SCHOOL OF MANAGEMENT

DEPARTMENT OF BANKING TECHNOLOGY

<u>MBA: BANKING TECHNOLOGY DEGREE PROGRAMME</u>

COURSE OUTCOME

BRIDGE COURSES

1. **Course Code: MBABT 301:**
   Course Title: **BASICS OF BUSINESS**
   1. Introduce the students to understand basics of Business
   2. Provide an overview on Indian Industrial environment
   3. A prelude to institutional environment for Industrial Finance

2. **Course Code: MBABT 302:**
   Course Title: **BASICS OF COMPUTER PROGRAMMING**
   1. Understanding of Programming
   2. Understanding of Object Oriental Programming
   3. Understanding of Client Sever Programming

3. **Course Code: MBABT 303:**
   Course Title: **BASICS OF ACCOUNTING**
   1. Understanding Basic Principles of Accounting
   2. Hands on skills in preparing Financial Statements of a Business enterprise
   3. Accounting Principles and Conventions

4. **Course Code: MBABT 304:**
   Course Title: **BASICS OF ACCOUNTING**
   1. Understanding of Business Environment
   2. Enhancing the Business communication skills

I SEMESTER - HARD CORE

1. **Course Code: MBABT 411:**
   Course Title: **BASICS OF BUSINESS COMMUNICATION**
   1. To prepare the students with the methodology of decision making using the concepts of microeconomics.
   2. Facilitate Understanding the functioning of markets in theory and practice.
   3. Provides a brief background of macroeconomics fundamentals of Indian economy.

2. **Course Code: MBABT 412:**
   Course Title: **MANAGEMENT CONCEPTS AND ORGANIZATIONAL BEHAVIOUR**

   1. To make the student understand the basic management concepts and the principles
   2. To impart the skills to manage various functions of business organizations in order to provide the professional approach and outlook.

3. **Course Code: MBABT 413:**
   Course Title: **ACCOUNTING FOR MANAGERIAL DECISION MAKING**
   1. To introduce the Basic Concepts of Financial Accounting

2. To familiarize the students with financial statements and principles underlying them and to develop their skills in reading Annual Reports
3. To acquaint them in brief with accounting mechanics, process and system, but emphasis is laid on sound concepts and their managerial implications
4. To lay a foundation for developing their skills in interpreting financial statements
5. To develop an appreciation about the utility of cost information as a vital input for management decision making

4. **Course Code: MBABT 414:**
   Course Title: **QUANTITATIVE TECHNIQUES FOR MANAGEMENT**
   1. Understanding of Correlation and Regression
   2. Understanding of Probability, Sampling and Testing of Hypothesis
   3. Understanding of Linear Programming and Assignment Problems

5. **Course Code: MBABT 415:**
   Course Title: **INDIAN BANKING and FINANCIAL SYSTEM**
   1. To Introduce the Basics of Indian Financial Systems
   2. To understand the functioning of Money Market and Capital Market
   3. To provide the basic objectives of Regulating Agencies like SEBI

6. **Course Code: MBABT 416:**
   Course Title: **SYSTEMS ANALYSIS AND DESIGN**
   1. To teach techniques and approaches to students so that they may analyze business systems
   2. To develop business systems more effectively and efficiently.

7. **Course Code: MBABT 417:**
   Course Title: **DATA STORAGE AND DATA CENTER MANAGEMENT**
   1. Understanding of Storage Technology
   2. Understanding of Networked Storage
   3. Understanding of Data Center

8. **Course Code: MBABT 418:**
   Course Title: **BUSINESS SYSTEM ANALYSIS LAB – USING OOMD**
   1. This course gives a hands-on-experience to the students to build OO systems
   2. To manage the financial information systems using object-oriented design by applying established design principles using UML diagrams.

9. **Course Code: MBABT 419:**
   Course Title**: Comprehensive Viva**
   1. To examine the knowledge acquired by students by studying various subjects during this semester.

II SEMESTER – HARD CORE

1. **Course Code: MBABT 421:**
   Course Title**: HUMAN RESOURCE MANAGEMENT**
   1. To make the student understand the basic concept and significance of organizational behavior
   2. To impart the skills to manage various functions of Human Resource Management in order to provide the professional approach and outlook.

2. **Course Code: MBABT 422:**
   Course Title**: FINANCIAL MANAGEMENT**

1. To make the student understand the basic concept of Financial Leverage and Capital budgeting
2. To impart the skills to manage various functions of Financial Management in order to provide the professional approach and outlook.

3. **Course Code: MBABT 423:**
Course Title**: MARKETING MANAGEMENT**
Present to the students an insight into the basic concepts of marketing, impart a grasp on the marketing management as a function of business management and understand the elements of marketing and marketing mix-strategies and developing the skills towards applications for managerial decision-making.

4. **Course Code: MBABT 424:**
Course Title**: CORPORATE STRATEGY MANAGEMENT**
To introduce and make the students understand the strategic management process and levels and to help students identify and link Strategy formulation and implementation with environmental analysis and develop learning and analytical skill of the students to solve business cases and provide strategic solutions to various business issues

5. **Course Code: MBABT 425:**
Course Title**: RETAIL BANKING**
The objective of this course is to prepare the students to acquire required knowledge and skills for practical banking operations. The course facilitates learning of banking practices with special focus on retail banking operations

6. **Course Code: MBABT 426:**
Course Title**: BANKING TECHNOLOGY MANAGEMENT**
   1. Understanding of Banking Channels and Payments
   2. Practices on Banking Technology
   3. Understanding of Core Banking

7. **Course Code: MBABT 427:**
Course Title**: INFORMATION SECURITY FOR BANKS**
   1. Understanding of Data Security
   2. Understanding of Securing Infrastructure Services
   3. To introduce recent trends in security

8. **Course Code: MBABT 428:**
Course Title**: BANKING CHANNELS AND MIDDLEWARE LAB**
This lab imparts knowledge of design and development of banking software like Mobile Banking, Internet Banking, ATM system and Financial Middleware. Also, it focuses on a detailed study on the recent core banking software.

9. **Course Code: MBABT 429:**
Course Title**: Comprehensive Viva**
   1. To examine the knowledge acquired by students by studying various subjects during this semester.

III SEMESTER – HARD CORE

1. **Course Code: MBABT 510:**
Course Title**: BANKING PRACTICES SUMMER INTERNSHIP**
Banking Internship is to be carried out for 2 months in a Bank Branch. Students should attend to different regular activities of a Bank. All public sector /Private Sector bank branches with different operations like different deposit accounts, Credit facilities for Agricultural Loans, Educational Loans, Working capital Trade credit etc are the Branches were students should undertake This Internship Minimum 45 Physical attendance for

Full day is Mandatory. A report is to be prepared on the following topics with copies of forms, documents of that given bank duly certified by the Branch Manager is to be submitted and it will be evaluated by 2 DGM/AGM level Bank officers. A viva will be conducted to evaluate the Knowledge and skills learned by students during 2 months Long Internship.

2. **Course Code: MBABT 511:**
   Course Title**: BANK FINANCIAL MANAGEMENT**
   The objective of this course is to prepare the students to deal with the issue of management of various financing activities in the banks and financial institutions. The course facilitates methodology of calculating interest rates, Credit appraisal, and Risk framework and forex dealings.

3. **Course Code: MBABT 512:**
   Course Title**: BANK MARKETING**
   The objective of this course is to prepare the students to acquire required knowledge and skills for Marketing of Banking products and services. The course also looks into various aspects of service quality aspects of Bank Branches.

4. **Course Code: MBABT 513:**
   Course Title**: LEGAL ASPECTS OF BANKING**
   The objective of this course is to provide the students with practical legal knowledge of banking laws and other business law issues related to banking. The course focus fundamental legal issues pertaining to business especially banking.

5. **Course Code: MBABT 514:**
   Course Title**: RISK MANAGEMENT IN BANKS**
   To make the student understand the basic concept of risk management in banks and expose various types of risk faced by banks with a view to provide necessary knowledge and impart the skills required to mitigate and manage the risks as a professional risk manager.

6. **Course Code: MBABT 515:**
   Course Title**: INTERNATIONAL BANKING**
   1. To make the student understand the basic concept of **International Banking and Financial Institutions** and expose various types of risk faced by international banks.
   2. To provide necessary knowledge of international banking operations and international payment arrangements.
   3. To introduce recent trends in international banking.

7. **Course Code: MBABT 516:**
   Course Title**: DATA WAREHOUSING & APPLIED DATA MINING**
   The main purpose of the course is to develop and gain an understanding of the principles, concepts, functions and uses of data warehouses, data modeling and data mining in business. It focuses on data model for data warehouses and implementing data warehouses: data extraction, cleansing, transformation and loading, data cube computation, materialized view selection, OLAP query processing. Also, it concentrates on fundamentals of data mining, data mining process and system architecture, relationship with data warehouse and OLAP systems, data pre-processing and mining Techniques.

8. **Course Code: MBABT 517:**
   Course Title**: IT INFRASTRUCTURE MANAGEMENT FOR BANKS**
   The objective of this course is to expose the emerging area of IT Infrastructure and its Management. It focuses on the IT governance and risk

management. It also deals with the risk management framework. This course comprehensively deals with IT infrastructure management and ITIL service delivery and COBIT framework

9. **Course Code: MBABT 518:**
   Course Title**: BUSINESS INTELLIGENCE LAB**
   This lab imparts the practical knowledge of the techniques and tools to provide effective business intelligence. It enables the students to leverage data warehousing and data mining to solve business problems faster by using online analytical processing, data warehousing and data mining tools. Also, this lab offers a comprehensive knowledge and strategic analysis of the data mining and warehousing technologies.

10. **Course Code: MBABT 519:**
    Course Title**: Comprehensive Viva**
    1. To examine the knowledge acquired by students by studying various subjects during this semester.

IV SEMESTER – HARD CORE

1. **Course Code: MBABT 521:**
   Course Title**: Final Project & Viva**
   1. To examine the knowledge acquired by the students by studying various subjects during the course.
   2. To evaluate the practical knowledge gained by the students from various courses

2. **Course Code: MBABT 522:**
   Course Title**: Comprehensive Viva**
   1. To examine the knowledge acquired by the students by studying various subjects during this semester.

SOFTWARE ENGINEERING AND TECHNOLOGY STREAM

1. **Course code: MBABT 611:**
   Course Title**: AGILE SOFTWARE PROCESS**
   1. Understanding of agility and its significance in software development
   2. Understanding of agile development practices
   3. Understanding of agile software testing

2. **Course code: MBABT 612:**
   Course Title**: DESIGN PATTERNS**
   1. Understanding of new paradigm of design patterns
   2. Understanding of values of design patterns
   3. Understanding of applications of design patterns

3. **Course code: MBABT 613:**
   Course Title**: SOFTWARE TESTING AND QUALITY ASSURANCE**
   1. Introduction of Software Testing
   2. Understanding of Test Automation
   3. Understanding of Software quality

4. **Course code: MBABT 614:**
   Course Title**: ENTERPRISE ARCHITECTURE**
   1. Understanding of Business Architecture

    2. Understanding of Data Architecture
    3. Practicing of Enterprise Architecture

5. Course code: MBABT 615:
Course Title**: SERVICE ORIENTED ARCHITECTURE**
    1. Understanding of SOA
    2. Understanding of BSB
    3. Practical on SOA

6. Course code: MBABT 616:
Course Title**: SMART BANKING TECHNOLOGIES**
    1. Introduction on Smart Banking
    2. Understanding of RFID, Agents and context aware computing
    3. Case Studies on Smart Banking Technology.

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INFORMATION SECURITY STREAM

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1. Course code: MBABT 621:
Course Title**: NETWORK SECURITY MANAGEMENT**
    1. Understanding of Security Modals
    2. Understanding of security in different network layers
    3. Practices on Network Security Development

2. Course code: MBABT 622:
Course Title**: SECURE ELECTRONIC PAYMENT SYSTEMS**
    1. Introduction on E-Commerce related security
    2. Understanding in Security Algorithms and Architectures
    3. Understanding and Practices on E-Payment and Digital Money

3. Course code: MBABT 623:
Course Title**: INFORMATION SECURITY AND RISK MANAGEMENT**
    1. Introduction to Right Assessment
    2. Understanding of Risk Assessment Methodologies
    3. Understanding and Practices on Performance Assessment

4. Course code: MBABT 624:
Course Title**: DIGITAL CRIMES AND FORENSICS SCIENCE**
    1. Understanding of E-Procurement
    2. Understanding of Digital Crimes and Laws
    3. Understanding the practices of Forensic Science

5. Course code: MBABT 625:
Course Title**: IT SECURITY METRICS**

    1. Introduction of Software Metrics
    2. Understanding Security Process Management
    3. Practices on Security Measurements

6. Course code: MBABT 626:
Course Title**: INFORMATION SECURITY LAB**
Every student has to choose a project related to information security and implement the same as part of this course. Implementation is to be done by adopting software engineering methodology. Object oriented design approach is to be adopted. After implementation a report is to be prepared and submitted.

BIG DATA ANALYTICS AND STORAGE STREAM

1. **Course code: MBABT 631:**
   Course Title**: DATA SCIENCE AND BIG DATA ANALYTICS**
   This course provides practical foundation level training that enables immediate and effective participation in big data and other analytics projects. It establishes a baseline of skills that can be further enhanced with additional training and real-world experience. The course provides an introduction to big data and a Data Analytics Lifecycle Process to address business challenges that leverage big data. It provides grounding in basic and advanced analytic methods and an introduction to big data analytics technology and tools, including MapReduce and Hadoop. The course has extensive labs throughout to provide practical opportunities to apply these methods and tools to real-world business challenges and includes a final lab in which students address a big data analytics challenge by applying the concepts taught in the course in the context of the Data Analytics Lifecycle.

2. **Course code: MBABT 632:**
   Course Title**: CLOUD INFRASTRUCTURE AND SERVICES**
   This course focuses on Cloud Infrastructure and Services (CIS), cloud deployment and service models, cloud infrastructure, and the key considerations in migrating to cloud computing. The course covers technologies required to build classic (traditional), virtualized, and cloud data center environments. These technologies include compute, storage, networking, desktop and application virtualization. Additional areas of focus include backup/recovery, business continuity, security, and management. Students will learn about the key considerations and steps involved in transitioning from the current state of their data center to a cloud computing environment. Upon completing this course, students will have the knowledge to make informed decisions about migrating to cloud infrastructure and choosing the best deployment model for their organization.

3. **Course code: MBABT 633:**
   Course Title**: BACKUP RECOVERY SYSTEMS AND ARCHITECTURE**
   1. To provide an overview of Backup and Recovery infrastructure
   2. To provide knowledge about backup and recovery theory, including backup methods, planning and key terminology
   3. The course focuses on the concepts and technologies used in Backup and Recovery environments

4. **Course code: MBABT 634:**
   Course Title**: INFORMATION SYSTEMS CONTROL AND AUDIT**
   This course focuses on the audit and control aspects of information systems. It also deals with the risks, controls, and audit to information systems. This course emphasizes on the management control framework, data resource management controls, application control framework and processing controls. It also enables student to carry out projects which will provide experience in audit and control.

