



**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S,
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE, (AUTONOMOUS)
DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

Faculty of Commerce

**DEPARTMENT OF BANKING & INSURANCE
(Programme: B.Com in Banking & Insurance)**

SYLLABUS FOR

S.Y. B.Com. Banking & Insurance (BBI) (Semester III and IV)

Choice Based Credit System (CBCS)

(As per NEP – 2020)

(With effect from the Academic Year: 2024-25)

B.Com. (Banking & Insurance) Programme
Under Choice Based Credit, Grading and Semester System
Course Structure

S.Y.B.Com. (Banking & Insurance)

	Semester I	Credits	No. of Courses	Semester II	Credits
I	<i>Major Course</i>		I	<i>Major Course</i>	
1	Advance Bank Management	4	1	Advance Insurance Management	4
2	Management Accounting	4	2	Customer relationship Management in Banking and Insurance	4
II	<i>Minor Course</i>		II	<i>Minor Course</i>	
3.	Financial Markets in Banking and Insurance	4	3.	Cost Accounting in Banking and Insurance	4
III	<i>Open Elective Courses</i>		III	<i>Open Elective Courses</i>	
4.	MKCL	2	4.	Cyber Security	2
IV	<i>Vocational Skill Courses / Skill Enhancement Courses</i>		IV	<i>Vocational Skill Courses / Skill Enhancement Courses</i>	
5.	VSC- Entrepreneurship Skills	2	5.	VSC- Direct Taxation and Basic of ITR	2
6.	SEC- Financial computation Skills - I	2	6.	SEC- Financial Computation Skills II	2
V	<i>Ability Enhancement Courses/Value Education Courses/Indian Knowledge System (AEC/VEC/IKS)</i>		V	<i>Ability Enhancement Courses/Value Education Courses/Indian Knowledge System (AEC/VEC/IKS)</i>	
7.	AEC- Written English in Banking and Insurance	2	7.	AEC- Corporate Communication and Public Relation	2
8.	FIELD PROJECT/INTERNSHIP/COMMUNITY ENGAGEMENT/COCURRICULAR COURSES	2	8.	FIELD PROJECT/INTERNSHIP/COMMUNITY ENGAGEMENT/COCURRICULAR COURSES	2
Total Credits		22			22

Programme Outcome:**PO1: Bring strong foundation in the areas of banking, Finance insurance & Management****PO 2: Develop the knowledge and skill set to apply theories of banking & Finance in Industry****PO 3: Nurture a Good corporate citizen with Knowledge, skills and critical thinking to fit in corporate world****Course Outcomes:****CO 1: Learners will gain an insight into areas of Accounting. Finance, Insurance, General Management.****CO 2: Apply team work, managerial skills and decision-making abilities for scenarios encountered as an element of team in corporate world****CO 3: Apply ethical principles as a good corporate citizen****Semester III**

Sr. No.	Course Title	Course Code	Category	Teaching Hours	Total marks	Credit
1	Advance Bank Management	BI24301MM	Major	60	100	4
2	Management Accounting	BI24302MM	Major	60	100	4
3	Financial Markets in Banking and Insurance	BI24303MN	Minor	60	100	4
4	MKCL	PC24312OE/ PC24318OE	Open Elective Courses	30	50	2
5	VSC- Entrepreneurship Skills	BI24305VS	Vocational Skill Courses	30	100	2
6	SEC- Financial computation Skills – I	BI24306SE	Skill Enhancement Courses	30	100	2
7	AEC- Written English in Banking and Insurance	BI24307AE	Ability Enhancement Courses	30	50	2
8	FIELD PROJECT/INTERNSHIP/COMMUNITY ENGAGEMENT/COCURRICULAR COURSES	BI24308FP/ BI24308CE				

Semester IV

9	Advance Insurance Management	BI24401MM	Major	60	100	4
10	Customer relationship Management in Banking and Insurance	BI24402MM	Major	60	100	4
11	Cost Accounting in Banking and Insurance	BI24403MN	Minor	60	100	4
12	Cyber Security	CS24404OE	Open Elective Courses	30	50	2
13	VSC- Direct Taxation and Basic of ITR	BI24405VS	Vocational Skill Courses	30	100	2
14	SEC- Financial Computation Skills II	BI24406SE	Skill Enhancement Courses	30	100	2
15	AEC- Corporate Communication and Public Relation	BI24407AE	Ability Enhancement Courses	30	50	2
16	FIELD PROJECT/INTERNSHIP/COMMUNITY ENGAGEMENT/COCURRICULAR COURSES	PC24412CC				

Major Mandatory
Advance Bank Management

Sr. n.	Modules	No. of Lectures	Credit Point
1	An Overview of Banking Industry	10	4
2	Commercial Banking and Customer – Banker	10	
3	Relationship Universal Banking & Technology in Banking sector	10	
4	Microfinance & Financial Inclusion	15	
5	Recovery Management	15	
		60	

Objectives:

- To develop an acquaintance with Indian Banking system
- To understand the functioning of commercial banks
- To study new technological innovations in Banking area
- To acquaint on recent initiatives towards micro finance & financial inclusions
- To make learners aware of Recovery management procedures, norms and institutions involved in recovery management

Course Outcomes

- Learners will be able to understand Indian Banking system
- Acquaint knowledge about functioning of commercial Banks
- Apply knowledge of technological application in E Banking transactions
- Learners will be able to develop understanding towards financial inclusion initiatives
- Learners will be equip with regulatory norms of debt recovery

Sr. No.	Modules / Units	
1	An Overview of Banking Industry	10
	<ul style="list-style-type: none"> • Definition of Banks, Types of Banks, Principles of Banking • Banking System in India, Overview of RBI, Public, Private, Co-operative, Payment Bank, Regional Rural Banks • Emerging trends of banking - Universal banking, electronic banking, globalization of banking. • Brief history of banking sector reforms from 1991-2000 and Current developments in banking sector • Regulatory Architecture – Overview of Banking Regulation Act 1949, Banking Regulation Act(Amendment 2015), Payment and Settlement Act 2007, Negotiable Instrument Act 1881, BIS, Basel I, II and III. • Bank Crises in India • Critical Evaluation of Banking Industry in India 	
2	Commercial Banking and Customer – Banker Relationship	10
	<ul style="list-style-type: none"> • Definition and meaning of Commercial Bank, Evolution of Commercial Banking in India, Functions of Commercial Bank , Services offered by Commercial Bank. • Retail Banking – Meaning, Features, Significance of Retail Banking and Overview of its products • Corporate Banking -Meaning, Features, Significance of Corporate Banking and Overview of its products • Rural Banking - Meaning, Features, Significance of Rural Banking and 	

	<p>Overview of its products</p> <ul style="list-style-type: none"> Banking Ombudsman – Meaning and Functions 	
3	Universal Banking & Technology in Banking sector	10
	<p>A) Universal Banking Concept of Universal Banking, Evolution of Universal banking ,Services to Government, Payment & Settlement, Merchant Banking, Mutual Fund, Depository Services, Wealth Management, Portfolio Management Bancassurance, NRI Remittance.</p> <p>B) Technology in Banking</p> <ul style="list-style-type: none"> Features, norms and Limitations of E- banking, Mobile Banking, Internet Banking, RTGS, POS Terminal, NEFT, IMPS, Brown Label ATM’s, White Label ATM’s, NUUP, AEPS, APBS, CBS, CTS, Digital Signature , M-Wallets , Online opening of bank accounts – savings & current, and application for credit cards, loan. Applicability of KYC norms in Banking Sector. 	
4	Microfinance & Financial Inclusion	15
	<p>A) Microfinance</p> <ul style="list-style-type: none"> Introduction, Need and Code of Conduct for Microfinance Institutions in India, Advantages, Purpose, Limitations and Models of SHG – Bank Linkage Program. Role of NABARD and SIDBI,Portfolio Securitization SHG- 2, NRLM AND SRLM Priority Sector and its classification <p>B) Financial Inclusion:</p> <ul style="list-style-type: none"> Need and extent RBI Committee Report of Medium Term Path On Financial Inclusion 2015, World Findex Report 2015, NISM Report 2015, (Only Brief Extracts Relating To Bank Account Holdings And Credit Taken And Contrast Between Developing And Developed Nations.) Features & Procedures of Pradhan Mantri Jan Dhan Yojana, and PM Mudra Yojana. -Features, procedures and significance of Stand up India Scheme for Green Field 	
5.	Recovery Management	15
	<ul style="list-style-type: none"> Legal and Non Legal Recovery Measures. Debt Recovery Tribunal (DRT) Asset Securitisation and Asset Reconstruction SARFAESI Act(Provisions related banks recovery) Notices to be issued to the borrower under SARFAESI act insolvency and bankruptcy 	

References:

- Uppal, R.K., Indian Banking Industry in 2020, Mahamaya Publishing House, 2008
- Jain, Sonali, Banking Industry in India : Reforms Regulations and Service Quality , New Century Publications, 2014
- Tripathy, Nalini P, Emerging Scenario of Indian Banking Industry, Mahamaya Publishing House, 2005
- Mathur B.L, Banking and Finance, R B S A Publishers, 2005
- <https://www.nsdcindia.org/scmp/assets/image/387664678->

Debt_Recovery_Agent__English_PHB.pdf

PAPER: Management Accounting

Sr. No.	Particulars	Lectures	Credit Points
1.	Introduction to Management Accounting	10	04
2.	Analysis and Interpretation of Accounts	20	
3.	Working Capital Management	15	
4.	Cash Flow Analysis	15	
	TOTAL	60	

Objectives:

1. To enable learners to understand the meaning of Cash flow and Its Practicality.
2. The learners will understand the practical application of various financial analysis tools and will help them in evaluation of the various targets achievable in future.
3. To learners will able to manage the accounts and finances of the Banking and insurance company.
4. To help the students to illustrate the format of Vertical Financial Statements, analysis and interpretations of Financial Statement.

Learning Outcomes:

Co1: Students understand preparation of financial statements in accordance with the appropriate accounting standards.

Co2: Students gain knowledge of different accounting ratios and its application in the banking sector.

Co3: Students would understand the concept of standard costing and how it is helpful in decision making process.

Co4: Students would be able learn about Cash inflow and Outflow and analysis the income and expenses of the company accordingly.

	Modules/Units	Lectures
UNIT-I	Introduction to Management Accounting:	
	Meaning, Features, Scope, Importance, Functions, role of Management Accounting, Management Accounting Framework, Tools, Management Accounting and Financial Accounting	10
UNIT-II	Analysis and Interpretation of Accounts	20

	<p>a) Vertical Forms of Balance Sheet and Profit and Loss Account suitable for analysis</p> <p>b) Trend Analysis.</p> <p>c) Comparative Statement.</p> <p>d) Common Size Statement.</p> <p>NOTE: Practical Problems based on the above (a) to (d)</p> <ul style="list-style-type: none"> Ratio analysis: Meaning, classification, Du Point Chart, advantages & limitations. <p>Balance Sheet Ratios: Current Ratio, Liquid Ratio, Stock Working Capital Ratio, Proprietary Ratio, Debt Equity Ratio, Capital Gearing Ratio. Revenue Statement Ratios: Gross Profit Ratio, Expenses Ratio, Operating Ratio, Net Profit Ratio , Net Operating Profit Ratio , Stock Turnover Ratio, Combined Ratio, Return on Capital employed (Including Long Term Borrowings), Return on proprietor's Fund (Shareholders Fund and Preference Capital , Return on Equity Capital, Dividend Payout Ratio, Debt Service Ratio, Debtors Turnover, Creditors Turnover</p>	
UNIT-III	Working Capital Management:	15
	Concept, Nature of Working Capital, Planning of Working Capital, Estimation/Projection of Working Capital Requirements in case of Trading and Manufacturing Organization Operating Cycle.	
Unit IV	Cash Flow Analysis:	15
	Preparation of Cash Flow Statement with reference to Accounting Standard No .3. (Indirect method only))	

Reference Books:

1. I.M. Pandey : Management Accounting; Vikas Publishing House (P) Ltd. A-22, Sector 4, Noida – 201 301.
2. M.Y. Khan & P.K. Jain : Theory and Problems of Management and Cost Accounting; McGraw-Hill Education (India) Ltd. B-4, Sector 63, Gautam Budh Nagar, Noida – 201 301.
3. Drury Colin : Management and Cost Accounting; International Thomson Business Press, London.
4. M.N. Arora : Cost and Management Accounting (Theory and Problems); Himalaya Publishing House, Ramdoot, Dr. Bhalerao Marg, Kelewadi, Girgaon, Mumbai-400 004.
5. S.P. Jain & K.L. Narang : Cost and Management Accounting; Kalyani Publishers, 23, Daryaganj, New Delhi-110 002.

ICT Backup:-

1. <https://www.youtube.com/watch?v=eUMwwp5zDWO>
2. <https://www.youtube.com/watch?v=Y-a-ivLw2o4>
3. <https://www.youtube.com/watch?v=gccc5G97FYI>
4. <https://www.youtube.com/watch?v=oWSfAon2tLU>

Pedagogy:

Management Accounting is a subject in which the students are able to learn how accounting helps the management in decision making process, what is the role of managerial accountant, presentation and preparation of accounting in such way that helps in management.

Unit 1 covers the introduction of management accounting, group discussion and quiz can be arranged.

Unit 2 covers Financial statement analysis, Students can be asked to collect the data of various business units and do analysis and interpretation of the financial statements which would help them to learn practicality of the subject.

Unit 3 covers variance analysis, students can be asked to different case studies.

Unit 4 covers the topic of Cash Flow Management within the organization.

MOOC units:

1. <https://www.coursera.org/courses?query=management%20accounting>
2. <https://www.edx.org/learn/management-accounting>
3. <https://www.udemy.com/topic/management-accounting/>
4. <https://online-learning.harvard.edu/course/managerial-accounting?delta=0>
5. <https://www.mooc-list.com/tags/management-accounting>

Minor
Paper: Financial Markets in Banking and Insurance

Sr. No	Modules No.	No of Lectures	Credit Point
1	Financial Market and Regulatory Institution	10	4
2	Indian Money Market and Debt Market	10	
3	Indian Capital, Stock and Equity Market	15	
4	Commodity Market	10	
5	Derivative Market	15	

Objectives:

1. To understand the Indian financial market and its institutions.
2. To learn the various types of financial markets in India.
3. To know the structure & need of the commodity market.
4. To understand the importance of derivatives contract.

Learning outcomes:

- CO1 - Learners will learn about the Indian financial market and regulatory framework.
 CO2 - Learners will get an idea about the various financial markets.
 CO3 - Learners will get an idea about the commodity & derivatives trade.

Sr. No.	Modules / Units	No. of Lectures
1	Financial Market and Regulatory Institution Structure of Indian Financial system: Banking and Non-banking Financial Institutions, Organized and Unorganized Financial Markets, Financial Assets/Instruments, Fund Based and Fee Based Financial Services	10
2	Indian Money Market and Debt Market <ul style="list-style-type: none"> • <u>Indian Money Market</u>: Meaning, Features, Functions, Importance Defects, Participants, Components of Organized and Unorganized Markets and Reforms • <u>Indian Debt Market</u>: Market instruments, listing, primary and secondary segments 	10
3	Indian Capital, Stock and Equity Market <ul style="list-style-type: none"> • Indian Capital Market: Meaning, Features, Functions, Importance, Participants, Instruments, Reforms in Primary and Secondary Market • Indian Stock Market: Meaning and functions of Stock Exchange- NSE and BSE • Indian Equity Market: Primary Market, IPO - Methods followed, Book Building, Offer for sale, Role of Merchant bankers in fixing the price, Red Herring Prospectus – its unique features, ASBA and its features, Green Shoe option, Sweat equity, ESOP, Rights issue of shares, Non-voting shares, ADR, GDR, IDR 	15

	Commodity Market	
4	<ul style="list-style-type: none"> • Introduction to commodities Market: Meaning, History and Origin, Types of Commodities Traded • Structure of Commodities Market in India • Participants in Commodities Market, Trading commodities in India (Cash and Derivative segment) • Commodity Exchanges in India and abroad • Reasons for Investing in Commodities 	10
5	Derivatives Market:	15
	<p>Introduction to Derivatives market: Meaning, History and origin</p> <ul style="list-style-type: none"> • Elements of a Derivative contract • Factors driving Growth of Derivatives Market • Types of Derivatives, Types of Underlying Assets, Participants in Derivatives Market, Advantages and Disadvantages of Trading in Derivatives Market. • Current volumes of Derivatives trade in India • Difference between Forward and Future 	

ICT Backup:-

<https://sydenham.ac.in/pdf/SYBBI-Semester-III-and-IV.pdf>

<https://www.youtube.com/watch?v=Wh72li8NxZ0> - Indian Financial System – Dr. Divya Ghakar – GGS Indraprastha University – Delhi

<https://www.youtube.com/watch?v=Nz36iJfmRhE> - Indian Financial System (Hindi) – CA Nikhil Jobanputra

<https://youtu.be/RzmLaXULZAw> -

Commodities Market for Beginners – Edelweiss Wealth Management

<https://youtu.be/tYkqwIIIIFX4> -

Derivatives Market for Beginners – Edelweiss Wealth Management

Pedagogy :

- The subject is based on the classroom teaching and assignments. Active participation by the student is important as they are going to be involved in practical learning such as case study, internship project; team projects, role play and quiz are main pedagogy instruments.
- Apply Blended learning in all units.

MOOC units:

<https://www.nseindia.com/learn/self-study-ncfm-modules-foundation-securities-market> - Securities Market (Basic) Module

<https://www.nseindia.com/learn/self-study-ncfm-modules-foundation-financial-markets> - Financial Markets: A Beginner's Module

<https://www.nseindia.com/learn/self-study-ncfm-modules-foundation-equity-derivatives> - Equity Derivatives: A Beginner's Module

Open Elective MKCL

VSC

Entrepreneurship skills

Sr. No.	Modules	Lectures	Credit points
1	The Entrepreneur	08	2
2	Business Planning	08	
3	Evolving Concepts in Entrepreneurship	14	
	TOTAL	30	

Objectives:

1. To understand the concept of entrepreneurship, skillset & attitude required to become an entrepreneur.
2. To create awareness about role of entrepreneurs in Indian economy
3. To acquaint learners with opportunities available for Entrepreneurship
4. To critically view the role of Government initiatives, financial institutions initiative to promote Entrepreneurial Skill.
5. To development entrepreneur spirit and feasible ideas for ventures

Learning Outcomes:

Co1 - Learners will be able to understand issues and challenges involved in Entrepreneurship Skill Development

Co2 - Learners will be able to explore and evaluate opportunities for new ventures

Co 3- To equip them with a platform to develop an entrepreneurial venture.

	Modules/Units	Lectures
UNIT I	The Entrepreneur A) Entrepreneur: Meaning, Nature, origin and development of entrepreneurship in India, Need and Importance, Core elements, Principles, Essentials, Types, Functions, Concept of entrepreneurship management, Motives behind being an entrepreneur, Entrepreneurial Process B) Entrepreneurial values and attitudes, dominant characteristics of successful Entrepreneurs, Internal and External factors for Entrepreneurial Motivation C) Entrepreneurial Skills, Identifying business opportunities, Role of creativity in Entrepreneurship, the creative process, the Innovation process, types of innovation, sources of innovation, principles of innovation, Sources of Business Ideas. D) Soft Skills for an entrepreneur: Communication and active listening, risk taking ability, critical thinking skills, problem solving skills, creativity and innovation, leadership skills, time management and technical skills.	8
UNIT II	Business Planning Skills A) Critical Factors for starting a new enterprise: Personal, Environmental, Sociological factors. Problems of a New Venture- Financial, administrative, marketing, production and other problems. B) Business Plan: Meaning, Benefits, Developing a business plan, Environment scanning, Elements/Areas to be covered in a Business Plan, Project Report preparation, Contents of a Project Report.	8
Unit III	Evolving Concepts in Entrepreneurship	14

- A) Social Entrepreneurship: Meaning, Social responsibility of an entrepreneur
 B) Green Entrepreneurship : Meaning , Types of Businesses, Examples
 B) Barriers to entrepreneurship: Environmental, economic, non-economic, personal and entrepreneurial barriers.
 C) Intrapreneurship: Meaning, Characteristics, Intrapreneurs Activities, types of Corporate Entrepreneurs, Corporate V/s Intrapreneurial culture, Climate, Fostering intrapreneurial culture, Promoting intrapreneurship-
 D) Ethics and Entrepreneurship: Defining Ethics, Approaches to Managerial ethics, ethics and business decisions, Ethical practices and code of conduct, Ethical considerations in corporate entrepreneurship
 E) Institutional Support to Entrepreneurs: Importance, Incentives and facilities, Entrepreneurship Development Institute of India (EDI), NSIC, Small Industries Development Organization (SIDO), National Institute for Entrepreneurship and Small Business Development (NIESBUD), Others, Key features of National Policy on Skill Development and Entrepreneurship 2015
 F) Promotional agencies set up by Central Government
1. Small industries development organization (SIDO)
 2. Management development Institute (MDI)
 3. Entrepreneurship development institute of India (EDI)
 4. All India Small Scale Industries Board (AISSIB)
 5. National Institution of Entrepreneurship and Small Business Development (NIESBUD), New Delhi
 6. National Institute of Small Industries Extension Training
 7. National Small Industries Corporation Ltd. (NSIC)
- G) Promotional agencies for the development of entrepreneurial skills: SIDO, MDI, EDI, AISSIB, NIESBUD, National Institute of Small Industries Extension Training, NSIC
- H) TYPES OF ASSISTANCE AND INCENTIVES provided to Entrepreneurs
1. Three-year tax holiday
 2. Capital Gains Tax Exemption of 20%
 3. Turnover Taxes:
 4. Government contribution to EPF:
3. Presumptive tax

References:

<https://mu.ac.in/wp-content/uploads/2022/05/Entrepreneurial-Management-English-Version.pdf>

ICT Backup:-

<https://mu.ac.in/wp-content/uploads/2022/05/Entrepreneurial-Management-English-Version.pdf>

Pedagogy:

Module 1 coins the concept of entrepreneurship, its origin and development, its need and importance, function and its process.

