CRITICAL AND CREATIVE THINKING

COURSE CODE:

CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. Introduce students to the fundamental concepts, principles, and techniques of critical and creative thinking.
2. Cultivate students' ability to analyze complex problems, evaluate information, and identify logical fallacies.
3. Encourage students to think outside the box, generate innovative ideas, and explore diverse perspectives.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Demonstrate an understanding of the foundational concepts and principles of critical and creative thinking.	Familiarity
CO-2	Analyze complex problems, evaluate evidence, and identify logical fallacies in reasoning.	Assessment
CO-3	Generate innovative ideas and explore multiple perspectives to approach challenges from different angles.	Assessment
CO-4	Apply decision-making strategies and critically evaluate options to make informed choices.	Assessment
CO-5	Utilize critical and creative thinking techniques to solve real-world problems in various contexts.	Assessment

Course Contents:

Unit	Contents	Lectures required
1	**Realm of Creativity**: Definition, Lateral thinking, Traits of creative people, Essence Creativity, Elaborative Creativity and Expressive Creativity	5

2	**Influences on Creativity:** Motivation, Environment, Technology and Training	5
3	**Demographic specificity creative people**: Age, Gender, Race and Geography	3
4	**Mastering Creative Problem Solving**: Structuring of Ill-defined Problems Creative Problem Solving,Models of Creative Problem-Solving Useful Mechanisms of Convergent Thinking Mechanisms of Divergent Thinking	6
5	**Enhancing Critical and Creative Intelligence**: Creative Intelligence Abilities; A Model of Creative Intelligence, Concepts of Critical- Critical thinking standards, Benefits and Barriers of Critical thinking	7
6	**Acquiring A Creative Persona**: Traits Congenial to Creativity Creative Personality and Form of Creativity Motivation and Creativity Strategies for Changing Motivation	5
7	**Designing a Creativogenic Environment:** Environmental Stimulants of Creativity, Creative organizations, Force stimulating innovativeness, Designing innovative organizations.	5
8	**Techniques of Creative Problem Solving:** Principles and Techniques for Churning up Creative Ideas A Comparison of Creativity Techniques	6
	Total lectures	42

Suggested Text Book(s):

S.No.	Name of Books
1	Khandwalla, Pradeep N.2004. Life Long Creativity: An Unending Quest. New Delhi: Tata Mc Graw Hill

Suggested Reference Book(s):

S.No	Name of Books
1	Carter, Philip. Test and Assess your brain quotient: Discover your true intelligence with tests of aptitude, logic, memory, EQ, creative and lateral thinking. Kogan Page Publishers, 2008
2	Crawford, Robert Platt. The Techniques of Creative Thinking: How to Use Your Ideas to Achieve Success. Paperback – Import, 1 September 2012.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination

1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3	T-3	35	2 Hours	Entire Syllabus
4	Teaching Assessment	25	Entire Semester	Class Performance– 10 Assignments- 10 Attendance -5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	1	1	2	3	2	3	3	2.25
CO2	2	3	1	2	2	2	2	3	2.13
CO3	3	2	1	2	3	2	3	3	2.38
CO4	3	3	1	2	2	2	2	3	2.25
CO5	3	3	1	2	2	2	3	3	2.38
Average	2.8	2.4	1	2	2.4	2	2.6	3	2.28

Ethics and Corporate Social Responsibility

COURSE CODE: 23BBWHS132

COURSE CREDITS: 3

CORE/ELECTIVE: Elective

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. Learn critical appreciation of the main currents in ethical thought applied to the businesses.
2. Learn the value of ethical thought in the development of business theory.
3. Learn to appraise ethical considerations presented in a variety of business settings.
4. Learn substantial debates regarding the implications of ethical arguments for business activity.
5. Learn the role of business ethics in the Indian as well as global business environment and to recognize the challenges of business social responsibility.
6. Learn to develop critical thinking skills via the application of concepts and theories to business cases.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	To increase the awareness of the ethical dimension of business and its decision making process across all functions.	Familiarity
CO-2	To become familiar with the social standards, values, ethical principles and moral philosophy that provide criteria for decision making.	Assessment
CO-3	The role of business ethics in the Indian as well as global business environment and to recognize the challenges of business social responsibility.	Assessment
CO-4	To develop critical thinking skills via the application of concepts and theories to business cases.	Assessment
CO-5	Critical appreciation of the main currents in ethical thought applied to the businesses.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction to Business Ethics:** Definition, Meaning and Concept; Principles of Business Ethics; Importance of Business ethics	2
2	Ethical Dilemma: Characteristics of Ethical Organizations; ethical decision making; ethical reasoning the dilemma resolution process	4

3	Framing Business Ethics: Corporate Social Responsibility; Stakeholders; Citizenship	3
4	Managing CSR: Organizational Mission. Vision and Values; Triple Bottom Line; Corporate Community Involvement	3
5	Employees: ProfessionalObligations: Greed and conflicts of interest; Insider trading; Theft and fraud; Whistle-blowing	3
6	Employees: Rights: Discrimination and harassment; Privacy; Health and safety	3
7	Consumers: Protection: Consumer protection; Product recalls	3
8	Relation between Corporate Social Responsibility and Corporate Governance: Corporate Governance, Disclosure, and Executive Compensation	3
9	Business values for 21st century: Introduction; Requisite Business Values; Action needed	3
10	Evaluating Business Ethics: Normative Ethical Theories; Egoism; Utilitarianism; Ethics of duties; Rights and justice	4
11	Safety, Risk, and Environmental Protection: Work environment risks and controls; Environmental Technology for Sustainable Development; Risk Control; Regulating health and safety	3
12	Global Business Ethics: Bribery; Repressive Regimes; Overseas Suppliers	3
13	Corporate Social Responsibility within the organization: CSR and Society: Strategic; Planning and CSR; Environmental Aspects of CSR;CSR under the Companies Act,2013; CSR Practices in India	5
Total lectures		**42**

Suggested Text Book(s):

1. Shelekar S.A.,Bhat K.G.*Ethics in Management*.Himalayan Publishing House, Mumbai 2015
2. Crane A.Matten D. *Business EthicsManaging Corporate citizenship and sustainability in the age of Globalization* Oxford University Press 2016haran: Fundamentals of Computer Algorithms, 2nd Edition, Universities press, 2007

Suggested Reference Book(s):

1. Bajaj P.S.Agarwal R. *Business Ethics An Indian Perspective* New Delhi
2. J.P. Sharma, Corporate Governance, Business Ethics & CSR, Ane Books Pvt. Ltd., New Delhi.
3. Fernando, A. C. Business Ethics and corporate governance. PearsonEducation. (2010).

Other useful resource(s):

1. Link to topics related to course:
   i. https://onlinecourses.nptel.ac.in/noc21_mg46/preview
   ii. https://onlinecourses.nptel.ac.in/noc21_mg54/preview

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes (2) - 10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course outcomes (Business ethics and Corporate social responsibility)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO-1	3	3	3	3	3	3	3	3	3
CO-2	3	3	3	3	3	3	3	3	3
CO-3	1	3	1	2	2	1	3	3	2
CO-4	1	1	1	1	1	1	2	3	1.3
CO-5	1	2	1	1	1	1	3	3	1.6
Average	1.8	2.4	1.8	2	2	1.8	2.8	3	

BUSINESS ACCOUNTING

COURSE CODE: 23BB1HS213
COURSE CREDITS: 4
CORE/ELECTIVE: Core
L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

To familiarize students with the mechanics of preparation of financial statements, understanding corporate financial statements, their analysis and interpretation.

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the need for financial reporting and its various uses	Familiarity
CO-2	Understand the basics of double entry system of accounting.	Assessment
CO-3	Analyze Business transactions And their recording in journaland ledger	Assessment
CO-4	Analyze and prepare trial balance and final accounts	Usage
CO-5	Understand the fundamentals of company accounts	Usage

Course Contents:

Unit	Contents	Lectures required
1	Introduction to Financial Accounting. Accounting as an Information System. Importance, Scope, and Limitations. Users of Accounting Information. Generally Accepted Accounting Principles. The Accounting Equation.	6
2	Nature of Accounts and Rules of Debit and Credit. Recording Transactions in General Journal. Recording Transactions in three- column Cash Book. An overview of Subsidiary books – Purchase Book, Purchase Returns Book, Sales Book, and Sales Returns Book. Opening and Closing Entries. Preparation of Ledger Accounts.	8
3	Introduction to International Financial Reporting Standards (IFRS). Understanding Accounting Standards issued by the ICAI related to Disclosure of Accounting Policies, Depreciation Accounting, and Revenue Recognition. Methods of charging Depreciation – Straight-line Method, and Written-down-value Method.	6
4	Preparation of Trial Balance. Adjustment Entries. Post-adjusted Trial Balance. Bank Reconciliation Statement.	6

5	Preparation of Financial Statements: Preparing Trading Account, Profit & Loss Account and Balance Sheet for a Sole Proprietor.	7
6	Understanding contents of Financial Statements of a Joint Stock Company as per Companies Act 2013. Understanding the contents of a Corporate Annual Report.	6
7	Preparation of Cash Flow Statement as per AS-3 (revised).	3
	Total Lecture Hours	**42**

Suggested Text Book(s):

1. S.N. Maheshwari, Suneel K. Maheshwari, and Sharad K. Maheshwari: *An Introduction to Accountancy*,Vikas PublishingHouse Pvt. Ltd, 2013.
2. R. Narayanaswamy: *Financial Accounting, A Managerial Perspective*, PHI Learning Pvt. Ltd., 2014

Suggested Reference Book(s):

1. Charles T. Horngren, Gart L. Sundem, John A. Elliott, and Donna R. Philbrick: *Introduction to Financial Accounting*,Pearson, 2011
2. J.R. Monga: *Financial Accounting: Concepts and Applications*, Mayur Paperbacks, 2017.
3. T.P. Ghosh: *Financial Accounting for Managers*, Taxmann Allied Services Pvt., 2009.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Class Performance - 10 Quizzes(2)-10 Attendance - 5

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO-1	3	3	2	2	3	3	2	3	2.6
CO-2	3	3	2	2	3	3	2	3	2.6
CO-3	3	3	2	2	3	3	2	3	2.6
CO-4	3	3	3	3	3	3	3	3	3.0
CO-5	3	3	3	3	3	3	3	3	3.0
Average	3	3	2.4	2.4	3	3	2.4	3	2.8

MACROECONOMICS

COURSE CODE: 23BB1HS212

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To understand the basic theories and principles of macroeconomics.
2. To understand the linkages between major economic variables; level of output and prices, inflation, interest rates and exchange rates.
3. To study the impact of monetary and fiscal policy on the aggregate behavior of individuals.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand the concepts of Macroeconomics and its interrelations with Microeconomics.	Familiarity
CO-2	Understand the concepts of national income, calculation methods of national income, and concepts related to national income.	Assessment
CO-3	Apply the principles of Macroeconomics in explaining the behaviour of different Macroeconomic variables at national as well as global level.	Assessment
CO-4	Analyze the interrelationship among different macroeconomic issues such as money, foreign exchange, inflation, unemployment, economic growth and foreign trade.	Usage
CO-5	Make optimal business decisions by applying the concepts of macroeconomics	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Measurement of macroeconomic variables:** National Income Accounts, Gross Domestic Product, National Income, Personal and Personal disposable income; Classical theory of income and employment: Quantity Theory of Money – Cambridge version, Classical aggregate demand curve, Classical theory of interest rate, effect of fiscal and monetary policy.	8

2	**Keynesian theory of Income and employment:** Keynesian model, components of aggregate demand, equilibrium income, changes in equilibrium, multiplier (investment, Government expenditure, lump sum tax, foreign trade), effect of fiscal and monetary policy, crowding out, composition of output and policy mix, policy mix in action; ISLM model : properties of ISLM curves, factors affecting the position and slope of ISLM curves, determination of equilibrium income and interest rates, effect of monetary and fiscal policy, relative effectiveness of monetary and fiscal policy.	**10**
3	**Money:** Functions of money, quantity theory of money, determination of money supply and demand, theory of money multiplier, indicators and instruments of monetary control	**8**
4	**Inflation:** Meaning, demand and supply side factors, consequences of inflation, anti-inflationary policies, natural rate theory, monetary policy-output and inflation, Phillips curve (short run and long run)	**6**
5	**Open Economy:** brief introduction to BoP account, market for foreign exchange and exchange rate, monetary and fiscal policy in open economy, Mundell Fleming model (perfect capital mobility and imperfect capital mobility under fixed and flexible exchange rate)	**10**
Total lectures		**42**

Suggested Text Book(s):

1. Mankiw: Principles of Macroeconomics with MindTap, 8th Edition, Cengage Learning, 2022.
2. WA McEacheren and Simrit Kaur: Macro ECON: A South Asian Perspective, 2nd Edition, Cengage Learning, 2018.

Suggested Reference Book(s):

1. Olivier Blanchard: Macroeconomics, 7th Edition, Pearson, 2020.
2. RT Froyen: Macroeconomics, 10th Edition, Pearson, 2013.
3. AM Thomas: Macroeconomics: An Introduction, 1st Edition, Cambridge University Press, 2021.
4. R Dornbusch, S Fischer and R Startz: Macroeconomics, 12th Edition, TMH, 2018.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus

4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes(2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	3	2	2	2	2	3	3	2.5
CO2	3	3	2	2	2	3	2	3	2.5
CO3	3	3	2	2	2	3	2	3	2.5
CO4	3	3	3	3	3	3	3	3	3.0
CO5	3	3	2	2	2	3	3	3	2.6
Average	**3**	**3**	**2.2**	**2.2**	**2.2**	**2.8**	**2.6**	**3**	**2.6**

ORGANIZATION BEHAVIOUR

COURSE CODE: 23BB1HS211

COURSE CREDITS:4

CORE/ELECTIVE: CORE
L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. Explain organizational theory by learning about individual behavior
2. Analyze leadership styles and determine their effectiveness in employee situations
3. Identify methods to resolve organizational problems
4. Describe the impact of corporate culture on employee behavior
5. Analyze team dynamics, team building strategies and cultural diversity

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Understand the basic concepts of Organizational behavior	Familiarity
CO-2	Analyze and apply the components of individual behavior and learn the concepts of perception, attitude and values	Assessment
CO-3	Apply the theories of leadership and motivation in workplace. And thus, be able to distinguish between different styles of leadership and contribute to the effective performance of a team as a team leader.	Usage
CO-4	Analyze group and team behavior and demonstrate skills required for working in groups (team building)	Usage
CO-5	Justify organizational change and conflict working relationships within organization and demonstrate how to apply relevant theories to solve problems of change and conflict.	Usage

Course Contents:

Sr No	Content	Lectures required
Modules		
	Introduction to Organizational Behaviour: Diversity in Organizations,	**2**
Module 1	The Individual	**18**
	Attitudes and Job Satisfaction Emotions and Moods , Personality and Values, Perception and Individual Decision Making Motivation Concepts : From Concepts to Applications	
Module 2	Foundations of Group Behavior	**16**
	Understanding Work Teams Communication Leadership Power and Politics Conflict and Negotiation Foundations of Organization Structure	
Module 3	Organizational Culture	**6**
	Human Resource Policies and Practices Organizational Change Stress Management	
	Total	**42**

Methodology

The course follows a teaching-learning method with classroom discussions and activities on fundamental concepts on skill development of students with regard to speaking, listening and, logically interpreting ideas into words and reasoning in the classroom.

Suggested Text Book(s):

1. Stephen P. Robbins ,Organizational Behavior
2. Dipak Kumar Bhattacharya, Organizational Behaviour
3. Nelson,Quick, Khandelwal, ORGB

Suggested Reference Book(s):

1. Working with Emotional Intelligence, Daniel Goleman
2.OrganizationalBehavior, K. Aswathappa
3. OrganizationalBehaviorAn Introduction, Christine Cross Ronan Carbery

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3	T-3	35	2 Hours	Entire Syllabus
4	Teaching Assessment	25	Continuous evaluation	10 marks case study 10 marks case study 5 marks Class participation

Sr No	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average Score
CO-1	3	3	3	3	2	1	3	3	2.6
CO-2	3	3	3	3	3	2	3	3	2.8
CO-3	3	3	3	3	3	2	3	3	2.8
CO-4	3	3	3	3	3	2	3	3	2.8
CO-5	3	3	3	3	3	2	3	3	2.8
Average Score	3	3	3	3	3	1.8	3	3	

MANAGERIAL ECONOMICS

COURSE CODE:

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To apply micro economics concepts and techniques in evaluating business decisions taken by firms.
2. To develop the ability to apply the concepts, tools and techniques of economics in analyzing and interpreting business decisions.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand the roles of managers in firms	Familiarity
CO-2	Analyze the demand and supply conditions and assess the position of a company	Assessment
CO-3	Analyze real-world business problems with a systematic theoretical framework.	Assessment
CO-4	Design competition strategies, including costing, pricing, product differentiation, and market environment according to the natures of products and the structures of the markets.	Usage
CO-5	Make optimal business decisions by integrating the concepts of economics, mathematics and statistics	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Demand, Supply and Market equilibrium:** Individual demand, market demand, individual supply, market supply, market equilibrium; Elasticities of demand and supply: Price elasticity of demand, income elasticity of demand, cross price elasticity of demand,elasticityofsupply	8

2	**Theory of consumer behavior:** Cardinal utility theory, ordinal utility theory, marginal utility theory (indifference curves, budget line, consumer choice, price effect, substitution effect, income effect for normal, inferior and Giffen goods), revealed preference theory.	6
3	**Producer and optimal production choice:** Optimizing behavior inshortrun(geometryofproductcurves,lawofdiminishingmarginproductivity,threestagesofproduction),optimizingbehaviorinlongrun(isoquants, isocost line, optimal combination of resources)	6
4	**Costs and scale:** Traditional theory of cost (short run and long run, geometry of cost curves ,envelope curves), modern theory of cost (short run and long run),economies of scale, economies of scope.	6
5	**Theory of firm and market organization:** Perfect competition (basic features, short run equilibrium of firm/industry, long run equilibrium of firm/industry, effect of changes in demand, cost and imposition of taxes) ; monopoly (basic features, short run equilibrium, long run equilibrium, effect of changes in demand, cost and imposition of taxes, comparison with perfect competition, welfare cost of monopoly), price discrimination, multi plant monopoly; monopolistic competition (basic features, demand and cost, short run equilibrium, long run equilibrium, excess capacity); oligopoly (Cournot's model, kinked demand curve model, dominant price leadership model, prisoner's dilemma)	10
6	**Factor market:** demand for a factor by a firm under marginal productivity theory (perfect competition in the product market, monopoly in the product market), market demand for a factor, supply of labour, market supply of labour, factor market equilibrium.	6
Total lectures		**42**

Suggested Text Book(s):

1. CH Peterson, WC Lewis and SK Jain: Managerial Economics, 4th Edition, Pearson, 2020.
2. Dominik Salvatore and Siddhartha Rastogi: Managerial Economics: Principles and Worldwide Applications, 9th Edition, Oxford University Press, 2020.

Suggested Reference Book(s):

1. Lipsey and Chrystal: Economics, 2nd Edition, Oxford University Press, 2022.
2. RS Pindyck, DS Rubinfeld and PL Mehta: Microeconomics, 7th Edition, Pearson Education India, 2009.
3. WA McEacheren and Simrit Kaur: Micro ECON: A South Asian Perspective, 1st Edition, Cengage Learning, 2016.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes(2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	3	2	2	2	2	3	3	2.5
CO2	3	3	2	2	2	3	2	3	2.5
CO3	3	3	2	2	2	3	2	3	2.5
CO4	3	3	3	3	3	3	3	3	3.0
CO5	3	3	2	2	2	3	3	3	2.6
Average	**3**	**3**	**2.2**	**2.2**	**2.2**	**2.8**	**2.6**	**3**	**2.6**

PRINCIPLES AND PRACTICE OF MANAGEMENT

COURSECODE:23BB1HS112

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

CourseObjectives:

1. Tounderstandofbasicconcepts,principlesandpracticesofmanagement.
2. Todevelopaninsightofcoordinationandproperadministrationofbusiness.
3. Toinculcatetheabilitytoapplymultifunctionalapproachtoachieveorganizationalobjectives.