5. **Course code: MBABT 635:**
   Course Title**: DATA ANALYTICS AND SOCIAL NETWORKING**
   1. To understand the components of the social network
   2. To model and visualize the social network
   3. To mine the users in the social network
   4. To understand the evolution of the social network
   5. To mine the interest of the user

6. **Course code: MBABT 636:**
   Course Title**: DATA VISUALIZATION &BUSINESS INTELLIGENCE**
   1. To introduce visual perception and core skills for visual analysis
   2. To understand visualization for time-series analysis
   3. To understand visualization for ranking analysis
   4. To understand visualization for deviation analysis
   5. To understand visualization for distribution analysis
   6. To understand visualization for correlation analysis
   7. To understand visualization for multivariate analysis

BANKING OPERATIONS STREAM

1. **Course code: MBABT 641:**
   Course Title**: BANK FUND MANAGEMENT**
   To familiarize the students with the basic concepts of funds management in the banking business and understand the management process and practice with regard to management of various liabilities and assets component and develop learning and analytical skills to manage the funds of the bank judiciously and efficiently in order to improve the profitability.

2. **Course code: MBABT 642:**
   Course Title**: CREDIT RISK MANAGEMENT**
   To make the student understand the basic concept of credit risk management in banks and introduce various forms of credit risk faced by banks with a view to provide necessary knowledge and input besides imparting the skills required to mitigate and manage the credit risk as a professional risk manager.

3. **Course code: MBABT 643:**
   Course Title**: BANKING SUPERVISION AND CONTROL**

   To make the students understand the fundamental principles of banking supervision and its practices in India from the regulatory perspective and the banks management aspects and familiarize the control systems in banks, so as to help the students to learn and develop the required skills to manage the banking operations effectively and efficiently.

4. **Course code: MBABT 644:**
   Course Title**: E-BANKING ISSUES AND IT LAWS**
   To make the students understand the importance of cyber security in banks and familiarize with various kinds of cyber crimes with particular reference to banking operations and services today and make them understand the basics of cyber forensics, investigation and cyber security so that the students acquire necessary knowledge and understanding of cyber crimes in banks and the relevant legal framework to deal with such issues.

5. **Course code: MBABT 645:**
   Course Title**: ALM AND CAR PRACTICE – INTERNSHIP LAB**
   To make the students understand the importance of Asset Liability Management and Capital Adequacy for a banking institution and familiarize the students with the ALM and Capital Adequacy practice in banks with a view to develop the required knowledge and skill to manage the risk in banks.

6. **Course code: MBABT 646:**

Course Title**: EMERGING TRENDS IN BANKING**

To familiarize the students with the basic concepts of funds management in the banking business and understand the management process and practice with regard to management of various liabilities and assets component and develop learning and analytical skills to manage the funds of the bank judiciously and efficiently in order to improve the profitability.

FINANCIAL SERVICES STREAM

1. **Course code: MBABT 651:**
   Course Title**: FINANCIAL SERVICES INTERMEDIARIES AND REGULATORIES**
   1. To introduces meaning and functions of Financial Intermediaries
   2. To understand the role of Financial Intermediaries
   3. To understand the role and functions of Financial Regulators

2. **Course code: MBABT 652:**
   Course Title**: MERCHANT BANKING FINANCIAL SERVICES**
   1. To introduces meaning and functions of Merchant Banks
   2. To understand the role of merchant bank and its services
   3. To understand the Merchant Banking Regulatory Frameworks

3. **Course code: MBABT 653:**
   Course Title**: MANAGEMENT OF MUTUAL FUNDS**
   1. To introduces structure and types of Mutual Funds
   2. To understand the measurement and evaluation of Mutual fund performance
   3. To provide information regarding management of mutual funds and Regulations

4. **Course code: MBABT 654:**
   Course Title**: ELECTRONIC FINANCIAL SERVICES**
   1. To introduces various e-financial services and its applications
   2. To provide e-services training
   3. To create various e-applications

5. **Course code: MBABT 655:**
   Course Title**: MARKETING OF FINANCIAL SERVICES**

   1. To introduces concepts of Financial Services Marketing
   2. To understand the role and functions of Financial Services Marketing

6. **Course code: MBABT 656:**
   Course Title**: SECURITY MARKET OPERATIONS LAB – INTERNSHIP**
   1. To introduces the operations of Securities market
   2. To understand the Trading process, settlement and legal frameworks

CAPITAL MARKET STREAM

1. **Course code: MBABT 661:**
   Course Title**: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT**
   1. To introduces basic concepts of Investment
   2. To understand the role of Risk – Return Framework
   3. To understand the fundamental analysis and portfolio analysis
   4. To understand the concepts of asset pricing

2. **Course code: MBABT 662:**
   Course Title**: FINANCIAL DERIVATIVES AND RISK MANAGEMENT**
   1. To introduces structure and types of Derivatives
   2. To understand the derivatives pricing theory
   3. To analyze various risk mitigation techniques with the use of derivative products
   3. To provide information regarding trading & clearance

3. **Course code: MBABT 663:**
   Course Title**: FIXED INCOME SECURITIES AND TREASURY MANAGEMENT**
   1. To introduces structure and types of Debt Instruments
   2. To understand the nature, pricing and valuation of Bonds
   3. To provide information regarding Bond Portfolio Management Strategies

4. **Course code: MBABT 664:**
   Course Title**: FINANCIAL ECONOMETRICS AND MODELING**
   1. Introduces the basic concepts of basic regression analysis and multiple linear regression model
   2. To provide univariate time series modeling and forecasting
   3. To understand economics modeling and volatility and correlation

5. **Course code: MBABT 665:**
   Course Title**: ASSET PRICING AND EQUITY RESEARCH**
   1. To introduces concepts of asset pricing theory, model and strategies
   2. To understand contemporary issues in asset pricing research

6. **Course code: MBABT 666:**
   Course Title**: INVESTMENT ANALYTICS - LAB**
   1. To introduce the data extraction operations from various businesses
   2. To introduce calculation and estimations performed with the extracted data using MS-EXCEL and E-VIEWS

INTERNATIONAL FINANCE STREAM

1. **Course code: MBABT 671:**
   Course Title**: GLOBAL FINANCIAL MARKETS AND INSTRUMENTS**
   1. To introduces Global Business Environment
   2. To understand Foreign Exchange Markets
   3. To understand Exposure Management

2. **Course code: MBABT 672:**
   Course Title**: INTERNATIONAL FINANCIAL MANAGEMENT**
   1. To introduces Globalization and Multinational Finance
   2. To understand Foreign Exchange Markets
   3. To understand Multinational Capital Budgeting

3. **Course code: MBABT 673:**
   Course Title**: FOREX AND CURRENCY DERIVATIVES**
   1. To introduces Foreign Exchange Market
   2. To understand Foreign Exchange Transactions
   3. To understand Ready and Forward Exchange Rates

4. **Course code: MBABT 674:**

Course Title**: FOREIGN TRADE AND DOCUMENTATION**
1. To introduces Export documentation
2. To understand Export Procedures and Import Procedures
3. To provide information regarding Export Incentives

5. **Course code: MBABT 675:**
   Course Title**: BLOOMBERG – INTERNATIONAL FINANCE LAB**
   1. To introduces Trends in International Banking Operation
   2. To introduce the recent Trends in issue of Euro currency Bonds, GDRs, ADRs across Continents
   3. To understand the Global Financial Crisis – Effects and Recovery Trends

6. **Course code: MBABT 676:**
   Course Title**: CMIE CORPORATE FINANCE LAB**
   Analyze of Financial Statements based on the any five select annual reports, Important Ratios, Funds Flow Analysis statements, examining the trends over a period of time, Comparison between cross category ratios, cross sectional analysis.

MONEY & DEVELOPMENT BANKING STREAM

1. **Course code: MBABT 681:**
   Course Title**: GLOBAL FINANCIAL MARKETS AND INSTRUMENTS**

   The objective of this course is to expose students to the theory and functioning of the monetary Policy and the role of Central Banks in the Economy. It also discusses the conduct of monetary policy and its effect on interest rates, credit availability, price and inflation

2. **Course code: MBABT 682:**
   Course Title**: DEVELOPMENT BANKING**
   The objective of this course is to creating awareness about various development banking institution In Indian and international context. The study focuses their working of these institutions and their role in economic growth. The study also covers, various financing schemes of development banks giving special focus to India.

3. **Course code: MBABT 683:**
   Course Title**: RURAL BANKING AND MICRO FINANCE**
   The objective of this course is to expose students to the key issues linked to rural banking including the challenges in Indian context. It also discusses the initiatives of the government for inclusive financial system such as micro finance.

4. **Course code: MBABT 684:**
   Course Title**: CORPORATE GOVERNANCE AND ETHICS IN BANKS**
   The objective of this course is to expose students to the Principles, Policies and Practices of Corporate Governance. The Course also presents theories, models and issues. The course prepares the students for ethical practices and leadership.

5. **Course code: MBABT 685:**
   Course Title**: PUBLIC FINANCE AND DEVELOPMENT ECONOMICS**
   The objective of this course is to expose students to the role and functions of government financing. The course also look into the efficiency and equity aspects of taxation of the centre, states and the local governments and the issues of fiscal federalism and decentralization in India

6. **Course code: MBABT 686:**
Course Title**: ENTREPRENEURSHIP AND NEW VENTURES**
The focus of this course is to create a learning experience to enable the students to face the challenges of starting new ventures. This involves the process of starting new business and the skills for managing existing family business.

School of Engineering and Technology

Department of Computer Science

Name of the Program: Master of Computer Applications (MCA)

COURSE OUTCOME

Course Code: CSCA 311; Course Title: Computer Organisation and Assembly language programming

1. Ability to understand the basic organization of computer

2. Perform arithmetic operations using assembly language programming

3. Ability to understand various addressing modes and instruction sets.

Course Code: CSCA 312; Course Title: Data Structures

1. Identify various data structures

2. Implement various constraint satisfaction problems

3. Apply graph algorithms in solving routing problems

Course Code: CSCA 321; Course Title: Design and analysis of algorithms

1. Analyse algorithms by considering time and space complexity

2. Implement shortest path algorithms using various algorithmic techniques.

3. Perform analysis of NP-Hard and NP-complete problems

Course Code: CSCA 322; Course Title: Object oriented programming

1. Perform bottom up solving of problems

2. Understand the significance of OOP.

3. Develop various programs using Java Beans and servlets.

Course Code: CSCA 411; Course Title: Database Management Systems

1. Effectively conceptualize and depict a database system using ER diagram
2. Design database and perform SQL queries
3. Analyse Data storage Techniques and Query processing.

Course Code: CSCA 412; Course Title: Computer Networks

1. Describe and analyze the hardware, software, components of a network and the interrelations.
2. Explain networking protocols and their hierarchical relationship hardware and software.
3. Compare protocol models and select appropriate protocols for a particular design

Course Code: CSCA 413; Course Title: Software Engineering

1. Understand common lifecycle processes including waterfall (linear), incremental approaches (such as Unified process), and agile approaches.
2. Understand common lifecycle processes including waterfall (linear), incremental approaches (such as Unified process), and agile approaches.
3. Understand common lifecycle processes including waterfall (linear), incremental approaches (such as Unified process), and agile approaches.

Course Code: CSCA 421; Course Title: Operating systems

1. Analyse various process management concepts including scheduling, synchronization, deadlocks, etc.
2. Be familiar with multithreading
3. Understand concepts of memory management including virtual memory

Course Code: CSCA 422; Course Title: Internet and web technologies

1. Develop web pages using javascript
2. Develop web pages incorporating server side scripting using PHP
3. Develop a well formed XML document.

Course Code: CSCA 511 ; Course Title: Computer Graphics

1. Analyse various of line and curve drawing algorithms and 2D transformations.
2. Develop 3D representations with respect to transformations
3. Implement animated images.

Course Code: CSCA 431; Course Title: Mathematics for Computer Science

1. Use mathematical induction and recursive definitions

2. Understand properties of graphs and algorithms on graphs

3. Perform basic operations on matrices, including computing eigen values and eigen vectors

Course Code: CSCA 432; Course Title: Automata Theory and Formal languages

1. Fundamental understanding of core concepts in automata theory and formal languages

2. Ability to solve problems related to key concepts of formal languages and automata

3. Fundamental understanding of computational models , decidability, complexity

Course Code: CSCA 433; Course Title: Linear Programming

1. Understand the linear programming problem

2. Enumerate LPP simplex methods

3. Describe network routing and network scheduling

Course Code: CSCA 434; Course Title: Probability and statistics

1. Understand Probability Theory
2. Understand Probability Distributions
3. Analyse Statistics theory and non-parametric tests

Course Code: CSCA 435; Course Title: Optimisation Techniques

1. Understand the fundamental concepts of Optimization Techniques

2. Analyse the concepts of various classical and modern methods for constrained and unconstrained problems in both single and multivariable

3. Describe replacement theory and maintenance analysis

Course Code: CSCA 436; Course Title: Applied Mathematics

1. Understand Eigen values and Eigen vector
2. Compute Differential Calculus and Integral Calculus
3. Enumerate Numerical computation methods

Course Code: CSCA 437; Course Title: Management concepts and strategies

1. Understand Fundamentals of Management & Decision Making
2. Analyze Management & Communication Process Concepts
3. Understand various techniques for Management

Course Code: CSEL 531; Course Title: Communication skills

1. Demonstrate critical and innovative thinking.

2. Display competence in oral, written, and visual communication.

3. Apply communication principles.

Course Code: CSEL 536; Course Title: Mobile Application development

1. Understand system requirements for Mobile Applications

2. Generate suitable design using specific Mobile development framework

3. Generate Mobile Application Design

Course Code: CSEL 538 ; Course Title: Multimedia tools

1. Ability to create a graphics presentation

2. Understand designing of web page using Dreamweaver.

3. Understanding of advanced web design tools such as Flash.

Course Code: CSEL 539; Course Title: Python programming

1. Ability to draw various kinds of plots using PyLab

2. Perform text filtering with regular expressions in Python

3. Implement GUI based programs

Course Code: CSEL 540; Course Title: Data mining tools

1. Understand the basic concepts and techniques of Data Mining.

2. Use recent data mining software for solving practical problems.

3.   Ability to perform analysis of research results

Course Code: CSEL 545; Course Title: Internet of Things(IoT) tools

1. Understand the fundamentals of Internet of Things.

2. Build a small low cost embedded system using Arduino / Raspberry Pi or equivalent boards.

3. Apply the concept of Internet of Things in the real world scenario

Course Code: CSEL 331; Course Title: Introduction to Information technology

1. Understand the fundamentals of information technology

2. Understand core concepts of computing and modern systems

3. Understand modern software programs and packages

Course Code: CSEL 332; Course Title: Digital Principles and applications

1. Understand the field of digital electronics

2. Design and realize the functionality of the computer hardware with basic gates and other components using combinational and sequential logic.

3. Analyse the importance of peripheral devices

Course Code: CSEL 441; Course Title: Fundamentals of cryptography

1. Implement secure programming concepts using java API

2. Analyse various cryptographical algorithms

3. Implement secure protocols for various banking applications

Course Code: CSEL 443; Course Title: Mobile and digital forensics

1. Understand the basics of wireless technologies and security

2. Understand mobile phone forensics and android forensics

3. Analyse the methods of investigation using digital forensic techniques

Course Code: CSEL 451; Course Title: Big data

1. Understand several key big data technologies used for storage, analysis and manipulation of data.

2. Understand the key concepts of Hadoop framework, MapReduce, Pig, Hive, and No-SQL.

3. Implement a sample project in Hadoop API.

Course Code: CSEL 461; Course Title: Principles of Distributed Computing

1. Understand the principles, architectures, algorithms and programming models used in distributed systems.

2. Examine state-of-the-art distributed systems, such as JINI.

3. Design and implement sample distributed systems.

Course Code: CSEL 465; Course Title: Pervasive and Ubiquitous computing

1. Understand the importance of Pervasive Computing aspects.

2. Analyse various pervasive computing technologies

3. Analyze and design select classes of pervasive computing systems.

Course Code: CSEL 466; Course Title: Cloud computing

1. Analyze the components of cloud computing and its business perspective.

2. Evaluate the various cloud development tools.

3. Analyze the case studies to derive the best practice model to apply when developing and deploying cloud based applications.