Module 2 consists Entrepreneurial Skills required to be a successful entrepreneur.

Module 3 includes evolving concepts in entrepreneurship skill development.

MOOC units:

https://www.mooc-list.com/tags/entrepreneurship#google_vignette

SEC
PAPER –Financial Computation Skills - I

Sr. No.	Modules	Lectures	Credit points
1.	Introduction to Financial Computation	5	2
2.	Time value of money and Investment decision	13	
3.	Financial Decisions	12	
		30	

Objectives:

1. To learn meaning and basic concepts of finance and financial Computation.
2. To make students understand the time value of money and capital budgeting.
3. To make students understand and learn the cost of capital and capital structure

Learning Outcomes:

CO1: The learners will learn to measure risk and returns and will be able to analyze various financial assets based on risk and return.

CO2: They will be in a position to estimate cash flows from a project and can evaluate various risks involved in investment decision making.

CO 3: Learners can also apply the concept of Computation of Financial assets in contemporary financial events.

	Modules/Units	Lectures
UNIT-I	Introduction to Financial Computation	5
	<p>A)Introduction to Finance</p> <ul style="list-style-type: none"> • Meaning and definition of finance • Importance of finance • Types of Finance: Public and Private • Sources of finance i. Long Term Sources : Term Loans, Debentures, Bonds, Zero Coupon bonds, Convertible Bonds, Equity shares, Preference shares, CD, CP, Public Deposits ii. Short Term Sources: Bank Finance, Trade Credit ,Other ShortTerm Sources iii. Venture Capital and Hybrid Financing <p>B)Financial Computation</p> <ul style="list-style-type: none"> • Meaning and Importance, Scope, Functions and Objectives, Primary Objective of Corporate Management, Agency Problem, Emerging role. <p>C)Objectives of the Firm</p> <ul style="list-style-type: none"> • Profit Maximization and Shareholders Wealth Maximization, • Profit V/s Value Maximization 	
	Time Value of Money and Capital Budgeting	12

UNIT-II	<p>A) Time Value of Money</p> <ul style="list-style-type: none"> • Concept • Present Value • Annuity • Techniques of Discounting • Techniques of Compounding, <p>B) Capital Budgeting</p> <ul style="list-style-type: none"> ▪ Nature of Capital Budgeting ▪ Purpose of Capital Budgeting ▪ Capital Budgeting Process ▪ Types of Capital Investment ▪ Basic Principle of Measuring Project Cash Flows Increment Principle, Long Term Funds Principle, Exclusion of Financial Cost Principle, Post Tax Principle. ▪ Probability technique for measurement of cash flow, ▪ Capital Budgeting Techniques: Net Present Value Profitability Index and Discounted Payback Method. 	
UNIT-III	<p>Financial Decisions:</p> <p>a. Cost of Capital:</p> <ul style="list-style-type: none"> • Introduction and Definition of Cost of Capital • Measurement of Cost of Capital • Economic Value Added (EVA)– Measurement & Components • Measurement of WACC using book value and market value method. • Measuring Marginal Cost of Capital <p>b. Capital Structure Decisions:</p> <ul style="list-style-type: none"> • Meaning and Choice of Capital Structure • Importance of Optimal Capital Structure • EBIT -EPS Analysis • Capital Structure Theories 	13

Learner space:

Financial Computation Skills helps students to learn how to manage financial resources both on the personal level and within a business plan. Even though in the age of computers, using computer intelligence to shift decision making, we still need the human touch for those final important decisions. Understanding the fundamentals of financial Computation Skills helps to be prepared in a new world of business and provides the foundation for making decisions. Financial advisors are more needed in today's business world.

Job oriented/Entrepreneurship development topics:

Reference Books:

1. Financial management: I M Pandey, Vikas Publishing House.
2. Financial management: M. Y Khan, P.K Jain, Tata McGraw Hill.
3. Financial management: Ravi M kishore, Taxman
4. Financial management: James C Van Horne, Prentice Hall.
5. Financial management: Prassana Chandra, Prentice Hall.
6. Financial management: Chandra Haribariran Iyer: IBHL Publication.
7. Financial management: Pawan V. Jhabak , Himalaya Publishing House.
8. Financial management: Lion Dr. Nishikant Jha, Nirav Goda, Himalaya publishing House.

AEC
PAPER: WRITTEN ENGLISH IN BANKING AND INSURANCE

Sr. No	Modules No.	No of Lectures	Credit Point
1.	A) Precis writing B) Essay writing C) Report writing	15	02
2.	Business Correspondence A) Theory of Business Letter Writing: B) Letters related to Banking and Insurance: C) Editing	15	

Objective:

- To present the main ideas of a selection in a clear and concise manner
- To present a clear argument in response to a question or stimulus.
- To provide decision-makers with accurate, relevant, and comprehensive information.
- To develop letter writing skill in general and in Banking and insurance area.

Learning outcome

- CO1- It will helps the learner to improve careful reading and the ability to choose words carefully and construct concise sentences.
- CO2- Learner will be able to develop their creative writing skills.
- CO3- Learner will be able to compose written text, and improve their communication.
- CO4- Learner will improve their quality of writing, enhance key points, and ensure readability and consistency. It can also help remove duplication and ambiguity, and improve understanding

Sr. No.	Modules / Units	No. of Lectures
1	<p>A) Precis writing Meaning, Do and don'ts in precis writing, Rules of precis writing, techniques, Features, Practical's</p> <p>B) Essay writing Steps in essay writing, The five paragraph essay, The Conclusion writing</p> <p>C) Report writing Reports: Parts, Types, Feasibility Reports, Investigative Reports Summarisation: Identification of main and supporting/ sub points presenting these in a cohesive manner.</p>	15
2.	<p>Business Correspondence</p> <p>A) Theory of Business Letter Writing: Parts, Structure, Layout – Full Block, Modified Block, Semi-Block, Principles of Effective Letter Writing, Principles of Effective Email Writing Email writing guidelines.</p> <p>B) Letters related to Banking and Insurance:</p> <ul style="list-style-type: none"> - Letter from Account holder to bank- Inquiry, Request Letter, Issue of new Debit card, Closure of Account, Complaint Letter, Insurance Claim Letter, Insurance Complaint Letter, and Loan Application Letter. - Letter from Bank to customer: Notice Letter Promotional letter, Loan Default Intimation Letter. 	15

	<p>C) Editing: Features, Editing involves several stages, which will be examined in detail during this course. In summary, they are: 1 Reviewing the Manuscript 2. Structural (Substantive) editing 3 Copy editing 4 Proof reading 5. Checking proofs.</p> <ul style="list-style-type: none"> - Role of an Editor - Types of Editing - Tools for Editing - Careers as an Editor - Qualities of an Editor 	
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Reference Book:

Public Relations- The realities of PR by Newsom, Turk, Kruckleberg
 Principals of Public Relations-C.S Rayudu and K.R. Balan
 Public Relations -Diwakar Sharma
 Public Relations Practices- Center and Jackson
 The Art of Public Relations by CEO of leading PR firms

Pedagogy:

- Module I consist of introduction of corporate communication, its scope and key concept.
- Module 2 consist the importance of corporate communication, professional code of Ethics and mass media law. It also consist contribution of technology to corporate communication and corporate Blogging.
- Module 3 consist of understanding of the different practices associated with corporate communication with the latest trends and social media tools.

MOOC Units:

<https://www.mooc-list.com/course/integrated-marketing-communications-advertising-public-relations-digital-marketing-and-mor>

SEMESTER IV

Major Advance Insurance Management

Sr. No.	Modules	No. of Lectures	Credit Points
1	An Introduction to Life Insurance	15	4
2	An Introduction to Health Insurance	10	
3	An Introduction to Home and Motor Insurance	10	
4	Role of Insurance in Logistic	10	
5	Additional Elements in Insurance	15	
Total		60	

Objectives

- To understand the meaning, basic concepts in Insurance sector, objectives, Basic Principles of Insurance
- To gather knowledge about the types of Insurance: - Life and Non-Life Insurance
- To understand the importance of Life Insurance, Products of Life Insurance
- To enlighten the learners about Non-Life Insurance and various products of Non-Life Insurance.
- To broaden the knowledge of career opportunities in insurance sector

Outcome

- Learners will be able to describe the basics of Insurance
- learners will be able to differentiate between life & general insurance sector products
- Learners will be able to evaluate Significant role of insurance in different sectors
- Learners will be able to describe various policies in markets with its inclusions and exclusions
- Learners will be able to create brader insight on different career avenues in Insurance

Sr. No.	Modules / Units	
1	An Introduction to Life Insurance	
	A) Life Insurance Business – Components, Human Life Value Approach, Mutuality, Principle of Risk Pooling, Life Insurance Contract, Determinants of Risk Premium B) Products of LIC – Introduction of life insurance plans - Traditional Life Insurance Plans – Term Plans, Whole Life Insurance, Endowment Assurance, Dividend Method of Profit Participation Purpose of plans , Riders in plan - Introduction, Forms and procedures C) Non-Traditional Life Insurance Products (Those of SBI and ICICI – Introduction, Forms and procedures)	15
2	An Introduction to Health Insurance	
	A) Health Insurance – Meaning, IRDA Regulations, determinants of Health Insurance, Health Insurance Market in India and determinants of Risk Premium. B) SBI and ICICI Health Insurance Plans - Introduction and Forms and Procedures of Hospitalization, Indemnity Products, top up covers, cashless insurance, Senior citizen plans, critical illness plans and Micro Insurance.	10

3	An Introduction to Home and Motor Insurance	
	<p>A) Home Insurance - SBI and ICICI Plans – Introduction, Forms and Procedures, Inclusions and Exclusions in policies, Determinants of Risk Premium and Impact of Catastrophes on Home Insurance.</p> <p>B) Vehicle Insurance- SBI and ICICI Plans-Introduction, Forms and Procedures, Determinants of Risk Premium, Inclusions and Exclusions.</p>	10
4	Role of Insurance in Logistic	
	<p>A) Role of Insurance in Logistic - Meaning & Importance, Hazards, Protection, Social Security – Type of Risks and Accidents.</p> <p>Fire Insurance – SBI and ICICI Plans – Introduction, Forms and Procedures, Standard Fire and Special Perils Policy, Tariff system and special policies.</p>	10
5	Additional Elements in Insurance	
	<p>A) Other types of insurance Agriculture insurance -meaning , inclusions and exclusions, introduction to agriculture insurance of India ,PMFBY Livestock insurance - Meaning types general inclusions and exclusions Travel insurance - meaning and types Child insurance plans Retirement plans</p> <p>B) Careers in Insurance Definition of an agent Procedure to become an agent, function, code of conduct Introduction to actuaries as a career. Introduction to surveyors/ losses assessors as a career in Insurance</p>	15

References

1. M N Mishra & S B Mishra, Insurance Principles and Practice, S. Chand 22nd Edition
2. DR L.P Gupta, Insurance Claims Solutions –Revised Edition
3. Mark S Dorfman & David A. Cather, Introduction to Risk Management & Insurance– Tenth Edition
4. S. Arunajatesan & T.R Vishwanathan, Risk Management Insurance
5. Uma Narang, Insurance Industry in India: features, Reforms and Outlook, New Century Publication
6. R. Haridas, Life Insurance in India, New Century Publications
7. P. S. Palande, Insurance in India: Changing Policies & Emerging Opportunities, SAGE Publications Pvt. Ltd., 2003
8. Dr. L. P. Gupta, General Insurance Guide, Dr. L. P. Gupta, 2016
9. IRDA E- Book

Major

Customer Relationship Management in Banking and Insurance

Sr. No.	Modules	No. of Lectures	Credit Point
1	Introduction to Customer Relationship Management (CRM)	15	04
2	Technological support in Customer Relationship Management (CRM)	15	
3	Implementing Customer Relationship Management (CRM)	15	
4	Customer Relationship Management (CRM) in Banking and Insurance Sector	15	
Total		60	

Objective:

1. To understand concept of Customer Relationship Management (CRM) and implementation of Customer Relationship Management
2. To provide insight into CRM marketing initiatives, customer service and designing CRM strategy
3. To understand new trends in CRM, challenges and opportunities for organizations

Learning Outcome:

CO1 - To know the functions of Customer Relationship Management

CO2 - To know the Technology used to keep connectivity with customers.

CO3 - To know challenges and opportunities in maintaining relationship with customer.

4.

Sr. No.	Modules / Units	
1	Introduction to Customer Relationship Management (CRM)	15
	Meaning, Definition of CRM, Development in CRM, Benefits of CRM, Effective CRM through Customer Knowledge Management, CRM Cycle, Winning market through effective CRM, CRM programmes, Relationship marketing & effectiveness of Relationship marketing, Factors responsible for growth of Customer Relationship Management (CRM)	
2	Technological support in Customer Relationship Management (CRM)	15
	Introduction, Technological application in CRM, Types of Technological application in CRM, Database and Information systems, Database marketing strategies, CRM software solutions for B2C and B2B, Accounting systems for Customer Acquisition and Retention Costs, Customer loyalty and Profitability through Technology. e-CRM – Introduction, Importance, Challenges, Strategies, e-marketing and e-CRM.	
3	Implementing Customer Relationship Management (CRM)	15

	Allocation rule of Customer Relationship Management (CRM), Customer Satisfaction survey, Contact management, Building Customer Relationship Management (CRM), Effectiveness of Customer Relationship Management (CRM), Organizing of Customer Relationship Management (CRM), Employee & customer management process.	
4	Customer Relationship Management (CRM) in Banking and Insurance Sector	15
	Building customer loyalty, B2B Commerce, B2B relationship with intermediaries, Relationship marketing for creating value in business & market, Customer Relationship Management in Indian Banking and Insurance sector- Introduction, CRM objectives, need of CRM, Process of CRM, Customer Relationship Management through Call Centres in Banking sector, E- CRM in Banking and Insurance	

Reference Book:

Alok Kumar Rai, “Customer Relationship Management – Concepts and Cases”, PHI Learning Private Ltd, New Delhi

- Berry, Leonard L. (1995), “Relationship marketing of services – competing through quality”, free press, New York
- Berson, A and S J Smith, K Thearling (1999), “Building Data Mining Applications for CRM”, McGraw-Hill, New York
- Chaturvedi, Kapil and Amit Bhatia (2001), “e-CRM: Deriving value of customer relationship”, CRM: Emerging Concepts, tools and Application, in J N Sheth, A
- McKenna, Regis (1991), “Relationship Marketing: Successful Strategies for the Age of the Customer”, Addison-Wesley, New York.
- MadhaviGarikaparthi, “ E-CRM – Concepts and Cases” , The ICFAI University Press.
- Graham Roberts , Phelps, “Customer Relationship Management” , Thorogood Publishers Limited, UK

Pedagogy:

- Module I consist of introduction to Customer Relationship Management, its cycle, Relationship marketing & effectiveness of Relationship marketing and factors responsible for the growth of CRM
- Module consist of technological support in customer relationship management, its database strategies.
- Module 3 consist how to implement customer relationship management effectively.

MOOC COURSES:

<https://www.my-mooc.com/en/mooc/customer-relationship-management-crm-iimbx-mk210x>

Minor
Cost Accounting in Banking and Insurance

Sr. No.	Modules	Lectures	Creditpoints
1.	Introduction to Cost Accounting	10	04
2.	Classification of Cost and Cost Sheet	15	
3.	Standard Costing and Service Costing	20	
4.	Introduction to Marginal Costing	15	
	TOTAL	60	

Objectives:

1. To enable the learner to understand the various concepts of cost accounting.
2. To enable the learners to understand the different cost and preparation of cost sheet.
3. To make students understand the concept of operating costing in different areas
4. To make students understand and learn the marginal costing techniques

Learning Outcomes:

Co1: Students understand different types of cost.

Co2: Students Illustrate various costing technique to calculate cost with respect to different service industry.

Co3: Students would be able to understand the concept of operating costing and its applicability in service industry i.e. hotel, hospital, transport, etc.

Co4: Students learn the marginal costing techniques.

	Modules/Units	Lectures
UNIT-I	Introduction to Cost Accounting	
	Objectives and scope of Cost Accounting Cost centers and Cost units Cost classification for stock valuation, Profit measurement, Decision making and control Coding systems Elements of Cost	10
UNIT-II	Classification of Cost and Cost Sheet	15
	<ul style="list-style-type: none"> • Classification of costs, Cost of Sales, Cost Centre, Cost Unit, Profit Centre and Investment Centre • Cost Sheet and Reconciliation of cost and financial accounts. <p>Note- Practical problems based on preparation of cost sheet reconciliation of cost and financial accounts</p>	
UNIT-	Standard Costing and Service Costing	

III	<ul style="list-style-type: none"> • Various types of standards, setting of standards, Basic concepts of, Labour and Overhead (Fixed and Variable) variance analysis <p>Service Costing</p> <ol style="list-style-type: none"> 1. Features 2. Cost Unit (Simple Cost Unit & Composite Cost Unit) 3. Format 4. Types <ul style="list-style-type: none"> • Transport Costing • Hospital Costing • Hotel Costing 	20
UNIT-IV	<p>Introduction to Marginal Costing</p> <ul style="list-style-type: none"> • Marginal costing meaning, application, advantages, limitations, Contribution, Breakeven analysis and profit volume graph. <p>Note: - Practical problems based on Marginal Costing excluding decision making</p>	15

Learner space:

The main Objective of Cost Accounting is to offer a career that offers opportunities to Commerce students; however, good analytical skills help a lot in this field. Thus, choosing Cost Accounting as a career is a wise option for those who are interested in growing fast in their careers and those who wish to get exposure to industrial accounting at an early stage itself. Students will be able to find opportunities in Management of public & private sector enterprises, Financial institutions, Teaching, Consultancy, Independent practice. Students will be able to Collect, organize internal and financial information for evaluating, critical analyses and regulating past and present financial performance for forecasting. They will be able to Monitor costs of raw materials, labour, transportation, administrative costs, overheads etc. in an industry. Students will learn to monitor performance and efficiency to locate and report on problems and also learn to prepare regular cost reports.

Job oriented/Entrepreneurship development topics:

Cost Sheet, Service Costing

Reference Books:

1. N.S. Zad : Cost & Management Accounting Taxmann Publications Pvt. Ltd.
2. Deepak Jain : Cost & Management Accounting Taxmann Publications Pvt. Ltd.
3. S.P. Jain & K.L. Narang : Cost and Management Accounting; Kalyani Publishers, 23, Daryaganj, New Delhi-110 002.
4. M.N. Arora : Cost and Management Accounting (Theory and Problems); Himalaya Publishing House, Ramdoot, Dr. Bhalerao Marg, Kelewadi, Girgaon, Mumbai-400 004.
5. Drury Colin : Management and Cost Accounting; International Thomson Business Press, London.
6. B.M. Lall Nigam and I.C. Jain Cost Accounting Principles and Practice - PHI Learning Private Limited

ICT Backup:

Second Year SYBBI (NEP 2020)

1. <https://www.youtube.com/watch?v=p-ZRp1G4sAM>
2. <https://www.youtube.com/watch?v=FlisUOIwOnw>
3. https://www.youtube.com/watch?v=0OjChe0u3_g
4. <https://www.youtube.com/watch?v=jUQs5dXJQUs>
5. <https://www.youtube.com/watch?v=hCFDmGIH4H4>
6. <https://www.youtube.com/watch?v=EMVs0ILOEfU>

Pedagogy:

Unit 1 covers the Introduction of cost accounting; group discussion can be arranged to get in depth.

Unit 2 covers classification of cost and cost sheet, students can be asked visit different business units collect the data and prepare cost sheet this will enable the practicality of the subject.

Unit 3 covers the service costing, students can be asked to collect data from various service industries, do analysis for the same.

Unit 4 covers the marginal costing techniques, students can be asked for different case studies.

MOOC units:

1. <https://www.coursera.org/courses?query=cost%20accounting>
2. <https://www.edx.org/learn/cost-accounting>
3. <https://www.udemy.com/topic/cost-accounting/>
<https://www.classcentral.com/course/swayam-cost-accounting-13968>

Open Elective:

(Inter disciplinary offered by Department of Computer Science)

Course:	TOPICS (Credits : 02 Lectures/Week:03) Introduction to Cyber Security	
UNIT	Module	Lectures
Unit I	<p>Cyber crime and Cyber law : Classification of cyber crimes, Common cyber crimes - cyber crime targeting computers and mobiles, cyber crime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks, Cybercriminals modusoperandi , Reporting of cyber crimes, Remedial and mitigation measures, Legal perspective of cyber crime, Cyber crime and offences, Organisations dealing with Cyber crime and Cyber security in India, Case Studies.</p> <p>Social Media Overview and Security : Introduction to Social networks . Types of Social media, Social media platforms, Social media monitoring, Hashtag, Viral content, Social media marketing, Social media privacy, Challenges, opportunities and pitfalls in online social network, Security issues related to social media, Flagging and reporting of inappropriate content, Laws regarding posting of inappropriate content, Best practices for the use of Social media, Case studies.</p>	10

Unit II	<p>E - Commerce and Digital Payments : Definition of E- Commerce, Main components of E-Commerce, Elements of ECommerce security, E-Commerce threats, E-Commerce security best practices, Introduction to digital payments, Components of digital payment and stake holders, Modes of digital payments- Banking Cards, Unified Payment Interface (UPI), e-Wallets, Unstructured Supplementary Service Data (USSD), Aadhar enabled payments, Digital payments related common frauds and preventive measures. RBI guidelines on digital payments and customer protection in unauthorised banking transactions. Relevant provisions of Payment Settlement Act,2007.</p>	10 L
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Unit III	<p>Digital Devices Security , Tools and Technologies for Cyber Security : End Point device and Mobile phone security, Password policy, Security patch management, Data backup,</p> <p>Downloading and management of third party software, Device security policy, Cyber Security best practices, Significance of host firewall and Anti-virus, Management of host firewall and Anti-virus, Wi-Fi security,</p> <p>Configuration of basic security policy and permissions.</p>	10 L
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Skill Enhancement Course (SEC)
Financial Computation Skills II

Sr. No.	Modules	Lectures	Credit points
1.	Management of Components of Working Capital	15	02
2.	Financial Planning: Budget and Budgetary Control	10	
3.	Financial Policy and Corporate Strategy	5	
TOTAL		30	

Objectives:

1. To make them understand the management components of working capital.
2. To enable the learners to learn the financial policy.
3. To learn and understand financial policy and corporate restructuring.

