	**2**	**-**	**1**	**2**
CO3	**3**	**3**	**2**	**1**	**2**	**2**
CO4	**3**	**3**	**3**	**1**	**2**	**2**
Weighted Average	**2.75**	**3**	**2.25**	**1**	**1.5**	**1.75**

1: Low,2: Moderate,3: High

SC **SOFTWARE ENGINEERING** **[3:1:0]**

Outcomes:

- Identify the key activities in managing software project and compare different process models.
- Able to develop software using contemporary agile approaches
- Gain the ability to work as an individual and as part of a multidisciplinary team to develop and deliver quality software.
- Compare and contrast the various testing and maintenance approaches.

Course Articulation Matrix

PO / **CO**	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	**1**	**3**	**1**	**1**	**1**	**1**
CO2	**1**	**3**	**2**	**2**	**1**	**1**
CO3	**1**	**2**	**2**	**2**	**1**	**-**
CO4	**1**	**1**	**2**	**-**	**1**	**1**
Weighted Average	**1**	**2.25**	**1.75**	**1.25**	**1**	**1**

1: Low,2: Moderate,3: High

OE **E-COMMERCE** **[3:1:0]**

Outcomes:

- Study the impact of E-commerce on business models and strategy
- Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational structures.

- Assess electronic payment systems and its securities.
- Recognize and discuss global E-commerce issues.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO 6
CO1	-	1	2	2	2	-
CO2	-	2	3	2	2	-
CO3	1	2	2	1	1	1
CO4	1	-	2	2	1	-
Weighted Average	1	1.25	2.25	1.75	1.5	1

1: Low,2: Moderate,3: High

HC **DISSERTATION** **[0:2:10]**

Outcomes:

- Develop basic algorithm steps as a solution to a real-life problem.
- Implement algorithms using latest tools that contribute to the software solution of the project using different tools.
- Analyse, interpret, test and validate experimental results.
- Develop research/technical report with enhanced writing/communication skills following ethical practices.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	2	-	-	-
CO2	-	-	3	-	3	-
CO3	1	3	-	-	2	-
CO4	-	-	3	3	3	3
Weighted Average	2	3	2.66	3	2.66	3

1: Low,2: Moderate,3: High

SC **COMPILER CONSTRUCTION** **[3:1:0]**

Outcomes:

- Explain the concepts and different phases of compilation and Interpret language tokens using regular expressions and design lexical analyzer.
- Build top down parsing, bottom up parsing and parse tree representation of the input.
- Perform context sensitive analysis, semantic analysis and type checking
- Experiment the optimization techniques to intermediate code and generate machine code for high level language program.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	3	-	-	1	1
CO2	3	3	-	1	1	1
CO3	3	3	1	-	-	1
CO4	2	3	1	-	-	1
Weighted Average	2.5	3	1	1	1	1

1: Low,2: Moderate,3: High

SC **ADVANCEDDATABASE MANAGEMENTSYSTEM** **[2:1:1]**

Outcomes:

- Critically assess new developments in database technology.
- Evaluate the contribution of database theory to practical implementations of database management systems.
- Implement the various types of database systems.
- Interpret the impact of emerging database standards.

Course Articulation Matrix

PO / CO	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	-	1	1
CO2	3	3	2	-	2	2

CO3	**3**	**3**	**3**	**1**	**2**	**3**
CO4	**3**	**3**	**2**	**-**	**2**	**2**
Weighted Average	**3**	**2.75**	**2**	**1**	**1.75**	**2**

1: Low,2: Moderate,3: High

SC **DATA MINING** **[3:0:1]**

Outcomes:

- Identify data mining problems and recognize types of data and preprocessing needed.
- Employ the concepts of Association Analysis
- Identify problems suitable for Classifications and Apply different classification algorithms
- Identify problems appropriate for Clustering and Apply different clustering algorithms.

Course Articulation Matrix

PO / CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**
CO1	**3**	**3**	**1**	**1**	**2**	**1**
CO2	**3**	**3**	**1**	**1**	**2**	**1**
CO3	**3**	**3**	**1**	**1**	**2**	**1**
CO4	**3**	**3**	**1**	**1**	**2**	**1**
Weighted Average	**3**	**3**	**1**	**1**	**2**	**1**

1: Low,2: Moderate,3: High

OE **OFFICE AUTOMATION** **[3:1:0]**

Outcomes:

- To understand the basics of computer hardware and software.
- To prepare documents of different types.
- Ability to develop and use spreadsheets for tabulating and analyzing for productivity.
- To prepare presentations.

Course Articulation Matrix

PO / CO	PO 1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	1	1	1
CO2	2	2	1	1	1	1
CO3	2	2	1	1	1	1
CO4	2	2	1	1	1	1
Weighted Average	2	2	1	1	1	1

1: Low,2: Moderate,3: High

DEPARTMENT OF CHEMISTRY

Programme Outcomes, Course outcomes with Articulation Matrix tables

Programme Outcomes:

1. Students will have a strong foundation in the fundamentals and applications of current theoretical and practical chemistry in Analytical, Inorganic, Organic and Physical Chemistry.
2. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
3. Students will be able to design and carry out scientific experiments and accurately record and analyze the results of the experiments.
4. Students will be able to explore new areas of research in both chemistry and allied fields such as Biochemistry, Material Chemistry, Pharmaceutical chemistry and Chemical biology and related technology.
5. Students will understand the central role of chemistry to our society which includes understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
6. Create awareness and sense of responsibilities towards environment and apply knowledge to solve the issues related to Environmental pollution.
7. Apply knowledge to build up small scale industry for developing endogenous product
8. Apply various aspects of chemistry in natural products isolations, pharmaceuticals, dyes, textiles, polymers, petroleum products, forensic etc. and also to develop interdisciplinary approach of the subject.
9. The course curriculum incorporates basics and advanced training in order to make a student capable of expressing the subject through technical writing as well as through oral presentation.
10. Provide an opportunity to act as team player by contributing in laboratory, field-based situation and industry.
11. Use modern techniques, decent equipment's and Chemistry software's.
12. A post-graduation in Chemistry provides the opportunities in educational sector, pharmaceutical companies and chemical industries.