Course Code: CSEL 471; Course Title: Artificial Intelligence and Expert systems

1. Analyze the various agents and agent programs.

2. Analyse the various problem solving approaches.

3. Analyze the various tools and implement an expert system.

Course Code: CSEL 472; Course Title: Neural Networks

1. Develop the skill in basic understanding on neural network

2. Explore the Advanced methods of representing information in ANN

3. Exposure to many real-world control problems.

Course Code: CSEL 475; Course Title: Machine Learning

1. Understand the concepts of machine learning

2. Analyse supervised and unsupervised learning and their applications

3. Implement the concepts and algorithms of learning

Course Code: CSEL 476; Course Title: Introduction to Robotics

1. Understand the concepts of robotics

2. Analyse various sensors

3. Implement the concepts using robot programming

Course Code: CSEL 484; Course Title: Software testing

1. Understand the behavior of the testing techniques to detect the errors in the software.

2. Understand standard principles to check the occurrence of defects and its removal.

3. Learn the functionality of automated testing tools.

Course Code: CSEL 491; Course Title:Foundations of Human computer interaction

1. Develop components of Human Computer Interaction
2. Design interactive models

Understand HCI in software process

School of Engineering and Technology

Department of Computer Science

Name of the Program: Master of Science (Computer Science)

COURSE OUTCOME

Course Code: CSSC 411   Course Title: Design and Analysis of Algorithms

1. Analyze the asymptotic performance of algorithms.

2. Familiarity with major algorithms and data structures.

3. Synthesize efficient algorithms in common engineering design situations.

Course Code: CSSC 412   Course Title: Advanced Computer Architecture

1. Understand the evolution of computer architecture.

2. Understand the design challenges in building a system.

Course Code: CSSC 413   Course Title: Automata Theory & Formal Languages

1. Understand various Computing models like Finite State Machine, Pushdown Automata, and Turing Machine and solve problems.

2. Understand Decidability and Undecidability of various problems.

Course Code: CSSC 421   Course Title: Modern Operating Systems

1. Knowledge in Distributed operating systems

2. Know the components of distributed resource management.

3. Know the components and management aspects of Real time, Mobile operating systems.

Course Code: CSSC 422   Course Title: Advanced Database Systems

1. Understand the fundamental concepts of database systems

2. Get acquaint with the use of current relational database systems

Course Code: CSSC 511   Course Title: Advanced Computer Networks

1. Knowledge about integrated and differentiated services architectures

2. Understand the working of wireless network protocols

3. Evolution of cellular networks

4. Familiarity in next generation networks

Course Code: CSSC 512   Course Title: Web Technology

1. Knowledge of web technological concepts and functioning of internet

2. Understand and program features of web programming languages.

3. Understand the major components of internet and associated protocols.

4. Design innovative web applications.

Course Code: CSSC 431   Course Title: Discrete Mathematics

1. Reason mathematically about basic data types and used in computer algorithms and systems; distinguish rigorous definitions and conclusions from merely plausible ones; synthesize elementary proofs, especially proofs by induction.

2. Model and analyze computational processes using analytic and combinatorial methods.

3. Apply principles of discrete probability to calculate probabilities and expectations of simple random processes.

Course Code: CSSC 432   Course Title: Probability and Statistics

1. Understand concepts of discrete probability, conditional probability, independence, and can apply these concepts to engineering applications (selected by instructor).

2. Understand mathematical descriptions of random variables including probability mass functions (PMFs), cumulative distribution functions (CDFs), probability distribution functions (PDFs), conditional mass, conditional distribution and conditional density functions.

Course Code: CSSC 433   Course Title: Optimization Techniques

1. Understand fundamental concepts of Optimization Techniques

2. Understand the importance of optimizations in real scenarios

3. Knowledge of various classical and modern methods for constrained and unconstrained problems in both single and multivariable

Course Code: CSSC 434   Course Title: Linear Programming

1. Understand the linear programming problem

2. Exposure to LPP simplex methods and LPP duality

3. Differentiate Non-Linear Programming Problem and LPP

Course Code: CSEL 441   Course Title: Fundamentals of Cryptography

1. Programming using java cryptography API

2. Understand mathematical cryptographic algorithms

3. Exposure to modern cryptography

4. Exposure to financial cryptography for safe banking

5. Understand secure protocols for secure transactions

Course Code: CSEL 442   Course Title: Database and Application Security

1. Understanding and application of security policies on Databases

2. Understand authentication and password security

3. Know about application vulnerabilities

4. Understand about auditing techniques

Course Code: CSEL 443   Course Title: Mobile and Digital Forensics

1. Understand the basics of wireless technologies and security

2. Knowledge in mobile phone forensics and android forensics

3. Exposure to methods of investigation using digital forensic techniques

Course Code: CSEL 451   Course Title: Big Data

1. Exposure to big data technologies used for storage, analysis and manipulation of data.

2. Recognize the key concepts of Hadoop framework, MapReduce, Pig, Hive, and No-SQL.

3. Develop a sample project using Hadoop API.

Course Code: CSEL 452   Course Title: Python Programming for Data Analytics

1. Understanding the basic concepts of Python

2. Skill in Preparing and pre-processing data

3. Understanding the data aggregation and grouping concepts

4. Leveraging web scraping

5. Visualizing the results of analytics effectively

Course Code: CSEL 453   Course Title: Statistics for Business Analytics

1. Identify the association between various types of data.

2. Apply statistical inference techniques.

3. Apply methods of inference to applied business situations.

4. Identify, build and validate appropriate statistical regression models

Course Code: CSEL 461 Course Title: Principles of Distributed Computing

1. Understand and implement Pattern classification algorithm

2. Learn Cybercrime techniques and its application in pattern recognition.

3. Solve real-world problems using Pattern Recognition te To learn the principles, architectures, algorithms and programming models used in distributed systems.

4. Examine state-of-the-art distributed systems, such as JINI.

5. Design and implement sample distributed systems.

Course Code: CSEL 462   Course Title: Introduction to Parallel Computing

1. Get to know types of parallel computers and their architectures,

2. Knowledge about the design, implementation, and use of message-passing computing and shared-memory computing

3. Ability to set up cluster computing systems, code and evaluate the performance of parallel programs

4. Ability to choose suitable programming strategies in parallelizing computational tasks.

Course Code: CSEL 471   Course Title: Introduction to A.I. and Expert Systems

1. Explore basic concepts of AI and expert systems

2. Ability to work with Lisp, Prolog

Course Code: CSEL 472   Course Title: Neural Networks

1. Basic understanding on neural network

2. Knowledge about the advanced methods of representing information in ANN

3. Exposure to many real-world control problems

Course Code: CSEL 481   Course Title: Object Oriented System Design

1. Get exposure of fundamentals of OOSD

2. Understanding and using UML Diagrams and Notations

3. Knowledge about various OO Design models and Testing Objects

4. Design Case studies in OOSD

Course Code: CSEL 482   Course Title: Software Architecture

1. Understand software architectural requirements and drivers.

2. Be exposed to architectural styles and views.

3. Be familiar with architectures for emerging technologies

Course Code: CSEL 491   Course Title: Foundations of Human Computer Interaction

1. Understanding the components of Human Computer Interaction

2. Getting insights into the world of Universal design

Course Code: CSEL 492   Course Title: Introduction to Web Accessibility

1. Understanding the elements of web accessibility

2. Acquire skills to design accessible web pages

Course Code: CSEL 483   Course Title: Software Project Management

1. Exposure to Software Engineering Discipline and software development process models.

2. Understand the various methods of Cost Estimation.

3. Knowledge about Software Quality Management and Software Metrics

Course Code: CSEL 493   Course Title: Introduction to Mobile Accessibility

1. Exposure to Android mobile app development.

2. Understand the basics of Mobile accessibility.

3. Skills in designing accessible mobile applications.

School of Engineering and Technology

Department of Computer Science

Name of the Program: Master of Technology (Computer Science and Engineering)

COURSE OUTCOME

Course Code: CSCE 611; Course Title: Discrete Mathematics

1. Use mathematical induction and recursive definitions

2. Perform basic operations on matrices

3. Develop problem solving skill and ability of counting and enumeration

Course Code: CSCE 612 ; Course Title: Probability and Statistics

1. Use random variables that describe randomness or an uncertainty in certain realistic situation.

2. Identify the types of sampling distributions and transformations

3. Frame and test of hypothesis

Course Code: CSCE 613; Course Title: Network configuration and management

1. Implement and administer common operating systems environments.

2. Perform systems administration functions and network services.

3. Perform operating system function and network service and plan, implement, and administer each.

Course Code: CSCE 614; Course Title: Advanced Data Structures and Algorithms

1. Use Randomized algorithms in problem solving

2. Use Graph algorithms in constraint satisfaction problems

3. Use Dynamic programming based algorithms

Course Code: CSCE 615; Course Title: Internet and Web technologies

1. Construct Full Stack of Web development.

2. Build the components of Web Design and Development.

3. Develop effective web applications

Course Code: CSCE 621; Course Title: Graph theory and its applications

1.   Use graphs as a powerful modeling tool

2.   Analyse various algorithms

3.   Solve practical problems in various fields

Course Code: CSCE 622; Course Title: Research Methodology

1.   Solve research problem using scientific methods

2.   Prepare a research plan.

3.   Write report and thesis

Course Code: CSCE 623; Course Title: Data Mining and Big data

1.   Identify the computational approaches to Mining

2.   Identify the need and application of Map Reduce

3.   Use the various search algorithms applicable to Big Data

4.   Analyse and interpret streaming data

Course Code: CSCE 624; Course Title: Mobile and Pervasive Computing

1.   Identify the underlying engineering principles that make pervasive computing work.

2.   Use the most dynamic technologies like mobile computing, service discovery, context aware
      computing and security issues in mobile & pervasive computing.

3.   Implement and analyse pervasive techniques

Course Code: CSCE 811; Course Title: Big data technologies

1.   Effective participation in big data projects.

2.   Use big data technology and tools, including MapReduce and Hadoop and its ecosystem

3.   Implement a sample system using Hadoop.

Course Code: CSCE 812; Course Title: Statistics for data analytics

1.   Perform hypothesis testing

2.   Perform predictive analytics

3.   Use fundamental concepts and tools and perform business analytics in organizations.

Course Code: CSCE 815; Course Title: Machine learning

1. Use machine learning theory in problem solving

2. Implement linear and non-linear learning models

3. Implement distance-based clustering techniques

4. Build tree and rule based models

5. Apply reinforcement learning techniques

Course Code: CSCE 821; Course Title: Software Testing

1. Use testing techniques to detect the errors in the software.

2. Use standard principles to check the occurrence of defects and its removal.

3. Use automated testing tools.

Course Code: CSCE 822; Course Title: Agile software process

1. Perform Agile Software Process development

2. Use various Agile Methodologies.

3. Develop Agile Software Process

4. Apply the principles of Agile Testing

Course Code: CSCE 831; Course Title: Cognitive Science

1. Use Cognitive Science with focus on acquisition, representation, and use of knowledge by individual minds, brains, and machines

2. Apply mind and intelligence, embracing psychology, artificial intelligence, neuroscience and linguistics

3.   Apply the knowledge of neuro science in the cognitive field

Course Code: CSCE 832; Course Title: Knowledge representation and reasoning

1.   Use various knowledge representation formalism in real world problem solving

2.   Use knowledge engineering tools in problem solving

3.   Implement a knowledge based system using Protégé.

Course Code: CSCE 836; Course Title: Robotics

1.   Perform designing of various robotic arm

2.   Implement robot programs

3.   Apply and design robots

Course Code: CSCE 841; Course Title: Introduction to human computer interaction

3.   Develop components of Human Computer Interaction

4.   Design interactive models

5.   Implement a HCI based system and evaluate it.

Course Code: CSCE 851; Course Title: Automata Computability and complexity

1.   Use regular language and grammar for designing real world problems

2.   Perform computational complexity analysis

3.   Define Turing machines performing simple tasks.

Course Code: CSCE 852; Course Title: Mathematical logic for computer science

1.   Use the mathematical logic for knowledge representation

2.   Solving problems in various computer science fields

3.   Implement knowledge based applications using logics based reasoning

Course Code: CSCE 861; Course Title: Design of modern heuristics

1.   Identify the importance of optimisation methods

2.   Apply optimisation techniques for real world problems

3.   Interpreting the results obtained through optimisation

Course Code: CSCE 862; Course Title: Evolutionary algorithms

1. Apply an evolutionary technique to a real problem by choosing the parameters for optimal performance

2.   Solve several scheduling and routing problems using genetic algorithms

3.   Implement genetic programming and solve classic GP problems

Course Code: CSCE 871; Course Title: Advances in computer graphics

1.   Use image synthesis techniques

2.   Implement color modelling

3.   Implement computer animation techniques

Course Code: CSCE 872; Course Title: Digital Image processing

1.   Implement image enhancement techniques

2.   Analyse images and extract features of interest

3.   Perform image processing using various techniques

Course Code: CSCE 875; Course Title: Biometric security

1.   Classify image processing techniques for biometric security

2.   Use Face, Fingerprint, Palmprint, Iris biometric technologies

3.   Apply biometric security algorithms

Course Code: CSCE 711; Course Title: Directed study

1. Formulate an area of study and participate in defining a process for knowledge building in relation to the area of study.

2. Discuss and critically analyze key issues of research area

3. Conceptualize key issues and research questions relative to the research area.

Complete projects demonstrating a critical analysis of a specific dimension or aspect of the subject and its relationship to other dimensions or aspects of the subject.

School of Engineering and Technology

Department of Computer Science

Name of the Program: Master of Technology (Networks & Information Security)

COURSE OUTCOME

Course Code: CSNS611   Course Title: Mathematics for Network Engineering

1. Ability to use the concepts of Special Functions for solving problems related to Networks.

2. Analyze the Graph Theory algorithms and understand its applications in Networks.

3. Knowledge on Numerical Methods that will come in handy to solve numerically the problems that arise in engineering.

4. Analysis skills in Queuing Models.

Course Code: CSNS612   Course Title: Principles of Modern Cryptography

4. Knowledge about the mathematics of the cryptographic algorithms

5. Insight into the working of different existing cryptographic algorithms

6. Application of cryptographic algorithms in security.

Course Code: CSNS613   Course Title: Operating Systems: Administration and Security

3. Become knowledgeable in the concepts of various functions of operating systems

4. Gain hands-on experience in the basic administration of a Linux system.

5. Understand the concepts of securing operating systems.

Course Code: CSNS614   Course Title: Network Management

4. Become knowledgeable in the concepts of network management

5. Understand the concepts of stream ciphers.

Course Code: CSNS615   Course Title: Foundations of modern networking

1. Understand the principles behind the Modern Network approaches such as SDN NFV and IoT

2. Ability to analyze Data Center topologies and virtualized environment

3. Understand the data traversal over virtualized environment for IoT

4. Design algorithms for virtualization over multi-tenant environments

Course Code: CSNS621   Course Title: High Speed Networks

3. Understanding of ATM and Frame relay.

4. Knowledge in developments in High Speed Networks.

5. Knowing techniques involved to support real-time traffic and congestion control.

6. Analyze the different levels of quality of service (QoS) to different applications

Course Code: CSNS622   Course Title:Network Protocols

5. Exposure on various protocols.

6. Learn Security issues and overcome means with protocols

7. Gain knowledge on various secure mechanisms through set of protocols.

Course Code: CSNS623   Course Title:Distributed Systems and Security

4. Become knowledgeable in the concepts of distributed systems and security

5. Exposure to Threats and Vulnerabilities.

Course Code: CSNS624   Course Title:Network Security

3. Network Security and its importance

4. Knowledge about cryptographic techniques

5. Understand digital signature and authentication protocols

6. Knowledge on Virtual Private Network

Course Code: CSNS625   Course Title:Resource Management Techniques

1. Familiarity with resource management techniques.

2. Learn to solve problems in linear programming and Integer programming.

3. Exposure to CPM and PERT.

Course Code: CSNS712   Course Title:Security Standards and Information Security Management

1. Understand about management aspects of information security.

2. Summarize security risk and associated assessment models like COBIT.

3. Distinguish proactive security mechanisms, like firewalls, IDS/IPS etc and application audit methodology.

4. Demonstrate various security standardizations, for example, ISO 270001 and legal issues involving information security

Course Code: CSNS811   Course Title:Cloud Computing Architecture

1. Analyze the components of cloud computing showing how business agility in an organization can be created

2. Evaluate the deployment of web services from cloud architecture

3. Critique the consistency of services deployed from a cloud architecture

4. Compare and contrast the economic benefits delivered by various cloud models based on application requirements, economic constraints and business requirements.