Learning Outcomes:

- Co1: Students learn theoretical and practical knowledge of financial computation techniques.
Co2: Students learn Importance of risk in context of financial decision making.
Co3: Students gain knowledge of different types of budget.

	Modules/Units	Lectures
UNIT-I	Management of Components of Working Capital	15
	<ul style="list-style-type: none"> • Management of Cash and Marketable Securities: <ul style="list-style-type: none"> • Motives for Holding Cash Objectives of Cash Management Factors Determining Cash Needs Basic Strategies of Cash Management Cash Management Techniques / Processes Marketable Securities; and Cash Management Practices in India. • Receivables Management: <ul style="list-style-type: none"> Objectives Credit Policies Credit Terms and Collection Policies. • Inventory Management: <ul style="list-style-type: none"> Objectives; and Techniques.(EOQ, Stock levels, Inventory turnover ratio) Periodic and perpetual inventory methods. FIFO and Weighted Average Method 	

UNIT-II	Financial Planning: Budget and Budgetary Control Introduction Meaning and Essentials of Budget Types of Budget Advantages of Budgeting Zero Based Budgeting, Master Budget, Sales Budget, Production Budget, Material Budget, Cash Budget and Flexible Budget.	10
Unit III	Analysis of leverages (Introduction and meaning) A. Business and Financial Risk B) Types of Leverages <ul style="list-style-type: none"> • Operating leverage • Financial leverages • Combined leverages 	5

Learner space:

Financial management helps students to learn how to manage financial resources both on the personal level and within business plan. Even though in the age of computers, using computer intelligence to shift decision making, we still need the human touch for those final important decisions. Understanding the fundamentals of financial management helps to be prepared in a new world of business and provides foundation for making decisions. Financial advisors are more needed in today's business world. Bill book application consists of recording of inventory which can be introduced to students for getting industrial knowledge.

Job oriented/Entrepreneurship development topics:

Management of components of working capital

Reference Books:

1. Financial management : I M Pandey, Vikas Publishing House.
2. Financial management : M. Y Khan, P.K Jain, Tata McGraw Hill.
3. Financial management: Ravi M kishore, Taxman
4. Financial management: James C Van Horne, Prentice Hall.
5. Financial management: Prassana Chandra, Prentice Hall.
6. Financial management: Chandra Haribariran Iyer: IBHL Publication.
7. Financial management: Pawan V. Jhabak , Himalaya Publishing House.
8. Financial management: Lion Dr. Nishikant Jha , Nirav Goda, Himalaya publishing House.
9. Van Horne , J., Wachowicz , J.M. Fundamental of financial management 13 th edition Financial Times/ Prentice Hall.

ICT Backup:-

1. www.ft.com – Financial Times
2. http://web.gjuonline.ac.in
3. www.wsj.com – The wall Street Journal Online
4. http://www.managementstudyguide.com
5. http://en.m.wikipedia.org

Pedagogy:

The subject of Financial management focuses on the critical elements of financial decisions.

Unit – I includes Management components of working capital, here students can be given assignments and also can be asked for collecting secondary data for learning practical applicability.

Unit – II includes Financial Planning students can be asked to make presentations of different budgets.

Unit III- includes the leverage which helps students to calculate the leverage on the basis of operating income and financial income.

MOOC units:

1. Financial management course on COURSE

<https://www.coursera.org/specializations/financial-management>

VSC
Direct Taxation and Basics of ITR

Sr. No.	Modules	Lectures	Credit points
1.	Definition and exemptions	5	02
2.	Heads of Income and Deductions	15	
3.	Computation of Total Income of Individual and HUF with Return filing	10	
	TOTAL	30	

Objectives:

Learners will be able to understand the different types of incomes and their taxability and expenses and their deductibility and also they will understand the various deductions in the taxable income.

Learning Outcomes:

Co1: Learners will get knowledge about Income tax act 1961.

Co2: Learners will be able to calculate taxable income under different heads of income

Co3: Learners will be able to compute gross and net taxable income

Co4: Learners will learn about different exemptions and deductions under income tax

Sr.No.	Modules / Units	No. of Lectures
	Definition and exemptions	
Unit I	<p>Definitions u/s – 2 : Section 2 –Assessee, Assessment Year, Assessment, Annual value, Business, Capital asset, Income, Person, Previous Year, Transfer</p> <p>Basis of Charge : Section 3 – 9 – Previous Year, Residential Status, Scope Of Total Income, Deemed Income</p> <p>Exclusions from Total Income: Section 10 – restricted to, Agricultural Income, Sums Received From HUF By Member, Scholarships, Income of Minor Child, Allowance to Members of Parliament and Legislative Assembly.</p>	5
Unit II	<p>Heads of Income and Deductions</p> <p>Overview of Heads of Income</p> <ol style="list-style-type: none"> a. Salary b. House property c. Profits & Gains From Business & Profession d. Capital Gain e. Other Sources <p>Deduction under section 80: 80 A- Restriction on claim in Chapter VI- A deductions 80 C – Payment of LIC/PF and other eligible investments 80CCC – Contribution to certain Pension Fund 80D – Medical Insurance Premium 80 DD- Maintenance and medical treatment of handicapped dependent 80E – Interest on Educational Loan</p>	15

	80 TTA- Interest on Saving Bank account 80U – Deduction in the case of totally blind or physically handicapped or mentally retarded resident person	
Unit III	Computation of Total Income of Individual with Return filing	10
	Computation of Total Income of Individual and HUF with respect to above heads and deductions Return of Income – Sec 139 Excluding u/s 139(4A), 139(4B), 139(4C) & 139 (4D)	

Learner space:

Students getting knowledge about the income tax act and computation of taxable income can work under CA and also can build up their career as assistants, advisors, etc. One will be also able to get knowledge about how taxable income is computed which help them to study their own income tax returns also in future. Job oriented/Entrepreneurship development topics:
Computation of Total Income & Taxable Income

Reference Books:

1. Direct Taxes Law & Practice by V.K. Singhania - Taxman
2. Systematic Approach to Direct Tax by Ahuja & Gupta - Bharat Law House
3. Income Tax Ready Reckoner by Dr .V.K. Singhania – Taxman
4. Direct Tax Laws by T.N. Manoharan - Snow White

ICT Backup:-

<https://www.youtube.com/watch?v=V4i9IsZL4HY>
<https://www.youtube.com/watch?v=V4i9IsZL4HY>
<https://www.youtube.com/watch?v=TgFq8A9CAOg>
<https://www.youtube.com/watch?v=GNDQ4O5mfxY>
<https://www.youtube.com/watch?v=p5MAQ7K5UKI>

Pedagogy:

Unit 1 covers basic definition and residential status; group discussion and quiz can be arranged for the same.

Unit 2 covers the heads of income I students can be asked to compute any individual's income to enhance practical knowledge

Unit 3 covers computation of total income and ITR basics students can be asked to visit CA office and get the knowledge of practicality of the subject.

MOOC units:

<https://www.udemy.com/course/direct-taxation-in-india-a-comprehensive-study/>
<https://www.classcentral.com/course/swayam-direct-tax-laws-and-practice-14009>

AEC
Corporate Communication and Public Relation

Sr. No	Modules No.	No of Lectures	Credit Point
1	Foundation of Corporate Communication AND Emerging Technology in Corporate Communication- I	10	2
2	Foundation of Corporate Communication AND Emerging Technology in Corporate Communication- II	10	
3	Understanding Public Relations	10	

Objective:

1. to help students Understand the fundamental principles and theories underlying corporate communication practices.
2. To Develop skills to effectively utilize traditional and digital communication channels for corporate messaging and branding.
3. To Gain insights into the role and significance of public relations in shaping corporate reputation and image.

Learning Outcome:

- To provide the students with basic understanding of the concepts of corporate communication and public relations.
- To introduce the various elements of corporate communication and consider their roles in managing media organizations.
- To examine how various elements of corporate communication must be coordinated to communicate effectively in today's competitive world.
- To develop critical understanding of the different practices associated with corporate communication with the latest trends and social media tools.

Sr.No.	Modules / Units	No. of Lectures
1	Foundation of Corporate Communication & Emerging Technology in Corporate Communication -I	10
	<p>a) Corporate Communication: Scope and Relevance Introduction, Meaning, Scope, Corporate Communication in India, Need /Relevance of Corporate Communication in Contemporary Scenario</p> <p>b) Key Concept in Corporate Communication Corporate Identity: Meaning and Features, Corporate Image: Meaning, Factors Influencing Corporate Image, Corporate Reputation: Meaning, Advantage of Good Corporate Reputation</p>	
2	Foundation of Corporate Communication AND Emerging Technology in Corporate Communication- II	10
	<p>a) Ethics and Law in Corporate Communication Importance of Ethics in Corporate Communication, Corporate Communication and Professional Code of Ethics, Mass Media Laws: Defamation, Invasion of Privacy, Copyright Act, Digital Piracy, RTI</p> <p>b) Contribution of Technology to corporate Communication Introduction, Today's communication Technology, Importance of Technology to Corporate Communication, Functions of Communication, Technology in Corporate Communication, Types of Communication Technology, New Media: Web</p>	

	<p>Conferencing, Really Simple Syndication (RSS)</p> <p>c) Corporate Blogging</p> <p>Introduction, Defining Corporate Blogging, Characteristics of a Blog, Types of Corporate Blog, Role of Corporate Blog, Making a Business Blog.</p>	
3	<p>Understanding Public Relations</p> <p>a) Fundamental of Public Relations</p> <p>Introduction, Meaning, Essentials of Public Relations, Objectives of Public Relations, Scope of Public Relations, Significance of Public Relations in Business.</p> <p>b) Emergence of Public Relations</p> <p>Tracing Growth of Public Relations, Public Relations in India, and Reasons for Emerging International Public Relations.</p> <p>c) Public Relation Environment</p> <p>Introduction, Social and Cultural Issue, Economic Issues, Political Issues, Legal Issues.</p> <p>d) Theories used in Public Relations</p> <p>Systems Theory, Situational Theory, Social Exchange Theory, Diffusion Theory</p>	10

Learner Space:

Job oriented/ Entrepreneurship development topics:

Reference Book:

Public Relations- The realities of PR by Newsom, Turk, Kruckleberg

Principals of Public Relations-C.S Rayudu and K.R. Balan

Public Relations -Diwakar Sharma

Public Relations Practices- Center and Jackson

The Art of Public Relations by CEO of leading PR firms

Pedagogy:

- Module I consist of introduction of corporate communication, its scope and key concept.
- Module 2 consist the importance of corporate communication, professional code of Ethics and mass media law. It also consist contribution of technology to corporate communication and corporate Blogging.
- Module 3 consist of understanding of the different practices associated with corporate communication with the latest trends and social media tools.

MOOC Units:

<https://www.mooc-list.com/course/integrated-marketing-communications-advertising-public-relations-digital-marketing-and-mor>

Examination pattern : (100 Marks Each Paper)

(MAJOR, MINOR, VOCATIONAL SKILL COURSES, SKILL ENHANCEMENT COURSES)

External Exam: 60 marks

Internal Exam: 40 marks

External Exam Paper pattern:

Total marks: 60 marks

Duration: 02 hours

Question No.	Particulars	Marks
1	Objective Questions (Fill in the blanks, Multiple Choice Question, True or False, Match the following) (1 mark each)	15
2	Answer the following question A. Long Question/ Practical Problem B. Long Question/ Practical Problem Or C. Long Question/ Practical Problem D. Long Question/ Practical Problem	8 7 8 7
3	Answer the following question A. Long Question/ Practical Problem B. Long Question/ Practical Problem Or C. Long Question/ Practical Problem D. Long Question/ Practical Problem	8 7
	Answer the following question A. Long Question/ Practical Problem B. Long Question/ Practical Problem Or Short Notes (Any 3 out of 5) (5 marks each)	8 7 15

Note: Long questions carrying 10 marks can be divided into 2 questions of 5 marks.

Internal Exam pattern : 40 marks

1st Internal Exam: (Class Test)

Sr. No.	Particulars	Marks
1	Objective Questions (Fill in the blanks, Multiple Choice Question, True or False, Match the following)	5
2	Answer in one sentence	5
3	Short notes (Any 3 out of 5) (5 marks each)	10

2nd Internal Exam:

Second Year SYBBI (NEP 2020)

Projects, Assignments, Presentation and viva voce.

Examination pattern : (50 Marks Each Paper)

(OPEN ELECTIVE, ABILITY ENHANCEMENT COURSES, VALUE EDUCATION COURSES, INDIAN KNOWLEDGE SYSTEM)

External Exam : 30 marks

Internal Exam : 20 marks

External Exam Paper pattern:

Total marks : 30 marks

Duration : 01 hours

QuestionNo.	Particulars	Marks
1	Objective Questions (Fill in the blanks, Multiple Choice Question, True or False, Match the following) (1 mark each)	05
2	Answer the following question A. Long Question/ Practical Problem B. Long Question/ Practical ProblemOr C. Long Question/ Practical Problem D. Long Question/ Practical Problem	05 05 05 05
3	Answer the following question A. Long Question/ Practical Problem B. Long Question/ Practical Problem	05 05
	Or C. Long Question/ Practical Problem D. Long Question/ Practical Problem	05 05
4	Short Notes (Any 1 out of 3) (5 marks each)	05

Note:

Long questions carrying 10 marks can be divided into 2 questions of 5 marks.

Internal Exam pattern : 20 marks

1st Internal Exam: (Class Test)

Sr. No.	Particulars	Marks
1	Objective Questions (Fill in the blanks, Multiple Choice Question, True or False, Match the following)	05
3	Short notes (Any 1 out of 2) (5 marks each)	05
		10

2nd Internal Exam:

Projects, Assignments, Presentation, Viva voce, Book review, Group Discussion, Field Projects,

Department of Banking and Insurance



DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
K. V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND
COMMERCE (AUTONOMOUS), DOMBIVLI (EAST)

Affiliated to University of Mumbai

Faculty of Arts

DEPARTMENT OF GEOGRAPHY

Programme: Bachelor of Arts (B.A.)

Syllabus for

SY.B.A.- GEOGRAPHY (Semester III and IV)

Choice Based Credit System (CBCS)

As per National Education Policy, 2020

with effect from the academic year 2024-25

**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE
(AUTONOMOUS), DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

Programme- Bachelor of Arts (B.A.)-2024-25

DEPARTMENT OF GEOGRAPHY

(Subjects Offered by Geography Department)

Sr · No ·	Course Code	Course Title	Categor y	Teachin g Hours/ Week	Total Marks	Credits
SEMESTER-III						
1	GE24301MM	GEOGRAPHY OF MAHARASHTRA	Major-I	60	100	04
2	GE24302MM	AGRICULTURE GEOGRAPHY	Major-II	60	100	04
4	GE24304VS	TOOLS AND TECHNIQUES IN GEOGRAPHY-I	VSC	60	100	02
5	GE24305SE	SURVEYING AND TOPOGRAPHICAL TECHNIQUES-I	SEC	60	100	02
6	GE24306FP	FIELD PROJECT/ COMMUNITY ENGAGEMENT PROGRAM	FP/CEP	30	50	02

SEMESTER- III

Geography Minor Subject offered to Psychology Major Student

1	GE24303MN	AGRICULTURE GEOGRAPHY	Minor	60	100	04
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(Subjects Offered by Geography Department)

SEMESTER - IV						
S.No	Course Code	Course Title	Category	Teaching Hours/Week	Total Marks	Credits
1	GE24401MM	GEOGRAPHY OF INDIA	Major-I	60	100	04
2	GE24402MM	GEOGRAPHY OF TOURISM	Major-II	60	100	04
5	GE24405VS	TOOLS AND TECHNIQUES IN GEOGRAPHY-II	VSC	60	100	02
6	GE24406SE	THEMATIC AND WEATHER MAPS	SEC	60	100	02
7	GE24407CC	CO-CURRICULAR ACTIVITY	CC	30	50	02

SEMESTER-IV

Geography Minor Subjects offered to Psychology Major Student

1	GE24403MN	GEOGRAPHY OF TOURISM	Minor	60	100	04
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Geography Minor Subjects offered to Commerce and Science Students

2	GE24404OE	RESOURCES AND SUSTAINABILITY	OE	30	50	02
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**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE
(AUTONOMOUS), DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

Programme- Bachelor of Arts (B.A.)-2024-25

DEPARTMENT OF GEOGRAPHY

(SUBJECTS FOR SYBA GEOGRAPHY MAJOR STUDENTS)

Sr No	Course Code	Course Title	Category	Teaching Hours/ Week	Total Marks	Credits
SEMESTER-III						
1	GE24301MM	GEOGRAPHY OF MAHARASHTRA	Major-I	60	100	04
2	GE24302MM	AGRICULTURE GEOGRAPHY	Major-II	60	100	04
3	PS24303MN	SOCIAL PSYCHOLOGY	Minor	60	100	04
	OR					
	EN24301MN	INDIAN LITERATURE IN ENGLISH	Minor	60	100	04
4		MKCL	OE	30	100	02
5	GE24304VS	TOOLS AND TECHNIQUES IN GEOGRAPHY-I	VSC	60	100	02
6	GE24305SE	SURVEYING AND TOPOGRAPHICAL TECHNIQUES-I	SEC	60	100	02
7	HI24301AE	SOCIO-ENVIRONMENTAL AWARENESS	AEC	30	50	02
8	GE24306FP	FIELD PROJECT/ COMMUNITY ENGAGEMENT PROGRAM	FP/CEP	30	50	02

(SUBJECTS FOR SYBA GEOGRAPHY MAJOR STUDENTS)

Sr. No.	Course Code	Course Title	Category	Teaching Hours/ Week	Total Marks	Credits
SEMESTER - IV						
1	GE24401MM	GEOGRAPHY OF INDIA	Major-I	60	100	04
2	GE24402MM	GEOGRAPHY OF TOURISM	Major-II	60	100	04
3	PS24403MN	SOCIAL PSYCHOLOGY	Minor	60	100	04
	OR					
	EN24401MN	AMERICAN LITERATURE	Minor	60	100	04
4	CO24402OE	ADVERTISING -II	OE	30	50	02
	OR					
	BO24404OE	BASICS IN COSMETOLOGY	OE	30	50	02
5	GE24405VS	TOOLS AND TECHNIQUES IN GEOGRAPHY-II	VSC	60	100	02
6	GE24406SE	THEMATIC AND WEATHER MAPS	SEC	60	100	02
7	PS24407AE	INTRODUCTION TO CONTENT WRITING	AEC	30	50	02
8	GE24407CC	CO-CURRICULAR ACTIVITY	CC	30	50	02

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Evaluation Pattern 2024-25

For S.Y.B.A

	CREDIT- 04 and 02	100 Marks
1.	INTERNAL ASSESSMENT	40 marks
1.1	One class test *(Objectives/ Multiple Choice)	20 marks
1.2	Assignment/ Concept or Mind Map/ Project/ Presentation and Viva/Research Work/Field Survey/ Self-created Documentaries/ Models and Posters/ Practical Journal.	15 marks
1.3	Active Class participation, Overall performance	5 marks
1.1	* Question Paper pattern for periodical class test: Written Class test: 20 Marks	10 Marks
1.	Answer in Brief (Attempt Any Two out of Three) (5 Marks each)	
2.	Multiple Choice Questions/ Fill in the Blanks/Answer in One or Two Lines(1 M. each)	10 Marks
1.2	*Practical based Evaluation: 20 Marks	
1	Learners should decide a project/ assignment / research topic and they should give a presentation or viva of the same.	15 Marks
1.3	*Active participation, mannerism and articulation in routine class and exhibit of leadership quality in organizing related academic activities.	05 Marks
2.	EXTERNAL ASSESSMENT (Semester End Examination)	60 marks
	N.B. 1. All questions are compulsory. 2. All questions carry equal marks.	
A.	Q.1 Unit 1 (15 marks) or Q.1 Unit 1 (15 marks) Q.2 Unit 2 (15 marks) or Q.2 Unit 2 (15 marks) Q.3 Unit 3 (15 marks) or Q.3 Unit 3 (15 marks) Q.4 Unit 4 (15 marks) or Q.4 Unit 4 (15 marks) Q.1 to Q.4 may be divided into two sub question - one sub question of 8 marks and another sub question will be of 7 marks OR Q.1 to Q.4 may be asked fully as a long answer question of 15 marks)	

	CREDIT- 02	50 Marks
1.	INTERNAL ASSESSMENT	20 marks
1.1	One class test *(Objectives/ Multiple Choice)	10 marks
1.2	Assignment/ Concept or Mind Map/ Project/ Presentation and Viva/ Research Work/Field Survey/ Self-created Documentaries/ Models and Posters/ Practical Journal.	10 marks
	FP/CEP and Cocurricular Activity (Teachers should submit the internal exam report as per instructions given by BOEE)	
2	EXTERNAL ASSESSMENT (Semester End Examination)	30 marks
	N.B. 1. All questions are compulsory. 2. All questions carry equal marks.	
	Q.1 Unit 1 (15 marks) or Q.1 Unit 1 (15 marks) Q.2 Unit 2 (15 marks) or Q.2 Unit 2 (15 marks) Q.3 Unit 1 to 2 (15 marks) or Q.3 Unit 1 to 2 (15 marks) Q.1 to Q.4 may be divided into two sub question - one sub question of 8 marks and another sub question will be of 7 marks OR Q.1 to Q.4 may be asked fully as a long answer question of 15 marks)	
	FP/CEP and Cocurricular Activity (Teachers should submit the external exam report as per instructions given by BOEE)	

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S.Y.B.A GEOGRAPHY SEM- III

COURSE TITLE- MAJOR-I GEOGRAPHY OF MAHARASHTRA

COURSE CODE: GE24301MM

CREDITS: 04

Objectives	1. To understand the nature and general topography of the state 2. To note the importance of existing resources of the state 3. To generate occupational understanding among students 4. To understand the detailed analysis about the different types of disasters. 5. To inculcate the role of Case Study analysis in the methodology of geography	
UNIT- 1	Major landmarks, major rivers and weather in Maharashtra	
	1.1	Introduction –Location and administrative divisions
	1.2	Physiography of Maharashtra – Konkan, Sahyadri and plateau
	1.3	Climate of Maharashtra
UNIT -2	Soil and forest resources	
	2.1	Classification of soils and forest in Maharashtra
	2.2	Problems and Methods of soil conservation with reference to eco-sensitive zones in Maharashtra
	2.3	Problems and Methods of forest conservation-with reference to eco-sensitive zones in Maharashtra
UNIT- 3	Agriculture and Fishery resources	
	3.1	Features of agriculture and cropping pattern
	3.2	Problems associated with agriculture in Maharashtra
	3.3	Nature of fishing-special reference to Konkan Coastal Belt
UNIT- 4	Disaster Mitigation and Management	
	4.1	Disaster: Definition and Concept, Classification
	4.2	Natural Disaster in Maharashtra: Causes, Impacts and Management
	4.3	Human Induced Disaster in Maharashtra - Causes, Impacts and Management
UNIT-5	Practical with Internal Assessment	
	5.1	Map Filling of important geographical features on outline map of Maharashtra
	5.2	Preparation of a case study report on a specific hazard / disaster based on literature review and or field work

- **Learning Outcomes:**

Upon successful completion of the course, the students:

1. will get in-depth knowledge about the Physical and Human features of Maharashtra.
2. Will be able to critically assess a range of theoretical and conceptual issues in resource management.
3. will familiarize themselves with the features of cropping patterns, productivity and nature of Konkan coast for fishing purposes.
4. will acquire basic skills of making judicious decisions for saving their family and society at the time of distress.
5. Will be able to demonstrate skills in constructive criticism and analysis.

