

University of Mumbai



क. एएएमएस_युजीएस/आयसीसी/२०२३-२४/६३

परिपत्रक :-

सर्व प्राचार्य/संचालक, संलग्नीत महाविद्यालये/संस्था, विद्यापीठ शैक्षणिक विभागाचे संचालक/विभाग प्रमुख यांना कळविण्यात येते की, राष्ट्रीय शैक्षणिक धोरण, २०२० च्या अमलबजावणीच्या अनुषंगाने शैक्षणिक वर्ष २०२३-२४ पासून एक्झिट पर्याय सह पदवी व पदव्युत्तर अभ्यासक्रमासाठी तयार खालीलप्रमाणे करण्यात आलेले अभ्यासक्रम विद्यापरिषदेच्या दिनांक ०१ नोव्हेंबर, २०२३ च्या बैठकीत मान्य झालेले आहेत.

बाब क्र.	अभ्यासक्रमाचे नाव
५.१	Master of Human Capital Management and Employees Relations (MHCM & ER)
५.२	M. A. (Business Economics)
६.१	Post Graduate Diploma in Digital and Cyber Forensic & Related Law
६.२	Post Graduate Diploma in Forensic Science & Related Law

सदर अभ्यासक्रम मुंबई विद्यापीठाच्या www.mu.ac.in या संकेतस्थळावर NEP 2020 या टॅब वर उपलब्ध करण्यात आलेले आहेत.

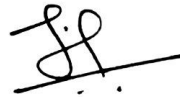
मुंबई - ४०० ०३२

२३ नोव्हेंबर, २०२३

विद्यापरिषद - दि. ०१/११/२०२३

प्रत माहिती व उचित कार्यवाहीकरीता रवाना :-

१. मा. कुलगुरू यांचे स्वीय सहायक, मुंबई विद्यापीठ, फोर्ट, मुंबई.
२. मा. प्र. कुलगुरू यांचे स्वीय सहायक, मुंबई विद्यापीठ, फोर्ट, मुंबई.
३. मा. कुलसचिव यांचे स्वीय सहायक, मुंबई विद्यापीठ, फोर्ट, मुंबई.
४. संचालक, विद्यापीठ विकास मंडळ,
५. संचालक, परीक्षा व मुल्यमापन मंडळ,
६. संचालक, माहिती आणि संप्रेषण तंत्रज्ञान विभाग,
७. उपकुलसचिव, महाविद्यालय संलग्नता आणि विकास विभाग,
८. उपकुलसचिव, निवडणुक विभाग,
९. उपकुलसचिव, पात्रता व स्थलांतर प्रमाणपत्र विभाग.
१०. उपकुलसचिव, निकाल कक्ष.


(प्रा. सुनिल भिरुड)
प्र. कुलसचिव

Copy for information and necessary action :-

1. The Deputy Registrar, College Affiliations & Development Department (CAD),
2. College Teachers Approval Unit (CTA),
3. The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Department (AEM),
4. The Deputy Registrar, Academic Appointments & Quality Assurance (AAQA)
5. The Deputy Registrar, Research Administration & Promotion Cell (RAPC),
6. The Deputy Registrar, Executive Authorities Section (EA)
He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to the above circular.
7. The Deputy Registrar, PRO, Fort, (Publication Section),
8. The Deputy Registrar, Special Cell,
9. The Deputy Registrar, Fort Administration Department (FAD) Record Section,
10. The Deputy Registrar, Vidyanagari Administration Department (VAD),

Copy for information :-

1. The Director, Dept. of Information and Communication Technology (DICT), Vidyanagari,
He is requested to upload the Circular University Website
2. The Director of Department of Student Development (DSD),
3. The Director, Institute of Distance and Open Learning (IDOL Admin), Vidyanagari,
4. All Deputy Registrar, Examination House,
5. The Deputy Registrars, Finance & Accounts Section,
6. The Assistant Registrar, Administrative sub-Campus Thane,
7. The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,
8. The Assistant Registrar, Ratnagiri sub-centre, Ratnagiri,
9. P.A to Hon'ble Vice-Chancellor,
10. P.A to Pro-Vice-Chancellor,
11. P.A to Registrar,
12. P.A to All Deans of all Faculties,
13. P.A to Finance & Account Officers, (F & A.O),
14. P.A to Director, Board of Examinations and Evaluation,
15. P.A to Director, Innovation, Incubation and Linkages,
16. P.A to Director, Department of Lifelong Learning and Extension (DLLE),
17. The Receptionist,
18. The Telephone Operator,

Copy with compliments for information to :-

19. The Secretary, MUASA
20. The Secretary, BUCTU.

As Per NEP 2020

University of Mumbai



Title of the program

- A- P.G. Diploma in Human Capital Management and Employee Relations
- B- Master of Human Capital Management and Employee Relations (MHCM&ER)

Syllabus for Semester – Sem I & II

Ref: GR dated 16th May, 2023 for Credit Structure of PG

(With effect from the academic year 2023-24)

University of Mumbai



(As per NEP 2020)

Sr. No.	Heading	Particulars	
1	Title of program O: _____A	A	P.G. Diploma in Human Capital Management and Employee Relations
	O: _____B	B	Master of Human Capital Management and Employee Relations (MHCM&ER)
2	O: _____A Eligibility	A	Graduate of any faculty of any recognized university.
	O: _____B Eligibility	B	Graduate of any faculty of any recognized university.
3	R: _____ Duration of program	A	1 year
		B	2 years
4	R: _____ Intake Capacity	52	
5	R: _____ Scheme of Examination	NEP 50% Internal 50% External, Semester End Examination Individual Passing in Internal and External Examination	
6	R: _____ Standards of Passing	50%	
7	Credit Structure R:-----	Attached herewith	
8	Semesters	A	Sem I & II
		B	Sem I, II, III& IV
9	Program Academic Level	A	6.0
		B	6.0 & 6.5
10	Pattern	Semester	
11	Status	New	
12	To be implemented from Academic Year	From Academic Year: 2023-24	

Sd/-

Sign of HOD
Name

Sd/-

Sign of Dean,
Name of the Dean
Name of the Faculty

Preamble

Introduction

The Master of Human Capital Management and Employee Relations (MHCM&ER) course is designed to develop professionally competent manpower, fully equipped to build organizational prosperity with the values of honesty, justice and fairness. With evolution of the domain of 'Human' contribution to organizational prosperity, this domain is now being seen from a lens beyond just a resource. Capital generates value hence organizations are striving to create value addition through enhancing the potential of Human element of the organization.

Aims & Objectives

Human Capital possess skills and competencies which collectively aggregate to what is known as Organizational Capability. In order to enhance this capability, the Human Capital Adequacy needs to be constantly upgraded. Hence, potential measurement and deployment to commensurate the need of the organization has to be constantly reviewed. As a consequence, continuous inputs are required to augment the contribution of Human element.

Learning Outcomes

1. Understanding the dimensions of Human Capital and the need to augment it
2. Understanding the needs of the organization and matching it with skills and competencies of Human Capital available
3. Measuring the gap between the need of the Organization vis-a-vis availability of Human Potential and deploying Human/Process interventions to build on Process Capability.
4. To develop the trained manpower on professional basis through education for maintaining industrial peace, productivity and ensure human capital management.
5. To enable students to become responsible future leaders in the diverse industry domain.

Any other point

Alike capital investment in technology, Human Capital requires investment to make it contemporary. It is an intangible asset, but creates value through throughput management. The skill to create a product or service is what Human Capital contributes.

Employee Relations

The journey from Industrial Relations to Employee Relations comes out of India taking to Liberalization & Globalization route post 1991. The era of command and control was over and Indian products and services were thrown open to domestic and international competition. This resulted in giving a superior customer experience and price competitiveness.

The old regime of cost plus model was replaced by offering a value add to customer.

Adversarial model had to be replaced by partnership. Hence democratization of workplace and employee participation had to be taken to the next level.

The development initiatives for white collar employees are now expected by the blue collar employee force. In a sense employees wanted organizations to be agnostic to hierarchy when it came to training, development inputs, offering opportunities for higher responsibilities etc. It's both, a necessity and expectation of not only thought leadership but also thought partnership in organizational matters.

Egalitarian approach to people process has replaced the tactical posturing. Invitation to contribute for Organizational prosperity that will have its trickle effect at all levels of hierarchy is what needs to be experienced by blue collar employees, they cannot be excluded. The symbolic identity of White collar and Blue collar is on the decline and will soon be of the past.

Credit Structure for One year PG Diploma/ Two years Master of Human Capital Management & Employee Relations (MHCM&ER) (Sem. I, II, III & IV)

परिशिष्ठ-1

Year (2 Yr PG)	Level	Sem. (2 Yr)	Major		RM	OJT / FP	RP	Cum. Cr.	Degree
			Mandatory*	Electives Any one					
I	6.0	Sem I	Course 1 -Labour Economics- Credits 4 Course 2 -Business Management Science - Credits 4 Course 3 -Labour Legislation-I-Credits 4 Course 4 - Field Work- I -Credits 2	Credits 4 Course 1 Industrial Economics OR Course 2 Managerial Economics	Research Methodolo gy-- 4			22	PG Diploma (after 3 Year Degree)
		Sem II	Course 1- Human Capital Management- I-Credits 4 Course 2- Labour Legislation- II-Credits 4 Course 3- Industrial Psychology-Credits 4 Course 4 - Industrial Sociology-Credits 2	Credits 4 Course1 Employee Wellbeing OR Course 2 Trade Union Movement				22	
Cumulative Credits for PG Diploma in Human Capital Management and Employee Relations			28	8	4	4	-	44	

Exit option: PG Diploma (44 Credits) after Three Year UG Degree									
II	6.5	Sem III	Course 1-Emplopyee Relations- I, Credits 4	Credits 4			Field Work- III (RP) 4	22	PG Degree After 3- Yr UG
			Course 2- Human Capital Management- II Credits 4	Course 1 Business Orientation					
			Course 3- Organizational Behaviour, Credits 4	OR					
			Course 4 Labour Legislation- III, Credits 2	Course 2- Corporate Social Responsibility					
Sem IV		Course 1- Employee Relations- II, Credits 4	Credits 4			Field Work- IV (RP) 6	22		
		Course 2- Labour Legislation- IV, Credits 4	Course 1 Business Ethics						
		Course 3- Business Excellence, Credits 4	OR						
			Course 2- Corporate Governance						
Cum. Cr. for 1 Yr. P.G. Degree			26	8			10	44	
Cum. Cr. for 2 Yr. PG Degree			54	16	4	4	10	88	

Syllabus

Semester I

SEMESTER- I

Course Title- Labour Economics	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: Labour economics studies the impact of labour market and policies on the working life of workers. The Subject will cover the Nature, Scope and Development of Labour Economics, Macro and Micro-economic aspects of Labour Market, Employment, Unemployment, Social Security, Wage Structure, Wage Policy, Labour Policy and Perspective. It examines how labour markets operate, the determinants of labour supply and demand and the effect of various labour market policies on employment, wages and working conditions. The Subject will cover the Impact of New technology on Labour Sector, Current Challenges and Perspectives. The study of labour economics provides insight into important issues including income inequality, unemployment, poverty and regional imbalance in development.

Learning Objectives:

1. To study the basics of Labour Economics and to enrich the knowledge and understanding about the subject.
2. To understand the functions and dynamics of labour market by learning the concept of wage analysis, employment/ unemployment issues and labour problems in India.
3. To understand the significance of labour productivity, impact of new technology and current challenges and perspective in 21st century.

Learning Outcomes.

1. Students will be developed a Critical Understanding Regarding Dynamics of Labour Market and its Implications.
2. Students are able to understand how the Wage theories are useful in Developing the Wage System and Wage Policy in the Country like India.
3. Students are able to understand the Importance of Social Security and Perspective in 21st Century to Maintain the Labour Relations in Public and Private Sector.

Introduction to Labour Economics

Meaning and Nature of Labour Economics; Scope and Development of Labour Economics; Labour Force, work force composition and its trends; Socio-economic conditions of working class; Approaches to Labour Economics.

Labour Market.

Demand for Labour and Supply of Labour and Factors affecting them; Labour Market Equilibrium Labour Market process and Institutionalization; Migration- Interstate and overseas, e. Horizontal and Upward labour mobility, Issues and consequences; Labour Market for women workers; New Technology and its impact on Labour Market.

Labour Market and skill development; Recent Trends in Labour Market.

Employment and Unemployment.

Theories of Employment. Employment pattern in India; Formal and Informal Employment Analysis; Unemployment and Under Employment, Types of unemployment, Extent of Unemployment and Changing Pattern of Unemployment; Dimensions of Unemployment problem in India; Employment Policy and

Employment, Generation Schemes in India.

Labour in Economic Development.

Labour –underutilization and poverty in the developing countries; Status of Labour in India. Employment in Public & Private Sector; Employment Trends in the Industrialized Market Economies; Skill Development in India. Investment in Human Capital.

Wage Structure & Wage Policy

Basic concepts of Wages; Components of Wage structure. Theories of Wages; Wage Differentials in India. Principles of wage determination; Development of a wage system; Issues in wage policy; Wage- Employment- Income and price movement; Wage policy for a developing Economy.

Social Security

Concept, Methods and Scope of Social Security; ILO and Social Security; Social Security Measures in India; Integrated Social Security System; Social Security Policy and Administration- Problems and Solutions; Social Security Perspective in 21st Century.

Labour Productivity

Concept and measurement of Labour Productivity; Critical significance of Labour Productivity; ILO-Labour standards and Labour Productivity; Employment and Labour Productivity; Sharing Gains of Labour Productivity.

Labour Problems, perspective and Policy.

Labour Problems in India. Absenteeism and Labour Turnover; Problems of Women Employees; Problems of Unemployment; Educated Youth, Child Labour, Contract Labour, Bonded Labour; New Technology and Labour – its Implications on Employment and Training; Labour in Co-operatives. Labour in Public and Private Sector; Labour Policy in India; Five Year Plan and Labour Policy; Labour Perspective in 21st Century; Compilation of Consumer Price Index (CPI) : Steps to measure the CPI, uses of CPI.

References :

Text Books		
Author	Title	Publication
Dr. Bhagoliwal T.N.,	Economics of Labour and Industrial Relations,	Sahitya Bhawan Publications (2007)
Dr. Kadukar P.M.,	Fundamentals of Labour Economics	Himalaya Publications (2021)
Singh J. kumar	Labour economics	Deep and Deep Publications , New Delhi, (1998)
Reference Books-		
King. J.E.	Reading in labour Economics	Oxford University Press New York (1980)
Lal M.K.	Modern Labour Economics,	ABD Publisher (2013)
Reddy. Jayaprakash, R.,	Economics of Labour	APH publishing Corporation (2004)
Reynolds, Loyd G. & Others	Labour Economics and Labour Relations,	Prentice- Hall, Inc (1982)

SEMESTER- I

Course Title- Business Management Science	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: The management science subject has widened its scope due to dynamics of new types of Businesses and importance of business strategy and logic. Hence it is necessary to understand the core principles and functions of management in business context. The refined subject covers the business basics, financial and marketing aspects of business and related MIS. The subject also deals with basic management concepts, schools of thoughts on management, systems of management and Organisation structure. It clearly emphasize upon changing role of management leading to effective executive concept envisioned by Management Guru Peter Drucker.

Learning Objectives:

1. To study the fundamentals of management science in context of Business and to enrich the knowledge and understanding of this subject.
2. To understand the principles of management and learn the various functions to manage the resources like Manpower, money, material etc.
3. To learn application of management science in decision making process of business Organizations in order to achieve business results.

Learning Outcomes.

1. Students will develop a Critical Understanding regarding principles and functions of the management. This shall help them to understand the HRM, SHRM and Business Excellence subjects in second year of the course.
2. Students will be able to know, how the resources are managed by the managers in the Organisation to achieve the profitability and sustainability.
3. Students can learn and demonstrate role of effective executive in execution of management strategies across the Organisation.

Description: The management science subject has widened its scope due to dynamics of new types of Businesses and importance of business strategy and logic. Hence it is necessary to understand the core principles and functions of management in business context. The refined subject covers the business basics, financial and marketing aspects of business and related MIS. The subject also deals with basic management concepts, schools of thoughts on management, systems of management and Organisation structure. It clearly emphasize upon changing role of management leading to effective executive concept envisioned by Management Guru Peter Drucker.

Learning Objectives:

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2. Students will be able to know, how the resources are managed by the managers in the Organisation to achieve the profitability and sustainability.
3. Students can learn and demonstrate role of effective executive in execution of management strategies across the Organisation.

Management Science

Concept, Nature and Significance of Management Science; Growth and Development of Modern Management; Managerial Revolution - Retrospect; Management under Industrialized Market Economy; Centrally Planned Economy and Mixed Economy.

Schools of thoughts on Management

Schools of Thought on Modern Management; Scientific Management Movement – Contribution of Taylor and Fayol; Integration Theory of Mary Follett; Elton Mayo and Human Relations School; Systems Approach to Management; Application of Behavioral Sciences to Management; Developing a Philosophy of Management; Management Ethics and Management Culture.

System of Management

Management by Institution; Management by Crisis; Management by Objective; Management by Integration and Self Control; Management by Results; Towards Integrative Management; Meaning of “Organization”; Types of Organisational Structures; Choice of Objectives and Structures; Division of tasks in the total function of management; Unity of Command, Span of Control and Feasible Linkage; Organization Chart - Organization of “Line” and “Staff”; “Grid” System in the Organisation; Authority, Responsibility and accountability; Informal organization and management structure.

Organisation structure of Management

Meaning of “Organization”; Types of Organisational Structures; Choice of Objectives and Structures; Division of tasks in the total function of management; Unity of Command, Span of Control and Feasible Linkage; Organization Chart - Organization of “Line” and “Staff”; “Grid” System in the Organisation; Authority, Responsibility and accountability; Informal organization and management structure.

Function and process of Management

Managerial function of Turning Resources into Results; Decision Making - It's Value System, Internal and External Constraints; Delegation of Authority; Communication and Public Relation; Motivation and Integration; Process of Management - Planning, Organizing, Staffing, Directing and Controlling; Managerial Practices in Private Sector; Public Sector and Co-operative Sector; Management of Medium and Small Enterprises;

Changing World of the Executive

From Professional Management to Leadership Management; Personality of a high performing manager; Motivation, incentives and training aspects; Emergence of Entrepreneurial Manager.

Basics of Business

Basics of Business, Business as a legal entity, Business purpose, vision, mission, SWOT analysis Corporate Management Structure; Formation of Company; Share-holder value creation; 21 st century Business perspective.

Basics of Marketing & Branding

What is a market place; 5 Ps of Marketing; Market Research, Segmentation; Brand Building & Communication; Marketing Excellence; consumer Insights; Brand Insights, Vision vs Reality, Integrated Brand, Brand Strategy, Communicating Employer Brand.

Financial Management

Accounting System; Budgeting and Costs; Understanding of P&L; Understanding Financial statements and tools; Role of CFO, Finance Controller.

Business MIS

Key Performance Indicators for Business pertaining to: Leadership focus; Strategic Focus; Customer Focus; Information Technology focus; HR Focus; Operations and HR Processes; Financial Results

References:

Text Books		
Author	Subject	Publication
Rao V. S. P.	"Management Theory and Practice"	
Agarwala Vira Dharma	Management - Principles, Practice and Techniques	Deep and Deep Publications, New Delhi, 1984
Armstrong, Michael	Hand Book of Management Techniques	Kogan Page Limited, London, 1986
Chandan, J S	Management : Theory and practice	Vikas Publishing House Pvt. Ltd. New Delhi, 1987
Koontz, Harold	Management	Mcgraw-Hill International, London, 1984
TURBAN AND MEREDITH	Fundamentals of Management Science	Business Publications, new york, 1977
Reference Books		
Hegde Y. S.	In pursuit of excellence	shri Sudhindra Publishing house Bangalore 1989
Young Arthur	The Manager's Handbook- The practical guide to successful Management	Sphere reference, london 1986
Peter Drucker	The effective Executive	Heineman, London 1969
Emery, James C	Management Information System	Oxford University Press, New York, 1987
Kotler, Phillip	Marketing Management	

SEMESTER- I

Course Title- Labour Legislation-I	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: Labour Legislation covers all the normative legislative acts along with the acts covering the wage and social security provisions. It also gives the detailed understanding of labour administration system which monitors the implementation of the acts in the industry.

Learning Objectives:

1. To enable students to understand the Nature & Scope of Labour Legislation, Principles of Natural Justice and Industrial Jurisprudence along with the preamble, definitions and provisions under various Labour Laws.
2. All acts are to be studied with reference to their rules regulations and notifications etc. case law desirable may be cited

Learning Outcomes.

1. Students will develop a Critical Understanding of labour laws which in turn will help them to apply for giving justice to labour.
2. Students will be able to understand the governing legislative administration system for resolving the labour –management disputes.
3. Students will also understand the Importance of Social Security acts and wage related provisions so that they can safeguard Organisation from any liability or noncompliance issues.

Labour Legislation

Nature, Scope, Character of labour Legislation; Growth and Development of Labour Legislation in India; Labour Legislation and the Constitution of India; ILO and Labour Legislation in India, Principles of Labour Legislation; Development of Industrial Jurisprudence - Foundation of Industrial Law in India; Labour Legislation and Social Justice.

Normative Labour Legislations

The Factories Act 1948,
The Contract Labour (Regulation & Abolition) Act 1971,
The Maharashtra Shops and Establishment Act, 2017.

Wage Legislation

The Payment of Wages Act, 1936,
The Payment of Bonus Act, 1965,
The Minimum Wages Act, 1948.

Social Security Legislation

The Employees State Insurance Act, 1948,
Employees Provident Fund and Miscellaneous Provisions Act, 1952,
The Trade Unions Act, 1926,
The Payment of Gratuity Act, 1926.

	Reference Books		
	Author	Title	Publication
	Mathrubutham, R.	Factories & Labour Manual, Vol .1	Wadhva & Co. Agra (5 th Ed.), 1979.
	Mathrubutham, R.	Factories & Labour Manual, Vol .2	Wadhva & Co. Agra (5 th Ed.), 1980.
	Mathrubutham, R. & Shrinivvasan, R.	Factories & Labour Manual, Vol.3	Wadhva & Co. Agra (5 th Ed.), 1982.

New Labour Codes pertaining to wages IR, Social Security and OSH and Working Conditions.

References:

Text Books		
Author	Title	Publication
	The Factories Act, 1948 ; The Maharashtra Shops and Establishment Act, 1971 The Contract Labour Act, 1971; The Minimum Wages Act, 1948; The payment of wages Act, 1936; The Payment of Bonus Act, 1965; The Employee's state Insurance Act, 1948; The Employee's Provident Fund Act, 1952 and Family Pension Scheme 1971; Trade Union Act 1926; The Payment of Gratuity Act, 1926.	Labour Law Agency , 1989
Justice Mallick	Labour and Industrial Law Manual	Professional Book Publishers, 2023

SEMESTER- I

Course Title- Field Work- I	
Type : Major Mandatory	Course Credits : 2
Total Marks: 50	

Description: The field Work exposure provides opportunity for real world life experience to the students regarding theories and practices learnt in classroom. The course includes observation visits to different industrial sector organizations. Also visits to Civic Administration Office/s, Employee State Insurance Corporation.

Learning Objectives:

- 1) To give students the practical exposure of different industrial sector organizations to understand its core business, structure and functioning of various departments with specific reference to functioning of Employee Relations and Human Resource development/ Human Capital Management functions.
- 2) To help the students to understand the functioning of Civic administration and Employees State Insurance Corporation (ESIC).

Author	Title	Publication
McCaujhan, Nano	Group Work: Learning and Practice	George Allen and Unwin, 1978
Mhetras, V G	Understanding Social Casework - a Study in perspective	Manaktalas, Mumbai - 1966
Friedlander Walter A.	Concepts and Methods of Social Work	Prentice-Hall of India Pvt. Ltd New Delhi, (1977)

Learning Outcomes:

- 1) Students develop skills to integrate Theory and Practical applications of various subjects learnt.
- 2) Students appreciate the working of Employee Relations,

Personnel, Welfare and Human Resource Development/ Human Capital Management functions.

- 3) Students understand the importance of Labour Laws applicable to establishments and industrial organizations.

Observation Visits (Any Three)

Engineering Concerns such, as Heavy Light Machine Manufacturing, Electrical, Foundry and Transport Workshop (Rail, Road, Air and the like, concerns like Chemical engineering, Petroleum, Fertilizer, Plastic, Pharmaceutical and Food stuff, Printing Press and Docks. Electronics, Food Processing, Paints and Colour Industries. At least Two Training and Professional institutions, such as Central Labour Institute, National Safety Council.

One Week Placement (Five day's Duration) in Civic Administration.

Placement of Five day's Duration in Civic Administration with reference to MCGM.

ESIC Placement

ESIC Placement of One day in Regional Office and two days in local office.

References :

SEMESTER- I

Course Title – Industrial Economics	
Type : Major Elective	Course Credit : 4
Marks: Semester End : 50, Internal Assessment : 50, Total Marks : 100	

Description: Industrial economics studies Nature, Scope and importance of the subject. It helps to understand economics of Industries to students, policy makers, and management enterprises. How to deal problem of Micro and Macroeconomics arised in the global economy. How industrial process is working since independence and what are the issued before growth, development and challenges. How Industrial financial institutions helped in industrial development during 5 year plans and policy initiatives. Thereby Government to change the industrial policy accordingly, what changes took place after the new industrial policy of 1991.

Learning Objectives:

1. To study the Economics of different Industries, understand their growth and development, Industrial Finance, and their contribution towards the Indian Economy.
2. To enable the students to understand the history and current Policies, processes and practices pertaining to the Industrialization in India.
3. To understand problems of industrialization like industrial sickness, shifting of industries, implications of introduction of new technology and constraints in the present global changing environment.

Learning Outcomes:

- 1) Students got an opportunity to understand problems all types of industries, and how to deal problems for the proper solutions.
- 2) Students through theoretical knowledge learn different characteristics of different industries and Government Policies for becoming industry competitive.
- 3) Students got an opportunity to understand problem of industries like modernization, innovation, industrial sickness, global competition relating to cost of production and provides appropriate measures to the problems.

Industrial Economics

Concept, Nature and Scope; Development of Capitalism; Forms of Enterprise; Organisation and Structure of Industries; Ownership and Control; Size of Firm and its Theories, Concept and Factors of Industrial Development Index (IDI).

Industrial Growth and Development

Growth and Development of Industry in India; Nature and Types of Industries, Role of Various types of Industries Challenges of Industrial Development and Role of Government; Growth and Development of

Service Sector Industry in India Small Scale Industries and Rural Industrialization; Industrial Development of India- Role of Non-Residential Indians (NRI's) SEZ; Industrial Development of India-- Role of Young Entrepreneurs & Startups; Foreign Direct Investments and Industrial Development.

Industrial Finance

Capital Structure of Companies; Organisation and Functioning of Stock Exchange; Commercial Banks and Financial Institutions; Role of Specialised Financial Institutions;
Indian Industrial development and Foreign Direct Investment (FDI); Self-Financing, Capital Structure of Companies, IMF, IBRD (World Bank) W.T.O. & its Implications;
F.T.A. (Free Trade Agreement) Loan giving banks.

Industrial Policy and Programmes

Industrial Policies in India; Industrial Licensing; Industries and Taxation; Aid to Private Sector, Public sector; Export Promotion and Import Substitution Plans; Industrial Profits and their Regulation; Company Legislation; Social Responsibility of Industry; Monopoly restrictive trade practices, Niti Aayog.

Industrial Development: Innovation and Environment

Innovation, Concept and Role; Innovation Missions and Councils; Environment and Industrial Development; Conflict, India's Environmental Resources and Problems; National Environmental Policy; (NEP 2006) Comprehensive Environmental Pollution Index (CEPI) for Industrial Clusters; Technology and Industrial Development.

Industrial Location

Concept, Factors Influencing on Industrial Location; Theory of Industrial Location- Weber & Sargent Florence Shifting of Industries – Implication for Location of Industry; Regional imbalance – policy Initiatives for Balanced Regional Growth. Industrial Development of Backward and Underdeveloped Regions; Towards Agro-Industrial Development; Industrial Growth-Future Strategy.

Industrialization-Problems and Perspectives

Industrial Sickness and Exit Policy; Problems of various industries; New Technology and Industrialization. IT and ITES industries.

References :

Author	Title	Publication
Barthwal R. R	Industrial Economics-An introductory text book	Wiley Eastern Ltd. Mumbai, 1984
Desai SSM, Bhalerao N	Industrial Economy of India	Himalaya Publishing House 2002
Cherunilam, Francis	Industrial Economics-Indian Perspective	Himalaya Publishing House 1989
Dutta Ruddar Sundharam K.	Indian Economy	S Chand and Company Ltd. New Delhi

P. M.		
M. C. Vaish Sudama Singh	International Economics	Oxford & IBH Publishing Company, New Delhi. 1993.

SEMESTER- I

Course Title – Managerial Economics	
Type : Major Elective	Course Credit : 4
Marks: Semester End : 50, Internal Assessment : 50, Total Marks : 100	

Description: Managerial Economics studies Nature, Scope and Development of Business Environment and

Business Objectives. Fundamental Concepts; Micro and Macro Economic theories; Demand and Supply Analysis and Demand Estimation. How Market Structure is functioning and Production theories. How to calculate cost of product and how to decide the price of product. To understand decision making process for solving managerial problems and perspectives. How prices are determined under competition, its method, practices and problems.

Managerial Problems and Perspective.

Learning Objectives:

1. To enable students to understand nature, scope and development of economics, business environment and business objectives how demand and supply analysis is carried out in industries.
2. Study of Managerial Economics to understand the decision making process when it comes to Managing the Organisation's economics, including Business and Market structure.
3. Students are supposed to understand cost of product and how to make organisation more profit maximization and how prices are determined in the competitive environment, its practices and problems.

Learning Outcomes:

- 4) Managerial economics studies Nature, Scope and Development pertaining to market structure and theories of production. How cost analysis is carried out to determine cost and rate of output. How decision making process is working in industry, Managerial problem related to entrepreneurs and allocation of resources for profit maximization.
- 5) Students tried to understand cost of Products and determine price of the product for the profit maximization of Industries.
- 6) In management to understand allocation of resources for economic growth of enterprise. Changing government policies properly studied and changes are incorporated in policies.

Managerial economics

Nature, Scope and Development of Managerial Economic; Business Environment and Business Objectives, Organizational Goals, location and the Scale of Economy; Fundamental Concepts; Micro and Macro Economic Theories; Demand and Supply Analysis- Demand Estimation, Electricity, Fluctuations and Forecasting; Psycho-Social and Cultural Influences on Demand.

Market Structure

Concept of various Competition in Market; Pricing under various Competition. Role of Competition Commission of India.