5. Critically analyze case studies to derive the best practice model to apply when developing and deploying cloud based applications

Course Code: CSNS812   Course Title:Cloud Storage Infrastructure

5. Critically appraise the opportunities and challenges of information management in complex business environments

6. Evaluate information storage management design in a cloud environment and how it relates to the business objectives of an organization

7. Analyze the role technology plays in the design of a storage solution in a cloud architecture

8. Investigate how a global storage solution can be optimized so that it can be delivered successfully from the cloud

9. Analyze how best to provide reliable access to information both locally and remotely using storage technologies

Course Code: CSNS814   Course Title: Converged Networks

4. Implement applications enabled by a multi-service convergent network

5. Understanding real-time traffic prioritization within a data network.

6. Design Multicast Networks

7. Engineer networks suitable for voice, multicast traffic and high-speed switched Internet based networks

Course Code: CSNS815   Course Title:Enterprise Storage Systems

4. Evaluate various storage classifications and technologies.

5. Analyze storage architectures, processes, components and how they relate to virtualization.

Course Code: CSNS816   Course Title:Data Center Virtualization

6. Identify various constraints and challenges in setting up a data center

7. Demonstrate Enterprise level virtualization and access control in virtual machines

8. Perform Resource monitoring and execute backup and recovery of virtual machines.

Course Code: CSNS822   Course Title:Block Chain Technology

5. Understand crypto currency concepts

6. Understand the working and transactions of bit coin

7. Analyze the function Blockchain

Course Code: CSNS823 Course Title:Pattern Recognition Techniques In Cyber Crime

6. Understand and implement Pattern classification algorithm

7. Learn Cybercrime techniques and its application in pattern recognition.

8. To solve real-world problems using Pattern Recognition techniques

Course Code: CSNS824   Course Title:Cyber Laws And Security Policies

5. Exposure to basic information on cyber security.

6. Understand the issues those are specific to amendment rights.

7. Knowledge on copy right issues of software's.

8. Understand ethical laws of computer for different countries.

Course Code: CSNS826   Course Title:Intrusion Detection Systems

1. Understand when, where, how, and why to apply Intrusion Detection tools and techniques in order to improve the security posture of an enterprise.

2. Apply knowledge of the fundamentals and history of Intrusion Detection in order to avoid common pitfalls in the creation and evaluation of new Intrusion Detection Systems

3. Analyze intrusion detection alerts and logs to distinguish attack types from false alarms

Course Code: CSNS827   Course Title:Multimedia Security & Forensics

4. Become knowledgeable in the concepts of various functions of operating systems

5. Gain hands-on experience in the basic administration of a linux system.

6. Understand the concepts of securing operating systems.

Course Code: CSNS831   Course Title:Software Defined Networks

5. To comprehend the differences between traditional networks and software defined networks

6. Understand advanced and emerging networking technologies

7. Obtain skills to do advanced networking research and programming

8. Learn how to use software programs to perform varying and complex networking tasks

9. Expand upon the knowledge learned and apply it to solve real world problems

Course Code: CSNS832   Course Title:Cloud Orchestration And Nfv

1. Understanding about advanced OS technologies

2. Learning of virtualization techniques and Cloud orchestration

3. Design next generation cloud applications

Course Code: CSNS833   Course Title:Software Defined Optical Networks

3. Knowledge of Optical networks and its basic principles

4. Knowledge of SDN and its application areas

5. Use SDN in Optical network environments

Course Code: CSNS841   Course Title:Wireless Sensor Protocols & Programming

3. Understand basic sensor network concepts

4. Know physical layer issues, understand and analyze Medium Access Control Protocols

5. Comprehend network and transport layer characteristics and protocols and implement
    conventional protocols

6. Understand the network management and Middleware services

Course Code: CSNS842   Course Title:IoT Architecture and Protocols

4. Understand the Architectural Overview of IoT

5. Understand the IoT Reference Architecture and RealWorld Design Constraints

6. Understand the various IoT Protocols (Datalink, Network, Transport, Session, Service)

Course Code: CSNS843   Course Title:Big Data Analytics for IoT

4. Learn the concepts of big data analytics

5. Learn the concepts about Internet of things

Understand and implement smart systems

School of Humanities.

Department of French.

Name of the Program : M.A. (French) -- Translation & Interpretation.

COURSE OUTCOME

Course Code : FRNC 411 ; FRNC 421 ; FRNC 511 ; FRNC 521 ; FRNC 421; FRNC 425.

Course Title_: French Language Skills - I ;_French Language Skills - II ; Advanced French Language
Skills - I ; Advanced French Language Skills - II; Introduction to Linguistics_; Contemporary French
Grammar.

1. Perfecting the linguistic skills as well as honing the abilities of comprehension, expression and
interpretation.

2. Practice of the translation skills.

3. Understanding the basic notions in linguistics, the grammar, and the use of language through practical exercises.

Course Code : FRNC 412 ; FRNC 413 ; FRNC 423 ; FRNC 512 ; FRNC 513 ; FRNC 514 ; FRNC 522.

Course Title : Linguistic Approach to Translation ; Business Translation ; Translation of Economic Texts ; Translation and The Theory of Meaning ; Journalistic Translation ; Scientific and Technical Translation ; Initiation to Interpretation.

1. Absorbing the concepts and theories in translation.

2. Knowing the terminology used in the different fields.

3. Theoretical and practical introduction to the art of interpreting an oral

delivery of message, or translating a written text -- from English to French, or vice versa.

Course Code : FRNC 426 ; FRNC 429.

Course Title : Didactics of French as a Foreign Language ; Teaching of French for Specific Purposes.

1. Understanding the various theories governing the methodology of teaching French, and getting to know the French language used in various fields, such as science, medicine, law, business, tourism, hotel management.

2. An introduction into functional French.

4. Developing a competency in teaching French.

SCHOOL OF SOCIAL SCIENCES & INTERNATIONAL STUDIES

DEPARTMENT OF HISTORY

NAME OF THE PROGRAM: <u>M.A & M.A INTEGRATED.</u>

<u>COURSE OUTCOME</u>

Historiography

Hist-111: Historiography and Historical Methods

Impart comprehensive knowledge and understanding of the nature and scope of historical knowledge, theories of history and the various schools of historical thoghts.

Hist-411: Historiography Since Ranke

Familiarizes students with approaches to historical sutudies in the nineteenth and twentieth centuries.

World History

Hist-122: History of the Medieval World

A deeper understanding of the rise of Byzantine, Christian and Isalamic cultures in the medieval world.

Hist-123: History of Western Political Ideas and Statecraft

The development of political thought in the Western world on the basis of both the theory and practice of statecraft.

Hist-212: Renaissance, Reformation and Exploration

Focuses on the transition from the medieval to the modern, a period of cultural rivival, religious upheaval and overseas expansion.

Hist-222: Delhi Sultanate till 1526

Examines the establishment of the Turkish Empire in India.

Hist-223: Modern West (1500-1780

Gives a comprehensive picture of the emergence, expansion and dominance of the Western Civilization from 1500-1780.

Hist-422: Global History: Themes and Perspectives

Developing greater understanding of the evolution of global processes and contacts in different human societies.

Hist-523: Twentieth Century World

To develop a comprehensive understanding of the nature of the changing political relations among the different nations.

Hist-524: Global Diaspora

Gives a comprehensive understanding of Diaspora in a global context.

Ancient History

a) **Introduction to Archaeology: Introduces the theoretical and methodological aspects in all branches of Archaeology**

Hist.112: Introduction to Indian Archaeology

Introduce the discipline of archaeology and its methods and theories to understand the material culture.

Hist 121: Introduction to Rock Art

Introduces the techniques of rock art in spatio-temporal dimension

Hist.211: Introduction to Museology

Expose the importance of the museology and its functions in preserving our cultural heritage

Hist.412: Archaeology: Principles & Methods

Introduces the excavation and exploration techniques in the field of archaeology with multi-disciplinary approach

Hist.617: History of Indian Archaeology

Describe the development of archaeological research in India in pre-independence and post-Independence era.

b) **Ancient Indian History and its impact: Deals with geo-cultural dimensions of Indian History in a chronological frame**

Hist.311: Pre & Proto History of India

Explain the emergence of various cultures in India from Palaeolithic times down to Iron Age from a geo-chronological perspective.

Hist.421: Indian Architecture

Seeks to impart a comprehensive knowledge in early Indian society and economy.

Hist 602: Ancient Societies

Studies the emergence of human beings in various corners of the world and their cultural progress from Hunter-gatherer to the stage of Civilization.

Hist.603: Asoka in History and Memory

Examines the history of Asoka in socio-economic and political perspective

Hist.616: Early History of South –East Asia

Provides a broad picture of the Early History of South East Asia and its relation with Early India.

Hist.618: Religion in Early India

Seeks to introduce the genesis and growth of Religions in the early historical period in the Indian subcontinent.

c) India and its cultural heritage: Deals with the antiquarian laws and impact on ancient monuments and antiquities

Hist.221: Introduction to Numismatics

Designed to impart basic knowledge about the development of coinage and economic history of India.

Hist.321: Indian Heritage Legislations

Designed to expose the importance of the antiquarian laws governing our cultural heritage.

Hist 511: Ancient India (up to 5th Century CE)

Surveys the evolution of Hindu, Buddhist, Jain and Islamic architecture of India

Hist.521: Indian Epigraphy

Designed to train the students in the study of ancient Indian languages and scripts of India and analysis of Inscriptions in historical perspective

Hist.611: Cultural Property & International Law

Aims to acquaint the students with the definition of cultural property and the laws governing its ownership rights both at national and international level.

Hist.620: Indian Art & Iconography

Surveys the evolution of Art and sculpture particularly the Jain, Buddhist and Hindu religious contexts in India and their transformation,

Medieval History

Hist-312: The Cholas in Peninsular India

Examines the political, social and economic history of Peninsular India during the early medieval peiod.

Hist-313: History of the Mughals (1526-1707)

Explains the rise, growth and decline of the Mughals as a paramount power in India.

Hist-322: Society and Economy of Mughal India (A.D. 1500-1707)

Examines the social and economic history of the Mughul Empire in India.

Hist-512: Vijayanagara: City and Empire

Examines the last imperial political formation in Peninsular India and locates the history of the Vijayanagara Empire.

Modern History

Hist-213: History of North-East India

To familiarize the concept of Northeast India as a territorial unit during the British Period, their relations with various tribes of the area.

Hist-224: History of the French in India (1664-1954)

Gives a comprehensive picture of French colonialism in India.

Hist-314: The Atlantic Slave Trade (1440-1834)

Examines the structure, organisation and investment patterns in the largest commodity trade in the Atlantic Ocean during the post Christopher Columbus era.

Hist-315: History of Modern India (1707-1857)

Familiarizes the students with the nature of the transformation that had taken place in the eighteenth century India.

Hist-323: Social and Agrarian Movements in Colonial India

Aims at promoting a comprehensive understanding of the nature and scope of the social and agrarian movements in colonial India.

Hist-324: History of Modern India (1858-1947)

Deals with the rise of Indian National Congress and the National Movement.

Hist-325: Rise of Modern China (A.D. 1839-1976)

Designed to explore the Chinese history form the opium war till the Cultural Revolution.

Hist-413: Society and Economy of Colonial India

Provides comprehansive understanding of the transformation in the economy of colonial India.

Hist-414: Revolt of 1857

Deals with the revolt of 1857 and the historiography of the revolt.

Hist-423: India's Struggle for Independence (Pre-Gandhian Era)

Deals with the struggle for India's independence from British colonial rule.

Hist-424: Environmental History of India

Impart multidiciplinary nature of environment studies and informed the natural resources, use of resources, deforestation and its impact on the environment.

Hist-513: Gandhian Era of Indian National Movement (1920-1947)

Deals with the Gandhian Era of Indian Nationl Movement.

Hist-514: Indian Diaspora in the West Indian Ocean Region

Provides a comprehensive understanding of the history of Indian Diaspora in the Indian Ocean Region.

Hist-522: Women in Modern India

Creates awareness about women's agency in historical change.

Ramanujan School of Mathematical Sciences

Department of Mathematics

Name of the Programme Five Year Integrated M.SC., Mathematics

COURSE LEARNING OUTCOMES

Course Code: 384:   **Course Title: Five Year Integrated M.SC., Mathematics**

1. The students will be able to think independently and they can make an attempt to solve any problem in Mathematics, Engineering and other branches of Science.

2. The hard core courses will give the students a strong foundation in Mathematics at an advanced level.

The soft core courses offered by the Department of Mathematics, provides an opportunity develop the knowledge in the area of student's interest. This will help the to develop research interest in a topic of their interest.

Name of the Programme   M.SC., Mathematics

COURSE LEARNING OUTCOMES

Course Code: 372:   **Course Title: M.SC., Mathematics**

1. The students will be able to think independently and they can make an attempt to solve any problem in Mathematics, Engineering and other branches of Science.

2. The hard core courses will give the students a strong foundation in Mathematics at an advanced level.

The soft core courses offered by the Department of Mathematics, provides an opportunity develop the knowledge in the area of student's interest. This will help the to develop research interest in a topic of their interest.

School: Madanjeet School of Green Energy Technologies

Dept. : Centre for Nanoscience and Technology

Name of the Program: Master of Technology in Nanoscience and Technology

COURSE OUTCOME

Course Code: NAST- 611
Course Title: Essentials of Quantum Mechanics and Electromagnetic Theory

On completion of the course the student will be able to

1. Understand basics of Nanoscience and Technology through Quantum Mechanics
2. Visualization of Nanotechnology by Quantum mechanics
3. Getting fundamentals of electromagnetic theory for the applications in Nanophotonics.
4. Understanding the concepts of Electromagnetic theory.
5. Calculate nanoparticles energy states and band gaps based on Quantum theory.
6. The content of the course is rich enough so that the student can be competent to be able to grasp the concepts of Physics and Chemistry for Materials applications.

Course Code: NAST- 612
Course Title: Thermodynamics and Kinetics for Nanotechnology

On completion of the course the student will be able to

1. Understand fundamental Laws of Thermodynamics, and Chemical Kinetics of reactions.
2. Understand the application of statistical thermodynamics concepts for complex reactions and particularly for monodispersed nanoparticles synthesis.
3. Get knowledge on phase transformation and crystallization of materials, and skill for nucleation and growth pattern of a nanoparticles.