I Semester courses

CHI HCT: 1.1.

Concepts and Models of Inorganic Chemistry + Inorganic Chemistry Practicals-I

Course outcomes

1. Compared the trends in the properties of all group elements with respect to periodicity.
2. Examined and applied the structural arrangement in metals, ionic, covalent compounds and inorganic solids.
3. Understand and differentiate the different theories of inorganic chemistry.
4. Demonstrated the principles of gravimetric and spectrophotometric determinations.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	2	3	2	3	3
CO2	3	3	3	3	3	3	3	2	3	2	2	3
CO3	3	3	3	3	2	2	2	2	3	2	2	2
CO4	3	3	3	2	3	3	2	2	3	3	3	3
W.A	3	3	3	2.75	2.75	2.75	2.5	2	3	2.25	2.5	2.75

CHO HCT: 1.2.

Reaction Mechanism + Organic Chemistry Practicals-I

Course outcomes

1. Recalled the fundamental principles of organic reactions.
2. Students able to understand the concepts related to substitution and addition reactions.
3. Students able to understand the concepts related to binary mixture separation
4. Recalled the importance of synthetic organic chemistry and the applications in chemical industries.

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	2	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	2	3	3	3	2	3

CO4	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**3**
W.A	**3**	**3**	**3**	**3**	**2.75**	**3**	**2.75**	**3**	**3**	**3**	**2.25**	**3**

CHP HCT: 1.3.

Physical Chemistry-I + Physical Chemistry Practicals-I

Course outcomes

1. Apply the principles of thermodynamics and kinetics to advanced concepts.
2. Students able to understand the concepts related to fugacity and fast reactions.
3. Demonstrated the principles of conductometric titrations.
4. Demonstrated the principles of kinetics and potentiometric titrations.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**2**	**2**	**3**
CO2	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**2**	**2**	**3**
CO3	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO4	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
W.A	**3**	**3**	**3**	**3**	**2.25**	**2**	**3**	**3**	**3**	**2.5**	**2.5**	**3**

CHG HCT: 1.4.

Symmetry, Group Theory and Chemical Spectroscopy

Course outcomes

1. Understand and differentiate the different type’s symmetry elements.
2. Students advanced their skills in 3dimensinal analysis of molecular structures.
3. Formulate and discussed the different spectroscopic techniques.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	2	3	2	3	2	3	3
CO2	3	3	3	3	2	2	2	2	3	2	3	3
CO3	3	3	3	3	2	2	2	2	3	3	3	3
W.A	3	3	3	3	2	2	2.33	2	3	2.33	3	3

CHA SCT: 1.51.

Fundamentals of Chemical Analysis + Analytical Chemistry Practicals-I

Course outcomes

1. Students able to understand the Language of analytical chemistry and data analysis
2. Students able to understand principles involved in different types of titrations.
3. Demonstrated the principles of pHmetric determinations.
4. Demonstrated the principles of water analysis.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	2	3	3	2	3	3
CO2	3	3	3	3	3	3	2	3	3	2	3	3
CO3	3	3	3	3	3	3	2	3	3	2	3	3
CO4	3	3	3	2	3	3	2	3	3	2	3	3
W.A	3	3	3	2.75	3	3	2	3	3	2	3	3

II Semester courses

CHI HCT: 2.1.

Concepts and Models of Inorganic Chemistry + Inorganic Chemistry Practical-II

Course outcomes

1. Students able to understand the preparation of coordination compounds and crystal field theory.
2. Students able to understand the electronic spectra, magnetic properties and electron transfer processes.
3. Demonstrated the principles of analysis of low melting alloys.
4. Demonstrated the principles of semi micro qualitative analysis of inorganic mixtures.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	3	3	3	2	2	3	3	3	2	3
CO2	3	2	3	3	3	2	2	3	3	3	3	3
CO3	3	2	3	3	3	2	2	2	3	3	3	3
CO4	3	2	3	3	3	2	2	3	3	3	2	3
W.A	3	2	3	3	3	2	2	2.75	3	3	2.5	3

CHO HCT: 2.2.

Stereochemistry and Heterocyclic Chemistry + Organic Chemistry practical - II

Course outcomes

1. Students able to understand the stereochemistry of the organic compounds.
2. Students able to understand the nomenclature and reactions of heterocyclic compounds.
3. Demonstrated the principles of preparation associated with organic compounds preparation.
4. Demonstrated the principles of molecular rearrangements.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	3	2	3	3	3	3	2	3
CO2	3	2	2	3	3	2	2	3	3	2	3	2
CO3	3	2	3	3	3	2	3	3	3	3	3	3
CO4	3	2	3	3	3	2	2	2	3	2	2	2

W.A	**3**	**2**	**2.5**	**3**	**3**	**2**	**2.5**	**2.75**	**3**	**2.5**	**2.5**	**2.5**

CHP HCT: 2.3.

Physical Chemistry-I + Physical Chemistry practical – II

Course outcomes

1. Students able to understand the electrochemistry of solutions and electrode process.
2. Students able to understand the basic concepts of quantum chemistry.
3. Demonstrated the principles of kinetics and potentiometric titrations.
4. Demonstrated the principles of electroanalytical titrations.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO2	**3**	**2**	**2**	**2**	**3**	**2**	**2**	**2**	**3**	**2**	**2**	**2**
CO3	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO4	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
W.A	**3**	**2**	**2.75**	**2.75**	**3**	**2**	**2.75**	**2.75**	**3**	**2.75**	**2.75**	**2.75**

CHG HCT: 2.4.

Molecular Spectroscopy-II

Course outcomes

1. Students able to understand the NMR spectroscopy.
2. Students able to understand the ESR & NQR spectroscopy.
3. Students able to understand the Mass and IR spectroscopy.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**

CO2	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**
CO3	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
W.A	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**

CHA SCT: 2.51.