CourseOutcomes:

SNo	CourseOutcomes	Level of Attainment
CO-1	Understandthebasicconceptsofmanagementtheories.	Familiarity
CO-2	Understandtheprocessofbasicmanagementfunctions.	Familiarity
CO-3	Analyzetheinternalandexternaldecisionstobemadeby managers	Assessment
CO-4	Develop the suitable strategies based on management theories to achieve organization's objective	Usage

CourseContents:

Unit	Contents	Lectures required
1	**Introduction to Management:** Evolution of Management: - Contribution of Taylor, Mayo & Fayol, Different approaches of management, role of manager, tasks of a professional manager, Management & its functions. Level of Management, managerial skillsat various levels. Management as a Science or Art - Management as a profession, Administration and Management, Functional Areas of Management.	9
2	**Planning:**NatureandImportanceofPlanning-TypesofPlans- Levels of Planning - Steps in planning - Making Effective Plans-ObjectivesandManagementByObjective(MBO)–ManagementBy Exception(MBE)-PolicyandStrategy-ForecastingandDecision	6

	Making - Nature of decision making - Types of decisions – Decision Making Process – Rational Perspectives and Behavioural Aspects of decision making.	
3	**Organizing:** Principles of Organization - Types of Organization - Organizational Structure and Design – Line, Staff and functional authority – Conflict between Line and Staff – Overcoming the Line-Staff Conflict. Departmentation - Span of control – Authority, Responsibility and Accountability - Principles of Delegation - Steps - CentralizationVsDecentralization–Factorsdeterminingthedegree ofDecentralizationofauthority.	6
4	**Staffing:** Nature and Purpose of staffing – Importance of staffing – Components of Staffing - Manpower planning - Recruitment and Selection - Training and Development - Performance Appraisal.	5
5	**Directing:** – Nature of Directing function - Principles – Importance of Effective Direction – Motivating people at work – Early motivational theories, Directing & Leadership:- X Theory, & Y Theory, Hawthorne & Tinstone studies Leadership. Definition, Stogdill trait theory, Managerial grid, Fiedlers contingency approach. Leadership andchange-EffectiveCommunicationskillsfordirecting--Barriersof communication.	10
6	**Controlling:**-Concept,NatureandImportance-Essentialsof Control - Requirements of an Effective Control System – Behavioural Implications of Control – Techniques of Managerial control - Co-ordination – Need for co-ordination – Types of Co-ordination - Techniquesof Coordination- Cooperation.Supervision--Positionof a supervisor – Qualities of a good– Essential requirements of effective supervision.	6
Totallectures		42

SuggestedTextBook(s):

1. Stoner,Freeman,GilbertJr.:Management,6th Edition,Pearson,2018.
2. HKoontz,HWeihrichandMVCannice:EssentialsofManagement,11th Edition,TMH,2020.

SuggestedReferenceBook(s):

1. RS Gupta, BD Sharma and NS Bhalla: Principles and Practice of Management, 9th Edition, Kalyani Publisher, 2016.
2. ChuckWilliams:Management,5th Edition,SouthWesternCollegePublishing,2012.
3. JRSchermerhorn,DGBachrach:IntroductiontoManagement,13th Edition,Wiley,2017.
4. LMPrasad:PrinciplesandPracticeofManagement,10th Edition,SultanChandandSons,2019

EvaluationScheme:

S.No	Exam	Marks	Duration	Coverage/ScopeofExamination
1	T-1	15	1Hour.	SyllabuscovereduptoT-1
2	T-2	25	1.5Hours	SyllabuscovereduptoT-2
3.	T-3	35	2Hours	EntireSyllabus
4.	TeachingAssessment	25	Entire Semester	Assignment(2)-10 Quizzes(2) -10 Attendance-5

CourseOutcomes(COs)contributiontotheProgrammeOutcomes(POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	3	2	2	3	3	2	3	**2.6**
CO2	3	3	2	2	3	3	2	3	**2.6**
CO3	3	3	2	2	3	3	2	3	**2.6**
CO4	3	3	3	3	3	3	3	3	**3.0**
Average	**3**	**3**	**2.3**	**2.3**	**3**	**3**	**2.3**	**3**	**2.7**

Business Communication

COURSE CODE:

COURSE CREDITS: 3

CORE/ELECTIVE: Core

L-T-P: 2-1-0

Course Objectives

1. The students will be able to analyze different communication concepts and situations to make choices about the most effective and efficient ways to communicate.
2. The student will learn to deliver effective presentations in contexts that may require power point, extemporaneous or impromptu oral presentations.
3. The student will learn to write effective business documents using appropriate styles.
4. The student will learn to design effective resumes, and write effective emails, letters and reports
5. Students will be able to understand and apply negotiation and conflict resolution skills in various business situations

Course Outcomes:

S. No	Course Outcomes	Level of Attainment
CO-1	Understand and learn the concepts of better and effective communication	**Familiarity**
CO-2	Enable students to prepare better Power Point Presentations with clarity of expression and appropriate language.	**Assessment**
CO-3	Help make communication better by learning the nature and mechanics of effective writing	**Assessment**
CO-4	Design effective resumes, and write effective emails, letters and reports	**Usage**
CO-5	Help understand and apply fundamental negotiation and conflict resolution skills	**Usage**

Course Contents:

Chapter	Topics	Hours
1	• Introduction to Business communication: Meaning and Importance • Importance of communicating effectively: Theories of communication • Understanding interpersonal Communication: The Johari Window Model • Stages of communication: Ideation, encoding, transmission, decoding & response • Feedback in organisations • Barriers to effective communication: Physical, Social, Psychological, Cultural, Language & organizational • Guidelines to overcome communication barriers	5
2	**Nonverbal Communication** • Nonverbal communication defined • Functions of nonverbal communication: Conveying meanings, expressing emotion, presenting self, managing interactions, defining relationship • Nonverbal Communication Codes: Communicating through Body Movements, Voice, Touch, Personal Space, Time, Physical Appearance	4
3	**Effective Presentation Skills**	4

	• Planning Presentations • Making PowerPoint Presentations • Pre- presentation jitters • Preparation and Practice • Delivering the Presentation • Qualities of a Skillful Presenter • Capturing and Maintaining Attention • Handling Questions	
4	**Communication Strategies & Professional Writing** • Principles of Business Writing • Seven C's of Communication • Writing Process: Pre-writing, writing & post-writing • Neutral and positive messages, Negativemessages,Persuasivemessages • Writing Letters, Emails, Resume,Cover Letter	6
5	**Report Writing** • Functions of a report • Types of reports • Format of the reports • Use of Visuals-Charts, Tables, Pictures	3
6	**Interview Techniques** • Analysing yourself and the market • Different types of interview questions • Making a positive first impression • Handling difficult Question	2
7	**Negotiation and Conflict Resolution** • Introduction to negotiations, Negotiation fundamentals, Negotiation dynamics • Communication problems and skills for conflict resolution • Types of conflicts • Conflict resolution skills	4
Total Lectures		28

Teaching Methodology

The course will be delivered with the help of lectures, interactive sessions, presentations, and cases.

Text Book:

Lehman, Carol M.; Dufrene, Debbie D.; Sinha, Mala. (2012).*BCOM*.Cengage Learning

Suggested Readings:

Mukherjee H.S.(2013).*Business Communication-connecting at work*.Oxford University Press.

Lesikar R.V, and Flately M.E.(2006). *Basic Business Communication Skills for empowering the internet generation*.McGraw Hill Education.

Kristen Bell DeTienne.(2011). *Guide to Electronic Communication*. Pearson

William, Krisan, Logan, Merrier. (2012). *Communicating in Business*.Cengage Learning

Attainment of POs through Cos

Sr. No	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	AVG
CO-1	3	1	3	3	1	2	3	3	2.4
CO-2	2	1	3	3	1	3	1	3	2
CO-3	2	1	3	3	1	2	1	2	2
CO-4	3	1	3	3	1	2	2	3	1.9
CO-5	3	2	3	3	3	1	3	3	2
Average Score	2.6	1.2	3	3	1.4	2	2	2.8	2.06

Water Quality Lab

COURSE CODE : 23B17CE372

COURSE CREDITS: 1

CORE/ELECTIVE: CORE

L-T-P: 0-0-2

Course Objectives:

1. Physical Characteristics of water samples.
2. Inorganic Constituents of water samples.
3. Biological Characteristics of water samples.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Identify environmental problems arising due to engineering and technological activities and the science behind those problems.	Familiarity
CO-2	Determination of various inorganic impurities in water samples	Assessment
CO-3	Determine physical, chemical and biological characteristics of water and waste water samples.	Assessment
CO-4	Analyze material balance for different environmental systems.	Usage

List of Experiments:

S. No	Description	Hours
1	Determination of pH and Temperature of water and wastewater sample.	2
2	Determination of total solids, suspended solids and dissolved solids of water and wastewater sample.	2
3	Determination of specific conductivity of water and wastewater sample.	2
4	Determination of turbidity.	2
5	Determination of chlorides of water and wastewater sample.	2
6	Determination of type and extent of alkalinity of water and wastewater sample.	2
7	Determination of type and extent of acidity of water and wastewater sample.	2
8	Determination of temporary and permanent hardness.	2
9	Determination of optimum dose of coagulant.	2
10	Determination of Sulphates of water and wastewater sample.	2
11	Determination of Kjeldahl Nitrogen (Inorganic) of the sample.	2
12	Determination of dissolved oxygen.	2
13	Determination of Biological oxygen demand (BOD).	2
14`	Determination of Chemical oxygen demand (COD).	2
Total Lab Hours		**28**

Suggested Resources:

1. Standard methods for the examination of water and wastewater. (2012). 21st Edition, Washington: APHA.

2. Sawyer, C. N., McCarty, P. L., and Perkin, G.F., Chemistry for Environmental Engineering and Science, 5th edition McGraw-Hill Inc., 2002

3. Kotaiah, B., and Kumara Swamy, N., Environmental Engineering Laboratory Manual, Charotar Publishing House Pvt. Ltd., 1st Ed., 2007

4. Mathur, R.P., Water and Wastewater testing: A laboratory Manual (2013).

Evaluation Scheme:

S. No	Exam	Marks
1	Mid Sem. Evaluation	20 Marks
2	End Sem. Evaluation	20 Marks
3	Attendance	15 Marks
4	Lab Assessment	45 Marks

Course Outcomes (COs) contribution to the Program Outcomes (POs)

Course Outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	3	3	3	2	2	1	1	1	1	1	1	**1.83**
CO-2	3	3	3	3	3	1	1	1	1	1	1	3	**2.00**
CO-3	3	3	2	3	2	3	2	1	1	1	2	1	**2.00**
CO-4	3	3	3	2	3	2	1	1	1	1	1	1	**1.83**
Average	**3**	**3**	**2.75**	**2.75**	**2.5**	**2**	**1.25**	**1**	**1**	**1**	**1.25**	**1.5**	

Geomatics Lab

COURSE CODE: 23B17CE371

COURSE CREDITS: 1

CORE/ELECTIVE: CORE

L-T-P: 0-0-2

Course Objectives:

1. To get students familiar about the usage and working principle of different surveying instruments
2. Application of instruments to calculate various parameters such as horizontal angles, ground elevations, vertical distance, vertical angles, horizontal distance etc.
3. Able to plot the ground features in the maps with the help of plane table survey.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Calculate horizontal angles, bearing of lines, and measurement of horizontal distance, ranging of line using different instruments in the field.	Assessment
CO-2	Able to perform different types of leveling operation to be performed in the field, knowledge of establishing BM.	Assessment
CO-3	Able to measure vertical distance, vertical angles, horizontal distance.	Assessment
CO-4	Able to plot the ground features in the field with the help of plane table survey.	Assessment
CO-5	Understanding of using Total Station, Tacheometer, Levels in the field.	Assessment

List of Experiments

Sr. No.	Description	Hours
1	To plot a traverse of a given area with the help of compass/theodolite and a chain.	2
2	To establish benchmark at given site by performing fly leveling.	2
3	To work out difference of elevation between two points by reciprocal leveling.	2
4	To determine the position of station occupied by plane table using three-point problem.	2
5	To study the different parts of a Theodolite and measure the horizontal angles between two lines by method of repetition	2
6	To locate the points at desired locations in the field by the method of intersection.	2
7	Find out the horizontal distance and difference of elevation between two Points by fixed hair of tacheometry.	2
8	Introduction to Total Station	2
9	Measuring height of the building with the help of Total Station	2
10	Find out relative elevations of the ground using Total station	
11	Understanding and analyzing parallax and stereo pairs using pocket stereoscope	2
		22

Suggested/Resources:

1. S. K. Duggal: Surveying, 3rd Edition, Tata McGraw-Hill Publishing Company ,2012
2. A.M.Chandra: Plane Surveying,2nd Edition, New Age International Publishers, New Delhi,2006
3. B.C.Punmia: Surveying-1, Surveying-2, Laxmi Publication Delhi,2005
4. N.N.Basak: Surveying &Leveling Tata McGraw Hill Publishing Com. New Delhi

Reference Books:

1. B.C.Punmia : Surveying-3, Laxmi Publication Delhi, 2005

Evaluation Scheme:

1	Mid Sem. Evaluation	20 Marks
2	End Sem. Evaluation	20 Marks
3	Attendance	15 Marks
4	Lab Assessment	45 Marks
	Total	100 marks

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Average
CO-1	3	3	3	3	2	2	1	3	3	3	2	3	**2.58**
CO-2	3	3	3	3	3	2	2	3	3	3	2	3	**2.75**
CO-3	3	3	2	3	2	3	2	3	3	3	2	3	**2.67**
CO-4	3	3	3	2	3	2	1	3	3	3	2	3	**2.58**
CO-5	3	2	3	2	3	2	2	3	3	3	2	3	**2.58**
Average	**3**	**2.8**	**2.8**	**2.6**	**2.6**	**2.2**	**1.6**	**3**	**3**	**3**	**2**	**3**	

PROFESSIONAL COMMUNICATION PRACTICE

COURSE CODE: 23B11HS212

COURSE CREDITS: 0 (AUDIT)

CORE/ELECTIVE: CORE

L-T-P: 0-1-0

Pre-requisite: None

Course Objectives:

1. Improve spoken and written communication in English.
2. Develop students' interpersonal communication ability in the professional settings.
3. Learn to design effective resume and cover letter
4. Understand how to make effective and impressive presentations using digital media.
5. Develop the confidence to perform well in interviews.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Improved spoken and written communication in English.	Familiarity
CO-2	Develop the ability to interact effectively in the professionalsetting.	Familiarity
CO-3	Design a good resume and be able to update it from time totime.	Assessment and Usage
CO-4	Make effective and impressive presentations using digital media	Usage
CO-5	Develop the confidence to perform well in interviews.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Professional Communication and CV/Resume Writing (W)** An introduction to professional communication' Introduction to CV writing, difference between a CV and a Resume, samples of good CVs/Resumes and cover letters, Drafting Resumes	3
2	**Personal (L&S)Interview** Interviewing for employment, Types of interviews, Preparing for the personal interview. Practice session for interviews	3
3	**Text speak: (Language Lab)** Writing: What will I learn?, Text speak: an overview, Text terms (1), Text terms (2), Inviting people to do things, Responding appropriately, Text speak and speaking, Quick quiz: text speak	1
4	**Presentation skills(L,S&W)** Making professional presentations, using effective body language, usingvisuals effectively.	3
5	**Essays: Descriptive: Software: Practical Writing (Language Lab)** What will I learn?, Planning your essay (1), Planning your essay (2), Words and senses (1), Vocab focus: choosing precise words, Linking ideas (1), Linking ideas (2), Quick quiz: descriptive essays	1
6	**Technical Report Writing (R&W)/Technology and communication (Language Lab)** A Short Report: Hotel and restaurants (II), Software: Practical Writing: What will I learn? Restaurant reviews: structure, Vocab: Hotels and restaurants, Topic sentences (1), Mixing sentences (1), Mixing sentences (2), Past or Present?, Write two reviews, Quick quiz: a short report Lab work: Write any one review	2
7	**Job Applications: Your Online Profile, Software: Practical Writing (Language Lab)** What will I learn? Your online profile: overview, What does a profile look like The structure of a profile Proofreading: grammar Spell checking, Writing focus: punctuation marks Practice proofreading Quick quiz: your personal profile Lab work: Write your personal profile	1
Note:	Report writing and Creating a LinedIn Profile will be a part of continuous evaluation and hence should be discussed throughout thesemester.	
Total lectures		**14**

Evaluation Scheme:

S. No	Exam	Marks
1	Resume and Cover Letter	20
2	LinkedIn Profile	10
3.	PI	20
4.	PPT	20
5	Lab work (Software)	10
6	Lab File	10
7	Attendance (5)	10

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	1	2	2	2	1	3	1	1	1	3	2	3	1.83
CO-2	1	2	2	2	1	3	1	1	3	3	2	3	2
CO-3	0	0	0	1	1	3	0	1	1	3	0	2	1
CO-4	1	2	1	2	2	3	1	0	3	3	2	2	1.83
CO-5	0	0	1	2	1	3	0	0	2	3	1	3	1.33
Average	0.6	1.2	1.2	1.8	1.2	3	0.6	0.6	2	3	1.4	2.6	1.6

UNIVERSAL HUMAN VALUES II-Understanding Harmony

COURSE CODE: 23B11HS211

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 2-1-0

Pre-requisite: None

Course Objectives:

1. Development of a holistic perspective based on self-exploration about themselves (human being), Family, society and nature/existence.
2. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/ existence
3. Strengthening of self-reflection.
4. Development of commitment and courage to act.