- **Learner Space:**

Students should observe and understand the nature of topography, weather phenomenon, resources, Land use Land cover pattern and according to that prepare and develop Mental Maps, Sketches, models and photographs.

Students should prepare their projects, assignments, research reports, articles by studying and collecting information regarding the relevant topic. They should visit and analyze various geographical aspects and incorporate their own innovative ideas in various fields which will help to build a constructive environment.

- **Reference Books:**

1. Jaymala Diddee, S.R. Jog, V.S. Kale Geography of Maharashtra
2. Johns: Economic Geography –
3. Khullar: Geography of India
4. Majid Hussein: Geography of India
5. Oxford: Oxford School atlas-
6. Savinder Singh Environmental Geography
7. Sharma: India's economic and commercial geography
8. Mishra B.J : Natural hazards and disaster management
9. Sundar I & Sezuiyan T : Disaster management
10. Singh R.B – Risk Assessment and Vulnerability analysis

- **Websites:**

1. <https://www.mapsofindia.com/maharashtra/>
2. [https://www.researchgate.net/publication/348264377 Geography of Maharashtra](https://www.researchgate.net/publication/348264377_Geography_of_Maharashtra)
3. <https://unacademy.com/lesson/important-physical-geography-of-maharashtra-in-marathi/GI28L7KQ>
4. <https://www.britannica.com/place/Maharashtra>
5. <https://mrsac.gov.in/MRSAC/>

6. <https://www.maharashtratourism.gov.in/geography>
7. https://rfd.maharashtra.gov.in/sites/default/files/DM%20Plan%20final_Stat_e.pdf

- **University referred to modify the syllabus:**

1. Delhi University
2. North Maharashtra University
3. S. S. Jain Subodh P.G. College (Autonomous), Jaipur
4. The University of Edinburgh, Scotland

- **Pedagogy for S.Y.B.A. Geography –II (Sem-III):**

- **Unit -I-** It will be introduced with the help of Maps, Charts, Photographs, Brainstorming, Comparative Study, Discussion and Lecture method.
- **Unit- II-** This can be elaborated by PPT, Models, Charts, Digital sources, Discovery method, Demonstration method and Problem-solving method.
- **Unit- III-** This could be explored by Co-operative learning, PPT, articles, Research papers, E- Resources, Case study, Documentaries etc.
- **Unit- IV –** It can be explained by problem-solving and decision-making methods, Context- based learning, artifact and data-based inquiry, reconstructivemethod, Questioning, simulation and role-play, Workshops, Seminars and presentation etc.
- **Unit- V –** This could be illustrated by location-based/ geo-tagging method, field observation/visit, digital learning and Experimental learning etc.
- **Job-Oriented/Entrepreneurship development:**
 - Competitive exams
 - Disaster Management Department
 - Agriculture Department Exams
 - Soil and Forest Departments
- **MOOC units:**
 - Geography of Maharashtra: Unacademy

DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
K. V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE
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S.Y.B.A. GEOGRAPHY SEMESTER- III
TITLE: MAJOR-II AGRICULTURAL GEOGRAPHY

COURSE CODE : GE24302MM

CREDITS: 04

● **Objectives:**

1. To acquaint students with the importance of agriculture in human civilization.
2. To understand the physical and man-made factors that affect agriculture.
3. To know the types and distribution of agriculture in the world.
4. To analyze the problems and issues of agriculture and suggest remedies to overcome it.
5. To develop the cartographic skills, the value of Field Work and Primary Data in geographical research

Unit-I Introduction to Agricultural Geography		Lectures (15)
1.1	Definition, nature and scope of Agricultural Geography	
1.2	Approaches in Agricultural Geography	
1.3	Diffusion and change in agriculture	
Unit-II Determinants of Agriculture		Lectures (15)
2.1	Physical and economic factors	
2.2	Socio-cultural and political factors, role of technology	
2.3	Agricultural land use-Economic and Environmental Aspects	
Unit- III Types of Agriculture and Distribution		Lectures (15)
3.1	Types of primitive and subsistence agriculture, commercial agriculture, animal rearing	
3.2	Types, Methods and Importance of Irrigation	
3.3	Modern trends of agriculture – horticulture, sericulture, dairy farming etc.	
Unit-IV Agricultural Problems and Sustainability		Lectures (15)
4.1	Environmental, socio-cultural and economic problems	
4.2	Sustainable agricultural practices- its problems, importance of organic farming: Merits and Demerits	
4.3	Agro-Tourism	
Unit-V Practical with Internal Assessment		
5.1	Field Survey with special reference to Agriculture	
5.2	Introduction to QGIS for mapping Agricultural Regions in India	

- **Learning Outcome:**

After studying, students will be able to:

1. Conceptualize agriculture and its determinants.
2. Get the overview of Indian and World agriculture regions and systems.
3. Know about the changing modern agricultural trends and irrigation patterns.
4. Have sound knowledge of agriculture revolutions and food security.
5. will be able to collect the field data and represent the collected information.
6. Get hands-on training of open-source software and interpret the agricultural region.

- **Learner Space:**

Students should understand the concept, pattern distribution of agriculture and prepare agricultural maps, models, Sketches and collect photographs of various Agro-landscapes.

Students should develop innovative Agricultural methods using geo techniques and participate in cooperative learning strategies for solving different agricultural issues and prepare assignments, projects, documentaries, research reports by visiting various Agro fields.

- **Reference books: -**

1. Bansil, B. C. (1975): 'Agricultural Problems of India', Delhi.
2. Bayliss Smith, T.P. (1987) : The Ecology of Agricultural Systems. Cambridge
a. University Press, London .
3. Berry, B.J.L. et. al.(1976) : The Geography of Economic Systems. Prentice Hall, New York.
4. Gregor, H.P.: Geography of Agriculture. Prentice Hall, New York, 1970.
5. Grigg, D. (1984): 'An Introduction to Agricultural Geography', Hutchinson Publication, London
6. Singh J.(1997): Agricultural Development in South Asia: A Comparative Study in the Green Revolution Experiences, National Books Organization, New Delhi.
7. Singh, J. and Dhillon, S. S. (1984): 'Agricultural Geography', McGraw Hill, New Delhi.
8. Morgan, W. B. and Munton, R. J. C. (1977): 'Agricultural Geography' Methuen, London.
9. Symons, L. (1972): 'Agricultural Geography', Bell and Sons, London
10. Tarrant, J.R.(1974): Agricultural Geography, Problems in Modern Geography Series, John Wiley and Sons.

- **Website:**

1. National Bureau of Soil Survey and Land Use planning: www.nbsslup.in
2. Survey of India: www.surveyofindia.gov.in
3. ISRO Bhuvan 2D Platform: bhuvan.nrsc.gov.in/map/bhuvan/bhuvan2d.php

4. <https://icar.org.in/>
5. <https://www.nabard.org/>
6. <https://www.fao.org/home/en>
7. <https://nbsslup.in/>
8. <http://krishi.maharashtra.gov.in/1001/Home>

- **University referred to modify the syllabus**

1. Samanta Chandra Sekhar College, Puri, Orissa
2. Delhi University
3. Gujarat University
4. Goa University
5. The New Castle University, Australia

- **Pedagogy for S.Y.B.A. Geography –III (Sem-III):**

Unit -I- It will be introduced with the help of Maps, Charts, Photographs, Brainstorming, Comparative Study, Discussion and Lecture method.

Unit- II- This can be elaborated by PPT, Models, Charts, Digital sources, Discovery method, Demonstration method and Problem-solving method.

Unit- III- This could be explored by Co-operative learning, PPT, Agro based maps, articles, Research papers, E- Resources, Case study, Documentaries etc.

Unit- IV – It can be explained by problem-solving and decision-making methods, Context- based learning, artifact and data-based inquiry, quiz, Questioning, Workshops etc.

Unit- V – This could be illustrated by location-based/ geo-tagging methods, simulation and role-play, field observation/ visit, digital learning and Experiential learning etc.

- **Job-Oriented/Entrepreneurship Development:**

- Agricultural Department
- Developing Seed Banks
- NABARD executives

- **MOOC units:**

- Agricultural Geography: By Prof. H. Nagaraja, Department of Studies in Geography, Manasagangothri, University of Mysore, Mysore-06
- Agricultural Geography: University of Mysore and CEC via Swayam

DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
K. V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE
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S.Y.B.A. GEOGRAPHY SEMESTER- III

TITLE: MINOR- AGRICULTURAL GEOGRAPHY

COURSE CODE : GE24303MN

CREDITS: 04

● **Objectives:**

6. To acquaint students with the importance of agriculture in human civilization.
7. To understand the physical and man-made factors that affect agriculture.
8. To know the types and distribution of agriculture in the world.
9. To analyze the problems and issues of agriculture and suggest remedies to overcome it.
10. To develop the cartographic skills, the value of Field Work and Primary Data in geographical research

Unit-I Introduction to Agricultural Geography		Lectures (15)
1.1	Definition, nature and scope of Agricultural Geography	
1.2	Approaches in Agricultural Geography	
1.3	Diffusion and change in agriculture	
Unit-II Determinants of Agriculture		Lectures (15)
2.1	Physical and economic factors	
2.2	Socio-cultural and political factors, role of technology	
2.3	Agricultural land use-Economic and Environmental Aspects	
Unit- III Types of Agriculture and Distribution		Lectures (15)
3.1	Types of primitive and subsistence agriculture, commercial agriculture, animal rearing	
3.2	Types, Methods and Importance of Irrigation	
3.3	Modern trends of agriculture – horticulture, sericulture, dairy farming etc.	
Unit-IV Agricultural Problems and Sustainability		Lectures (15)
4.1	Environmental, socio-cultural and economic problems	
4.2	Sustainable agricultural practices- its problems, importance of organic farming: Merits and Demerits	
4.3	Agro-Tourism	
Unit-V Practical with Internal Assessment		
5.1	Field Survey with special reference to Agriculture	
5.2	Introduction to QGIS for mapping Agricultural Regions in India	

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S.Y.B.A. GEOGRAPHY SEMESTER- III**

TITLE: VSC- TOOLS AND TECHNIQUES IN GEOGRAPHY-I

COURSE CODE : GE24304VS

CREDITS: 02

Objectives:	1. To understand various map making tools and techniques 2. To develop simpler usage and acquaint with the determinants of Geographical calculation 3. Understand importance of map and map scale in Geography 4. To study the importance of map projections	100 Marks
		60 Lect.
Unit I	Introduction to Map and Map Scales	30 Lec
	1.1 Map – Definition, Elements and Classification of Maps.	
	1.2 Map Scale: Definition, Methods of Representation of scale	
	1.3 Conversion of Scale	
	1.4 Construction of Graphical Scale – i) Simple (Plane) Scale ii) Comparative Scale	
Unit II	Map Projections	30 Lec
	2.1 Map Projection: Properties and Uses	
	2.2 Zenithal Polar Projections - Equal Area	
	2.3 Cylindrical Projections - Equal Area	
	2.4 Conical Projections - One standard parallel	

Learning Outcome:

1. Students will grasp the concept of map scales and apply them to accurately measure distances on maps, fostering proficiency in converting map distances to real-world distances.
2. students will develop practical map-reading skills, allowing them to navigate and extract relevant information from maps for diverse purposes such as travel, research, and decision-making.
3. Students will acquire the ability to select and create appropriate graphs and diagrams to represent various types of data, demonstrating proficiency in choosing the most effective visual representation for different datasets.

References:

- 1) Singh Lehraj, (1973) : Map Work and Practical Geography, Central Book Depot – Allahabad.
- 2) D. Y. Ahirrao and E. K. Karanjkehele, (2002) : Pratyakshik Bhugol, Sudarshan – Nashik
- 3) P. G. Saptarshi and S. R. Jog, Statistical Methods
- 4) S. N. Karlekar, (2008) : Statistical Methods, Diamond – Pune
- 5) T. P. Kanetkar and S. V. Kulkarni, (1986) : Surveying and Leveling, Pune Vidyarthi Griha Prakashan – Pune.
- 6) Dhake S. V. and Patil V. J. (2007) Practical in Geography, Prashant Publication, Jalgaon.
- 7) Arjun Kumbhar, Practical Geography
- 8) Pijushkanti Saha & Partha Basu. (2007), ‘Advanced Practical Geography’, Books and Allied (P) Ltd, Kolkata

Universities which were referred to modify syllabi:

1. North Maharashtra University, Maharashtra
2. Kerala University
3. Mahatma Gandhi University, Telangana
4. Karnataka University

Pedagogy:

1. Introduce map basics and scales. Cover map interpretation, legends, and scale comprehension. Foster practical map-reading skills through interactive exercises.
2. Introduce data representation through graphs and diagrams. Teach students to select, create, and interpret visuals effectively. Emphasize practical applications, hands-on exercises, and real-world scenarios for enhanced comprehension.

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S.Y.B.A. GEOGRAPHY SEMESTER- III
TITLE: SEC- TOPOGRAPHICAL AND SURVEYING TECHNIQUES-I (Practical)
COURSE CODE : GE24305SE **CREDITS: 02**

Objectives:	1. To introduce the students with SOI toposheets and to acquire the knowledge of toposheet Reading / interpretation. 2. To understanding of the fundamental principles, equipment, and applications of surveying in different fields.	100 Marks
		60 Lect.
Unit I	Introduction to Topographical Maps	30 Lec.
	1.1 Definition of Topographical maps & Indexing of Topographical Map	
	1.2 Marginal Information and Grid References- Four and Six Figure/ Digit, Conventional Signs and Symbols	
	1.3 Representation of Relief Features by Contours: Type of Slopes i) Steep slope ii) Gentle slope ii) Concave slope iv) convex slope v) terraced slope	
	1.4 Representation of Relief Features by Contours: 1. Landforms of Elevation- Hill, Plateau, Ridge, Cliff, Col or Pass 2. Landforms of Depression- Gorge 'V' Shaped valley, 'U' Valley, Waterfall, Sea cliff.	
Unit II	Interpretation of SOI Toposheets and Surveying	30 Lec.
	2.1 Drawing of Profile: a) Longitudinal Profile b) Intervisibility	
	2.2 a) Marginal Information b) Topographical Feature: Relief/ Physiography, Drainage and Vegetation c) Human-made Features: Settlements, Transportation and Communication, Irrigation, occupation d) Land Use	
	2.3 Definition and Fundamentals of Surveying: Types	
	2.4 Methods of Plane Table Survey a) Radiation Method b) Intersection method	

Learning Outcome: The course will enable the students to:

1. Understand Methods of Representation of Relief
2. Describe Topographical Map
3. Understand the importance of surveying in Geography.
4. Learn to make basic maps of any space using methods like plane table survey

References:

1. Monkhouse, F.J.: Maps& Diagram.
2. Robinson, A.h: Elements of Practical Geography.
3. Singh, R.L. Elements of Practical Geography.
4. Mishra, R.P. and Ramesh , A: Fundamentals of Cartography.
5. Singh, L.R.& Singh, R.N.Map work and Practical Geography (Eng./Hindi)
6. Sharma, J.P.Practical Geography (Hindi)
7. Lal Hira: Prayogatmak Bhoogol ke Adhar (Hindi)

8. Tiwari, R.C.; Tripathi, Sudhakar: Abhinav Prayogic Bhoogol

Information and Communication Technology Backup:

<https://www.youtube.com/watch?v=uYWTyn8qn3A>

Universities which were referred to modify syllabi:

1. Doon University, Uttarakhand
2. Kerala University
3. Mahatma Gandhi University, Telangana
4. Karnataka University

Pedagogy:

1. Topographical Maps Pedagogy: Explore topographical maps' significance, symbols, and features. Teach contour lines, scale, legend, and grid coordinates. Engage students in hands-on activities, map-reading exercises, drawing of profiles and real-world applications. Emphasize practical skills and interpretation.
2. Introduce surveying's basics, types (Plane table), and instruments. Emphasize principles, precision, and data analysis. Explore specialized surveys and practical applications in construction, mapping, and geodetics. Blend theory with hands-on exercises, fieldwork, and case studies. Assess through quizzes, assignments, and a final project for practical skill development.

MOOC units:

Toposheets Basics on YouTube and Scaler

SEM-IV

DOMBIVLI SHIKSHAN PRASARAK MANDAL'S
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(AUTONOMOUS), DOMBIVLI EAST
SYBA GEOGRAPHY SEMESTER – IV
TITLE: MAJOR-I GEOGRAPHY OF INDIA
COURSE CODE : GE24401MM **CREDITS: 04**

Objectives:

1. To acquaint students with the location, administrative and physical environment of the country.
2. To understand the distribution of physical and man-made environments in India.
3. To analyze the relation between physical and man-made environment.
4. To understand the problems and develop an interest in the conservation of the environment.
5. To develop the cartographic skills such as map reading and filling.
6. To use the geographic skills and knowledge in competitive exams as well as in day today life.

Unit I	Location, Physiography and Climate	15 Lectures
1.1	Location and origin of Indian subcontinent	
1.2	Administrative and physical divisions	
1.3	Monsoon – origin, characteristics and distribution and its changing pattern post 1980s	
Unit II	Soils, Minerals and Vegetation	15 Lectures
2.1	Soils: types and distribution	
2.2	Vegetation: types and distribution	
2.3	Mineral: types and distribution	
2.4		
Unit III	Population and Cultural Setting	15 Lectures
3.1	Population: Factors influencing population concentration and dispersion	
3.2	Demographic challenges: Population density and resource management	
3.3	Population Problems and Human Development Index	
Unit IV	Energy resources, Industries, Transport	15 Lectures
4.1	Energy resources: types, distribution and conservation	
4.2	Industries – factors, industrial regions Case study of MIDC areas in Thane District	
4.3	Future Trends and Challenges in Transport	
Unit V	Practical with internal Assessment	
5.1	Map filling (India) – features related to unit I to IV,	
5.2	Marking Point, Line and Polygon features of India using MapIT GIS or Using BHUVAN	

Learning Outcome:

- This Course will enable students to explore geographical perceptions and perspectives vis-à-vis Indian Geography
- It aims to enrich students' knowledge regarding physical and human senses in geography
- To connect physical, economic, social and cultural aspects with Indian Geography
- Critically understand and develop an outlook towards changing geographical expanse
- To enhance resourceful and applicable knowledge regarding Geography of India

Learners Space:

Students can explore the subject with a positive outlook towards Geographical expanse and vastness of India just by drawing maps, pictograms, charts, mental maps and noting the locations manually. With that, using various online platforms and applications (Google Earth, Bhuvan App, MapIT GIS) students can correct their geographical knowledge and explore the real essence of Geographical features.

There is scope for exploring the subject with physical, cultural, economic and social sense which can be developed by observations and continuous practicing of Maps, Atlases and tools of cartography.

References:

- Deshpande C.D. (1992): India: A Regional Interpretation, Northern Book Center, New Delhi.
- Bharucha, F.R. (1983): A text book of the plant geography of India, Oxford University Press, Bombay.
- Dikshit, K.R. (1991): Environment, Forest Ecology and man in the Western Ghats- The Case of Mahabaleshwar Plateau, Rawat Publications, New Delhi.
- Forest Survey of India: State Forests Reports, Dehradun.
- Khullar, D.R. (2014): India: A Comprehensive Geography; Kalyani Publishers

Information and Communication Technology Backup:

- <https://www.youtube.com/watch?v=vEy6tcU6eLU> – Geography of India
- <https://www.youtube.com/watch?v=mj8wLzegfFk> – Physical Divisions of India
- https://www.youtube.com/watch?v=B_SXNcqugcI – Sights and Sounds of India
- <https://www.youtube.com/watch?v=mkPwEuflhKo> – Chasing Rivers
- <https://www.youtube.com/watch?v=pGGqrRBU2xk> – Western Ghats Programme
- https://www.youtube.com/watch?v=A_K6LSSZ_34 – How India crashed into Asia and Changed the World?
- <https://www.youtube.com/watch?v=NUyiZHmEWr8> – The Himalayan Ranges
- <https://www.nrsc.gov.in/>
- <https://www.surveyofindia.gov.in/>

Universities which were referred to modify syllabi in fresh Autonomy:

- Sikkim University, Sikkim
- Bankura University, Bankura, West Bengal
- Queen Mary, University of London

Pedagogy for S.Y.B.A. Geography-II (Sem-IV):-

1. Unit 1, we will learn the overall physiography of India, with locational context, site and situation. It gets defined in detail with map representations, various map illustrations and marking for in-depth understanding. Climatic aspects are taught with the help of Mausim app, Windy, Indian Meteorological Department data, mapping Isopleths, Isobars and Wind roses to clarify the basic aspects of Climate and Geography.