Separation Techniques + Analytical Chemistry practical – II

Course outcomes

1. Students able to understand the Fundamentals of chromatography.
2. Students able to understand the applied chromatography and separation techniques.
3. Demonstrated the principles of precipitation titrations.
4. Demonstrated the principles of chromatographic techniques.

Course Articulation Matrix

POs / COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**
CO2	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**
CO3	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**
CO4	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**3**
W.A	**3**	**2**	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2.25**	**3**

III Semester courses

CHI HCT: 3.1.Advanced inorganic chemistry

Course outcomes

1. Fundamental concepts of organometallic chemistry and synthesis, structure and bonding in different organometallics and their applications.
2. Homogeneous and heterogeneous catalysts and their applications in the synthesis of organic compounds in industries.
3. Chemistry of main group elements, metal clusters, silicates and silicones and their applications in day to day life.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	3	3	2	3	2	3	2
CO2	3	3	2	3	3	3	3	2	3	2	2	2
CO3	3	3	2	3	2	3	3	2	3	2	2	2
W.A	3	3	2	3	2.66	3	3	2	3	2	2.33	2

CHO HCT: 3.2.Reagents in Organic Synthesis

Course outcomes

1. Students are familiar about chemistry of oxidants, reductants and their applications in the organic synthesis.
2. Understand the various catalysts in organic synthesis by known naming reactions.
3. Study Retro-synthesis and molecular rearrangement.

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	3	3	3	3	3	2	3
CO2	3	3	2	3	3	3	3	3	3	3	3	2
CO3	3	3	2	3	2	3	3	3	3	3	2	2
W.A	3	3	2	3	2.66	3	3	3	3	3	2.33	2.33

CHP HCT: 3.3. Physical Chemistry-III

Course outcomes

1. Understand the principles of photochemistry, its experimental techniques and applications.
2. Fundamentals of radiation chemistry, experimental methods of detection of radiation and applications of radioisotopes.
3. General aspects of nuclear chemistry, different types of nuclear reactions.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	2	3	3	3	2	2	3
CO2	3	3	2	3	2	2	3	3	3	2	2	2
CO3	3	3	2	3	2	2	3	3	3	3	3	3
W.A	3	3	2	3	2.33	2	3	3	3	2.33	2.33	2.66

CHI SCT: 3.42.

Frontiers in Inorganic Chemistry + Inorganic Chemistry Practicals-II

Course outcomes

1. Gain knowledge on design and synthesis of new inorganic materials.
2. Fabrication and characterization of nanomaterials.
3. Determination of various analytes presents in different ore samples by volumetric, gravimetric methods.
4. Determination of various analytes presents in different ore samples by spectrophotometric methods.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	2	3	3	3	2	3	3
CO2	3	3	3	3	2	2	2	3	3	2	3	3

CO3	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**3**	**3**	**3**	**3**	**3**
CO4	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**3**	**2**	**3**	**3**
W.A	**3**	**3**	**3**	**2.75**	**2**	**2.25**	**2.25**	**3**	**3**	**2.25**	**3**	**3**

CHO SCT: 3.43.

Carbohydrates, Proteins and Nucleic Acids + Organic Chemistry Practicals-III

Course outcomes

1. Synthesis, industrial and biological importance of carbohydrates.
2. General synthesis of amino acids, peptides, nucleic acids and their biological significance.
3. The isolation of caffeine, carotene, lycopene, cincole, azelaic acid and piperine from respective natural sources. Estimation of ketones, sugars, nitro and amino groups in natural products.
4. 4. Interpret UV, IR, NMR and MS data of different organic compounds.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**2**	**3**
CO2	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**2**	**3**
CO3	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**3**
CO4	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**3**	**2**	**3**	**3**
W.A	**3**	**3**	**3**	**2.75**	**3**	**3**	**2**	**2**	**3**	**2**	**2.5**	**3**

IV Semester courses

CHI HCT: 4.1. Bioinorganic Chemistry Course outcomes

Course outcomes

1. Structural building blocks of proteins, nucleic acids and their metal ion interactions.
2. Biochemical reactions of several metallo- enzymes and oxygen transport proteins.
3. Medicinal applications of metals and metal complexes, and also treatment of toxicity due to heavy metal ions

.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	3	3	3	3	2	3	3
CO2	3	3	2	3	3	3	3	3	3	2	2	3
CO3	3	3	2	3	2	3	3	3	3	2	2	3
W.A	3	3	2	3	2.66	3	3	3	3	2	2.33	3

CHO HCT: 4.2. Photochemistry, Pericyclic Reactions and Organometallic Chemistry

Course outcomes

1. Basic concepts of photochemistry and pericyclic reactions and their usefulness in the synthesis of many organic compounds.
2. Synthesis of organic compounds using different organometallic compounds as catalysts.
3. Asymmetric synthesis of organiccompounds using chiral compounds.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	2	3	3	3	3	3	3	3	3	2
CO3	3	3	2	3	3	3	3	3	3	3	3	2
W.A	3	3	2	3	3	3	3	3	3	3	3	2.33

CHP HCT: 4.3. Physical Chemistry-IV

Course outcomes

1. Applications of reaction kinetics help in correlating the rates of biological and chemical reactions.
2. Theory and applications statistical thermodynamics.
3. Fundamentals of X-ray crystallography and structural interpretation by various X-ray diffraction techniques

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	2	3	2	3	3	3	3	3	3	3
CO3	3	3	2	3	2	3	3	3	3	3	3	3
W.A	3	3	2	3	2.33	3	3	3	3	3	3	3

CHP SCT: 3.44.