Production Theory

Theories of Production, Concepts of Cost; Short-Term and Long-Term Cost Analysis.

Cost Analysis

Marginal Average and Opportunity, Cost-Determination, Behavior, Cost and Rate of output, Cost of Multiple

Products, Short-Term and Long-Term cost Analysis.

Pricing

Pricing under Competition, Monopoly and Nationalization, Capital Budgeting, Investment Ranking, Forecasting and Evaluation, Profits-manning, Measurement, Optimization and Forecasting Prices-Methods, Practices and Problems.

Managerial Problems and Perspective

Managerial Problems with Special Reference to Allocation of Resources, Decisions and pricing Policies; Managerial perspective for Economic growth, Government Policy and Development of Managerial Perspective; Comparative Industrial Management Practices in developed Countries.

References :

Author	Title	Publication
Baye , Michael	Managerial Economics and Business Strategy	--
Damodaran Suma	Managerial Economics	Oxford University Press, New Delhi 2006
David Kreps	Game Theory and Economic Modeling,	Oxford University Press
Dholakia Ravindra H, OzaAjay N	Microeconomics for Management Students	Oxford University Press, New Delhi 1996
K. K. Dewett	Modern Economic Theory	S. Chand and Company, New Delhi 2005
Morgan Housel	The Psychology of Money	
Salvatore Dominick, Srivastava, Ravikesh	Managerial Economics - Principles and worldwide applications	Oxford University Press, New Delhi 2012
Varshney R. L.; Maheshwari K. L.	Managerial Economics	Sultan Chand and Company Ltd. New Delhi, 2014.

SEMESTER- I

Course Title- Research Methodology	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: Research Methodology subject provides an understanding of research methodology, process, ethics in research and research approaches applied to problems of business environment. The knowledge of social research methodologies includes both Quantitative and Qualitative designs to organize and conduct research in a scientific way. The subject also covers report writing in detail. Furthermore, it gives an overview of descriptive and inferential statistics and its use in solving research problem. It deals with scientific methodology for applied research and the use of statistics for hypothesis testing.

Learning Objectives:

- 1) To study the basic concepts in research and nature of scientific method in social research.
- 2) To enable the students to understand the basic framework of research process, research methodology and develop the skill of report writing.
- 3) To learn statistical tools and its applications in business research.

Learning Outcomes:

- 1) Students are able to explain quantitative and qualitative research techniques which will be applicable while carrying out research project.
- 2) Students develop data analysis skills and meaningful interpretation of the data sets so as to solve the Research problem.
- 3) Students apply knowledge of research methods and statistics to solve real life business problems.

Labour Research

Research- Meaning Definition, Objectives, Importance and Utility; Ethics in Research; Labour Research & Social Research – its Significance; Application of Labour Research.

Research Methodology & Research Methods

Scientific approach to Social and Labour Research- Difficulties and Limitations; Interdisciplinary Approach to Labour and Social Research; Research Process; Research Methodology; Research Design ; Research Methods applicable in Labour Studies; Survey Methods, Types of Surveys; Sampling Techniques; Empirical Research.

Methods of Data collection

Primary sources and Secondary Sources; Observation, Questionnaire and Interview Schedules, Interviews, Experiments, Focused Group Discussion; Simulation and its use in Data Collection.

Measurement and Scaling, Analysis and Processing of Data

Measurement and Scaling; Editing, Coding and Tabulation of Data; Quantitative and Qualitative Analysis: Interpretation and Presentation of data.

Drafting of Report

Scheme of Report, Chapters and Contents, Footnotes, Annexure, Appendix, Bibliography, Index etc.

Statistical Methods

Measures of Central Tendency and Dispersion; Graphic Presentation of Data; Testing of Hypothesis; Correlation, Measure of Significance Tests for Ranked Data and Regression analysis; Statistical Inference and Association; Multi Variate Analysis; Application of Statistical Methods to Social Science Research.

Labour Statistics & Labour Research

Statistics Relating to Labour, employment and Industry; Cost- Benefit Analysis; Labour Research Agencies: National & International; Consumer Price Index numbers - Theory, Practice, Policy and implementation- Implications for labour.

References

Text Books		
Author	Title	Publication
C R Kothari & Gaurav Garg,	Research methodology, Methods and Techniques,	New age international Pvt ltd. Publisher, New Delhi. (2014)
Roger Bougie and Uma Sekaran,	Research Methodology for Business	Eighth Edition ,Wiley India Pvt.Ltd, New Delhi, (2021)
Ranjit Kumar,	Research Methodology - a step by step guide for beginners,	Sage publications India Pvt. Ltd., New Delhi (2011).

Reference Books		
Author	Title	Publication
YOUNG, Pauline V.,	Scientific Social Surveys and Research	Prentice-Hall of India Pvt. Ltd., New Delhi, 1973.
Dr. Prabhat Pandey, Dr. Meenu Mishra Pandey.	Research Methodology: Tools & Techniques	Birdge Centre, Buzau AI Marghiloman, Romania, (2015)
Ghosh B N.	Scientific Method and Social Research	Sterling Publishers Pvt. Ltd, New Delhi, 1982.
Arunangshu Giri and Debasish Baiswas	Research Methodology for Social Sciences.	Sage Publications India Pvt. Ltd., New Delhi.
Sarantakos Sotiries	Social Research	Palgrave Macmillan, New York (2005)

Syllabus

Semester II

SEMESTER- II

Course Title- Human Capital Management I	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description:

Human Capital management is the planned approach for nurturing, supporting employees and ensuring a positive workplace environment. The aspects of recruitment, compensation and benefits, performance evaluation, Learning and development, Manpower Planning, Job analysis and evaluation and Human Resource Development are covered. The Human Capital consist of the individuals capabilities, knowledge, skills and experience of the companies employees and managers as they are relevant to the task at hand, as well as the capacity to add this reservoir of knowledge, skills and experience through individual learning.

Learning Objectives:

1. To enable the students to understand various perspectives of Human Capital Management, its functions and the processes associated with it.
2. To study in detail the manpower planning, job evaluation, recruitment and selection, wage and salary administration.
3. To equip students with knowledge and skills necessary to effectively manage the organization's Human Capital and contribute to its success.

Learning Outcome:

1. The students will be able to develop effective Human Capital policies and practices aligning with organization's strategy and culture.
2. The students will be able to design systems of recruitment and selection, wage and salary administration, training and development, Performance evaluation and employee engagement.
3. The students will learn aspects of Human Capital Management with reference to organizational goals and organizations prosperity.

Human Capital Management

Genesis and definition of Human Capital Management; Concepts of intellectual, social and structural capital. Human Capital and at the individual level and the organizational level.

Organizational Design & Effectiveness

Determinants of organizational structure; Strategy, Size, Life cycle, Environment, Technology; Culture;

Manpower Planning

Personnel Policy; Manpower Budget; Job Analysis and Job Evaluation; Organization Structure-Types: Preparing Organization Structure; Recruitment Policies; Recruitment Methods; On boarding, Induction; Policy on outsourcing,

Job Analysis and Job Evaluation

Purpose, responsibilities, constraints and criteria of job analysis; Job Analysis & job evaluation – methods of job evaluation; Use of job analysis and value of job evaluation.

Recruitment and Selection

Recruitment and sources of recruitment agencies; National Employment Services-employment bureau; Advertising and job specification; Selection process-methods, techniques and procedures; Interviewing- Types and process of various interview techniques; Personnel and Psychometric testing, On-Boarding; Merit rating, appraisal, records placement; induction & On-boarding; conditions of employment and service rules.

Wage Salary Administration

Components of Compensation and Benefits; Cost to Company (CTC); Tax Friendly Salary Structure; Salary Benchmarking- bonus, Fringe Benefits, Retirement plans; Profit Sharing plans and Pay for performance; Labour Welfare Fund; Payroll Management including Statutory compliance -PF, ESIC, Payment of Wages Act, Superannuation, Gratuity and tax implications of various components of salary & wages.

Personnel Administration

Creating & Maintaining Digital Personnel Records; Essential contents of various Personnel Letters (offer, appointment, confirmation, warning, Termination etc.) Legality of Record Maintenance and up-dating follow up action, Checking Storing and Handling of Personnel Records; Welfare Administration, Canteen-- Management,

Training and Development

Concept; Training Need Assessment; Methods of Training; Learning Theories; Linkage with appraisal, career planning, succession planning.

Appraisal and Evaluation

Concept, Comparative Analysis of Methods of Performance Appraisal; Output of Performance Appraisal; High Potential Management through Performance Development Plan; Managing Poor Performers through Performance Improvement Plan (PIP); Talent Mobility - Organisation Level, Within India and International Talent Movement; Training Needs; Reconciling Difference of Opinion in PMS Performance Management System;

Human Capital Management Perspective.

Human Capital Management and Productivity Perspective; Impact of Changing Environment.

Role of Human Resource Information System (HRIS)

HRIS in data management, personnel record maintenance, compliance, MIS and payroll management .Challenges of HCMS (Human Capital Management System): 21st Century challenges.

Compensation / Remuneration in context of Reward Strategy

Understanding Elements of Compensation Structure; Fixed Cash Benefits; Retiree and Social Security, Variable Pay / Incentives / Stock Options; Articulating and understanding business context for reward strategies; Elements of Reward Strategy, Understanding Reward Management; Articulating and understanding business context for reward strategies; Elements of Reward Strategy, Understanding Reward Management;

Compensation Survey; Converting Remuneration Survey results into a Salary Proposal (Project).

Employee Engagement

Meaning and Processes of Employee Engagement; Factors Affecting Employee Engagement; Ways and means to improve Employee Engagement.

Managing Human Capital and Performance

Human Capital and Performance; Measurement of Human Capital; Human Capital and Micro world view-i - Human Capital Project of World Bank ii- Human Capital Index.

References :

Text Books		
Author	Title	Publication
Eric Lenderman	Human Capital Management: A Brief Review of HR, Organizational Psychology, and Economic Systems	
Angela Baron & Michael Armstrong	Human Capital Management: Achieving Added Value Through People	
Mark Salisbury	Human Capital Management: Leveraging Your Workforce for a Competitive Advantage	
Aswathappa K. :	Human Resource Management	McGraw Hill Publications, 2008
Desler, Gary	Human Resource Management	Pearson Education, 2007
Desler, Gary	A Framework for Human Resource Management	Pearson Education, 2007
Arul, Jyoti	Human Resource Management	Himalaya Publishing, 1013
Rao T V, ParekUday	Designing and Managing Human Resource Systems	Oxford and IBH Publishing Company, 2003

Reference Books		
Author	Title	Publication
Sarkar, Anita & Giffin Ricky	HR - A South Asian Perspective	Cengage Learning India Pvt. Ltd.2014
Bedi S P S & Ghai R K	Human Resource Management, Text and Cases	Bharti Publications, 2009
Davis, Andy	The Management of Training	Parthenon Publishing, 1987
Jack Fitz-Enz	The ROI of Human Capital: Measuring the Economic Value of Employee Performance	
Catherine Bailey, David Mankin, Clare Kelliher, Thomas Garavan	The Workforce Scorecard: Managing Human Capital To Execute Strategy	
Gene Pease, Boyce Byerly, and Jac Fitz-Enz	Human Capital Analytics: How to Harness the Potential of Your Organization's Greatest Asset	

SEMESTER- II

Course Title- Labour Legislation-II	
Type : Major Mandatory	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: Labour Legislation covers all the Social Security, Industrial Relations. It also gives the detailed understanding of labour administration system which monitors the implementation of the acts in the industry.

Learning Objectives:

1. To enable students to understand the importance of social security, Employee and employer legislations, Principles of Natural Justice and Industrial Jurisprudence along with the preamble, definitions and provisions under various Labour Laws.
2. All acts are to be studied with reference to their rules regulations and notifications etc. case law desirable may be cited

Learning Outcomes.

1. Students will develop a Critical Understanding of Labour laws which in turn will help them to apply for giving justice to Labour.
2. Students will be able to understand the governing legislative administration system for resolving the labour –management disputes.
3. Students will also understand the Importance of Social Security acts and Labour administration of 21st Century perspectives and challenges of Industrial and Laws and Labour administration so that they can safeguard Organization from any liability or noncompliance issues.

Industrial Relations Legislations

The Industrial Dispute Act 1947,

The Industrial Employment Standing Orders Act, 1946,

The Maharashtra Regulation of Trade Union & Prevention of Unfair Labour Practices Act. 1971.

Social Security Legislation

The Prevention of Sexual Harassment Act, 2013.

Labour Administration

Labour Administration and development process; 21st Century Labour Administration Perspective; Challenges of Industrial Law and Labour Administration. New Labour Codes pertaining to wages, IR, Social Security and OSH and Working Conditions.

References:

	Text Books		
Reference Books			
Author	Title	Publication	
Mathrubutham, R.	Factories & Labour Manual, Vol .1 The Industrial Dispute Act 1947,	Wadhva & Chhabra (5 th Ed.), 1979. Agency , 1989	
Mathrubutham, R.	Factories & Labour Manual Vol.2 The Industrial Employment Standing Orders Act,1946;	Wadhva & Co. Agra (5 th Ed.), 1980.	
Mathrubutham, R. & Shrinivasan, R.	Factories & Labour Manual Vol.3 The Mahatma Regulation of Trade Union & Prevention of Unfair Labour Practices Act. 1971;	Wadhva & Co. Agra (5 th Ed.), 1982.	
	Justice Mallick	Labour and Industrial Law Manual	Professional Book Publishers, 2023

SEMESTER- II

Course Title – Industrial Psychology	
Type : Major Mandatory	Course Credit : 4
Marks: Semester End : 50, Internal Assessment : 50, Total Marks : 100	

Description: Industrial psychology is the branch of psychology that applies psychological theories and principles to organizations. Often referred to as I-O psychology, this subject focuses on increasing workplace productivity and related issues such as the physical and mental wellbeing of employees. Industrial psychology covers two major aspects: First – studying individual at a micro level i.e. focus on hiring, training and development, assessing employee performance, and legal issues associated with those issues. Second - The organizational side of psychology is more focused on understanding how organizations affect individual behaviour.

Organizational structures, social norms, management styles, and role expectations are all factors that can influence how people behave within an organization. It seeks to understand how individuals behave, think, and feel in organizational settings and how these processes impact job performance and satisfaction. Counselling is important part of this subject and if it applied properly, it can improve the well-being and effectiveness of both employees and organizations.

Overall IO as a subject covers every aspect of managing people and their interactions within the workplace. The main areas include: Job Analysis & Employee Selection; Employee Training & Development; Employee Satisfaction & Work Life; Motivation at Work & Counselling; Stress Management; Performance Management

Learning Objectives:

1. Industrial Psychology as a subject will prepare the students to understand human behaviour i.e. how we function in a work environment and how to improvise that functionality for job performance and satisfaction.
2. To gain knowledge and clarity on essential concepts of human psychology and how it influences an individual's over all behaviour in life.
3. To make students understand, the statistical processes of psychology.
4. To guide students to use counselling method to improve the well-being and effectiveness of both employees and organizations.

Learning Outcome:

1. Students will develop an advanced understanding of quantitative analysis, psychometrics, and psychology of diversity, personality, perception, talent development, and workplace wellbeing.
2. The students will be equipped to use scientific methods to study issues in the Organizations, such as personnel selection, training and development, performance appraisal, job satisfaction.
3. The students can do the practical counselling of individuals to analyse the factors that affect their workplace productivity, including the design of work environments.
4. It will gain deeper understanding of concept of EQ (Emotional Quotient) for students so that they can manage uncertain situations effectively.

The Science of Psychology

History of Psychology; Psychology in India - Background & Philosophical Origins; Field of Psychology Today.

Cognitive Psychology

Information Processing; Intelligence and Creativity; Language; Problem Solving.

Stages of Human Development Psychology

Prenatal, Infancy and Early Childhood; Development During Early School Years; Development During Adolescence; Adulthood and Aging; Cognitive, Social, Emotional & Moral Development.

Human Personality and perception

Personality: Theories & Assessment; Theories of Personality I; Theories of Personality II; Assessment of Personality. Perception in Organisations - Definition of Perception, why it is important? Perceptual Process Model, Perceptual Errors - Primacy Effect, Recency Effect, Halo Effect, Projection Bias.

Advanced Social Psychology

Introduction to Social Psychology; Process of Social Influence; Attitude, Stereotypes, Prejudice and Discrimination; Group Dynamics.

Research & Statistics in Psychology

Research in Psychology, Introduction to Research Methods in Psychology; Types of Research; Research Design; Qualitative Research in Psychology. Statistics in Psychology Introduction to Statistics; Correlation and Regression; Normal Distribution; Nonparametric Statistics.

Industrial Psychology (Introduction to Industrial Psychology)

Fundamentals of IO Psychology; Methods in IO.

Industrial Psychology

Individual Differences & Assessment; Job Analysis and Performance; Performance Measurement; Staffing Decisions; Training and Development; Work Life Quality.

Organisational Psychology

Fundamentals of organisation Psychology; Methods in organization psychology.

Organization Psychology

The Organisation of Work Behavior; Employee Motivation; Attitudes, Emotions & Work;

Stress & Worker Well- Being; Fairness, Justice & Diversity in the work place.

Emotional Quotient:

Emotional Quotient: Based on Emotional Intelligence (EQ:)Meaning and importance of Emotional Intelligence; Goleman's EQ Theory; 4 core competencies of Emotional Intelligence; Self-awareness; Self-management; Social awareness; Relationship management.; Ways to improve Emotional Intelligence.

Counselling Psychology

Introduction to Counselling & Characteristics of Counselor; Process of Counselling; Theoretical Approaches of Counselling; Ethic in Counselling.

Assessment in Counselling & Guidance

Introduction to Assessments - Differentiating between Testing & Assessment; Approaches to Counselling – Psychoanalysis, Psychodynamic & Cognitive Approaches; Individual & Group Techniques in Counselling.

Interventions in Counselling

Introduction to Behaviour Modification; Cognitive Behaviour Modification; Solution Focused & Integrated Counselling; Future Direction of Counselling;

References :

Author	Title	Publication
Saundra K. Ciccarelli & J Noland White	Psychology	Pearson Education Inc
Hunt, R. R., & Ellis, H.C.	Fundamentals of Cognitive Psychology	Tata McGraw Hill.
Sternberg, R.J.	Applied Cognitive Psychology	London: Cengage
Hurlock, Elizabeth B.	Developmental Psychology: A Life-Span Approach	Mc Graw Hill
Hurlock, E. B.	Developmental Psychology	Tata McGraw- Hill
Aronson, E., Wilson, T. D., & Sommers S.R. & Veena T.	Social Psychology (10 th Ed)	Pearson
Wendy A. Schweigent	Research Methods in Psychology - A Handbook	Med Tec
Samuel T. Gladding	Counselling: A Comprehensive Profession (old Edition)	Pearso Education.

SEMESTER- II

Course Title- Industrial Sociology	
Type : Major Mandatory	Course Credits : 2
Marks : Semester End: 25, Internal Assessment: 25, Total Marks: 50	

Description: Industrial Sociology focusses on Industry or any form of work organization its structure, its functions and the changes occurring in this sub-social system which is a part of bigger social system. It studies the industrial society, industrial culture, social interactions and relations within the industry from a sociological perspective. It deals with industrialization process and its impact on Society and also vice versa. It takes into account the changing world of work due to Modernization, Globalization, Information revolution, Digitalization, Artificial Intelligence and its impact on industrial society in specific and larger society in general. It also deals with Diversity and Inclusive Development a much pursued intervention in industrial organizations over the last decade. It introduces the concept of Corporate Social Responsibility (CSR) from Stakeholders perspective Environmental Sustainability and Mandatory Reporting. It studies the Role and Impact of Social Media in this Digital World.

Learning Objectives:

- 1) To study the basic concepts and theories of Sociology of Work and Industry.
- 2) To recognize the actual problem situations in Industrial organization from Sociological perspective in the changing world of work.
- 3) To enable the student understand Human Relations approach to have knowledge of individual and group behavior.
- 4) To comprehend Diversity and Diverse cultures in work organizations and hence their Social behavior
- 5) To understand Corporate Social Responsibility and its role in Business and Society and also the aspect of Employee Volunteerism
- 6) To study the impact of Social Media in work environment.

Learning Outcomes:

- 1) Students are able to analyze the social repercussions of industrialization process.
- 2) Students determine heterogeneous work groups in the organizations and explore the need to develop policies for these diverse groups.
- 3) Students are able to plan, implement and evaluate CSR activities in the Organisation.
- 4) Students are able to use social media platform for work in the organizations.

Industrial Sociology

Nature, Scope and Development of Industrial Sociology; Urban Sociology and Industrial Sociology; Sociology of Occupation; Industrial Social Psychology.

Industrial Society

Stages of Industrial Revolution- Pre & Post Factory System of Production and Industrial Society; Changing Demographics; Social Institutions; Industrialization and Urbanization- its Social Consequences; Problems of slums; Uncommitted Society of India.

Work Organisation

Industrial Work in Developing Society- work and work environment, ageing and social change; Formal

Organisation in industry; Bureaucracy – Structure and Characteristic, decision making, communication and control; Virtual Organizations; Managing across Generations at work; Social Conflict in the Work organization; Socio Psychological Roots, Stages and Resolution of Conflict.

Informal Organisation

The Behaviour of Work Groups; Segmentation in Work Organization; Importance of Informal Organization; Methods of Studying Informal Organization; Communication in Work Groups; Social Organization in Factory and Productivity; Informal Organizations of Managements and Supervisors; Hawthorne Experiments.

Technological Change

Industry and Technological Change; Social Repercussions of Technological Change; Social Impact of Automation on Work Organisation and Society; Automation, Information Revolution, Technology & Artificial Intelligence- Impact of Change on Society, Organisation Structures, Relationships; Social Repercussion of Change and Globalization.

Industrialization and Social Institutions

Diversity and Inclusive Development

Women Workers and Gender Discrimination in Industrial Society; Gender Diversity; Diversity with Specific reference to LGBTQ; Differently abled and Work; Issues related to Women Working with Heterogeneous work group, Communities, Affirmative Action.

Industrial Culture

Nature and Characteristics of an Industrial Culture; Organisation culture, definition, characteristics, Functions of culture; Global culture, Inter-state culture influence, Managing Culture in case of Mergers and Acquisitions.

Corporate Social Responsibility (CSR)

CSR- Concept, and its role in Business and Society; CSR and Sustainability, CSR and Legal dimensions in India; CSR Practices, CSR Reporting and Evaluation; ISO 26000.

Social Media/ Digital World

Concept of social Media, importance & Impact of social media in digital world.

References:

Text Books		
Author	Title	Publication
Gisbert,Pascual S.J.	Fundamentals of IndustrialSociology	Tata Me-Graw-Hill Publishing Co.Ltd., Mumbai,(1972).
Singh Narendar	Industrial Sociology	Tata McGraw Hill Education Private Limited,New Delhi, (2012).
Schneider EugeneV.,	Industrial Sociology,	Mc-Graw-Hill, London(2nd Ed.), (1971).
Watson Tony J,	Sociology, Work andIndustry,	Routledge & Kegan Paul Ltd., (3rd Ed.),(1995).
Prof. Prasad Jitendra	Industrial Sociology	Himalaya Publication House, (2012)

Reference Books

Author	Title	Publication
Ghanekar Anjali,	Organizational Behaviour - concepts and cases,	Everest Publishing House, Pune(2006)
Parkar, S.R., and others	The Sociology of Industry,	George Allen & Unwin, London(3rd Ed.),, (1977)
Mayo Elton,	The Social problems of an Industrial Civilization	Routledge & Kegan Paul, London, (1975).

SEMESTER- II

Course Title- Employee Wellbeing	
Type : Major Elective	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: The changing concept of Labour welfare focusing upon employee wellbeing and quality of work life. The subject covers Philosophy, Principles, Objectives, Theories, Role of welfare officer and emerging welfare practices in the organizations and challenges and strategies of employee wellbeing.

Learning Objectives:

1. To understand the concept and various approaches of employee wellbeing and statutory provisions relating to Health, Safety, welfare and social security.
2. To understand the role of various agencies in employee wellbeing.
3. To understand the new world of work and innovative welfare practices in the 21st Century.

Learning Outcomes.

1. Students are able to execute the role of welfare officer for the betterment of employee and organizations development.
2. Students are able to design the innovative wellbeing (welfare) Programmes to enhance employees' quality of work life.
3. Students are able to face the challenges of employee wellbeing for the betterment of employees.

Concept of Employee Wellbeing. (Concept of Labour Welfare)

Changing Concept of Labour Welfare to Employee Wellbeing; Nature, Scope and Importance of Employee Wellbeing. History and Philosophy of Labour Welfare.

Objectives, Principles & Theories of labour Welfare/Wellbeing;

Employee Welfare in India

Evolution and the Beginning of Employee Welfare and Constitution of India; Approaches to Employee Wellbeing-Employers; Trade Unions & Government; Methods of Employee Wellbeing; Aspects of Employee Wellbeing; Labour Welfare Officer – Duties, Role New Challenges and Expectations; Statutory Provisions Relating to Health, Safety, Welfare & Social Security- under Legislations, Boards, Non-Statutory Welfare Schemes for Organised & Unorganised Sector workers; Social Security Legislations and Schemes for Working Class & Internal Sector; Workers Education and Training; Impact of Labour Welfare on the Workers quality of Life and Human Development Index (HDI).

Industrial hygiene and Occupational Health

Industrial Hygiene and Occupational Health in the Factory; Working Environment, Factors in the Working Environment; Working Conditions, Environment, and Productivity; The work and the Workers, Special Problems of Young and Older Employees and Women; Hygiene and Safety Problems in the Mines and Plantation; Accident Causation and Prevention; Rehabilitation of the Disabled; Occupational Therapy; Occupational Diseases and their Presentation Stresses and Strains in Industry; Organization of Medical Facilities in a Factory.

Agencies for Employee Welfare

Agencies for Employee welfare; Employer; Trade Unions and Government; Social Organization; Public Institution; Statutory Bodies; Activities of the Maharashtra Labour Welfare Board and its Contribution to Working Class Well-being; Workers Education in India.

Employee Wellbeing – New challenges and Perspective

Employee wellbeing in different industrial sectors; Employee wellbeing in 21st Century and digital world; Major Challenges and strategies of Employee Wellbeing.

References:

TEXT BOOKS-		
Author	Title	Publication
Joshi R D	"Employee Well-being in the 21st Century"	Published on behalf of Prof. R. D. Joshi by Dr.Shashank Joshi, Mumbai (2015)
Punekar S D ; Deodhar S B	"Labour Welfare, Trade Unionism and Industrial Relations"	Himalaya Publishing House, Mumbai (2012)
REFERENCE BOOKS-		
Railkar, Jayant S	"Labour Welfare and practices"	Vipul Prakashan, Mumbai
Sarma, A M	"Welfare of Unorganized Labour"	Himalaya Publishing House, Mumbai, 2022
Sarma, A M	"Aspects of Labour Welfare and Social Security:	Himalaya Publishing House, Mumbai, 2012
Trivedi, Priya Ranjanand et.al.	"Labour Welfare in India"	J Nandada Prakashan, 2013

SEMESTER- II

Course Title- Trade Union Movement	
Type : Major Elective	Course Credits : 4
Marks : Semester End: 50, Internal Assessment: 50, Total Marks: 100	

Description: Trade Union (TU) movement emerged to protect the interest of working class. The industrial revolution has played a significant role in getting fair treatment and better working conditions for workers. The subject covers conceptual framework of Trade Union, Philosophy, History, Role, Functions, Types of Trade Unions, operational issues and new age perspectives.

Learning Objectives:

4. To study the history of Trade Union Movement, Role, functions, Challenges and Strategies.
5. To study the operational issues of trade unions.
6. To study the role of trade unions in protecting interest of working class in the context of new age; new perspective.

Learning Outcomes.

4. Students are equipped with negotiating skills to deal with Trade Unions.
5. Students are able to deal with the issues related to Trade Unions to maintain the peace and harmony in the organisations.
6. Students are able to understand the various challenges before trade union movement and the possible solutions for the same.

Growth of Trade Unionism & Labour Movement (Organisation of Labour)

Concept, Philosophy & History of Trade Unionism & Labour Movement; Growth and development of Trade Unionism; Types of Trade Unions at different geographical level; International influence on Trade Unionism in India; Trade Unionism in Relation to Law; Trade Unionism and freedom of Association Movement; Trade Unions in India - New Age-New Perspective.

Role and Functions of Trade Unions

Purpose, Role and functions of Trade Unions, Structure of Unions, determinants of Union Structure, Membership of Trade Unions, Trade Union Leadership in India, Union Administration and Union Policies, Democracy Within the Union; Inter Union and Intra Union Relations; Power and Politics in the Unions.

Operational issues of Trade Unions (Problems and Perspective of Trade Union)

Trade Union Registration, Preparation of Return, Audit; Trade Union Affiliation; Trade Union Finance; Trade Union recognition & Representation; Methods & problems, Rights and Responsibilities; Social Responsibilities of Trade Union. Trade Union challenges & strategies- Formal & Informal Sector; International Labour Organisation and Trade Unions; Indian Labour Movement Past, Present and Future.

Indian Labour Movement:

Philosophy of Labour Movement in India, Phases of Labour Movement, Growth of Indian Labour

Movement, New Dimensions of Indian Labour Movement, Indian Labour Movement -Past, Present and Future.

Foreign Labour Movement

Important Trends and Characteristics of Labour Movement in Japan, Sweden, UK, USA, Russia, Germany and Yugoslavia; Labour Movement in Developing Countries of Asia and Africa; ILO and Indian Labour Movement.

References :

TEXT BOOKS-		
Author	Title	Publication
Gupte Vasant	Trade Union Movement in India - A brief History,	Mill Mazdoor Education Trust, Mumbai (2004)
Gupte, Vasant	"Trade Union Movement in India - A Brief History	Mill Mazdoor Education Trust, Mumbai (2004)
Joshi R D	"Trade Unions in India - New Age; New Perspective"	Published on published on behalf of Prof. R. D. Joshi by Dr. Shashank Joshi, Mumbai (2019)
REFERENCE BOOKS-		
Sharma, G K	Labour Movement in India" (It's past and present;from 1885 to 1980)	Sterling Publishers Private Ltd.
Pramod Verma Surya Mookherjee	Trade Unions In India	Oxford and IBH Publishing Company, New Delhi

SEMESTER- II

Course Title- Field Work- II (OJT/FP)	
Type : Major Mandatory	Course Credits : 4
Total Marks: 100	

Description: The field Work (On Job Training (OJT), Field Projects (FP)) exposure provides opportunity for real world life experience to the students regarding theories and practices learnt in classroom. The structured programme includes training in trade union offices and Concurrent placement/Summer Internship in Public/Private/ organizations is designed to give them hands on experience in Employee Relations/Personnel/Welfare/Human Resource development/ Human Capital Management functions.