Course Code: NAST- 613
Course Title: Elements of Materials Science and Physical Properties of Nanomaterials

On completion of the course the student will be able to

1. Understand the basics of crystal structures and crystal defects.
2. Describe Nanomaterials and their properties based on their dimensionality.
3. Describe bonding in Nanostructures.
4. Describe various physical properties of solids/Nanomaterials.

Course Code: NAST- 614
Course Title: Synthesis and Characterization of Nanostructured Materials

On completion of the course the student will be able to

1. Understand at an advanced level of Physics and Chemistry of Nanotechnological applications on electronics, energy & health.
2. Create knowledge on development of efficient innovative nanostructured materials by various physical, chemical and biological methods.

3. Create knowledge and skill on various physicochemical characterizations of nanomaterials for technological applications that can facilitate widespread commercialization materials characterization for National importance.
4. Acquired an understanding of higher level of nanoscience and technology for various applications at the frontiers of knowledge, beyond the undergraduate level.

Course Code: NAST- 615
Course Title: Nanostructure Fabrication and Metrology

On completion of the course the student will be able to

1. Understand Lithography as well as non-lithography techniques essential for the fabrication
2. Get acquainted with testing protocol – important for device technology
3. Have concepts on process and mask designing.

Course Code: NAST- 610
Course Title: Synthesis and Processing Laboratory

On completion of the course the student will be able to

1. Create knowledge and skill on various Nanomaterials synthesis and processing.
2. Handling of nanomaterials and their characterization.
3. Documentation and presentation of laboratory procedure.

Course Code: NAST- 621
Course Title: Computational methods for modelling, design and simulations

On completion of the course the student will be able to

1. Understand the scientific problems represented in mathematical forms such as differential equations and integral equations.
2. Get introduction to Numerical methods in order to solve scientific problems.
3. Get a good introduction and application how to simulate nanotechnological materials systems with the aid of computation and simulation.
4. Understand and do simulations.
5. Get mathematical and computational skill for making crystals and carbon nanotubes.

Course Code: NAST- 622
Course Title: Polymers and Nanocomposites

On completion of the course the student will be able to

1. Understand the basic concepts of polymers, their nomenclature and molecular weight determinations.
2. Understand various polymerization techniques and polymerization mechanisms.
3. Understand preparation, properties and applications of polymer/metal matrix nanocomposites.
4. Understand various speciality polymers and their potential applications.

Course Code: NAST- 623
Course Title: Fundamentals of Biology for Nanotechnology

On completion of the course the student will be able to

1. Understand basic cell structure and cell cycles.
2. Understand the metabolic pathways to anabolism and catabolism of carbohydrate, protein and lipids.
3. Get basic understanding of a living system and its energetics.

Course Code: NAST- 624
Course Title: Surface Engineering for Nanotechnology

On completion of the course the student will be able to

1. Realize the surface in everyday life and parameters that can influence the surface properties
2. Ability to generate functional coatings (such as hydrophilic/hydrophobic) and the measurement of physical properties
3. Surface characterization tools and interpretation of the outcome

Course Code: NAST- 625
Course Title: Nanoelectronics and Bioelectronics

On completion of the course the student will be able to

1. Understand the basic of nanoelectronics and bioelectronics
2. Acquire knowledge on principle and operation of various electronics and biomedical devices such as FET, LED, MOSFET, etc.
3. Acquire knowledge on utilization of various Nanostructures for fabrications of Nanoelectronic devices and biomedical devices

Course Code: NAST- 626
Course Title: Self Assembly of Nanostructures

On completion of the course the student will be able to

1. Create knowledge on fundamental understanding of self assembly and self-organization of thermodynamically facile Nanostructures
2. Create knowledge and skill technic on Langmuir (LB) films and assembly of nanostructure, self cleaning, hydrophilic/hydrophobic can facilitate widespread commercialization materials
3. Create knowledge on directional self-assembly Nanotechnological applications on Nanoelectronics, Nanoenergy and health.
4. Create knowledge on bio-mimic of higher-architectural Nanostructure for various applications

Course Code: NAST- 620
Course Title: Fabrication and Characterization Laboratory

On completion of the course the student will be able to

1. Acquire knowledge on principle and operation of various fabrication devices.
2. Acquire knowledge on fabrication of various Nanostructures using various techniques such as e-beam, sputtering, electrospum, spin coating, dip-coating, and etc.

3. Acquire hands on training on various fabrication techniques for fabrication of different nanomaterials.

Course Code: NAST- 731
Course Title: MEMS/NEMS and Microsystems

On completion of the course the student will be able to understand

1. Detailed methodology, process steps involved in MEMS/NEMS technology
2. Modification of material properties in the thin film form as well as near device conditions
3. Techniques, issues and importance of property analysis in the devices
4. Tentative life term prediction of device and its performance
5. Sensor types and fabrication along with sending mechanism.

Course Code: NAST- 732
Course Title: Nanostructured Materials for Clean Energy Systems

On completion of the course the student will be able to

1. Create knowledge on fundamental understanding of the structure-composition-performance relationships of energy materials.
2. Create knowledge and skill on fabrication and evaluation of prototype clean energy conversion & storage devices.
3. Create knowledge and skill & competence on facilitate widespread commercialization of clean energy technologies to address the our National (India) and world clean energy and environmental.

Course Code: NAST- 733
Course Title: Nanophotonics and Biophotonics

On completion of the course the student will be able to

1. Understand the basics of Nanophotonics and Biophotonics based on Electromagnetic theory.
2. Concepts of photonics band gap will be understood.
3. Learn the techniques on fabrication of 1, 2 and 3 D photonics crystals.
4. Learn the applications of bioderived and bioinspired materials for photonic applications.
5. Understand the concepts of quantum dots and their application in Nanotechnology for bioimaging.
6. Make photonic materials for advanced technologies such as optoelectronics, quantum computation, optical transmission etc.

Course Code: NAST- 734
Course Title: Nanomagnetic Materials and Devices

On completion of the course the student will be able to

1. Understand the basics of magnetism and magnetic properties
2. Acquire knowledge on principle and operation of various magnetic devices.
3. Acquire knowledge on utilization of various nanostructures for fabrications of advanced magnetic devices such as GMR, TMR, BMR devices.

Course Code: NAST-735
Course Title: Advanced Nanobiotechnology

On completion of this course, the student will be able to

1. Understand the research oriented concepts of tissue engineering and drug delivery.
2. Understand the toxicity of Nanomaterials, and evaluation of biocompatibility of Nanomaterials.

Course Code: NAST -736
Course Title: Industrial Nanotechnology

On completion of this course, the student will be able to

1. Understand the advantages of Nanotechnology based applications in each industry.
2. Understand the future technological advantages and increasing role of Nanotechnology in each industry.

Course Code: NAST-730
Course Title: Modeling and Simulation Laboratory

On completion of this course, the student will be able to

1. Acquire knowledge on various scientific modelling and simulation techniques.
2. Understand various syntax and command code for wide used modelling and simulation soft wares.
3. Acquire knowledge to theoretically simulate the physical and chemical properties of Nanomaterials based on available data.

Course Code: NAST-741
Course Title: Research Project (Report and Viva-Voce)

On completion of the course the student will be able to

Identifying a problem related to the program of study and carry out wholesome research on it leading to findings which will facilitate development of a new/improved product/process/device for the benefit of the society.

School of Life Sciences

Department of: Ocean Studies and Marine Biology

Name of the Programme: M.Sc., Marine Biology

Course Learning outcome

1. Students are taught in depth on the living and non living resources of the Ocean

2. Understanding the biology of the living organisms and the proper method of utilisation and replenishments

3. Methods of saving this environment from industrial pollutants and addressing the impact of pollution on these resources and methods of protection.

4. Providing suitable solution in protection and conservation of various ecosystem

5. Skills development, self awareness, orally and by written communication. Observations and field recording, data interpretation solving many environmental issues. Participation in field oriented sea research and sampling techniques.

Learning new techniques like Scuba , snorkelling participating in sea bound programs, Group and independent participation in research, Professionalism of leadership in solving problems and Critical thinking

SCHOOL OF SOCIAL SCIENCES & INTERNATIONAL STUDIES
DEPARTMENT OF POLITICS AND INTERNATIONAL STUDIES

Content Learning Outcome

M.A. Politics and International Relations

POIR 401 - Political Theory

This course seeks to explain the evolution and usage of the concepts, ideas and theories both historically and analytically. The different ideological standpoints with regard to various concepts and theories are critically explained with the purpose of highlighting the differences in their perspectives in order to understand their continuity and change

POIR 402 - Contemporary Issues in International Relations

This paper deals with practical aspects of International Relations. It provides insights into significant issues that are largely the legacies of the Cold War era. It also identifies some of the other new problem areas that need critical consideration in the study of current international relations. The basic objective of this course is to enable the students to graduate from the basics of the discipline to a higher level of critical analysis of the issues involved in the study and research in International Relations.

POIR 403 - Origin, Evolution and Determinants of India's Foreign Policy

India's foreign policy reflects the philosophy of India as a sovereign democratic nation and the self-image and role it conceives for itself in the global policies. The focus of this paper is the theoretical perspective of the role of compulsions, constraints and conditions, which actually has framed the country's foreign policy for the past seven decades. Since it was Pt Jawaharlal Nehru, who analysed these compulsions and constraints and accordingly laid the foundation of India's foreign policy, his role and India's conduct of external relations during his tenure as Prime Minister will be discussed in this course.

POIR 404 - International Peace and Security

This course traces the historical initiatives in establishing world peace order since 1648 and illustrates the significance of peace and security in the present context by delineating different types of weapon systems of the world and the arms control and disarmament initiatives for establishing a new order for international peace and security.

POIR 405 - Political Thought

The purpose of this course is to generate a political awareness among the students about the distinctive features of both Western and Indian political thought. Through this course, student is expected to learn to political theorising and political reflections and argumentations by studying how it has been done by the masters of Western and Indian political ideas. It also attempts to familiarize major political philosophies of ancient, medieval and modern world and to apply them to contemporary globalised political problems, and political behavior.

POIR 406 - Theories of International Relations

This paper deals with the different approaches and methods of studying International Relations. It covers state centric, global centric as well as multi-centric world views. The intention is to provide a solid background to students about theoretical aspects of International Relations. The paper, therefore, covers traditional, modern and post-modern approaches of studying International Relations as well as the key concepts that characterize them.

POIR 407 - India's Foreign Policy: Continuity, Change and Emerging Challenges

This paper is tailor-made to impart knowledge about continuity and changes in India's foreign policy in the post-Nehru era. This exercise is necessary to know as to what extent the makers of India's foreign policy could serve national interest. The paper also throws light on the emerging challenges confronting India and the world such as terrorism, the interdependent issues of human rights, environmental issues like climate change, globalisation, and arms race and how the Indian leaders are tackling them.

POIR 408 - Political Institutions and Practices in India

Studying political institutions is indispensable for an adequate understanding of democracies. While institutions are often studied as part of the state apparatus, this course attempts to place them within the shared common space of democracy, which is created by the exchanges and interactions among institutions. The manner in which institutions are constituted and function in relation with each other, and in the context of the wider social and political processes, are therefore, crucial for making sense of the democratic practices of the state. While the focus in this course will be on contemporary institutional forms and practices, their historical underpinnings, are also to be studied through an exploration of the debates that endure from the past.

POIR 410 - Political Processes and Governance in India

The social and economic processes that underlie the functioning of the political system in India are the focus of this paper. One needs to understand that the Indian constitution was intended to provide a framework for a modern, secular and democratic society and simultaneously perform the onerous task of bringing about development in a relatively impoverished and backward country. This hope and subsequent relative success and failure have to be analyzed in detail. It also needs to be examined the experience of the last six decades and the new challenges ahead in the context of globalization, liberalization and greater democratic expansion from below.

POIR 411 - Comparative Politics & Government

This paper deals with the theoretical approaches to the study of Comparative Politics. The paper intends to highlight on variations in systematic characteristics and processes, to equip us with a sound grasp of methodology of comparison and to enable us to understand alternative theoretical models and explanations. It analyzes in a comparative way, a fundamental grasp over the various theories and explanations regarding political development in the Third World countries. The paper concentrates specifically on some of the major paradigms or world views, which have elicited different theories of development, underdevelopment in the study of Comparative Politics.

POIR 412 - Modern Diplomacy

This paper attempts to familiarize the students to understand and appreciate the issues connected with modern international relations and to enable them to comprehend the scope and nature of diplomacy at work. It also makes an effort to illustrate and evaluate the role of celebrated diplomats who dominated the European political scene. While analyzing the developments that have characterized the path leading from traditional/classical diplomacy to the contemporary diplomacy, the course highlights the impact of information-communication technology on present diplomatic endeavours.

POIR 413 - Research Methodology

This paper is a basic introduction to the process and methods of empirical research for achieving scientific knowledge in Political Science. An attempt is made to relate social science research methods to other courses in syllabus of Political Science. The criticisms of different methods and schools are included. The two seminal works of method for Political Scientists - of Karl Popper and Thomas Kuhn - are given prominence. Different stages of research such as data collection, preparation of bibliography, writing of a report, dissertation and thesis are also taught.

POIR 414 - International Organization

This paper has been framed to make students aware with the evolution and the development of international organizations from its inception till present times. It focuses on the problems that confront international organizations and constraints within which they function. An in - depth study of

the structure and functioning of the United Nations needs to be undertaken and analyzed from the perspective of whether it has lived up to the expectations, hope and aspirations of its architects. In addition, the paper will throw light on the shift from political and security considerations to social, economic and humanitarian concerns following the end of the Cold War and UN's role in facilitating these changes.

POIR 418 - Central Asia in World Politics

This course aims to offer the students the better understanding of geopolitics in the Central Asian region especially after the disintegration of the USSR that had created a vacuum in the region for the international players. During the transition period, the new great game had started among Russia, the USA, China and EU, which calls for a thorough examination, for anyone interested in international politics. Other objectives are to explore the relations between India and the Central Asian countries. In addition to introducing students to the politics of Central Asia, the course also prepares them for higher studies in the subject area.

POIR 420 - China in International Politics

The present course enables the students to estimate the role of China in international politics and economics. It attempts to illustrate and evaluate the alternative concepts of democracy and human rights championed by China and its impacts on international politics. The course also intends to facilitate the understanding of the students of the internal political and economic dynamics of China and to familiarize them with the policies and mechanisms of China in achieving and sustaining economic growth.

POIR 421 - Politics of Social Movements

Social Movements are always responses to the Social and Economic disparities; they are organized response in the form of protest, most often, against the organized forms of power. The negation of the Meta narratives of power gives a little confusion regarding the Marxist understandings of power and politics. Postmodernism give a totally different picture of the social reality. The social movements of modernity are targeting single power center, most often the mode of production. The course aims at introducing different theoretical formulations regarding social movements to the students.

POIR 424 - Non-Conventional Security: Issues and Challenges

This course attempts to make the students understand the concept of non-conventional security and critically evaluate the culture, identity and security issues of various nations. It enables them to analyze the issues relating to displacement, migration and security and also to understand and appreciate energy security, human security, media and security, civil society and security and poverty of world nations by making case studies in developing countries especially India.

POIR 428 - Defence and Strategic Issues in India

This course tries to provide the student with the basic knowledge of certain concepts that are the base of understanding problems of security. The course on strategic studies focuses on its evolution and the concepts associated with problems of war and peace. The course also focuses on the geographic dimensions of strategy. It provides the backdrop in which strategic security needs to be understood and focuses on India's national security and its security policies.