Applications of Electrochemistry and Corrosion + Physical Chemistry Practical – III

Course outcomes

1. Basic concepts of electrochemical methods
2. Theory and applications of Corrosion and Corrosion inhibitors.
3. Students can able to develop experimental skill and interpretation of plausible mechanisms of reactions.
4. This helps in academics, research and Industries

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	2	3	3	3	2	2	3
CO2	3	3	3	3	2	2	2	3	3	2	2	3
CO3	3	3	3	3	2	2	2	3	3	2	2	3

CO4	**3**	**3**	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**2**	**2**	**3**
W.A	**3**	**3**	**3**	**3**	**2**	**2.25**	**2.25**	**3**	**3**	**2**	**2**	**3**

CHP.HC. 4.4: PROJECT WORK

Course outcomes:

1. Enhanced Practical skills.

2. Identify the research problem and design the new research work.

3. Exposure to industrial environment and enriching the knowledge in industrial assessment.

Course Articulation Matrix

POs / COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
CO2	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2**
CO3	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2**
W.A	**3**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**2.33**

DEPARTMENT OF MICROBIOLOGY

M.Sc. in Microbiology

Course outcomes and course Articulation Matrix with tables

Programme Outcomes:

1. Students will have a strong foundation in the fundamentals and applications of current theoretical and practical Microbiology in Microbial culture, Identification, Biochemical analysis and Biological activities from microbial metabolites
2. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
3. Students will be able to design and carry out scientific experiments and accurately record and analyze the results of the experiments.
4. Students will be able to explore new areas of research in both microbiology and other fundamental life science fields such as Biochemistry and Biotechnology.
5. Students will understand the central role of microbiology to our society which includes understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
6. Create awareness and sense of responsibilities towards environment and apply knowledge to solve the issues related to health and environmental concern.
7. Apply knowledge to build up small scale industry for developing endogenous product
8. Apply various aspects of microbiology in natural products isolations, pharmaceuticals, dyes, textiles, polymers, petroleum products, forensic etc. and also to develop interdisciplinary approach of the subject.
9. The course curriculum incorporates basics and advanced training in order to make a student capable of expressing the subject through technical writing as well as through oral presentation.
10. Provide an opportunity to act as team player by contributing in laboratory, field-based situation and industry.
11. Use modern techniques, decent equipment's and analytical software's.
12. A post-graduation in Microbiology provides the opportunities in educational sector, pharmaceutical companies and chemical industries.

I Semester courses

HC: 22E101

Bacteriology

Course outcomes

1. The structure of bacteria and its identification
2. The different agents to inhibit bacteria
3. The concept and working principles of microscopes
4. Classification and salient features of different groups of bacteria

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	2	3	3	2	3	3

HC: 22E102

Virology

Course outcomes

1. Structure and functioning of viruses
2. Infectious cycle and replication pattern
3. Viruses as tool for vaccination
4. Host and virus specific responses

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

HC: 22E103

Techniques in Biology

Course outcomes

1. This paper is designed to give a brief introduction to most of the techniques used in the field of biological analyses
2. Nevertheless the topics in this paper are to be taught compendiously.
3. Techniques in Biology
4. The fundamental principles in cell homogenization

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	2	3	3	3	2	3	3	3

HC: 22E104

Molecular Cell Biology

Course outcomes

1. The Cellular organization.
2. Study of phytochemicals in cancer biology.
3. Signaling transduction in cells.
4. Structure and function of cell.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	2	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	2	3	3	3	3	3	3

SC : 22E107

Environmental Microbiology

Course outcomes

1. The evolution of life, microorganisms and soil interaction
2. Adaptation of microorganisms
3. The ecological succession of microorganisms and its adaptation
4. Bioremediation concept of microorganisms

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	2	3	3	3

PRACTICAL IA: 22E105

Techniques in Biology & Bacteriology & Virology

Course outcome

1. Structure and functioning of viruses
2. Infectious cycle and replication pattern
3. The fundamental principles in cell homogenization
4. The concept and working principles of microscopes

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

PRACTICAL IB: 22E106

Molecular Cell Biology & Environmental Microbiology

Course outcomes

1. Phytochemical role in cellular process and cancer biology
2. Importance of growth factors and cellular signalling.
3. Importance of bioanalytical techniques
4. Techniques in Biology

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

II Semester courses

FCHC: 22E201

MOLECULARBIOLOGY

Course outcomes

1. To understand biological activities and metabolism at DNA and protein level
2. The course gives an in-depth insight into the molecular aspects of life - the central dogma.
3. It explains molecular aspects of genes and its regulation- genome- gene expressions heredity- recombination- protein synthesis- molecular basis of diseases-mutations genetic analysis etc.
4. The student will get an idea about the principles behind molecular biology

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3	3

CO4	3	3	3	3	3	3	3	2	3	3	3	3

FCHC: 22E202

GENETIC ENGINEERING

Course outcomes

1. The basics of Genetic engineering.
2. Basic principles of gene cloning and gene products.
3. Applied aspects of Genetic engineering
4. Importance of Recombinant DNA Technology

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	2	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

SOFTCORE: 22E205

MICROBIAL PHYSIOLOGY

Course outcomes

1. This course deals with characteristics, properties and biological significance of the biomolecules of life.
2. In depth knowledge of the energetic and regulation of different metabolic processes In microorganisms.
3. The student develops understanding of the laws of thermodynamics, concepts of entropy, enthalpy and free energy changes and their application to biological systems and various biochemical studies and reactions.
4. Conceptual knowledge of aerobic and anaerobic respiration and various intermediary mechanisms involved, oxidative phosphorylation.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	2	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

FCSC: 22E206

MOLECULAR DIAGNOSTICS (FCSC)

Course outcomes

1. The course focuses on learning and understanding how the various molecular techniques that were studied can be developed and utilized indiagnosis.
2. The course explains common analytical techniques and molecular techniques related to the development and use of diagnostics.
3. Students learn about the clinical applications of molecular diagnostic in patients with infectious disease.
4. The student will get an idea about the concept of molecular diagnosis and underpinning the successful application of gene therapy or biologic response modifiers as well they can find their future focus in biotechnology companies developing and marketing Diagnostic kits.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

SC: 22E303

Genetics

Course Outcome

1. The basics of genetic transmission
2. Study on microbial genetic factors and mutation.
3. Study on genetic basis of sex determination and transposable elements
4. Mendel's Experiments and extra nuclear inheritance

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3

CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

PRACTICALS IIA: 22E203

Molecular Biology & Genetic Engineering

Course outcomes

1. Makes students to understand the basic molecular tools and its application in basic research and applied research in various fields of lifesciences.
2. The fundamental cloning vectors.
3. Preparation of probes and its application in scientific fields
4. The course gives an in-depth insight into the molecular aspects of life - the central dogma