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Self Awareness, Social awareness (family, society, nature).Sustainability in relationships and Critical thinking	Familiarity
CO-2	. Introspection and self reflection	Assessment
CO-3	Sensitive to commitment towards human values, human relationship and human society	Usage
CO-4	Developing commitment and courage	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Course Introduction - Need, Basic Guidelines, Content and Process for Value Education** 1. Purpose and motivation for the course, recapitulation from Universal Human Values-I 2. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration 3. Continuous Happiness and Prosperity- A look at basic Human Aspirations 4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfillment of aspirations of every human being with their correct priority 5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario 6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels.	6
2	**Understanding Harmony in the Human Being - Harmony in Myself!** 7. Understanding human being as a co-existence of the sentient 'I' and the material 'Body' 8. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility 9. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer) 10. Understanding the characteristics and activities of 'I' and harmony in 'I' 11. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail 12. Programs to ensure Sanyam and Health.	6
3	**Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship** 13. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship 14. Understanding the meaning of Trust; Difference between intention and competence 15. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship 16. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals	5

	17. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.	
4	**Understanding Harmony in the Nature and Existence - Whole existence as Coexistence** 18. Understanding the harmony in the Nature 19. Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self regulation in nature 20. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space 21. Holistic perception of harmony at all levels of existence. Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.	5
5	**Implications of the above Holistic Understanding of Harmony on Professional Ethics** 22. Natural acceptance of human values 23. Definitiveness of Ethical Human Conduct 24. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order 25. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems. 26. Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions and organizations	6
Total lectures		**28**

Suggested Text Book(s):

1. Text Book 1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010
2. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amarkantak, 1999. 2. Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004

Suggested Reference Book(s):

1. The Story of Stuff (Book).
3. The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
4. Small is Beautiful - E. F Schumacher.
5. Slow is Beautiful - Cecile Andrews
6. Economy of Permanence - J C Kumarappa

7. Bharat Mein Angreji Raj - PanditSunderlal
8. Rediscovering India - by Dharampal
9. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
10. India Wins Freedom - Maulana Abdul Kalam Azad
11. Vivekananda - Romain Rolland (English)
12. Gandhi - Romain Rolland (English)

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes (2) - 10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO-1	3	2	2	2	3	3	3	3	**2.6**
CO-2	2	3	3	2	3	2	3	3	**2.6**
CO-3	3	2	3	3	2	2	3	3	**2.6**
CO-4	3	3	2	2	2	2	2	3	**2.4**
Average	**2.8**	**2.6**	**2.6**	**2.4**	**2.6**	**2.4**	**2.8**	**3**	**2.5**

Introduction to Computational Mechanics

COURSE CODE: 23B11CE314

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Course Objectives:

1. To make the students to know the importance of this subject in the field of engineering particularly Civil Engineering.
2. To make them learn the fundamentals of Mechanics, equation of static equilibrium & dynamic equilibrium of particles and rigid bodies.
3. To learn importance of trusses, beams and frames in civil construction.
4. To learn kinematics, kinetics of particle and rigid body, related principles.
5. To implement the above know-how to solve practical problems.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Analyse the beam under flexure for different loadings and to draw shear force and bending moment diagram	Familiarity
CO-2	Analyse planar and spatial systems to determine the forces in members of trusses, frames and problems related to friction	Assessment
CO-3	Determine the resultant force and moment for a given system of forces; Determine the centroid and second moment of area	Assessment
CO-4	Determine the Simple stresses and strains, Hooke's Law, thermal stresses and its application	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction:** Basic terminologies in mechanics, units,fundamentals of statics,composition and resolution of forces,moments, couples and their Application. types of beams, loadings and calculation of support reactions	8
2	Distributed forces, centre of gravity and moment of inertia: - moment of inertia of a composite section,moment of inertia of a built-up section, theorems of pappus-guldinus.	7
3	Analysis of perfect frames (analytical method and graphical method), perfect frame, imperfect frame and deficient frame, redundant frame, method of joints, method of sections., equilibrium of strings, shape of a loaded string, tension in a string carrying point loads and uniformly distributed load, supports at different levels	8
4	Physical and mechanical properties of structural materials, simple stresses and strains, stress-strain relation, elastic constants and their relationship, composite/compound bars, thermal stresses, thermal stresses in compound bars, hoop stresses.	8
5	Virtual work: concept of virtual work, sign conventions, Application of the principle of virtual work on beams carrying point load, carrying uniformly distributed load, application of principle of virtual work on ladders, application of principle of virtual work on lifting machines.	8
6	Analysis of simple beams and trusses using STADD PRO	3
Total lectures		**42**

Suggested Text Book(s):

1. S. S. Bhavikatti- Engineering Mechanics- New age International (P) limited publishers
2. R.S. KHURMI- Engineering Mechanics - S. Chand & Company Ltd
3. Anil Kumar Dhiman, Poonam Dhiman and D.C Kulshreshtha: Engineering Mechanics, Static and Dynamics, Publisher: MacGraw Hill Education

Suggested Reference Book(s):

1. Beer & Johnston : Vector Mechanics; Static & Dynamics, Publishers: Tata McGraw

Hill

Other useful resource(s):

1. Link to NPTEL course Contents: https://nptel.ac.in/courses/122104015/
2. Link to topics related to course:

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignments - 10 Attendance -05 Quiz- 10

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	2	2	2	2	2	1	1	1	2	2	2	2	**1.75**
CO-2	2	3	3	3	3	1	1	1	2	2	1	2	**2.00**
CO-3	2	2	2	2	3	1	1	1	2	2	1	2	**1.75**
CO-4	2	3	3	3	2	1	1	1	2	3	2	2	**2.08**
Average	**2**	**2.5**	**2.5**	**2.5**	**2.5**	**1**	**1**	**1**	**2**	**2.25**	**1.5**	**2**	

Civil Engineering Materials and Energy Efficient Building

COURSE CODE: 23B11CE313

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Course Objectives:

1. To introduce the students to a wide range of materials that can be used in construction and maintenance of civil engineering project.
2. To gain understanding of properties and usage of bricks, stones, timber and miscellaneous materials used in construction.
3. IntroducinggreenRatingSystemsandEnergyEfficientBuildings.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Learn about properties and usage of bricks, stones, timber and miscellaneous materials used in construction.	Familiarity
CO-2	Learn about various tests conducted on civil engineering materials.	Familiarity
CO-3	Learn how various civil engineering materials usage during a construction work.	Usage
CO-4	Learn concepts of energy efficiency in building.	Usage
CO-5	IntroducinggreenRatingSystemsandEnergyEfficientBuildings.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction to Civil Engineering Material:** Scope, selection criteria of construction material, classification and properties of civil engineering material.	3
2	**Building Stones:** Introduction, characteristics of good building stones, selection, and use of stone, dressing of stones.	4
3	**Bricks :** Introduction,constituents of brick earth, manufacture of bricks, good qualities of bricks, classification of bricks, standard test for bricks	4
4	**Cement:** Introduction, type, properties and uses of cement, ingredients of cement, manufacture of cement, composition and function of cement clinker, standard test of cement, admixtures. **Concrete:** Introduction, classification of concrete, water-cement ratio, strength and workability of concrete, defects, non-destructive testing of concrete.	9
5	**Mortar:** Introduction, classification of mortar, function of mortar, selection of mortar for civil engineering works. **Timber:** Introduction, growth and structure of tree, classification of tree, characteristics of good timber, defect of timber, seasoning of timber, preservation of timber	6
6	**Asphalt, Bitumen, Tar and Miscellaneous Materials:** Type, properties and uses of asphalt, bitumen and tar, type, properties and uses of glass, plastic materials, insulating materials, gypsum products, composite materials.	6
7	**Energy Efficient Building:** Introduction, conventional versus energy efficient buildings, Energy efficiency and conservation requirements for existing buildings, IAQ requirement analysis.Green buildings rating Systems, climatological factors,materialspecifications and heat transfer principles, thermal performanceevaluation, heat loss from buildings, design of artificial ventilationsystem, carbon footprint estimation. Energy efficient lighting system design, LEED and TERI GRIHA ratings, performanceratings ofgreen buildings.Zeroenergy building.	10
Total lectures		**42**

Suggested Text Book(s):

1. S.K Duggal: Building Materials, 4th Edition, New Age International Publishers,2012
2. M.L Gambhir, Neha Jamwal, Building Materials, Mc Graw Hill, 2014
3. Mili Majumdar (ed.), Energy-efficient Buildings in India.

Suggested Reference Book(s):

1. Peter A. Thornton and Vito J. Colangela Prentice "Fundamental of Engineering Materials", Hall Publishing Company, 1985.
2. Parbin Singh "Civil Engineering Material", Katson Books,2008.
3. R.K.Rajput "Engineering Material", S. Chand & Company Ltd,2004.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignments (10) - 10 Presentation(1) -10 Attendance/Quiz -5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	2	2	2	2	2	1	1	1	2	2	2	2	**2**
CO-2	2	3	3	3	3	1	1	1	2	2	1	2	**2**
CO-3	2	2	2	2	3	1	1	1	2	2	1	2	**1.75**
CO-4	2	3	3	3	2	1	1	1	2	3	2	2	**2.0**
CO-5	2	2	3	3	3	2	2	1	3	2	2	2	**2.25**
Average	**2**	**2.4**	**2.6**	**2.6**	**2.6**	**1.2**	**1.2**	**1**	**2.2**	**2.2**	**1.6**	**2**	

Water Quality Engineering

COURSE CODE : 23B11CE312

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Course Objectives:

1. To apprehend water quality criteria and standards.
2. To understand the knowledge about sources, causes and impact of various pollutants in water.
3. To be abreast with physical, chemical and biological methods of water treatment.
4. To understand the process and designing of water supply and treatment systems.
5. Understand the software Application in water supply modelling.

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the different sources of raw water and the associated water demands from such sources.	Familiarity
CO-2	Understand the different treatment processes associated for supplying treated water for different uses and meeting the quality criterion of Indian standards.	Assessment
CO-3	Understand the importance of the disinfection process (purification) of treated water supply for domestic purposes.	Assessment
CO-4	Understand the different components of water distribution system including network analysis.	Usage
CO-5	Understand the impact of water pollutants on environment, self-purification and disposal standards using various modelling methods.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction**: Importance of planned water supplies; financing, planning and execution of modern water supply schemes. **Water demands**: Various types of demands; the per capita demand: variations in demand; design periods; population forecasting by various methods. **Sources of water**: Kinds of water sources and their characteristics; factors governing the selection of a source of water supply; storage capacity of impounded reservoir. **Quality of water**: physical, chemical and biological characteristics of water, common water borne diseases, standards of purified water for various purposes	10
2	**Treatment of water**: screening and types; aeration units; sedimentation; sedimentation tanks and their types; sedimentation aided with coagulation; classifications of filters and their constructional and operational details. **Water softening**: Importance of water softening; lime- soda process; zeolite process. **Miscellaneous treatment methods**: Removal of color, odor and taste, iron and manganese; fluoridation and de-fluoridation.	10
3	**Disinfection:** Methods of disinfection; chlorination and its types.	4
4	**Collection and Distribution of water:** Intakes and their design for lakes, streams and rivers; methods of distribution; concept of service and balancing reservoirs; capacity of distribution reservoirs; Design of water distribution systems; analysis of pipe networks by Hardy Cross method, equivalent pipe method, method of sections and Newton-Raphson method; Layout of distribution system; the house water connection; construction and maintenance of distribution systems. **Pipes-Joints-Fittings:** various types of conduits; testing and inspection; joints in pipes; valves in pipe line. **Pumps and pumping stations:** Types of pumps and their choice; pumping stations; economical diameter of rising main; hand pumps; pump testing; Water hammer and its control measures.	10
5	**Modelling techniques:** To connect various issues and themes related to availability of water, developing water stress index.Numerical problems using computer applications and software for data set generations.	8

Total lectures	42

Suggested Text Book(s):

1. J. S Birdie, G S Birdie: Water Supply and Sanitation Engineering, 9th Edition, Dhanpat Rai Publications, India, 2014.
2. Garg S.K: Environmental Engineering – Water Supply Engineering (Volume -1), Khanna Publishers, India, 2015.
3. B.C. Punmia, A.K. Jain, A.K. Jain: Water Supply Engineering, 2ndEdition, Laxmi Publications. India, 2016.
4. Integrated Computer Application in Water Supply: Application and Implementations for Systems Operation and Management by Bryan Coulbeck (Volume 2), Annotation copyright Book News, Inc. Portland, Or.

Suggested Reference Book(s):

1. H. Peavy, D. Rowe, G. Tchobanoglous "Environmental Engineering", Ist Edition, McGraw Higher Education Publications, India, 2017.

Other useful resource(s):

1. Link to NPTEL course Contents:https://nptel.ac.in/courses/105104102/Domestic%20water%20treat.htm

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignments (10) - 10 Presentation (1) -10 Attendance/Quiz -5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	2	2	2	2	1	1	1	1	2	2	2	2	**1.66**
CO-2	2	3	2	3	1	1	2	2	2	2	1	2	**1.91**
CO-3	3	2	2	2	2	1	2	1	2	2	1	2	**1.83**
CO-4	2	2	3	3	2	2	2	2	2	3	2	1	**2.16**
CO-5	3	2	3	3	1	2	2	1	3	2	2	1	**2.08**
Average	**2.4**	**2.2**	**2.4**	**2.6**	**1.4**	**1.4**	**1.8**	**1.4**	**2.2**	**2.2**	**1.6**	**1.6**	

Introduction to Geomatics

COURSE CODE: 23B11CE311

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Course Objectives:

1. To produce up-to-date *Engineering Plans* of the areas in which the work will be carried out.
2. To get familiarity with basic principles of surveying.
3. To ensure that the construction takes place in the correct relative and absolute position on the ground.
4. To get familiarity of advanced surveying Instruments and mapping techniques like Photogrammetry, Remote Sensing, GIS, and GPS.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Perform a boundary survey and preparation of engineering maps.	Familiarity
CO-2	Basic principles of various methods of surveying, and related problems.	Familiarity & Assessment
CO-3	Will be able to get correct relative and absolute position on the ground where construction is required.	Familiarity & Assessment
CO-4	Understanding of working of modern survey equipment sand Implement procedures for its use and care of field equipment.	Familiarity
CO-5	Understanding concepts of digital techniques in surveying like Remote sensing, GIS and GPS	Familiarity

Course Contents:

Unit	Contents	Lectures required
1	**Introduction:** History of surveying and mapping, importance of geomatics engineering, plane and geodetic surveying, concept of datum and map projection system, datums, geodetic coordinate system.	3
2	Measurement of horizontal distances, vertical angles and horizontal angles- concept of bearing, usage of compass, theodolite and tacheometer, source of errors.	4
3	**Measurements of elevations:** Instruments, levelling operations: profile levelling and cross section levelling, differential levelling, methods of levelling, errors in levelling, Contouring operations – methods of plotting; direct method and indirect methods- spot levelling, tacheometric method, method of plane tabling.	6
4	**Traverse surveying and Computations:** Methods of traversing, consecutive coordinates, errors, balancing of traverse, omitted measurement, area computations.	5
5	**Modern Field Survey Systems:** Principle of electronic distance measurement, modulation, types of EDM instruments, distomat, total station – parts of a total station – accessories –advantages and Application, global positioning, systems- segments, GPS measurements.	5
6	**Curves:** Elements of simple and compound curves – Method of setting out of simple circular curve – Elements of Reverse curve - Transition curve – length of curve – Elements of transition curve.	4
6	**GIS-** Introduction to GIS, types of data, components of GIS.GIS architecture, vector data models, raster data models	5
7	**Remote Sensing:** Introduction –Electromagnetic spectrum, interaction of electromagnetic radiation with the atmosphere and earth surface, remote sensing data acquisition: platforms and sensors; visual image interpretation; digital image processing, IRS satellite constellation, application in civil engineering.	5
8	**Photogrammetry Surveying:** Fundamentals. Types of Photographs, Geometry of Photographs, and Concept of Relief Displacement. **Stereoscopy:** Determination of ground coordinates with parallax measurements. digital photogrammetry, digital image processing, concepts of digital maps, integration of information and analysis; microwave remote sensing	5
Total lectures		**42**

Suggested Text Book(s):

1. S. K. Duggal: Surveying, 3rd Edition, Tata McGraw-Hill Publishing Company ,2012
2. A. M. Chandra: Plane Surveying,2nd Edition, New Age International Publishers, New Delhi,2006
3. B. C. Punmia: Surveying-1, Surveying-2, Laxmi Publication Delhi,2005
4. N. N. Basak: Surveying &Leveling Tata McGraw Hill Publishing Com. New Delhi
5. Gopi S., Sathikumar R., Madhu N.: Advanced Surveying, Pearson, 2010

Reference Books:

1. B.C.Punmia: Surveying-3, Laxmi Publication Delhi, 2005

Suggested Reference Book(s):

1. Kavanagh, Barry F.: Surveying : Principles and Application, 7th Edition, Pearson EducationAsia,2006
2. A. M. Chandra: Higher Surveying 2nd Edition, New Age International Publishers New Delhi,2006
3. Clark David: Plane and Geodetic surveying for Engineers, vol-1 & vol-2,6th Edition, CBS Publishers, 2006.

Other useful resource(s):

1. Link to NPTEL courseContents: https://nptel.ac.in/courses/105107122/
2. Link to topics relatedtocourse:
   i. https://nptel.ac.in/courses/105107122/1-3
   ii. https://nptel.ac.in/courses/105107122/8-18
   iii. https://nptel.ac.in/courses/105107122/23-32
   iv. www.surveyofindia.gov.in/

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (5) - 10 Quizzes (2)-10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

CourseOutcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	2	3	1	2	2	2	3	2	3	2	3	**2.33**
CO-2	3	3	3	2	2	2	2	1	2	2	3	3	**2.33**
CO-3	3	3	3	2	3	2	1	2	3	3	2	3	**2.5**
CO-4	3	2	2	3	3	2	2	2	3	3	2	3	**2.5**
CO-5	3	3	2	3	3	1	2	2	2	3	3	3	**2.5**
Average	**3**	**2.6**	**2.6**	**2.2**	**2.6**	**1.8**	**1.8**	**2**	**2.4**	**2.8**	**2.4**	**3**	

PRODUCTION AND OPERATIONS MANAGEMENT

COURSE CODE: 24BBWHS431
COURSE CREDITS: 4
CORE/ELECTIVE: Core
L-T-P:3-1-0

Pre-requisite: None

CourseObjectives:

1. To understand the challenges faced by any organization in streamlining its production facility.
2. To understand the complexities of overall operations in any modern organisation.
3. To analyse the processes of an organization to understand how value can be created by efficiently managing operations.
4. To gain in depth knowledge on and creating competitive advantage through better operations management.
5. To gain insight into quality management as an inherent component of production and operation management.

S.No.	CourseOutcomes	Level ofAttainment
CO-1	Understand the intricacies of production and operations management.	Familiarity
CO-2	Understand the complexities of overall operations in any modern organization.	Assessment
CO-3	Analyse the processes of an organization to understand how value can be created by efficiently managing operations.	Assessment
CO-4	Gain indepth knowledge on creating competitive advantage through operations management	Usage
CO-5	Gain insight into quality management as an inherent component of production and operation management	Usage

CourseContents:

Unit	Contents	Lectures required
1.	Introduction to operations management: Operations and productivity.	3
2.	Operations strategy in a Global Environment,Supply Chain Processes Lean Supply Chains, Logistics and Distribution Management Global Sourcing and Procurement	6
3.	Nature and Scope of Production Management, Functions of Production Management, Production Systems, Responsibilities of Production Manager, Production Planning and Control, Objectives of Production Planning and Control.	7
4.	Types of Manufacturing systems, Product Design and development, Design of services	6
5.	Plant Location and Layout: Plant Location, Plant Location Methods, Factors affecting location, Plant layout, Types of plant layout and factors affecting plant layout	5

6.	Materials management: Inventory control, Economic Order Quantity (EOQ), Lead Time, Re-order Level, ABC Analysis, Stock keeping,	7
5.	Quality Management: Definition of quality, Evolution of quality management, Quality Control, Phases of Quality control, Quality assurance, Quality circles, Cost of Quality, TQM, JIT, Statistical Quality Control.	8
	Total LectureHours	**42**

SuggestedTextBook(s):

1. F. Robert Jacobs, Ravi Shankar, Richard B. Chase: Operations and Supply Chain Management, Mc Graw Hill, 2023.
2. Kanishka Bedi: *Production and Operations Management,* Oxford, 2013.

SuggestedReferenceBook(s):

1. Roberta S. Russell, Bernard W. Taylor, VenkataramanaiahSaddikuti, Pavan Kumar, Gudavalleti: Operations and Supply Chain Management, Wiley, 2023.
2. Jay Heizer, Barry Render, Chuck Munson, Amit Sachan: *Operations Management*, Pearson, 2017
3. S.N. Chary: Production and Operations Management, Mc Graw Hill, 2019.
4. Edward A. Silver (Author), David F. Pyke (Author), Douglas J. Thomas (Author): Inventory and Production Management in Supply Chains, CRC Press, 2021.