2. Unit 2, we will learn soils, minerals and vegetational distribution, complexities and interconnections of all these aspects. With the help of choropleth, flow maps and pictogram techniques the distribution and physical aspects are taught.

3. Unit 3, we will study the population, economy and its cultural settings in this unit. Various teaching and learning methods are utilized by applying Ethnographies, measuring the data, mapping it through color shades. We will calculate the Human Development Index using various data for this unit.

4. Unit 4, we will study the distribution, extractions, processes and applicability of minerals and energy resources. We will critically understand the concepts of various newer Case studies, articles, magazine columns and extensive discussions on various upcoming resourceful challenges.

5. Unit 5, we will learn newer applications and technological mapping of India using open-source software's and BHUVAN app. The extensive use of tools and techniques available in the software will help us get real-time data applications.

● **Job-Oriented/Entrepreneurship Development:**

- Competitive exams
- Census Department
- Industry Development Department

● **MOOC units:**

- Geography of India, University of Mysore and CEC via Swayam
- Geography of India, By Prof. A. Balasubramanian, University of Mysore, Manasagangotri

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(AUTONOMOUS), DOMBIVLI EAST
S.Y.B.A. GEOGRAPHY, SEM- IV
TITLE: MAJOR-II GEOGRAPHY OF TOURISM
COURSE CODE : GE24402MM Credit: 04

Objectives:	1. To understand the nature and pattern of Tourism 2. To inculcate the ideas of newer forms of tourism 3. To enhance the idea of global tourism in sustainable manner 4. To regenerate the idea of localization in Tourism 5. To develop a practical aspect in tourism management	
UNIT – I:	Introduction to Geography of Tourism	15 Lec.
1.1	Tourism Geography: Definition, Nature and Scope	
1.2	Tourism: Significance and affecting factors	
1.3	Types / typology of Tourism	
UNIT – II:	Tourism Infrastructure and Travel Agency	15 Lec.
2.1	Tourism Infrastructure, Man Made – cultural and political –	
2.2	Role of Transport in Tourism Development	
2.3	Travel Agency: Features and Functions with reference to documentation	
2.4		
UNIT– III:	Tourism Planning, Impacts and Sustainability	15 Lec.
3.1	Tourism Planning: Advertisement, Media, Public Relations and Publicity	
3.2	Impacts of Tourism on Economy, Society, Culture and Environment	
3.3	Sustainable Tourism and Eco-tourism	
UNIT – IV:	Tourism in India with Special Reference to Maharashtra	15 Lec.
4.1	Modern techniques used in Tourism	
4.2	Places of Geographical Attractions in India and Maharashtra: Mountains / Hills, Forests, and Sea Beaches	
4.3	Places of Cultural Attractions in India and Maharashtra: Historical Importance, Religious Centers, and Medical Treatment	
UNIT – V:	Practical's with Internal Assessment	
5.1	Identifying, Navigating and creating Geolocation using mobile apps for tourist location	
5.2	Planning of Itinerary for local trips	

Learners Outcome:

- This course will enrich the knowledge regarding tourism and its geographical aspects
- We will learn the aspects of its application at various scales-local, regional, national and international with newer applications
- It helps in developing wider knowledge regarding various tourism potential locations
- Practical oriented techniques will enhance company participations
- Connecting theory with practical

Learners Space:

Students will be able to learn the facets of tourism with geographical aspects and developing an economic sense. Geographical perspective helps tourism students to understand the flow of physical, cultural and various application-oriented concepts of accessibility, connectivity, and sustainability.

Tourism as a field itself is dynamic, so students gain the idea and exposure with the geographical angle. Tour planning, travel agency and on job training components can be explored by students vis-à-vis syllabus and implementation.

Reference Books

- Anand M.M., Tourism & Hotel Industry in India, Prentice Hall of India, New Delhi, Page 33 of 50
- Bhatia A.K., Tourism Development, Sterling Publishers Pvt. Ltd. New Delhi.
- Bhatia A.K., International Tourism, Sterling Publishers Pvt. Ltd. New Delhi
- Bhatia A.K., - Tourism in India, Sterling Publishers Pvt. Ltd. New Delhi
- Geetanjali, Tourism Geography, Centrum press publishers, New Delhi

Information and Communication Technology Backup:

- <https://www.incredibleindia.org/content/incredible-india-v2/en.html>
- <https://wttc.org/>
- <https://www.unwto.org/>
- https://www.youtube.com/results?search_query=incredible+india
- https://www.youtube.com/results?search_query=world+tourism+organization
- <https://www.youtube.com/watch?v=jOU8LJAVe84>
- <https://www.youtube.com/watch?v=AMIG-c1hXEE>
- <https://www.youtube.com/watch?v=IgAnj6r1O48>
- https://www.youtube.com/watch?v=3SsK-cxlj_w
- <https://www.youtube.com/watch?v=bMMBM6g7oTw>
- <https://www.youtube.com/watch?v=35npVaFGHMY>

Universities which were referred to modify syllabi in fresh Autonomy:

- Singapore University of Social Sciences, Singapore
- Department of Tourism Studies, Central University of Kashmir
- Shivaji University of Kolhapur, Kolhapur

- Indian Institute of Tourism and Travel Management, Nellore

Pedagogy for S.Y.B.A. Geography- (Sem-IV): -

1. Unit 1, we will study What? How? When? Where? Which? - Geography will help us to learn the concepts of Tourism. Various Geographical perspectives are to be applied to understand the use of Tourism
2. Unit 2, we will learn how to plan the Tourism strategies and its applications. Newer practical oriented Models, theories are arranged to learn its implementation.
3. Unit 3, planning and strategic aspects of Tourism and Geography are understood in this unit. The Impact oriented concepts with Pandemic scenarios for questioning the status of Tourism and finding sustainable alternatives through classroom discussions.
4. Unit 4, Geographical mapping and understanding of tourism through geographical lens, human perceptions, spatial information and distributional maps will be taught. Places of attractions and its geographical importance will be clarified by drawing app-based maps.
5. Unit 5, Geolocations and Geotagging, app-based data collection for tourism will enhance the student's skill to understand locations of tourism importance. Itinerary building will create a practical sense to the theory being taught in the previous units.

- **Job-Oriented/Entrepreneurship Development:**

- Tourism Department
- Ticketing
- Tour Guide
- Transport Services
- Novelty Tours
- Tour Mapping
- Itinerary Preparations

- **MOOC units:**

- Sustainable Tourism – promoting environmental public health-University of Copenhagen
- Greening the Economy-Sustainable Cities-Dr. Kes McCormick-Lund University

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S.Y.B.A. GEOGRAPHY, SEM- IV

TITLE: MINOR- GEOGRAPHY OF TOURISM
COURSE CODE : GE24403MN Credit: 04

Objectives:	1. To understand the nature and pattern of Tourism 2. To inculcate the ideas of newer forms of tourism 3. To enhance the idea of global tourism in sustainable manner 4. To regenerate the idea of localization in Tourism 5. To develop a practical aspect in tourism management	Lectures
UNIT – I:	Introduction to Geography of Tourism	15
1.1	Tourism Geography: Definition, Nature and Scope	
1.2	Tourism: Significance and affecting factors	
1.3	Types / typology of Tourism	
UNIT – II:	Tourism Infrastructure and Travel Agency	15
2.1	Tourism Infrastructure, Man Made – cultural and political –	
2.2	Role of Transport in Tourism Development	
2.3	Travel Agency: Features and Functions with reference to documentation	
2.4		
UNIT– III:	Tourism Planning, Impacts and Sustainability	15
3.1	Tourism Planning: Advertisement, Media, Public Relations and Publicity	
3.2	Impacts of Tourism on Economy, Society, Culture and Environment	
3.3	Sustainable Tourism and Eco-tourism	
UNIT – IV:	Tourism in India with Special Reference to Maharashtra	15
4.1	Modern techniques used in Tourism	
4.2	Places of Geographical Attractions in India and Maharashtra: Mountains / Hills, Forests, and Sea Beaches	
4.3	Places of Cultural Attractions in India and Maharashtra: Historical Importance, Religious Centers, and Medical Treatment	
UNIT – V:	Practical's with Internal Assessment	
5.1	Identifying, Navigating and creating Geolocation using mobile apps for tourist location	
5.2	Planning of Itinerary for local trips	

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S.Y.B.Com/S.Y.B.Sc, SEM- IV
TITLE: OPEN ELECTIVE – RESOURCES AND SUSTAINABILITY
Course Code: GE2440OE **Credit: 02**

Objectives: 1. To explore the fundamental concepts and principles related to natural resources 2. To focus on sustainable practices and strategies to ensure the responsible use of resources for current and future generations.		TOTAL LECTURES
UNIT – I	Natural Resources	15
1.1	Meaning, Concept and Classification of resources	
1.2	Water: consumption pattern, water pollution and water conservation	
1.3	Forest: Deforestation and forest conservation	
1.4	Soil: degradation and its conservation	
UNIT – II: Natural resources: over exploitation and conservation measures		15
2.1	Over exploitation and depletion of natural resources	
2.2	Resource consumption pattern in the developed and underdeveloped countries	
2.3	Need for conservation and Management of Natural Resources	
2.4	Sustainable use of natural resources- Case Study	

Learning Outcome:

Upon completing the course on Resources and Sustainability, students should be able to achieve the following outcomes:

1. Understanding of Natural Resources: Define and classify natural resources into various category.
2. Explain the importance of water, Forest and Soil resources and the challenges associated with their scarcity.
3. Implement sustainable water, forest and soil management practices and conservation strategies.
4. Understanding of sustainable approach and strategies of resource management.

References:

Reference Books:

1. Chandna R.C. (2014): Geography of Population, Kalyani Publishers, Ludhiana, India
2. Gautam Alka (2010) Environmental Geography: Sharda Pustak Bhavan, Allahabad
3. GautamAlka: 2013: Advanced Economic Geography, Sharda Pustak Bhawan, Allahabad, India, Third Edition
4. Gautam Alka: Resource Geography, Sharda Pustak Bhawan, Allahabad, India,
5. Husain Majid, 2003: Resources Geography, Anmol Publications Pvt. Ltd. (2003) ISBN: 9788170418764
5. Khullar D. R. (2014) India: A Comprehensive Geography, Kalyani Publishers, ISBN-13: 978- 9327246759
6. Mondal P and Dalai (2017) Sustainable Utilization of Natural Resources: CRC Press (2017) ISBN 9781498761833
8. Singh Savinder (2015): Environmental Geography: Prayag Pustak Company, Allahabad

9. Singh Vipul (2012) The Human Footprint on Environment: Issues in India, Macmillan Publishers India Pvt. Ltd, ISBN: 935-059-098-0
10. Verma C.L. (2014): Economic and Resource Geography, Forward Books; 1ST edition (2014) ISBN-10: 9381763534
11. Website: https://www.researchgate.net/publication/280298490_Resource_Geography
12. William A.: Nonfuel Minerals and the World Economy", Vogely, World Resources Institute Book Yale University Press

Information and Communication Technology Backup:

1. <https://www.youtube.com/watch?v=we9O165wo08>
2. <https://www.youtube.com/watch?v=ajk-pvm5vfQ>
3. <https://www.youtube.com/watch?v=2YdaYOa8kGs>
4. <https://www.youtube.com/watch?v=ESpt3AZO60c>

Universities which were referred to modify syllabi:

1. University of Mysore
2. University of Karnataka
3. Karnataka State open University
4. Pune University

Pedagogy:

1. Lectures and Conceptual Framework:
Provide a foundational understanding of natural resources.
Traditional lectures to introduce key concepts, definitions, and classification of natural resources.
Class discussions, Q&A sessions, and multimedia presentations to enhance comprehension.
2. Case Studies, Assessment and Real-World Applications:
Connect theoretical knowledge with real-world scenarios.
Analyze case studies on resource management challenges and successes.
Group discussions, Formative assessments, presentations, and debates on current issues related to natural resources.

Job-Oriented/Entrepreneurship Development:

1. Sustainability Consultant: project based
2. Nature Conservation Officer
3. Resource Management: Technical Skill
4. Researcher

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S.Y.B.A. GEOGRAPHY SEMESTER- IV
TITLE: VSC- TOOLS AND TECHNIQUES IN GEOGRAPHY-II
COURSE CODE : GE24405VS **CREDITS: 02**

Objectives:	1. To understand how to use statistics in geographical applications 2. To develop simpler usage and acquaint with the determinants of Geographical calculation 3. To learn the measurements used in geographical statistics 4. To develop spatial outlook towards the statistics and its geographical applications	100 Marks
Unit I	Nature of data and central tendency	30 Lec.
	1.1 Meaning and types of data, variable, observation, observation value, simple, discrete data, and continuous data	
	1.2 Frequency Distribution, Histogram, Frequency Polygon and Ogive curve	
	1.3 Measurement of central tendency-meaning, Uses/Application	
	1.4 Measures of Central Tendency- mean, median, and mode	
Unit II	Dispersion and Deviation	30 Lec.
	2.1 Mean Deviation and Quartile Deviation	
	2.2 Standard Deviation	
	2.3 Moving Averages (3 years and 5 years)	
	2.4 Statistical Data Visualization- Interpretation	

Learning Outcome:

Upon completing the course on Statistical Analysis in Geography, students should be able to

- :1. Understand the statistical application and interpretation
2. Demonstrate the measurement of central tendency.
3. Evaluate and interpret spatial patterns in geographical data.

References:

- Sarkar, Ashis : Practical Geography: A systematic Approach, Orient Longman limited, Calcutta, 1997.
- Singh, Gopal : Map work and Practical Geography Vikas Publishing House Pvt. Ltd. New Delhi, 1996.
- Singh, R and Kanaujia, L.R.S.: Map Work and Practical Geography, Central Book Depot, Allahabad.
- Singh, R. L. and Rana P.B. : Elements of Practical Geography, Kalyani Publishers, New Delhi – Ludhiana, 1998.

Information and Communication Technology Backup:

<https://www.youtube.com/watch?v=X48cZ6DGaSw>

<https://www.youtube.com/watch?v=pkKfhlvv65w>

<https://www.youtube.com/watch?v=MRqtXL2WX2M>

Universities which were referred to modify syllabi:

1. Pune University
2. Solapur University
3. Karnataka University
4. Chandrashekhar university, Ballia

Pedagogy:

1. Practical exercises using geographical datasets to classify data types.
2. Group discussions on real-world examples of data types in geography.
3. Group projects involving collecting geographical data and creating frequency distributions.
4. Practical sessions to create histograms, frequency polygons, and ogive curves, dispersion and deviation using statistical data.

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S.Y.B.A. GEOGRAPHY SEMESTER- IV
TITLE: SEC- THEMATIC AND WEATHER MAPS
COURSE CODE: GE24406SE **CREDITS: 02**

Objectives:	1. To introduce the students with thematic map and to acquire the knowledge of thematic Reading / interpretation. 2. To understanding of the fundamental principles, equipment, and applications of Weather maps and graphs in different fields.	100 Marks
Unit I	Preparation of Thematic maps (Manually)	30 Lec.
	1.1 Preparation of thematic maps with actual data- Dot and Located bar	
	1.2 Preparation of a thematic maps with actual data- located circle and pie chart	
	1.3 Preparation of thematic maps with actual data- Choropleth and Isopleth	
	1.4 Reding and Interpretation of Thematic Map	
Unit II	Weather Maps	30 Lec.
	2.1 Weather Graphs: Climograph, Hythergraph and Wind Rose	
	2.2 Weather Map: Components, Signs and Symbol	
	2.3 Weather Map: Reading (IMD)	
	2.4 Weather Map: Interpretation (IMD)	

Learning Outcomes:

Upon successful completion of the course, the students:

1. Will get in-depth knowledge about Thematic and Weather Maps in Geography
2. Will be able to critically analyze the techniques in Geography
3. will familiarize students with the maps and their usages
4. will acquire basic skills used in cartography
5. Will be able to demonstrate skills in constructive analysis

References:

- i. Karlekar Shrikant- Bhoogol shastratil Sanshodhan Paddhati, **डायमंड पब्लिकेशन्स**
- ii. ●Monkhouse F.J. - Maps & Diagrams, Methuen and Co., London, 1971
(3rd Edition, Revised). ●NCERT - Textbook for Class-12, Practical Work in Geography Part II
- iii. ●Peter A. Rogerson - Statistical Methods for Geography, Sege Publishers -2001Robinson
- iv. A.H. - Elements of Cartography, Wiley
- v. ●Sarkar Ashis - Practical Geography, Orient Black

- Ashis Quantitative Geography, Orient Black Swan 2013
- vi. ● Singh R.L. & Singh P. B. - Elements of Practical Geography, Kalyani Publishers 2005
- vii. ● Stoddard Robert – Field techniques and research methods in geography, Geography faculty publication
<http://digitalcommons.unl.edu/geographyfacpub/26>
- viii. ● Thakur S. A. - प्रात्यक्षिक भूगोल, Konkan Geographer's publication (2016)

University referred to modify the syllabus:

1. IIT Bombay
2. North Quepem University
3. Delhi University
4. Pondicherry University

Pedagogy:

The Paper will help in developing an understanding and nourish the idea of planning regions to the development of it. It will also create the idea of Planners, architecture and policy makers.

Job-Oriented/Entrepreneurship development:

1. Statistician
2. Cartographer
3. Surveyor
4. Curator and Planner
5. Modeler

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PROPOSED SYLLABUS FOR

Commerce Paper III & IV, Advertising Paper I & II and Business Law Paper I & II
at Second Year B. Com

Under Choice Based Credit, Grading & Semester System with effect from the
Academic Year 2022-23

Semester-III

Commerce- III

Title of the course: Management: Functions & Challenges

Course code: PUCCOIII22-321

Number of credits: 03

Lectures per week: 03

Total lectures required: 45

Course Objective: To provide the learner a comprehensive framework on the conceptual knowledge of management and develop awareness of the evolution of management to enhance the management application skills of students.

Course outcomes: On completion of the course learner will know -

- ❖ Holistic application of Management for Business Success.
- ❖ Importance of good Planning, organizing and Delegation
- ❖ Effective communication.

❖ Leadership traits

Syllabus

Text highlighted in Red denotes deletion and the text highlighted in yellow denotes addition in the syllabus

Module 1: Introduction to Management (11 lectures)

Management- Concept, Nature, Functions, **Managerial Skills & Competencies**

Evolution of Management Thoughts Classical Approach: Scientific Management – F.W. Taylor’s Contribution, Classical Organization Theory: Henri Fayol’s Principles, Neo Classical: Human Relations Approach – Elton Mayo’s Hawthorne experiments

Modern Management Approach-Peter Drucker’s Dimensions of Management, **Management skills and competency in 21st century**

Indian Management Thoughts: Origin & Significance of Indian Ethos to Management.

Module 2: Planning & Decision Making (10 lectures)

Planning - Steps, Importance, Components, **Coordination – Importance**

M.B.O -Process, Advantages, Management by Exception- Advantages; Management Information System- Concept, Components

Decision Making - Techniques, Essentials of a Sound Decision Making, Impact of Technology on Decision Making.

Module 3: Organizing (12 lectures)

Organizing-Steps, Organization Structures – **Line organization concept and features,** Features of Line & Staff Organization, Matrix Organization, Virtual Organization, Formal v/s Informal Organization.

Departmentation -Meaning -Bases,

Span of Management- Factors Influencing Span of Management, Tall and Flat Organization.

Delegation of Authority- Concepts of power and authority, Process, Barriers to Delegation, Principles of Effective Delegation. Decentralization: Factors Influencing Decentralization, Centralization v/s Decentralization

Module 4: Directing and controlling (12 lectures)

Motivation – Concept, Importance, Influencing factors. Importance of Communication, Barriers to effective Communication

Leadership- Concept, Functions, Styles, Qualities of a good leader, Leader v/s Manager

Controlling – Concept, Steps, Essentials of good control system, Techniques of Controlling - PERT, CPM, Budgetary Control, Management Audit, HR metrics

Learner's space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

- ✓ Challenges to managers in the changing dimensions of business environment.
- ✓ Leadership theories- 'The Great Man Theory'

Recommended reference books:

- Business Organization & Management - Dr. Y.K. Bhushan
- Management: Concept and Strategies by J. S. Chandan, Vikas Publishing
- Principles of Management, By Tripathi, Reddy Tata McGraw Hill
- Business organization and Management by Talloo by Tata McGraw Hill
- Principles & practice of management - Dr. L.M.Parasad, Sultan Chand & Sons - New Delhi
- Management Today Principles & Practice- Gene Burton, ManabThakur, Tata McGrawHill,Publishing Co.Ltd.
- Management – JamesA.F.Stoner, Prentice Hall, Inc .U.S.A.
- Management: Global Prospective –Heinz Weihrich & Harold Koontz, Tata McGraw- Hill, Publishing Co.Ltd.