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

PRACTICALS IIB: 22E204

Microbial Physiology

Course Outcome

1. Overview of major biomolecules: Classification, structure, function of carbohydrates, lipids, proteins, aminoacids, nucleic acids.
2. Discuss the biosynthesis and the degradation pathways involved in the physiology of microbes.
3. Conceptual knowledge of properties, structure, function of enzymes, enzyme kinetics and their regulation, enzyme engineering, Application of enzymes in large scale
4. This course deals with characteristics, properties and biological significance of the biomolecules of life.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

III Semester courses

HC: 22E301

MEDICAL MICROBIOLOGY

Course outcomes

1. Basis of microbial infection
2. Mode of action of drugs on microbes
3. Diagnosis of microbial infectious diseases
4. Transducing signals in host

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

FCHC: 22E302

IMMUNOLOGY

Course outcomes

1. Role of immune system in maintaining health
2. Cellular and molecular basis of immune responses
3. How immune responses are triggered and regulated
4. Organs, tissues, cells and molecules of the immune system

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

FCHC: 22E03

FOOD MICROBIOLOGY

Course outcomes

1. Basis of food borne microbes
2. Nutritive value of foods/neutraceuticals
3. Food bore pathogen detection
4. Expertise in detecting food poisoning

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

SC: 22E306

MYCOLOGY

Course outcomes

1. Basis of fungal taxonomy
2. Fungal characteristics' and its economic importance
3. Expertise in detecting fungal identification
4. Interaction of fungus with different commodity

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

SC: 22E307
Agricultural Microbiology

Course outcomes

1. This paper of microbiology and biochemistry of soil is designed with the objective to provide general introduction of soil and in depth information on soil microbial diversity and the role of microorganisms in biogeochemical cycling of elements like C,N,P and trace elements and soil fertility.
2. The importance of physical, chemical and biological properties of soil.
3. Role of microorganisms in biogeochemical cycling.
4. Microbiology and physiology of degradation of native and organic matter and Nitrogen fixation.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	2	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

SC: 22E308

GENOMICS ANDPROTEOMICS

Course outcomes

1. The concepts of genome, genome sequencing and genome mapping
2. The knowledge about structural and functional proteomics
3. Next generation sequencing, Human Genome Project.

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	2	3	3	3	3	3	3
CO2	3	3	3	3	3	2	3	3	3	3	3	3
CO3	3	3	3	3	3	2	3	3	3	3	3	3
CO4	3	3	3	3	3	2	3	3	3	3	3	3

PRACTICALS IIIA: 22E304

Immunology & Medical Microbiology & Food Microbiology

Course outcomes

1. The immunological methods used to detect the disease
2. How the knowledge of immunology can be transferred into clinical decision-making through case studies presented in class
3. Interaction of microbes with different food commodity
4. The role of molecular markers in comparative genomics

Course Articulation Matrix

CO/PO												
CO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

PRACTICALS IIIB: 22E305

Course outcomes

1. The fundamental of recombination and mapping
2. Importance of chromosomal sex determination and transposition mechanism
3. Importance of fungi as protein supplements
4. Genetic and physical maps, markets for genetic mapping

CO/PO												
CO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

IV Semester courses

HC: 22E401

Research Project Work

1. Students will able to choose an appropriate topic for study and will able to clearly formulate and state research problems
2. Students will be able to complete the relevant literature and frame hypothesis for research
3. Students will able to plan research design
4. Student will able o compile relevant data, interpret and analyze it and test the hypothesis where ever applicable
5. Students will able to defend his /her work in front of a panel of examiners

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	2	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3

HC: 22E402

Industrial Microbiology

Course outcomes

1. Industrial microbiology & fermentation contains improved biochemical or physiological fermentation are mainly carried out by fungi and bacteria on large scale to produce commercial products.
2. The main objective of industrial fermentation is to produce highest quality and quantity of particles produce by combining.
3. Microbes involved in fermentation.
4. The basics of fermentation technology

Course Articulation Matrix

CO/PO												
CO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3

CO4	3	3	3	3	3	3	3	3	3	3	3	3

DEPARTMENT OF SOCIAL WORK

Course outcomes and course Articulation Matrix with tables

PROGRAMME OUTCOME

1. The Social Work trainees shall apply the foundation knowledge, skills, values and ethics of social work practice in the assessment and treatment of individuals, families, groups, organizations, and communities and be able to make a career in social work practice.
2. Demonstrate an understanding and appreciation for human diversity, to engage in non-discriminatory culturally sensitive practice that seeks social and economic justice for clients, provide service to those who are in need of it.
3. Recognize him/her self as a Professional Social Worker.
4. Facilitate inter-disciplinary collaboration for better understanding of human problems, services and issues related to human development.
5. Develop a professional identity as a social worker by applying professional values and ethics to social work practice.
6. Link theory with practice in every sphere of human service interventions.
7. To develop requisite knowledge, skills and values in working with people.
8. Establish an interaction between social scientists, activists, policy makers and planners
9. Promotes among learners a sense of responsibility and commitment to work with different sections of people and especially of the vulnerable sections of the society
10. Promotes opportunities and to create awareness for personal growth.
11. Develops creative thinking and ability to apply theoretical knowledge in practice of social work
12. Ability to identify ways that they can maximize the strengths of the client context to design and promote effective programs for clients

Honor's level odd semester (I Semester)

SOCIAL WORK - HISTORY AND IDEOLOGIES

Course Outcomes (COs):
CO 1: To understand history and evolution of social Work profession, both in India and the West.
CO2: To develop insights into the origin and Development of Ideologies and Approaches to social Chang
CO 3: To develop Skills to understand contemporary reality in its historical context.