EvaluationScheme:

S.No	Exam	Marks	Duration	Coverage/ScopeofExamination
1.	T-1	15	1 Hour.	Syllabuscovered upto T-1
2.	T-2	25	1.5 Hours	Syllabuscovered upto T-2
3.	T-3	35	2 Hours	EntireSyllabus
4.	Teacher's Assessment	25	EntireSemester	ClassPerformance -10 Quizzes(2)-10 Attendance-5

Course Outcomes (COs) contribution to the ProgrammeOutcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	3	2	2	2	2	3	3	2.5
CO2	3	3	2	2	2	3	2	3	2.5
CO3	3	3	2	2	2	3	2	3	2.5
CO4	3	3	3	3	3	3	3	3	3.0
CO5	3	3	2	2	2	3	3	3	2.6
Average	**3**	**3**	**2.2**	**2.2**	**2.2**	**2.8**	**2.6**	**3**	**2.6**

IT TOOLS FOR BUSINESS

COURSE CODE:24BB7HS471

COURSE CREDITS: 2

CORE/ELECTIVE: CORE

L-T-P: 0-0-4

Pre-requisite: None

Course Objectives:

1. To enable the development of IT Skills in students which are essential in today's work culture. The course provides knowledge about various operating systems, packages used for different applications, data base concepts and operations.
2. To enable them to learn basis computing skills, which will enhance their employability in general.

Course Outcomes:

S. No	Course Outcomes	Level of Attainment
CO-1	Make meaningful representations of data in the form of charts and pivot tables.	Usage
CO-2	Analyze data using spreadsheets and using interpretation to make decisions.	Usage
CO-3	Generate word documents with appropriate formatting, layout, proofing.	Usage
CO-4	Manage data for generating queries, forms and reports in a database.	Usage

Course Contents:

Unit	Contents	Lab Hours required
1	**Spreadsheets:** Introduction: Concept of worksheets and workbooks, creating, opening, closing andsaving workbooks, moving, copying, inserting, deleting and renaming worksheets,working with multiple worksheets and multiple workbooks, controlling worksheet views, naming cells using name box, name create and name define. Using formulae and functions: Understanding absolute, relative and mixed referencing in formulas, referencing cells in other worksheets and workbooks, correcting common formula errors.	4
2	**Working with inbuilt function categories**: like mathematical, statistical,text, lookup, information, logical, database, date and time and basic financial functions.	4
3	**Consolidating worksheets and workbooks**: using formulae and data consolidate command Printing and Protecting worksheets:	2

	Adjusting margins, creating headers and footers, setting page breaks, changing orientation, creating portable documents and printing data and formulae. Implementing file level security and protecting data within the worksheet.	
4	**Creating charts and graphics:** Choosing a chart type, understanding data points and data series, editing and formatting chart elements, and creating sparkline graphics.	2
5	**Analyzing data using pivot tables:** Creating, formatting and modifying a pivot table, sorting, filtering and grouping items, creating calculated field and calculated item, creating pivot table charts, producing a report with pivot tables.	4
6	**Performing what-if analysis:** Types of what if analysis (manual, data tables, scenario manager), what-if analysis in reverse (goal-seek, solver), Exchanging data using clipboard, object linking and embedding.	4
7	**Wordprocessing:** Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders.Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders. Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa. Create newspaper columns, indexes and table of contents.	4
8	**Spellcheck and Mail-Merge:** Spellcheck your document using inbuilt and custom dictionaries, checking grammar and style, using thesaurus and finding and replacing text. Create bookmarks, captions and cross referencing, adding hyperlinks, adding sources and compiling and bibliography. **Mail merge:** Creating and editing your main document and data source, sorting and filtering merged documents and using merge instructions like ask, fill-in and if-then-else. Linking and embedding to keep things together.	4
9	**Powerpoint Presentation-** Introduction: Creating a blank presentation using a design template, basing a new presentation on an existing one, creating and managing slides, using content place holders, creating graphs, tables, diagrams, organization charts, inserting clip art and images. Viewing and navigating a presentation: Organizing ideas in outline view, using slide sorter to rearrange a presentation, previewing presentation in slide show, understanding master views, using title master, slide master, handout master and notes master, working with headers and footers, using hyperlinks, advanced navigation with action settings, navigation short hand with action buttons	4

10	Animation and multimedia: Using and applying animation schemes, custom animation, understanding sound file formats and video types, adding music, sound and video clips. Final presentation: Applying transition to slides, controlling transition speed, using hidden slides, using custom shows, using on screen pen and adding and accessing notes during a presentation.	**2**
11	**Databases:** Introduction to Database Development: Database Terminology, Objects, Creating Tables, working with fields, understanding Data types, changing table design, Assigning Field Properties, Setting Primary Keys, using field validation and record validation rules, Indexing, working with multiple tables, Relationships & Integrity Rules, Join Properties, Record manipulation, Sorting & Filtering.	**8**
12	**Select data with queries:** Creating Query by design & by wizard (Select, Make Table, Append, Delete, Cross Tab, Update, Parameterized Query, Find Duplicate and Find Unmatched), Creating multi table queries, creating & working with table joins. Using operators & expressions: Creating simple & advance criteria.	**6**
13	**Working with forms:** Creating Basic forms, working with bound, unbound and calculated controls, understanding property sheet, Working with Data on Forms: Changing Layout, creating Sub Forms, creating list box, combo box and option groups.	**4**
14	**Working with Reports:** Creating Basic Reports, Creating Header & Footer, Placing Controls on reports, sorting & grouping, Creating Sub reports.	**4**
Total lectures		**56**

Suggested Text Book(s):

1. Joan Lambert: Microsoft Office Step By Step (Office 2021 and Microsoft 365), 1st Edition, Microsoft Press, 2022
2. Shelly Cashman: Microsoft Office 365 & Office 2021 – Technology for Success, 1st Edition, Cengage, 2024

Suggested Reference Book(s):

1. Peter Weverka: Office for Dummies, 10th Edition, for Dummies, 2022
2. Anthony DeBarros: Practical SQL: A Beginner's Guide to Storeytelling with Data, 1st Edition, No Starch Press, 2018

Evaluation Scheme:

S. No	Exam	Marks
1	Mid Sem. Evaluation	20
2	End Sem. Evaluation	20

3.	Attendance	15
4.	Lab Assessment	45
	Total	100

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	1	1	2	2	1	3	2	3	1.88
CO2	1	1	3	2	2	3	2	3	2.13
CO3	3	1	3	3	2	3	2	3	2.50
CO4	3	1	3	3	2	3	2	3	2.50
Average	**2.00**	**1.00**	**2.75**	**2.50**	**1.75**	**3.00**	**2.00**	**3.00**	2.25

Oral and Written Communication

COURSE CODE:24BB1HS414
COURSE CREDITS: 3
CORE/ELECTIVE: CORE
L-T-P: 2-1-0

Pre-requisite: None

Course Objectives:

1. Students will be able to understand the concepts of effective oral and written communication.
2. Students will learn the importance of nonverbal communication and body language in diverse business environments.
3. Students will be able to effectively communicate orally in various communicative situations.
4. Students will understand and apply the concepts of effective business writing.
5. Students will be able to write effective business reports, proposals, letters and business plans.

Course Outcomes:

S No	Course Outcomes	Level of Attainment
CO-1	Help students understand the concepts of effective oral and written communication	Familiarity
CO-2	Help students understand the importance of non verbal communication and body language in diverse business environments	Familiarity and Usage
CO-3	Enable students to effectively communicate orally in various communicative situations	Assessment
CO-4	Help students understand and apply the concepts of effective business writing	Usage
CO-5	Enable students to write effective business reports, proposals, letters and business plans	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction to Oral and Written Business Communication** 1. Importance of effective oral and written communication for management professionals 2. Strategies to make communication better 3. Possible barriers to effective communication 4. Body language and Non-verbal Communication	3
2	**Oral Communication** 1. Types of oral communicative situations 5. Public speaking for management professionals 2. Extempore speech 3. Panel discussion 4. Group discussion 5. Elevator's pitch	8

	6. Business plans presentations	
3	**Personal Interviews and Presentations** 1. Self-introduction 2. Personal interview techniques 3. Do's and don'ts of personal interviews 4. Frequently asked questions and how to answer behavioral questions 5. Delivering presentations	7
4	**Written Communication** 1. Principles of effective business writing 2. Making effective Résumé and Curriculum Vitae (CV) 3. Using websites to create Résumé and CV 4. Writing business reports, Proposals, Letters and Business plans	**10**
	Total Lectures	**28**

Suggested Text Book (s):

1. Carol M Lehman, Debbie D Dufrene, Mala. Sinha,*BCOM – A South Asian Perspective.* Cengage Learning, 2016.

2. R.V Lesikar, M.E. Flatley, K Rentz, N Pande.*Business communication,* 12th Edition, McGraw Hill, 2009.

Suggested Reference Book (s):

1. H.S. Mukherjee: *Business Communication-connecting at work,* Oxford University Press, 2nd Edition 2013.

2. Kristen Bell De Tienne: *Guide to Electronic Communication,* Pearson, 1st Edition, 2011.

3. Karen Schneiter Williams, Joyce P Logan, A.C. Buddy Krizan, Patricia Merrier: *Communicating in Business, Cengage Learning, 1st Edition 2012.*

Evaluation Scheme:

S No	Examination	Marks	Duration	Coverage/Scope of Examination
1	T-1	15	1 Hour	Syllabus covered up to T-1
2	T-2	25	1.5 Hours	Syllabus covered up to T-2
3	T-3	35	2 Hours	Syllabus covered up to T-3
4	Teaching Assessment	25	Entire Semester	Assignments-10 Quizzes-10 Attendance-5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	AVG
CO-1	3	1	3	3	1	2	3	3	2.4
CO-2	2	1	3	3	1	3	1	3	2
CO-3	2	1	3	3	1	2	1	2	2
CO-4	3	1	3	3	1	2	2	3	1.9
CO-5	3	2	3	3	3	1	3	3	2
Average Score	2.6	1.2	3	3	1.4	2	2	2.8	2.6

FINANCIAL MANAGEMENT

COURSE CODE: 24BB1HS413
COURSE CREDITS: 4
CORE/ELECTIVE: Core
L-T-P:3-1-0

Pre-requisite: None

CourseObjectives:To understand the theoretical framework and issues of corporate finance and apply the concepts in practice so that one can make an optimal decision in corporate finance.

S.No.	CourseOutcomes	Level ofAttainment
CO-1	Understand the issues and framework of corporate finance.	Familiarity
CO-2	Analyze a firm's performance to determine its strengths and weaknesses, and be able to use financial analysis to improve performance.	Assessment
CO-3	Design a firm's financial needs and interpret its effect on the value of the firm.	Usage
CO-4	Analyze projects, how to apply them, and what to do if there are conflicting recommendations.	Usage
CO-5	Make optimal financial decisions by integrating the concepts of leverage, working capital and dividend.	Usage

CourseContents:

Unit	Contents	Lectures required
1.	Financial Management: An Overview Nature and scope of financial management, Role of finance function, Finance decisions of the firm, Objective function in finance, Agency costs and corporate governance, Financial management and accounting, Financial objectives and organizational strategy.	3
2.	Sources of Finance Role of financial markets, Financial Markets- segments, products and services, Long-term sources of finance - Equity, Debt, Debentures/Bonds, Lease financing, Venture capital.	3
3.	Comparative and Historical Analysis Balance sheet, Profit and loss account, Analysing financial statements – Ratio Analysis – liquidity ratios, capital structure ratios, working capital ratios, profitability ratios, valuation ratios, Interlinking the ratios- Dupont	4

	analysis, Uses and limitations of ratio analysis	
4.	Time Value of Money Basics of time value, Finding future value, Discounting and present value, Future value of annuity,, Present value of annuity, Periodicity of compounding and discounting, Equated monthly instalments	4
5.	Risk and Return Introduction, Measuring expected return, probability distribution, Risk, Measures of Risk, Normal distribution.	3
6.	Valuation and Corporate Governance Factors affecting valuation, Methods of valuation, Value based management, Measures of value, Economic Value Added (EVA), Corporate Governance.	4
7.	Cost of Capital Opportunity cost of capital, Weighted average cost of capital (WACC), Cost of Debt, Cost of preference capital, Cost of equity, Assigning weights, WACC as discount rate and risk, Pure play approach, Factors affecting cost of capital	3
8.	Capital Structure – Theory Common assumptions for analysis, Net income approach, Net operating income approach, Traditional approach, MM theory without and with corporate taxes, Capital structure with personal taxes, Leverage and financial distress, Trade-off theory, Pecking order theory, Asymmetric information theory	4
9.	Designing Capital Structure Operating leverage, Financial leverage, EBIT-EPS analysis, ROI-ROE analysis, Ratios and industry norms for capital structure, Defining target/optimal capital structure	3
10.	Dividend Decisions Relevance of dividend, Walter's model, Gordon's model, Irrelevance of dividend, MM theory of irrelevance, Home made dividend, Factors affecting dividend policy, Alternative form of dividend	3
11.	Capital Budgeting Features of capital budgeting decisions, Types of projects, Techniques of evaluation of capital budgeting decisions, Accounting rate of return, Payback period method, Net present value method, Internal rate of return, NPV and IRR – A comparison, Conflict between IRR and NPV, Advantages of NPV and IRR, Modified IRR, Projecting cash flows, Principles of cash flow projections, Cautions in capital budgeting and cash flow projection	5
12.	Working Capital Management Meaning of working capital, Scope of working capital management, Working capital needs of different types of businesses, Operating cycle and its relevance for WCM, Working capital financing policies, Working capital policy, Estimation of working capital requirements	3

	Total lectures	42

SuggestedTextBook(s):

1. Rajiv Srivastava and Anil Misra: *Financial Management,* Oxford University Press, 2011
2. R.Narayanaswamy:*FinancialAccounting,AManagerialPerspective*,PHILearningPvt.Ltd.,2014

SuggestedReferenceBook(s):

3. I. M. Pandey: Financial Management, Vikas Publishing House, 2021.
4. Eugene F. Brigham: Fundamentals of Financial Management, Thomson Learning, 2021.
5. Prasanna Chandra: Financial Management, Tata McGraw Hill, 2022.

EvaluationScheme:

S.No	Exam	Marks	Duration	Coverage/ScopeofExamination
1.	T-1	15	1 Hour.	Syllabuscovered upto T-1
2.	T-2	25	1.5 Hours	Syllabuscovered upto T-2
3.	T-3	35	2 Hours	EntireSyllabus
4.	TeachingAssessment	25	EntireSemester	ClassPerformance -10 Quizzes(2)-10 Attendance-5

Course Outcomes (COs) contribution to the ProgrammeOutcomes (POs)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO-1	3	3	2	2	3	3	2	3	2.6
CO-2	3	3	2	2	3	3	2	3	2.6
CO-3	3	3	2	2	3	3	2	3	2.6
CO-4	3	3	3	3	3	3	3	3	3.0
CO-5	3	3	3	3	3	3	3	3	3.0
Average	3	3	2.4	2.4	3	3	2.4	3	2.8

HUMAN RESOURCE MANAGEMENT

COURSE CODE: 24BB1HS412

COURSE CREDITS: 4

CORE/ELECTIVE: CORE
L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To demonstrate an understanding of key terms, theories/concepts and practices within the field of HRM
2. To demonstrate competence in development and problem-solving in the area of HR Management
3. To provide innovative solutions to problems in the fields of HRM
4. To be able to identify and appreciate the significance of the ethical issues in HR

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Competency to understand the various functions of Human Resource and HRIS in organization	Familiarity
CO-2	Integrated perspective on role of HRM in modern business. Ability to plan human resources and implement techniques of job design	Assessment
CO-3	Identify how wellness, training and work-life balance policies impact retention	Usage
CO-4	Apply best practices in performance management, performance appraisal, and employee development	Usage
CO-5	Ability to handle employee issues, standards of employment law and techniques for employee retentionand evaluate the new trends in HRM	Usage

Course Contents:

Unit	Content	Lectures required
1	**Introduction to Human Resource Management**: Concept of HRM and Evolution of HRM. Functions and Role of HR Manager, The concept of job analysis, Job description, Job specification, Job enrichment, Job rotation, Job enlargement, Challenges before HRM	8
2	**HR Procurement**:Human Resource planning, Concept and importance of HRP .HR planning process.Concept of	8

	Recruitment, Factors affecting recruitment. Concept and importance of selection, Stages in selection process. Concept and importance of Induction	
3	**Training and Development**: Meaning and importance of Training Stages involved in training process (Training need Identification, Design of training, Implementation of training, Evaluation of training) On the job and off the job training method The concept of Management Development program	**8**
4	**Compensation management and Performance appraisal**: The Concept and objectives of Compensation management. Employee remuneration factors, Fringe benefits. Concept and objectives of Performance Appraisal Performance Appraisal Process. Performance appraisal methods.	**10**
5	**Managing employee relations**:Ethics, justice and fair treatment in HR Management, Labour Relations and Collective Bargaining, Employee Safety and Health, Managing Global Human Resources	**4**
6	**Strategic Human Resource Management:** HR's strategic challenges and Competitive Advantage. Creating astrategy-oriented HR System.Improving productivity through HRIS	**4**
	Total	**42**

Suggested Text Book(s):

1.Dessler, G.: Human Resource Management. New Delhi: Prentice Hall, 2010

2. Basak, S. P.: Human Resource Management: Text & Cases.: Pearson, 2012

Suggested Reference Book(s):

1.Rao, P. Subba (2014): Essentials of Human Resource Management & IndustrialManagement: Text & Cases. New Delhi: Himalaya Publication.

2. Armstrong, M. (2010) :Handbook of HRM Practice. USA: Kogan Page

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3	T-3	35	2 Hours	Entire Syllabus
4	Teaching Assessment	25	Continuous evaluation	10 marks case study

				10 marks case study 5 marks Class participation

Sr No	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average Score
CO-1	3	3	3	3	3	3	3	3	3
CO-2	3	3	2	2	2	3	3	3	2.6
CO-3	2	3	3	3	2	3	3	3	2.75
CO-4	2	3	3	3	2	3	3	3	2.75
CO-5	3	3	3	3	2	3	3	3	2.8
Average Score	2.6	3	3	3	2.2	3	3	3	2.85

BUSINESS RESEARCH

COURSE CODE:24BB1HS411

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To provide an exposure to the students pertaining to the nature and extent of research orientation, which they are expected to possess when they enter the industry as practitioners.
2. To give them an understanding of the basic techniques and tools of business research and its application in business decision making.
3. To develop scientific thinking for critically analyzing management problems and develop basic knowledge on qualitative, quantitative and mixed methods research, as well as relevant ethical and philosophical considerations.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand and comprehend the nature, concept and scope of business research	Familiarity
CO-2	Understand the concepts of different types design, data collection methods	Assessment
CO-3	Demonstrate the ability to choose methods appropriate to research aims and objectives and Develop skills in qualitative and quantitative data analysis	Usage
CO-4	Identify and prepare various types of business research reports.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction:** Defining Business Research, Roadmap to learn Business Research, Scientific Process of Research, Methods used, Designing Research Design.	4

2	**Measurement and Scaling:** What should be measured, Scale of measurement, Four Levels of Data Measurement, Criteria of Good Measurement, Measurement Scale, Factors in selecting Appropriate Measurement Scale, Understanding and Designing Questionnaire	6
3	**Sampling and Sampling Distributions:** Sampling process, Sampling Design, Probability and Non-Probability Sampling, Errors in Sampling, Sampling Distribution	6
4	**Sources and Collection of Data:** Meaning, sources, benefits and limitations of Secondary Data Sources, Primary Data Sources and Experimentations	6
5	**Statistical Inference:** Hypothesis testing for Single Population, Hypothesis testing for to Populations, One Way and Two Way ANOVA, Hypothesis Testing for Categorical Data (Chi-Square Test)	13
6	**Non-Parametric Statistics:** Runs Test for Randomness of Data, Mann–Whitney U Test, Wilcoxon Matched-Pairs Signed Rank Test, Kruskal–Wallis Test, Friedman Test, Spearman's Rank Correlation	5
7	**Report Writing:** Organization of the Written Report, Tabular Presentation of Data, Graphical Presentation of Data	2
Total lectures		42

Suggested Text Book(s):

1. Naval Bajpai: Business Research Methods, 2nd Edition, Pearson, 2019.

Suggested Reference Book(s):

1. Jonathan Wilson: Essentials of Business Research, 2nd Edition, Sage, 2024.
2. Roger Bougie and Uma Sekaran: Research Methods of Business – A Skill Building Approach, 8th Edition, Wiley, 2021.
3. Donald R. Cooper, Pamela S. Schindler and J.K. Sharma: Business Research Methods, 12th Edition, Mc Graw Hills, 2018.
4. Pervez Ghauri, Kjell Gronhuag and Roger Strange: Research Methods in Business Studies, 5th Edition, Cambridge University Press.

EvaluationScheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes(2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Av
CO1	2	2	3	1	2	2	3	3	2.25
CO2	2	2	3	1	2	3	3	3	2.38
CO3	3	2	3	1	2	3	3	3	2.50
CO4	3	1	3	2	2	2	3	3	2.38
Av	**2.5**	**1.75**	**3**	**1.25**	**2**	**2.5**	**3**	**3**	**2.38**

Course Content

KNOWLEDGE SYSTEMS IN ANCIENT INDIA

COURSE CODE: 24B1WHS732
COURSE CREDITS: 3
CORE/ELECTIVE: Elective
L-T-P: 3-0-0

Pre-requisite: None

Course Objectives:

1. To develop an understanding of the knowledge systems prevalent in ancient India
2. To understand the mechanisms of production, authentication, preservation and dissemination of knowledge in ancient India

SNo	Course Outcomes	Level of Attainment
CO1	The course will facilitate a generic understanding of the knowledge systems prevalent in ancient India .	Familiarity
CO2	The course will enable students to understand the specific mechanisms of production, authentication, preservation and dissemination of knowledge in ancient India.	Usage
CO3	The course will provide a detailed overview of a few specific knowledge traditions in ancient India such as science, technology, mathematics and linguistics.	Assessment
CO4	Course will equip the students to seek answers to contemporary technological issues from ancient Indian knowledge systems	Usage
CO-5	The course will enable the students to assess the relevance and practical application of ancient knowledge systems in contemporary world.	Assessment

3. To develop in-depth understanding on science, technology, mathematics and linguistics traditions of ancient India
4. To gain insights on the contemporary relevance and application of knowledge systems in ancient India
5. To equip students to find solutions to contemporary technological issues from ancient Indian knowledge systems.

Unit	Content	Lectures Required
1	Overview • Modern science and colonialism • Knowledge systems of non-western world • Knowledge systems of ancient world • Locating India and its epistemic communities • Methods of production, authentication and dissemination of knowledge • Classifications and typologies o Classification based on forms of knowledge o Classification based on sources of knowledge • Epistemologies of ancient India • Methodology, disciplinarity, methods and argumentations	7
2	Science and Technology in ancient India • Mathematics and approximation of pi • Ancient botany and medicinal practices in India • Political science in ancient India • Irrigation and water works • Scope and challenges in contemporary mosaic	7
3	Classical Linguistics: India and West • Saussure's view of Indian Classical Linguistics • Bloomfield on Panini • Influence of Indian Linguistics on Greek School of Thought Panini's Ashtadhyayi • Historical significance • Bhasa and Vaidiki (Spoken and Compositional Language) • Generative elements in Ashtadhyayi	6
4	Patanjali's Mahabhashya • A Philosophy of Grammar- Principles and Logic • Shiksha, Vyakarana and Nirukta Bhartrahari's Vakyapadiya • Concept of Sphota (Cognizance of the Sound) • Divisibility of Meaning • Role of Intuition in deciphering of meaning	8

	• Constituents of a sentence and Constituency Tests Postscript • Paninian School of thought- Legacy and Impact • The impact of Indian linguistic school on the systematization of alphabetic systems in contemporary times.	
5	Vedic Mathematics 1- Basic Computations • Complement and Subtraction • Multiplication- Specific numbers and Base (*Nikhilam* and *Urdha Tiryak*) • Algebra • Digital Roots • Division and Divisibility • Squares and Square roots of exact squares • Straight Squaring	7
6	Vedic Mathematics 2- Advanced Operations • Cubes and Cube roots of exact cubes • Straight Division • Square roots II • Trigonometry • Auxiliary Fractions • Mishrank or Vinculum • Simultaneous Equations	7
	Total	**42**

Suggested Text Book(s):

1. Arun Kumar Jha and Seema Sahay: Aspects of Science and Technology in Ancient India, 1st Edition, Routledge India, 2023
2. Prabha Shankar Dwivedi: Epistemology and Linguistics (Bhartrhari, Structuralism and Poststructuralism), 1st Edition, Motilal Banarasidas Publishers Pvt. Ltd, 2019.
3. Vandana Singhal: Vedic Mathematics for all Ages: A Beginner's Guide, 2nd Edition, Motilal Banarasidas Publishers Pvt. Ltd, 2017.
4. Atul Gupta: The Power of Vedic Maths, 2nd Edition, Jaico Publishing House, 2011

Suggested Reference Book(s):

1. N.V.P. Unithiri: Indian scientific traditions, 1st Edition, Calicut University Press, 2003.
2. J.J. Lowe: Modern Linguistics in Ancient India, 1st Edition, Cambridge University Press, 2024.

3. Emilie Aussant, Linguistics in Premodern India, Oxford Research Encyclopedia of Linguistics, 2018.

Evaluation Scheme

Si No.	Exam	Marks	Coverage/Scope of Examination
1	T-1	15	Unit 1 and 2
2	T-2	25	Till Unit 5
3	T-3	35	Till Unit 7
4	Attendance	5	
	Quiz	5	
	Written Assignment (Dr Ranjith)	5	
	Dr Atul Singh	5	
	Dr. Amit Srivastava	5	

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	AVG
CO1	3	3	2	1	X	3	2	2	1	1	1	3	2.0
CO2	2	2	1	2	1	3	2	1	2	3	2	3	2.0
CO3	3	2	2	1	1	3	1	1	1	1	2	3	1.75
CO4	3	2	2	2	1	3	3	2	2	3	3	3	2.42
CO5	3	3	2	3	1	3	3	3	2	3	3	3	2.67
AVG	2.8	2.4	1.8	1.8	0.8	3	2.2	1.8	1.6	2.2	2.2	3	2.13

SCIENCE, TECHNOLOGY AND SOCIETY

COURSE CODE:
COURSE CREDITS: 3
CORE/ELECTIVE: Elective
L-T-P: 3-0-0

Pre-requisite: None

Course Objectives:

1. To explore the role of cultural and societal factors in shaping scientific and technological progress.
2. To familiarise students with major theoretical perspectives in Science Technology and Society (STS).
3. To equip the students to analyse how these theoretical frameworks contribute to their understanding of science, technology, and society interactions.
4. To explore the social and ethical issues arising from scientific and technological advancements.
5. To foster an appreciation for more sustainable and inclusive scientific and technological practices.

Course Outcomes :

SNo	Course Outcomes	Level of Attainment
CO1	The course will facilitate an understanding of thecomplex relationship between science, technology, and society, including the social, cultural, political, and economic factors that shape scientific knowledge and technological developments.	Familiarity
CO2	The course will equip the studentsto critically evaluate contemporary and historical issues related to science and technology, considering ethical, environmental, and societal implications.	Usage
CO3	The course will guide the students to integrate insights from various disciplines such as sociology, history, philosophy, anthropology, and political science to analyse and understand science and technology in broader societal contexts.	Familiarity
CO4	The course will outline the specific ways in which advancements in science and technology influence the social, political and economic ordering of contemporary societies.	Assessment
CO5	The course will help to familiarise students with major theoretical perspectives in STS, and to enable them to analyse how the theoretical frameworks contribute to their understanding of science, technology, and society interactions.	Usage

Course Contents:

Unit	Content	Lectures Required
1	**Domains and Approaches:** Introduction to Science Technology and Society (STS), Sociology of Scientific Knowledge (SSK), History and Philosophy of Science, Sociology of Scientific Ignorance, Science, Engineering, and Public Policy Studies.	7
2	**Structure of Scientific Revolution:** Pre-Paradigmatic Stage, Normal Science, Paradigms as Exemplars, Paradigms as Disciplinary Matrices, The Scientific Community, Anomaly and Crisis	7
3	**Sociological Understanding of Science and Technology:** Robert Merton, Strong Programme, Edinburgh School, Bath School, Post-Normal Science, ANT, SCOT	7
4	**Social Construction:** Weak Social Constructivists, Strong Social Constructivists, Pure Constructivists, Co-Productionists, Critical Realism, Third Wave of Science Studies	7
5	**Theoretical Underpinnings:** Eurocentrism, Postcolonial Appreciation, Risk Theories, Technological Determinism, Reflexivity, Feminist Standpoints	7
6	**Sociological Understanding of Emerging Technologies:**AI and ML, Quantum Theory, Robotics, Block Chain, CRISPR	7
	Total	42

Suggested Text Book(s):

1. Giampietro Gobo and Valentina Marcheselli: Science, Technology and Society- An Introduction, 1st Edition, Palgrave Macmillan, 2022.
2. Steve Matthewman: Technology and Social Theory, 1st Edition, Bloomsbury Publishing, 2017.

Suggested Reference Book(s):

1. Ulrike Felt, Rayvon Fouché, Clark A. Miller and Laurel Smith-Doerr: The handbook of science and technology studies, 4th Edition, MIT Press, 2017.
2. Jennifer Croissant, Sal Restivo, and Wenda K. Bauchspies: Science, Technology, and Society: A Sociological Approach, 1st Edition, Blackwell Publishing Ltd, 2008.

Evaluation Scheme:

Si No.	Exam	Marks	Duration	Coverage/Scope of Examination
1	T-1	15	1 Hour.	Unit 1 and 2
2	T-2	25	1.5 Hours	Till Unit 5
3	T-3	35	2 Hours	Till Unit 7
4	Class participation	10	Entire Semester	Attendance, class engagements and seriousness.
5	Written Assignment	15	Entire Semester	The students are required to write a written assignment based on a topic related to the course

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Average
CO1	1	2	1	3	X	3	3	3	2	2	X	3	2.3
CO2	1	3	1	2	X	3	3	3	2	2	1	3	2.18
CO3	1	3	1	3	X	3	3	3	2	2	2	3	2.36
CO4	1	3	1	3	X	3	3	3	3	3	1	3	2.45
CO5	2	3	1	3	1	3	3	3	3	3	1	2	2.33
Average	1.2	2.8	1	2.8	0.2	3	3	3	2.4	2.4	1	2.8	2.32

S. No.	Course Code	Course Name	Link at NPTEL
1	24B2WCI802	ARTIFICIAL INTELLIGENCE: KNOWLEDGE REPRESENTATION & REASONING	https://archive.nptel.ac.in/courses/106/106/106106140/
2	23B2WHS702	PRINCIPLES OF ECONOMICS	https://onlinecourses.nptel.ac.in/noc23_ec06/preview
3	23B2WCE701	AVAILABILITY AND MANAGEMENT OF GROUNDWATER RESOURCES	https://onlinecourses.nptel.ac.in/noc22_ce92/preview
4	23B2WBT704	PHYSICS OF RENEWABLE ENERGY SYSTEMS	https://onlinecourses.nptel.ac.in/noc21_ph33/preview
5	23B2WBT703	FUNDAMENTALS OF FOOD PROCESS ENGINEERING	https://onlinecourses.nptel.ac.in/noc20_ag01/preview
6	23B2WBT702	FUNCTIONAL AND CONCEPTUAL DESIGN	https://onlinecourses.nptel.ac.in/noc20_de10/preview
7	23B2WBT701	NATURAL RESOURCES MANAGEMENT	https://onlinecourses.nptel.ac.in/noc22_ag10/preview
8	24P2WMA102	PARTIAL DIFFERENTIAL EQUATIONS	https://archive.nptel.ac.in/courses/111/101/111101153/
9	24P2WMA101	A BASIC COURSE IN NUMBER THEORY	https://archive.nptel.ac.in/courses/111/101/111101137/
10	24B2WHS802	ELEMENTS OF LITERATURE AND CREATIVE COMMUNICATION	https://onlinecourses.nptel.ac.in/noc22_hs62/preview
11	24B2WHS704	BASICS OF EVENT MANAGEMENT	https://onlinecourses.swayam2.ac.in/nou20_ge01/preview
12	24B2WHS703	INTRODUCTION TO WESTERN POLITICAL THOUGHT	https://onlinecourses.nptel.ac.in/noc21_hs101/preview
13	24B2WHS702	INDIAN SOCIETY SOCIOLOGICAL PERSPECTIVES	https://onlinecourses.nptel.ac.in/noc23_hs78/preview
14	24B2WHS701	HR ANALYTICS	https://onlinecourses.nptel.ac.in/noc24_hs126/preview
15	24B2WEC701	CYBER SECURITY AND PRIVACY	https://onlinecourses.nptel.ac.in/noc23_cs127/preview
16	24B2WCI801	PRIVACY AND SECURITY IN ONLINE SOCIAL MEDIA	https://onlinecourses.nptel.ac.in/noc23_cs13/preview

17	24B2WCI707	INTRODUCTION TO CYBER SECURITY	https://onlinecourses.swayam2.ac.in/nou19_cs08/preview
18	24B2WCI706	INFORMATION SECURITY	https://archive.nptel.ac.in/courses/106/106/106106129/
19	24B2WCI705	SIMULATION OF COMMUNICATION SYSTEMS USING MATLAB	https://onlinecourses.nptel.ac.in/noc23_ee136/preview
20	24B2WCI704	CONGNITION AND ITS COMPUTATION	https://onlinecourses.nptel.ac.in/noc22_ee122/preview
21	24B2WCI703	PRACTICAL CYBER SECURITY FOR CYBER SECURITY PRACTITIONERS	https://onlinecourses.nptel.ac.in/noc24_cs85/preview
22	24B2WCI702	INTRODUCTION TO DEEP LEARNING	https://onlinecourses.nptel.ac.in/noc20_cs62/preview
23	24B2WCI701	ARTIFICIAL INTELLIGENCE	https://nptel.ac.in/courses/106102220
24	24B2WBT802	FORESTS AND THEIR MANAGEMENT	https://onlinecourses.nptel.ac.in/noc24_bt23/preview
25	24B2WBT702	HUMAN NUTRITION AND BIOCHEMISTRY	https://onlinecourses.swayam2.ac.in/cec24_ag05/preview
26	24B2WMA601	HEALTH ECONOMICS	https://nptel.ac.in/courses/130107369
27	24B2WCE602	INDUSTRIAL WASTE WATER TREATMENT	https://nptel.ac.in/courses/105107207
28	24B2WCE601	REMOTE SENSING AND GIS FOR RURAL DEVELOPMENT	https://nptel.ac.in/courses/105101221

Problem Solving and Programming Lab

COURSE CODE: 24B17CI171
COURSE CREDITS: 1
CORE/ELECTIVE:
L-T-P: 0-0-2

Pre-requisite: Fundamentals of C Programming and Algorithms

Course Objectives:

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Understanding C program development, Compilation, debunking, running, etc.	Familiarity
CO-2	Introduction to C Programming using Control Statements and Repetition Statement	Usage
CO-3	Apply and practice logical formulations to solve some simple problems leading to specific problems.	Assessment
CO-4	Design effectively the required programming components that efficiently solve computing problems in the real world.	Usage

List of Experiments

S. No	Description	Hours
1	Getting acquainted with the C program Structure and basic Functions, Getting acquainted with the various data types and arithmetic operators in C	**2**
2	Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not.	**2**
3	Write a program to check whether a triangle is valid or not, when the three angles of triangle are entered through the keyboard. A triangle is valid if the sum of all three angles is equal to 180 degrees.	**2**
4	Check a given I/P is character, number or special symbol.	**2**

5	WAP to check if a given number is Armstrong or not. Calculate factorial of a number, Given number is prime or not.	**2**
6	(a) Write a program to add the first seven terms of the following series using any loop: 1/1! + 2/2! + 3/3! +..... (b) Develop start patterns using loops	**4**
7	Swap two numbers via various methods.	**2**
8	Functions and Recursion Applications: Factorial, sum, etc.	**2**
9	Programs on Arrays: searching and sorting	**3**
10	Dynamic Memory Allocation and Structures	**2**
11	File Handling	**2**
Total Lab hours		**25**

Suggested/Resources:

1. Deitel and Deitel, C How to Program, 7° Edition, 2013.
2. Venugopal Prasad, Mastering C, Tata McGraw Hill.
3. Complete Reference with C, Tata McGraw Hill.
4. Drmey, How to solve it by Computer, PHI.
5. Kerninghan and Ritchie, The C Programming Language.
6. http://www.acm.uiuc.edu/webmonkeys/book/c_guide/
7. http://msdn.microsoft.com/en-us/library/25db87se.aspx

Evaluation Scheme:

S. No	Exam	Marks
1	Mid Sem. Evalution	20
2	End Sem. Evalution	20
3.	Attendance	15
4.	Lab Assessment	45
	Total	**100**

Course Outcomes (COs) contribution to the Programme Outcomes(POs)

Course outcomes (Parallel and Distributed Algorithms)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	3	3	3	2	2	1	1	1	1	1	1	1.83
CO-2	3	3	3	3	3	1	1	1	1	1	1	3	2.00
CO-3	3	3	2	3	2	3	2	1	1	1	2	1	2.00
CO-4	3	3	3	2	3	2	1	1	1	1	1	1	1.83
CO-5	2	2	3	3	3	3	1	1	1	1	1	1	1.83
CO-6	2	3	3	3	2	2	2	2	2	2	2	2	2.25
Average	2.67	2.83	2.83	2.83	2.50	2.17	1.33	1.17	1.17	1.17	1.33	1.50	1.96

Mathematics for Life Sciences - I

COURSE CODE: 24B11MA112

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: Basic knowledge of arithmetic, algebra, and trigonometry.

Course Objectives:

- To learn the basic concepts of matrices and determinants used involving the system of linear equations.
- To learn the fundamentals of vector, coordinate geometry and complex numbers.
- To learn and use the basic concepts of differential and integral calculus.

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the basic properties of matrices and determinants, solution of system of linear equations	Familiarity
CO-2	Understand the basic concept of Differential Calculus; limit and continuity, derivative, rules of differentiation, Taylor's series, maxima and minima.	Assessment
CO-3	Understand complex numbers and their properties, geometrical representation, Polar form & De Moivre's theorem.	Assessment
CO-4	Understand the various concept of vectors and coordinate geometry	Assessment
CO-5	Understand the basic concept of integral calculus, method of integrations, definite integral and their applications.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Matrix Algebra:** Algebra of matrices, type of matrices, inverse of a matrix, determinants, elementary row operations, rank of matrix, solution of systems of linear equations - Cramer's rule, inverse matrix method, Gauss elimination method, eigenvalues & eigenvectors, Cayley-Hamilton theorem and its applications.	**10**
2	**DifferentialCalculus:** Setsandtheirbasic operations, functions,basic concepts of trigonometric functions,types of functions, limit &continuity of functions, derivative, rulesofdifferentiation, Taylor's series, maxima and minima.	**9**
3	**Complex Numbers:** Definition and geometrical representation, algebra, complex conjugate, modulus and amplitude, polar form, De Moivre'stheorem, roots of complexnumbers.	**7**
4	**Vectors and Coordinate Geometry:** Vectors and their algebra, types of vectors, dotandcrossproducts, projectionofavector, equations of a line and plane, shortest distancebetweenlinesandplanes.	**7**

5	**Integral Calculus:** Integralsofelementaryfunctions, methods of integration - substitution, partialfraction and integration by parts, definiteintegrals, properties and their applications.	**9**
	Total Lectures	**42**

SuggestedTextBook(s):

1. NCERT.MathematicsTextbookforclassXIand XII.
2. R.D.Sharma,Mathematics,DhanpatRai Publications,New Delhi.
3. Jain and Iyengar, Advanced Engineering Mathematics, 5th Edition, Narosa Publishing House.