POIR 429 - Peace and Conflict Resolution

This course introduces peace and conflict resolution studies to the students to enable them to learn the concepts as well as techniques of conflict resolution. Various approaches of conflict resolution like 'approach- approach', 'avoidance—approach' and 'avoidance – avoidance' are elaborately dealt with. The course also examines problems of war and peace from the perspectives of eminent thinkers such as M.K.Gandhi and Johan Galtung and their methods of conflict resolution, focusing on social, political and economic dimensions. The students are guided to find out the advantages and short comings of conflict prevention, management, resolution and transformation and to promote viable policy options for peace building and peace keeping in the context to globalization.

POIR 476 - Principles of Public Administration

This Course is designed to introduce the students to the elements of Public Administration which is expected to help them to obtain a suitable conceptual perspective on the subject. In addition, this course introduces students to the evolution and establishment of such institutional devices to meet the needs of the changing times.

POIR 427 - Indian Administrative System

This course aims to make students understand the administrative machinery of India. The course explores the structural and institutional evolution and the dynamics of organizational change at the government level in India. The course also makes the students aware of the emerging trends in Indian Administrative setup.

SCHOOL OF SOCIAL SCIENCES & INTERNATIONAL STUDIES
DEPARTMENT OF POLITICS AND INTERNATIONAL STUDIES

Content Learning Outcome

M.A. Political Science

POSC 111 - Principles of Political Science

This paper deals with basic concepts and ideas in Political Science. The purpose of this introductory paper is to accustom students at the Undergraduate level with theoretical background of Political Science.

POSC 112 - Ancient and Medieval Western Political Thought

This paper highlights the classical tradition in political theory in the ancient and medieval era. Through this course the students are expected to learn political theorizing done by masters of western political thought during the ancient and medieval times.

POSC 121 - Basic Political Concepts and Ideologies

This paper defines and highlights some basic political concepts and ideologies. The philosophical bases of ideologies need to be studied elaborately for the better understanding of political theory.

POSC 122 - Modern Western Political Thought

The study of this paper enables the students at undergraduate level to obtain the classical political tradition in the modern era. The political ideas and thoughts of political philosophers from Thomas Hobbes to Karl Marx have been included in the paper thus familiarising them with major political philosophies of modern world.

POSC 211 - Indian Constitution

This paper focuses on political processes and functioning of Indian political system within the framework of the Constitution of India. Basic principles of the Constitution and the structure and working of government machinery have also been dealt with.

POSC 212 - Modern Governments

The objective of this paper is to impart basic knowledge of the working of major modern political systems. This paper includes the study of the governmental systems of U.K, USA, France, Switzerland and China.

POSC 213 - Principles of Public Administration

This paper is an introductory course in public administration. The essence of public administration lies in its effectiveness in translating government philosophy into policies and programmes. This course highlights this aspect and related matters.

POSC 221 - Politics in India

In the modern system of representative government various elements and forces influence the political process. This paper deals with these factors in the Indian context. It also attempts to bring out the unique characteristics of the Indian polity.

POSC 222 - Comparative Politics

This paper deals with theoretical evolution and approaches to the study of Comparative Politics. It helps to have fundamental grasp over the various theories and explanations regarding political developments in various nations. Also concentrates specifically on some of the major paradigms or world views

POSC 223 - National Movements in India

This course is designed to enable students to understand the struggle of the Indian people against colonialism. It seeks to achieve this understanding by looking at this struggle from different theoretical perspectives that highlight its multi dimensions. The course begins with the nineteenth century Indian responses to colonial dominance in the form of reformism and its criticism and continues through various phases up to the events leading to Partition and Independence. In the process, the course tries to highlight its various conflicts and contradictions by focusing on its different dimensions: communalism, class struggle, caste and gender questions.

POSC 224 - Development Administration

As a branch of public administration, development administration became popular from 1960s. This course has been designed to acquaint the students with various aspects of development administration with special reference to India.

POSC 311 - Human Rights

Human rights have acquired a new significance since the end of Second World War in international relations. This course has been designed to enable the students to understand, appreciate and champion the cause of human rights.

POSC 312 - International Relations

This paper deals with concepts and dimensions of international relations and makes an analysis of different theories and concepts. This course is designed to acquaint the students with basic orientation in the area of international relations. It also formulate and communicate rigorous arguments, whether explanatory (social scientific) or prescriptive (ethical or legal), applied to a global or international context.

POSC 313 - Ancient Indian Political Thought

This is an introductory paper to study the concepts and ideas that developed in ancient India in the context of polity and statecraft. It highlights main sources and trends of political tradition in India.

POSC 314 - Major Issues in Contemporary Politics

The end of cold war has witnessed the emergence of social, economic, cultural and humanitarian concerns to the forefront of policy making initiatives. The objective of this paper is to study these concerns and their impact on national and international politics. It also attempts to apply political ideologies to the analysis of real-world political, economic and social institutions.

POSC 315 - International Organization

This paper deals with the evolution and the development of international organizations from their inception till present times. It also focuses on their objectives as well as the problems that they confront in achieving them.

POSC 321 - Public Policy Analysis

Policy execution is considered to be the legitimate domain of administration. This paper is framed as a policy science concerned and deals with the various aspects of the public policy process – policy planning and research, formulation, implementation, evaluation and analysis. It also attempts to study and analyse the problems that are encountered in formulating of policies and in implementing them.

POSC 322 - Gender and Politics

The major objective of this course is to make the students understand how the prevalence of patriarchy has marginalized and violated the rights of the female section of the society and how the creative and critical female agencies responded to the male-centric power configurations. The course aims at provoking the students both intellectually and politically, that may lead them to the critical evaluation of the male-centred socio-political systems, in both academic and activist lines.

POSC 323 - Modern Indian Political Thought

The aim of this course is to generate a critical awareness among the students about the distinctive features of the tradition of socio-religious and political philosophy of modern India and its response to western modernity and imperialism. It emphasizes on the contribution of Indian political thinkers in the modern era to political theorizing**.**

POSC 324 - India's Foreign Policy: Continuity, Changes and Emerging Challenges

India's foreign policy reflects the philosophy of India as a sovereign democratic nation and its role in global politics. This paper deals with basic principles of India's foreign policy and analyses the

issue of continuity and change in its formulation and execution. It also attempts to study the Indian efforts to deal with the emerging challenges.

POSC 325 - Local Self Government in India

India has experimented with local self-government from ancient times. However, democratic decentralization became mandatory only after the passing of 73rd and 74th constitutional amendment. This paper deals with the evolution of local self-governing institutions in India, working of PRIs and related issues. Study of the PRIs in the Andaman and Nicobar Islands has also been included.

POSC 411 - Origin, Evolution and Determinants of India's Foreign Policy

Foreign policy of India naturally reflects its philosophy as a sovereign democratic nation and the self- image and role it conceives for itself in the global policies. The focus of this paper is the theoretical perspective of the role of compulsions, constraints and conditions, which actually has framed the country's foreign policy for the past seven decades. Since it was Pt Jawaharlal Nehru, who analyzed these compulsions and constrains and accordingly laid the foundation of India's foreign policy, his role in India's conduct of external relations during his tenure as Prime Minister will be discussed elaborately.

POSC 412 - Key Readings from Classical Texts

The Objective of this course is to introduce students to select classical texts in Western Political Philosophy through an intensive reading of selected parts of the texts, and (ii) by making them familiar with different interpretation of the texts. The idea is to instill in students an interest in reading original works, in following the debates around the work, and to be aware of the different ways in which a text can be read.

POSC 413 - Theories of International Relations

This Course introduces graduate students to diverse traditions of theoretical endeavours in the International Relations as they have evolved around the world. It covers both explanatory and normative paradigms in international relations theory and give a brief overview of the state of the art of IR to students. The purpose of the course is to provide a thorough background in all schools of IR theory and the debates between them regarding their perspective on the nature of International Politics and how it is to be conceptualized, understood and judged, bearing in mind their geo-cultural specifications.

POSC 414 - The Politics of Social Movements

Social Movements are always responses to the socio-economic disparities; they are organized responses in the forms of protests, most often, against the organized forms of power. The negation of the meta narratives of power gives a little confusion regarding the Marxist understandings of power

and politics. Postmodernism gives a totally different picture of the social reality. The social movements of modernity were targeting single power center-most often the mode of production. The course aims at introducing to the students different theoretical formulations regarding social movements.

POIR 421 - Political Theory

This course seeks to introduce the students to major approaches in theorizing political life and to the major concepts in the discourse of politics. The course tries to make the students understand how the social and power relations are theorized by various theoretical projects. Political theories, being socio-psychological structures, the major aim of the course is to make the students understand, analyze and critically evaluate the context of the emergence of the theoretical projects/structures.

POSC 422 - International Organizations

This paper deals with the evolution and the development of international organizations from its inception till present times. It focuses on the problems that confront international organizations and constraints within which they function. An in-depth study of the structure and functioning of the United Nations needs to be undertaken and analyzed from the perspective of whether it has lived up to the expectations, hope and aspirations of its architects. In addition, the paper will throw light on the shift from political and security considerations to social, economic and humanitarian concerns following the end of the Cold War and UN's role in facilitating these changes.

POSC 423 - State Politics in India

This course tries to provide the understanding of federal politics in India. It tries to portray the state politics and their impact on the political system of India. It mainly highlights the state politics of West Bengal, Punjab, Tamil Nadu, Assam and Kashmir, as these states have long term interactions and impact on the Central Government.

POSC 424 - Political Sociology

Political Sociology has emerged as a branch of Political Science recently. The emergence of this discipline has broken the barriers between state and society and has helped political scientists to establish an essential identity between social process and political process. This paper seeks to enable the students at P.G. level to study political processes and problems from a sociological perspective.

POSC 511 - Research Methodology

This paper on Research Methodology is a basic introduction to the process and methods of empirical research for achieving scientific knowledge in the subject. An attempt is made to relate social science research methods to other courses in the syllabi of Political Science. This paper enables the student at P.G. level to learn methods of data collection, sampling procedure, analysis of data, report writing and preparation of bibliography.

POSC 512 - Indian Political System

The study of social and economic processes that underlie the functioning of the political system in India is the focus of the paper. One needs to understand that the Constitution of India has been intended to provide framework for a modern, secular and democratic society. The experience of the last more than sixty years and the challenges ahead in the context of globalization, liberalization and greater democratic expansion from below needs to be studied.

POSC 513 - Political Economy

Political economy has a crucial role to play in conditioning the patterns of politics in a given society. The purpose of this course is to understand the impact of political economy on the political process. This course also intends at acquainting the students with significant political economy issues such as liberalization, changing configuration of class and other related aspects.

POSC 514 - Advanced Political Theory

This course seeks to introduce the students to an advanced level of political theory and to the major concepts in the discourse of politics. The course tries to make the students understand how the social and power relations are theorized by various theoretical projects. Political theories, being socio psychological structures; the major aim of the course would be to make the students understand and analyze the context of the emergence of the theoretical projects/structures. The politics of each such theoretical project would be critically evaluated.

School of __Engineering & Technology_____

Department of_Centre for Pollution Control & Environmental Engineering__

Name of the Program __M. Tech._____

COURSE OUTCOME

Course Code:_393_; Course Title_Environmental Engineering & Management

1. To develop skills to identify and solve environment related problems

2. To acquire knowledge and participation in environmental protection

3. To gain expertise in developing sustainable environmental management practices

4. To develop simple, inexpensive, feasible and socially acceptable methods/technologies for environmental protection

5. To participate and contribute as Environmental Engineers in multi-disciplinary teams for clean environment

SCHOOL OF SOCIAL SCIENCE AND INTERNATIONAL STUDIES

DEPARTMENT OF SOCIOLOGY

Name of the Program: Five year MA Integrated

COURSE OUTCOME

Course Code: SOCL111;   **Course Title: INTRODUCTION TO SOCIOLOGY**

Objective of the Course

It introduces the student to the basic concepts in sociology in order to show how sociology is premised on society as an object of study.

Course Code: 112 ;   **Course Title: RURAL SOCIOLOGY**

Objective of the Course

The objective of this course is to orient students with sociological approach to the study of rural society and provide a comprehensive understanding of the socio-economic and political structure of rural society in India.

Course Code: 113 ;   **Course Title: SOCL 113 CRIME AND SOCIETY**

Objective of the Course

It introduce the student to the nature, extent, causes, and control of criminal behavior in both the individual and in society and an understanding about the incidence, forms, causes and consequences of crime, as well as social and governmental regulations and reaction to crime

Course Code: 121 ;   **Course Title: INDIAN SOCIETY**

Objective of the Course

The course will lead students to understanding the social structure of Indian society. And familiarize the basic social institutions and village and tribal life of India and gives insight about the social change in India.

Course Code: 122 ;   **Course Title: URBAN SOCIOLOGY**

Objective of the Course

The course gives an understanding about the emergence and growth of Urban Sociology and consequences of urbanization, social structure in Urban Society and challenges in urban governance.

Course Code: 123 ;   Course Title: SOCIAL PSYCHOLOGY

Objective of the Course

The course provides an understanding of basic concepts in social psychology. It initiates the student into basic understanding on social behavior and it also provides basic understanding on personality and its relation with social system

Course Code: 211   Course Title: SOCIAL PROBLEMS IN INDIA - I

Objective of the Course

The objective of this course is to introduce the student to the problems of contemporary society in India and enable them to understand these problems from a sociological perspective.

Course Code: 212 ;   Course Title: SOCIAL CHANGE AND DEVELOPMENT

Objective of the Course

This course provides conceptual and theoretical understanding of social change and development.It addresses in particular the Indian experience of social change and development.

Course Code: 213 ;   Course Title: HEALTH AND SOCIETY

Objective of the Course

The course provides general understanding of sociological aspects of health and health care and it also familiarize the students the health policy and planning in India.

Course Code: 221 ;   Course Title: SOCIAL PROBLEMS IN INDIA – II

Objective of the Course

The objective of this course is to introduce the student to the problems of contemporary society in India and enable them to understand these problems from a sociological perspective.

Course Code: 222 ;   Course Title: ELEMENTS OF SOCIAL ANTHROPOLOGY

Objective of the Course

The course introduces the students to the discipline of social anthropology and to the profession of Anthropologists/Sociologists. This is done by discussing the core concepts of the subject and the history of its emergence along with how understanding and interpretation of them takes place through fieldwork.Culture and its related concepts will allow the students to understand what it means to be human.

Course Code: 223 ; Course Title: SOCIAL WELFARE AND SOCIAL LEGISLATION

Objective of the Course

The course introduces the student to the constitutional provisions and welfare goals of the state in India and bring the students to the social welfare needs of the people of India.

Course Code: 311 ; Course Title: SOCIOLOGICAL THINKERS

Objective of the Course

Students will get understanding on the origin and development of Sociology as a subject. They can learn the classical theories propounded by various thinkers and various aspects of social life are analyzed by early sociological thinkers.

Course Code: 312 ; Course Title: POPULATION AND SOCIETY

Objective of the Course

The course acquaints the students to the demographic features and trends of Indian Society vis-à-vis World Population. And introduces the student to understand Population as a social phenomenon.

Course Code: 313 ; Course Title: GENDER AND SOCIETY

Objective of the Course

The course introduces the student to basic concepts in feminism, varied forms of violence against women and examines the differing ways in which inequality between sexes has been explained. And it also introduces the student to the concerns of the women's movement in India.

Course Code: 314 ;   **Course Title: TRIBAL SOCIETY IN INDIA**

Objective of the Course

The course provides a comprehensive history on the categorization of the 'tribal' society. It introduces the student to understand the demographic features, social structure and cultural patterns. Andalso seeks to enable the students to understand the problems of tribal people and the welfare policies available.