Course Articulation Matrix - Social Work – History and Ideologies HC												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	2	3	3	3	2	3	3	3	3	2
CO3	2	3	3	3	3	3	3	3	3	2	3	3
Weighted Average	2.7	3	2.7	3	3	3	2.7	3	3	2.7	3	2.7

SOCIETY AND DYNAMICS OF HUMAN BEHAVIOUR

Course Outcomes (COs)
CO 1: Acquaint themselves with the basic concepts of Sociology like society, community, association, culture, social change, social stratification etc.
CO 2: Know the basic social institutions like family, marriage, kinship in a scientific way
CO 3: Explain social change and the factors affecting social change. Realize the importance of cultural lag to understand social change
CO 4: To understand psychological concepts and its relevance to Social Work

Course Articulation Matrix - Course name: Society and Dynamics of Human Behavior (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3	3	2
CO3	2	3	3	3	3	2	3	2	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	2.7	3	3	2.7	3	2. 7	3	2.7	3	3	3	2.7

WORK WITH INDIVIDUALS AND FAMILIES

Course Outcomes (COs):

CO 1: To understand the individual, family and their problems and the social contextual factors affecting them.
CO 2: To understand Social Casework as a method of Social Work practice.
CO 3: To develop an understanding of application of case works in diverse settings.

Course Articulation Matrix - Work with Individuals and Families (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

Work with Groups

Course Outcomes (COs):
CO 1: Ability to Understand the nature and types of groups.
CO 2: Understand Social Group Work as a method of Social Work practice
CO 3: Know the basic concepts, tools, techniques, processes and Skills of working with groups.

Course Articulation Matrix - Work with Groups (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO 11**	**PO 12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

WORK WITH COMMUNITIES

Course Outcomes (COs):
CO 1: Understand the fundamental concepts and components of community, community organization and social action
CO 2: Understand the models of community organization and social action
CO 3: Understand the relationship of community organization and soScial action with other methods of social work.
CO 4: Understand various social movements in India

Course Articulation Matrix - Work with Communities (HC)

CO/PO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

SOCIAL WORK PRACTICUM – I

Course Outcomes (COs):	
CO 1:	Work in agencies working in different types of areas of Social Work practice
CO 2:	Develop work plan in consultation with agency supervisor
CO 3:	Develop capacity for observation and analysis of social realities
CO 4:	Practice the methods of working with individuals and groups
CO 5:	Develop understanding of the needs, problems and Programmes for different target groups

Course Articulation Matrix - Social Work Practicum – I (HC)												
CO/PO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO12
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

Honor's level even semester (II Semester)

MANAGEMENT OF DEVELOPMENTAL ANDWELFARE

SERVICES

Course Outcomes (COs):
CO 1: Understand the administration of welfare organizations and civil society organization / Non Government organization.
CO 2: Understand the scope for social work in welfare organizations and NGO's
CO 3: Understand the scope for social work in welfare organizations and NGO's
CO 4: Develop knowledge about registration procedure of organization

Course Articulation Matrix - Management of Developmental and Welfare Services (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	2	3	3	3	3
CO2	3	3	3	3	3	3	2	3	3	3	3	2
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	2.7	3	3	3	3	2.7

SOCIAL WORK RESEARCH AND STATISTICS

Course Outcomes (COs):
CO 1: Gain understanding of nature and relevance of social science research and its application in the study of social phenomena.
CO 2: Learn steps and process of formulation of research design and carry out the same.
CO 3: Learn method of conducting a review of literature.
CO 4: Develop familiarity with qualitative and quantitative research methods
CO 5: Learn how to prepare tools for collection of data
CO 6: Learn process of data collection, organization, presentation, analysis and report Writing.

Course Articulation Matrix - Social Work Research and Statistics (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

SOCIAL WORK PRACTICUM – II

Course Outcomes
CO 1: Provides an opportunity to experience rural life, analyze rural dynamics, and observe the functioning of local self-government and voluntary organisations

CO 2:	Aids peer participation in planning for activities for own group and those for local people
CO 3:	Helps develop skills to carry out, evaluate, and report the experience.

Course Articulation Matrix - Social Work Practicum – II (Social Work Camp and Summer Placement)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	3	3	3	3	3	3	3	3	3	3	3
CO2	2	2	3	2	3	3	2	2	2	2	2	3
CO3	2	3	3	3	2	3	3	2	3	3	3	2
Weighted Average	2	2. 7	3	2. 7	2. 7	3	2.7	2. 3	2. 7	2.7	2.7	2.7

SOCIAL WORK PRACTICUM – III

Course Outcomes (COs):	
CO 1:	Develop work plan in consultation with agency supervisor
CO 2:	Continue practicing the methods of working with individuals and groups
CO 3:	Identify and utilize human, material and financial resources
CO 4:	Develop process-oriented skills of working with individuals, families and groups with special reference to social support system

Course Articulation Matrix - Social Work Practicum – III												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	2	3	3	3	2	3	3
CO3	3	3	3	2	3	3	3	3	3	2	3	3
Weighted Average	3	3	3	2	3	2.7	3	3	3	2.3	3	3

COMMUNICATION AND COUNSELING

Course Outcomes (COs):	
CO 1:	Provides an opportunity to experience rural life, analyze rural dynamics, and observe the functioning of local self-government andvoluntary organizations
CO 2:	Aids peer participation in planning for activities for own group and those for local people
CO 3:	Helps develop skills to carry out, evaluate, and report the experience.

Course Articulation Matrix -Communication and Counseling (SC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2

CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

GANDHIAN APPROACH TO WELFAREAND DEVELOPMENT

Course Outcomes (COs):
CO 1: Understand the applicability of Gandhian methods in the contemporary political, economic and social demines.
CO 2: Perceive, understand and appreciate the socially relevant ideals of Gandhi.
CO 3: analyze the simple living, struggle for truth and principle of nonviolence practiced and propagated by Mahatma Gandhi.

Course Articulation Matrix - Gandhian Approach to Welfare and Development (SC)												
CO/PO	**PO1**	**PO2**	**PO 3**	**PO4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

PERSONAL AND PROFESSIONAL GROWTH

Course Outcomes (COs):
CO 1: Deep and well-informed awareness of their own skills, knowledge, and professional attributes interests, values and personality, and how these can be deployed in a variety of contexts. An ability to articulate their learning and development, critically
CO 2: Reflect on experiences (academic, extra-curricular, work and life), identify strengths, and to act on areas requiring further development.
CO 3: A critical awareness of personal capabilities, strengths and potential, and be able to communicate these constructively and realistically for a variety of contexts.