SuggestedReferenceBook(s):

1. G.BThomas,R.L.FinneyCalculusandanalyticalgeometry,9thEd.,PearsonEducationAsia(AdissonWesley), New Delhi, 2000.
2. ErwinKreyszig, AdvancedEngineeringMathematics,9th Edition,JohnWiley&Sons,2006.

EvaluationScheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour	Syllabus covered up to T-1
2	T-2	25	1.5 Hours	Syllabus covered up to T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 8 Quizzes(3) -12 Attendance - 5

CourseOutcomes(COs)contributiontotheProgrammeOutcomes(POs)

Course outcomes (MLS-I)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	2	2	2	3	3	2	1	3	2	3	3	2.4
CO-2	3	1	1	2	2	2	2	1	2	2	1	2	1.8
CO-3	2	1	1	1	1	1	1	1	1	1	1	2	1.2
CO-4	2	1	1	1	1	1	1	1	1	3	1	2	1.3
CO-5	3	2	2	3	2	2	2	1	2	1	3	2	2.1
Average	2.6	1.4	1.4	1.8	1.8	1.8	1.6	1	1.8	1.8	1.8	2.2	

Engineering Mathematics-I

COURSE CODE: 24B11MA111

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisites: Basic concepts of calculus and algebra.

Course Objectives:

- To develop the essential tool of matrices and linear algebra in a comprehensive manner.
- To study various techniques of multivariate calculus and integral calculus.
- To understand fundamental concepts of vector calculus.
- To study the fundamentals of Laplace transforms and their applications.

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the role of matrices and their properties, solve linear systems of equations and perform Diagonalization of matrices, finding eigenvalues and eigenvectors of matrices.	Familiarity
CO-2	Evaluate partial derivatives with its physical significance and expand functions of several variables, find maxima and minima of functions of several variables with / without constraints, find areas and volumes of solids using multiple integration.	Assessment & Usage
CO-3	Understand the calculus of vectors and vector valued functions with their physical significance.	Assessment & Usage
CO-4	Use Laplace transforms and inverse Laplace transforms to solve initial value problems.	Assessment & Usage
CO-5	Numerical solutions to nonlinear equations, interpolation and quadrature.	Assessment & Usage

Course Contents:

Unit	Contents	Lectures required
1	**Linear Algebra:** Matrices, row echelon form, linear independence and dependence of vectors, rank of a matrix, solution of systems of linear equations, Vector spaces, subspaces, linear span, basis and dimension, eigenvalues and eigenvectors, Cayley Hamilton theorem and its application.	10
2	**Multivariate Calculus:** Limits and continuity of function, partial differentiation, chain rule, total derivative, maxima & minima, double integrals, change of order and change of variables, applications to areas and volumes.	8

3	**Vector Calculus:** Equations to a line and a plane, tangent plane and normal line, gradient, scalar and vector point function, curl and divergence and their physical significance, directional derivatives, line integrals.	**8**
4	**Laplace Transform:** Properties of Laplace transform, Linearity, First shifting theorem, multiplication and division by t, transforms of derivatives and integrals, Heaviside unit step function, Dirac's delta function, second shifting theorem, inverse Laplace transform using partial fraction and convolution theorem.	**8**
5	**Numerical Methods:** Numerical solution of algebraic & transcendental equations – bisection & Newton-Raphson method, interpolation, integrations by trapezoidal and Simpson's rule.	**8**
	Total Lectures	**42**

Suggested Text Book(s):

- Jain and Iyengar, Advanced Engineering Mathematics, 5th Edition, Narosa Publishing House, 2023.
- Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, John Wiley & Sons, 2023.

Reference Book(s):

- B.V. Ramana, Higher Engineering Mathematics, McGraw Hill Education, 2017.
- Maurice D. Weir, Joel Hass, Christopher Heil, Przemyslaw Bogacki; Thomas Calculus, 15th Edition, Pearson Education, 2024.
- D. Poole, Linear Algebra: A Modern Introduction, 2nd Edition, Brooks/Cole, 2005.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage/ ScopeofExamination
1	T-1	15	1 Hour	Syllabus covered uptoT-1
2	T-2	25	1.5 Hours	Syllabus covered uptoT-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2)-08 Quizzes (3)-12 Attendance - 05

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course outcomes (Engineering Mathematics I)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	2	2	2	2	2	1	1	1	2	2	2	2	**1.8**
CO-2	2	3	3	3	3	1	1	1	2	2	1	2	**2**
CO-3	2	2	2	2	3	1	1	1	2	2	1	2	**1.8**
CO-4	2	3	3	3	2	1	1	1	2	3	2	2	**2.1**
CO-5	2	2	2	2	2	1	1	1	2	2	1	2	**1.7**
Average	**2**	**2.4**	**2.4**	**2.4**	**2.4**	**1**	**1**	**1**	**2**	**2.2**	**1.4**	**2**	

ENTREPRENEURSHIP DEVELOPMENT

COURSE CODE: 23BBWHS331

COURSE CREDITS: 4

CORE/ELECTIVE: CORE
L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To acquaint students with behaviors that ensure business survival and success
2. To equip students with skills that will enable them launch new enterprises
3. To give students knowledge that will induce in them an entrepreneurial culture and help them
4. To equip students with innovative and creative skills in the business environment

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Develop critical thinking and entrepreneurialskills that will enable to identify and evaluate entrepreneurial opportunities, manage risks and learn from the result	Assessment
CO-2	Analyze the process that enables entrepreneurs with limited resources to transform a simple idea into a sustainable success	Assessment
CO-3	Developed advanced knowledge about key processes necessary to bring new products and services to market and key challenges facing the entrepreneur at different stages of the entrepreneurial voyage	Usage
CO-4	Critique a plan for implementing entrepreneurial activities in a globalised and competitive environment being mindful of the social, ethical and Culture issues.	Familiarity
CO-5	Establish goals, identify resources and determine the steps requiredto start and manage a business.	Usage

Course Contents:

Sr No	Content	Lectures required
Module1	**Entrepreneurial Perspectives**:Evolution, Concept of Entrepreneurship, Types of Entrepreneurs, Entrepreneurial Competencies, Capacity Building for Entrepreneurs. Entrepreneurial Training Methods; Entrepreneurial Motivations; Models for Entrepreneurial Development, The process of Entrepreneurial Development.	**6**

Module2	**New Venture Creation**:Introduction, Mobility of Entrepreneurs, Models for Opportunity Evaluation; Business plans Purpose, Contents, Presenting Business Plan, Procedure for setting up Enterprises, Central Level - Startup and State level - T Hub, Other Institutions initiatives.	**6**
Module 3	**Micro and Small-Scale Enterprises**: Classification of Business firms. The role of SME in Economic development. Advantage s and disadvantages of SME. Challenges facing the development of S ME in developing countries. The role of government in the development of SMEs	**6**
Module 4	**Managing Marketing and Growth of Enterprises**:Essential Marketing Mix of Services, Key Success Factors in Service Marketing, Cost and Pricing Branding, New Techniques in Marketing, International Trade	**6**
Module 5	**Strategic perspectives in Entrepreneurship**:Strategic Growth in Entrepreneurship, The Valuation Challenge in Entrepreneurship, The Final Harvest of New Ventures, Technology, Business Incubation, India way – Entrepreneurship; Women Entrepreneurs – Strategies to develop Women Entrepreneurs, Institutions supporting Women Entrepreneurship in India.	**6**
Module 6	**Entrepreneurial Environment**: Introductionto environmental analysis. Internal environmental analysis. External environmental analysis. Challenges in industrial analysis	**4**
Module 7	**Business Model Canvas**: Meaning of a business model canvas. Rational for business modelcanvas. Nine elements of a business model canvas. Why a good value proposition is central to a successful business model canvas	**4**
Module 8	**Business Plan**:Essentials of a good Business Plan. Scope and value of the Business plan. Elements of a business plan. Business plan format	**4**
	Total	**42**

Suggested Text Book(s):

1.Gupta, C.B and Srinivasan, N.P: Entrepreneurial Development, Sultan, Chand and Sons Publishers, 2020

2. Kao John J: Entrepreneurship, Creativity and Organization. Prentice Hall International, 2010

Suggested Reference Book(s):

1.Alex. O, (2014):Value Proposition Design Inc., Hoboken, New Jersey. ISBN: 10 987654321.

2.Nielsen, C., & Lund, M. (2015), The Concept of Business Model Scalability

3.Eric Ries (2011): The learn startup (How todays Entrepreneurs use Continuous Innovation to Create Radically Successful Business), Crown Publishing Group ISBN: 978-0-307-88791-7

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3	T-3	35	2 Hours	Entire Syllabus
4	Teaching Assessment	25	Continuous evaluation	10 marks case study 10 marks case study 5 marks Class participation

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average Score
CO1	3	3	2	3	3	3	3	3	2.88
CO2	3	3	0	3	3	3	3	3	2.63
CO3	3	3	3	3	3	3	3	3	3.00
CO4	3	3	3	3	3	3	3	3	3.00
CO5	3	3	3	3	3	3	3	3	3.00
Average Score	3	3	2.2	3	3	3	3	3	2.90

STATISTICAL SOFTWARE

COURSE CODE:23BB7HS371

COURSE CREDITS: 2

CORE/ELECTIVE: CORE

L-T-P: 0-0-4

Pre-requisite: None

Course Objectives:

1. To familiarize the students with various Statistical Data Analysis software like MS-Excel and R Language.
2. To acquaint the students with the software packages so that they can use it for problem solving and can take appropriate decisions related to every aspect of business.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand the basic concepts and components of computer as hardware and software	Familiarity
CO-2	Getting acquainted with software package like MS Excel and Python for doing statistical analysis	Assessment
CO-3	Use of MS Excel and Python for doing different types of Statistical calculations and analysis for taking optimal business decisions	Usage

Course Contents:

Unit	Contents	No of Labs required
1	**Introduction to MS Excel and Python:** Understanding Excel and Python IDE, Fundamental programming skills and syntax, Python packages.	3
2	**Collectionand Presentation of Data:**Importing Dataset into excel and Python, Merging of Datasets, Diagrammatic Presentation of data using plots.	3
3	**Standardization and Normalization of Data:** Min-Max Normalization, Logarithmic Normalization, Polynomial Normalization, Power Normalization, and Gaussian Normalization.	3
4	**Measures of Central Tendency:**Measures of Arithmetic Mean, Median, and other positional measures – quartiles, deciles, percentiles,	3

	Mode. Diagrammatically representation of the impact of standardization and normalization of data on central measures.	
5	**Measures of dispersion:** Different measures of dispersion – Range, Quartile deviation, Mean deviation, Mean Absolute deviation, Standard deviation, Measures of relative dispersion – Coefficient of Variation.	2
6	**Moments, Skewness and Kurtosis:** Moments, Coefficients based on moments, Sheppard's correction, Skewness, Measures of skewness andKurtosis.	2
7	**Correlation and Regression:** Scatter Diagram, Pearson's correlation coefficient matrix, Spearman's rank correlation coefficient matrix.	4
8	**Regression Analysis:** Simple linear regression model, Estimation of regression coefficients. Two lines of regression.	4
9	**Index Numbers:**Constructing price and quantity indices (simple and aggregate), Value index, Tests of adequacy, Chain-base index numbers, Base shifting, splicing and deflating.	2
10	**Probability Distributions:** Random Variables,Probability Distributions:Binomial, Poisson,Normal, exponential, and uniform distributions.	2
Total Number of Labs required		**28**
Total Lah Hours required (1 Lab = 2 Hrs)		**56**

Suggested Text Book(s):

1. John C Shovic and Alan Simpson: Python – All in One for Dummies, 2nd Edition, for Dummies, 2021
2. Paul McFedries and Greg Harvey: Excel All in One for Dummies, 8th Edition, for Dummies, 2022

Suggested Reference Book(s):

1. Luca Massaron and J.P. Mueller: Python – for Data Science for Dummies, 2nd Edition, for Dummies, 2019
2. Johann Strauss and Hayden Van Der Post, Excel 2024: Python, Pivots & More: Your Comprehensive Excel Guide For The Year 2024, 1st Edition, Reactive Publishing, 2024
3. Gil B. Dreher: Excel 2024: The Must-Have Guide to Master Microsoft Excel,

Evaluation Scheme:

S. No	Exam	Marks
1	Mid Sem. Evaluation	20
2	End Sem. Evaluation	20
3.	Attendance	15
4.	Lab Assessment	45
	Total	100

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	1	1	2	2	1	3	2	3	1.88
CO2	1	1	3	2	2	3	2	3	2.13
CO3	3	1	3	3	2	3	2	3	2.50
Average	**1.67**	**1.00**	**2.67**	**2.33**	**1.67**	**3.00**	**2.00**	**3.00**	2.17

POLITICAL PROCESS IN INDIA

COURSE CODE:23BB1HS314

COURSE CREDITS: 3

CORE/ELECTIVE:

L-T-P: 3-0-0

Pre-requisite: None

Course Objectives:

1. To encompasses the functioning of electoral democracy in India in the context of a federal multicultural set up as well as the dynamics of political process in India.
2. To gain insights into the interconnections between social and economic relations and the political process in India
3. Tolook at the consequences of business' growing power on some important issue areas-labor, land, urban governance, and the media. Tounderstand the nature of party functioning and their impact on coalition politics and voting behaviour.
4. To engage students with the various autonomy and regional movements. To take account of regional variation and analyze state-business relations.
5. To understand how religion and caste interacts in the political sphere bringing in the contending debates on secularism and caste politics interactions.
6. To understand the changing nature of the Indian state from its developmental and welfare perspectives.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Understanding the functioning of electoral democracy in India in the context of a federal multicultural set up as well as the dynamics of political process in India.	Familiarity
CO-2	Understanding nature of party functioning and their impact on coalition politics and voting behavior.	Usage
CO-3	Understan and analyze the effect of dynamics of political process in business.	
CO-4	Understand the consequences of business' growing power on some important issue areas-labor, land, urban governance, and the media.	Familiarity

CO-5	Understand the forms how religion and caste interacts in the political sphere bringing in the contending debates on secularism and caste politics interactions, regional variation and analyze state-business relations.	Assessment
CO-6	Understand the changing nature of the Indian state from its developmental and welfare perspectives.	Usage

Course Contents:

Unit	Contents	Lectures required
1	Introduction to Indian Political Process:	1
2	Indian Party System: Origin and Development of the Indian party system Nature and trends of Indian party system Regional parties: role and significance in Indian federalism Political defection in India	3
3	Coalition politics and parties : Role of opposition parties in Indian parliamentary system Business representation in Parliament Determinants of voting behavior: Populism Caste as a determinant of voting behavior	4
4	Ethnicity Region & Language as determinants of voting behavior: Class as a determinant of voting behavior Gender as a determinant of voting behaviour Voting behaviour of Rural-Urban India Global Acquisitions and Mergers of prominent Indian Business	3
5	Religion and voting behaviour : Determinants of voting behaviour: Cult/Charisma/Personality Regionalism in India: a conceptual analysis Regionalism and Indian federalism	3
6	Accommodation of regional aspirations—Linguistic reorganization Regional aspirations: Case study of Northeast India Autonomy and secessionism: Case of Punjab and Nagaland Statehood and Sub-regional movements: Jharkhand, Chattisgarh, and Uttarakhand	3
7	Social movements in civil society: Autonomy movementsImpact of globalization on regional movements Exploring the nature of identity politics in India Meaning and nature of communalism	4

8	Variants of communal politics in post independent India: Factors responsible for the growth of communal politics in India Hindu nationalism: a historical analysis Rise of Hindutva politics in India: contemporary scenario	4
9	Indian aspect of secularism : Political economy of state politics in India Religion-State relationship: implications for right to equality Caste as an identity in India Dominant and entrenched caste and their role in Indian politics: a contemporary scenario	4
10	Caste and Indian constitutional provisions : Electoral politics and the changing nature of caste Political mobilization of caste identities in India Caste and politics: a changing scenario The middle class in India-politics , Economy and culture	4
11	Affirmative Action Policies in India: Sources, directions and implications for class, caste and tribes : A case of Affirmative Action in favour of the Adivasis: The Forest Rights Act The Reservation Policy in India Affirmative Action for women	3
12	Securing social justice through Affirmative Action : Role of Affirmative Action in achieving health equity in India Nature of the Indian state from Independence to 1990 Nature of the Indian state: post-liberalization era (1990 onwards)	3
13	Relevance of the concept of Welfare State in India : Poverty and Developmental issues in India The Indian state and its use of coercive power The Indian State: Welfare versus Development	3
Total lectures		42

Suggested Text Book(s):

1. Prakash C.Sarangi, Politics in India, Orient Black Swam,2023
2. Akshay Prasad Singh & Krishna Murari, Political Process in Contemporary India,Pearson, 2019
3. Niraja Gopal Jayal& Pratap Bhanu Mehta, The Oxford Companion to Politics in India, Oxford University Press, New Delhi, 2010.
4. Rajni Kothari, Politics in India Orient Longman, Hyderabad, 1970.
5. Subrata K. Mitra, Politics in India: Structure Process and Policy, Routledge, New York, 2017
6. Partha Chatterjee (ed.), State and Politics in India, Oxford University Press, New Delhi, 2002.
7. Atul Kohli &Prerna Singh (eds.) Routledge Handbook of Indian Politics, Routledge, New York, 2016.

Suggested Reference Book(s):

1. Bidyut Chakrabarty Indian Politics and Society since Independence Events, processes and ideology, Routledge, New York, 2008

2. AchinVanaik and R. Bhargava (eds.), Understanding Contemporary India: Critical Perspectives, Orient Blackswan, New Delhi, 2010

Other useful resource(s):

1. 'Economics and Politics of the World Social Forum', in"a (emphasis in original).
2. Raina (2004) notes particularly the 'divisions even among the movements sharing the same ideology', not to mention 'the historical di'erences between the le$, the Gandhians, the dalits, the Socialists, the environmentalists, as well as the new and the traditional among the women, worker and peasant movements' (p. 13).
3. 'World Social Forum Controlled by Euro-AmericanBourgeoisie', Report of the Independent Media Centre(USA), January 2004.

EvaluationScheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment - 5 Presentation -10 Quiz - 5 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes(POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Av
CO1	2	2	2	3	0	2	3	3	2.1
CO2	2	2	2	2	3	2	3	3	2.3
CO3	3	2	2	2	3	2	3	3	2.5
CO4	2	2	2	2	2	2	3	3	2.5
CO5	2	2	2	2	2	2	3	3	2.2
CO6	3	3	3	3	3	3	3	3	3
Av	**2.3**	**2.1**	**2.1**	**2.3**	**2.1**	**2.1**	**3**	**3**	**2.3**

MANAGEMENT ACCOUNTING

COURSE CODE: 23BB1HS313
COURSE CREDITS: 4
CORE/ELECTIVE: Core
L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

To familiarize students with intricacies of the managerial decision making in any organization. Most managerial decisions are based on accounting information which is difficult to understand for non finance managers. Management accounting is a branch of accounting that simplifies financial information so that all managers can use it to take better decisions. The student should be able to understand and handle data organization and processing to facilitate management decisions at all levels in any organization.