Learning Objectives:

- 3) To give students the practical exposure in different industrial sector organizations to understand its core business, structure and functioning of various departments with specific reference to functioning of Employee Relations and Human Resource development/ Human Capital Management functions, including project assignment.
- 4) To help the students to understand the functioning of Trade Union offices.
- 5) To practice Case work and Group work.

Learning Outcomes:

- 4) Students develop skills to integrate Theory and Practical applications of various subjects learnt.
- 5) Students appreciate the working of Employee Relations, Welfare and Human Resource Development/ Human Capital Management functions.
- 6) Students understand the importance of Labour Laws applicable to establishments and industrial organizations.

Training in Trade Union Offices

Training in Trade Union Offices for 4 days.

Concurrent Placement/ Summer Internship in Industrial concern for Practical training including case work and group work.

Concurrent Placement/ Summer Internship (On Job Training (OJT), Field Projects (FP)) in Industrial concerns for Practical Training including (Case Work and Group work). The duration will be 4 weeks.

References :

Author	Title	Publication
McCaujhan, Nano	Group Work: Learning and Practice	George Allen and Unwin, 1978
Mhetras, V G	Understanding Social Casework - a Study in perspective	Manaktalas, Mumbai - 1966
Friedlander Walter A.	Concepts and Methods of Social Work	Prentice-Hall of India Pvt. Ltd New Delhi, (1977)

Assessment Method, Question Paper Pattern and scheme of Examination.

Assessment Method and Question Paper Pattern		
1	4 Credit Courses	
	Internal Assessment (50 Marks)	
	Particulars	Max. Marks
	1. Mid-Term examination (Question paper will consist of Three questions and solve any Two questions. Each question for 10 Marks. All questions are in descriptivemode only. It has 60 Minutes duration.)	20 Marks
	2. Home Assignment (Students should submit ONE home assignment per course/paper)	10 Marks
	3. Presentation (Theme Based/Book Review/ Seminar) presentation marks shall be applied to all subjects.	10 Marks
	4. Attendance (per course/paper)	10 Marks
	External Assessment (50 Marks)	
	Descriptive - duration 2 hours	
	Attempt any 5 Questions our of 7 Questions carries 10 marks each Q.1----- Q.2----- Q.3----- Q.4----- Q.5----- Q.6----- Q.7-----	10 Marks 10 Marks 10 Marks 10 Marks 10 Marks 10 Marks 10 Marks
2	2 Credit Course	
	Internal Assessment (25 Marks)	
	1. Mid-Term examination (Question paper will consist of Two questions and solve any One questions its carry 10 Marks. The question is in descriptive mode only.It has 30 Minutes duration.)	10 Marks
	2. Home Assignment (Students should submit ONE home assignment per course/paper)	10 Marks
	3. Attendance (per course/paper)	05 Marks
	External Assessment (50 Marks)	
	Descriptive - duration 1 hours	
	Attempt any 2 Questions out of 3 Questions carries 10 marks each Q.1----- Q.2----- Q.3----- Q.4 Short note on any 1 out of 2	10 Marks 10 Marks 10 Marks 5 Marks

Sign of Head
Name of the Head :

Sign of Dean
Name of Dean:

Scheme of Examination:

Sr. No	Sem - I & II (1 st Year)	Name of Subject	Credits	External, Semester End Exam .Marks	Internal Marks	Total Marks	Min. Req. marks for Passing (External + Internal)
1	I	Labour Economics	4	50	50	100	50
2		Business Management Science	4	50	50	100	50
3		Labour Legislation –I	4	50	50	100	50
4		Field Work-I	2	-	50	50	25
5		Elective any one Industrial Economics OR Managerial Economics	4	50	50	100	50
			4	50	50	100	50
6		Research Methodology	4	50	50	100	50
7	II	Human Capital Management-I	4	50	50	100	50
8		Labour Legislation –II	4	50	50	100	50
9		Industrial Psychology	4	50	50	100	50
10		Industrial Sociology	2	25	25	50	25
11		Elective any one Employee Wellbeing OR Trade Union Movement	4	50	50	100	50
			4	50	50	100	50
12		Field Work –II (OJT/FP)	4	-	100	100	50
Total Credits			44	Total Marks (Semester I,II)		1100	550

Sr. No	Sem – III & IV (2 nd Year)	Name of Subject	Credits	External, Semester End Exam Marks	Internal Marks	Total Marks	Min. Req. marks for Passing (External + Internal)
1	I I I	Employee Relations-I	4	50	50	100	50
2		Human Capital Management-II	4	50	50	100	50
3		Organizational Behaviour	4	50	50	100	50
4		Labour Legislation -III	2	25	25	50	25
5		Elective any one Business Orientation OR Corporate Social Responsibility	4	50	50	100	50
			4	50	50	100	50
6		Field Work-III / Project Work	4	-	100	100	50
7	I V	Employee Relations-II	4	50	50	100	50
8		Labour Legislation -IV	4	50	50	100	50
9		Business Excellence	4	50	50	100	50
10		Elective any oneBusiness Ethics OR Corporate Governance	4	50	50	100	50
			4	50	50	100	50
11		Field Work-IV / ProjectWork	6	-	150	150	75
Total Credits			44	Total Marks (Semester III,IV)		1100	550
Grand Total Credits			88	Grand Total (Semester I,II, III, IV)		2200	1100

Field Work -I (Semester I)

Sr. No.	Particulars	Max. Marks
1.	Observation Visit (Any three)	15
2.	ESIC Training/Placement	10
3.	Civic Administration/NMC Placement	15
4.	Attendance	10
	Total Marks	50

Field Work -II (OJT/FP) (Semester II)

Sr. No.	Particulars	Max. Marks
1.	Trade Union Placement	20
2.	Concurrent Placement (Project-30, Journal-30 group/case work -10)	70
3.	Attendance	10
	Total Marks	100

Field Work -III (Semester III)

Sr. No.	Particulars	Max. Marks
1.	Training in Labour commissioner office (State Government) Placement/Visit	15
2.	Labour and Industrial Court Placement	30
3.	Labour Welfare Board Placement/Visit	05
4.	Project (students should submit the project completed in the summer placement/internship)	40
5.	Attendance	10
	Total Marks	100

Field Work -IV (Semester IV)

Sr. No.	Particulars	Max. Marks
1.	Block Placement (Research Project Report /dissertation)	70
2.	Journal writing	20
3.	Viva-Voce	50
4.	Attendance	10
	Total Marks	150

Sign of Head
Name of the Head:

Sign of Dean
Name of Dean:

Table: Leter Grades and Grade Points

Semester GPA/ Program CGPA Semester/ Program	% of Marks	Alpha – Sign/ Letter Grade Result
9.00 -10.00	90.0-100	O (Outstanding)
8.0-<9.00	80.0-<90.0	A+ (Excellent)
7.00-<8.00	70.0-<80.0	A (Very Good)
6.00-<7.00	60.0-<70.0	B+ (Good)
5.50-<6.00	55.0-<60.0	B (Average)
5.00-<5.50	50.0-<55.0	C (Pass)
Below 5.00	Below 50	F (Fail)
Ab (Absent)		Absent

Sd/-
Sign of Head
Name of the Head:

Sd/-
Sign of Dean
Name of Dean:

Team for Creation of Syllabus

Name	College Name	Sign
Dr. P.M. Kadukar	NML MILS Parel, Mumbai	
Mr. Pramod J. Pednekar	NML MILS Parel, Mumbai	
Dr. Asha Deepak Kori	NML MILS Parel, Mumbai	
Mr. Devdutt Kadrekar	NML MILS Parel, Mumbai	
Mr. Satyajit Vasudeo Samant	NML MILS Parel, Mumbai	

Sd/-
Sign of HOD _____
Name of the Head _____
Name of the Department _____

Sd/-
Sign of Dean _____
Name of the Dean _____
Name of the Faculty _____

Justification for Master of Human Capital Management and Employee Relations (MHCM&ER)

1.	Necessity for starting the Revised course:	As per industry requirement the nomenclature of the course Master of Labour Studies (MLS) are being renamed as Master of Human Capital Management & Employee Relations. (MHCM& ER)
2.	Whether the UGC has recommended the course:	No (The process of inclusion of course to UGC is initiated)
3.	Whether all the courses have commenced from the academic year 2023-24	Yes
4.	The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?:	N. M. Lokhande Maharashtra Institute of Labour Studies is a state government institute. The course is conducting with the support of permanent faculties and visiting faculties.
5.	To give details regarding the duration of the Course and is it possible to compress the course?:	Duration for PG diploma – 1 year Duration for Master Degree- 2 years
6.	The intake capacity of each course and no. of admissions given in the current academic year:	Intake Capacity 52
7.	Opportunities of Employability / Employment available after undertaking these courses:	Opportunities of employment available in Private Sector (specially in HR, ER, Welfare Department) and Public Sector.

Sd/-
Sign of HOD
 Name of the Head of the Department
 Name of the Department

Sd/-
Sign of Dean,
 Name of the Dean
 Name of the Faculty

As Per NEP 2020

University of Mumbai



Title of the program

- A- P.G. Diploma in Business Economics **2023-24**
- B- M.A. (Business Economics) (Two Year) }
- C- M.A. (Business Economics) (One Year) - **2027-28**

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Syllabus for

Semester – Sem I & II

Ref: GR dated 16th May, 2023 for Credit Structure of PG

University of Mumbai



(As per NEP 2020)

Sr. No.	Heading	Particulars	
1	Title of program O: _____ A	A	PG Diploma in Business Economics
	O: _____ B	B	M.A. (Business Economics) (Two Year)
	O: _____ C	C	M.A. (Business Economics) (One Year)
2	Eligibility O: _____ A	A	Graduate in any discipline
	O: _____ B	B	Graduate in any discipline
	O: _____ C	C	Graduate with 4 year U.G. Degree (Honours / Honours with Research) with Specialization in concerned subject or equivalent academic level 6.0 OR Graduate with four years UG Degree program with maximum credits required for award of Minor degree is allowed to take up the Post graduate program in Minor subject provided the student has acquired the required number of credits as prescribed by the concerned Board of Studies.
3	Duration of program R: _____	A	1 Year
		B	2 Year
		C	1 Year
4	R: _____ Intake Capacity	40 Seats	

5	R: _____ Scheme of Examination	NEP 50% Internal 50% External, Semester End Examination Individual Passing in Internal and External Examination	
6	Standards of Passing R: _____	40%	
7	Credit Structure R: _____	Attached herewith	
8	Semesters	A	Sem. I & II
		B	Sem. I, II, III& IV
		C	Sem. I & II
9	Program Academic Level	A	6.0
		B	6.5
		C	6.5
10	Pattern	Semester	
11	Status	New	
12	To be implemented from Academic Year Progressively	A	2023-24
		B	
		C	2027-28

Sign of HOD

Name of the Head of the Department - **Prof. Manisha Karne**

Name of the Department: - **Mumbai School of Economics and Public Policy**

Sign of Dean,

Name of the Dean: **Dr. Anil Singh**

Name of the Faculty: **Faculty of Humanities**

Preamble

Preamble

1) Introduction

The aim of the Programme is to equip students with skills and research potential to contribute for functioning of the economy and application in the research fields

1. Understand the problems confronting the developing economy like Indian economy
2. Provide the knowledge on micro and macro approaches in Economics
3. Enable them to use the tools required for data analysis

2) Aims and Objectives

To provide proper understanding on economic theory and its application in the context of Indian Economy.

3) Learning Outcomes

LO1: Make the students understand the economics of various activities happening around them and make them aware of the challenges facing Indian economy and to enable them to suggest policy measures.

LO2: Understanding on economic theory and its applications.

LO3: Provide them the knowledge on computer applications and hands- on experience

4) Any other point (if any)

The MA in business Economics will help the students to make significant contributions to academics and policy making at the local, national and global level.

5) Credit structure of the Program (PFA)

R_____

Post Graduate Programs in University

Parishishta – 1

Year (2 Year PG)	Level	Sem (2 Year)	Major		RM	OJT /FP	RP	Cum. Cr.	Degree
			Mandatory*	Electives Any One					
I	6.0	Sem I	MICRO ECONOMIC ANALYSIS-I 4 MACRO ECONOMIC ANALYSIS-I 4 ECONOMICS OF BANKING-I 4 ECONOMICS OF INSURANCE-I 2	Credits 4 ECONOMICS OF AGRICULTURE-I 4 OR RURAL ECONOMICS-I 4	4			22	I
		Sem II	MICRO ECONOMIC ANALYSIS-II 4 MACRO ECONOMIC ANALYSIS-II 4 ECONOMICS OF BANKING-II 4 ECONOMICS OF INSURANCE-II 2	Credits 4 ECONOMICS OF AGRICULTURE-II 4 OR RURAL ECONOMICS-II 4		4		22	
Cum. Cr. For PG Diploma			28	8	4	4	-	44	

Post Graduate Programs in University

Exit option: PG Diploma (44 Credits after Three Year UG Degree)

II	6.5	Sem III	ECONOMICS OF GROWTH & DEVELOPMENT-I 4 INTERNATIONAL TRADE & FINANCE-I 4 INDIAN ECONOMIC POLICY- I 4 COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS-I 2	Credits 4 PUBLIC ECONOMICS-I 4 OR FINANCIAL INSTITUTIONS & MARKETS – I 4 OR ECONOMICS OF LABOUR-I 4			4	22	PG Degree After 3- Yr. UG
		Sem IV	ECONOMICS OF GROWTH & DEVELOPMENT-II 4 INTERNATIONAL TRADE & FINANCE-II 4 INDIAN ECONOMIC POLICY- II 4 COMPUTER APPLICATIONS IN ECONOMIC ANALYSIS-II 2	Credits 4 PUBLIC ECONOMICS-II 4 OR FINANCIAL INSTITUTIONS & MARKETS – II 4 OR ECONOMICS OF LABOUR-II 4			6	22	
		Cr. For 2 Yr PG Degree		26	8			10	
Cum. Cr. For 2 Yr PG Degree		54	16	4	4	10	88		

Note: * The number of courses can vary for totaling 14 Credits for Major Mandatory Courses in a semester as illustrated.

Sign of HOD

Name of the Head of the Department:

Prof. Manisha Karne

Name of the Department : **Mumbai**

School of Economics and Public Policy

Sign of Dean

Name of the Dean: **Dr. Anil Singh**

Name of the Faculty: **Faculty of Humanities**

Semester-I

Mandatory 1
Programme Name: M.A. (Business Economics)
Course Name: MICRO ECONOMIC ANALYSIS

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

The paper aims to develop an understanding of the basic microeconomics theory that has applications in different areas. While completing the course the students are expected to be familiar with basic microeconomics theory and acquire analytical skills to analyze problems of economics policy.

Course Outcomes

C1) Develop a nuanced understanding of consumer and firm behavior along with general equilibrium theory.

C2) Provide students with the necessary theoretical and analytical tools to study problems of economics policy.

Module 1: Introduction and Basic Concepts. [15]

Basic Economic Problem- Choice and Scarcity- Consumer preferences, opportunity sets, optimum choices, indirect utility demand functions, income and substitution effects, Slutsky equation, normal versus inferior goods, types of demand functions, elasticity, welfare evaluation, consumer surplus, equivalent variation and compensating variation, revealed preference- Concept of Equilibrium: General Equilibrium v/s Partial Equilibrium -Walrasian theory of General Equilibrium

Module 2: Production and Cost [15]

Production functions, types of production functions- Marginal products, rate of technical substitution, technical progress, cost functions, average and marginal costs, short run versus longrun costs, Economies of scale and scope, Profit maximization, Cost minimization, derivation of input demand- Short Run and Long Run Cost Curve.

Module 3: Competition and Markets [15]

Assumptions of perfect market, competitive markets – demand and supply, demand and supply curves of individual firms, short-run versus long-run, competitive market equilibrium, tax incidence analysis, price-controls and shortages- Market failure, imperfect markets – monopolistic competition and oligopoly, sources of monopoly power, monopoly market equilibrium, price discrimination – first, second and third degree, tax incidence

Module 4: Micro economic theories [12]

Pigou's theory of Welfare Economics – Conditions of Pareto Optimality – Bergson and Samuelson's Social Welfare Function – Arrow's Impossibility Theorem

REFERENCES:

1. Ahuja H. L., Advanced Economic Theory : Microeconomics Analysis, 13th Edition, S.Chand and Co. Ltd., New Delhi.
2. Baumol, W.J. (1982): Economic Theory and Operations Analysis, Prentice Hall of India, New Delhi.
3. Dewett K. K., Modern Economic Theory, S. Chand & Company Ltd., Revised Edition, 2005.
4. Koutsoyiannis, A. (1979): Modern Microeconomics, 2nd ed., Macmillan Press, London.
5. Kreps, David M (1990): A Course in Microeconomic Theory, Princeton University Press, Princeton.
6. Sen, A. (1999): Microeconomics: Theory and Applications, Oxford University Press, New Delhi.
7. Stigler, G. (1996): Theory of Price, 4th ed., Prentice Hall of India, New Delhi.
8. Varian, H. (2000): Microeconomic Analysis, W.W. Norton, New York.

Mandatory 2
Programme Name: M.A. (Business Economics)
Course Name: MACRO ECONOMIC ANALYSIS

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

This paper is designed to provide in-depth knowledge on varied concepts of Macroeconomics. The contents of the paper throws light on a range of issues like national income, social accounting, consumption expenditure, investment analysis, inflation, trade cycle as well as money supply and demand for money.

Course Outcomes

C1) The learners can enhance their understanding on the concepts like national income and social accounting, consumption expenditure and investment analysis.

C2) Students acquire knowledge on issues like inflation, trade cycle as well as money supply and demand for money.

Module 1: National Income Accounting [15]

National Income – Concept and Measurement – GDP – GNP – Different forms of national income accounting: Social accounting, flow of funds accounting and balance of payments accounting- Difficulties in the Measurement of National Income - Social Accounting – Presentation of Social Accounts - Importance of Social Accounting – Difficulties in Social Accounting.

Module 2: Economics of aggregates [15]

Classical Theory of Income, Output and Employment – Keynesian Theory of Income, Output and Employment – Say's Law of Market – Principles of Effective Demand – Importance of Effective Demand – Aggregate Demand and Aggregate Supply

Module 3: Demand for money and Supply of Money [15]

Classical Approach to Demand for Money – Fisher and Cambridge- Keynesian approach - Liquidity Preference Theory: Transaction, Precautionary and Speculative Demand for Money- Milton Friedman's Approach – Wealth theory- Portfolio balance Approach – Baumol and Tobin. - Components of money supply. Measurement of money supply- RBI Approach to Money Supply -M1, M2, M3- High Powered Money and Money Multiplier- Budget Deficits and Money Supply - Money Supply and Open Economy- Control of Money Supply

Module 4: Consumption Function [15]

Keynes, psychological law of consumption – implication of the law - short-run and long-run consumption function- Empirical evidence on consumption function- Income – consumption relationship – absolute income, relative income, life cycle and permanent income hypotheses.

REFERENCES:

- 1) D'Souza, Errol (2008), Macroeconomics, Pearson Education, Delhi.
- 2) Gupta R.D. and Rana A.S. (1998): Post-Keynesian Economics, Kalyani Publishers, Ludhiana.
- 3) Jha, R (1991) : Contemporary Macro Economic theory and Policy, Wiley Eastern Ltd.,
- 4) Keynes, J.M (1936) : General Theory of Employment, Interest and Money
- 5) Mithani D. M., Money, Banking, International trade and public finance, Himalaya Publications
- 6) Rakshit, M. (1998), Studies in the Macroeconomics of Developing Countries, Oxford University Press, New Delhi

Mandatory 3
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF BANKING-I

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

This paper is designed to provide in-depth knowledge on varied concepts of banking. The contents of the paper throws light on a range of issues like commercial banking, foreign banking, Non-Bank Financial intermediaries, R.B.I., monetary policy objectives, instruments of monetary policy.

Course Outcomes

C1) To help the students to understand the concept of demand for money and supply of money. To acquaint the students with the commercial banks and Non-Bank Financial intermediaries.

C2) To help- the learners to understand the Banking in India. To acquaint the students with the central banking and monetary policy in India.

Module-I Money [15]

Money – Meaning, Classification and Functions- Gresham’s law- Monetary standards – Metallic and paper systems of note issue- Measures of money supply and sources of reserve money in India, Brief history of Indian Rupee- Value of money - Measurement and determination.

Module- II Commercial Banking [15]

Meaning and functions of commercial banks, the process of credit creation – Purpose and limitations, Liabilities and Assets of banks- Investment policy of commercial banks- Commercial bank and economic development- Co-operative banks. A critical appraisal of the progress of commercial banking after nationalization-

Module- III Central Banking [15]

Functions, objectives and methods of credit control – quantitative and qualitative methods- Role and functions of Reserve Bank of India- Objectives and limitations of monetary policy of RBI- Recent Policy measures

Module-IV Indian Money Market and Banking [15]

Structure of financial market in India- Structure and functions of Indian money market including call money, treasury bills and commercial bills, weaknesses of money market in India- Money markets instruments- Development banking in India –IFCI, IDBI, and ICICI.

REFERENCES:

- 1) Gupta, S. B. (1983) Monetary Economics, 2/e, S. Chand & Co., New Delhi.
- 2) Mitra, S. (Ed.) (1970). Money and Banking, Random House, New York.
- 3) Savors, R. S. (1978). Modern banking, 7/e, Oxford University Press, Delhi.
- 4) Chandlar, L. V. and S. N. Goldfield (1977). Economics of Money & Banking, 7/e, Harparand Row, New York
- 5) Sayers, R.S. Modern Banking, Oxford University Press, New Delhi
- 6) Smith, P.F. Economics of Financial Institutions & Markets, Prentice Hall
- 7) Gupta, S.B. Monetary planning for India, S. Chand & Company, New Delhi
- 8) Grabble, J.O International Financial Markets, Elsevire, New York

Mandatory 4
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF INSURANCE-I

Total Credits: 02
University assessment: 25
Prerequisite:

Total Marks: 50
College assessment: 25

Learning Objectives

This paper is designed to provide in-depth knowledge on varied concepts of insurance. The contents of the paper throws light on a range of issues like risk, liability, insurability, risk management, and types of insurance, construction of premium and under writing of insurance.

Course Outcomes

C1) To equip the students to understand the concepts of insurance, risk, liability, uncertainty and so on. To acquaint the students to understand the basic concepts of insurability, provisions of policies. To provide insight into basic types of insurance and their working in risk management.

C2) To help the students understand the construction of premium, underwriting of insurance. To introduce students to various methods of distribution and marking of insurance. To familiarise the students with fundamental concepts of technology development and its impact on insurance

Module-I Introduction [15]

Economic Security- Human quest for economic security through time- Exposure to losses- Role and definition of insurance- Risk pooling and risk transfer- Economic and legal perspectives, Social vs. Private insurance- Life V/s. Non-life insurance- Classification of life, Health and General Insurance policies.

Module-II Life and health insurance [15]

Fundamentals of life & health insurance- Functions of life & health insurance- Mathematical basis of life insurance- Plans of life insurance- Legal aspects of life insurance- Provisions of policies- Individual health insurance- Uses and types of evaluation- Principles of underwriting of life & health insurance - Group insurance and superannuation (Pension) schemes.

REFERENCES:

- 1) Dionne, G. and S.E. Harrington (eds.) (1997), Foundations of Insurance Economics, Kluweracademic Publishers, Boston
- 2) Meier. K.J. (1998), The Political Economy of Regulation : The Case of Insurance, The StateUniversity of New York Press, Albany, N.Y
- 3) Black. K. Jr. and H.D. Skipper Jr.(2000), Life & Health Insurance, Prentice Hall, UpperSaddle River, New Jersey.
- 4) Pteffer, I. And D.R. Klock (1974), Perspectives on Insurance, Prentice Hall Inc., EnglewordCliffs.
- 5) Williams Jr., C.A. M.L. Smith and P.C.Young (1995), Risk Management and Insurance,McGraw Hill, New York.
- 6) Skipper Jr., H.D.(ed.) (1998), International Risk & Insurance : An Environmental ManagerialApproach, Irwin McGraw Hill, Boston.
- 7) United Nations Conference on Trade and Development (1987), the Promotion of RiskManagement in Developing Countries, UNCTAD, Geneva.
- 8) Insurance Institute of India, Life Assurance Underwriting, (IC-22), Mumbai.
- 9) Insurance Institute of India, General Insurance Underwriting, (IC-22), Mumbai.
- 10) Government of India (1998), Old Age and Income Security (OASIS) Report (DaveCommittee Report), New Delhi.
- 11) Insurance Regulation and Development Authority (2001), IRDA Regulations, New Delhi.

Elective 4
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF AGRICULTURE-I

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

This course aims to enhance the students understanding of agricultural development. Starting from basic questions like what factors lead to agricultural development or why does the share of agriculture in GDP go down once economies start developing, the course tries to enhance the students' awareness on contemporary debates in the literature, and leads them to analysis of current governmental policies and strategies for surviving in the globalizing world.

Course Outcomes

CO1: This paper enhances knowledge on the process of development of agriculture in an emerging economy.

CO2: It throws light on the role and the policies as well as the competitiveness of the agricultural sector.

Module: 1 – Introduction. [15]

Role of Agriculture in Indian economy- Trends in Agriculture Productivity –Agricultural Development under Five Year Plans- Special Economic Zone and Policy- Problems of Agriculture Labour- Efficiency of Agriculture Labour -Impact of Mechanization on Agriculture Labour-National Employment Guarantee Scheme.

Module: 2 Agricultural credits [15]

Co-operative Credit Structure- Role of NABARD- Role of Commercial Banks- Micro Finance - Meaning, Role, and Trends- Issues of Agriculture Subsidies.

Module: 3Agriculture Marketing [15]

Problems of Agriculture Marketing in India- Agriculture -Marketing and Price System in India- Problems of Agriculture – Export- Imports- Processing of Farm Products- Agreements of WTO in Agriculture

Module: 4 Sustainable Agriculture [15]

Bio Technology – Meaning and Trends -Organic Farming – Present status and Future- Contract Farming -Present Status and Future -Diversification of Agriculture in India (High Technology in Agriculture.) - Agricultural Management – Concept, Recent trends and Problems- Food Securities in India.

REFERENCES:

- 1) Datt R. & K.P.M Sundharm (2013) Indian Economy, S.Chand & Co.Ltd.Delhi.
- 2) Misra S.K. & V.K.Puri (2013) Indian Economy – Himalaya Publication house Mumbai.
- 3) Kapila Uma (ed) Indian Economy Since Independence, Academic Foundation (2003)
- 4) Dewett Kewal : Indian Economy C.Chand & Co.Ltd, New Delhi 2005.
- 5) B.N.P singh : Indian Economy Today Changing Contours. Deep and Deep pub. 05.
- 6) M.P.Singh- Indian Economy Today- Problems Planning and Development. (2004) Deep andDeep Publication.
- 7) Singh Acharya, Sagar – Sustainable Agricultural Poverty and Food Securities (2002) Rawat Publication Jaypur Vol- I & II
- 8) Ajit Singh and Tabatabai – Economic crisis and Third world Agriculture, CambridgeUniversity Press.

Elective 4
Programme Name: M.A. (Business Economics)
Course Name: RURAL ECONOMICS-I

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

This course aims to enhance the students understanding of Rural development. Starting from basic questions like what factors lead to Rural development or why does the share of Rural in GDP go down once economies start developing, the course tries to enhance the students' awareness on contemporary debates in the literature, and leads them to analysis of current governmental policies and strategies for surviving in the globalizing world.

Course Outcomes

CO1: This paper enhances knowledge on the process of development of Rural in an emerging economy.

CO2: It throws light on the role and the policies as well as the competitiveness of the Rural sector.

Module–I: Rural Economy of India [15]

Nature and features of rural economy of India- Dimension, dynamics and magnitude of rural population - Concept of Rural Development, Scope of Rural Development, Causes of Rural Backwardness- Need for Rural Development, Constraints of Rural Development.

Module–II: Rural Dimensions [15]

Paradigms of Rural Development- Lewis Model of Economic Development, 'Big Push' theory of Development, Myrdal's thesis of 'Spread and Backwash Effects', Gandhian Model of Rural Development- Rural poverty and development dimension. (Human capital, inequalities – poverty syndrome-govt. policy); Problems of rural unemployment-specially disguised unemployment causes and remedies, Livelihood approach.

Module– III: Indian agriculture [15]

Indian agriculture production system-role, problems, and gender equity, resource structure, growth opportunities; Problems of agriculture labour vis a vis mechanised agriculture and green revolution.

Module– IV: Agricultural Finance [15]

Agricultural finance and rural indebtedness – Importance, problems and sources – Govt. measures- Local Self Help Group (SHG)- Innovative credit schemes of govt. and Non-Govt. agencies, their pros and cons- Small scale and cottage industries - Importance, problems and policy measure.

REFERENCES:

- 1) B.S. Khanna, Rural Development in South Asia Vol. India, Deep and Deep Publisher
- 2) Vasant Desai, Rural Development (Vol. I-VI) in the Seventh Plan, Himalaya Publishing Co.
- 3) A.N. Agrawal, India Eco. Problem of Dev. And Planning, WISHWA Prakashan
- 4) E.F. Schumacher, Small is Beautiful, Abacus.
- 5) Rakesh Hooja & P.C. Mathur, Dist & Decentralized Planning, Rawat.
- 6) Prabhu Ghatge, Direct attacks on Rural Poverty-Policy, Prog. & Implementation, Concept Publishing Company N. Delhi
- 7) Rudrar Datt & K.P.M. Sundharam, Indian Economy, S. Chand & Co. Ltd.
- 8) Amartya Sen, Resources, Value and Development., Basil Blackwell.
- 9) Robert Chambers, Challenging the professionals, Intermediate Tech. Publications, 1993

Elective 4
Programme Name: M.A. (Business Economics)
Course Name: Research Methodology

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Learning Objectives

Through this course it is aimed to provide for the rational behind using research techniques which are qualitative or quantitative and the purpose of using a particular model. The objective is to introduce the candidates to the basic quantitative and qualitative tools, commonly used by the researchers in Economics. This course also aims at deepening the students understanding on ethics in research and publication and unethical practicals like plagiarism which has to be strictly avoided in research

Course Outcomes

CO1: To develop essential analytical skills and sufficient knowledge of quantitative methods and qualitative methods.

CO2: To enable the student in data collection, presentation, analyses and drawing inferences about various statistical hypotheses based on economic problems. To generate sense of ethics to be followed while undertaking research.

Module 1: Introduction: [15]

Concepts in Research methods, Quantitative and Qualitative approaches in data collection, Requirement in qualitative research- Sampling frame and design. Conceptual Frameworks- Research questions, validity in data gathering. Sampling methods, Sampling and Non- sampling errors, Sample size determination. Ethics in Research - Plagiarism and ethics in writing Intellectual honesty and research integrity.