Course Articulation Matrix - Personal and Professional Growth (SC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	2	2	3	2	3	3	2	2
CO3	3	2	3	3	3	3	2	2	3	2	3	3
Weighted Average	3	2.3	3	3	2. 7	2.7	2.7	2.3	3	2.7	2.7	2.7

POPULATION AND ENVIRONMENT

Course Outcomes (COs):
CO 1: Understand the concept of population
CO 2: Develop skills for planning and implementing Family Planning and welfare programmes.
CO 3: Study role of social workers in family welfare programmes and Environment Change.

Course Articulation Matrix - Population and Environment (SC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

SOCIAL WORK PRACTICE WITH CHILDREN

Course Outcomes (COs):
CO 1: Able to deliver services for children in appropriate manner.
CO 2: Students will be able to design, implement and evaluate a variety of strategies to provide services for Children

Course Articulation Matrix - Social Work Practice with Children (OE)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

SCIENCE OF CRIME, PENOLOGY AND SOCIAL WORKPRACTICE

Course Outcomes (COs):
CO 1: Understand major forms of crime
CO 2: Gain knowledge about major theories of crime
CO 3: Practice correctional Social Work in different institutional and no institutional settings
CO 4: Understand provisions of various social legislations in India

Course Articulation Matrix - Science of Crime, Penology and Social Work Practice (OE)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

Masters level- odd semester (III Semester)

HUMAN RESOURCE MANAGEMENT

CO 1:Course Outcomes (COs):
CO 2: Develop necessary skill set for application of various HR issues.
CO 3: Develop the understanding of the concept of human resource management and to understand its relevance in organizations
CO 4: Analyze the strategic issues and strategies required to select and develop manpower resources.
CO 5: Integrate the knowledge of HR concepts to take correct business decisions.

Course Articulation Matrix - Human Resource Management (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

SOCIAL WORK PRACTICUM - IV

Course Outcomes (COs):
CO 1: Shall initiate and participate in direct service delivery.
CO 2: Work in sensitive areas like work with alcoholics, HIV/AIDS affected persons, adolescents for life ski11s development, youth for leadership development and couples for marital relationship and **CO 3:** enrichment work with elderly.
CO 4: Shall identify research areas in the community

Course Articulation Matrix - Social Work Practicum - IV (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	2	2	3	3	3	3	3
CO3	3	3	3	2	3	3	3	3	2	2	3	2
Weighted Average	3	3	3	2	3	2.7	2.7	3	2.7	2.7	3	2.7

SOCIAL WORK WITH TRIBAL AND RURAL COMMUNITIES.

Course Outcomes (COs):
CO 1: Able to Understand Tribal Community
CO 2: Develop adequate skills to prepare and implement integrated development plan & projects for tribal Communities
CO 3: Develop trainees as competent change agent in the field of tribal development.

Course Articulation Matrix - Social Work with Tribal and Rural Communities (SC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	2	3	3	3	3	3	3	3	3
CO2	3	3	3	2	3	3	3	3	3	3	2	3
CO3	3	3	3	2	3	3	2	3	2	3	3	3
Weighted Average	3	3	3	2	3	3	2.7	3	2.7	3	2.7	3

ORGANIZATIONAL BEHAVIOUR AND ORGANIZATIONALDEVELOPMENT

Course Outcomes (COs):
CO 1: Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization.
CO 2: Analyze the complexities associated with management of the group behavior in the organization
CO 3: Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.

Course Articulation Matrix - Organisational Behavior and Organisational Development (SC3)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	2	3	3	3	3	3	3	2	3
CO2	2	3	2	2	3	3	2	3	2	3	2	3
CO3	3	3	2	2	3	3	3	3	3	3	2	3
Weighted Average	2.7	3	2.3	2	3	3	2.7	3	2.7	3	2	3

PREVENTIVE AND SOCIAL MEDICINE AND MEDICALSOCIAL WORK

Course Outcomes (COs):
CO 1: Able to Understand the concept and dimensions of health.
CO 2: Able to Analyze issues related to the prevention, clinical features and treatment of major communicable and non-communicable diseases.
CO 3: Able to analyze Nature of medical social work services
CO 4: To gain understanding on health care services at different levels.

Course Articulation Matrix - Preventive and Social Medicine and Medical Social Work (SC4)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**

CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

REHABILITATION AND AFTER CARE SERVICES

Course Outcomes (COs):
CO 1: Articulate the principles of independence, inclusion, choice and selfdetermination, empowerment, access, and respect for individual differences
CO 2: apply the principles of disability-related legislation including the rights of people with disabilities to the practice of rehabilitation counseling
CO 3: To develop understanding on different rehabilitation settings, different therapeutic approaches to rehabilitation process.

Course Articulation Matrix - Rehabilitation and Aftercare Services (SC4)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

SOCIAL POLICY, PLANNING AND DEVELOPMENT

Course Outcomes (COs):
CO 1: Develop understanding of the concept of social policy and social planning
CO 2: Understand Concept and nature of Development and Human Development
CO 3: Understand concept of social welfare and social welfare administration
CO 4: Acquire the social work skills adapted to facilitate the process of rehabilitation, the rights and legal provisions provided for differently abled people and assimilate the knowledge of social work practice to disability specific client service

Course Articulation Matrix - Social Policy, Planning and Development(SC5)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2

Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

LEGAL SYSTEM IN INDIA

Course Outcomes (COs):	
CO 1:	Understand key concepts of deviance and crime
CO 2:	Practice correctional Social Work in different institutional and noninstitutional settings
CO 3:	Understand provisions of various social legislations in India