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the need for management accounting.	Familiarity
CO-2	Understand the fundamentals of cost.	Familiarity
CO-3	Analyze financial statements and corporate reports.	Assessment
CO-4	Understand the importance of budgeting and learn to prepare effective budgets.	Usage
CO-5	Using marginal costing for decision making.	Usage

Course Contents:

Unit	Contents	Lectures required
1.	Introduction to Management Accounting, Comparison of Management, Financial and Cost Accounting, Basic Cost Terms and Cost Flow, Costing System, Preparation of Cost Sheet, Costing in Service Industry, Preparation of Cost Sheet in Service Industry.	6
2.	Understanding Corporate Financial Statements and Reports, Financial Statement Analysis.	8
3.	Analysing financial statements through Funds Flow Statement and Cash Flow Statement	8
4.	Budgeting: Strategic Planning and Budgets, Budgeting Process, Types of Budgets, Benefits of Budgets, Approaches to Budget Preparation, Preparation of Master Budget, Budget Slack	10
5.	Marginal Costing and Profit Planning: Absorption vs. Marginal Costing, Behavior of Costs, Break-even Analysis, BEP in Multiproduct Environment, Pricing Decision Make or Buy decision, Discontinuing product or closing down divisions, Optimal Product Mix, Operating Leverage. .	10

	Total Lecture Hours	42

Suggested Text Book(s):
MY Khan and P.K. Jain: *Management Accounting*, Mc Graw Hill, 2021.

Suggested Reference Book(s):
Horngreen, C.T., Sundem, G.L. and Stratton, W.O., *Introduction to Management Accounting, Pearson, 2022.*

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1.	T-1	15	1 Hour.	Syllabus covered upto T-1
2.	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Class Performance - 10 Quizzes(2)-10 Attendance - 5

Course Outcomes mapped to Program Outcomes

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO-1	3	3	2	2	3	3	2	3	2.6
CO-2	3	3	2	2	3	3	2	3	2.6
CO-3	3	3	2	2	3	3	2	3	2.6
CO-4	3	3	3	3	3	3	3	3	3.0
CO-5	3	3	3	3	3	3	3	3	3.0
Average	3	3	2.4	2.4	3	3	2.4	3	2.8

PRINCIPLES OF MARKETING

COURSE CODE: 23BB1HS312

CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P:3-1-0

Pre-requisite: None

Course Objectives:

1. To understand fundamental marketing principles and grasp key marketing concepts, terminologies, and strategies applicable in diverse corporate environments.
2. To interpret marketing strategies and develop the ability to analyze and interpret various marketing strategies employed in different sectors of the business world.
3. To explore marketing mix and examine the essential components of the marketing mix in product success.
4. To learn brand and relationship management and comprehend the principles of brand management and relationship marketing.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Ability to demonstrate a comprehensive understanding of fundamental marketing principles, including key concepts, terminologies, and strategies used in diverse corporate environments.	Familiarity
CO-2	Ability to interpret and critically assess the effectiveness of marketing strategies across different industries and sectors.	Usage
CO-3	Students will be able to develop marketing mix strategies tailored to specific product or service offerings	Usage
CO-4	Students will understand the principles and importance of brand management in creating competitive advantage.	Assessment
CO-5	Students will be capable of developing strategies for effective relationship marketing and customer retention.	Assessment

Course Contents:

Unit	Contents	Lecture Hours
1	**Defining Marketing And The Marketing Process** • Marketing: Creating Customer Value and Engagement • Company and Marketing Strategy: Partnering to Build Customer Engagement, Value, and Relationships	6

2	**Understanding The Marketplace And Consumer Value** • Analyzing the Marketing Environment • Managing Marketing Information to Gain Customer Insights • Consumer Markets and Buyer Behavior • Business Markets and Business Buyer Behavior	12
3	**Designing A Customer Value-Driven Strategy And Mix** • Target marketing –Segmentation, Targeting,Positioning • Marketing mix • Products, Services, and Brands: Building Customer Value • Developing New Products and Managing the Product Life Cycle • Marketing of Services - Unique Characteristics of Services, Marketing strategiesfor service firms – 7Ps. • Pricing: Understanding and Capturing Customer Value • Retailing and Wholesaling • Marketing Communications Strategy	18
4	**Extending Marketing** • Creating Competitive Advantage • The Global Marketplace • Sustainable Marketing: Social Responsibility and Ethics	6
		42

Suggested Text Book(s):

1 Kotler, P., Armstrong, G., Agnihotri, P. Y., & Ul Haq, E.: Principles of Marketing:A South Asian Perspective 19th Edition, 2023, Pearson.

Suggested Reference Book(s):

1 Kotler, P. & Keller, K. L.: Marketing Management, Pearson.

2 Ramaswamy, V.S. &Namakumari, S.: Marketing Management: Global Perspective-Indian Context, Macmillan Publishers India Limited..

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3	T-3	35	2 Hours	Entire Syllabus
4	Teaching Assessment	25	Entire Semester	Case study– 10 Assignments&Exercises- 10 Attendance -5

Course Outcomes (COs) contribution to the ProgrammeOutcomes (POs)

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Average
CO1	3	1	1	2	3	2	3	3	2.25
CO2	2	3	1	2	2	2	2	3	2.13
CO3	3	2	1	2	3	2	3	3	2.38
CO4	3	3	1	2	2	2	2	3	2.25
CO5	3	3	1	2	2	2	3	3	2.38
Average	2.8	2.4	1	2	2.4	2	2.6	3	2.28

STATISTICS FOR BUSINESS DECISIONS

COURSE CODE:23BB1HS311

COURSE CREDITS: 4

CORE/ELECTIVE: CORE

L-T-P: 3-1-0

Pre-requisite: None

Course Objectives:

1. To familiarize the students with various Statistical Data Analysis tools that can be used for effective decision making.
2. To acquaint the students with the Analysis of numbers is required for taking decisions relatedto every aspect of business.

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand the basic concepts like statistics and calculation of arithmetic mean, median and mode and different parameters of central tendency	Familiarity
CO-2	Understand the Probability and applications of probability theory, correlation and regression analysis	Assessment
CO-3	Comprehend the basics of data analysis, time-series and index number analysis and be able to use in optimal business decision	Usage
CO-4	Cultivate critical thinking skills to evaluate statistical information critically, identify patterns, trends, and anomalies in data, and apply statistical methods to solve real-world business problems.	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Introduction:** Statistics as a subject, Functions, Importance and Limitations of Statistics, Planning andExecution of a statistical investigation, Census and sample investigation, Descriptive and Inferentialstatistics.	3
2	**Collection, Classification and Presentation of Data:** Primary data and secondary data, Methods of collection, Scrutiny of data. Discrete and Continuous Frequency Distribution, Tabulation of Data, Diagrammatic Presentation of data	4

3	**Measures of Central Tendency:** Definition and utility, Characteristics of a good average, Different measures of average, Arithmetic Mean, Median, Other positional measures – quartiles, deciles, percentiles, Mode, Relation between Mean, Median and Mode, Geometric and Harmonic Mean. Choice of a suitable measure of central tendency.	5
4	**Measures of dispersion:** Meaning and objective of dispersion, Characteristics of a good measure of dispersion, Different measures of dispersion – Range, Quartile deviation, Mean deviation, Mean Absolute deviation, Standard deviation, Comparison of the different measures of dispersion. Measures of relativedispersion – Coefficient of Variation. Combined mean and standard deviation. Chebyschev's Theorem.Graphical measure of dispersion – Lorenz curve, Gini coefficient.	7
5	**Moments, Skewness and Kurtosis:** Moments, Coefficients based on moments, Sheppard's correction, Skewness, Measures of skewness, Kurtosis and its measures.	5
6	**Correlation and Regression:** Analysis of Bivariate data. Correlation Analysis – Meaning of correlation, Scatter Diagram, Karl Pearson's coefficient of linear correlation, Calculation of the correlation coefficient from grouped data, Properties of the correlation coefficient, Advantages and limitations of the coefficientof correlation, Idea of rank correlation, Spearman's rank correlation coefficient. Regression Analysis – Two lines of regression,Some important results relating to regression lines, Correlation Coefficient and the two Regression Coefficients, Coefficient of determination, Concept of multiple regression.	5
7	**Index Numbers:** Definition, characteristic and uses of index numbers, Methods of constructing price andquantity indices (simple and aggregate), Value index, Comparison of Laspeyres' and Paasche's Index Numbers, Tests of adequacy, Chain-base index numbers, Base shifting, splicing and deflating, ConsumerPrice Index Numbers,Index Numbers of Industrial Production, Problems in the construction of index numbers.	5
8	**Probability and Theoretical Distributions:** Concepts and Importance of Probability, Theorems and Calculations of Probability, Bayes' Theorem, Mathematical Expectations, Different types of Probability Distributions, Properties of Binomial, Poisson and Normal Distributions,	8
Total lectures		**42**

Suggested Text Book(s):

1. NAnderson, Sweeney, Williams, Camm, Cochran, Fry and Ohlmann: Statistics for Business and Economics, 14thEdition, Cengage, 2020
2. SP Gupta: Statistical Methods, 46th Edition, Sultan Chand and Sons, 2021

Suggested Reference Book(s):

1. Levine, Szabat and Stephan: Business Statistics – A First Course, 8th Edition, Pearson, 2020.
2. McClave, Benson and Sincich: Statistics for Business and Economics, 14th Edition, Pearson, 2022.
3. SC Gupta and Indra Gupta: Business Statistics, 2ndEdition, Himalaya Publishing House.
4. Ken Black and Sanjeet Singh: Business Statistics For Contemporary Decision Making – An Indian Adaptation, 10th Edition, Wiley, 2022

EvaluationScheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes(2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	Av
CO1	1	1	2	1	1	3	3	3	1.88
CO2	2	1	2	1	1	3	3	3	2.00
CO3	3	2	2	2	2	3	3	3	2.50
CO4	3	2	3	2	2	3	3	3	2.63
Av	**2.25**	**1.5**	**2.25**	**1.5**	**1.5**	**3**	**3**	**3**	**2.25**

BUSINESS ENVIRONMENT

COURSE CODE:

COURSE CREDITS: 4

CORE/ELECTIVE: Core

L-T-P: 3-1-0

Pre-requisite: None

Objective:

- To understand the internal and external business environment in which companies operate.
- To assess the impact of environmental conditions on performance of business.
- To get deeper insights of Indian Business Environment so that one can take right decision at right time make the organization a successful business entity.

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Understand the basic concepts of business environment.	Familiarity
CO-2	Assessing the changing dynamics of business environment and its impact on company's performance	Assessment
CO-3	Understanding the role of institutional support provided by domestic and international government	Assessment
CO-4	Make optimal business decisions by understanding the dynamics of changing business environment	Usage

Course Contents:

S.No.	Units	Hours
1	**Introduction:** Introduction to Business Environment; Features and Importance of the study; Environmental Scanning; Types of Environment – internal, external, micro and macro; Five forces of competition; Industry Life Cycle Analysis; Environmental Analysis; Nature, Scope and Objectives of Business – business system/process, classification of business, classification of industries, characteristics of business, goals of business.	7
2	**Economic Environment:** Introduction to Economic Environment; Different Types of Economic System; Nature and Structure of Indian Economy; National Income; Economic Policies; Planning in India; India's Monetary and Fiscal Policies; Inflation; Industrial Policies; Role of Public Sectors; Liberalisation; Privatisation and Disinvestments; Small Scale Industries	6
3	**Political and Legal Environment:** Introduction to Indian Political Environment; Basic tenets of Indian Constitutions; Functions of State; Economic role of government; Basic understanding about Company Law, Industries (Development and Regulation Act), MRTP Act, Consumer Protection	6
4	**Socio-Cultural Environment:** Introduction to Indian Socio-Cultural Environment – Family, Social Class, Culture, Cultural Values, Culture and /organisation Behaviour; Business and	6

	Society; Social Responsibility of Business; Social Audit; Demographic Environment; Corporate Governance	
5	**Financial Environment:** Indian Financial System; Money Markets and Capital Markets; Stock Exchanges in India; Depositories; Financial Institutions	6
6	**Global Environment:** Globalization – Meaning and Significance, Globalization of World Economy, Stages of Globalization, Impact of Globalization on Indian Industry, A Critical Appraisal of Globalization; Multinational Corporations – Definitions, Meaning, Organizational Model, Reasons for Growth of MNCs, MNCs in India, A Critical Appraisal of MNCs; GATT/WTO and Global Environment – Objectives and Evaluation of GATT, Different Rounds of Negotiation, Uruguay Round, Formation of WTO, Advantages of WTO, WTO and Developing Countries, WTO and India	6
7	**Infrastructure and Policies:** India's Export-Import Policies; India's Foreign Trade; FDI in India – Different Theories of FDI, Modes of FDI, Determinants and Impacts of FDI, A Critical Appraisal; FEMA – Meaning, Capital Account Transactions, Current Account Transactions, Role of RBI, Exports of Goods and Services, Realisation and Repatriation of Foreign Exchange, Contravention and Penalties, FERA and FEMA – A Comparison	5
	Total Lecture Hours	**42**

Suggested Text Book(s):

- Business Environment: Text and Cases by Francis Cherunilam, Himalaya Publishing House.
- Business Environment by Shaikh Saleem, Pearson Education

Suggested Reference Book(s):

- Business Environment by Vivek Mittal, Excel Books.
- Business Environment by Justin Paul,
- Indian Economy by Dutt and Sundharam, S. Chand
- Newspapers, Magazines and Internet.

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Class Performance - 10 Quizzes(2) -10 Attendance - 5

Course outcomes	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	Average
CO-1	3	3	2	2	3	3	3	3	2.8
CO-2	3	3	2	2	2	3	2	3	2.5
CO-3	3	3	2	2	3	3	2	3	2.6
CO-4	3	3	3	3	3	3	3	3	3.0
Average	3	3	2.3	2.3	2.8	3	2.5	3	2.7

Fluid Mechanics Lab

COURSE CODE:23B17CE373

COURSE CREDITS: 1

CORE/ELECTIVE: CORE

L-T-P: 0-0-2

Pre-requisite: None

Course Objectives:

1. To get familiar students about the usage and working principle of different instruments used in Fluid Mechanics
2. Application of instruments to calculate various parameter such as Fluid pressure, discharge, losses in pipes etc.
3. Calibration of instruments

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO1	Methods of discharge measurements on open channel flow and closed conduit flow	Assessment
CO2	Calibration flow measuring devices used in pipes, channels and tanks	Assessment
CO3	To calculate losses in flow	Assessment
CO4	Verification and characterization of flow (ex. Bernoulli's Theorem, impulse momentum equation, laminar flow etc.) through experiments	Assessment

List of Experiments

S.No	Description	Hours
1	Introduction to various Instruments	2
2	Determination of metacentric height	2
3	Calibration of a venturi meter	2
4	Determination of frictional losses in pipes of different diameters.	2
5	Determination of minor losses in pipes	2
6	Calibration of v- notch and rectangular notch	2
7	Reynolds dye experiment for flow characterization	2
8	Determination of C_c, C_v and C_d of an orifice	2
9	Verification of Bernoulli's theorem	2
10	Calibration of orifice meter	2
11	Verify the impulse momentum equation (impact of jet)	2
Total hours		**22**

Suggested/Resources:

1. Modi and Seth: Fluid mechanics and hydraulic machines, 3rd Edition, Prentice-Hall of India,2010.
2. R K Bansal: A text Book of Fluid mechanics, - Laxmi Publication,2010
3. D S Kumar: Fluid mechanics and Fluid power Engineering, 6th Edition,2002

Evaluation Scheme:

1	Mid Sem. Evaluation	20 Marks
2	End Sem. Evaluation	20 Marks
3	Attendance	15 Marks
4	Lab Assessment	45 Marks
	Total	100 marks

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes (Fluid Mechanics Lab)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	3	3	2	2	2	1	1	3	3	1	3	**2.25**
CO-2	3	3	3	2	3	2	1	1	3	3	1	3	**2.33**
CO-3	3	3	2	2	2	3	2	1	3	3	2	3	**2.41**
CO-4	3	3	2	2	3	2	1	1	3	3	1	3	**2.25**
Average	**3**	**3**	**2.5**	**2**	**2.5**	**2.25**	**1.25**	**1**	**3**	**3**	**1.25**	**3**	

LIFE SKILLS AND INTERPERSONAL DYMANICS

COURSE CODE: 23B11HS311

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 2-1-0

Pre-requisite: None

Course Objectives:

Course Outcomes:

SNo	Course Outcomes	Level of Attainment
CO-1	Understand the fundamentals of human Behavior and its determinants.	Familiarity
CO-2	Understand the meaning of personality and be able to classify individuals into different personality types	Assessment
CO-3	Evaluate attitude and its relationship with personality and behavior.	Assessment
CO-4	Analyze interpersonal dynamics of groups and teams	Usage
CO-5	Understand motivation and its importance in work and life	Usage
CO-6	Developing emotional intelligence	Usage

Course Contents:

Unit	Contents	Lectures required
1	**Understanding Interpersonal dynamics** and its importance in personal and professional life. Self-Esteem and Self-Confidence, Self-Motivation ,Self-Awareness and Goal Setting; Emotional Intelligence, Perception,	4
2	**Personality**. The MBTI framework, The Big Five.	2
3	**Attitude** and its determinants. Relationship between attitude and behavior. Importance of attitude in the workplace.	2
4	**Stress Management**, Cause and effect of stress, coping with stress, values associated to positive stress management	2
5	**Theories of motivation**: Maslow's need hierarchy, Herzberg's two factor theory, Behavioral theories and contingency theories.	3
6	**Leadership**: Trait, Behavioral and contingency theories of leadership. Charismatic leader, transactional and transformational leadership.	4
7	**Dynamics of Group Behavior**: forming groups, converting groups to teams and managing team dynamics	4
8	**Emotional intelligence**: Definition, measurement and development of emotional intelligence	3
9	**Problem Solving & decision making**: Steps in problem solving, Decision making, Models of Decision Making, Creativity and Critical thinking, Analytical thinking.	2
10	**Social and Negotiation Skills, Conflict Management**	2
Total lectures		**28**

Suggested Text Book(s):

1. Greenberg Jerald and Baron Robert A.: Behaviour in Organisations: Understanding and Managing The Human Side of Work, Prentice Hall of India
2. Stephen P. Robbins, Timothy A. Judge, Organizational Behavior, Pearson Education,

Suggested Reference Book(s):

1. Kavita Singh: OrganisationalBehaviour, Vikas Publications
2. Mc Shane L. Steven, Glinow Mary Ann Von & Sharma Radha R. - Organisational
3. Behaviour; Tata McGraw Hill.
4. Newstrom John W.: OrganisationalBehaviour, Tata McGraw Hill

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes (2) - 10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course outcomes (Parallel and Distributed Algorithms)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	0	1	2	3	2	3	2	3	3	3	1	3	**2.75**
CO-2	0	2	1	2	2	3	2	2	3	3	1	3	**2.75**
CO-3	0	3	2	2	2	3	2	3	3	3	1	3	**2.75**
CO-4	0	2	2	3	3	3	3	3	3	3	1	3	**3**
CO-5	0	3	2	3	3	3	3	3	3	3	1	3	**3**
CO-6	0	3	2	3	3	3	3	3	3	3	1	3	**3**
Average	**0**	**2.3**	**1.8**	**2.6**	**2.5**	**3**	**2.5**	**2.8**	**3**	**3**	**1**	**3**	