Module 2: Quantitative Methods in Data Analysis: [15]

Analysis of variance, Multiple Classification Analysis, Factor analysis and Principal Components Analysis, Binary Logistic regression. Multinomial logit regression: Basic form of logit model, interpretation of coefficients. Discriminant analysis, Multilevel analysis and application.

Module 3: Qualitative Research and Data collection procedures [15]

The phases of qualitative studies -The sample in qualitative designs -The nature of data in qualitative research, Research-Procedures for designing and setting up a qualitative research study. Starting a study: entry into the field; role of the researcher; confidentiality; collecting background information, the mixed approach- Mixed Models - Mixed Methods-Survey method- Key techniques for data collections in qualitative research, Types of interviews (structured too unstructured). -Types of observation procedures. Focus groups discussions.

Module 4: Representation, Writing and Presentation [15]

Basic principles of analysis of data- Computer-assisted content analysis - The role of theory in data analysis. A Completing analysis and Writing a report- The importance of originality- writing an outline of the research- Transparent presentation: A case study - Analysing and interpreting the data.

REFERENCES:

1. Brymann, A. Social Research Methods, Fourth Edition, OUP, 2012
2. Creswell, J.W. Qualitative Inquiry and Research design, Choosing among five approaches, Sage Publication, 2007
3. Denzin, N.K. and Lincoln, Y.S. (eds.). Handbook of Qualitative Research, Sage, Thousand Oaks, 1994.
4. Johnson & Christensen. (2004). Educational Research: Quantitative, qualitative and mixes approaches, 2nd Ed. Boston: Allyn & Bacon.
5. Neuman, W. L. (2000). Social research methods. Qualitative and Quantitative approaches (4th Ed.). Boston: Allyn and Bacon.
6. Strauss, A. & Corbin, J. (1994). "Grounded Theory Methodology." In NK Denzin & YS Lincoln (Eds.) Handbook of Qualitative Research (pp. 217-285). Thousand Oaks, Sage Publication
7. A Guide to research in economics. Editor: C. T. Kurien, Madras, Sangam Publishers for Madras Institute of Development Studies [1973] xv, 476 p. 22 cm.

Semester-II

Mandatory 1
Programme Name: M.A. (Business Economics)
Course Name: MICRO ECONOMIC ANALYSIS - II

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Module-I Theories of the firm [15]

Objectives of modern Firm- Baumol's Sales Revenue Maximization Model- Williamson's Model of Managerial Discretion- Marris Model of Managerial Enterprise, The Hall and Hitch Report – Full Cost Pricing Rule- Bain's Limit pricing theory and its recent developments including Sylos-Lobini's Model- Behavioral Model of the Firm

Module-II Distribution

Neo-Classical Approach – Marginal Productivity Theory – Product Exhaustion Theorem- Technical Progress and Factor Shares- Theory of Distribution under Imperfect Product and Factor Markets, Macro Theories of Distribution Ricardian, Marxian and Kalecki

Module-III Welfare Economics [15]

Pareto Optimal Conditions- Paretian Welfare Criterion – Value Judgment, Social Welfare Function- Compensation Principle- Inability to obtain Optimum Welfare – Imperfections Market Failure, Decreasing Costs, uncertainty and Non-Existent and Incomplete Markets- Theory of Second Best – Arrow's Impossibility Theorem, Rawls Theory of Justice, Equity – Efficiency Trade-Off.

Module-IV Economics of Uncertainty [15]

Individual Behaviour towards risk, expected utility and certain Equivalence Approaches, Risk and risk aversion, Game and Insurance, the Economics of Insurance, cost and risk spreading

REFERENCES:

- 1) Koutsoyiannis A (1985), 'Modern Micro Economics' Macmillan Press Ltd.,
- 2) Ahuja H.L. (1982), 'Advanced Economic Theory' S. Chand & company Ltd., New Delhi.
- 3) Chopra P.N (1981), 'Advanced Micro Economics' Kalyani Publications
- 4) Layard, P.R.G. and Walters, A.A. (1978). Microeconomic Theory, McGraw Hill, New York.
- 5) Little, I.M.D. (1957). Critique of Welfare Economics (2nd edition), Oxford University Press, Oxford.

Mandatory 1
Programme Name: M.A. (Business Economics)
Course Name: MACRO ECONOMIC ANALYSIS - II

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Module-I Macro Economic Policies [15]

Monetary Policy – Fiscal Policy – Income Policy – Neo–Classical Policy – Austrian Policy –The Austrian Critique of Keynesian economics – Post – Keynesian Policy and the deficit

Module-II Theory of Inflation & Trade Cycle

Classical, Keynesian Monetarist Approach to Inflation- Structuralism Theory – Inflation – Phillips curve Analysis – Samuelson and Solow. The Natural Rate of Unemployment Hypothesis, Tobins Modified Phillips Curve.

Module-III Issues in Stabilization Policies [15]

Lags in the Effects of Policy – The Role of Expectations – Uncertainty and Economic Policy– Budget deficit and inflation – the mechanics of financing the budget – Income Policies – Supply side economics – The Laffer Curve – Monetarism Vs. Fiscalism – The Portfolio Approach – Crowding out Effect – Fine tuning or Stable Policy Setting.

Module-IV Macroeconomics: From Open Economy point of view [15]

Market for foreign exchange, devaluation and depreciation, real and nominal exchange rate, factors affecting exchange rate, Mundell-Fleming model, fixed versus floating exchange rate, price adjustment, role of fiscal and monetary policies under alternative exchange rate regimes, purchasing power parity concept

REFERENCES:

- 1) D’Souza, Errol (2008), Macroeconomics, Pearson Education, Delhi.
- 2) Gupta R.D. and Rana A.S. (1998): Post-Keynesian Economics, Kalyani Publishers, Ludhiana.
- 3) Jha, R (1991) : Contemporary Macro Economic theory and Policy, Wiley Eastern Ltd.,
- 4) Keynes, J.M (1936) : General Theory of Employment, Interest and Money
- 5) Mithani D. M., Money, Banking, International trade and public finance, Himalaya Publications
- 6) Rakshit, M. (1998), Studies in the Macroeconomics of Developing Countries, Oxford University Press, New Delhi.

Mandatory 3
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF BANKING-II

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Module-I Theories of Money [15]

Theories of Value of Money- Fisher, Cambridge equations, the Cash Balances Approach- Keynesian Theory of Money and Prices, The Real Balance Effect, Wicksell's contribution.

Module-II Financial intermediaries in India [15]

The Indian commercial banking- Functions and growth of financial institutions in India -Recent reforms in banking sector in India -Non-bank financial intermediaries (NBFI's) - The currency and credit schools- - Role of Non-Banking financial institutions in India – Mutual funds, LIC, Investment companies, venture capital- Role of regulatory authorities – SEBI and IRDA.- Financial sector reforms in India

Module-III Monetary Policy [15]

Principles of Monetary Policy: Its meaning, objectives, frame work, targets and indicators of monetary policy; Transmission mechanism of monetary Policy- Restrictive Vs. accommodating monetary policy- Need and effectiveness of monetary policy- Lags in monetary policy- Role of monetary policy in developing countries - Monetary and credit planning - Monetarist and Keynesian views on monetary policy

Module-IV Inflation and Trade cycle [15]

Inflation Measurement and types of Inflation, Demand and Supply Side Inflation, Causes and effects of Inflation, Methods to Check Inflation, stagflation and Anti- Inflation Policy, Inflation and Indian Economy. Inflation and Unemployment- Philips curve, The Relationship between Inflation and Unemployment, long run Phillips Curve- Business Cycles Meaning and Nature, Theories of trade Cycle: Schumpeter, Keynesian, Samuelson and Hicks - Non-Monetary theories of business cycles.

REFERENCES:

- 1) Gupta, S. B. (1983) Monetary Economics, 2/e, S. Chand & Co., New Delhi.
- 2) Mitra, S. (Ed.) (1970). Money and Banking, Random House, New York.
- 3) Savors, R. S. (1978). Modern banking, 7/e, Oxford University Press, Delhi.
- 4) Chandlar, L. V. and S. N. Goldfield (1977). Economics of Money & Banking, 7/e, Harparand Row, New York
- 5) Sayers, R.S. Modern Banking, Oxford University Press, New Delhi
- 6) Smith, P.F. Economics of Financial Institutions & Markets, Prentice Hall
- 7) Gupta, S.B. Monetary planning for India, S. Chand & Company, New Delhi
- 8) Grabble, J.O International Financial Markets, Elsevire, New York

Mandatory 4
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF INSURANCE-II

Total Credits: 02
University assessment: 25
Prerequisite:

Total Marks: 50
College assessment: 25

MODULE 1: ECONOMICS OF RISK MANAGEMENT [15]

Fundamentals of uncertainty and risk; Pure risk and speculative risk; Expected utility and decision-making under uncertainty; Expected utility and the demand for insurance; Moral hazard and insurance demand; Concept of risk management; Essentials of risk management; Elements of risk management- Risk assessment; Risk control and risk financing; Worldwide risk sharing- Concept of reinsurance, Fundamentals of reinsurance, Types of reinsures; Reinsurance distribution systems, Reinsurance markets in developing countries.

MODULE 2: ESSENTIALS OF LIFE AND HEALTH INSURANCE [15]

Fundamentals of life and health insurance; Functions of life and health insurance; Mathematical basis of life insurance; Plans of life insurance- Provisions of policies; Selection and classification of risks; Basics of premium construction; Valuation and distribution of surplus - Individual health insurance; Uses, Types of evaluation; Principles of underwriting of life and health insurance; Group insurance and superannuating (pension) schemes- Set-up and management of insurance companies.

REFERENCES:

- 1) Benjamin, B. (1991), General Insurance, Heinemann, London.
- 2) Black, K. Jr. and H.D. Skipper Jr. (2000), Life and Health Insurance, Prentice Hall, Upper Saddle River, New Jersey.
- 3) Black, K.Jr. and H.D. Skipper Jr. (2000), Life and Health Insurance, Prentice Hall, Upper Saddle River, New Jersey.
- 4) Brockelt, P.L., R.C. Witt and P.R. Hind (1991), An Overview of Reinsurance and the Reinsurance Markets, Journal of Insurance Regulation, Volume 9, No.3.
- 5) Casner, A.J. (1995), Estate Planning, Little Brown, Boston.
- 6) Dionne, G. and S.E. Harrington (Eds.) (1997), Foundations of Insurance Economics, Kluwer Academic Publishers, Boston.
- 7) Drofman, M.S. (1994), Risk and Insurance, Prentice Hall, Englewood-Cliffs.
- 8) Elliot, M.W., B.L. Webb, H.N. Anderson and P.R. Kensicki (1995), Principles of Reinsurance, Insurance Institute of America, Malvern, Pa.
- 9) Friedmann, M. and L.J. Savage (1947), The Utility Analysis of Choices Involving Risk, Journal of Political Economy, Vol.56.
- 10) Government of India (1998), Old Age and Income Security (OASIS) Report
- 11) Skipper, Jr., H.D. (Ed.) (1998), International Risk and Insurance: An Environmental Managerial Approach, Irwin McGraw Hill, Boston.
- 12) Yarri, M.E. (1965), 'Uncertain Life Time, Life Insurance and the Theory of Consumer, 'Review of Economic Studies, Volume 32.

Elective 4
Programme Name: M.A. (Business Economics)
Course Name: ECONOMICS OF AGRICULTURE-II

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Module-I Comparative Agriculture [15]

Role of agriculture in economic development - Interdependence of agriculture and industry - Cropping pattern - Factors affecting cropping pattern. Land reforms in India - Green Revolution - Experience in Mexico, Canada and India - Farm size and productivity debate in India -Mechanization in Indian agriculture.

Module II: Agricultural Production [15]

Farm management – Principles - Farm management decisions - Principles of factor substitution - Cost principles - Opportunity cost principle - Principles of comparative advantage -Limitations of farm management - Agricultural production functions - Factor-product relationships, Product- Product relationships, Factor-factor relationships - Supply response models (Cobweb Model).

Module III: Agricultural Pricing and Marketing [15]

Agricultural Pricing- An evaluation of agriculture price policy in India- Pre and Post WTO situation of Indian agriculture –The Role and need for agro-based industries – The terms of trade between agricultural and non-agriculture prices; Need for state intervention; Objectives of agricultural price policy - Agricultural marketing in India - Regulated markets and cooperative marketing- Marketed and marketable surplus - Food security in India – PDS - Revamped PDS and targeted PDS - Need and objectives of agricultural price policy- International trade and agriculture development and WTO and Indian agriculture - Agriculture policy –

Module IV: The trends in Indian agriculture [15]

Indian agriculture since independence –Pre green revolution and Post green revolution – The trends in agricultural area, production, yield, processing, marketing, trade, demand and supply of inputs, insurance - The role of Public investment and capital formation in Indian agriculture; Strategy of agricultural development;

REFERENCES:

- 1) A.N Sadhu & Amarjit Singh, Fundamentals of Agricultural Economics, Himalaya Publishing House.
- 2) Bilgrami, S.A.R. (1996). Agricultural Economics. Himalaya publishing House, Delhi.
- 3) Dantwala M.L.et.al (1991). Indian Agricultural Development since Independence, Oxford & IBH, New Delhi.
- 4) Das Gupta, The new Agricultural Technology in India, Macmillan, Madras.
- 5) Gulati, A. and T. Kelly (1999), Trade Liberalization and Indian Agriculture, Oxford University press, New Delhi.
- 6) Heady E O, Agricultural Production Function, Kalyani Publications, Ludhiana.
- 7) Kahlon, A.S. and Tyagi D.S (1983), Agriculture price policy in India. Allied publishers, New Delhi.
- 8) M Bazlul Karim, the Green Revolution: An International Bibliography, Greenwood Press.
- 9) R.G.Desai, Agricultural Economics (Models, Problems and policy issues), Himalaya Publishing House.
- 10) Rao C Hanumantha, Agricultural Production Function costs and returns in India by, Tata MC Graw Hill Delhi.
- 11) Rao. C. H. Hanumantha (1975), Agricultural Growth. Rural Poverty and Environmental Degradation in India, Oxford University press, New Delhi.
- 12) Rudra A, Indian Agricultural Economics-Myth and realities, Allied publishers, New Delhi.
- 13) S.Subba Reddy, P.Raghu Ram, T.V Neelakanta Sastry, I.Bhavani Devi – Agricultural Economics, Oxford & IBH Publishing Co, Pvt. Ltd, New Delhi.

Elective 4
Programme Name: M.A. (Business Economics)
Course Name: RURAL ECONOMICS-II

Total Credits: 04
University assessment: 50
Prerequisite:

Total Marks: 100
College assessment: 50

Module-I: Economic structure of Rural India [15]

Economic Structure of Rural India: Degree of Ruralisation in India, Asset Distribution, Income Distribution, Composition of rural work force. Alternative Occupations in Rural Areas: Dairying, Poultry, Fishery, Horticulture, Rural Non-Farm Sector.

Module- II: Rural economy and agriculture [15]

Agriculture and Economic Development, Agricultural Development under the Plans, Organizational Aspects of Agriculture: Land Reforms, Green Revolution, Cropping Pattern, Dry Land Farming, Agriculture Finance and Marketing, Information Technology in Agriculture.

Module- III: Rural Industrialization [15]

Rural Industrialization- Concept, Importance of Rural Industrialization, Village and Cottage Industries, Policies and Programmes for the Development of Rural Industries, Rural Industrial Sectors: Handloom, Handicrafts etc.

Module- IV: The problems of rural economy [15]

Unemployment and Underemployment in Rural Areas- Problems, Causes; Poverty- Causes of Rural Poverty, Poverty alleviation programmes in India- Success and Failure analysis, Poverty alleviation through Micro Finance and SHGs, Empowerment of Rural Women through Self Help Groups, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).

REFERENCES:

- 1) Sundaram, Satya,I.: Rural Development, Himalaya Publishing.
- 2) Desai Vasant.: Rural Development- Programmes and Strategies, Himalaya Publishing House, Mumbai
- 3) Mukundan, N.: Rural Development and Poverty Eradication in India, New Century, NewDelhi
- 4) Soni, R.N.: Leading Issues in Agriculture Economics,Vishal Publishing Company
- 5) Reddy,Venkata.K.: Agriculture and Rural Development (A Gandhian Perspective),Himalaya Publishing House.

Paper Pattern (Total 50 Marks)

Internal = 25 Marks

External = 25 Marks

Internal Paper Pattern (25 Marks)

Q1. Project Presentation/ Case Study writing	05 Marks
Q2. Quiz/ Group discussion	05 Marks
Q3. Paper Presentation/ Seminar presentation	05 Marks
Q4. Class Test	<u>10 Marks</u>
Total	25 Marks

External Paper Pattern (25 Marks)

Q1. Answer the following (Any One) A Or B	5 Marks
Q2. Answer the following (Any One) A Or B	10 Marks
Q3. Answer the following (Any One) A Or B	10 Marks
Total	25 Marks

Paper Pattern (Total 100 Marks)

Internal = 50 Marks

External = 50 Marks

Internal Paper Pattern (50 Marks)

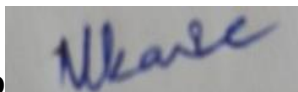
Q1. Project Presentation/ Case Study writing	10 Marks
Q2. Quiz/ Group discussion	10 Marks
Q3. Paper Presentation/ Seminar presentation	10 Marks
Q4. Class Test	<u>20 Marks</u>
Total	50 Marks

External Paper Pattern (50 Marks)

Q1. Answer the following (Any One) A Or B	10 Marks
Q2. Answer the following (Any One) A Or B	10 Marks
Q3. Answer the following (Any One) A Or B	10 Marks
Q4. Answer the following (Any One) A Or B	10 Marks
Q5. Answer the following (Any One) A Or B	10 Marks
Total	25 Marks

Letter Grades and Grade Points:

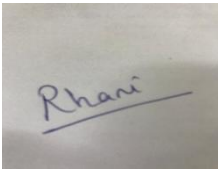
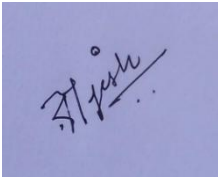
Semester GPA/ Programme CGPA Semester/ Programme	% of Marks	Alpha-Sign/ Letter Grade Result
9.00 - 10.00	90.0 - 100	O (Outstanding)
8.00 - < 9.00	80.0 - < 90.0	A+ (Excellent)
7.00 - < 8.00	70.0 - < 80.0	A (Very Good)
6.00 - < 7.00	60.0 - < 70.0	B+ (Good)
5.50 - < 6.00	55.0 - < 60.0	B (Above Average)
5.00 - < 5.50	50.0 - < 55.0	C (Average)
4.00 - < 5.00	40.0 - < 50.0	P (Pass)
Below 4.00	Below 40.0	F (Fail)
Ab (Absent)	-	Absent

Sign of HOD

Name of the Head of the Department:

Prof. Manisha KarneName of the Department : **Mumbai****School of Economics and Public Policy****Sign of Dean**Name of the Dean: **Dr. Anil Singh**Name of the Faculty: **Faculty of
Humanities**

Team for construction of syllabus M.A. (Business Economics) Semester – I & II

Sr. No.	Name & Address	Signature
1.	Arab Abdul Aziz Ex- Head of the Department of Economics and Associate Professor of Economics Maharashtra college of Arts, Science & Commerce (Mumbai – 400008) arababdulaziz@gmail.com (9819967630)	
2.	Dr. Rakhshandah Amir Hani Head of the Department of Economics and Associate Professor of Economics Maharashtra college of Arts, Science & Commerce (Mumbai – 400008) arababdulaziz@gmail.com (9819967630)	
3.	Dr. Rajesh Bhoite Department of Business Economics Associate professor AI's Akbar Peerbhoy College of Commerce & Economics (Mumbai - 400008) drrajeshbhoite77@gmail.com (8976036046)	
4.	Dr. Kiran V. Jadhav Department of Economics Head and Associate Professor Bhavan's Hazarimal Somani College (Chowpatty – 400007) kiranvsjadhav@gmail.com (9921991115)	
5.	Dr. Anil Singh Dean of Humanities University of Mumbai	
6.	Dr. Kavita Laghate Dean of Commerce & Management University of Mumbai	

Sign of HOD

Name of the Head of the Department:

Prof. Manisha Karne

Name of the Department : **Mumbai**

School of Economics and Public Policy

Sign of Dean

Name of the Dean: **Dr. Anil Singh**

Name of the Faculty: **Faculty of Humanities**

Justification for M.A. (Development Studies)

1.	Necessity for starting the course:	The course has been restructures as per NEP guidelines. It has been offered since last few decades.
2.	Whether the UGC has recommended the course:	YES
3.	Whether all the courses have commenced from the academic year 2023-24	YES
4.	The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?	Managed at the College Level by existing faculty
5.	To give details regarding the duration of the Course and is it possible to compress the course?	4Semesters, Two Years, with one year exit option of Diploma
6.	The intake capacity of each course and no. of admissions given in the current academic year:	As per the seats available in colleges
7.	Opportunities of Employability / Employment available after undertaking these courses:	There is a potential of employability due to rising demand of researchers, policy makers, practitioners in the field of business Economics and also in the corporate sector.

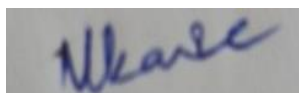
Sign of HOD

Name of the Head of the Department:

Prof. Manisha Karne

Name of the Department : **Mumbai**

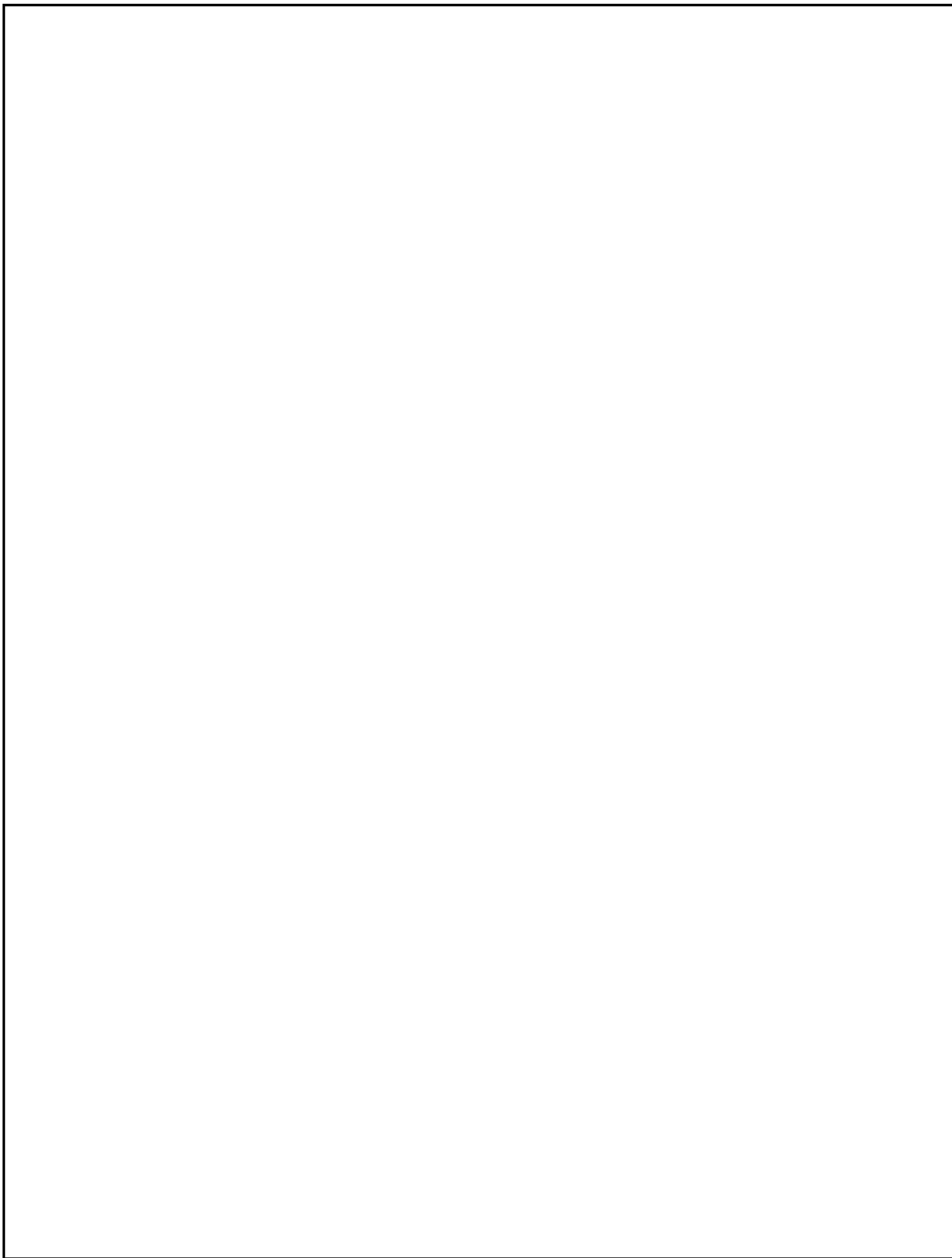
School of Economics and Public Policy



Sign of Dean

Name of the Dean: **Dr. Anil Singh**

Name of the Faculty: **Faculty of Humanities**



As Per NEP 2020

University of Mumbai



Title of the program

A-P.G. Diploma in Digital and Cyber Forensic & Related Law

Syllabus for Semester – I & II

Ref: GR dated 16th May, 2023 for Credit Structure of PG

(With effect from the academic year 2023-24)

University of Mumbai



(As per NEP 2020)

Sr. No.	Heading	Particulars	
1	Title of program O: _____ A	A	Title of the program: P.G. Diploma in Digital and Cyber Forensic & Related Law
	O: _____ B	B	-
2	Eligibility O: _____ A	A	a. Any graduate from a recognized university with at least one paper / 4 credits related to Computer Science / Information technology / Computer Application. or b. Professionals working in the criminal justice system (Judges, Advocates, etc.) defence, paramilitary, police, banking, corporate sector (IT & Insurance) and forensic with any graduation from a recognized university are also eligible.
	O: _____ B	B	-
3	R: _____ Duration of program	A	one year
		B	-
4	R: _____ Intake Capacity	40	
5	R: _____ Scheme of Examination	NEP 50% Internal, 50% External, Semester End Examination Individual Passing in Internal and External Examination	
6	R: _____ Standards of Passing	40%	
7	Credit Structure R: _____	Attached herewith	
	Semesters	A	Sem. I & II
8		B	-
	Program Academic Level	A	6.0
9		B	-
10	Pattern	Semester	
11	Status	New	
12	To be implemented from Academic Year	A	From Academic Year: 2023-24

Chairperson
Ad-hoc BOS (Forensic Science)
University of Mumbai

Dean
Faculty of Science
University of Mumbai

Preamble

1) Introduction

This program is designed to provide a comprehensive understanding of the field of Digital and Cyber Forensics. Through a rigorous academic curriculum and hands-on research experience, the aim is to nurture the intellectual curiosity and scientific acumen of the students. This course is structured to equip students with a strong theoretical foundation, practical skills, and critical thinking abilities necessary to address the challenges and opportunities in the diverse fields of cyber forensics. Whether the passion lies in research, industry, education, or beyond, this program aims to provide the knowledge and skills necessary to excel in the chosen path of the learners.

2) Aims and Objectives

The programme objectives for P.G. Diploma in Digital and Cyber Forensic & Related law includes:

- To gain knowledge in various types of Digital Forensics
- Identifying various types of cyber-crimes and their investigation.
- Understanding the working and operation of various Digital and Cyber Forensic tools and interpretation of various evidence in Digital and Cyber Forensics.
- Developing and creating new strategies to combat and solving cyber-crimes more efficiently and effectively.
- Developing critical thinking, communication skills and analytical skills through case studies, field visits and presentations.
- Conducting independent research in various disciplines and thesis writing.
- To inculcate professional, scientific and moral ethics in the field of Digital and cyber forensics.
- Proposing new ideas and practices for more efficient and effective crime solving.
- To imbibe an attitude of lifelong learning to thrive in knowledge and skills.

3) Learning Outcomes:

The learners will be able to:

1. Demonstrate advanced knowledge and understanding of the fundamental concepts of Digital and cyber forensics, including digital crime scene and cyber-crimes.
2. Apply scientific principles and methods to the analysis and interpretation of Digital evidence.
3. Express expert opinion about complex Digital and cyber forensics concepts, techniques, and findings to the law enforcement agencies.
4. Think critically and solve complex problems related to Digital and cyber forensics, using analytical and logical reasoning skills to identify and evaluate evidence, generate hypothesis and make informed conclusions.

4) Credit Structure of the P.G. Diploma in Digital and Cyber Forensic & Related law (Sem I &II):

Ye ar	Le vel	S e m .	Major		Min or	OJT/FP	Cu m. Cr .	Degree/C um. Cr.
			Mandatory	Elective (anyone)				
1	6.0	I	1. DSC1-1: PGDDCFDC101T- Cyber Forensics -I (4) 2. DSC1-2: PGDCFDC102T- Cyber Security (4) 3. DSC1-3: PGDDFFC103T- Cyber Law – I (4) 4. DSC1-4: PGDDCF104P- Lab Course-I(2)	1. DSE1 PGDDCFDE101T- Introduction to Digital devices and networks (4) 2. DSE1-2: PDFDCFDE102T- Specific Law – I(4)	PGD CFM N10 1T- RM (4)			PG Diploma in Digital and Cyber Forensic and Related Law
			14	4	4		22	
		II	1.DSC2-1: PGDDCFDC201T- Cyber Forensics -II(4) 2. DSC2-2: PGDDCFDC202T- Mobile Forensics (4) 3. DSC2-3: PGDDCFDC203T- Cyber Law – II (4) 4.DSC2-4: PGDDCFDC204P- Lab Course-II (2)	1. DSE2-1: PGDDCFDE201T – Cyber Crime Investigation(4) 2. DSE2-2: PGDDCFDE202T- Specific Law - II (4)		PGDD CFFP2 01P- OJT/ FP (4)		
			14	4		4	22	
Cumulative Annual Credits			28	8	4	4	44	

Abbreviation: OJT: On-Job Training; Internship/ Apprenticeship; Field projects: FP; RM: Research Methodology.

**** OJT/FP:** Student has to earn the requisite 04 credits of on-the-job training (OJT) / Field Project (FP)

Chairperson
Ad-hoc BOS (Forensic Science)
University of Mumbai

Dean
Faculty of Science
University of Mumbai

5) Course Structure & Distribution of Credits:

The P.G. Diploma in Digital and Cyber Forensic & Related law program is divided into two semesters with a total **44** credits. The program consists of **09** theory papers, a total of **02** practical lab courses & **1** On-job training spread over two semesters. Each theory paper shall consist of four units. Lab course (practical paper) shall consist of a minimum of ten experiments based on respective theory papers.