List of reference books with respect to the new topics added to commerce syllabus:

- ✓ Change Management: The People Side of Change by Jeffrey M. Hiatt, Timothy J. Creasey.
- ✓ Leading Change, With a New Preface by John P. Kotter

Recommended ICT back-up

Topics	links
Management challenges in changing environment.	https://youtu.be/y8Nt5gq9_0I
Indian management thoughts and Business leaders	https://www.youtube.com/watch?v=Nk0X5miaQuE

Sub: Business Law-I

Title of the course: Business Law- I

Course code: PUCCOIII22-322

Number of credits: 04

Lectures per week: 04

Total lectures required: 60

- Course Objectives:**
1. To provide the brief about the framework of Indian Business Laws
 2. To orient students, about the legal aspects of business
 3. To enable the students to apply the provisions of business laws in business activities
 4. To familiarize the students with case law studies related to Business Laws

Course Outcome: On completion of course

- ❖ Learner would develop the interest in legal studies
- ❖ Learner will understand the necessity of legal education
- ❖ Learner will know and understand the existing commercial laws and its applications

Module I: Indian Contract Act, 1872- Part- I

(12 Lectures)

Contract- Definition of Contract and Agreement, Essentials of Valid Contract, Classification of Contract

Offer and Acceptance- Rules of Valid offer and acceptance, counter offer, standing or open offer, distinguish between offer and invitation to offer. Concept of Communication and Revocation of Offer and acceptance (sec. 3,5)

Capacity to contract- Minor, Unsound mind, Disqualified persons

Consideration- (S. 2 & 25)- Concept and Importance of Consideration, Legal rules of consideration, Exceptions to the rule, No Consideration No Contract (S. 25), Unlawful Consideration (S 23)

Module II: Indian Contract Act, 1872- Part- II

(12 Lectures)

Consent- (Sec. 13, 14-18, 39.53, 55, 66)- Agreements in which consent is not free- Coercion, Undue Influence, Misrepresentation, Fraud, Mistake.

Void Agreements- (Sec. 24-30)- Concept, Void Agreements under Indian Contract Act

Contingent Contract-(Sec. 31), Quasi Contract (S.68-72), Concept of E-Contract & Legal Issues in formation and discharge of E-Contract. Concept of performance of Contract (S. 37)

Modes of Discharge of Contract, Remedies on breach of Contract (73-75)

Module III: Special Contracts

(12 Lectures)

Law of Indemnity & Guarantee (S. 124-125, S. 126-129, 132-147)- Concept, Essentials elements of Indemnity and Guarantee, Contract of Indemnity vs. Guarantee, Modes of Discharge of Surety

Law of Bailment- (S. 148, 152-154, 162, 172, 178, 178A, 179)- Concept, Essentials of Bailment, Kinds of Bailment, Rights and Duties of Bailor and Bailee

Law of Pledge- Concept, Essentials of valid pledge, Lien- Concept, Difference between Pledge and Lien, Rights of Pawnor and Pawnee (S. 173, 174, 177)

Law of Agency- (S. 182-185, 201-209)- Concept, Modes of creation of agency, Modes of termination of agency, Rights and duties of principal and agent

Module IV: The Sale of Goods Act, 1930 (12 Lectures)

Contract of Sale (S. 2)- Concept, Essentials elements of contract of sale, Distinction between sale and agreement to sell (S. 4), , Distinction between sale and Hire purchase agreement, Types of goods, Effects of destruction of goods (S. 6, 7, 8)

Conditions & Warranties (S. 11-25 & 62, 63)- Concept, Distinction between Conditions & Warranties, Implied Conditions & Warranties, Concept of Doctrine of Caveat Emptor- Exceptions.

Property- Concept, Rules of transfer of property (S. 18-26)

Unpaid Seller (S. 45-54, 55 & 56)- Concept, Rights of an unpaid seller, remedies for breach of contract of sale (S. 55-61), Auction Sale- Concept, Legal Provisions (S. 64)

Module V: The Negotiable Instruments (Amended) Act 2015 (12 Lectures)

Negotiable Instruments- Concept (S. 13), Characteristics, Classification of Negotiable Instruments (S. 11, 12, 17-20, 42, 43, 104, 134, 135) Maturity of Instruments.

Promissory Note and Bill of Exchange (S. 4, 5, 108-116)- Concept, Essentials of Promissory Note, Bill of Exchange (S. 4,5), Essential features of Promissory Note and Bill of Exchange, Kinds of Promissory note and Bill of Exchange, Cheque (S. 6)- Concept, Types & Crossing of Cheque, Distinguish between Bill of exchange & Cheque, Dishonour of Cheque- Concept & Penalties (S. 138, 139, 142)

Miscellaneous Provisions- (S. 8-10, 22, 99-102, 118-122, 134-137)- Parties to Negotiable Instruments Holder, Holder in due course, Rights & Privileges of Holder in due course, Payment in due course, Noting & Protest (99-104A)

Learner's space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

1. E-Contract & Legal issues in formation and discharge of E-Contract
2. Remedies on Breach of Contract

Recommended reference books:

1. Business Law : N.D.Kapoor
2. The Law of Contract: An Outline by Dr.NilimaChandiramani, Avinash Publications.
3. The Negotiable Instruments Act: Bhashyam&Adiga, Bharat Law House.
4. Law of Sale of Goods and Hire Purchase, Avtar Singh, Eastern Book Company

Recommended ICT back-up:

Topics	Links
E-Contracts	https://www.youtube.com/watch?v=GWlnP2s2wEo
Negotiable Instruments	https://www.youtube.com/watch?v=MqesNGviU_E

Advertising- I

Title of the course: Advertising- I

Course code: PUCCOIII22-323

Number of credits: 03

Lectures per week: 03

Total lectures required: 45

Course Objectives: To provide basic conceptual and application based knowledge about various dimensions of advertising and to give an essence of the various career opportunities in the field of advertising.

Course Outcome: On completion of the course learner will get:

- ❖ Understanding of the importance of Advertising in today's world
- ❖ Knowledge about different forms of Advertising
- ❖ Knowledge on Functions of Advertising Agency.
- ❖ To know Job Opportunities in Advertising Industry.

Module 1: Introduction to Advertising (12 lectures)

Integrated Marketing Communications (IMC)- Concept, Features, Elements, Role of advertising in IMC

Advertising: Concept, Features, Evolution of Advertising, Active Participants, Benefits of advertising to Business firms and consumers.

Classification of advertising: Geographic, Media, Target audience and Functions.

Module 2: Advertising Agency (11 lectures)

Ad Agency: Features, Structure and services offered, Types of advertising agencies, Agency selection criteria

Agency and Client: Maintaining Agency–Client relationship, Reasons and ways of avoiding Client Turnover, Creative Pitch, Agency compensation

Careers in advertising: Skills required for a career in advertising, Various Career Options, Freelancing Career Options - Graphics, Animation, Modeling, and Dubbing.

Module 3: Economic & Social Aspects of Advertising (11 lectures)

Economic Aspects: Effect of advertising on consumer demand, monopoly and competition, Price.

Social aspects: Ethical and social issues in advertising, positive and negative influence of advertising on Indian values and culture.

Pro Bono/Social advertising: Pro Bono Advertising, Social Advertising by Indian Government through Directorate of Advertising and Visual Publicity (DAVP), Self-Regulatory body- Role of ASCI (Advertising Standard Council of India)

Module 4: Brand Building and Special Purpose advertising (11 lectures)

Brand Building: The Communication Process, AIDA Model, Role of advertising in developing Brand Image and Brand Equity and managing Brand Crises.

Special purpose advertising: Rural advertising, Political advertising, Advocacy advertising, Corporate Image advertising, Green Advertising – Features of all the above special purpose advertising.

Trends in Advertising: Media, Co-branding, Ad spends, Ad Agencies, Execution of advertisements, Innovation and ads (use of AI, E-LOGO)

Learner's space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

- ✓ Brand development index (BDI), Co-branding
- ✓ Innovation and ads (use of AI, E-LOGO)

Recommended reference books:

- Advertising and Promotion : An Integrated Marketing Communications Perspective
George Belch and Michael Belch, 2015, 10th Edition, McGraw Hill Education
- Contemporary Advertising, 2017, 15th Edition, William Arens, Michael Weigold and Christian Arens, Hill Higher Education
- Strategic Brand Management – Kevin Lane Keller, 4th Edition, 2013 – Pearson Education Limited
- Kleppner's Advertising Procedure – Ron Lane and Karen King, 18th edition, 2011 – Pearson a. Education Limited
- Advertising: Planning and Implementation, 2006 – Raghuvir Singh, Sangeeta Sharma –Prentice Hall

- Advertising Management, 5th Edition, 2002 – Batra, Myers and Aaker – Pearson Education
- Advertising Principles and Practice, 2012 - Ruchi Gupta – S.Chand Publishing
- Brand Equity & Advertising- Advertising’s role in building strong brands, 2013- David A. Aker, Alexander L. Biel, Psychology Press
- Brand Positioning – Strategies for Competitive Advantage, Subroto Sengupta, 2005, Tata McGraw Hill Publication.
- The Advertising Association Handbook - J. J. D. Bullmore, M. J. Waterson, 1983 - Holt Rinehart & Winston
- Integrated Advertising, Promotion, and Marketing Communications, Kenneth E. Clow and Donald E. Baack, 5th Edition, 2012 – Pearson Education Limited

List of reference books with respect to the new topics added to commerce syllabus:

- Strategic Brand Management by Ram Kishen and Nalini Dutta
- Co-Branding: The Science of Alliance by Interbrand - T. Blackett and R. Boad
- Brand Identity Essentials, Revised and Expanded: 100 Principles for Building Brands by Kevin Budelmann , Yang Kim.

Recommended ICT back-up

Topics	Links
<ul style="list-style-type: none"> ● Trends in advertising ● Integrated marketing communication 	<p>https://www.youtube.com/watch?v=kz_DrdRKUY0</p> <p>https://www.youtube.com/watch?v=joyTZl5isp4</p>

Semester IV

Sub: Commerce IV

Title of the course: Management: Production & Finance

Course code: PUCCOIV22-421

Number of credits: 03

Lectures per week: 03

Total lectures required: 45

Course Objective:

- ❖ To acquaint the students with the conceptual knowledge of quality, production management and financial management
- ❖ To build awareness of the trends in quality, production and financial management
- ❖ To enhance the functional knowledge of stock markets, commodity markets and derivative markets.

Course outcomes: On completion of course-

- ❖ Knowledge about Production Planning and Control.
- ❖ Effective Inventory Management System.
- ❖ Knowledge about Internationally accepted Quality Standards.
- ❖ Financial Literacy and virtue of saving through investment.
- ❖ Knowledge about functions of Stock Market, Depositories, Credit Rating Agencies, SEBI

Module 1: Production & Inventory Management (11 lectures)

Production Management: Objectives, Scope.

Production Planning & Control: Steps, Importance

Production Systems: Concept, Types - Continuous and Intermittent. Productivity: Concept, **Factors Influencing Productivity**, Measures for improving Productivity.

Inventory Management- Objectives, Inventory Control- Techniques. Scientific Inventory Control System - Importance **Digital manufacturing enterprise- Sustainable Industry 4.0**

Module 2: Quality Management (10 lectures)

Introduction to Quality: Dimensions of Quality, Cost of Quality: Types – Internal Failure Cost, External Failure Cost, Appraisal Cost, Prevention Cost, **Quality Circle:** Features.

Quality Management Tools: TQM – Importance, Six Sigma – Process, ISO 9000 ISO 9001:2015 Certification Procedure, Kaizen – Process

Service Quality Management: Importance, SERVQUAL Model, Measures to improve service quality.

Module 3: Indian Financial System (12 lectures)

Indian Financial Market: Structure, Primary Market – IPO Procedure Dematerialization: Process, Role of Depositories: NSDL and CDSL

SEBI: Functions of SEBI, Investor protection measures of SEBI. Stock Exchange – Functions, Speculators. , Latest technology in stock trading - Artificial Intelligence: Uses and Benefits.

Credit Rating: Advantages, Credit Rating Agencies in India - CRISIL, CARE, and ICRA.

Module 4: Recent Trends in Finance (12 lectures)

Personal financial planning for young adults- Need and importance, process, Factors influencing personal financial planning.

Investment Fundamentals: Banking products, Insurance products, NPS (National Pension System Scheme)

Mutual Funds- Advantages and Limitations, Types, Factors responsible for growth of mutual funds , Systematic Investment Plan.

Commodity Market: Categories, Derivatives Market: Types, Participants, Types of Derivative Instruments.

Security analysis- Components: Fundamental Analysis- concept and steps, Technical Analysis- Concept, Difference between Fundamental Analysis and Technical Analysis.

Start-up Ventures –Sources of Funding, Micro Finance – Importance, Role of Self- Help Groups.

Learner's space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

- ✓ Digital manufacturing enterprise- Sustainable Industry 4.0
- ✓ ISO 9001:2015
- ✓ Personal Finance: NPS (National Pension System Scheme)

Recommended reference books:

- Production and Operations Management –ProfL.C.Jhamb, Event Publishing House.
- Production Planning & Control- ProfL.C.Jhamb, Event Publishing House
- Production & Operation Management (Text & Cases)- K.Ashwathappa&G.Sudeshana Reddy, Himalaya Publication.
- Launching New Ventues : An EnterpreneurialApproach-KathleenR.Allen, Cengage Learning Essentials of Inventory Management-MaxMuller,Amacon Publishes
- Indian Financial System—BharathiPathiak, Pearson Publication
- Financial Institutions and Markets : Structure Growth& Innovations – L.M.Bhole , Jitendra Mahakad, Tata McGraw Hill.
- The IndianFinancial System and Financial Market Operator-VasantDesai, Himalaya Publishing
- Indian Financial System – M.Y.Khan, Tata McGraw –Hill
- Production and Operations Management –Anandkumar Sharma, Anmol Publication
- Mutual Funds in India: Emerging Issues-NaliniPravaTripathy, Excel Books New Delhi.
- Start up Stand up: A step by stepguide to Growing your Business,NandiniVaidyanathan, Jaico Publishing House,Mumbai

List of reference books with respect to the new topics added to commerce syllabus:

- Sustainability in Manufacturing Enterprises: Concepts, Analyses and Assessments for Industry 4.0 (Green Energy and Technology) by Ibrahim Garbie.

- ISO 9001: 2015 - A Complete Guide to Quality Management Systems Hardcover
–by Itay Abuhav

Recommended ICT back-up

Topics	Links
Inventory planning and control	https://youtu.be/rPzJN_eovlg
Concepts in quality management	https://youtu.be/SMOQV2CyVQo
Total quality management	https://youtu.be/yWIAOFs04go
Start-up ventures	https://youtu.be/K0Eu6cL0BR8 https://youtu.be/qieDyvn6q0Q

Sub: Business Law-II

Title of the course: Business Law- II

Course code: PUCCOIV22-422

Number of credits: 04

Lectures per week: 04

Total lectures required: 60

- Course Objectives:**
1. To provide the brief about the framework of Indian Business Laws
 2. To orient students, about the legal aspects of business
 3. To familiarize the students with case law studies related to Business Laws
 4. To acquaint the students with the legal framework influencing business decisions and operations

Course Outcome: On completion of course-

- ❖ Learner will understand the different aspects of Corporate and other laws
- ❖ Learner will understand the different aspects of Companies and Entrepreneurship

❖ Learner will get the knowledge of Information Technology Law

Module I: Indian Companies Act, 2013- Part I

(12 Lectures)

Company: Concept, Features, Role of Promoters (S. 2(69), S. 92), Duties and liabilities of the Promoter, Effects of Pre-Incorporation Contracts, Consequences of non-registration, and lifting of Corporate Veil.

Classification of Companies: Distinction between Private Company and Public Company, Advantages and Disadvantages of Private Company and Public Company- Common Procedure for Incorporation of Company

Memorandum of Association (MOA) and Article of Association (AOA)- Concept, Clauses of MOA, AOA- Contents, Doctrine of Constructive notice, Doctrine of Ultra Vires, Doctrine of Indoor Management

Prospectus: Concept, Kinds, Contents, Private Placement

Module II: Indian Companies Act, 2013- Part II

(12 Lectures)

Member of a Company: Concept, Who can become a member, Modes of acquiring membership, Cessation of membership, Right and Liabilities of Members.

Director: Qualifications and Disqualifications, Classification, Director Identification Number (DIN), Legal Position of Directors

Meetings: Types, Legal Provisions of Statutory Meeting, Annual General Meeting, Extra-Ordinary Meeting, Board Meeting.

Module III: Indian Partnership Act, 1932

(12 Lectures)

Partnership: Concept, Essentials, True Test of Partnership, Partnership Deed, Types of Partnership, Rights and Duties of Partners, Distinguish between Partnership and Hindu Undivided Family (HUF)

Dissolution: Concept, Modes of Dissolution, Consequences of Dissolution

Limited Liability Partnership (LLP) 2008: Concept, Characteristics, Advantages and Disadvantages, Procedure for Incorporation

Extent of L.L.P: Conversion of LLP, Mutual rights and duties of partners, Winding up of LLP, Distinction between LLP and Partnership.

Module IV: Consumer Protection Act, 2019 and Competition Act, 2002 and Information Technology Act, 2000 (12 Lectures)

Consumer Protection Act: Concept, Objects, Reasons for enacting the Consumer Protection Act, Definition of Consumer, Consumer Dispute, Complaint, Complainant, Advertisement, Defect, Deficiency, Consumer Dispute, Unfair Trade Practices, Goods and Services.

Consumer Protection Councils and Redressal Agencies: District, State and National

Competition Act, 2002: Concept, Salient Features, Objectives and Advantages.

Abuse of Dominant Position, Competition Commission of India, Anti-Competition Agreements

Information Technology Act, 2000: Tampering with computer source documents, Computer related offences

Module V: Intellectual Property Rights (12 Lectures)

Intellectual Property Right (IPR): Concept, Nature, Introduction and Background of IPR in India

IPR relating to Patents: Concepts of Invention and discovery, Comparison, Concept of Patents, General Principles applicable to working of patented inventions, Term of Patent, Infringement of Patent rights and remedies (S. 104-115)

IPR relating to Copyrights: Concept of Copyright (S. 14, 16, 54), Concept of author and authorised acts, (S. 2) Ownership of Copyright (S. 17), Duration or term of Copy right (S.

22-27), Original work and fair use, Rights of Copyright holder, Infringement of Copyrights and Remedies (S. 51, 52)

IPR relating to Trademarks: Concept, Functions of Trade Mark, types, trademarks that cannot be registered, Registration of Trade Marks and rights of the proprietor of Trade Marks, Procedure for registration of Trade Marks, Infringement of Trademarks and Remedies.

Learner's space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

1. Incorporation of Companies on Ministry of Corporate Affairs (MCA Portal) www.mca.gov.in
2. Incorporation of Limited Liability Partnership on Ministry of Corporate Affairs (MCA Portal) www.mca.gov.in
3. Registration of Partnership Firms with Registration of Firms (ROF)
4. Registration of Trademarks, Copyright on ipindiaonline.gov.in

Recommended reference books:

1. Guide to the Companies Act, 2013 by A Ramaiya , Lexis Nexis.
2. Company Law by P.C. Tulsian.
3. Introduction to Law of Partnership (including Limited Liability of Partnership): Avtar Singh, Eastern Book Agency
4. Textbook of Intellectual Property Rights: N.K. Acharaya, Asia Law House

Recommended ICT back-up:

Topics	Links
Formation & Incorporation of Company	https://www.youtube.com/watch?v=kRd0vZiVeQ8
Registration of trademark	https://www.youtube.com/watch?v=Y4gsOit2QpA
LLP Registration process	https://www.youtube.com/watch?v=M1aeREwmnfw

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Sub: Advertising-II

Title of the course: Advertising- II

Course code: PUCCOIV22-423

Number of credits: 03

Lectures per week: 03

Total lectures required: 45

Course Objectives:

1. To develop understanding with respect to types of media, new media options, media planning and media scheduling strategies in advertising.
2. To develop understanding on creative aspects of advertising as well as making of the ads.
3. To develop understanding with respect to evaluation of advertising by Pre-testing and Post-testing of Advertisements.

Course Outcome: On completion of course-

- ❖ Learner will understand advertising environment prevailing in India.
- ❖ Develops creative skills required in the field of advertising.
- ❖ Learner will understand Execution Styles of Advertising.

Module 1: Media in Advertising

(11 Lectures)

Traditional Media: Print, Broadcasting, Out-Of-Home advertising and films - advantages and limitations of all the above traditional media.

Contemporary style: Balloons, drones, flags, wraps, merchandise, event sponsorship

New Age Media: Digital Media / Internet Advertising – Forms, Significance and Limitations

Media Research: Concept, Importance, Tool for regulation - ABC and Doordarshan Code, Techniques

Module 2: Planning Advertising Campaigns (11 Lectures)

Advertising Campaign: Concept, Advertising Campaign Planning -Steps Determining advertising objectives - DAGMAR model

Advertising Budgets: Factors determining advertising budgets, methods of setting advertising budgets, Media Objectives - Reach, Frequency and GRPs.

Media Planning: Concept, Process, Factors considered while selecting media, Media Scheduling Strategies

Module 3: Fundamentals of Creativity in Advertising (11 Lectures)

Creativity: Concept and Importance, Creative Process, Concept of creative brief, Techniques of Visualization

Creative aspects: Buying Motives - Types, Selling Points- Features, Appeals – Types, Concept of Unique Selling Proposition (USP)

Creativity through Endorsements: Endorsers – Types, Celebrity Endorsements – Advantages and Limitations, High Involvement and Low Involvement Products

Module 4: Execution and Evaluation of Advertising (12 Lectures)

Preparing print ads: Rules for creating effective print ads, Essentials of Copywriting, Copy – Elements, Types, Layout- Principles, Illustration - Importance.

Creating broadcast ads: Execution Styles, Jingles and Music – Importance, Concept of Storyboard, Execution on Social Media Platforms i.e. on Facebook, Instagram, LinkedIn, YouTube

Evaluation: Advertising copy, Pre-testing and Post-testing of Advertisements – Methods and Objectives

Learner’s space: Enthusiastic advanced learners can study following topics to enrich their knowledge and explore further in the topics covered under the syllabus.