Course Code: 315 ;   **Course Title: DEVIANCE AND SOCIAL CONTROL**

Objective of the Course

To outline the study of deviance and social control as a contention between those with adequate authority to create and impose several description of social reality to the exclusion of "others". To travel around such areas is to focus on the complex and often conflicting social practices by which some conducts of behaviour, thought, and sentiments are made to look as good, or even "natural," while others are made to appear evil, sleazy, dirty, dangerous, sick, immoral, crazy, or just clear "deviant."

Course Code: 321 ;   **Course Title: PIONEERS OF INDIAN SOCIOLOGY**

Objective of the Course

This course exposes the students to the contribution of sociologists who have built-up sociology in India.

Course Code: 322 ;   **Course Title: EDUCATION AND SOCIETY**

Objective of the Course

The Course introduces the student to sociology of education in India. It maps the development of education in India and familiarizes the student to the meaning, social functions, and alternative forms of education. It leads to understand the recent developments and the problems in the education system today.

Course Code: 323 ;   **Course Title: BASIC RESEARCH METHODS**

Objective of the Course

On completion of this course students will be able to understand the general principles and methods involved in doing social research.

Course Code: 324 ;   **Course Title: MASS MEDIA AND SOCIETY**

Objective of the Course

The course intends to provide and understanding of different types of media and forms of communication. It provides a basic understating of relationship between media and society.Finally, to analyze the changes in media, society and culture.

Course Code: 325 ;   **Course Title: SOCIOLOGY OF TOURISM**

Objective of the Course

The main objective of this course is to provide basic understanding of tourism and its social dimensions. It looks into the impact of tourism on society and culture.

SCHOOL OF SOCIAL SCIENCE AND INTERNATIONAL STUDIES
DEPARTMENT OF SOCIOLOGY

Name of the Program: MA SOCIOLOGY

COURSE OUTCOME

Course Code: 411;   **Course Title: FUNDAMENTALS OF SOCIOLOGY**

Objective of the Course

This course gives a basic understanding of various fundamental concepts of Sociology. It helps the students to understand the importance of some of the social phenomena.

Course Code: 412 ;   **Course Title: CLASSICAL SOCIOLOGICAL TRADITIONS**

Objective of the Course

This course is designed to acquaint students with the thought of the founders of sociology. It is intended to give students grounding in sociological theory that they can carry over and apply to all other courses on society.

Course Code: 413 ;   **Course Title: SOCIOLOGY OF INDIA**

Objective of the Course

The course addresses sociological studies of caste, religion, village, family, and kinship. The course is also meant as a prelude to a course on perspectives in understanding Indian society to be taken up in the following semester.

Course Code: 421 ;   Course Title: CONTEMPORARY SOCIOLOGICAL THEORIES

Objective of the Course

Through this course students will get a historical background within which sociological theories have emerged. It will help them to accustom with contemporary sociological theorists and their work. Also help todevelop critical thoughts and assessment of sociological theory.

Course Code: 422 ;   Course Title: INDIAN SOCIOLOGICAL PERSPECTIVES

Objective of the Course

The course primarily focuses on the differing theoretical perspectives on Indian Society from late 19th Century to the end of 20th century and their role in shaping the field of sociology. It focuses on scholars with varying research trajectories and the threads that bind them together into a perspective.

Course Code: 423 ;   Course Title: RESEARCH METHODS AND STATISTICS

Objective of the Course

This course provides philosophical underpinnings of the social research and familiarizes the students with methodological tools and statistical techniques, explaining quantitative and qualitative methods, which will help them to undertake empirical research independently.

Course Code: 511 ;   Course Title: SOCIOLOGY OF DEVELOPMENT

Objective of the Course

The objective of this course is to explore dominant schools of development theories and to highlight issues related to development and its impact on society.

Course Code: 512 ;   Course Title: AGRARIAN SOCIAL STRUCTURE IN INDIA

Objective of the Course

This course provides a background of agrarian studies and its growth in Indian sociology. It provides a comprehensive understanding to the students on agrarian structure and change in India particularly, under the impact of colonialism, planning and the recent neo-liberalism and the underlying conceptual and theoretical issues.

Course Code: 513 ;   **Course Title: SOCIAL MOVEMENTS IN INDIA**

Objective of the Course

This course aims to inculcate students with sociological perspectives to study social movements. It provides an overview of conceptual and theoretical issues in the study of social movements.

Course Code: 521 ;   **Course Title: INDUSTRIAL SOCIOLOGY**

Objective of the Course

This course gives a scientific understanding of Industrial Society. It helps the students to understand the nature of Industrial problems. And equips the students to prevent and to settle the Industrial problems.

Course Code: 522 ;   **Course Title: ECONOMIC SOCIOLOGY**

Objective of the Course

This course is based on a critique of the 'mainstream' economics, particularly the neoclassical economics and tries to explain the relationship between economy and society.It will enable the students to view economy and economic activities from sociological perspectives.

Course Code: 523 ;   **Course Title: PROJECT WORK AND VIVA**

Soft Core Papers

Course Code: SOCL 414 ;   **Course Title: SOCIOLOGY OF CULTURE**

Objective of the Course

The course provides students with a foundation in cultural sociology. It will lead students to major themes and issues in cultural sociology considering the sociological approach to culture, which entails answering the following questions: "What is culture and what does it do?" and "How is culture to be studied?"

Course Code: SOCL 416 ;Course Title: SOCIOLOGY OF MUSLIM COMMUNITIES IN INDIA

Objective of the Course

The course introduces the student to the diversity in/of the Muslim world, within a framework that views religion from an ethnographic and historical perspective rather than theological. The

course will follow a historical / contextual approach in understanding various institutions and movements, with an emphasis on embeddedness.

Course Code: SOCL 418 ;   **Course Title: SOCIAL DEMOGRAPHY**

Objective of the Course

The course examines the aspects of population composition, the theoretical perspectives and policy implications.

Course Code: SOCL 426 ;   **Course Title: ECOLOGY AND SOCIETY**

Objective of the Course

The course takes a historical approach in tracing the emergence of environmentalism and the establishment of environment sociology as an academic discipline. The course also discusses significant theories and concepts related to the subject linking them through appropriate case studies to environmental problems, regulation/policy and movements.

Course Code: SOCL 427 ;   **Course Title: SOCIOLOGY OF GENDER**

Objective of the Course

The course introduces the students to feminist theory and methodology. It also discusses concerns of the women's movement in India in which differences, of class, caste, and community and rural-urban divide are attended to. Through this course students can explore the gender gaps in development, employment, land distribution and inheritance.

Course Code: SOCL 516 ;   **Course Title: GLOBALIZATION AND SOCIETY**

Objective of the Course

The course will give the students an overview of the emergence of globalization from socio-historical and politico-economic contexts, along with the main theoretical discourses. The students will also be apprised of the different socio-cultural consequences of globalization.

Course Code: SOCL 517;   **Course Title: SOCIAL CAPITAL**
Objective of the Course

The paper will give an idea on the emergence of social capital and its implications in understanding society.

Course Code: SOCL 518;   **Course Title: SOCIOLOGY OF CASTE**

Objective of the Course

The course endeavors to introduce the student to get a glimpse of narrative of caste in Sociology of India. It maps the modern lives of caste since the colonial times to the present.

Course Code: SOCL 527;   **Course Title: SOCIOLOGY OF EDUCATION**

Objective of the Course

Thecourse will give an outline about the discipline of education in Sociological perspectives; andillustrate the role of education in desirable social change, sustainability and socio-economic development.

Course Code: SOCL 528 ;   **Course Title: SOCIOLOGY OF AGING**

Objective of the Course

Course will lead the student to understand and apply sociological perspectives on aging, particularly the life-course perspective; to understand the diversity of the older population and the impact of rural/urban differences, culture, race, ethnicity, social class, and gender; to understand the basis of stereotypes of aging and their impacts; to understand major substantive areas of aging such aspolitics, health, family relationships and care-giving, work and retirement and economic wellbeing.

Course Code: SOCL 529 ;   **Course Title: POLITICAL SOCIOLOGY**

Objective of the Course

The course introduces the student to basic concepts, and approaches to the study of the political sociology. It gives an idea about the complex patterns of change in democratic institutions. Students will get an understanding on the transformations of state and society under capitalism and socialism.

SCHOOL OF SOCIAL SCIENCE AND INTERNATIONAL STUDIES

DEPARTMENT OF SOCIOLOGY

Name of the Program: Five year MA Integrated

COURSE OUTCOME

Course Code: SOCL111;   **Course Title: INTRODUCTION TO SOCIOLOGY**

Objective of the Course

It introduces the student to the basic concepts in sociology in order to show how sociology is premised on society as an object of study.

Course Code: 112 ;   **Course Title: RURAL SOCIOLOGY**

Objective of the Course

The objective of this course is to orient students with sociological approach to the study of rural society and provide a comprehensive understanding of the socio-economic and political structure of rural society in India.

Course Code: 113 ;   **Course Title: SOCL 113 CRIME AND SOCIETY**

Objective of the Course

It introduce the student to the nature, extent, causes, and control of criminal behavior in both the individual and in society and an understanding about the incidence, forms, causes and consequences of crime, as well as social and governmental regulations and reaction to crime

Course Code: 121 ;   **Course Title: INDIAN SOCIETY**

Objective of the Course

The course will lead students to understanding the social structure of Indian society. And familiarize the basic social institutions and village and tribal life of India and gives insight about the social change in India.

Course Code: 122 ;   **Course Title: URBAN SOCIOLOGY**

Objective of the Course

The course gives an understanding about the emergence and growth of Urban Sociology and consequences of urbanization, social structure in Urban Society and challenges in urban governance.

Course Code: 123 ;   **Course Title: SOCIAL PSYCHOLOGY**

Objective of the Course

The course provides an understanding of basic concepts in social psychology. It initiates the student into basic understanding on social behavior and it also provides basic understanding on personality and its relation with social system

Course Code: 211   **Course Title: SOCIAL PROBLEMS IN INDIA - I**

Objective of the Course

> The objective of this course is to introduce the student to the problems of contemporary society in India and enable them to understand these problems from a sociological perspective.

Course Code: 212 ;   **Course Title: SOCIAL CHANGE AND DEVELOPMENT**

Objective of the Course

> This course provides conceptual and theoretical understanding of social change and development.It addresses in particular the Indian experience of social change and development.

Course Code: 213 ;   **Course Title: HEALTH AND SOCIETY**

Objective of the Course

> The course provides general understanding of sociological aspects of health and health care and it also familiarize the students the health policy and planning in India.

Course Code: 221 ;   **Course Title: SOCIAL PROBLEMS IN INDIA – II**

Objective of the Course

> The objective of this course is to introduce the student to the problems of contemporary society in India and enable them to understand these problems from a sociological perspective.

Course Code: 222 ;   **Course Title: ELEMENTS OF SOCIAL ANTHROPOLOGY**

Objective of the Course

> The course introduces the students to the discipline of social anthropology and to the profession of Anthropologists/Sociologists. This is done by discussing the core concepts of the subject and the history of its emergence along with how understanding and interpretation of them takes place through fieldwork.Culture and its related concepts will allow the students to understand what it means to be human.

Course Code: 223 ; Course Title: SOCIAL WELFARE AND SOCIAL LEGISLATION

Objective of the Course

> The course introduces the student to the constitutional provisions and welfare goals of the state in India and bring the students to the social welfare needs of the people of India.

Course Code: 311 ;　　　　　　**Course Title: SOCIOLOGICAL THINKERS**

Objective of the Course

Students will get understanding on the origin and development of Sociology as a subject. They can learn the classical theories propounded by various thinkers and various aspects of social life are analyzed by early sociological thinkers.

Course Code: 312 ;　　　　　　**Course Title: POPULATION AND SOCIETY**

Objective of the Course

The course acquaints the students to the demographic features and trends of Indian Society vis-à-vis World Population. And introduces the student to understand Population as a social phenomenon.

Course Code: 313 ;　　　　　　**Course Title: GENDER AND SOCIETY**

Objective of the Course

The course introduces the student to basic concepts in feminism, varied forms of violence against women and examines the differing ways in which inequality between sexes has been explained. And it also introduces the student to the concerns of the women's movement in India.

Course Code: 314 ;　　　　　　**Course Title: TRIBAL SOCIETY IN INDIA**

Objective of the Course

The course provides a comprehensive history on the categorization of the 'tribal' society. It introduces the student to understand the demographic features, social structure and cultural patterns. Andalso seeks to enable the students to understand the problems of tribal people and the welfare policies available.

Course Code: 315 ;　　　　　　**Course Title: DEVIANCE AND SOCIAL CONTROL**

Objective of the Course

To outline the study of deviance and social control as a contention between those with adequate authority to create and impose several description of social reality to the exclusion of "others". To travel around such areas is to focus on the complex and often conflicting social practices by which some conducts of behaviour, thought, and sentiments are made to look as good, or even

"natural," while others are made to appear evil, sleazy, dirty, dangerous, sick, immoral, crazy, or just clear "deviant."

Course Code: 321 ;   **Course Title: PIONEERS OF INDIAN SOCIOLOGY**

Objective of the Course

This course exposes the students to the contribution of sociologists who have built-up sociology in India.

Course Code: 322 ;   **Course Title: EDUCATION AND SOCIETY**

Objective of the Course

The Course introduces the student to sociology of education in India. It maps the development of education in India and familiarizes the student to the meaning, social functions, and alternative forms of education. It leads to understand the recent developments and the problems in the education system today.

Course Code: 323 ;   **Course Title: BASIC RESEARCH METHODS**

Objective of the Course

On completion of this course students will be able to understand the general principles and methods involved in doing social research.

Course Code: 324 ;   **Course Title: MASS MEDIA AND SOCIETY**

Objective of the Course

The course intends to provide and understanding of different types of media and forms of communication. It provides a basic understating of relationship between media and society.Finally, to analyze the changes in media, society and culture.

Course Code: 325 ;   **Course Title: SOCIOLOGY OF TOURISM**

Objective of the Course

The main objective of this course is to provide basic understanding of tourism and its social dimensions. It looks into the impact of tourism on society and culture.

SCHOOL OF SOCIAL SCIENCE AND INTERNATIONAL STUDIES
DEPARTMENT OF SOCIOLOGY
Name of the Program: MA SOCIOLOGY

COURSE OUTCOME

Course Code: 411;   **Course Title: FUNDAMENTALS OF SOCIOLOGY**

Objective of the Course

This course gives a basic understanding of various fundamental concepts of Sociology. It helps the students to understand the importance of some of the social phenomena.

Course Code: 412 ;   **Course Title: CLASSICAL SOCIOLOGICAL TRADITIONS**

Objective of the Course

This course is designed to acquaint students with the thought of the founders of sociology. It is intended to give students grounding in sociological theory that they can carry over and apply to all other courses on society.

Course Code: 413 ;   **Course Title: SOCIOLOGY OF INDIA**

Objective of the Course

The course addresses sociological studies of caste, religion, village, family, and kinship. The course is also meant as a prelude to a course on perspectives in understanding Indian society to be taken up in the following semester.

Course Code: 421 ;   **Course Title: CONTEMPORARY SOCIOLOGICAL THEORIES**

Objective of the Course

Through this course students will get a historical background within which sociological theories have emerged. It will help them to accustom with contemporary sociological theorists and their work. Also help todevelop critical thoughts and assessment of sociological theory.