In Semester-I there are Five theory papers which includes 03 Mandatory & 01 Elective, 01 Minor Research Methodology paper and 01 lab course (practical paper) of the core subjects, wherein one elective Major theory paper to be selected by the students from amongst the two papers given in the list. Similarly, in Semester-II there are Four theory papers includes 03 Mandatory, 01 Elective theory paper and 01 lab course (practical paper) of the core subjects, wherein one elective theory paper to be selected by the students from amongst the two papers given in the list. The student has to earn 04 credits of on-the-job training (OJT) / Field Project (FP). The course structure is as follows:

Distribution of Marks and Credits: The number of theory/practical papers and marks/credits allotted for this program shall be as under:

Year	Semester	No. of papers		Total Marks			Total Credits		
		Theory	Practical	Theory	Practical	Total	Theory	Practical	Total
P.G. Diploma in Digital and Cyber Forensic & Related law	Sem.-I	05	01	500	50	550	20	02	22
	Sem.-II	04	01 01 FP	400	50 100	550	16	06	22
Total		09	03	900	200	1100	36	08	44

Work load calculation: Theory course of 4 credits = 4 Hrs. per week, Practical course/ Lab course of 2 credit = 4 Hrs. per week

SEMESTER –I

MANDATORY			
Paper Code	Paper Title	Lectures (Hrs.)	Credits
DSC1-1			
PGDDCFDC101T	Cyber Forensics – I	60	4
DSC1-2			
PGDDCFDC102T	Cyber Security	60	4
DSC2-3:			
PGDDCFDC103T	Cyber Law – I	60	4
DSC1-4:			
PGDDCFDC104P	Lab Course-I	60	2
	Total	240	14
ELECTIVE (ANYONE)			
DSE1-1:			
PGDDCFDE101T	Introduction to Digital devices and networks	60	4
DSE1-1:			
PGDDCFDE102T	Specific Law -I	60	4
	Total	60	4
MINOR			
PGDDCFMN101T	Research Methodology	60	4
	Total	60	4
Total Credits:22			

SEMESTER –II

MANDATORY			
Paper Code	Paper Title	Lectures (Hrs.)	Credits
DSC2-1:			
PGDDCFDC201T	Cyber Forensics– II	60	4
DSC2-2			
PGDDCFDC202T	Mobile Forensics	60	4
DSC2-3			
PGDDCFDC203T	Cyber Law – II	60	4
DSC2-4			
PGDDCFDC204P	Lab Course-II	60	2
	Total	270	14
ELECTIVE (ANYONE)			
DSE2-1			
PGDDCFDE201T	Cyber Crime Investigation	60	4
DSE2-1			
PGDDCFDE202T	Specific Law -II	60	4
	Total	120	4
PGDDCFOJT201P	On-the-job training (OJT) / Field Project (FP).	60	4
	Total	60	4
Total Credits: 22			
Total Credits after Sem –I and Sem-II : 44			

1. Award of Degree:

The candidates shall be awarded the Diploma in Digital and Cyber Forensic & Related Law, after completing the course and meeting all the evaluation criteria.

2. Scheme of Examination and Passing:

Evaluation Structure and Marking Scheme of Assessment Scheme of Examination and Passing for Faculty of Science:

- ✓ There shall be separate passing for internal assessment, external assessment and practical course.
- ✓ The external examination for Theory and Practical/ Project shall be conducted by the University at the end of each Semester
- ✓ Minimum marks for passing the subject shall be 40 % in each head.
- ✓ There shall be 50% External Assessment and 50% Internal Assessment for theory papers.
- ✓ There shall be no internal assessment for practical, OJT/FP, courses.

3. Internal Theory Assessment:

- ✓ Continuous assessment shall be adopted for internal assessment by the concerned teachers.
- ✓ The distribution of 50 marks for evaluation of internal assessment shall be as follows:
 - 20 marks – Minimum one written test.
 - 30 marks – On the basis of minimum two activities viz. Seminar, Home Assignment, Presentation, Quiz, Team work, etc.
- ✓ Concerned teacher should maintain proper documentation of internal assessment.

4. Practical Examination:

- ✓ For certification, minimum ten experiments shall be reported in the journal of each practical course.
- ✓ Practical evaluation for Practical papers will carry 25 marks per credit.

- ✓ Practical examination will be conducted at the end of each semester. The student must be present with the duly certified journal, failing which they will not be allowed for the practical examination. In case of loss of a journal, a report must be obtained from the head/coordinator failing which the student will not be allowed to appear for the practical examination.
- ✓ Each lab course shall have an external examination for 50 marks of 4 hrs. duration. The distribution of marks shall be – Two experiments for a maximum of 20 marks each, Viva-voce for maximum of 05 marks and maximum of 05 marks for the certified journal.

5. On-job Training (OJT)/ Field Project (FP):

Every student is required to take up On-job Training (OJT)/ Field Project (FP) which is to be completed during the course period and the report of the same needs to be submitted to the Institute at the end of the Sem-II. OJT/FP shall be evaluated at the end of Sem-II. For evaluation there shall be minimum two examiners, one preferably external.

6. Standard of Passing for University Examinations:

As per ordinances and regulations prescribed by the University for semester-based credit and grading systems.

7. Intake Capacity:

The intake capacity for P.G. Diploma in Digital and Cyber Forensic & Related law is Forty (40). The seats shall be filled strictly on the basis of merit and prevailing reservation policies. The distribution of sanctioned intake seats shall be as follows:

- i) Sixty percent of intake capacity shall be reserved for candidates having eligibility a.
- ii) Forty percent of intake capacity shall be reserved for candidates having eligibility b.

Note:

1. *If any seat remains vacant then it shall be filled by candidates with either eligibility a or eligibility b, on the basis of merit and reservation policies.*
2. *Working/ Professional candidate shall produce valid document proving their working status from the organization, firm, etc*

8. Choice of Electives:

The student has to select any of the elective papers in each semester. The student is not allowed to change the selected elective after fifteen days from the commencement of respective semester.

9. Results Grievances/ Redressal and ATKT rules:

Result Grievances/redressal/revaluation and ATKT rules shall be as made applicable by the University from time to time.

SEM - I

P.G. Diploma in Digital and Cyber Forensic& Related Law
Semester-I

DSC1-1: PGDFSDC101T	Course Title: Cyber Forensic – I [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To understand the basics of digital forensics • To understand the methods of data recovery • To understand the basis of cyber investigation
Course Outcome	• Explain the principles of cyber forensic. • Illustrate the cyber-crime investigation procedures • Apply the cyber-crime techniques to data acquisition and evidence collection • Analysing the digital evidences and arriving at conclusions • Examine the Volatile and Non-volatile Digital Evidence
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	
	Introduction to Cyber Forensic: • Definition and origin of the term “forensic”, Nature, need and scope of forensic science, Principles, and laws of forensic science. • Cyber Forensics: A Brief About Cyber Forensics, Digital Forensics Categories • Forensics Investigation Process: Incident , Identification, Seizure, Imaging ,Hashing ,Analysis, Reporting, Preservation • Forensic Protocol for Evidence Acquisition • Digital Evidence: Write Blockers, Forensic Triage, Chain of Custody • Digital Forensics Standards, Guidelines and Best Practices- Handling the Digital Crime Scene - Digital Evidence Examination Guidelines –ACPO, SWGDE,DFRWS, ISO 27037 • Cyber-crimes mechanisms: Types of Cyber-crimes, Notable Data Breaches • Challenges in Cyber Forensics • Skills Required to Become a Cyber Forensic Expert, Proficiency of a Cyber Forensic Expert • Cyber Forensic Tools
UNIT II	
	Incident Response: • Introduction to Incident Response Process • What is Computer Security Incident? • What are the goals of Incident Response? • Who is involved in Incident Response Process? • Incident Response Methodology • Formulate a Response Strategy

	• Investigate the Incident • Preparing for Incident Response • Overview of Pre-incident Preparation • Identifying Risk • After Detection of an Incident.
UNIT III	
	Windows Forensics: • Volatile Data Collection : Memory Dump ,System Time, Logged On Users, Open Files, Network Information (Cached NetBIOS Name Table),Network Connections , Process Information , Process-to-Port Mapping, Process Memory, Network Status , Clipboard Contents, Service / Driver Information , Command History , Mapped Drives, Shares • Non-Volatile Data Collection : Disk Imaging (External Storage such as USB and Native Hard Disk) , Registry Dump , Event Logs , Devices and Other Information, Files Extraction , Write-Blocking port • Registry Analysis • Browser Usage • Hibernation File Analysis • Crash Dump Analysis • File System Analysis • File Metadata and Timestamp Analysis • Event Viewer Log Analysis • Timeline Creation Evidence Collection in Linux and Mac Operating system
UNIT IV	
	Memory Forensics : • History of Memory Forensics • x86/x64 architecture • Data structures • Volatility Framework & plug-in • Memory acquisition • File Formats–PE/ELF/Mach-O • Processes and process injection • Windows registry • Command execution and User activity • Networking; sockets, DNS and Internet history • File system artifacts including \$MFT, shell bags, paged memory, and advanced registry artifacts. • Related tools–Bulk Extractor and YARA • Time lining memory • Recovering and tracking user activity • Recovering attacker activity from memory • Advanced Actor Intrusions

Suggested readings	1. Practical Cyber Forensics by Niranjana Reddy, APress publication 2. Digital Forensics Basics by NihadA. Hassan 3. Practical Windows forensic Packt publisher 4. Computer Forensics, Computer Crime Investigation by John R,Vacca, Firewall Media, New Delhi. 5. https://www.interpol.int/content/download/16243/file/Guidelines_to_Digital_Forensics_First_Responders_V7.pdf 6. http://dfs.nic.in/pdfs/Computer_Forensics_WPM_Final.pdf 7. https://www.interpol.int/content/download/16243/file/Guidelines_to_Digital_Forensics_First_Responders_V7.pdf 8. http://dfs.nic.in/pdfs/Computer_Forensics_WPM_Final.pdf 9. http://dfs.nic.in/pdfs/crime%20scene%20manual%20full_organized.pdf 10. https://keralapolice.gov.in/storage/pages/custom/ckFiles/file/7GafuMCjLbFgjBNh8aXz8WhLv2Zqtfczvbi7Uv6m.pdf 11. https://police.mizoram.gov.in/wp-content/uploads/2023/01/SOP-Cyber-Crime-Investigation-v1.0.pdf 12. https://www.in.gov/isp/files/Evidence-Collection.pdf 13. https://jhpolice.gov.in/sites/default/files/documents-reports/jhpolice_cyber_crime_investigation_manual.pdf 14. https://cbi.gov.in/assets/files/media/pc_20201222_1.pdf 15. Computer Forensics and Investigations by Nelson, Phillips Enfinger, Steuart, CENGAGE Learning. 16. Real Digital Forensics by Keith j.Jones, Richard Bejtlich,CurtisW.Rose ,AddisonWesley Pearson Education 17. Forensic Compiling, ATractitioneris Guide by Tony Sammes and Brain Jenkinson, Springer International edition. 18. Computer Evidence Collection & Presentation by Chrostopher L.T. Brown, Firewall Media. 19. Homeland Security, Techniques& Technologies by Jesus Mena, Firewall Media. 20. Software Forensics Collecting Evidence from the Scene of a Digital Crime by Robert M.Slade ,TMH 2005 21. Windows Forensics by chadSteel,Wiley India Edition 22. John Sammons, “The Basics of Digital Forensics, The Primer for Getting Started in Digital Forensics”, Syngress, 2012. 23. Cory Altheide and Harlan Carvey, “Digital Forensics with Open Source Tools”, Elsevier, 2011. 24. Bill Nelson, Amelia Philips, Chris Steuart, “Guide to Computer Forensics and Investigations”, 5th Edition, CENGAGE Learning, 2015. 25. Kevin Mandia, Chris Prosis, “Incident Response and computer forensics”, TataMcGrawHill, 2006. 26. Peter Stephenson, “Investigating Computer Crime: A Handbook for Corporate Investigations”, Sept 1999.
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	27. Eoghan Casey, "Handbook Computer Crime Investigation's Forensic Tools and Technology", Academic Press, 1st Edition, 2001. 28. Skoudis. E., Perlman. R. Counter Hack: “A Step-by-Step Guide to Computer Attacks and Effective Defenses”, .Prentice Hall Professional Technical Reference. 2001. 29. Norbert Zaenglein, “Disk Detective: Secret You Must Know to Recover Information From a Computer”, Paladin Press, 2000. 30. Dr. Keval Ukey: Cyber Forensics, A Legal Perspective of Data Protection and E- Commerce, A-22/1, Akash Vihar, Shahid Chandrashekhar Azad Marg, Nangloi- Najafgarh Road, New Delhi, 2018
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DSC1-2: Course Code: PGDDCFDC101T	Course Title: Cyber Security [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	1. Understand the fundamental concepts of cyber security and its importance in today's digital world. 2. Acquire advanced search techniques using Google for data gathering and reconnaissance purposes. 3. Explore various techniques and methodologies used by hackers for foot printing and scanning networks. 4. Gain insights into the concept of denial-of-service (DoS) attacks, examples of such attacks, and precautionary measures to mitigate their impact. 5. Learn about vulnerability assessment, its importance, the process involved, and case studies.
Course Outcome	1. Demonstrate a foundational understanding of cyber security principles and their significance in protecting digital assets. 2. Utilize advanced search techniques on Google for data gathering and reconnaissance in a cyber-security context. 3. Conduct foot printing and scanning activities using various methodologies to assess network vulnerabilities. 4. Employ precautionary measures to mitigate the impact of denial-of-service (DoS) attacks on systems and networks. 5. Conduct vulnerability assessments and identify potential weaknesses in a system or network.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Introduction to Security: security triangle. Various terms. Methodologies of various hackers. • Networking Basics: Topologies. Addressing schemes. NAT, protocols related to networking. • Data Gathering with Google: advanced search techniques. • Foot Printing& Scanning: advantages & techniques & types • Windows Security: types of password attacks, different monitoring techniques • Linux security: directory structure. Data locations etc.
UNIT II	• Theory of Proxy Server: Advantages, types, possible misuses • Malware and Trojans: introduction, types, and detection • Denial of Service: Concept, Examples, precaution • Sniffers and Tools: introduction, process of sniffing, countermeasures • Steganography and Steganalysis: concept, advantages, and detection • Basics of Cryptography: concept, types • Wireless Security and Attacks: components of wireless network. Security standards, types of attacks, guidelines for securing the wireless networks.

UNIT III	• Firewall, IDS and IPS: concept, types of firewalls, IDS, IPS advantages, configuration guidelines. • Theory of Vulnerability Assessment: importance of vulnerability assessment. Process of vulnerability assessment, guidelines, case studies. • Introduction to Penetration Testing: concept, importance, guidelines, types, example. • Session Hijacking: introduction, mechanism, countermeasures.
UNIT IV	• Introduction to Web Server: importance of websites and servers, working of webserver, possible vulnerabilities in web server and application, hardening web server • SQL Security and Attacks: basics of DBMS, DDL & DML Statements, server & client-side validation, working of SQLi, Types of SQLi, countermeasures • Cross Site Scripting: introduction to JavaScript, working of XSS, types, countermeasures. • Reverse Engineering: concept, disassembling & decompiling, advantages.
Suggested readings	1. Certified Information (Security Expert, Main Book, Inn buss Knowledge Solutions(P) 2. Certified Ethical Hacker Manual 3. www.hackthissite.org 4. Gray Hat Hacking - The Ethical Hackers Handbook, Allen Harper, Stephen Sims, Michael Baucom, 3rd Edition, Tata Mc Graw-Hill. 5. The Web Application Hacker's Handbook-Discovering and Exploiting Security flaws, Dafydd Suttard, Marcus pinto, 1st Edition, Wiley Publishing. 6. Penetration Testing: Hands-on Introduction to Hacking", Georgia Weidman, 1st Edition, No Starch Press. 7. The Pen Tester Blueprint-Starting a Career as an Ethical Hacker ", L. Wylie, Kim Crawly, 1st Edition, Wiley Publications

DSC1-3: Course Code: PGDDCFDC103T	Course Title: Cyber Law-I[T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• The main objective of this course is to familiarize important aspects of Information Technology Law in the context of cyber forensics. • To familiarize the students about cybercrime, its different types and laws related to it • To analyse the digital evidences under Information Technology Law. • To understand the jurisdiction and Investigation of cyber crimes
Course Outcome	After completing the course, students will be familiar with: • Understanding concepts of cyber space and cyber world. • Understand the various facets of cybercrimes. • Understand the concepts of digital and electronic signature. • Understand the cyber offences and penalties under IT Law
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	Cyber Forensic and Computer Crimes: • Introduction: Meaning, Nature and Scope of Cyber Crime and relevance with Conventional Crimes, • Historical Genesis and Evolution of Cyber Crimes • Characteristics, causes of cybercrimes and measures to combat cybercrimes, • Classifications of cybercrimes, cybercrimes against individuals, Institutions and state, • Hacking and Cracking, Digital Forgery and Cyber Stalking/Harassment.
UNIT II	Cyber Crimes and its Categories: • Online based Cyber Crimes, Financial Crimes, ATM and Card Crimes • Software & Hardware Piracy • Money Laundering, Computer Fraud, Cheating • Cyber Pornography and Obscenity, Identity theft • Cyber Terrorism, Cyber Defamation, Virus Attack and Social Networking Crimes.
UNIT III	Information Technology Act, 2000: • Salient features of Information Technology Act, 2000 • Definitions, Digital Signatures, Authorities and Digital Signature Certificates • Electronic Governance, Security Procedures, Electronic Contracts, Offences and Penalties Under IT Act • Establishment of Authorities under IT Act and their functions, powers, etc.

	• Controller, Certifying Authorities, Cyber Regulation, Appellate Tribunal, Adjudicating officer
UNIT IV	Cyber Space Jurisdiction and Investigation of Cyber Crimes: • Territorial Jurisdiction, Extra Territorial Jurisdiction and personal jurisdiction in cyber space • Investigation of Cyber Crimes, Introduction to cybercrime investigation • Cyber forensics, Investigation tools, Digital evidence, collection of evidence, • Admissibility of Electronic records, Problems and challenges in investigation. • Cybercrimes prevention measures, Data safety and future challenges
Suggested readings	1. Kamlesh N. & Murali D. Tiwari (Ed), <i>IT and Indian Legal System</i>, Macmillan India Ltd, New Delhi 2. K. L. James, <i>The Internet: A User's Guide</i> (2003), Prentice Hall of India, New Delhi 3. Chris Reed, <i>Internet Law-Text and Materials</i>, 2nd Edition, 2005, Universal Law Publishing Co., New Delhi 4. Vakul Sharma, <i>Hand book of Cyber Laws</i>, Macmillan India Ltd, New Delhi 5. S. V. Joga Rao, <i>Computer Contract & IT Laws</i> (in 2 Volumes), 2005 Prolific Law Publications, New Delhi 6. T. Ramappa, <i>Legal Issues in Electronic Commerce</i>, Macmillan India Ltd, New Delhi 7. Indian Law Institute, <i>Legal Dimensions of Cyber Space</i>, New Delhi 8. Pankaj Jain & Sangeet Rai Pandey, <i>Copyright and Trademark Laws relating to Computers</i>, Eastern Book Co, New Delhi 9. Farouq Ahmed, <i>Cyber Law in India</i> 10. S.V. Joga Rao, <i>Law of Cyber Crimes and Information Technology Law</i>, 2007, Wadhwa & Co, Nagpur 11. Rodney D. Ryder, <i>Guide to Cyber Laws</i>, 2nd Edit, Wadhwa and Company, Nagpur 12. Dr. Keval Ukey: <i>Cyber Forensics, A Legal Perspective of Data Protection and E- Commerce</i>, A-22/1, Akash Vihar, Shahid Chandrashekhar Azad Marg, Nangloi- Najafgarh Road, New Delhi, 2018

DSE1-4	Course Title: Lab Course-I [P]
Course Code: PGDDCFDC104P	
Course Credit: 2	Total contact hours: 60 Hrs.
List of Practical	
1. Perform the general protocols of crime scene investigation. 2. Chain of custody, form 65(B) 3. Study of toolkits: FRAT, WinHex, OS Forensics,CAINE8 OS 4. Incident Response 5. Identification and seizure of evidence from the crime scene 6. Create a forensic Image of secondary Storage media using FTK and other tools 7. Study of various digital forensic tools(FTK, Encase, Autopsy etc) and its uses 8. Preparing windows and Linux system for investigation 9. Disk image analysis 10. Windows forensic 11. Study of Windows Registry 12. Event Log Analysis 13. Linux investigation 14. Basic network analysis 15. Network configuration 16. Data gathering with Google 17. Website cloning techniques 18. Windows hardening 19. Linux hardening 20. Using proxy server. 21. Demonstration of DDoS 22. Sniffing the traffic 23. Data hiding techniques 24. Wireless network configuration and security 25. Firewall configuration 26. IDS/IPS configuration 27. Web server configuration 28. SQL injection 29. XSS 30. Reverse engineering the application	

DMN1-1 Course Code: PGDDCFMN10 1T	Course Title: Research Methodology [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To create awareness and understanding the terms like intellectual property, patents, copyright, industrial designs, trademarks, geographical indications etc. • To know trade secrets, IP infringement issues, economic value of intellectual property and study of various related international agreements. • To understand the research approach for problem solving
Course Outcome	• Familiarization and building competence with the Concept of Research, its importance and its role in advancing society. • Ability to select an appropriate research method, experimental design. • Ability to collect, analyze and interpret the data, prepare the research project report, and make Conclusions. • Effective dissemination of scientific information through scientific writing in different field, such as scholarly articles, reviews, and technical reports. • Understand the importance of ethical writing.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	
1.1	Research-Definition, Characteristics, Objectives, Research and Scientific method ,Types of Research ,Descriptive vs. Analytical Research, Applied vs. Fundamental Research, Quantitative vs. Qualitative Research, Conceptual vs. Empirical Research, Research Methodology: An Introduction Research Process: Basic Overview, Formulating the Research Problem. Defining the Research Problem, Research Questions
1.2	Research Methods versus Methodology, Research and Scientific Method, Importance of Knowing How Research is Done, Criteria of Good Research Problems Encountered by Researchers in India
1.3	Defining the Research Problem, What is a Research Problem? , Selecting the Problem, The Necessity of Defining the Problem, Technique Involved in Defining a Problem,
1.4	Research Design ,Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs.
UNIT II	
2.1	Research Design, Formulation of Hypothesis, Sources of Hypothesis, Characteristics of Hypothesis, Role of Hypothesis, Tests of Hypothesis

2.2	Sampling Design, Census and Sample Survey, Implications of a Sample Design, Steps in Sampling Design, Criteria of Selecting a Sampling Procedure, Characteristics of a Good Sample Design, Different Types of Sample Designs, How to Select a Random Sample, Random Sample from an Infinite Universe, Complex Random Sampling Designs
2,3	Methods of Data Collection, Collection of Primary Data, Observation Method , Interview Method, Collection of Data through Questionnaires, Collection of Data through Schedules, Difference between Questionnaires and Schedules Some Other Methods of Data Collection, Collection of Secondary Data
UNIT III	
3.1	DESCRIPTIVE DATA ANALYSIS (a) Measures of central tendency. (b) Variability (c) Measures of Divergence from Normality • Skewness • Kurtosis (d) Estimation of Population Parameters of Mean and SD. (e) Graphical Presentation of Data. Regression analysis. Parametric Techniques (a) Conditions to be satisfied for using parametric techniques (b) Pearson's Coefficient of Correlation (c) t-test for Comparison of Mean Scores. (d) z-test for comparison of r's. (e) ANOVA (f) Hotelling's t-test (g) Biserial and Point-Biserial r
3.2	Interpretation and Report Writing. Meaning of Interpretation, Why Interpretation?, The technique of Interpretation: Precaution in Interpretation, Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation ,Mechanics of Writing a Research Report
UNIT IV	
4.1	concept of information organization and dissemination (IOD), Need For IOD, Role Of IOD, Definition Of Documentation, IOD Activities, and Information Sources.
4.2	Discovering scientific information, Chemical Abstracts Service (CAS), Introduction to Chemical Abstracts and Beilstein, Subject Index, Author Index, Formula Index, citation indices Indices with examples,
4.3	Web sources, E-journals, E-books, open access, Internet Search engines, Scirus, Google Scholar, Chem Industry, Wiki-databases, Sci Finder, Scopus, Plagiarism UGC Infonet, Shodhganga
4.4	publications of scientific work- Scholarly article, Research Paper, Research Project, Legislation Drafting, Judgment Writing, Thesis, Dissertation, Book, Citation Methods- Foot Note, Text Note, End Note, Bibliography, Citation Rules, Blue Book, OSCOLA, MLA, APA, Chicago writing ethics, plagiarism
Suggested	1. Research Methodology, Methods and Techniques, By C. R. Kothari,

readings	New Age International (P) Limited 2. Elements of Information Organization and Dissemination. Amitabha Chatterjee, Chandos Publishing. 3. Managing Scientific Information and Research Data, Svetla Baykoucheva, Elsevier Publisher 4. Driving Science Information Discovery in the Digital Age, Svetla Baykoucheva, Elsevier publisher 5. Scientists Must Write, A Guide to better writing for Scientists, engineers and Students 6. Second edition, Robert Barrass, Routledge-Taylor & Francis Group 7. Guide to Publishing a Scientific Paper, Ann M. Körner, Routledge-Taylor & Francis Group 8. McGraw Hill's concise guide to Writing Research Papers, Carol Ellison McGraw Hill Publisher
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Elective

DSE2-1: Course Code: PGDDCFDE101T	Course Title: Introduction to Digital devices and networks[T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	To study fundamentals of computers, various types of software and hardware devices, operating system ,file systems , computer Network and internet related technology.
Course Outcome	Student can able to describe about the fundamentals of computers, various types of software and hardware devices, operating system ,file systems , computer network and internet related technology
Sr. No.	Course Contents (Topics & Subtopics)
UNIT-I	Computer Basics– I Understanding Computer Hardware: Looking Inside the Machine, Components of a Digital Computer, The Role of the Motherboard, The Roles of the Processor and Memory, The Role of Storage Media, Why This Matters to the Investigator, The Language of the Machine, Wandering Through a World of Numbers, Who's on Which Base? Understanding the Binary Numbering System : Converting Between Binary and Decimal, Converting Between Binary and Hexadecimal, Converting Text to Binary, Encoding Non text Files, Why This Matters to the Investigator
UNIT-II	Computer Basics – II Understanding Computer Operating Systems : Understanding the Role of the Operating System Software, Differentiating Between Multitasking and Multiprocessing Types, Multitasking, Multiprocessing, Differentiating Between Proprietary and Open Source Operating Systems An Overview of Commonly Used Operating System : Understanding DOS, Windows 1.x Through 3.x, Windows 9x (95, 95b, 95c, 98, 98SE, and ME), Windows NT, Windows 2000, Windows XP, Linux/UNIX, Other Operating Systems Understanding File Systems : FAT12, FAT16, VFAT, FAT32, NTFS, Other File Systems
UNIT-III	Networking Basics– I Understanding How Computers Communicate on a Network : Sending Bits and Bytes Across a Network, Digital and Analog Signaling Methods, How Multiplexing Works, Directional Factors, Timing Factors, Signal Interference, Packets, Segments, Datagrams, and Frames, Access Control Methods, Network Types and Topologies, Why This Matters to the Investigator Understanding Networking Models and Standards : The OSI Networking Model, The DoD Networking Model, The Physical/Data Link Layer Standards, Why This Matters to the Investigator
UNIT-IV	Networking Basics – II

	Understanding Network Hardware : The Role of the NIC, The Role of the Network Media, The Roles of Network Connectivity Devices, Why This Matters to the Investigator Understanding Network Software Understanding Client/Server Computing : Server Software, Client Software, Network File Systems and File Sharing Protocols, A Matter of (Networking) Protocol ,A Matter of (Networking) Protocol Understanding the TCP/IP Protocols Used on the Internet : The Need for Standardized Protocols, A Brief History of TCP/IP, The Internet Protocol and IP Addressing, How Routing Works, The Transport Layer Protocols, The MAC Address, Name Resolution, TCP/IP Utilities, Network Monitoring Tools, Why This Matters to the Investigator
Suggested readings	1. Computer Forensics – Computer Crime Scene Investigation, Second Edition, John R.Vacca, Charles River Media Inc., ISBN 1-58450-389-0 2. Scene of the Cybercrime – Computer Forensics Handbook, Debra Littlejohn Shinder,Ed Tittel, Syngress Publishing Inc., 2002, ISBN 1-931836-65-5 3. Handbook of Digital Forensics and Investigation, Edited by Eoghan Casay, Elsevier Academic Press, ISBN 13 : 978-0-12-374267-4 4. Computer Forensics for Dummies 5. Cyber Crime Investigations by Anthony Ryes 6. Computer Forensics : A Field Manual for Cancelling, Examining, and Preserving 7. Evidence of Computer Crimes by Albert J. Marcella 8. Cyber Crime Investigator's Field Guide by Bruce Middleton 9. Digital Forensics : Digital Evidence in Criminal Investigation by Angus M. Marshall 10. Digital Forensics for Network, Internet and Cloud Computing by Clint P. Garrison 11. A Practical Guide to Computer Forensics Investigations by Dr. Darren R. Heyes 12. Computer Fundamentals by Pradeep K. Sinha & Priti Sinha 13. Computer Fundamentals by Larry Long 14. Computer System Architecture, M. Morris Mano, PHI Publications 15. Computer Organization and Architecture Designing for Performance, Eight Edition, William Stallings, Pearson Publication

DSE2-1 Course Code: PGDDCFDE102T	Course Title: Specific Law – I [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To make understand various schools of law explaining, what is law, what are the purposes of law, what is the relationship between law and justice? • Student must acquaint with the objectives of the Indian Constitution through the Preamble, fundamental rights, Directive Principles of State Policy and Fundamental Duties. • To inculcate sense of responsibility amongst citizens and create awareness about Human Rights, democracy and development. • To understand the basic concepts of freedom of speech and expression, right to privacy, data protection laws.
Course Outcome	After completion of this course student will be able to: • Fathom the jurisprudential aspect of legal concepts, legal statutes, legal interpretations. • The importance of Fundamental Rights, Directive Principles of State Policy and Fundamental Duties and their justiciability and non-justiciability. • Have in depth knowledge of various statutory safeguards for protection of human rights in India and role of judiciary. • Comprehend the fundamental aspects of concepts of freedom of speech and expression, right to privacy, data protection laws.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	1. Introduction, Meaning, nature, scope and importance of jurisprudence. 2. Sources of law: Formal and material sources of law, like custom, precedent, legislation etc. 3. Schools of Jurisprudence: Natural Law, Legal positivism, Historical school of law, Sociological school of law, Realist school of law 4. Rights and Duties: Meaning of Rights, Characteristics of legal Rights, Rights and duties co-relatives and classification of Rights 5. Legal concepts: Person, Property, possession, ownership and Obligations
UNIT II	1. Philosophy of the Constitution, Constitution as a basic norm, Concept of Rule of Law and Constitutionalism. 2. Preamble as a tool to interpret the constitution, judicial pronouncements on preamble. 3. Fundamental rights from Article 12 to 32

	4. Directive Principles of State Policy under Indian Constitution 5. Fundamental duties under the Constitution
UNIT III	1. Human Rights: Concept, Definition, Evolution, Characteristics, Need, Limitations, Universality of Human Rights, The UN Human Rights System and UDHR. 2. International Covenant on Civil and Political Rights, International Covenant on Economic, Social and Cultural Rights, Role of ILO, UNESCO, UNICEF and WHO 3. Indian Constitution and Human Rights, The Protection of Human Rights Act, 1993, Constitution, Role and Responsibilities of National Commission for Women, National Commission for Minorities, National Commission for Scheduled Castes, National Commission for Scheduled Tribes. 4. Role of Judiciary in Protection of Human Rights in India 5. The Convention on Elimination of all form of discrimination against Women (CEDAW), 1979, The Convention on the Rights of Child (CRC), 6. The Convention on Rights of Persons with Disabilities (CRPD), 2008 International Convention on the Rights of Older Persons, 2020
UNIT IV	1. General Principles of Intellectual Property: Concept and meaning of Intellectual Property, Nature and characteristics of Intellectual Property Rights, 2. Kinds of Intellectual Property, Advantages and disadvantages of Intellectual Property Rights, and Economic analysis of Intellectual Property Rights. 3. Cardinal principles of law of Patents 4. Cardinal principles of law of Trademarks 5. Cardinal principles of law of Copyrights
Suggested readings	I. FOR JURISPRUDENCE 1. Bodenheimer Jurisprudence- “The Philosophy and Method of Law” (1996), Universal Publication, Delhi. 2. W. Friedmann, “Legal Theory” (1999) Universal Publication, Delhi. 3. Roscoe Pond, “Introduction to the Philosophy of Law (1998-Reprint) 4. Fizerald (ed.) Salmond on Jurisprudence (1999) Tripathi, Bombay.