1. Digital Media
2. Techniques of Visualization
3. Media Scheduling Strategies

Recommended reference books:

1. Contemporary Advertising, 2017, 15th Edition, William Arens, Michael Weigold and Christian Arens, Hill Higher Education
2. Confessions of an Advertising Man, David Ogilvy, 2012, Southbank Publishing.
3. Advertising, 10th Edition, 2010 - Sandra Moriarty, Nancy D Mitchell, William D. Wells, Pearson
4. Advertising Principles and Practice, 2012 - Ruchi Gupta – S.Chand Publishing
5. The Advertising Association Handbook - J. J. D. Bullmore, M. J. Waterson, 1983 - Holt Rinehart & Winston
6. Kelley, Larry D./Jugenheiner, Donald W., Advertising Media Planning: A Brand Management Approach, PHI Learning, 2009, New Delhi.
7. Drewniany, Bonnie/ Jewler, A. Jerome, Creative Advertising, Cengage Learning, 2009, New Delhi.

Recommended ICT back-up:

Topics	Links
Career in Digital Media	https://www.youtube.com/watch?v=QOJScCMCCIE
Techniques of Visualization	https://www.youtube.com/watch?v=Uo2nqvJizS8

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PEDAGOGY

At second year of Bachelor of Commerce program a learner gets an opportunity to explore different areas within the vast & dynamic field of Commerce. The syllabus of Commerce-III &IV, Business Law I & II, Advertising I & II provides the learner with comprehensive picture of management and the skills required to convert their innovative management ideas into practical application for effective organizational management. Commercial activity is omnipresent and is multi-dimensional which makes commerce evidently the most employment potential course and therefore it is recommended that teachers must adopt a variety of methods and materials in order to impart a curriculum effectively.

This can be made successful by implementing teaching methods like the **survey based assignments for topic like leadership, Start-up ventures, Quality management and control, etc.** Discovery learning can be undertaken by engaging learner in workshops to ‘learn by doing’ in the subject of advertising and for commerce topics like Indian Financial system. **Industrial visit at SEBI will expose the learner to various dynamics of market.**

Use of ICT can be made prominent to act as mediating artifact, **real case studies of corporate world can be discussed in the classroom to help learner correlate theoretical concepts with the practical world, besides this asking students to solve cases will lead to application of knowledge.** Role play and group discussions will give

deeper insights about the topics. Brief Introduction on how to access government websites w.r.t. registration of Companies, LLP, Intellectual Property Rights. Mock Board Meeting and Annual General Meeting can be arranged. Guest talks can be arranged so as to expose students to real life industrial scenarios thereby making learner understand theoretical concepts more clearly and productively.

EVALUATION SCHEME

Evaluation of learner will be done in following manner:

SEMESTER END EXAM: 60 MARKS

INTERNAL ASSESSMENT: 40 MARKS

SEMESTER END EXAM QUESTION PAPER PATTERN

DURATION: 2 hours

Total marks: 60

Q.1. Answer any two of the following. (Based on 1st Module) (12M)

- i) Brief answer question
- ii) Brief answer question
- iii) Brief answer question

Q.2. Answer any two of the following. (Based on 2nd Module) (12M)

- i) Brief answer question
- ii) Brief answer question
- iii) Brief answer question

Q.3. Answer any two of the following. (Based on 3rd Module) (12M)

- i) Brief answer question
- ii) Brief answer question
- iii) Brief answer question

Q.4. Answer any two of the following. (Based on 4th Module) (12M)

- i) Brief answer question
- ii) Brief answer question
- iii) Brief answer question

Q.5 (A) Case Study (06M)

(B) Case Study (06M)

OR

Q.5. Short Notes (Any 3 out of 5) (12M)

CONTINUOUS INTERNAL ASSESSMENT: 40 MARKS

(A) Class Test: 20 MARKS

20 Multiple choice / Fill in the blanks/ True or False questions, each carrying one mark would be asked in a Class test.

(B) Practical Project Based Assessment

(Corporate Case analysis/local survey/Making Ad-video/Ad Copy)Document 10 Marks
Viva/Presentation/Group Discussion 10 Marks

❖ **Passing Criteria:**

To pass the course learner is expected to score minimum 40% marks in external as well as in internal evaluation; Internal and external both will have separate passing heads.

Academic Council dated 9th and 11th March, 2024 as per Item Number: 7.03



**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S,
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND
COMMERCE, (AUTONOMOUS) DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

**Faculty of Science
DEPARTMENT OF BIOTECHNOLOGY
(Programme: Bachelor of Science, B.Sc.)**

**SYLLABUS FOR
S. Y. B.Sc. – Biotechnology (Semester III and IV) – NEP 2020
Choice Based Credit System (CBCS)**

(With effect from the Academic Year: 2024-2025)


**Ms. Sandeeptha Rathindran
BoS Chairperson**


**Prof. (Dr.) K. R. Jagdeo
I/C Principal**

S.Y. Biotechnology Course Structure

Semester- III						
Sr. No.	Course code	Course Title	Category	Teaching hours/ week	Total Marks	Credits
1.	BT24301MM	Immunoscience	Major Mandatory 1	3	100	2
2.	BT24302MM	Cytology & Cytogenetics	Major Mandatory 2	3	100	2
3.	BT24303MM	Molecular Biology	Major Mandatory 3	3	100	2
4.	BT24304MM	Practical Paper 1 (Practical of Immunoscience & Cytology & Cytogenetics)	Major Mandatory 4	6	100	2
5.	BT24305MN	Fermentation Technology	Minor 1	3	100	2
6.	BT24306MN	Biophysics	Minor 2	3	100	2
7.	BT24307OE	MKCL	Open Elective 1	2	50	2
8.	BT24308VS	Practical Paper 2 (Practical of Molecular Biology & Fermentation Technology)	VSC 1	6	100	2
9.	BT24309SE	Practical Paper 3 (Practical of Biophysics & Entrepreneurship Development)	SEC 1	6	100	2
10.	BT24310AE	Entrepreneurship Development	AEC 1	3	50	2
11.	BT24311FP/ BT24311CE	Field Project/ Community Enhancement Programme	FP/CEP	6	50	2

Semester- IV

Sr. No.	Course code	Course Title	Category	Teaching hours/ week	Total Marks	Credits
1.	BT24401MM	Biochemistry	Major Mandatory 1	3	100	2
2.	BT24402MM	Medical Microbiology	Major Mandatory 2	3	100	2
3.	BT24403MM	Molecular Diagnostics	Major Mandatory 3	3	100	2
4.	BT24404MM	Practical Paper 1 (Practical of Biochemistry & Medical Microbiology)	Major Mandatory 4	6	100	2
5.	BT24405MN	Biostatistics & Bioinformatics	Minor 1	3	100	2
6.	BT24406MN	Environmental Biotechnology	Minor 2	3	100	2
7.	BT24407OE	Applied Chemistry	Open Elective 1	3	50	2
8.	BT24408VS	Practical Paper 2 (Practical of Molecular Diagnostics & Biostatistics & Bioinformatics)	VSC 1	6	100	2
9.	BT24409SE	Practical Paper 3 (Practical of Environmental Biotechnology & Applied Chemistry)	SEC 1	6	100	2
10.	BT24410AE	Research Methodology	AEC 1	3	50	2
11.	BT24411CC	Co-curricular Course	CC 1	6	50	2

SEMESTER III

Course Code	Title	CATEGORY	Credits
BT24301MM	IMMUNOSCIENCE	MAJOR MANDATORY 1	2

Course objectives: -

The objective of this course is to familiarize students with the immune effector mechanisms and various immunotechniques.

Course outcomes: - By the end of the course the student will be able to:

- Outline the role of complements in immune response.
- Elaborate on different immune cell receptors involved in immune reaction.
- Apply the concepts of immunotechniques in disease diagnosis.

UNIT	TOPICS	NO. OF LECTURES
UNIT I Effectors of Immune Response	Complement System- Classical, Alternate and Lectin pathways; Regulation and Biological Effects of Complement System MHC Classes - General Organization and Inheritance; Structures and Peptide Interactions; Class I and II Diversity and Polymorphism; Antigen Presentation through Endocytic and Exocytic Pathways; MHC Restriction.	10
UNIT II Cell Receptors	T-cell Receptor Complex: Structure and Activation. B-cell Receptor: Structure, Maturation and Activation B-T cell interaction (B-T cell cooperation) Cell cytotoxic responses as the effector mechanism.	10
UNIT III Immuno Techniques	Precipitation Reactions: Immunoprecipitation, Immunoelectrophoresis, CIEP, Rocket Electrophoresis and 2-D Immunoelectrophoresis Agglutination Reactions: Passive, Reverse Passive, Agglutination Inhibition. Coomb's Test; Complement Fixation Tests, RIA, ELISA, ELISPOT, Chemiluminescence, Western Blot, Immunofluorescence, Flow Cytometry.	10

Learner's space: Application of immunology concepts and techniques in commercial kits used to diagnose the infections.

MOOC:

1. Fundamentals of Immunology: Innate Immunity and B-Cell Function
<https://www.coursera.org/learn/immunologyfundamentalsimmunitybcells?specialization=immunology>, Coursera, Duration - 12 weeks, UG level
2. Immunology - Course (swayam2.ac.in) Swayam, Credit point – 4, Duration - 12 weeks, UG level.

Pedagogy: YouTube videos, PPT, Group discussion, Models, Practical techniques, Animated videos, Virtual labs.

Reference books:

1. Immunology, Richard Goldsby, Thomas Kindt, Barbara Osborne, JenisKuby; 5th edition.
2. Textbook of basic and clinical immunology, 1st edition (2013), Sudha Gangal and ShubhangiSontakke, University Press, India
3. Immunology, 7th edition (2006), David Male, Jonathan Brostoff, David Roth, Ivan Roitt, Mosby, USA.
4. Introduction to Immunology- C V Rao- Narosa Publishing House

ICT backup:

1. https://www.physio-pedia.com/Complement_System
2. <https://courses.lumenlearning.com/microbiology/chapter/major-histocompatibility-complexes-and-antigen-presenting-cells/>
3. <https://youtu.be/3W67OH3v2IU>
4. <https://youtu.be/RRbuz3VQ100>

Course Code	Title	CATEGORY	Credits
BT24302MM	CYTOLOGY & CYTOGENETICS	MAJOR MANDATORY 2	2
<p>Course objectives:- The objective of this course is to have a firm foundation in the fundamentals of cell biology and cytogenetics.</p> <p>Course outcomes:- By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Outline the types of cytoskeleton and its function. • Discuss various transport mechanism across cell membranes. • Describe different levels of genome organization, types of chromosomal aberrations and concept of genetic linkage and mapping. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Cytoskeleton	Overview of the Major Functions of Cytoskeleton. Microtubules: Structure and Composition, MAPs, Functions of Microtubules. Motor Proteins: Kinesin, Dynein MTOCs, Microtubules in Cilia and Flagella Intermediate Filaments: Structure and Composition, Assembly and Disassembly, Types and Functions Microfilaments: Structure and Composition, Assembly and Disassembly Motor Protein: Myosin Role of Microfilaments in Muscle Contractility Examples of Non-muscle Motility and Contractility	10	
UNIT II Cellular Transport and Cellular Interactions	Concept of Cell Permeability, Uptake of Nutrients by cells Principles of Membrane Transport- Transporters and Channels Active Transport, Passive Transport Types of Transporters: ATP Driven Pumps - Na ⁺ K ⁺ Pump, Cell Junctions and its Classification, Extracellular Matrix Cell Coat and Cell Recognition. Cellular Interactions.	10	
UNIT III Cytogenetics	Genome organization in Viruses, Prokaryotes and Eukaryotes Structural organization and Significance of Polytene	10	

	chromosome, Lampbrush Chromosome Variation in Chromosomal Structure and Number: Deletion, Duplication, Inversion, Translocation, Aneuploidy, Euploidy and Polyploidy and Syndromes- Klinefelter, Turner, Cri-du- Chat, Trisomy 21, Trisomy 18 and Trisomy 13. Karyotyping and its importance Genetic Linkage, Crossing Over and Chromosomal Mapping: Two-point Cross; Three point Cross Pedigree Analysis	
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Learner's space:

Insight into Cytoskeletal Abnormalities, cellular processes like Endocytosis and Literature search of human genetic disorders through OMIM.

MOOC:

1. Essential Human Biology: Cells and Tissues: Duration: 5 weeks (2–3 hours per week) Self-paced, Free (Optional upgrade available)<https://www.edx.org/course/essential-human-biology-cells-and-tissues>.
2. General Biology II: The World of the Cell<https://www.udemy.com/course/general-biology-ii-the-world-of-the-cell/>
3. <https://www.classcentral.com/course/swayam-human-molecular-genetics-5803>

Pedagogy: Posters, PowerPoint presentation, animated videos, Models, Case study (Genetic counselling), Preparing pedigree charts for inheritance of some human traits, Flipped classroom.

Reference books:

1. Cell and Molecular Biology- Concepts and Experiments, 6th edition (2010)—Gerald Karp – Wiley International
2. Molecular Biology of the Cell, 5th Edition (2007) Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter. Garland Science, USA
3. Cell and Molecular Biology – De Robertis- Lippincott Williams & Wilkins
4. Prescott, Harley and Klein's Microbiology, McGraw Hill Higher Education, Joanne M. Willey, Linda Sherwood, Lansing M.Prescott, Christopher J. Woolverton 7th edition 2008
5. Gardner, E.J., Simmons, M.J., Snustad, D.P. (2006). Principles of Genetics. VIII Edition John Wiley & Sons
6. Russell, P. J. (2009). Genetics- A Molecular Approach. III Edition. Benjamin Cummings
7. Griffiths, A.J.F., Wessler, S.R., Lewontin, R.C. and Carroll, S.B. IX Edition. Introduction to Genetic Analysis, W. H. Freeman & Co
8. Fundamentals of Genetics. B.D Singh
9. Textbook of Cell Biology, Genetics, molecular biology , Ecology and Evolution.: P.S. Verma and V.K Agarwal (2001)

ICT backup:

1. <https://www.cureffi.org/2013/03/30/cell-biology-07-microtubules-and-cell-division/>
2. <https://organismalbio.biosci.gatech.edu/chemical-and-electrical-signals/effectors-and-movement/>
3. http://www.vivo.colostate.edu/hbooks/pathphys/topics/sodium_pump.html
4. <https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/cell-cell-junctions>

5. <http://www2.csudh.edu/nsturm/CHEMXL153/GenomeOrganization.htm>
6. <https://www.lecturio.com/magazine/human-genetics-chromosomal-aberrations/> 7.
<https://www2.kumc.edu/genetics/lab/>

Course Code	Title	CATEGORY	Credits
BT24303MM	MOLECULAR BIOLOGY	MAJOR MANDATORY 3	2
<p>Course objectives: - The objective of this course is to have an insight into the mechanism of gene expression and regulation.</p> <p>Course outcomes:- By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Illustrate the steps involved in the transcription in Prokaryotes and Eukaryotes. • Explain process of translation in Prokaryotes & Eukaryotes. • Describe the mechanisms associated with regulation of gene expression in prokaryotes and eukaryotes. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Gene Expression-Transcription	<p>Gene Expression- an Overview.</p> <p>Transcription Process in Prokaryotes: RNA Synthesis; Promoters and Enhancers; Initiation of Transcription at Promoters; Elongation and Termination of an RNA Chain.</p> <p>Transcription in Eukaryotes: Eukaryotic RNA Polymerases; Eukaryotic Promoters; Transcription of Protein Coding Genes by RNA Polymerase; Eukaryotic mRNA's; Transcription of other genes; Spliceosomes, RNA editing</p>	10	
UNIT II Gene Expression-Translation	<p>Nature of Genetic Code (Deciphering the genetic code, Characteristics, Wobble Hypothesis)</p> <p>Translation in Prokaryotes and Eukaryotes Charging of t-RNA, Process of Protein Synthesis (Initiation, Elongation, Translocation, Termination)</p> <p>Post Translational Modifications. Glycosylation, Acetylation, Methylation</p>	10	
Unit III Regulation of Gene Expression	<p>In Prokaryotes: In Bacteria: lac Operon of E.coli; trp Operon of E.coli.</p> <p>In Eukaryotes: Operons in Eukaryotes; Control of Transcriptional Initiation; Gene Silencing and Genomic Imprinting; Post-Transcriptional Control; RNA Interference.</p>	10	

Learner's space:

Role of Antibiotics in Bacterial Transcription & Translation Inhibition. Use of Gene Silencing in Therapeutics & its challenges.

MOOC:

1. <https://www.my-mooc.com/en/mooc/molecular-biology-part-2-transcription-mitx-7-28-2x-0/>
2. <https://www.edx.org/course/molecular-biology-part-3-rna-processing-and-transl?index=product&queryID=74a7f9fda239d84108dff3daf5d1e6cf&position=63>.
<https://www.classcentral.com/course/epigenetics-486>.

Pedagogy: Google Classroom, YouTube animated Videos, Concept Mapping, Group Discussion, Worksheet & Flow Sheet Preparation & Power point presentation.

Reference books:-

1. iGenetics(Molecular Approach), 3rd edition- Peter Russell -Pearson Education
2. Microbial Genetics- Freifelder –Narosa Publishing House
3. Genes XI, 11th edition (2012), Benjamin Lewin, Publisher - Jones and Barlett
4. Nelson, D. L., Lehninger, A. L., & Cox, M. M. (2005). Lehninger principles of biochemistry 4thedn. Macmillan. W.H. Freeman and Company, New York.

ICT backup:

1. <https://www.youtube.com/watch?v=nXj2Hmd5114>
2. <https://www.youtube.com/watch?v=CxxQ5i97YB0>
3. <https://www.youtube.com/watch?v=G8RYhV569xg>
4. <https://www.khanacademy.org/science/biology/gene-regulation>

Course code	Course Title	Category	Credits	Number of lectures
BT24304MM	PRACTICAL PAPER 1 (Practical of Immunoscience & Cytology and Cytogenetics)	Major Mandatory 4	2	6

1. Passive Agglutination- RA Factor Test.
2. Immunoelectrophoresis
3. ELISA (Kit-based) - HEPALISA.
4. DOT-ELISA.
5. Western Blotting - Demonstration.
6. Flow Cytometry - Lab Visit.
7. Study of Human chromosomal disorders - Trisomy 21
8. Trisomy 13 Trisomy 18, Klinefelter and Turner, Cri-du- Chat.(Preferably using online software) Study of Polytene Chromosomes.
9. Mapping based on Three Point Cross.(Problems)
10. Pedigree Analysis- Autosomal and Sex-Linked. (Problems)
11. Karyotyping: Video demonstration

Course Code	Title	CATEGORY	Credits
BT24305MN	FERMENTATION TECHNOLOGY	MINOR 1	2
<p>Course objectives: - The objective of this course is to understand the basic skills applied in fermentation technology and build a foundation for more advanced studies in bioprocess technology.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Comment on skills associated with screening & preservation of industrially important strains. • Summarize principles & use underlying fermentation process. • Apply various In-vitro assay in fermentation process. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Microorganisms in Industrial Processes	Types of Microorganisms used in Industrial Processes: Bacteria, Actinomycetes, Fungi and Algae. Screening and maintenance of strains: Primary Screening and Secondary Screening. Strain improvement of microorganisms Preservation of Industrially Important Microbial Strains - Stab culture, Soil stock method, Lyophilisation & Cryopreservation	10	
UNIT II Fermenter and Fermentation Processes	Design of a fermenter: Stirred Tank Fermenter-Basic Design; Parts of a Typical Industrial Fermenter. Fermentation Media: Components Sterilization: Sterilization of Fermenter and Fermentation Media. Process Parameters: pH, Temperature, Aeration, Agitation, Foam, etc. Types of Fermentation: Surface and Submerged; Batch and Continuous, Aerobic and Anaerobic. Product Isolation and Purification. Study of representative fermentation processes: Outline of Penicillin and Ethanol Production by fermentation along with a flow-diagram	10	
UNIT III In-vivo and In-vitro Assay of Industrial Products	Assay of Industrial Products: <i>In vivo</i> Animal assays - Pyrogen and Endotoxin testing Chemical and Biological; Types and Subtypes; Kinetics. Advantages and Disadvantages. Bioavailability and Bioequivalence Studies	10	

Learner's space:

To explore manufacturing details of various industrial products produced by microorganisms.

MOOC:

1. Phase- I Online Certificate Course on Fermentation Technology - Atal Bihari Vajpayee Vishwavidyalaya (e-atalgiansangum.ac.in).
2. Microbial fermentation processes and bioreactor design - Biochemical and Bioprocess Engineering | Coursera

Pedagogy: Google classroom & making crossword puzzle & group discussions, Production flow-sheet preparation, Industrial visits.

Reference books:

1. Food Microbiology- Frazier
2. Industrial Microbiology- A. H. Patel
3. Industrial Microbiology- L. E. Casida- John Wiley & Sons
4. Prescott & Dunn's Industrial Microbiology by Prescott, Samuel cate 1872-1962, Fourth edition, Western cott publication.

ICT backup:

1. <https://youtu.be/xbdJUuHUXOE>
2. Screening of Microorganisms: Primary and Secondary Techniques | Industrial Biotechnology (biotechnologynotes.com)
3. https://youtu.be/hASoAZ_QCHK
4. Pharmaceutical Bioavailability and Bioequivalence: Pharmaceutical Guidelines (pharmaguideline.com)

Course Code	Title	CATEGORY	Credits
BT24306MN	BIOPHYSICS	MINOR 2	2
<p>Course objectives: - The objective of this course is to have a firm foundation in the fundamentals and applications of current biophysical theories.</p> <p>Course outcomes: -By the end of the course the student will:</p> <ul style="list-style-type: none"> • Explain electromagnetic spectrum, properties of laser and working principle of spectrophotometer • Elaborate on different types of microscopy with applications. • Summarize various electrophoretic techniques. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Electromagnetic Spectrum and Spectroscopy	Electromagnetic Spectrum: Introduction to Electromagnetic Spectrum. Introduction to Lasers: <i>Lasers:</i> Properties of Lasers, Stimulated Emissions, Laser Action; Applications of Laser. Spectroscopy: Types and Properties of Spectra; Basic Laws of Light Absorption. Spectrophotometer: Principle, Instrumentation and Applications; UV-Vis Spectrophotometer, Single and Dual Beam Spectrophotometer.	10	
Unit II Microscopy	Introduction to Optics <i>Optics:</i> Properties of Light - Reflection, Refraction, Dispersion, Interference. Microscopy: Types of Microscopy; Electron Optics; Dark field Microscopy, phase contrast microscopy Electron Microscopy- Preparation of Specimen, SEM, TEM and Immuno-Electron Microscopy. Fluorescence Microscopy.	10	

UNIT III Electrophoretic Techniques	Electrophoresis: Introduction, Principle of Electrophoresis Migration of Ions in an applied electric field; Factors affecting Electrophoretic Mobility; Types & Techniques of electrophoresis: Free Electrophoresis: Moving Boundary Electrophoresis; Zone Electrophoresis : Supporting Matrix Paper electrophoresis; AGE; Native and SDS PAGE (reducing and non-reducing, continuous and discontinuous); Specialized Electrophoretic techniques: Discontinuous Gel Electrophoresis, Isoelectric focusing and 2D PAGE. Staining and Detection methods; Gel-Documentation. Applications in Biology	10
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Learner's space: Applications of Optics in Medical field/Space Science, etc. Use of Electrophoresis in Advance Molecular Biological techniques like PCR/RAPD/RFLP/AFLP etc.