Surveying

COURSE CODE: 23B11CE317

COURSE CREDITS: 03

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Pre-requisite: None

Course Objectives:

Surveying is of special importance and interest to a Civil Engineer. Surveying is a general term that covers any survey work carried out in connection with the construction of an engineering project, such as buildings, dam, highways, railways, bridges, canals, water supply, drainage works and other civil engineering works. The main objectives are:

1. To produce up-to-date *Engineering Plans* of the areas in which the work will be carried out.
2. To determine the corrections in different measurements
3. To ensure that the construction takes place in the correct relative and absolute position on the ground.
4. Knowledge of advanced surveying methods; Remote Sensing and GIS

Course Outcomes:

S. No.	Course Outcomes	Level of Attainment
CO-1	Understanding of basic principles of various methods of surveying, and related problems.	Assessment
CO-2	Will be able to apply various corrections in different measurements.	Assessment
CO-3	Will be able to get the correct relative and absolute position on the ground where construction is required.	Assessment
CO-4	Knowledge of modern survey equipment, Implement procedures for its use and care of field equipment.	Assessment
CO-5	Understanding of the design of curves.	Assessment
CO-6	Understanding of advanced surveying methods; Remote Sensing and GIS	Familiarity

Course Contents:

Unit	Contents	Lectures required
1	**Introduction:** History of surveying and mapping, Importance of geomatics engineering, plane and geodetic surveying, concept of datum and map projection system, Classification of Surveying, Principles of Surveying.	2
2	**Chain Surveying:** Instruments for chaining, Errors due to incorrect chain, Chaining on sloping ground, Errors in chaining, Tape corrections, Chain triangulation, setting out right angles, basic problems in chaining, conventional symbols used in chaining	2
3	**Compass surveying:** Instruments (prismatic and surveyor compass), bearing and angles, magnetic declination, local attractions.	3
4	**Leveling:** Instruments, Optical defects in lenses, Temporary adjustment of a level, and different types of leveling, curvature and refraction corrections, leveling problems, errors in leveling, the level tube.	5
5	**Contouring:** Contours, contour interval, contour gradient, characteristics of contours, methods of locating contours and their interpretation, uses of contour maps.	4
6	**Plane Table Surveying:** Instruments, principle and methods of plane- tabling, three-point problem, two-point problem, errors in plane tabling, advantages and disadvantages.	3
7	**TacheometricandTheodolite:**Surveying:transitandnon-transit,definitionand terms,measurementofhorizontalandverticalangles,instrumentsandtachometric method	4
8	**Modern Field Survey Systems:** Principle of Electronic Distance Measurement, Modulation,TypesofEDMinstruments,Distomat,TotalStation–PartsofaTotal Station – Accessories –Advantages and Applications, Global Positioning, Systems- Segments, GPS measurements,	4
9	**Curves:** Elements of simple and compound curves–Method of setting out of simple circular curve–Elements of Reverse curve - Transition curve– length of curve –Elements of transition curve.	5
10	**Remote Sensing and GIS:** Introduction–Electromagnetic Spectrum, interaction of electromagnetic radiation with the atmosphere and earth surface, remote sensing data acquisition: platforms and sensors; visual image interpretation; digital image processing, Introduction to GIS, Types of data, components of GIS, GIS architecture, Vector data models, raster data models	7
12	**Photographic Surveying:** Principles, Types of photographs, concept of Relief Displacement, advantages of aerial photography	3
Total lectures		42

Suggested Text Book(s):

1. S K Duggal: Surveying, 3rd Edition, Tata McGraw-Hill Publishing Company ,2012
2. A.M.Chandra: Plane Surveying,2nd Edition, New Age International Publishers, New Delhi,2006
3. B.C.Punmia: Surveying-1, Surveying-2, Laxmi Publication Delhi,2005
4. N.N.Basak: Surveying &Leveling Tata McGraw Hill Publishing Com. NewDelhi

Reference Books:

1. B.C.Punmia: Surveying-3, Laxmi Publication Delhi, 2005

Suggested Reference Book(s):

1. Kavanagh, Barry F.: Surveying : Principles and applications, 7th Edition, Pearson EducationAsia,2006
2. A.M.Chandra: Higher Surveying 2nd Edition, New Age International Publishers New Delhi,2006
3. Clark David: Plane and Geodetic surveying for Engineers, vol-1 & vol-2,6th Edition, CBS Publishers, 2006

Other useful resource(s):

1. Link to NPTEL course contents:https://nptel.ac.in/courses/105107122/
2. Link to topics relatedtocourse:
   i. https://nptel.ac.in/courses/105107122/1-3
   ii. https://nptel.ac.in/courses/105107122/8-18
   iii. https://nptel.ac.in/courses/105107122/23-32

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (5) - 10 Quizzes(2)-10 Attendance -5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes (Surveying)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	2	2	1	2	2	2	3	2	3	2	3	**2.25**
CO-2	3	2	2	2	2	2	2	1	2	2	3	3	**2.16**
CO-3	3	3	3	3	2	1	2	2	2	2	3	3	**2.41**
CO-4	2	3	2	3	3	1	1	2	1	1	2	3	**2**
CO-5	3	2	3	3	3	2	1	2	3	3	2	3	**2.5**
CO-6	3	3	3	3	2	1	1	2	1	1	3	3	**2.16**
Average	**2.83**	**2.5**	**2.5**	**2.5**	**2.33**	**1.5**	**1.5**	**2**	**1.83**	**2**	**2.5**	**3**	

Building Materials and Construction

COURSE CODE: 23B11CE316

COURSE CREDITS: 03

CORE/ELECTIVE: Core

L-T-P: 3-0-0

Pre-Requisite: None

Course Objectives:

1. To gain understanding of properties and usage of bricks, stones, timber and miscellaneous materials used in construction.
2. To become familiar with classification of buildings, walls, brick masonry and stonemasonry
3. To be well versed with the properties and usage of plastering, roofs, floors, doors, damp proofing, stairs etc.
4. To gain state of the art knowledge of properties and usage of scaffolding, sound and fire proofing, paints and distempers.

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Learn about properties and usage of bricks, stones, timber and miscellaneous materials used in construction.	Familiarity
CO-2	Learn about classification of buildings, walls, brick masonry and stone masonry	Familiarity
CO-3	Learn the properties and usage of plastering, roofs, floors, doors, damp proofing, stairs etc.	Familiarity
CO-4	Learn the properties and usage of scaffolding, sound and fire proofing, paints and distempers.	Familiarity

Course Contents:

Unit	Contents	Lectures required
1	**Bricks:** Classification, properties and selection criteria of bricks, burning of bricks, tests for bricks.	2
2	**Stones:** Stone classification, characteristics of good building stone, common building stones in India, Limestone.	1
3	**Timber:** Characteristics of good timber, defects in timber, seasoning of timber, plywood.	2
4	**Miscellaneous Materials:** Classification of Engineering Materials, Mechanical Properties of Materials, (Added) Cement, Concrete, steel, glass, plastics, P.V.C., paint, varnish, adhesive materials, bitumen, ceramics, Biosynthetic material.	7
5	**Buildings and Walls**: Classification of buildings, types of walls	1
6	**Brick Masonry**: Technical terms, types of bonds, strength of brick masonry, defects in brick masonry, reinforced brickwork	2
7	**Stone Masonry**: Technical terms, stones, cutting and dressing, lifting of stones, joints in stone masonry, classification of stone masonry, selection of stone for masonry	1
8	**Plastering and Pointing**: Objects and requirements of plastering, terminologies, tools, methods of plastering, selection of good plaster, types of mortars, plaster finishes, defects, Pointing: Methods and types of pointing	4
9	**Roofs and Floors**: Types and construction of roofs, features, necessity, arches, lintels, types & construction of ground floor, upper floor, floor finishes	3
10	**Doors and Windows**: Location, Technical terms of door & window, door frame, size, designation of door and window, types of door & window	2
11	**Damp Proofing and Termite Proofing**: Causes, effects, various methods and material used for damp proofing and termite proofing	3
12	**Stairs**: Technical terms, requirements, dimension of step, types and classification of stairs	3
13	**Paints, Distemper, White wash and Color wash**: Paints and Paintings,characteristicsofidealpaint,Constituentsofpaint,defects in paintings, painting on different surfaces,(Removed) classification and type of paints, Distempering & process of distempering, whitewashing & color washing	4
14	**Scaffolding**: Components and types of scaffolding	2

15	**Sound and Fire proof construction**: Sound Insulation, Insulation values for different type of walls, sound proof materials, Fire: Causes, fire hazards, fire load, grading of building according to fire resistance, ,(Removed) characteristics of fire resisting materials, fire alarms, fire extinguishing equipments. [redacted] Selection for sustainable design, Green buildings rating	5
	[redacted](Added)	
Total lectures		**42**

Suggested Text Book(s):

1. S.K Duggal: Building Materials, 4th Edition, New Age InternationalPublishers,2012.
2. B.C Punmia, Ashok Kr. Jain, Arun Kr. Jain: Building Construction,11th Edition, Lakshmi Publications,2016.
3. M.L Gambhir, Neha Jamwal, Building Materials, Mc Graw Hill,2014

Suggested Reference Book(s):

1. Rangwala, Building Construction, 33rd Edition, Charotar Publishing House Pvt.Ltd.,
2. M.K Gupta, Practical Handbook on Building Construction, Nabhi ,2014.

Other useful resource(s):

1. Link to MIT Open Courseware :https://ocw.mit.edu/courses/architecture/4-461-building-technology-i-materials-and-construction-fall-2004/lecture-notes
2. Link to NPTELcourse:https://nptel.ac.in/syllabus/syllabus.php?subjectId=105102088

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (2) - 10 Quizzes(2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes(POs)

Course Outcomes (Building Materials and Construction)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	2	2	3	2	2	3	3	1	2	2	2	2	**2.17**
CO-2	3	1	3	3	3	1	3	3	3	3	2	3	**2.58**
CO-3	2	2	3	1	3	2	2	2	2	2	1	2	**2**
CO-4	3	3	3	3	2	3	1	2	3	1	3	3	**2.5**
Average	**2.5**	**2**	**3**	**2.25**	**2.5**	**2.25**	**2.25**	**2**	**2.25**	**2**	**2**	**2.25**	

Fluid Mechanics

COURSE CODE:23B11CE315

COURSE CREDITS: 3

CORE/ELECTIVE: CORE

L-T-P: 3-0-0

Pre-requisite: None

Course Objectives:

1. To get familiar with knowledge of fundamental of fluid and fluid flow characteristics.
2. To understand various methods to determine pressure measurement velocity measurement of fluid.
3. To understand various Principles of pipe flow losses occurred on pipe flow and its applications in real life.
4. To impart the knowledge of Dimensional analysis for solving the problems of fluid mechanics
5. To get familiar with the concept of flow phenomenon around the immersed bodies

Course Outcomes:

S.No.	Course Outcomes	Level of Attainment
CO-1	Knowledge of basic fundamentals of fluid and fluid flow characteristics.	Familiarity
CO-2	The students will understand basic methods to determine pressure measurement of fluid	Assessment
CO-3	Understanding of kinematics of fluid flow	Assessment
CO-4	Understanding of principles of pipe flow and basic fluid flow measurement instruments and techniques.	Assessment
CO-5	They will develop understanding of methods of dimensional analysis & modeling criteria.	Assessment
CO-6	Understanding the flow phenomenon around the immersed bodies	Assessment

Course Contents:

Unit	Contents	Lectures required
1	**Properties of fluid:** mass density, specific weight, specific volume, specific gravity; Viscosity, Newton's Law of viscosity, Types of Fluids, Surface tension and Capillarity.	3
2	**Pressure and its Measurement**: Pascal's Law, Pressure variation in a fluid at rest, Measurement of pressure: Manometers	4
3	**Hydrostatic forces on surfaces**: Total pressure and centreof pressure, Pressure measurement on Vertical plane surface, horizontal plane surface, curved surface and Inclinedsurface	3
4	**Buoyancy and Flotation:** Buoyancy, Metacentre, Metacentric height, Experimental method of determination of metacentric height	2
5	**Kinematicsoffluidflow:**Steady&unsteady,uniform&non-uniform, rotational & irrotational, laminar & turbulent flow, Continuity equations for 1-D & 2-D flows, velocity and acceleration, velocity potential function, stream function, types of motion,vorticity.	5
6	**Dynamics of fluid flow**: Euler's equation, Bernoulli's equation & its applications, Impulse-momentum equation & its applications, Flow measurements: Venturimeter, Pitot-tube, Orifice-meter	6
7	**Dimensional analysis:** methods of analysis, Rayleigh's method, pie-Buckingham theorem, Dimensionless numbers.	3
8	Boundary Layer Theory: Concept of boundary layer, laminar and turbulent boundary layers, boundary layer thickness, Von Karman integral equation, laminar sublayer	4
9	**Forces on submerged bodies:** drag and lift force, Expression for grag and lift, Drag on a sphere, Drag on a cylinder, Karman vortex trail	4
10	**Flow through pipes:** Losses in pipe sections, hydraulic gradient line and total energy line, flow through pipes in series and parallel, compound pipes, Heigen Pousille's equation, Darcy-Weisbach'sequation, branching of pipes and pipe networks.	8
Total lectures		**42**

Suggested Text Book(s):

1. Modi and Seth: Fluid mechanics and hydraulic machines, 3rd Edition, Prentice-Hall of India, 2010.
2. R K Bansal: A text Book of Fluid mechanics, - Laxmi Publication,2010
3. DSKumar:FluidmechanicsandFluidpowerEngineering,6thEdition S. K. Kataria&Sons, 2002

Suggested Reference Book(s):

1. Douglas, John F., Gasiorek, Janusz M., Swaffield, John A. 4TH Edition, Pearson Education Asia,2006
2. R J Garde, Fluid Mechanics Through Problems 3rd Edition,New Age International Publishers 2016

Other useful resource(s):

1. Link to NPTEL coursecontents:https://nptel.ac.in/courses/105101082/

2. Link to topics related tocourse:
   i. https://nptel.ac.in/courses/105101082/3
   ii. https://nptel.ac.in/courses/105101082/4
   iii. https://nptel.ac.in/courses/105101082/6-16

Evaluation Scheme:

S. No	Exam	Marks	Duration	Coverage / Scope of Examination
1	T-1	15	1 Hour.	Syllabus covered upto T-1
2	T-2	25	1.5 Hours	Syllabus covered upto T-2
3.	T-3	35	2 Hours	Entire Syllabus
4.	Teaching Assessment	25	Entire Semester	Assignment (5) - 10 Quizzes (2) -10 Attendance - 5

Course Outcomes (COs) contribution to the Programme Outcomes (POs)

Course Outcomes (Fluid Mechanics)	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	Average
CO-1	3	3	3	2	2	3	x	x	1	1	1	3	**2**
CO-2	3	3	3	2	2	3	x	x	2	1	2	3	**2.4**
CO-3	3	3	3	3	2	2	x	x	2	2	1	3	**2.4**
CO-4	3	3	3	3	3	2	x	x	2	3	2	3	**2.7**
CO-5	3	3	3	3	3	2	x	x	1	2	2	3	**2.5**
CO-6	3	3	3	3	2	3	x	x	2	2	2	3	**2.6**
Average	**3**	**3**	**3**	**2.67**	**2.33**	**2.5**	**0**	**0**	**1.67**	**1.8**	**1.67**	**3**	

S. No.	Course Code	Course Name	Link at NPTEL
1	24B2WCI802	ARTIFICIAL INTELLIGENCE: KNOWLEDGE REPRESENTATION & REASONING	https://archive.nptel.ac.in/courses/106/106/106106140/
2	23B2WHS702	PRINCIPLES OF ECONOMICS	https://onlinecourses.nptel.ac.in/noc23_ec06/preview
3	23B2WCE701	AVAILABILITY AND MANAGEMENT OF GROUNDWATER RESOURCES	https://onlinecourses.nptel.ac.in/noc22_ce92/preview
4	23B2WBT704	PHYSICS OF RENEWABLE ENERGY SYSTEMS	https://onlinecourses.nptel.ac.in/noc21_ph33/preview
5	23B2WBT703	FUNDAMENTALS OF FOOD PROCESS ENGINEERING	https://onlinecourses.nptel.ac.in/noc20_ag01/preview
6	23B2WBT702	FUNCTIONAL AND CONCEPTUAL DESIGN	https://onlinecourses.nptel.ac.in/noc20_de10/preview
7	23B2WBT701	NATURAL RESOURCES MANAGEMENT	https://onlinecourses.nptel.ac.in/noc22_ag10/preview
8	24P2WMA102	PARTIAL DIFFERENTIAL EQUATIONS	https://archive.nptel.ac.in/courses/111/101/111101153/
9	24P2WMA101	A BASIC COURSE IN NUMBER THEORY	https://archive.nptel.ac.in/courses/111/101/111101137/
10	24B2WHS802	ELEMENTS OF LITERATURE AND CREATIVE COMMUNICATION	https://onlinecourses.nptel.ac.in/noc22_hs62/preview
11	24B2WHS704	BASICS OF EVENT MANAGEMENT	https://onlinecourses.swayam2.ac.in/nou20_ge01/preview
12	24B2WHS703	INTRODUCTION TO WESTERN POLITICAL THOUGHT	https://onlinecourses.nptel.ac.in/noc21_hs101/preview
13	24B2WHS702	INDIAN SOCIETY SOCIOLOGICAL PERSPECTIVES	https://onlinecourses.nptel.ac.in/noc23_hs78/preview
14	24B2WHS701	HR ANALYTICS	https://onlinecourses.nptel.ac.in/noc24_hs126/preview
15	24B2WEC701	CYBER SECURITY AND PRIVACY	https://onlinecourses.nptel.ac.in/noc23_cs127/preview
16	24B2WCI801	PRIVACY AND SECURITY IN ONLINE SOCIAL MEDIA	https://onlinecourses.nptel.ac.in/noc23_cs13/preview

17	24B2WCI707	INTRODUCTION TO CYBER SECURITY	https://onlinecourses.swayam2.ac.in/nou19_cs08/preview
18	24B2WCI706	INFORMATION SECURITY	https://archive.nptel.ac.in/courses/106/106/106106129/
19	24B2WCI705	SIMULATION OF COMMUNICATION SYSTEMS USING MATLAB	https://onlinecourses.nptel.ac.in/noc23_ee136/preview
20	24B2WCI704	CONGNITION AND ITS COMPUTATION	https://onlinecourses.nptel.ac.in/noc22_ee122/preview
21	24B2WCI703	PRACTICAL CYBER SECURITY FOR CYBER SECURITY PRACTITIONERS	https://onlinecourses.nptel.ac.in/noc24_cs85/preview
22	24B2WCI702	INTRODUCTION TO DEEP LEARNING	https://onlinecourses.nptel.ac.in/noc20_cs62/preview
23	24B2WCI701	ARTIFICIAL INTELLIGENCE	https://nptel.ac.in/courses/106102220
24	24B2WBT802	FORESTS AND THEIR MANAGEMENT	https://onlinecourses.nptel.ac.in/noc24_bt23/preview
25	24B2WBT702	HUMAN NUTRITION AND BIOCHEMISTRY	https://onlinecourses.swayam2.ac.in/cec24_ag05/preview
26	24B2WMA601	HEALTH ECONOMICS	https://nptel.ac.in/courses/130107369
27	24B2WCE602	INDUSTRIAL WASTE WATER TREATMENT	https://nptel.ac.in/courses/105107207
28	24B2WCE601	REMOTE SENSING AND GIS FOR RURAL DEVELOPMENT	https://nptel.ac.in/courses/105101221