	5. V.D. Mahajan, “Jurisprudence and Legal Theory” 1996 Re-print, Eastern Book, Lucknow 6. H.L.A Hart, “The Concept of Law”, Oxford University Press, ELBS, 1970 7. Dr. M. P. Tandon, “Jurisprudence –Legal Theory”, 19th Edition- (2016), Allahabad Law Agency, Faridabad, Haryana. 8. Dr. Nomita Agarwal, “Jurisprudence”, 2019, Central Law Agency, Faridabad. 9. Rohinton Mehta, “50 Lectures on Jurisprudence”, Edi. 2000, Network Publications, Mumbai 10. Dr. B.N. Mani Tripathi, “Jurisprudence (Legal Theory), 2012 (Reprint- 16-17) Allahabad Law Agency, (Faridabad) 11. Dr. S.R. Myneni- “Jurisprudence”, 2004 (Reprint-2010) Asia Law House, Hyderabad. 12. Dr. Avtar Singh & Dr. Harpeet Kaur, “Introduction to Jurisprudence” 2009, LexisNexis (Nagpur). 13. Jurisprudence and Legal Theory by G W Paton 14. Jurisprudence Indian Legal Theory Prof. S.N. Dhyani, Central Law Agency II. FOR CONSTITUTIONAL LAW 1. H.M. Seervai, Constitutional Law of India, Law and Justice Publishing Company 2. M.P. Jain, Indian Constitutional Law, Lexis Nexis 3. Narendra Kumar, Constitutional Law of India, Allahabad Law Agency 4. J.N. Pandey, Constitutional Law of India, Central Law Agency 5. P.M. Bakshi, The Constitution of India, Butterworth Lexis Nexis 6. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis 7. Subhash Kashyap, Constitution of India, National Book Trust 8. Dr. Suresh Mane, Indian Constitutional Law, Dynamics and Challenges, Aarti & Co. 9. Mahendra Pal Singh, V. N. Shukla’s Constitution of India, Eastern Book Company 10. Writings and speeches of Dr. Baba Saheb Ambedkar by the Government of Maharashtra 11. Arvind Datar, Commentary on Constitutional Law III. FOR HUMAN RIGHTS 1. Theodor Meron, Human Rights and International Law: Legal and Policy Issues 2. Kapoor, S.K., International Law and Human Rights, Central Law Agency 3. Luis Henkin, “The Rights of Man Today”, University of Miami Inter-American Law Review, 4. Singh, Nagendra, Enforcement of Human Rights in Peace and War
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	and the future of humanity, The Module ed., Nations and Human Rights (Clarendon Press, Oxford) 5. Agarwal, H.O., Implémentation of Human Rights Covenants with Special Reference of India {Kitab Mahal, Allahabad} 6. D.D. Basu Human Rights in Constitutional Law (Lexis Nexis) 7. B.P. Singh Seghal, (Human Rights in India) 8. International Refugee Law: A Reader, Edited by B.S. Chimni
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SEM - II

P.G. Diploma in Digital and Cyber Forensic & Related Law
Semester-II

DSC2-2: PGDDCFDC201T	Course Title: Cyber Forensics –II [T]
Course Credit: 2	Total contact hours: 60 Hrs.
Course Objectives	• To introduce Virtualization and its technologies • To provide the skills and knowledge necessary to implement, provisioning and administer server and desktop virtualization. • Gain insights into cloud forensics, including challenges, methodologies, and the forensic analysis of cloud-based evidence. • Understand the principles and methodologies of OSINT (Open Source Intelligence) and its applications in cyber security and digital investigations. • Gain knowledge of the emerging trends and future directions in OSINT, including advancements in tools, techniques, and data sources. • Develop proficiency in using OSINT tools and techniques for planning, collecting, analyzing, and disseminating intelligence.
Course Outcome	• Practice various methods of virtualization and perform desktop and server virtualization. • Analyze and investigate Live and Dead virtualization environment. • Perform forensic analysis of cloud-based evidence and conduct cloud forensics investigations in compliance with legal and ethical considerations. • Apply OSINT methodologies and techniques for collecting, analyzing, and disseminating intelligence in cyber security and digital investigations. • Utilize various OSINT tools, including search engines, social media monitoring, web scraping, and geospatial mapping tools. • Assess and address legal and ethical considerations related to OSINT, ensuring privacy, data protection, and adherence to ethical guidelines
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	Virtual Machine Forensic: • Types of Hypervisors • Hypervisor Files and Formats • Use and Implementation of Virtual Machines in Forensic Analysis • Use of VMware to establish working version of suspect's machine • Networking and virtual networks within Virtual Machine • Forensic Analysis of a Virtual Machine - o Imaging of a VM - o Identification and Extraction of supporting VM files in the host system - o VM Snapshots

	- o Mounting Image - o Searching for evidence
UNIT II	Cloud Forensics: • Introduction to Cloud computing • Challenges faced by Law enforcement and government agencies • Cloud Storage Forensic Framework - o Evidence Source Identification and preservation in the cloud storage - o Collection of Evidence from cloud storage services - o Examination and analysis of collected data ▪ Cloud Storage Forensic Analysis ▪ Evidence Source Identification and Preservation ▪ Collection of evidence from cloud storage devices ▪ Examination and analysis of collected data • Drop box analysis: - o Data remnants on user machines - o Evidence source identification and analysis- Collection of evidence from cloud storage services - o Examination and analysis of collected data- • Google Drive: - o Forensic analysis of Cloud storage and data remnants - o Evidence source identification and analysis- Collection of evidence from cloud storage services - o Examination and analysis of collected data- • Issues in cloud forensics Case Studies
UNIT III	Email Investigation: • Working of Email, Types of email, configurations – IMAP / POP., Various parts of an email. Components of an email header. Email header analysis. • Differences between emails headers of various service providers. Identifying spoofed email, phishing email. Step action guide on Email tracking and tracing. Requesting details from intermediaries. • Collection of email as an evidence – single email, multiple emails, entire mailbox etc. • Presentation of email as an evidence in court. • Restoring deleted emails from web and app. • Challenges such as proxy and VPN. • Regaining access to hacked email IDs. • Email tracking through lawful interception under 91 C.R.P.C. Email tracking through extra lawful interception
UNIT IV	Gathering Evidence from OSINT Sources : • Goals of OSINT Collection • OSINT Categories ,Benefits and Challenges of OSINT • OSINT Methodology and Process (planning, collection, analysis, and dissemination) ,Legal and Ethical Considerations in OSINT (privacy, data protection, and ethical guidelines) • OSINT Tools and Techniques (search engines, social media, online

	communities) • OSINT Data Sources and Research Skills (web resources, government databases, academic sources) • Web Scraping and Data Extraction for OSINT (automated data collection) • Social Media Intelligence and Analysis (monitoring, sentiment analysis, network analysis), Geospatial OSINT and Mapping (geo location, satellite imagery, GIS tools), Dark Web and Deep Web Investigations (TOR, hidden services, onion sites), OSINT for Cyber Threat Intelligence (monitoring threat actors, identifying vulnerabilities), Image and Video Analysis in OSINT (reverse image search, deep fake detection) • OSINT in Social Engineering and Fraud Investigations • OSINT in Business Intelligence and Competitive Analysis • OSINT for Digital Forensics and Incident Response • Emerging Trends and Future Directions in OSINT
Suggested readings	1. Virtualization and Forensics By Diane Barrett, Greg Kipper 2. Virtualization Security Protecting virtualized environment By Dave Shackelford 3. "Cloud Forensics: A Guide for Incident Responders" by Darren Quick, Ben Martini, and Raymond Choo 4. "Cloud Computing Forensics: Challenges and Solutions" by George Grispos, et al. 5. "Investigating Cloud Computing: Forensics and Governance" by Anthony Reyes, et al. 6. "Cloud Storage Forensics" by Darren Quick, Ben Martini, and Raymond Choo 7. "Automating Open Source Intelligence: Algorithms for OSINT" by Robert Layton, et al. 8. "Digital Forensics: Threatscape and Best Practices" by John Sammons 9. "The Basics of Digital Forensics: The Primer for Getting Started in Digital Forensics" by John Sammons 10. OSINT Playbook: A Guide to Open Source Intelligence Gathering for Threat Intelligence" by Armstrong, Wilkinson, and Swetnam 11. "Introduction to Open Source Intelligence in the Digital Age" by Babak Akhgar, David Radcliffe, and Andrew Staniforth 12. "Open Source Intelligence Investigation: From Strategy to Implementation" by Babak Akhgar, et al. 13. Practical Open Source Intelligence for Cyber Intelligence" by Kevin Cardwell 14. Dr. Keval Ukey: Cyber Forensics, A Legal Perspective of Data Protection and E- Commerce, A-22/1, Akash Vihar, Shahid Chandrashekhar Azad Marg, Nangloi- Najafgarh Road, New Delhi, 2018

DSC2-2: PGDDCFDC202T	Course Title: Mobile Forensic [T]
Course Credit: 2	Total contact hours: 60 Hrs.
Course Objectives	Introduction to various platforms of mobile devices and its analysis in a forensically manner
Course Outcome	After completion of this course learners will be able to • Understand Basics and important terminology of the mobile devices. • Understand Internal working structure of the various mobile platforms. • Practice Different types of acquisition methods on various platforms. • Practice Data recovery techniques and Data extraction techniques on various mobile platforms. • Practice Different forensic tools that are used for various mobile platforms
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Basics of Mobile phone & communications: Components of Cellular Network, Different Mobile Devices, Hardware Characteristics of Mobile Devices, Software Characteristics of Mobile Devices, Mobile Operating Systems : Classification of Mobile Operating Systems (WebOS, Symbian OS, Android OS, RIM BlackBerry OS, Windows Phone 7, Apple iOS), difference between desktop operating system and mobile operating system • Introduction to Mobile Forensics, the need for mobile forensics, Understanding mobile forensics, Challenges in mobile forensics • The mobile phone evidence extraction process, • Practical mobile forensic approaches: Mobile forensic tool leveling system, Data acquisition methods. • Potential evidence stored on mobile phones. • Rules of evidence
UNIT II	• Android Forensics: Understanding Android, The evolution of Android, The Android architecture, The Linux kernel layer, The Hardware Abstraction Layer Libraries, Dalvik Virtual Machine (DVM), ART164, The Java API framework layer, the system apps layer, • Android file hierarchy, Android file system • Android Forensic Setup and Pre-Data Extraction Techniques: Setting up a forensic environment for Android, Connecting an Android device to a workstation, Screen lock bypassing techniques, Using ADB to bypass the screen lock, • Android Data Extraction Techniques: Understanding data extraction techniques, Manual data extraction, Logical data extraction, Physical data extraction. Android Data Recovery Techniques and Tools ,Analyzing and extracting data from Android image files using the Autopsy tool, Understanding techniques to recover deleted files from the SD card and the internal memory.

UNIT III	• Windows Phone Forensics: Windows Phone OS, Windows Phone file system • BlackBerry Forensics: BlackBerry OS, BlackBerry analysis • iOS Forensics: Understanding the Internals of iOS Devices, iPhone models and hardware, iPad models and hardware, The HFS Plus and APFS file systems, The iPhone OS, Data Acquisition from iOS Devices, Operating modes of iOS devices, Password protection and potential bypasses, Logical acquisition, File system acquisition, iOS Data Analysis and Recovery • Overview of iOS Forensic Tools and its features • Difference between Android and iOS
UNIT IV	• Introduction to Mobile Malware • Analyzing Mobile Malware • Overview of App Analysis tools • Reversing and Auditing Android Apps : ▪ Android application teardown ▪ Reversing an Android application ▪ Using Apktool to reverse an Android application. ▪ Auditing Android applications ▪ Content provider leakage ▪ OWASP top 10 vulnerabilities for mobiles
Suggested readings	1. Practical Mobile Forensics, Satish Bommisetty, Rohit Tamma, Heather Mahalik, Packt Publishing Ltd., 2014,ISBN 978-1-78328-831-1 2. Learning iOS Forensics, Mattia Epifani, Pasquale Stirparo, Packt Publishing Ltd, 2015,ISBN 978-1-78355-351-8 iPhone and iOS Forensics Investigation, Analysis and Mobile Security for Apple 3. iPhone, iPad, and iOS Devices by Andrew Hoog, Katie Strzempka ,Publisher Synergy Mobile phone security and forensics: A practical approach by Iosif I. Androulidakis, Springer publications, 2012 4. iPhone, iPad, and iOS Devices by Andrew Hoog, Katie Strzempka ,Publisher Synergy Mobile phone security and forensics: A practical approach by Iosif I. Androulidakis, Springer publications, 2012 5. Learning Android Forensics Analyze Android Devices With The Latest Forensic Tools And Techniques 2nd Ed. by Oleg Skulkin, Donnie Tindall, Rohit Tamma ,Packt Publishing Ltd ,2018 6. Mobile Malware Attacks and Defense, Ken Dunham, Syngress Publishing, Inc.,ISBN978-1-59749-298-0 7. Wireless Crime and Forensic Investigation, Gregory Kipper, Auerbach Publications 8. CYBERCRIME INVESTIGATION HANDBOOK FOR POLICE OFFICERS https://ssb.gov.in/WriteReadData/LINKS/5%20days36c9f227-7ceb-4b60-bada-f52beeb7e196.pdf ASCL_Cyber_Crime_Investigation_Manual https://police.mizoram.gov.in/wp-content/uploads/2023/01/SOP-Cyber-Crime-Investigation-v1.0.pdf

DSC2-3: PGDDCFDC203T	Course Title: Cyber Law-II[T]
Course Credit: 2	Total contact hours: 60 Hrs.
Course Objectives	The main objective of this course is • To familiarize important aspects of national and international provisions of E- Commerce and E- Governance • TO understand the basics of Intellectual property rights and related legal aspects • TO understand the concepts of trademark and Domain name • To understand the basics of Copyrights, patents and designs and related legal aspects
Course Outcome	After completing the course, students will be familiar with: • Understanding concepts of E- Commerce and E- Governance. • Understand the various facets of Intellectual property rights • Understand the concepts of trademark and Domain name • Understand the cyber offences and penalties under IT Law • Understand the Intellectual Property Rights in digital medium.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	E-Commerce and E-Governance: • International Organizations and Their Roles, ICANN etc. • UDRP Dispute Resolution Policy • WTO and TRIPS • UNICITRAL Model LAW • E- Commerce and E- Governance in India
UNIT II	Information Technology and Intellectual Property: • Jurisprudence of Concept of Intellectual Property • Salient features of Indian Patent Act, 1970 • Salient features of Indian Copyright Act, 1957 • Salient features of Indian Trade Mark Act, 1999 • Salient features of The Design Act, 2000.
UNIT III	Intellectual Property Rights in Digital Medium–I • Meaning, Nature, Scope and types of Intellectual Property in India • Concept of Trademark/Domain Name • Domain Names and Trademark Disputes • Cyber Squatting and Reverse Hijacking • Law relating to Semiconductor, Layout and Design.
UNIT IV	Intellectual Property Rights in Digital Medium–II • Concept of Copyright and Patent in Cyberspace • Software Piracy and Musical Piracy • Copyright and WIPO Treaties • Protection of Software and Hardware. • Geographical Indication, Plant varieties and Bio Piracy
Suggested readings	1. Kamlesh N. & Murali D.Tiwari (Ed), <i>IT and Indian Legal System</i>, Macmillan India Ltd, New Delhi

	2. K. L. James, <i>The Internet : A User's Guide</i>(2003), Prentice Hall of India, New Delhi 3. Chris Reed, <i>Internet Law-Text and Materials</i>,2nd Edition,2005,Universal Law Publishing Co.,New Delhi 4. Vakul Sharma, <i>Handbook of Cyber Laws</i>, Macmillan India Ltd, New Delhi 5. S.V. JogaRao, <i>Computer Contract & IT Laws</i> (in2Volumes),2005 Prolific Law Publications,NewDelhi 6. T. Ramappa, <i>Legal Issues in Electronic Commerce</i>, Macmillan India Ltd, New Delhi 7. Indian Law Institute, <i>Legal Dimensions of Cyber Space</i>,New Delhi 8. Pankaj Jain & Sangeet Rai Pandey, <i>Copy right and Trademark Laws relating to Computers</i>, Eastern Book Co,New Delhi Farouq Ahmed, <i>Cyber Law in India</i> 9. S.V.JogaRao, <i>Law of Cyber Crimes and Information Technology Law</i>,2007,Wadhwa & Co, Nagpur 10. Rodney D. Ryder, <i>Guide to Cyber Laws</i>, 2ndEdit, Wadhwa and Company, Nagpur 11. Dr. Keval Ukey: <i>Cyber Forensics, A Legal Perspective of Data Protection and E- Commerce</i>, A-22/1, Akash Vihar, Shahid Chandrashekhar Azad Marg, Nangloi- Najafgarh Road, New Delhi, 2018
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DSE2-4	Course Title: Lab Course-II [P]
Course Code: PGDDCFDC204P	
Course Credit: 2	Total contact hours: 60 Hrs.
List of Practical	
1. Installation of VMWare virtual machine. 2. Installation of Virtual Box virtual machine. 3. Installation of windows operating system on virtual machine 4. Installation of Linux operating system on virtual machine 5. Creating virtual network 6. Configuration of windows web server 7. Configuration on Linux server 8. Analysis of traces of Virtual Machine using – Registry Analysis 9. Analysis of VMWare traces on the system 10. Analysis of external device 11. Analysis of prefetch file 12. Data Carving 13. Investigating Dead Virtual Environments 14. Recovering cached and internet artifacts 15. Facebook profile data acquisition and documentation. 16. Study of E-mail Headers. 17. Forensic investigation on a cloud storage service, analyzing files, access logs, and metadata. 18. Dropbox analysis 19. Google Drive analysis 20. Installation of Android Studio 21. Working on Open source android forensic tool kit (OSAF-TK/Santuko Linux/Andriller and other tools) 22. Extraction of mobile data using mobile forensic tools 23. Physical Extraction of Data from mobile device using mobile forensic tools 24. Analyzing data of android mobile using mobile forensic tools (MOBILedit/autopsy forensic tool etc) 25. Extraction of .apk file from mobile device using ADB 26. Reversing engineering an Android application using tools (dex2jar/JDGUI/APKtool/Androguard etc) 27. Collect OSINT data using various online sources, such as search engines, social media platforms, and specialized databases. 28. Apply web scraping techniques to automate the collection of OSINT data from websites. 29. Conduct sentiment analysis on social media data to extract insights and detect trends. 30. Perform geospatial OSINT analysis, including geo location of IP addresses and mapping of OSINT data. 31. Explore dark web and deep web investigations, accessing hidden services and analyzing Tor network activity. 32. Investigate a case involving OSINT for cyber threat intelligence, monitoring threat actors and identifying potential vulnerabilities. 33. Conduct an OSINT investigation for digital forensics and incident response, gathering intelligence to support the investigation process. 34. Stay updated with emerging trends in OSINT tools and techniques by exploring new tools and experimenting with innovative methodologies	

Elective

DSE2-2 Course Code: PGDSFSDC201T	Course Title: Cyber Crime Investigation [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• Present an overview of types of cybercrime. • Analyses the different crimes that pertain to use of Emails, various Social Media platforms, dark Web. • Identify strategies to track, document and use Emails, Social Media platforms, and the dark web, data as evidence
Course Outcome	• Understanding the methods of cyber investigation • Articulate an overview of types of cybercrime. • Analyze the different crimes that pertain to use of Emails, various Social Media platforms, and the dark web. • Identify strategies to track, document and use Emails and Social Media platforms as evidence.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	Introduction to location / cloud-based investigations: Introduction to Location Based Services., Types of Location Based Services. Triangulation and GPS Techniques to pinpoint the actual location of the criminals., By using CDR and Cell ID. By using Triangulation techniques. By using GPS tagging on photographs. By using Google Photos. Etc. By using WhatsApp, Facebook, Viber etc. Types of cloud service providers (Android / Apple / Blackberry etc.) Tracking of missing / stolen mobile phones or tablets, gathering data created using various Google services, requesting details from Google via legal approach Introduction to Location Based Services. Retrieval of data from Google / iCloud /Microsoft cloud services. Tracing missing/stolen mobile By Using IMEI No. Tracing missing/stolen mobile By Using MAC No.
UNIT II	Introduction to website Investigations (Handling complaints related to website crimes, identifying a fake website, Identification of IP address of the website, Gathering information related to a website ownership, Collection of evidence (Live, archival),Website defacement investigation, PR Infringement Issues, Responsibilities of intermediaries ,Acquaints Website Investigation. Deleted Website Investigation., Website specific content removal. Data and document forgery, Notice process to WSP-ESP- ISP-MSP Challenges involved - PROXY or VPN involvement in website investigation. Relevant Sections of IT Act & IPC laws for FIR registration. Standard Operating Procedures for investigating website related crimes.
UNIT III	Social Network Crime Investigations: Introduction to social media(Facebook, Tweeter, Instagram, Snapchat, LinkedIn, YouTube WhatsApp, Telegram, etc.), Possible crimes on social media .some frequent modus operandi, Investigation Procedure for social media related Crimes, Social Media monitoring and intelligence platforms Matrimonial/Dating/Adultery Related Investigations

	Other Social Media Apps/Websites Related Investigations Advisory content for Cyber Safety Awareness Investigation of Fin-Tech fraud: Various kinds of Fin-Tech options available in India, Common misconceptions, investigating e-wallets Investigating ATM related frauds, Investigating OTP related frauds, Investigating Payment gateways, Investigating identity theft related cases Database forensics, Job frauds, Gambling, Betting, Financial transactions for illegal activities, Load fraud.
UNIT IV	Dark Web Investigations: Introduction of Deep & Dark Net., Surface Internet vs. Deep Internet., Indexed Website vs. Non-Indexed Websites. Red Rooms, Galaxy, Hidden WIKI, Wiki leaks, Silk Road, Pandora other Onion links. Modus operandi of cyber-crimes committed using Dark Web. Working principle of Block Chain. Concepts of Crypto currencies and mechanism behind it. Wallet Tracking, Public Key vs. Private Key (With respects to Crypto Currencies), Introduction to track crypto currencies. Challenges in investigations.
Suggested readings	1. Tommie W. Singleton, Aaron J. Singleton (2010): Fraud Auditing and Forensic Accounting. 2. Mark Nigrini (2011): Forensic Analytics: Methods and Techniques for Forensic Accounting. 3. Jo Kranacher, Richard Riley, Joseph T. Wells (2010) Forensic Accounting and Fraud Examination. 4. Steven L. Skalak, Thomas W. Golden, Mona M. Clayton (2011): A Guideto Forensic Accounting Investigation. 5. CYBERCRIME INVESTIGATION HANDBOOK FOR POLICE OFFICERShttps://ssb.gov.in/WriteReadData/LINKS/5%20days36c9f227-7ceb-4b60-bada-f52beeb7e196.pdf 6. ASCL_Cyber_Crime_Investigation_Manualhttps://police.mizoram.gov.in/wp-content/uploads/2023/01/SOP-Cyber-Crime-Investigation-v1.0.pdf 7. Dr. Keval Ukey: Cyber Forensics, A Legal Perspective of Data Protection and E- Commerce, A-22/1, Akash Vihar, Shahid Chandrashekhar Azad Marg, Nangloi- Najafgarh Road, New Delhi, 2018

DSE2-1: Course Code: PGDDCFDE202T	Course Title: Specific Law – II [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	The main objective of this course is • To familiarize important aspects of cardinal principles of criminal jurisprudence through legal maxims • To understand the basics of crime, punishments mentioned in Indian Penal Code, 1860 • To Understand the provisions of Indian Evidence Act, 1872 • To understand the various legislations which requires criminal investigations
Course Outcome	After completing the course, students will be familiar with: • Understanding cardinal principles of criminal jurisprudence through legal maxims • Understand the basics of crime, punishments mentioned in Indian Penal Code, 1860 • Understand the provisions & procedure laid down in Indian Evidence Act, 1872 . • Understand various legislations which requires criminal investigations
Sr. No.	Course Contents (Topics & Subtopics)
UNIT-I	Legal Maxims: • Actus legisneminifacitinjuriam, Actus non facit reus nisi mens sit rea, Actus curiae neminemgravabit • Ignorantiafactiexcusat, ignorantia juris non-excusat, Nemo debet bis vexari pro eadem causa • Nemo teneturaccusare se ipsum nisi coram deo, Vigilantibus non dormientibus iura subveniunt, Actio Personalis Moritur Cum Persona • Audi Alterem Partem, Ei incumbit probation qui dicit non qui negat, Juri Ex Injuria Non Oritur • Qui Facit Per Alium Facit Per Se, Suppressio Veri or Suggestio Falsi, Ubi Jus Ibi Remedium Est
UNIT-II	Specific Provisions of IPC • Mistake of facts, Mistake of law, Accidental acts, Act of Necessity, Private defense, Abetment and criminal conspiracy • Crime against state • Crime against public tranquillity • Crimes against person and offences against property • Offences relating to documents and property marks
UNIT-III	Police officers' power of arrest, preventive action and investigation under Criminal Procedure Code, 1973 • Components of Criminal Justice System • Powers of superior officers of police, power of police for arrest, power of search of arrested persons, seize offensive weapons • Examination of arrested person by medical practitioner,

	production, custody and discharge of arrested person, proclamation and attachment, serving summons and warrant • Preventive action of the police, information to the police and their power to investigate, information in cognizable and non-cognizable cases (FIR), Zero FIR, Police Diary, police officer's power to investigate cognizable and non-cognizable cases • Panchnama, inquest, arrest, custody
UNIT-IV	Specific Provision of Indian Evidence Act, 1872 • Section 3 to section 15 and Dying declaration Section 32 • Expert opinion Section 45 to 50 • Oral Evidence Section 59 & 60 and Documentary Evidence Section 61 to 73 • Burden of proof Section 101 to 114A • Examination of witness Section 135 to 144
Suggested readings	1. Herbert Broom, Legal Maxims, Law book Exchange, Ltd. 2010 2. Ratan Lal and Dhiraj Lal: <i>Indian Penal Code</i>, Wadhwa & Co., 2000. 3. Achutan Pillai: <i>Criminal Law</i>, Butterworth Co., 2000. 4. Gour K.D.: <i>Criminal Law cases and Materials</i>, Butterworth Co., 1999. 5. Kenny's: <i>Outlines of Criminal Law</i>, (1998 Edition) 6. Batuk Lal: <i>The Law of Evidence</i>, 13th Edition, Central Law Agency, Allahabad, 1998. 7. M. Munir: <i>Principles and Digest of the Law of Evidence</i>, 10th Edition (in 2 vols), Universal Book Agency, Allahabad, 1994. 8. Vepa P. Saradhi: <i>Law of Evidence</i> 4th Edn. Eastern Book Co., Lucknow, 1989. 9. Avtar Singh: <i>Principles of the Law of Evidence</i>, 11th Edn. Central Law Publications. 10. V. Krishnama Chary: <i>The Law of Evidence</i>, 4th Edn. S. Gogia & Company, Hyderabad. 11. Ratanlal & Dhirajlal- <i>Criminal procedure Code</i>, Universal, Delhi. 12. Chandrashekar Pillai, Kelkar Lectures on Criminal Procedure Code, Eastern, Lucknow. 13. Shaileendra Malik, <i>The Code Of Criminal Procedure Code</i>, Eighteenth edition, 2011, Allahabad law Agency. 14. K. I. Vibhute, Durga Das Basu <i>Criminal Procedure Code</i>, (1999), Universal, Delhi

PGDDCFOJT201P	OJT/ Field Project
Credit: 4	Total Hours
Course objectives	To design novel techniques/ methods/ tools/ material to analyzed Cyber forensic exhibits.
Course outcomes	1. To find the relevant research problem from the core subject 2. To perform the extensive literature survey for given topic from offline and online journals and build the hypothesis for the project. 3. To check the feasibility of the research methods/ methodologies to be adopted. 4. To generate the data by performing the experiment as per the research plan. 5. To analyze the data obtained and arrive at the conclusion by applying various data analysis methods like statistical methods, and validate the research methods used. 6. To write the project report with the help of supervisor.
Content	On-Job Training/ Field Project shall be compulsory to all students. The format for project report will be similar to the research thesis style; incorporating chapters on: Introduction, Review of Literature, Materials and Methods, Results and Discussion and References/Bibliography. The project report will be submitted in a typewritten and bound form. Students will present their work for evaluation. Copy of each report will be submitted to the respective department.