Course Articulation Matrix -Legal System in India (SC5)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	2	2	2	2	2	2	2	2	2	2	2
CO2	3	3	2	2	3	2	2	2	2	2	2	2
CO3	3	2	2	2	2	2	2	2	3	2	3	3
Weighted Average	3	2.3	2	2	2.3	2	2	2	2.3	2	2.3	2.3

GERONTOLOGICAL SOCIAL WORK

Course Outcomes (COs):	
CO 1:	Able to understand perspectives on aging
CO 2:	Able to understand challenges and problems
CO 3:	Able to Demonstrate awareness in National Policy on Older Persons

Course Articulation Matrix -Gerontological Social Work (OE)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2

MANAGEMENT OF NON- GOVERNMENTALORGANIZATIONS

Course Outcomes (COs):

CO 1:	Able to understand role of NGOs in societal development
CO 2:	Understand the procedures for registration of NGOs
CO 3:	To provide managerial training and skills
CO 4:	Enhance the knowledge on the fundamentals of accounting

Course Articulation Matrix –Management of Non-Governmental Organizations(OE)

CO/PO	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO 8	PO 9	PO10	PO11	PO12
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

Master's level even semester (IV Semester)

EMPLOYEE RELATIONS AND LEGISLATIONS

Course Outcomes (COs):
CO 1: Know the development and the judicial setup of Labour Laws.
CO 2: Describe the knowledge of Industrial Relations.
CO 3: Learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline.
CO 4: Apply the Industrial Disputes Act for employee

Course Articulation Matrix -Employee Relations and Legislation (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

MENTAL HEALTH AND PSYCHIATRIC SOCIALWORK

Course Outcomes (COs):
CO 1: Able to understand psychological concepts and its relevance to Social Work
CO 2: Able to understand the basic concepts and processes in social psychology and its relevance to Social Work
CO 3: Able to understand determinants and processes of personality development
CO 4: Able to understand social attitudes and psycho-social behaviour

Course Articulation Matrix -EMental Health and Psychiatric Social Work (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

MAJOR PROJECT

Course Outcomes (COs):
CO 1: Develop ability to initiate and conduct research

CO 2: Develop research Skills of identifying and selecting a research area and preparing research proposal
CO 3: Develop skills of doing literature review and steps of research methodology
CO 4: Familiarised with the process of data analysis and report writing
CO 5: To understand ethical considerations of research

Course Articulation Matrix -Major Project (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	3	3	3	3	3	3	3
CO4	3	3	3	3	3	3	3	3	3	3	3	3
Weighted Average	3	3	3	3	3	3	3	3	3	3	3	3

SOCIAL WORK PRACTICUM – V

Course Outcomes (COs):
CO 1: Shall initiate and participate in direct Service delivery.
CO 2: Work in areas like work with Human Resource Management, Psychiatric SocialWork and key areas
CO 3: Shall identify research areas in the community

Course Articulation Matrix -Social Work Practicum – V (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	3	3	3	3	3	3	2	2	3	3
CO2	3	3	3	3	3	3	3	3	2	2	3	3
CO3	3	3	3	3	3	3	3	3	2	2	3	3
Weighted Average	3	3	3	3	3	3	3	3	2	2	3	3

SOCIAL WORK PRACTICUM – VI: (BLOCK PLACEMENT)

Course Outcomes (COs):
CO 1: Shall work in an organization continuously for 6 weeks and understand the work place better
CO 2: Work in areas relevant to social work interventions
CO 3: Shall identify research areas in the community / Human Resource Management / Psychiatric SocialWork

Course Articulation Matrix -SOCIAL WORK PRACTICUM – VI: (BLOCK PLACEMENT)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	3	2	2	3	3	3	2	2	3	3	3
CO2	3	3	2	2	3	3	3	2	2	3	3	3
CO3	3	3	2	2	3	3	3	2	2	3	3	3
Weighted Average	3	3	2	2	3	3	3	2	2	3	3	3

HUMAN RESOURCE DEVELOPMENT ANDEMPLOYEE

Course Outcomes (COs):
CO 1: Understand key functions in management as applied in practice.
CO 2: Understand and analyze different tends in HRD that have influenced both Human Resource Development and Human Development.
CO 3: Provide in-depth knowledge into the issues related to trainee, the trainer organization in the context of training and learning process
CO 4: Provide inputs on assessment and evaluation of training programme this is essential to determine training effectiveness

Course Articulation Matrix -Human Resource Development and Employee Wellness (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	3	2	2	2	3	2	2	2	2	2	2	2
CO2	3	2	2	2	3	2	2	2	2	2	2	2
CO3	3	2	2	2	3	2	2	2	2	2	2	2
CO4	3	2	2	2	3	2	2	2	2	2	2	2
Weighted Average	3	2	2	2	3	2	2	2	2	2	2	2

CASE STUDIES

Course Outcomes (COs):
CO 1: Analyze the case using relevant theoretical concepts from unit
CO 2: Offer learners an opportunity to think and act critically reflect on their process of thinking and action and its consequences

Course Articulation Matrix -Case studies (HC)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

DISASTER MANAGEMENT

Course Outcomes (COs):
CO 1: Able to concepts, theories and approaches of disaster management with specific reference to Indian context
CO 2: Develop skills to analyse factors contributing to disaster
CO 3: Develop an understanding of the process of disaster management
CO 4: Develop an understanding of the social worker's role in the team for disaster management.

Course Articulation Matrix -Disaster Management (OE)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
CO4	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2

CORRECTIONAL ADMINISTRATION AND SERVICES

Course Outcomes (COs):
Able to recognize correctional institution and non-institutional programmes.
To gain understanding different services for juvenile, young and adults offenders and also to understand the legal provisions and procedures for their assistance
Ability to identify structure, function, treatment and facilities provided by the institutions.

Course Articulation Matrix -Correctional Administration and Services (OE)												
CO/PO	**PO1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO7**	**PO 8**	**PO 9**	**PO10**	**PO11**	**PO12**
CO1	2	2	2	2	2	2	2	2	2	2	2	2
CO2	2	2	2	2	2	2	2	2	2	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2	2	2
Weighted Average	2	2	2	2	2	2	2	2	2	2	2	2