Course Code: 422 ;   **Course Title: INDIAN SOCIOLOGICAL PERSPECTIVES**

Objective of the Course

The course primarily focuses on the differing theoretical perspectives on Indian Society from late 19th Century to the end of 20th century and their role in shaping the field of sociology. It focuses on scholars with varying research trajectories and the threads that bind them together into a perspective.

Course Code: 423 ;   **Course Title: RESEARCH METHODS AND STATISTICS**

Objective of the Course

This course provides philosophical underpinnings of the social research and familiarizes the students with methodological tools and statistical techniques, explaining quantitative and qualitative methods, which will help them to undertake empirical research independently.

Course Code: 511 ;   **Course Title: SOCIOLOGY OF DEVELOPMENT**

Objective of the Course

The objective of this course is to explore dominant schools of development theories and to highlight issues related to development and its impact on society.

Course Code: 512 ;   **Course Title: AGRARIAN SOCIAL STRUCTURE IN INDIA**

Objective of the Course

This course provides a background of agrarian studies and its growth in Indian sociology. It provides a comprehensive understanding to the students on agrarian structure and change in India particularly, under the impact of colonialism, planning and the recent neo-liberalism and the underlying conceptual and theoretical issues.

Course Code: 513 ;   **Course Title: SOCIAL MOVEMENTS IN INDIA**

Objective of the Course

This course aims to inculcate students with sociological perspectives to study social movements. It provides an overview of conceptual and theoretical issues in the study of social movements.

Course Code: 521 ;   **Course Title: INDUSTRIAL SOCIOLOGY**

Objective of the Course

This course gives a scientific understanding of Industrial Society. It helps the students to understand the nature of Industrial problems. And equips the students to prevent and to settle the Industrial problems.

Course Code: 522 ;   **Course Title: ECONOMIC SOCIOLOGY**

Objective of the Course

This course is based on a critique of the 'mainstream' economics, particularly the neoclassical economics and tries to explain the relationship between economy and society.It will enable the students to view economy and economic activities from sociological perspectives.

Course Code: 523 ;   **Course Title: PROJECT WORK AND VIVA**

Soft Core Papers

Course Code: SOCL 414 ;   **Course Title: SOCIOLOGY OF CULTURE**

Objective of the Course

The course provides students with a foundation in cultural sociology. It will lead students to major themes and issues in cultural sociology considering the sociological approach to culture, which entails answering the following questions: "What is culture and what does it do?" and "How is culture to be studied?"

Course Code: SOCL 416 ;Course Title: SOCIOLOGY OF MUSLIM COMMUNITIES IN INDIA

Objective of the Course

The course introduces the student to the diversity in/of the Muslim world, within a framework that views religion from an ethnographic and historical perspective rather than theological. The course will follow a historical / contextual approach in understanding various institutions and movements, with an emphasis on embeddedness.

Course Code: SOCL 418 ;   **Course Title: SOCIAL DEMOGRAPHY**

Objective of the Course

The course examines the aspects of population composition, the theoretical perspectives and policy implications.

Course Code: SOCL 426 ;   **Course Title: ECOLOGY AND SOCIETY**

Objective of the Course

The course takes a historical approach in tracing the emergence of environmentalism and the establishment of environment sociology as an academic discipline. The course also discusses significant theories and concepts related to the subject linking them through appropriate case studies to environmental problems, regulation/policy and movements.

Course Code: SOCL 427 ;   **Course Title: SOCIOLOGY OF GENDER**

Objective of the Course

The course introduces the students to feminist theory and methodology. It also discusses concerns of the women's movement in India in which differences, of class, caste, and community and rural-urban divide are attended to. Through this course students can explore the gender gaps in development, employment, land distribution and inheritance.

Course Code: SOCL 516 ;   **Course Title: GLOBALIZATION AND SOCIETY**

Objective of the Course

The course will give the students an overview of the emergence of globalization from socio-historical and politico-economic contexts, along with the main theoretical discourses. The students will also be apprised of the different socio-cultural consequences of globalization.

Course Code: SOCL 517;   **Course Title: SOCIAL CAPITAL**
Objective of the Course

The paper will give an idea on the emergence of social capital and its implications in understanding society.

Course Code: SOCL 518;   **Course Title: SOCIOLOGY OF CASTE**

Objective of the Course

The course endeavors to introduce the student to get a glimpse of narrative of caste in Sociology of India. It maps the modern lives of caste since the colonial times to the present.

Course Code: SOCL 527;   **Course Title: SOCIOLOGY OF EDUCATION**

Objective of the Course

Thecourse will give an outline about the discipline of education in Sociological perspectives; andillustrate the role of education in desirable social change, sustainability and socio-economic development.

Course Code: SOCL 528 ;   Course Title: SOCIOLOGY OF AGING

Objective of the Course

Course will lead the student to understand and apply sociological perspectives on aging, particularly the life-course perspective; to understand the diversity of the older population and the impact of rural/urban differences, culture, race, ethnicity, social class, and gender; to understand the basis of stereotypes of aging and their impacts; to understand major substantive areas of aging such aspolitics, health, family relationships and care-giving, work and retirement and economic wellbeing.

Course Code: SOCL 529 ;   Course Title: POLITICAL SOCIOLOGY

Objective of the Course

The course introduces the student to basic concepts, and approaches to the study of the political sociology. It gives an idea about the complex patterns of change in democratic institutions. Students will get an understanding on the transformations of state and society under capitalism and socialism.

School of   Humanities

Department of   PHILOSOPHY

Name of the Programme   M.A. & Ph.D.

COURSE OUTCOME

Course Code   Course Title

1. Phil. 422   Indian Philosophy of Values
2. Phil.434   Applied Ethics
3. Phil.521   Contemporary Indian Philosophy
4. Phil.531   Philosophical Approach to Gandhian Thought
5. Phil.611   Research Methodology

PSO's of M.A. Philosophy

1. Acquiring awareness of the Indian Philosophy meaning nature, salient features and its significance.
2. Understand the culture and values hidden in Indian Philosophy

3. Distinction between Classical and Contemporary Indian Philosophy
4. Awareness of origin and nature of Western Philosophy and Philosophers of various periods
5. The study of yoga gives awareness of the practice and its importance
6. The study of Indian Culture reveals the importance of Hinduism

7. Basic Awareness of Philosophy at UG level helps in choosing the Branch in Masters

8. The awareness leads to the understanding of various areas of Philosophy both Western and Indian of different periods beyond the UG level & Extend them at the advanced level

9. Trained in paper presentations by participating in regular weekly seminars and updating the communicative skills and language

10. Improving their reading & writing skills through participating various departmental activities

11. Undergoing training in writing Projects and facing viva – voce examinations.

12. By attending the lecture programs given by experts from other Universities, students are exposed towards the emerging trends in the contemporary society

After completing the Master's Degree Programme in Philosophy the student has the following knowledge skills and competences

KNOWLEDGE

Awareness of advanced knowledge of the each subject. In depth knowledge about various aspects that throws light on new perspectives.

Detailed Analysis on each topic leads to the Multi disciplinary approach

SKILLS

After finishing the course the student develops the clear understanding about the subject and aware of the emerging trends in Philosophy. The kind of courses that we are offering will be helpful to the students to complete with UPSC and other competitive examinations.

Regular updation of curriculum according to the need and requirement of the time and period helps the students to compete in their respective fields

Department of : SANSKRIT

School of Humanities

Program Specific Outcome for_____M.A. Sanskrit

After having completed the Master's Degree Programme in Sanskrit, the student should have the following knowledge , skill and competence.

1. A broad outline of the vast Sanskrit literature.

2. A thorough knowledge of the Sanskrit Grammar

3. A good understanding of the theories of Sanskrit literary criticism (Alankarasastra)

4. A discerning knowledge of the different Genre of compositions such as Major Poetry, Lyrics, Prose, Drama etc.

5. A sound knowledge of Dramaturgy.

6. An in-depth knowledge of the different schools of Indian philosophy like the Vedanta, the Sankhya, the Yoga etc.

7. A textual study and understanding of the Vedic hymns and an in-depth study of Upanishads
8. A concise knowledge of Prosody, Lexicography
9. To develop the skill to convey the different streams of thought and ideas through the medium of Sanskrit.

 To develop the know-how to take up a topic of research orientation and probe further to write a Project Work.

School of:Physical, Chemical & Applied Sciences

Department of:Disaster Management

Name of the Programme: M.Sc.,Disaster Management

COURSE OUTCOME

Course Code:379   **Course Title:DDM**

1. Students receive in-depth training in various fields of Disaster and develop knowledge, attitudes and skills needed to work in interdisciplinary teams addressing complex hazardous problems.

2. They can develop their skills in identifying problems related to Hazards and Disasters (Natural and man-made hazards) by using instruments like GPR (Ground Penetrating Radar), Terra TEM, Resistivity Imaging and Resistivity Variometer. Side scan sonar, Marine magnetometer, Total station and GPS.

3. They can provide suitable solution through Geospatial technique like Remote sensing and GIS techniques.

4. Skills like self-awareness (skills, abilities, learning styles), Oral and written, communication, Critical thinking, Observation, Problem solving, Decisions making based on incomplete/ambiguous data, Quantitative skills, computational skills, Integrate disparate ideas to see the big picture, Able to work in teams of diverse people or independently, Visualize in possible dimensions Computer Knowledge, Use of GIS and remote sensing, Choose good/best idea or solution for Disaster management, Evaluate sources of information for reliability and Communicate knowledge to a variety of audiences

1.	**Course Code : EENG 510**	**Course Title: Electronics System Laboratory**
	The students will have the ability to design, conduct test for the electronics system in order to analyse and interpret experiments; and to apply experimental results to improve processes	

Attitudes like Self-motivation, Leadership Tolerance for ambiguity, frustration, persistence Flexibility, Lifelong Researcher, Appreciation for other cultures and people from different backgrounds, Self-confidence/reliance, Ethics, Open thinking, Dedication/enthusiasm, Professionalism and Co-operation.

School of **Engineering and Technology**

Department of **Electronics Engineering**

Name of the Program M.Tech. (Electronics and Communication Engineering)

COURSE OUTCOME

2.	**Course Code : EENG 511**	**Course Title: Probability and Stochastic Processes**

	The students will be able to apply the different mathematical concepts to various applications of Electronics and Communication Engineering.	
3.	**Course Code : EENG 512**	**Course Title: Advanced Digital Communication**
	The students will be able to imply the concepts of advanced digital communication techniques to various applications.	
4.	**Course Code : EENG 514**	**Course Title: High Speed Semiconductor Devices**
	The students will be able to understand the behaviour of semiconductor materials and be aware of the structure of advanced devices and their fabrication techniques.	
5.	**Course Code : EENG 515**	**Course Title: VLSI Design Techniques**
	The students will be aware of principles and design issues of various VLSI circuits.	
6.	**Course Code : EENG 522**	**Course Title: Advanced Electromagnetics**
	The students will be able to analyse the electromagnetic field integral equation for any type of microwave circuit design	
7.	**Course Code : EENG 534**	**Course Title: Micro-Electromechanical Systems**
	The students will be able to design different types of MEMS based devices, circuits and subsystems.	
8.	**Course Code : EENG 543**	**Course Title: Advanced Technologies in Wireless Networks**
	The students will able to understand the various technologies in wireless networks.	
9.	**Course Code : EENG 549**	**Course Title: Green Radio Communication Networks**
	The students will be able to design green radio communication networks with energy efficient techniques	
10.	**Course Code : EENG 620**	**Course Title : Project and Viva Voce : Part II**
	The students will have the ability to identify, analyze and solve broadly defined engineering and technology problems using related tools	

School of Social Sciences & International Studies

Department of Center for Study of Social Exclusion & Inclusive Policy

Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code: SEIP 401

Course Title: INCLUSIVE POLICY AND SCHEDULED TRIBES

1. The students will understand the categorical invention of 'Scheduled tribe' through a historical approach
2. They will know the transformation of tribal administration and development through the colonial and post-colonial eras.
3. The course will provide details on the heterogeneity within the category of Scheduled tribes.
4. The students will be know the significant development policies undertaken for Scheduled tribes.

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Department of Center for Study of Social Exclusion & Inclusive Policy

Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code :SEIP 402

Course title: *ADIVASIS* : DISPLACEMENT, INSURGENCY AND ETHNIC MOVEMENTS

1. The course provide knowledge on significant *adivasi* movements

2. It discusses key concepts in relation with the typologies of the tribal movements.

3. It delinates the factors of exclusion of the *adivasis*.

4. It relates how the problem of exclusion leads to impoverishment.

5. It provides an understanding on dispossession and its link to social movement.

School of Social Sciences & International Studies

Department of Center for Study of Social Exclusion & Inclusive Policy

Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code : SEIP 403

Course Title: SOCIAL INEQUALITIES AND ECONOMIC EXCLUSION/DISCRIMINATION IN INDIA

1. It discusses the concept and definition of Social exclusion and Economic exclusion in the Indian context.

2. It explores the theoretical understanding of social exclusion and economic exclusion in particular.

3. It discusses the economic discrimination through the institution of caste.

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Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code: SEIP 404

Course Title: DALIT MOVEMENTS IN INDIA

1. It provides an understanding of the concepts, framework and approaches to Dalit movements in India.
2. It discusses the forms of untouchability and problems of Dalits in India.
3. It highlights the constitutional provisions, privileges and policies available for Dalits in India.
4. The students will gain an understanding on how exclusion is a multidimensional problem for dalits

School of Social Sciences & International Studies

Department of Center for Study of Social Exclusion & Inclusive Policy

Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code: SEIP405

Course Title: POLICIES, PROGRAMMES AND ACTS FOR PEOPLE WITH DISABILITY

1. It provides knowledge on the concept and models (social, medical, political) of disability.
2. It equips students to understand the issues faced by PWDs and their caretakers
3. It guides in sensing the disability and sharing the experiences
4. It analyses the individual and societal perspectives towards disability.
5. It examines the policies and affirmative action towards PWDs

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Name of the Program <u>M.A Soft core Courses only</u>

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<u>COURSE OUTCOMES</u>

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Course Code: SEIP 406

Course Title: HEALTH ISSUES AMONG MARGINALISED COMMUNITIES

1. The students will understand the concept of marginalization in a human rights perspective.
2. The course imparts knowledge on the health issues (pertaining to marginalized communities) like malnutrition, communicable and non-communicable diseases, pregnancy and child birth related complications.
3. It highlights the effectiveness of the existing health delivery systems (Sub Centers, Primary Health Centers and Community Health Centers).
4. It analyses the roles of state/central policies and legislation pertaining to health and its inclusiveness.

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Name of the Program <u>M.A Soft core Courses only</u>

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<u>COURSE OUTCOMES</u>

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Course Code : SEIP407

Course Title: SOCIAL EXCLUSION – THEORIES AND CONCEPTS

1. The course provides an insight into the historical background of the concept social exclusion

2. The students will see how the concept is related to various theoretical perspectives on inequality, poverty and discrimination.

3. It discusses different forms of social exclusion with case studies from India and elsewhere.

4. It discusses the case studies that demonstrate the concept of social exclusion which is robust for analysis of poverty, discrimination, deprivation and inequality.

School of Social Sciences & International Studies

Department of Center for Study of Social Exclusion & Inclusive Policy

Name of the Program M.A Soft core Courses only

COURSE OUTCOMES

Course Code: SEIP408

Course Title: HEALTH AND DISABILITY

1. It equips them to understand the domain of health(physical, psychological, social, spiritual)

2. It provides knowledge to differentiate between ill health and disability

3. It gives them an idea on preventive, curative services pertaining to communicable and non-communicable diseases.

4. It sensitizes them on the needs of people with ill health and disabilities.

It examines the affirmative policies and acts pertaining to health and disability.