Letter Grades and Grade Points

Semester GPA/ Program CGPA/Semester	% Marks	Letter Grade Result
9.00-10.00	90.0-100.0	O (Outstanding)
8.00<9.00	80.0<90.0	A+ (Excellent)
7.00<8.00	70.0<80.0	A (Very Good)
6.00<7.00	60.0<70.0	B+ (Good)
5.50<6.00	55.0<60.0	B (Above Average)
5.00<5.50	50.0<55.0	C (Average)
4.00<5.00	40.0<50.0	P (Pass)
Below 4.00		F (Fail)
AB (Absent)		Absent

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University of Mumbai

Team for Drafting of Syllabus:

Name	College Name	Sign
Mr. Milind D. Meshram	IFS, Mumbai	
Mr. Swaroop R. Manerikar	IFS, Mumbai	
Mr. Nitin Deshmukh	IFS, Mumbai	
Dr. Shrinaag Panchbhai	IFS, Mumbai	

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University of Mumbai

Dean
Faculty of Science
University of Mumbai

Justification for P.G. Diploma in Digital and Cyber Forensic & Related law

1.	Necessity for starting the course:	This programme of P.G. Diploma in Digital and Cyber Forensic & Related law has infusion of latest technologies in forensics and skill upgradation of manpower is imperative in the contemporary times to keep pace with exponential increase in the cyber-crime rate and the changing paradigms of cyber-crime and its investigations. The PG Diploma programme of the Institute is well structured and designed by seeking guidance and inputs from various experts in the field of Digital and Cyber Forensic. The subjects incorporated in the degree are chosen from the major domains of Digital and Cyber Forensic.
2.	Whether the UGC has recommended the course:	Yes
3.	Whether all the courses have commenced from the academic year 2023-24	The P.G. Diploma in Digital and Cyber Forensic & Related law course has already commenced from the academic year 2012 and in the academic year 2023-24 it is restructured as per NEP 2020.
4.	The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?	At present this course is started in only one institution affiliated to this university which is managed and financed by the Government of Maharashtra. Currently fourteen permanent and four contractual faculty members are working.
5.	To give details regarding the duration of the Course and is it possible to compress the course?	The duration of the program is one year (2 semesters). It is not possible to compress the course.
6.	The intake capacity of each course and no. of admissions given in the current academic year:	The intake capacity of the program is 40. Number of admissions for the academic year 2022-23 were 32.
7.	Opportunities of Employability / Employment available after undertaking these courses:	The P.G. Diploma in Digital and Cyber Forensic & Related law students have a wide range of employment opportunities across various sectors. The skills and the knowledge acquired during their Post Graduate Diploma programme make them well equipped for diverse roles. Some of the common areas are the various central and state forensic science laboratories, Cyber Cell, BPRD, NCRB, CID, Private organization in Cyber Forensic or Cyber Security domain etc. In addition to research and academia. The students can also work in the banking and private investigative agencies. Also, they can work as entrepreneurs along with providing consultancy and Expert Witness in the court of law. Additionally, staying updated with the latest advancements in the field and continuously improving their skills can enhance their competitiveness in the job market.

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As Per NEP 2020

University of Mumbai



Title of the program
A-P.G. Diploma in Forensic Science & Related Law

Syllabus for
Semester – Sem I & II

Ref: GR dated 16th May, 2023 for Credit Structure of PG

(With effect from the academic year 2023-24)

University of Mumbai



(As per NEP 2020)

Sr. No.	Heading	Particulars	
1	Title of program O: _____ A	A	Title of the program: P.G. Diploma in Forensic Science and Related law (One year)
	O: _____ B	B	-
2	Eligibility O: _____ A	A	a. Any graduate in science, medical, para-medical, pharmaceutical science. or b. Any graduate working/professional in the criminal justice system (Judges, Advocates, etc.), defence, paramilitary, police, banking, insurance sector, health sector, pharmaceutical, corporate sector (forensic).
	O: _____ B	B	-
3	R: _____ Duration of program	A	1 year
		B	-
4	R: _____ Intake Capacity	40	
5	R: _____ Scheme of Examination	NEP 50% Internal, 50% External, Semester End Examination Individual Passing in Internal and External Examination	
6	R: _____ Standards of Passing	40%	
7	Credit Structure R: _____	Attached herewith	
	Semesters	A	Sem. I & II
8		B	-
	Program Academic Level	A	6.0
9		B	-
10	Pattern	Semester	
11	Status	New	
12	To be implemented from Academic Year	A	2023-24

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Preamble

1) Introduction

This program is designed to provide a comprehensive understanding of the field of Forensic Science. Through a rigorous academic curriculum, the aim is to nurture the intellectual curiosity and scientific acumen of the learner. This course is structured to equip the learner with a strong theoretical foundation, practical skills, and critical thinking abilities necessary to address the challenges and opportunities in the diverse field of forensics. Whether the passion lies in research, industry, education, or beyond, this program aims to provide the knowledge and skills necessary to excel in the chosen path of the learners.

2) Aims and Objectives

The programme objectives for PG Diploma in Forensic Science & Related law includes:

- To gain knowledge in various disciplines of Forensic Science.
- Identifying various types of crimes and their investigation.
- Developing and creating new strategies to combat and solving crimes more efficiently and effectively.
- Developing critical thinking, communication skills and analytical skills through case studies, field visits and presentations.
- To inculcate professional, scientific and moral ethics in the field of forensic science.
- To imbibe an attitude of lifelong learning so as to thrive in knowledge and skills.

3) Learning Outcomes:

The learners will be able to:

1. Demonstrate advanced knowledge and understanding of the fundamental concepts and theories of forensic science, including crime scene science, forensic medicine and digital and cybercrimes.
2. Apply scientific principles and methods to the analysis and interpretation of forensic evidence.
3. Express expert opinion about complex forensic science concepts, techniques and findings to the law enforcement agencies.
4. Think critically and solve complex problems related to forensic science, using analytical and logical reasoning skills to identify and evaluate evidence, generate hypothesis and make informed conclusions.

4) Any other point (if any):

5) Credit Structure of P G Diploma in Forensic Science and Related Law Sem- I & II:

R_____

Post Graduate Diploma programme in University

Parishishta-I

Ye ar	Le vel	Se m.	Major		Min or	OJT/ FP	Cu m. Cr.	Degree/ Cum. Cr.
			Mandatory	Elective (anyone)				
1	6.0	I	1. DSC1-1: PGDFSDC101T- Foundation of Forensic Science (4) 2. DSC1-2: PGDFSDC102T- Biological Evidences (4) 3. DSC1-3: PGDFSDC103T Indian Penal Code,1860 (4) 4. DSC1-4: PGDFSDC104P Lab Course-I(2)	1. DSE1-1: PGDFSDE101T- Forensic Physics & Forensic Psychology (4) 2. DSE1-1: PGDFSDE102T- Indian Evidence Act, 1872 (4)	PG DFS MN 101 T RM (4)			PG Diploma in Forensic Science and Related Law
			14	4	4		22	
		II	1.DSC2-1: PGDFSDC201T- Questioned Documents & Fingerprints (4) 2.DSC2-2: PGDFSDC202T- Chemical & Toxicological Evidences(4) 3.DSC2-3: PGDFSDC203T- Criminal Procedure Code, 1973 (4) 4.DSC2-4: PGDFSDC204-Lab Course-II (2)	1. DSE2-1: PGDFSDE201T- Digital Forensics (4) 2. DSE2-1: PGDFSDE202T- Forensic Related Laws (4)		PGD FSRP 201P OJT/ FP (4)		
			14	4		4	22	
Cumulative Annual Credits			28	8	4	4	44	

Abbreviation: OJT: On-Job Training; Internship/ Apprenticeship; Field projects: FP; RM: Research Methodology.

**** OJT/FP:** Student has to earn the requisite 04 credits of on-the-job training (OJT) / Field Project (FP)

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6) Course Structure & Distribution of Credits:

The P. G. Diploma in Forensic Science & Related Law program is divided into two semesters with a total **44** credits. The program consists of **09** theory papers, a total of **02** practical lab courses & **1** On-job training spread over two semesters. Each theory paper shall consist of four units. Lab course (practical paper) shall consist of a minimum of ten experiments based on respective theory papers.

In Semester-I there are Five theory papers which includes 03 Mandatory & 01 Elective, 01 Minor Research Methodology paper and 01 lab course (practical paper) of the core subjects, wherein one elective Major theory paper to be selected by the students from amongst the two papers given in the list. Similarly, in Semester-II there are Four theory papers includes 03 Mandatory, 01 Elective theory paper and 01 lab course (practical paper) of the core subjects, wherein one elective theory paper to be selected by the students from amongst the two papers given in the list. The student has to earn 04 credits of on-the-job training (OJT) / Field Project (FP). The course structure is as follows:

7) Distribution of Marks and Credits:

The number of theory/practical papers and marks/credits allotted for this program shall be as under:

Year	Semester	No. of papers		Total Marks			Total Credits		
		Theory	Practical	Theory	Practical	Total	Theory	Practical	Total
PG Diploma in Forensic Science & Related Law	Sem.-I	05	01	500	50	550	20	02	22
	Sem.-II	04	01 01 RP	400	50 100	550	16	06	22
Total		09	03	900	200	1100	36	08	44

Work load calculation:

Theory course of 4 credits = 4 Hrs. per week

Practical course/ Lab course of 2 credit = 4 Hrs. per week per batch.

SEMESTER –I

MANDATORY			
Paper Code	Paper Title	Lectures (Hrs.)	Credits
DSC1-1			
PGDFSDC101T	Foundation of Forensic Science	60	4
DSC1-2			
PGDFSDC102T	Biological Evidences	60	4
DSC2-3:			
PGDFSDC103T	Indian Penal Code, 1860	60	4
DSC1-4:			
PGDFSDC104P	Lab Course-I	60	2
	Total	240	14
ELECTIVE (ANYONE)			
DSE1-1:			
PGDFSDE101T	Forensic Physics & Forensic Psychology	60	4
DSE1-1:			
MSFSDE102T	Indian Evidence Act, 1872	60	4
	Total	60	4
MINOR			
MSFSMN101T	Research Methodology	60	4
	Total	60	4
Total Credits:22			

SEMESTER –II

MANDATORY			
Paper Code	Paper Title	Lectures (Hrs.)	Credits
DSC2-1:			
PGDSFSDC201T	Fingerprints & Questioned Documents	60	4
DSC2-2			
PGDSFSDC202T	Chemical & Toxicological Evidence	60	4
DSC2-3			
PGDSFSDC203T	Criminal Procedure Code, 1973	60	4
DSC2-4			
PGDFSDC204	Lab Course-II	60	2
	Total	240	14
ELECTIVE (ANYONE)			
DSE2-1			
PGDFSDE201T	Digital Forensics	60	4
DSE2-1			
PGDFSDE202T	Forensic Related Laws	60	4
	Total	60	4
PGDFSRP201T	On-Job Training/ Field Project	60	4
	Total	60	4
Total Credits: 22			
Total Credits after Sem –I and Sem-II : 44			

8) Award of Degree:

The candidates shall be awarded the Diploma in Forensic Science & Related Law, after completing the course and meeting all the evaluation criteria.

9) Scheme of Examination and Passing:

Evaluation Structure and Marking Scheme of Assessment Scheme of Examination and Passing for Faculty of Science:

- ✓ There shall be separate passing for internal assessment, external assessment and practical course.
- ✓ The external examination for Theory and Practical/ Project shall be conducted by the University at the end of each Semester
- ✓ Minimum marks for passing the subject shall be 40 % in each head.
- ✓ There shall be 50% External Assessment and 50% Internal Assessment for theory papers.
- ✓ There shall be no internal assessment for practical, OJT/FP, courses.

10) Internal Theory Assessment:

- ✓ Continuous assessment shall be adopted for internal assessment by the concerned teachers.
- ✓ The distribution of 50 marks for evaluation of internal assessment shall be as follows:
 - 20 marks – Minimum one written test.
 - 30 marks – On the basis of minimum two activities viz. Seminar, Home Assignment, Presentation, Quiz, Team work, etc.
- ✓ Concerned teacher should maintain proper documentation of internal assessment.

11) Practical Examination:

- ✓ For certification, minimum ten experiments shall be reported in the journal of each practical course.
- ✓ Practical evaluation for Practical papers will carry 25 marks per credit.
- ✓ Practical examination will be conducted at the end of each semester. The student must be present with the duly certified journal, failing which they will not be allowed for the practical examination. In case of loss of a journal, a report must be obtained from the head/coordinator failing which the student will not be allowed to appear for the practical examination.
- ✓ Each lab course shall have an external examination for 50 marks of 4 hrs duration. The distribution of marks shall be – Two experiments for a maximum of 20 marks each, Viva-voce for maximum of 05 marks and maximum of 05 marks for the certified journal.

12) On-job Training (OJT)/ Field Project (FP):

Every student is required to take up On-job Training (OJT)/ Field Project (FP) which is to be completed during the course period and the report of the same needs to be submitted to the Institute at the end of the Sem-II.

OJT/FP shall be evaluated at the end of Sem-II. For evaluation there shall be minimum two examiners, one preferably external.

13) Standard of Passing for University Examinations:

As per ordinances and regulations prescribed by the University for semester-based credit and grading systems.

14) Intake Capacity:

The intake capacity for P.G. Diploma in Forensic Science & Related Law is Forty (40). The seats shall be filled strictly on the basis of merit and prevailing reservation policies. The distribution of sanctioned intake seats shall be as follows:

- (i) Sixty percent of intake capacity shall be reserved for candidates having eligibility **a**.
- (ii) Forty percent of intake capacity shall be reserved for candidates having eligibility **b**.

Note:

1. *If any seat remains vacant then it shall be filled by candidates with either eligibility **a** or eligibility **b**, on the basis of merit and reservation policies.*
2. *Working/ Professional candidate shall produce valid document proving their working status from the organization, firm, etc.*

15) Choice of Electives:

The student has to select any of the elective papers in each semester. The student is not allowed to change the selected elective after fifteen days from the commencement of respective semester.

16) Results Grievances/ Redressal and ATKT rules:

Result Grievances/redressal/revaluation and ATKT rules shall be as made applicable by the University from time to time.

SEM-I

Semester-I (Mandatory)

DSC1-1: PGDFSDC101T	Course Title: Foundation of Forensic Science[T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To understand the basics of forensic science • To understand the emergence of forensic science • To understand the concept of crime scene reconstruction • To perform crime scene reconstruction on the given scene • To understand the analysis of samples recovered from specific crime scene • To apply the concepts of crime scene reconstruction on actual scene
Course Outcome	• Understanding the history of forensic science • Understanding the various aspects of crime scene and crime scene reconstruction • Examination of various crime scene • Analysis of evidences recovered from specific crime scene • Applying the various concepts in crime scene reconstruction • Creating the events which might have occurred at the crime scene
Sr. No.	Course Contents (Topics & Subtopics)
Unit-I	• Definition, Nature, need and scope of Forensic Science • Principles of Forensic Science • Historical development and evolution of Forensic Science • Key contributors in the field • Ethical considerations, role and responsibilities
Unit-II	• Forensic Science in pre independent India • Forensic Science in Independent India • Organization structure of Forensic Laboratories • Forensic Science and its various branches • Emerging Trends in Forensic Science
Unit-III	• Definition and importance of a Crime Scene • Types of Crime Scene • Process of Crime Scene Investigation • Crime Scene Documentation • Evidence and its types
Unit-IV	• Principles and Importance of Crime Scene Reconstruction • Steps and process of Crime Scene Reconstruction • Methods of Crime Scene Reconstruction • Scene Specific Reconstruction • Crime scene report and expert testimony
Suggested readings	1. Henry Lee's Crime Scene Handbook: Henry C Lee 2. Crime Scene Processing and Laboratory Work Book : Patric Jones Forensic Science: An Introduction to Scientific and Investigative Techniques 3rd ed. : Stuart H. James 3. Criminalistics: An Introduction to Forensic Science, 9th edn.: Richard Saferstein 4. Forensic Science in Criminal Investigation and Trial, 4th edn.: B.R. Sharma 5. Crime Scene Management with Special Emphasis on National level Crime Cases : Dr. Rukmani Krishnamurthy

	6. Forensic Science in India and the World, Deepak Ratna and Mohd. Zaidi, Alia Law Agency, Allahabad 7. Forensic Science and Crime Investigation, Third Edition, B.S.Nabar, Asia Law House, Hyderabad 8. Forensic Science in India - A Vision for 21st Century, B. B. Nanda and Dr. R. K. Tewari, Select Publishers 9. Fundamentals of Forensic Science, Second Edition, Max M. Houck and Jay A Siegel, Academic Press 10. Introduction to Criminalistics, Second Edition, Richard Saferstein, Pearson 11. Introduction to Criminalistics; Barry A.J. Fisher, Academic Press 12. Forensic Science, Third Edition, Stuart H James and Jon. J. Nordby 13. A laboratory manual for the introduction to the Crime Lab, L.J. Kaplan, 2001, Williamstown, Massachusetts. 14. Techniques of Crime Scene Investigation, Fisher, B.A.J., 2000, VI edition CRC Press, Boca Raton, 2000. 15. An introduction to Scientific and investigative techniques, James, S.H. and Nordby J.J. Forensic Science: CRC Press, USA, 2003. 16. Crime Scene Processing and Laboratory Work Book by Patric Jones 17. Practical Crime Scene Analysis and Reconstruction by Ross M. Gardner and Tom Page 42 of 48 Bevel. 18. Mordby, J Deed Reckoning; The Art of Forensic Detection, CRC Press LLC (2000). 19. Criminal Investigation- The art and the science, Lyman M.D; Prentice Hall (2002). 20. Evidence of Crime scene, Hckett, W.G and James S.H; Elseiver Pub. NY (1989).
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DSC1-2: Course Code: PGDFSDC102T	Course Title: Biological Evidences [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To understand the composition of body fluids for the purpose of identification • To learn the sample collection and processing for biological evidence at a crime scene • To understand the importance of pollen, spores, seeds and other plant parts in terms of crime scene investigation. • To learn the sample collection and processing of possible DNA samples at a crime scene • To study the extraction, isolation and quantification assays of DNA. • To understand the techniques of forensic odontology and their application in crime investigation.
Course Outcome	• Evaluation of body fluids for the purpose of identification and differentiation between individuals • Collection, processing and characterization of biological evidence • Estimation of age, sex, stature, through anthropometric assessment, Identification of individuals, races, species with the help of skeletal remains • Application of ontological features in cases of individual identification, mass disasters etc. • Determination of PMI and other applications of entomological evidence in terms of forensic investigation • Separation, isolation and analysis of DNA, with main focus on amplification techniques such as PCR.

Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Overview of biological evidence • Types of biological evidence • Collection and preservation of biological evidence • Significance of biological evidence • Limitations in analysing biological evidence
UNIT II	Composition, formation, function, presumptive and confirmatory tests of blood, semen, saliva, urine, sweat, aqueous humour, gastrointestinal secretions, Difference between peripheral and menstrual blood, beta HCG, analysis of vomit and gastric content.
UNIT III	• Trichology: structure of hair, animal vs Human hair, medullary index, scale count, scale pattern, hair as evidence. • Fiber: types of fibres, methods for identification of fibres. • Palynology: structure of pollen grain, extraction of pollens, forensic significance. • Diatomology: structure and types of diatoms, Forensic significance of diatoms. • Entomology: forensically important insects, insect life cycle, estimation of PMI using life cycle stages and successional colonization by insects, factors affecting life cycle of insects, entomo-toxicology.
UNIT IV	• Disaster Victim Identification • Osteology: study of human skeletal system, difference between human and animal skeletons, sex, gender and stature estimation from skull, pelvis, long bones. • Odontology: structure of teeth, types of teeth, types of dentition, dental formula, bite-mark analysis, radiographic study. • DNA Profiling: Structure of DNA, Significance and examination • Challenges in DNA Profiling, collection and preservation of sample for DNA profiling
Suggested readings	1. Cell and molecular biology 3rd ed.: P.K Gupta, Rastogi publications Practical Microbiology : Dubey and Maheshwari, S.Chand and company, New Delhi 2. Cell Biology (1984): C.B. Powar, Himalaya Publications 3. Textbook of medical physiology: Arthur Guyton 4. Human Anatomy, Chaurasia B.D. 5. Human biology 5th ed.: Daniel Chiras, Jones and Bartlett publishers 6. Introduction to Forensic Science, Nordby & James. 7. Wildlife Forensic Investigation : Principles and Practice, John Cooper and Margaret Cooper, CRC Press 8. Textbook of applied entomology Vol. 1: K.P Shrivastav, Kalyani publication 9. General and applied entomology 2nd edn.: B V David and Ananthkrishnan, Tata McGraw-Hill education pvt.ltd 10. Human osteology: T.D White 11. Human blood groups-Chemical and biochemical basis of antigen specificity (Second edition): Helmut Schenkel –Brunner, Springer Wein New York 12. Blood: Principles and practice of hematology (2003): Robert L Handin, Samuel Lux, Thomas Stossel 13. Blood group typing: Danford and bowly. 14. Blood grouping on man: R.R. Race and Sanger. 15. Blood grouping techniques: Boorman, Dodd. B, Lincoln. PB

	16. Typing of blood stains: Callifird, Bryan 17. Synopsis of Forensic Medicine, Reddy. 18. Parikh C.K., Medical Jurisprudence 19. Genetics a conceptual approach 4th ed.: Benjamin A Pierce, W.H Freeman and company New York 20. Principles of genetics (2006) 8th ed.: Gardner et.al, John Wiley and sons 21. Genetics 2nd ed.: B.D Singh, Kalyani Publications 22. Genetics 2 nd ed.: C B Powar, Vol.1 & 2, Himalaya publication
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DSC1-3: Course Code: PGDFSDC103T	Course Title: Indian Penal Code,1860 [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• This course is designed to understand the meaning of crime and the essential principles of criminal liability by a study of a range of offences under the Indian Penal Code 1860. • It further aims to empower students to understand the fundamentals of criminal jurisprudence and analyse the various elements of the crime. • The students will be equipped to understand the principles of culpability and punishment. The students will be well versed with the general scheme of the Indian Penal Code 1860 and be able to grasp the various terms and terminology used in the Indian Penal Code 1860. • The students will be prepared to analyze the ingredients of various offences and study the punishments prescribed thereto. They will be able to identify the general exceptions under the penal law and understand the principles of joint criminal liability.
Course Outcome	After completing the course, students will be familiar with: • Identify the various components of criminal culpability and an offence. • Appreciate the fundamentals of Criminal Jurisprudence and the various kinds of punishment. • Understand criminal terms and terminology as per the Indian Penal Code and identify various crimes from the point of view of the requirements of substantive criminal law.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Crime and Criminal Liability under Criminal Law - Development of Criminal in India, concept of Crime and Criminal Liability, Doctrine of Mens rea, Principles of Criminal Liability, Stages of Crime • General Explanations section 6 to 52 • Punishments section 53 to 75 • General Exceptions section 76 to 106 • Abetment & Criminal Conspiracy section 107 to 120-B
UNIT II	• Offences against state section 121 to 130 • Offences against public tranquility section 141 to 160 • False Evidence and Offences against Public Justice section 191 to 229A • Offence relating to Coins and Government Stamps section 130 to 263A • Offences relating to Weights and Measures section 264 to 267
UNIT III	• Offence against Human Body section 299 to 377

	• Offence Affecting Life section 299 to 380 • Hurt section 319 to 338 • Wrongful Restraint and Wrongful Confinement section 339 to 348 • Kidnapping section 359 to 363 and Sexual Offences section 375 to 377
UNIT IV	• Theft, Extortion, Robbery and Dacoity section 378 to 402 • Criminal Misappropriation of Property section 403 to 404 • Criminal Breach of Trust section 405 to 409 • Receiving of Stolen Property, Cheating section 410 to 424 • Forgery section 463 to 477A and Offence against Currency Note and Bank Note section 489 A to 489E • Defamation section 499 to 502
Suggested readings	1. Ratanlal Dhirajlal- Indian Penal Code 2. Prof. T. Bhattacharyya The Indian Penal code 3. K.D.Gaur -Criminal Law.Cases and Materials 4. Justice Hidaytullah -Indian penal Code 5. P.S. Achutan Pillai - Criminal Law

DSC1-4 Course Code: PGDFSDC104P
Course Credit: 2
List of Practical: Total 60 Hours
1. Perform the general protocols of crime scene investigation. (4) 2. Documentation of crime scene.- Note making 3. Perform collection and preservation of evidences 4. Examine crime scene using various light sources 5. Perform crime scene reconstruction 6. Reconstruction of death scene 7. Reconstruction of fire scene 8. Reconstruction of specific scene. 9. Preliminary examination of blood. 10. Grouping of dried blood. 11. Preliminary examination of pollen. 12. Preliminary examination of diatom. 13. Preliminary examination of hair. 14. Preliminary examination of pollen. 15. Preliminary examination feather. 16. Preliminary examination of leaves. 17. Examination of teeth. 18. Extraction of DNA from different biological samples.

DMN1-1 Course Code: PGDFSMN101T	Course Title: Research Methodology [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To create awareness and understanding the terms like intellectual property, patents, copyright, industrial designs, trademarks, geographical indications etc. • To know trade secrets, IP infringement issues, economic value of intellectual property and study of various related international agreements. • To understand the research approach for problem solving
Course Outcome	• Familiarization and building competence with the Concept of Research, its importance and its role in advancing society. • Ability to select an appropriate research method, experimental design. • Ability to collect, analyze and interpret the data, prepare the research project report, and make Conclusions. • Effective dissemination of scientific information through scientific writing in different field, such as scholarly articles, reviews, and technical reports. • Understand the importance of ethical writing.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	
1.1	Research-Definition, Characteristics, Objectives, Research and Scientific method ,Types of Research ,Descriptive vs. Analytical Research, Applied vs. Fundamental Research, Quantitative vs. Qualitative Research, Conceptual vs. Empirical Research, Research Methodology: An Introduction Research Process: Basic Overview, Formulating the Research Problem. Defining the Research Problem, Research Questions
1.2	Research Methods versus Methodology, Research and Scientific Method, Importance of Knowing How Research is Done, Criteria of Good Research Problems Encountered by Researchers in India
1.3	Defining the Research Problem, What is a Research Problem? , Selecting the Problem, The Necessity of Defining the Problem, Technique Involved in Defining a Problem,
1.4	Research Design ,Meaning of Research Design, Need for Research Design, Features of a Good Design, Important Concepts Relating to Research Design, Different Research Designs, Basic Principles of Experimental Designs.
UNIT II	
2.1	Research Design, Formulation of Hypothesis, Sources of Hypothesis, Characteristics of Hypothesis, Role of Hypothesis, Tests of Hypothesis
2.2	Sampling Design, Census and Sample Survey, Implications of a Sample Design, Steps in Sampling Design, Criteria of Selecting a Sampling Procedure, Characteristics of a Good Sample Design, Different Types of Sample Designs, How to Select a Random Sample, Random Sample from an Infinite Universe, Complex Random Sampling Designs

2.3	Methods of Data Collection, Collection of Primary Data, Observation Method , Interview Method, Collection of Data through Questionnaires, Collection of Data through Schedules, Difference between Questionnaires and Schedules Some Other Methods of Data Collection, Collection of Secondary Data
UNIT III	
3.1	Descriptive Data Analysis (a) Measures of central tendency. (b) Variability (c) Measures of Divergence from Normality- Skewness, Kurtosis (d) Estimation of Population Parameters of Mean and SD. (e) Graphical Presentation of Data. Regression analysis. Parametric Techniques (a) Conditions to be satisfied for using parametric techniques (b) Pearson's Coefficient of Correlation (c) t-test for comparison of Mean Scores. (d) z-test for comparison of r 's. (e) ANOVA (f) Hotelling's t-test (g) Biserial and Point-Biserial r
3.2	Interpretation and Report Writing. Meaning of Interpretation, Why Interpretation?, The technique of Interpretation: Precaution in Interpretation, Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation ,Mechanics of Writing a Research Report
UNIT IV	
4.1	Concept of information organization and dissemination (IOD), Need For IOD, Role Of IOD, Definition Of Documentation, IOD Activities, and Information Sources.
4.2	Discovering scientific information, Chemical Abstracts Service (CAS), Introduction to Chemical Abstracts and Beilstein, Subject Index, Author Index, Formula Index, citation indices Indices with examples,
4.3	Web sources, E-journals, E-books, open access, Internet Search engines, Scirus, Google Scholar, ChemIndustry, Wiki-databases, Sci Finder, Scopus, Plagiarism UGC Infonet, Shodhganga
4.4	Publications of scientific work- Scholarly article, Research Paper, Research Project, Legislation Drafting, Judgment Writing, Thesis, Dissertation, Book, Citation Methods- Foot Note, Text Note, End Note, Bibliography, Citation Rules, Blue Book, OSCOLA, MLA, APA, Chicago writing ethics, plagiarism
Suggested readings	1. Research Methodology, Methods and Techniques, By C. R. Kothari, New Age International (P) Limited 2. Elements of Information Organization and Dissemination. Amitabha Chatterjee, Chandos Publishing. 3. Managing Scientific Information and Research Data, Svetla Baykoucheva, Elsevier Publisher 4. Driving Science Information Discovery in the Digital Age, Svetla Baykoucheva, Elsevier publisher 5. Scientists Must Write, A Guide to better writing for Scientists, engineers and Students 6. Second edition, Robert Barrass, Routledge-Taylor & Francis Group

	7. Guide to Publishing a Scientific Paper, Ann M. Körner, Routledge- Taylor & Francis Group 8. McGraw Hill's concise guide to Writing Research Papers, Carol Ellison McGraw Hill Publisher
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Semester –I (Elective)

DSE1-1 Course Code: MSFSDE101T	Course Title: Forensic Physics & Forensic Psychology [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To acquaint with the role of ballistics in criminal investigation • To acquaint with the role of tool marks in criminal investigation • Examine the role of Psychology in criminal investigations & legal proceedings. • Apply Psychological principles to crime prevention and intervention programs.
Course Outcome	• Overview of ballistics in criminal identification • Understanding the investigative techniques for motor vehicle accidents • The Program outcome aims to equip students with the necessary skills and knowledge to work efficiently in the field of Forensic Psychology, where they may be involved in criminal investigations, legal proceedings and offender rehabilitation. • The emphasis on critical thinking, ethical considerations prepares a learner to correlate the role of Psychology in understanding criminal justice system.
Sr. No.	Course Contents (Topics &Subtopics)
UNIT-I	Ballistics • Types: Internal- Types of firearms and their mechanism. • External- Trajectory, its effects and related phenomena • Terminal Ballistics- Wound mechanism and damages, range of fire determination. • Ammunition- their types, classification and composition. • Shooting reconstruction- GSR, Trajectory evaluation, penetration evaluation
UNIT-II	Vehicular accidents & Tool Marks • Accidents- its types and causes • Examination of vehicle- Wheelbase & Stance, Engine Number, Chassis Number, Make Model, VIN- Location & decoding. • Tool Marks- Their types and mode of production, Significance of Tool marks • Obliteration of Marks on different surfaces and their restoration methods.
UNIT-III	• Definition , History, Importance, scope of Forensic Psychology • Various roles, ethics and services provided by Forensic Psychologist • Risk assessment within Forensic Psychology • Procedure for examination and training in Forensic Psychology • Psychological assessment and testing in Forensic Psychology

	Types of psychological tests with emphasis under Forensic Psychology application
UNIT-IV	- Polygraph- Objectives, scientific basis, procedure, questionnaire formulation. - Narcoanalysis – History, procedure, precautions, clinical and theoretical viewpoints - Psychological Autopsy – objectives, types, limitations - Brain electrical oscillation profiling- Scientific basis, Concepts, Probes. - Admissibility of techniques in court and case studies
Suggested readings	- Firearms in Criminal Investigation and Trials, 4th Edition, B. R. Sharma, Universal Law Publication, New Delhi. - Forensic Science in Criminal Investigation & Court Evidence, V.N. Sehgal, Selective & Scientific Books, New Delhi. - Handbook of Firearm and ballistics, Brian J Heard. - Forensic ballistics in Criminal Justice, Kausalandra Kumar - Tool Mark Comparisons in Criminal Investigations, David Q. Burd and Roger S. Greene, Journa - Working procedures Laboratory Manual (Physics Division), DFSL, Mumbai. - Forensic Science, - An Introduction to Scientific and Investigative Techniques, 2nd Edition, Stuart H. James and Jan J. Nordby. - Techniques of Crime Scene Investigation, Barry A.J. Fisher, Seventh Edition, CRC Press. - The World Encyclopedia of Modern Guns, A.J.R. Cormack, Octopus Books Limited, London. - Physical Evidence in Forensic Science Paperback – Import, 31 Jul 2006, by Henry C. Lee (Author), Howard A. Harris (Author), Publisher: Lawyers & Judges Pub Co; 2 edition (31 July 2006). - Criminalistics: an introduction to forensic science, textbook by Richard Saferstein, Pearson publication, twelfth edition. - Handbook of Forensic Psychology by Prof. Dr.Vimala Veeraraghavan - Handbook of Polygraph Testing' by Murray Kliene. - Forensic Psychology by Graham Towel and David Crighton - Psychological testing by Anne Anastasi, Susana Urbina, Seventh edition. - Forensic and Criminal Psychology, Dennis Howitt, 2002 Pearson Education LTD, England.

DSE1-1 Course Code: MSFSDE102T	Course Title: Indian Evidence Act, 1872 [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	- The Course is designed to provide the students with a conceptual and practical understanding of meaning, purpose and application of rules of evidence in relation to relevancy of facts and proof in the court of law during the trial. - It will help the students think about the process of adducing evidence, principles of admissibility and exclusion of evidences in a trial. - The course will prepare the students to understand the relevancy and admissibility of the evidence produced in the court in a suit or proceeding and

	understand how the facts need to be proved in the courts it will assist students in analysing the process of adducing evidence through witness examination and argument for or against admissibility of their evidence. The course will effectively impart learning on the kinds of evidences, modes of proof and burden of proof. It will also examine the law as a Lex Fori and the role of a judge while hearing and appreciating the evidences on record in a suit or a proceeding.
Course Outcome	- After completion of this course student will be able to: - Analyze the concept and nature of different types of evidence; - Identify and apply the rules relating to relevance and admissibility of evidence in courts; - Understand the standard of burden of proof followed in civil and criminal cases and analyze the role played by the witnesses and evidentiary value attached to ocular evidence vis-à-vis scientific evidence; - Understand the procedure of examination of witnesses and different categories of witnesses involved in a suit or proceeding and. examine the applicability and admissibility of forensic science in civil and criminal cases along with the admissibility of expert's opinion.
Sr. No.	Course Contents (Topics &Subtopics)
UNIT-I	- Fact- Meaning, definition, scope, Relevant fact, Fact in issue and Difference between relevant facts and facts in issue - Evidence-Definition, Meaning, scope, Oral and documentary evidence, Direct and Circumstantial evidence, Hearsay evidence, Electronic Evidence, Appreciation of evidence-Meaning and significance - Presumptions-Meaning and scope, kinds, May Presume, Shall Presume-Conclusive proof - Proof of facts- Meaning and scope, Proved, Disproved, Not proved - Relevant facts connected with the issues (Ss 5-16)
UNIT-II	- Admission section 17 to 31 - Dying declaration Section 32 - Expert Opinion Section 45 to 51 - Facts which need not be proved Section 56 to 58 - Oral Evidence Section 59 to 60
UNIT-III	- Documentary Evidence Section 61 to 78 - Presumption as to document Section 79 to 90A - Exclusion of Oral by Documentary Evidence Section 91 to 100 - Burden of Proof Section 101 to 114 - Presumption as to Absence of contain in certain prosecution Section 114 A
UNIT-IV	- Witness Section 118 to 134 - Dumb Witness, No. of Witness - Examination of Witness Section 135 to 166 - Examination in Chief : Cross examination and Re-Examination - Improper Admission and Rejection of Evidence Section 167
Suggested readings	- The Law of Evidence by Ratanlal & Dhirajlal . - The Law of Evidence by Batuklal. - The Law of Evidence by Sarkar.

SEM-II

Semester-II (Mandatory)

DSE1-1 Course Code: PGDFSDC201	Course Title: Fingerprints & Questioned Documents [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To understand the science of fingerprints • To understand the role of impressions as evidence • To understand the basis of document examination • To understand the basis of Forensic ballistics
Course Outcome	• Understanding of the basis of fingerprint examination • Understanding the various fingerprint classification systems • Understanding the importance of impression evidence • Analyzing document evidence • Understanding the methods of Forensic ballistic analysis
Sr. No.	Course Contents (Topics & Subtopics)
UNIT- I	• Fingerprints - History and development • Anatomy and morphology of friction ridges • Types of fingerprints (latent, patent and plastic), Type of fingerprint Patterns • Fingerprint Classification Systems • Comparison of fingerprints
UNIT- II	• Techniques for collecting visible and latent fingerprint • Powder methods for fingerprint development • Chemical Methods for fingerprint development • Fuming Methods for fingerprint development • Digital fingerprint analysis technique-AFIS
UNIT- III	• Overview of Questioned document examination • Classification of documents • Document Alterations • Currency notes and security documents • Handling, care and preservation of documents
UNIT- IV	• Principles of handwriting analysis and identification • Characteristics of handwriting- Class & Individual • Factors influencing handwriting variations • Forged, genuine and disguised handwriting/signature. • Significance of charred, indented, secret writing, typewritten, printed and photo copied documents.
Suggested readings	1. H.C. Lee, R.E. Gaensslen "Advances in Fingerprint Technology", 2nd ed. NY: CRC Press, 2001. 2. Saxena's : Saxena's Law & Techniques Relating to Finger Prints, Foot Prints & Detection of Forgery, Central Law Agency, Allahabad (Ed. A.K. Singla). 3. B. Wentworth and H.H. Wilder, Personal Identification. Boston: R.G.Badger, 1918 4. S.A. Cole, Suspect Identities: A History of Fingerprint and Criminal Identification. Harvard Univ. Press, May 2001 5. H. Cummins and C. Midlo, Fingerprints, Palms and Soles. Philadelphia: Blakiston, 1943.

	6. Huber, A. R. and Headrick, A.M. (1999): Handwriting identification: facts and fundamental CRC LLC 7. Ellen, D (1997): The scientific examination of Documents, Methods and techniques. 2nd ed., Taylor & Francis Ltd. 8. Morris (2000): Forensic Handwriting Identification (fundamental concepts and Principals) 9. Harrison, W.R. : Suspect Documents & their Scientific Examination, 1966, Sweet & Maxwell Ltd., London. 10. Hilton, O : The Scientific Examination of Questioned Document, 1982, Elsevier North Holland Inc., New York. 11. Sulner, H.F. : Disputed Document, 1966 Oceana Publications Inc., New York. 12. Quirke, A.J. : Forged, Anonymous & Suspet Documents, 1930, Reorge Rontledge & Sons Ltd., London. 13. Osborn, A. S. : Questioned Documents 1929, Boyd Printing Co., Chicago. 14. Levinson, J: Questioned Documents, 2000, Academic Press, Tokyo.
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DSC2-2: PGDFSDC202T	Course Title: Chemical & Toxicological Evidences[T]
Course Credit: 2	Total contact hours: 60 Hrs.
Course Objectives	- To understand chemistry of arson, explosive, alcohol, petroleum products, etc. in forensic related exhibits - To understand basic concepts and examination of forensic samples related to forensic chemistry and toxicology
Course Outcome	- Understanding the basic concept of Forensic Chemistry & Toxicology - Ability to examine different exhibits related to forensic Chemistry and toxicology. - Ability to examine various trace evidence.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	- Introduction & scope of Forensic Chemistry - Drugs of abuse: Introduction and classification - Alcoholic beverages: Collection, preservation and analysis - Petroleum products: Collection, preservation and analysis - Arson and explosive residue: Collection, preservation and analysis
UNIT II	- Introduction, definition and significance of trace evidences - Classification & examination of Ink - Classification & examination of Glass - Classification & examination of paints - Examination of Soil, cement, mortar and concrete
UNIT III	- Classification, Evaluation and interpretation of injuries - Post-mortem changes and their significance - Autopsy & its types - Collection and preservation of visceral samples - Interpretation of post mortem reports
UNIT IV	- Introduction & scope of Forensic Toxicology - Classification of poisons - Routes of administration & Modes of action of poison - Factors influencing toxicity and individual variability

	• Interpretation of toxicological findings and cause of death determination
Suggested readings	1. Principles of Physical Chemistry and Puri, Sharma and Pathania. 2. Concise Inorganic Chemistry Fifth Edition by J. D. Lee. 3. Organic Chemistry by Moris and Boyed 4. Chemistry of Natural Products by S.V. Bhat, B. A. Nagaswampagi, M. Shivshankar. 5. Text book of organic chemistry by ArunBahl and B. S. Bahl. 6. Basic Concept of Analytical Chemistry by S. M. Khopkar, Third Edition, New Age International Publication. 7. General Chemistry, Sixth Edition, Raymond Chang, McGraw Hill. 8. Forensic Analysis of Fire Debris and Explosives; Kenyon Evans-Nguyen, Katherine Hutches, Springer Publications, 2019 9. Fire Debris Analysis; Eric Stauffer, Julia Dolan, Reta Newman, Elsevier Publications, ISBN: 978-0-12-663971-1, 2008 10. Forensic Investigation of Explosives, Alexander Beveridge, CRC Press, 2nd edition, 2011 11. The Chemistry of explosives, J. Akhavan, RSC Publishing, 2015 12. Modern Methods and Applications in Analysis of Explosives, J. Yinon, S. Zitrin, Wiley Publishers 1996 13. "Working Procedure Manual on Chemistry", Directorate of Forensic Science MHA Govt. of India, 2005. 14. "Laboratory Procedure Manual: Petroleum Products", Directorate of Forensic Science, MHA, Govt. of India, 2005. 15. Bureau of Indian Standard Specifications related to Alcohols and Petroleum Products. 16. "Working Procedure Manual- Chemistry, Explosives and Narcotics", BPR&D, 2000. 17. The Laboratory Management of the Medico-Legal, Froede, R.C, Specimen Analytical Chemical Laboratory Sciences. 18. An introduction to toxicology; Burcham Philip C (2013); 1st edition; Springer Publication; New York 19. Forensic Investigation Of Clandestine Investigation; Christian Donell R (2004); 1st Edition; CRC Press; New York 20. Advances in Forensic and Clinical Toxicology, Curry A.S. (Second Edition) (1969), Springfield Thomas. 21. Analytical Methods in Human Toxicology, Curry A.S. (Part II) (1986), Publisher Wiley Verlag Chemie 22. Textbook of Toxicology, Dubois K.P. and Gelling E.M.K. (1959), Oxford University Press.

DSC2-3: PGDFSDC203T	Course Title: Criminal Procedure Code, 1973 [T]
Course Credit: 2	Total contact hours: 30 Hrs.
Course Objectives	• This course is specifically designed to assist students in understanding the importance of the Code of Criminal Procedure which is one of the essential acts in India as well as the primary legislation on the procedure for administering criminal justice. • The course is aimed at driving home the students how the pretrial, trial and the subsequent process are geared up to make the administration of criminal justice effective. • The course will acquaint the student with organization of the functionaries

	under the Code, their power and functions at various stages and the procedure according to which these powers and functions are to be exercised. • The students will also understand the reason and manner of administering the punishments for any given offence under the substantive Penal Laws. The course will help in understanding the machinery for the investigation of crime, apprehension of suspected criminals, collection of evidence, determination of guilt or innocence of the accused person, and the determination of punishment of the guilty. • The objective is also to sensitize the students about critical issues in administration of criminal justice li
Course Outcome	• After completion of this course student will be able to: • Identify the stages in investigation and procedure of trial in criminal cases. • Explain the powers, functions, and duties of police and criminal courts. • Understand the machinery to be adopted by the State when a violation of the penal law, i.e., offence under the Indian Penal Code, has been detected or reported. • Analyse the principles and procedure that must be followed while prosecuting and adjudicating other claims. • Thoroughly understand the investigation, inquiry and trial of the offences governed by the provisions and subject to any other law that may be in force which regulates the manner of investigation, inquiry or trial of the matter.
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	Police officers power of arrest, preventive action and investigation • Components of Criminal Justice System and definitions under section 2 • Powers of superior officers of police, power of police for arrest, power of search of arrested persons, seize offensive weapons • Examination of arrested person by medical practitioner, production, custody and discharge of arrested person, proclamation and attachment, serving summons and warrant • Preventive action of the police, information to the police and their powers to investigate, information in cognizable and non- cognizable cases (FIR), Zero FIR, Police Diary, police officer's power to investigate cognizable and non-cognizable cases • Panchnama, inquest, arrest, custody
UNIT II	Constitution of criminal courts and powers of courts • Constitution of criminal courts and offices, • Classes of criminal courts, metropolitan magistrate, court of session, courts of judicial magistrates, public prosecutors, power of courts • Courts by which offences are triable • Sentences which high courts and sessions courts may pass. • Sentence in cases of conviction of several offences at one trial
UNIT III	Proceeding before magistrate and trial procedure • Commencement of proceedings before magistrates • Framing of charge • Trial before a court of session • Trial of warrant-cases by magistrates • Evidence in Inquiries and Trials section 272 to 299
UNIT IV	Complaint, Appeal and Bail provisions

	• Complaints to magistrates • Appeals • Bail, anticipatory bail, special powers of high court or court of session regarding bail, • bail bond, surety, order for disposal of property at conclusion of trial • Cancellation and forfeit of bond and bail bond
Suggested readings	1. Ratanlal & Dhirajlal- Criminal procedure Code, Universal, Delhi. 2. Chandrashekar Pillai, Kelkar Lectures on Criminal Procedure Code, Eastern, Lucknow. 3. Shaileendra Malik, The Code Of Criminal Procedure Code, Eighteen edition, 2011, Allahabad law Agency. 4. K. I. Vibhute, Durga Das Basu Criminal Procedure Code, (1999), Universal, Delhi 5. S.C. Sarkar, Sarkar the Code of Criminal Procedure, Lexis Nexis, 6. K.D. Gaur, Textbook on Criminal Procedure Code, Universal Law Publisher. 7. S. N. Mishra, The Code of Criminal Procedure, Central Law Publication.

DSE2-4	Course Title: Lab-I [P]
Course Code: PGDFSDC204	
Course Credit: 2	Total contact hours: 60Hrs.
List of Practical	
	1. Development of fingerprints by chemical methods. 2. Fingerprint photographic techniques-close up photography, UV, IR, Transmitted, and Oblique light photography. 3. Fingerprint identification and comparison. 4. Analysis of handwriting. 5. Evaluating the effect of various writing conditions on handwriting 6. Comparison of glass samples. 7. Analysis of ink samples 8. Analysis of soil. 9. Analysis of cement. 10. Analysis of petroleum products 11. Analysis of Alcoholic beverages 12. Microscopic examination of paint samples. 13. Analysis of textile fiber. 14. Analysis of viscera (simulated sample) for pesticides by TLC. 15. Identification of adulteration of vegetable in oils by color test. Systematic analysis of pharmaceutical. 16. Extraction of poison from biological and non-biological samples.

Semester –II (Elective)

DSE2-1 Course Code: PGDSFSDC201T	Course Title: Digital Forensics [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• To Understand the basics of computer system • To understand the basics of digital forensics • To understand the methods of data recovery • To understand the basis of cyber investigation
Course Outcome	• Understanding the working of computer systems • Understanding the concept of software • Understanding the overview of digital forensics • Understanding the methods of data recovery • Understanding the methods of cyber investigation
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Understanding cybercrime and its classifications • Digital Forensics process and methodologies • Digital evidence handling and preservation • Disk imaging and cloning • Data recovery and reconstruction
UNIT II	• Investigating network intrusions and cyber attacks • Mobile device forensics (smartphones, tablets, etc.) • Web browser analysis, Email investigations and tracing • Social media investigations
UNIT III	• Principles, history and development of photography • Photography on challenging surfaces • Forensic photography- photogrammetry, filtered photography, macro photography • Introduction to image forensics • Challenges in image forensics
UNIT IV	• Introduction to video forensics • Anatomy of vocal tract • Introduction to forensic speaker identification • Methods of speaker identification • Challenges in Forensic Audio and Video Analysis
Suggested readings	1. Cybercrime : Susan Banor 2. Cybercrime investigation : Robert More 3. Computer Forensics: Principles and Practices : Linda Volonino, Reynaldo 4. Digital Evidence and Computer Crime, 2nd ed. :Eoghan Casey 5. Computer Security Basics by Rick Lehtines 6. Cyber Forensic by Mareculla Menendez 7. Network and System Security by John Vacca 8. Security Policies and Implementation Issue by Robert Jahnsen 9. Photography, John Freeman, Collins and Brown. 10. A concise history of photography, Helmut Gernsheim, Dove publications. 11. Optics in Photography, Rodolf Kingslake, Spie optical engineering press.

	12. Basic Photography, Michael Langford, Focal Press. 13. Magic: Stage illusions, special effects and trick photography, Albert A Hopkins, Diver 14. Color Theory, Patti Mollica, Walter Foster Publishing. 15. Digital Audio Forensics Fundamentals, James Zjalic, 2020, Focal Press, ISBN: 9781000205718 16. Principles of Forensic Audio Analysis by Robert C. Maher 17. Photo Forensics, Hany Farid · 2019, MIT Press 18. Digital Image Forensics: There is More to a Picture Than Meets the Eye, Husrev Taha Sencar, Nasir Memon · 2012, Springer 19. Forensic Speaker Identification, Phil Rose · 2002, Taylor & Francis 20. Forensic Voice Identification, Harry Francis Hollien · 2002, Academic Press
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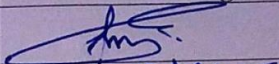
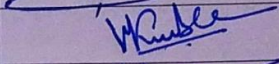
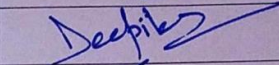
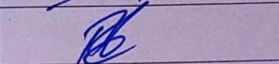
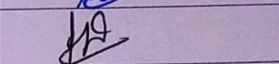
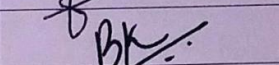
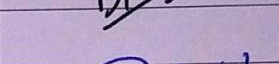
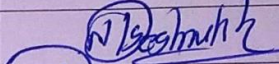
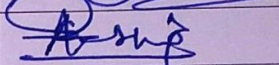
DSE2-1 Course Code: PGDSFSDC202T	Course Title: Forensic Related Laws [T]
Course Credit: 4	Total contact hours: 60 Hrs.
Course Objectives	• In depth understanding of environment concepts and laws relating to Air Act, Water Act, Biodiversity Act and The Wild Life (Protection) Act, 1972. • Aims to impart the principles and the Laws relating to Arms and Explosives. • To impart the students an basic understanding of the areas of health and drugs related laws like Mental Healthcare Act, 2017, Medical Termination of Pregnancy Act, 1971 and Pre Conception and Prenatal Diagnostic Technique Act, 1994, Narcotic Drugs and Psychotropic Substance Act, The Drug and Magic Remedies (Prevention of Objectionable Advertisement) Act, 1954, Transplantation of Human Organs Act, 1994, Drugs and cosmetics Act, 194 • Impart the student's basic understanding of the areas Cyber and data protection related laws, like The Digital Personal Data Protection Bill 2022, Right to Privacy Bill and freedom of Expression in India and Specific Provisions of Information Technology Act 2000 relating to cyber-crimes.
Course Outcome	• After completion of this course student will be able to: • To have in depth understanding of various statutes and provisions in respect of environmental law. • Familiarize with the basic principles and the Laws relating to Arms and Explosives; • Understand the specific legislations pertaining to law and health and law and drugs. • To develop a basic scientific understanding of cyber related laws, freedom of speech and expression, right to privacy and data protection and related challenges, remedies and solutions
Sr. No.	Course Contents (Topics & Subtopics)
UNIT I	• Nature, Scope, Authorities, offences & penalties under Environment Protection Act 1986 • Nature, Scope, Authorities, offences & penalties under Wildlife Protection Act 1972 • Nature, Scope, Authorities, offences & penalties under Water Prevention and

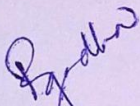
	Control of Pollution Act 1974 • Nature, Scope, Authorities, offences & penalties under Air Prevention and Control of Pollution Act 1987 • Nature, Scope, Authorities, offences & penalties under Biodiversity Act 2002
UNIT II	• Nature, Scope, Authorities, offences & penalties under Mental Healthcare Act 2017 • Nature, Scope, Authorities, offences & penalties under Medical Termination of Pregnancy Act 1971 • Nature, Scope, Authorities, offences & penalties under Pre Conception and Prenatal Diagnostic Technique Act, 1994 • Nature, Scope, Authorities, offences & penalties under Narcotic Drugs and Psychotropic Substance Act 1985 • Nature, Scope, Authorities, offences & penalties under The Drug and Magic Remedies (Prevention of Objectionable Advertisement) Act, 1954
UNIT III	• Meaning, Nature & Scope of Freedom of Speech and Expression along with its restriction • Nature, Scope, Authorities, offences & penalties under Information Technology Act 2000 • Salient Features of Digital Data Protection Bill 2022 • Salient Features of Right to Privacy Bill 2023 • Salient Features of The Digital Personal Data Protection Bill, 2023
UNIT IV	• Nature, Scope, Authorities, offences & penalties Transplantation of Human Organs Act, 1994 • Nature, Scope, Authorities, offences & penalties under The Arms Act 1959 • Nature, Scope, Authorities, offences & penalties under The Explosive Substances Act 1908 • Nature, Scope, Authorities, offences & penalties under Explosive Act 1884 • Nature, Scope, Authorities, offences & penalties under Drugs and Cosmetics Act, 1940
Suggested readings	1. P. Leelakrishnan, The Environmental Law in India, Butterworths – India 2. P. Leelakrishnan, Environmental Law in India, Lexis Nexis 3. Shyam Diwan & Armin Rosencranz, Environmental Law and Policy in India, OxfordUniversity Press 4. S. C. Shastri, Environmental Law, Eastern Book Company. 5. Gurdip Singh, Environmental Law in India, MacMillan Publisher. 6. Environmental & Pollution Laws in India by Justice T S Doabia, Lexis Nexis 7. Krishan Keshav, Law and Environment, Singhal Law Publications 8. Environment, Energy and Climate Change Author: Nawneet Vibhaw, Lexis Nexis 9. All We Can Save: Truth, Courage, and Solutions for the Climate Crisis, by AyanaElizabeth Johnson, Katharine K. Wilkinson 10. Shantakumar's Introduction to Environmental Law, Wadhwa and Company 11. H. N. Tiwari, Environmental Law, Allahbad Law Agency 12. S K Joshi, "Law And The Practice Of Medicine", Jaypee Brothers Medical Publishers, New Delhi, 2010 13. Dr. Lily Srivastava, Law And Medicine, Universal Law Book Agency, New Delhi; 14. Malik, Surendra, & Sudeep, Supreme Court On Drugs, Medical Laws And Medical Negligence, Eastern Book Company, New Delhi. 2014 15. Nandita Adhikari, Law & Medicine, Central Law Publications, Allahabad, 4th Ed.

	2015 16. Siddhartha Mukherjee, The Laws Of Medicine, Ted BooksEmily Jackson, Law And The Regulation Of Medicines, Hart Publishing House 17. Sheila A M Mclean, Contemporary Issues In Law, Medicine And Ethics, DartmouthPublishing Company Limited, Hampshire, 1996 18. Tapas Kumar Koley. Medical Negligence and the Law in India. Duties Responsibilities And Rights .Oxford University Press -2010. 19. Dr.S.B.N Prakash. Mental Health and Law. Lawyer’s Law Book.2008. 20. S.K.Verma.Legal Framework for Health Care in India Lexis Nexis Butterworths 2002 21. Modi’s Medical Jurisprudence and Toxicology. Lexis Nexis 2006. 22. Kannan K. Medicine and Law. Oxford University Press – 2014. 23. Manson J.K . Mason And Mc Call Smith’s Law And Medical Ethics .Oxford University Press 2006 24. H.M. Seervai, Constitutional Law of India, Law and Justice Publishing Company 25. M.P. Jain, Indian Constitutional Law, Lexis Nexis 26. Narendra Kumar, Constitutional Law of India, Allahabad Law Agency 27. J.N. Pandey, Constitutional Law of India, Central Law Agency 28. P.M. Bakshi, The Constitution of India, Butterworth Lexis Nexis 29. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis 30. The Indian Cyber Law by Suresh T. Vishwanathan- Bharat Law House New Delhi 31. Guide to Cyber and E- Commerce Laws by P.M. Bukshi and R.K. Suri- Bharat Law House, New Delhi 32. The Regulation of Cyberspace by Andrew Murray, 2006- Routledge –Cavendish 33. The Indian Cyber Law by Suresh T. Vishwanathan- Bharat Law House New Delhi 34. Guide to Cyber and E- Commerce Laws by P.M. Bukshi and R.K. Suri- Bharat Law House, New Delhi 35. Guide to Cyber Laws by Rodney D. Ryder- Wadhwa and Company, Nagpur 36. The Regulation of Cyberspace by Andrew Murray, 2006- Routledge –Cavendish 37. International Trade Law by Indira Carr, Peter Stone, 4th edition, 2010, 38. Page 103 to 136 Online Dispute Resolution: Challenges for Contemporary Justice by Gabrielle Kaufmann Kohler, Thomas Schultz, 2004, pages 5 to 58, 67 to 81, 108 to 120, 131 etc. 39. Cyber Consumer Law and Unfair Trading Practices: Unfair Commercial Practices By Cristina Coteanu page 87-113. 40. Cyber Consumer Law and Unfair Trading Practices: Unfair Commercial Practices By Cristina Coteanu Page- 1- 11, 45 to 68, 137 to 150.
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MSFSOJT201P	OJT/ Field Project
Course Credits: 4	

Team for Drafting of Syllabus:

Name	Institute Name	Sign
Mr. N.M. Fatangare	IFS, Mumbai	
Prof. (Dr.) Vandana Kamble	IFS, Mumbai	
Dr. Deepika Bhandari	IFS, Mumbai	
Mr. Abhijeet Sarkar	IFS, Mumbai	
Ms. Fayth D'silva	IFS, Mumbai	
Ms. Bhagyashree Kulkarni	IFS, Mumbai	
Dr. Malojirao Bhosale	IFS, Mumbai	
Mr. Nitin Deshmukh	IFS, Mumbai	
Prof. (Dr.) Shrinaag Panchbhai	IFS, Mumbai	


DIRECTOR
Institute of Forensic Science,
Mumbai




Sign of Dean _____
 Name of the Dean _____
 Name of the Faculty _____

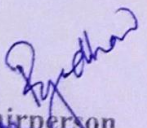
Letter Grades and Grade Points

Semester GPA/ Program CGPA/Semester	% Marks	Letter Grade Result
9.00-10.00	90.0-100.0	O (Outstanding)
8.00<9.00	80.0<90.0	A+ (Excellent)
7.00<8.00	70.0<80.0	A (Very Good)
6.00<7.00	60.0<70.0	B+ (Good)
5.50<6.00	55.0<60.0	B (Above Average)
5.00<5.50	50.0<55.0	C (Average)
4.00<5.00	40.0<50.0	P (Pass)
Below 4.00		F (Fail)
Ab (Absent)		Absent

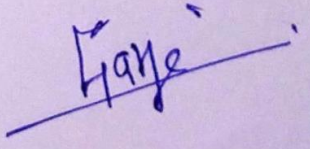
Chairperson
Ad-hoc BOS (Forensic Science)
University of Mumbai

Justification for P. G. Diploma in Forensic Science & Related Law

1.	Necessity for starting the course:	This programme, P. G. Diploma in Forensic Science & Related Law is designed for the learners & professionals working in criminal justice system, military and paramilitary forces, who wish to enhance their knowledge in forensic investigation, analysis and interpretation. This course also caters to the needs of the students who wish to pursue their career in the field of forensics and wish to have the exposure about the subject. The subjects incorporated in the programme are chosen from the major domains of Forensic Science.
2.	Whether the UGC has recommended the course:	Yes
3.	Whether all the courses have commenced from the academic year 2023-24	The P. G. Diploma in Forensic Science & Related Law course has already commenced from the academic year 2009 and in the academic year 2022-23 it is being restructured as per NEP 2020.
4.	The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?	At present this course is started in only one institution affiliated to this university which is managed and financed by the Government of Maharashtra. Currently fourteen permanent and four contractual faculty members are working.
5.	To give details regarding the duration of the Course and is it possible to compress the course?	The duration of the program is one year (2 semesters). It is not possible to compress the course.
6.	The intake capacity of each course and no. of admissions given in the current academic year:	The intake capacity of the program is 40. Number of admissions for the academic year 2022-23 were 40.
7.	Opportunities of Employability / Employment available after undertaking these courses:	As the course is designed for working professionals, the learners will enhance their knowledge to cater the need to help the criminal justice system. Similarly, this course will help a science graduate determined to work with the Forensic Laboratories and Investigation agencies, to acclimatize with the field of Forensic science.


 Chairperson
 Ad-hoc Board of Studies (Forensic Science)
 Government Institute of
 Forensic Science
 Mumbai




 Sign of Dean _____
 Name of the Dean _____
 Name of the Faculty _____