MOOC:

1. <https://www.classcentral.com/course/swayam-fundamentals-of-optical-and-scanning-electron-microscopy-5334>
2. <https://www.classcentral.com/course/swayam-experimental-biotechnology-19863>

Pedagogy: Group discussion, Models, Animated YouTube Videos, Online worksheets, Virtual Labs.

Reference books:

1. Essential Biophysics, Narayanan, New Age Publications
2. Handbook of Molecular Biophysics (Methods & Application), 2009, HG Bohr, Wiley
3. Biophysical Chemistry: Principles & Techniques by Upadhyay, Upadhyay, Nath. (Himalaya Publishing House)
4. Principles and Techniques of Biochemistry and Molecular Biology, Keith Wilson and John Walker, Cambridge University Press
5. Fundamentals of Optics, H.R. Gulati and D.R. Khanna, 1991, R. Chand Publications

ICT backup:

1. <https://www.britannica.com/technology/laser>
2. https://www.va.gov/DIAGNOSTICEM/What_Is_Electron_Microscopy_and_How_Does_It_Work.asp
3. http://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000002BI/P001354/M021523/ET/1501757741ET.pdf
4. <http://www.dspmuranchi.ac.in/pdf/Blog/electrophoresis.pdf>
5. <https://ncert.nic.in/ncerts/l/iesc112.pdf>
6. <https://ncert.nic.in/textbook/pdf/leph105.pdf>

Course code	Course Title	Category	Credits	Number of lectures
BT24308VS	PRACTICAL PAPER 2 (Practical of Molecular Biology & Fermentation Technology)	VSC 1	2	6

1. Study of *E.coli* Diauxic Growth Curve- (Lactose and Glucose).
2. Study of *lac* Gene Expression using Blue-White Selection.
3. Expression of β -galactosidase and Measurement of Activity.
4. Screening for an Antibiotic Producing Strain of Microorganism.
5. Lab Scale Production of Penicillin (Static and shaker).
6. Purification of Penicillin from Broth Culture of *Penicillium spp.* by Solvent Extraction.
7. Estimation of Penicillin from Recovered Broth by Chemical (Iodometric) Method.
8. Estimation of Penicillin from Recovered Broth by Biological (Bioassay) Method.

Course code	Course Title	Category	Credits	Number of lectures
BT24309SE	PRACTICAL PAPER 3 (Practical of Biophysics & Entrepreneurship Development)	SEC 1	2	6

1. Verification of Beer-Lambert's Law.
2. Study of Absorption Spectra of any one coloured compound ($\text{CuSO}_4/\text{CoCl}_2/\text{KMnO}_4$).
3. Plasmid Biology:
Extraction of Plasmid DNA and quantification using UV Spectrophotometry.
Separation of plasmid DNA by Agarose Gel Electrophoresis.
4. Electrophoresis of Proteins by native PAGE and SDS- PAGE.
5. Electron Microscope, Fluorescence Microscope (Lab Visit).
6. Making of Marketing Plan
7. Preparation of Business proposal
8. Perform Market research on any product.

Course Code	Title	CATEGORY	Credits
BT24310AE	ENTREPRENEURSHIP DEVELOPMENT	AEC	2
<p>Course objectives:- To develop and systematically apply an entrepreneurial way of thinking that will allow identification and creation of business opportunities.</p> <p>Course outcomes: -By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Select and screen a business idea. • Design strategies for successful implementation of ideas. • Identify potential opportunities and ideas and career choices available to the entrepreneur 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Introduction to Entrepreneurship Development	Concept of Entrepreneur & Entrepreneurship; Need and Importance; Factors Influencing Entrepreneurship; Essentials of a Successful Entrepreneur. Ethics & Social Responsibility of Entrepreneurs, Opportunities & Scope of Entrepreneurs, Entrepreneurs in India & Abroad; Woman as an Entrepreneur.	10	
UNIT II Setting-up of an Enterprise and Planning	Location of Enterprise; Real Estate and Human Resource Planning, Financial Planning; Role of Government and Financial Institutions in Entrepreneurship Development; Raising Money from Venture Capitalists, Government Grants, Product Selection and Ideas; Project Planning and Formulation; Project Feasibility Assessment; Regulatory Affairs, Innovation, IPR generation and Protection, Preparation of a Business Plan, Characteristics and Importance of Planning	10	
UNIT III Marketing, Research and Opportunities in Biotechnology	Marketing Plan for an Entrepreneur; Strategic Alliances, Marketing strategy, Advertising and Sales Promotion Market Assessment and Market Research, Need for International Market Research, Domestic vs. International Market Research, Cost and Methodology of Market Research, Desk and Field Research Entrepreneurship Opportunities in Biotechnology	10	

Learner's space:

Learn mentorship programs in collaboration with government organizations, incubation centres, educational institutions and private organizations.

MOOC:

1. <https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/Action Plan.pdf>
2. The Science and Business of Biotechnology: Duration: 16 weeks (10–12 hours per week), Self-paced, Free (Optional upgrade available)
3. <https://www.edx.org/course/the-science-and-business-of-biotechnology>

Pedagogy: YouTube videos, Case studies, Group Discussion, Seminars, Case studies, Flipped Classroom.

Reference books:

1. Entrepreneurship - Kurup
2. Handbook of Entrepreneurship development - Basotia and Sharma
3. Jose Paul and Kumar Ajith N, “Entrepreneurship Development and Management”, Himalaya Publishers, New Delhi, 2000.
4. Dollinger, “Entrepreneurship Strategies and Resources”, Pearson Education, 2003.
5. Holt David H, “Entrepreneurship: New Venture Creation”, Prentice Hall of India, 2000

ICT backup:

1. <https://www.businessmanagementideas.com/entrepreneurship-2/women-entrepreneurs/21046>
2. https://youtu.be/ol_VZfjgkME <https://youtu.be/YxfJPCXHAwA>
3. <https://www.labiotech.eu/expert-advice/beginners-guide-biotech-life-science-marketing/>
4. <https://www.process.st/business-plan-vs-business-proposal/>

SEMESTER IV

Course Code	Title	CATEGORY	Credits
BT24401MM	BIOCHEMISTRY	MAJOR MANDATORY 1	2
<p>Course objectives: - The objective of this course is to gain an insight into the metabolic processes associated with catabolism of carbohydrates, amino acids, lipids and nucleotides.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Outline the catabolic pathways of carbohydrates, significance of energy rich compounds. • Elaborate on mechanism of amino acid catabolism. • Describe catabolism of lipids and nucleotides. 			
UNIT	TOPICS	NO. OF LECTURES	
<p>UNIT I Carbohydrate Metabolism, ETS and Energy Rich Compound</p>	<p>Carbohydrate Metabolism: Glycolytic Pathway (Homolactic Fermentation; Alcoholic Fermentation) Citric Acid Cycle and its Regulation; Gluconeogenesis; Pentose Phosphate Pathway; Glyoxylate Pathway; Reductive TCA. (Sequence of Reactions, Regulation, Energy Yield and Metabolic Disorders of the above pathways)</p> <p>Electron Transport System: Electron Transport and Oxidative Phosphorylation, Inhibitors of ETS.</p> <p>Energy Rich Compounds: ATP as Energy Currency, Structure of ATP, Hydrolysis, Other Energy Rich Compounds other than ATP like PEP, Creatine Phosphate, etc</p>	10	
<p>UNIT II Amino Acid Metabolism</p>	<p>Amino Acid Catabolism: Metabolic fate of amino groups: Transamination, Deamination, Fate of Ammonia, Urea Cycle</p> <p>Metabolic fate of carbon chain of amino acids: Breakdown of Glucogenic and Ketogenic Amino Acids.</p> <p>Amino Acids as Biosynthetic Precursors: Biosynthesis of Epinephrine, Dopamine, Serotonin, GABA, Histamine, Glutathione, Creatine, Indoleacetic acid and Cinnamate</p>	10	

UNIT III Lipid and Nucleotide Metabolism	<p>Lipid Metabolism: Digestion, Mobilization & Transport of Fatty Acids. Beta oxidation of Saturated Fatty Acids; Oxidation of Unsaturated Fatty Acids; Oxidation of Odd Chain Fatty Acids. Alpha and Omega Oxidation of Fatty acids. Ketone Body synthesis and breakdown. (Sequence of Reactions, Regulation, Energy Yield and Metabolic Disorders of the above pathways)</p> <p>Nucleotide Metabolism: Degradation of Purines and Pyrimidines.</p>	10
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Learner's space:

Anabolic pathways and Human genetic disorders affecting carbohydrates, amino acid, lipids and nucleotide metabolism can be studied.

MOOC: Biochemistry: The Molecules of Life, Duration: 3 weeks
<https://www.futurelearn.com/courses/biochemistry>.

Pedagogy: Flow-sheet preparation, metabolic pathway poster preparation, animated videos, Flipped classroom, Case study, Google classroom for E-notes.

Reference books:

1. Nelson, D. L., Lehninger, A. L., & Cox, M. M. (2005). Lehninger principles of biochemistry 4th edition. Macmillan. W.H. Freeman and Company, New York.
2. Biochemistry, 5th Edition by U Satyanarayana, U Chakrapani Elsevier Health Sciences, 25-Jun-2020
3. Fundamentals of Biochemistry. 3rd Edition (2008), Donald Voet& Judith Voet , John Wiley and Sons, I. USA
4. Biochemistry: 7th Edition, (2012), Jeremy Berg, LubertStryer, W.H.Freeman and company, NY

ICT backup:

1. <https://courses.lumenlearning.com/suny-ap2/chapter/carbohydrate-metabolism-no-content/>
2. <https://www.youtube.com/watch?v=ppqpUVaasNc>
3. <https://www.khanacademy.org/test-prep/mcat/biomolecules/fat-and-protein-metabolism/v/digestion-mobilization-and-transport-of-fats-part-i>
4. <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/urea-cycle>
5. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6331359/>
6. <https://www.ncbi.nlm.nih.gov/books/NBK513323/>
7. <https://www.lecturio.com/magazine/metabolism-amino-acids/#transamination-of-amino-acids>

Course Code	Title	CATEGORY	Credits
BT24402MM	MEDICAL MICROBIOLOGY	MAJOR MANDATORY 2	2
<p>Course objectives: - The objective of this course is to gain insight into disease factors and processes and diseases caused by microorganisms.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> List the factors playing a role in causing a disease. Describe the various aspects of systemic infections of skin, respiratory and urinary symptoms and prophylaxis. Elaborate on causative agents of infections of GI tract, Nosocomial and STDs. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Infectious Diseases	<p>Host Parasite Relationship: Normal Flora; Factors Affecting the Course of Infection and Disease; Mechanisms of Infection and Virulence Factors.</p> <p>Infection: Patterns of Infection; Types of Infections; Signs and Symptoms; Epidemiology and Epidemiological Markers.</p> <p>Diseases: Origin of Pathogens; Vectors; Acquisition of Infection; Koch's Postulates.</p>	10	
UNIT II Medical microbiology- Causative Organisms- I	<p>Skin: <i>S. aureus, S. pyogenes.</i></p> <p>Respiratory Tract Infections: <i>M.tuberculosis, S.pneumoniae</i> (Characteristics Transmission, Course of Infection, Lab Diagnosis, Management of TB, Prevention and Control, Immuno and Chemoprophylaxis, DOTS and MDR).</p> <p>Urinary Tract Infections: <i>E.coli:</i> Characteristics, Virulence, Clinical disease, and <i>E.coli</i> Infections. <i>Proteus.</i></p>	10	

UNIT III	GI Tract Infections:	10
Medical microbiology - Causative Organisms- II	<p><i>Salmonella</i> and <i>Shigella</i> spp. (Characteristics, Virulence- Pathogenesis and Immunity, Clinical Disease, Carriers Lab Diagnosis, Phage Typing Prophylaxis and Treatment).</p> <p>Sexually Transmitted Diseases: Syphilis and Gonorrhoea.</p> <p>Nosocomial Infections: <i>Pseudomonas aeruginosa</i></p>	

Learner's space:

To learn biochemical identification of other microorganisms of related infections using Bergey's Manual.

MOOC:

1. <https://www.coursera.org/learn/epidemics#about>
2. <https://www.lecturio.com/medical-courses/respiratory-tract-infections- introduction.lecture>
3. Bacteria and Chronic Infections | Coursera.

Pedagogy: Google classroom & making crossword puzzle & group discussions on examples, Practical techniques, PowerPoint presentation with pictures, E- journals, Virtual labs.

Reference books:

1. Microbiology–6th Edition (2006), Pelczar M.J., Chan E.C.S., Krieg N.R., The
2. McGraw Hill Companies Inc. N.Y Prescott's Microbiology, 8th edition (2010), Joanne M Willey, Joanne Willey, Linda
3. Sherwood, Linda M Sherwood, Christopher J Woolverton, Chris Woolverton, McGrawHil Science Engineering, USA.
4. Text book of Medical Microbiology, Anantnarayan 7th Edition
5. Microbiology- Frobisher, 9th Edition
6. Microbiology, an introduction by Gerad Tortora, Berdell Funke & Christine Case, 9th Edition 2008, Pearson Education.

ICT backup:

1. <https://www.mayoclinic.org/diseases-conditions/infectious-diseases/symptoms- causes/syc-20351173>
2. <https://www.healthline.com/health/klebsiella-oxytoca#symptoms>
3. <https://www.medicalnewstoday.com/articles/161858#medical-signs>
4. Lesson-10.pmd (nios.ac.in) Isolation & identification of Organisms
5. <https://youtu.be/3T7TpyCOpCo>
6. Bacterial Infections of the Respiratory Tract | Microbiology: Health and Disease (lumenlearning.com)

Course Code	Title	CATEGORY	Credits
BT24403MM	MOLECULAR DIAGNOSTICS	MAJOR MANDATORY 3	2
<p>Course objectives: - The objective of this course is learning and understanding molecular techniques and utilizing these techniques in diagnosis.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Outline the basic principles used in molecular diagnosis. • Develop critical thinking and analytical skills to understand new diagnostic methods. • Apply the knowledge and skills gained in the course to be able to use in developing new diagnostic kits. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Basics of Molecular Diagnostics	<p>Introduction to Molecular Diagnostics: Overview of Molecular Diagnostics; Areas used in Molecular Diagnostics; Future prospects - Commercialising Molecular Diagnostics, personalized medicine, Theranostics.</p> <p>Characterisation and analysis of Nucleic acids and Proteins: Extraction, Isolation and Detection of DNA, RNA and Proteins; Restriction Endonucleases and restriction enzyme mapping, RFLP.</p> <p>Hybridisation techniques: Southern, Northern, Western and FISH; Markers, probes and its Clinical applications.</p>	10	
UNIT II Nucleic acid amplification Method	<p>Target amplification: PCR - General Principle; Components of a Typical PCR reaction; Experimental Design; Primer Designing; Control of PCR Contamination and Mispriming; PCR Product Clean-up and Detection. PCR Types: Reverse Transcriptase PCR, Real Time PCR, Multiplex PCR, Nested PCR Applications of PCR</p>	10	

<p>UNIT III Molecular Biology based Diagnostics</p>	<p>Disease identification and Genetic tests for following disorders- Thalassemia, Sickle Cell anaemia, Alzheimer's disease. Molecular Diagnostics for infectious diseases: Molecular testing for <i>Neisseria</i>, Molecular diagnosis for HIV-1; Genetic Counselling and Molecular Diagnosis Genetic testing- Need and uses; genetic counselling. Case studies- Diagnostic testing for Cystic fibrosis; Fragile X diagnostic and Carrier testing. Ethical, Social and legal issues to molecular genetic testing</p>	<p>10</p>
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Learner's space: Collect information about molecular therapeutics. Applications of PCR other than medical field.

MOOC:

1. https://onlinecourses.nptel.ac.in/noc21_bt36/preview.
2. <https://www.mooc-list.com/tags/molecular-diagnosis>
3. <https://www.futurelearn.com/courses/molecular-techniques>

Pedagogy: Activity, Videos, Virtual labs.

Reference books:

1. Applications Genomics, Proteomics. Rastogi 3rd edition and Drug discovery 2. Molecular diagnostics- Fundamentals, methods and clinical applications – Buckingham and Flaws F.A. Davis Company Philadelphia.
3. Molecular diagnostics for the clinical laboratorian by Coleman and Tsongalis, Humana Press publication

ICT backup:

1. <https://www.khanacademy.org/science/ap-biology/gene-expression-and-regulation/biotechnology/a/polymerase-chain-reaction-pcr>
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3768498/>
3. <https://academic.oup.com/femsre/article/43/1/88/5173038>
4. <https://www.aasv.org/jshap/issues/v7n3/v7n3p125.pdf>

Course code	Course Title	Category	Credits	Number of lectures
BT24404MM	PRACTICAL PAPER 1 (Practical of Biochemistry & Medical Microbiology)	Major Mandatory 4	2	6

1. Determination of Lactate Dehydrogenase (LDH) Activity in Blood Serum.
2. Organ Function Tests: Liver (SGPT, SGOT); Kidney (Urea from Serum).
3. Estimation of Uric acid and Creatinine in Urine.
4. Qualitative Detection of Ketone Body in Urine.
5. Identification of *S. aureus*-Isolation, Catalase, Coagulase Test.
6. Identification of *E. coli*-Isolation, Sugar Fermentations, IMViC.
7. Identification of *Salmonella*- Isolation, Sugar Fermentations, TSI Slant.
8. Identification of *Pseudomonas* - Isolation, Urease test, Oxidase Test, TSI Slant.
9. RPR Test (Kit Based).
10. Permanent Slide- *Mycobacterium*.

Course Code	Title	CATEGORY	Credits
BT24405MN	BIostatistics & BIOinformatics	MINOR 1	2
<p>Course objectives: - The objective of this course is learning and understanding basic concepts of Bioinformatics and Biostatistics.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Outline various types of biological databases. • Enlist the tools & algorithms used in bioinformatics for analysis of biological data. • Apply the various statistical tools for analysis of biological data. 			
UNIT	TOPICS	NO. OF LECTURES	
<p>UNIT I Introduction to Computers and Biological Databases</p>	<p>Internet Basics: Connecting to the Internet, E-mail, FTP, www, Difference between www and Internet.</p> <p>Biological Databases: Classification of Databases – General Introduction of Biological Databases; Nucleic acid databases (NCBI, DDBJ, and EMBL). Protein databases (Primary, Composite (KEGG), and Secondary (PIR). Structure databases (CATH & SCOP)</p>	10	
<p>UNIT II Sequence Alignments & Visualization</p>	<p>Pairwise alignment (BLAST and FASTA Algorithm)</p> <p>BLAST and Sequence Alignment: BLAST and its Types; Retrieving Sequence using BLAST.</p> <p>Multiple Sequence Alignment: Progressive Alignment Algorithm (ClustalW), Application of multiple sequence alignment.</p> <p>Protein Structure Visualization Software (RasMol).</p> <p>Phylogenetic analysis: Definition and description of phylogenetic trees, comparison of genetic sequences of organisms, Phylogenetic analysis tools.</p>	10	

UNIT III	Theory and Problems based on- Coefficient of Correlation and Regression Analysis; Steps in Testing Statistical Hypothesis; Parametric Tests:- Z Test – Single Mean and Two Means, t- Test – Single Mean, Paired and Unpaired; Chi square Test.	10
Biostatistics		

Learner's space:

Use of bioinformatics tools in genomics and Proteomics. Application of Biostatistics in Pharmaceutical industry, Research & Development, Education & Commercial Industries.

MOOC:

1. <https://www.my-mooc.com/en/mooc/bioinformatics-introduction-and-methods-sheng-wu-xin-xi-xue-dao-lun-yu-fang-fa/>
2. <https://www.coursera.org/learn/bioinformatics-methods-1>
3. <https://www.coursera.org/learn/introduction-to-computers-and-office-productivity-software>.

Pedagogy: Google classroom, online bioinformatics software, YouTube videos, Online Worksheets.

Reference books:-

1. Bioinformatics- methods and Applications S.C.Rastogi, N. Mendiratta, Prentice Hall India Learning Private Limited
2. Introduction to Bioinformatics by Attwood & Parry-Smith
3. Biostatistics by Malhan & Arora
4. Biostatistics by B.K.Mahajan, 6th edition
5. Biostatistics by Veer Bala Rastogi

ICT backup:

1. <https://www.ncbi.nlm.nih.gov/>
2. <https://www.ebi.ac.uk/>
3. <https://www.rcsb.org/>
4. <https://www.uniprot.org/>
5. <https://scope-international.online/biostatistics/>
6. https://study.com/articles/How_to_Become_a_Research_and_Development_Biostatistician.html

Course Code	Title	CATEGORY	Credits 2
BT24406MN	ENVIRONMENTAL BIOTECHNOLOGY	MINOR 2	
<p>Course objectives: - The course is an introduction to environmental biotechnology and focuses on the utilization of microbial processes in waste and water treatment.</p> <p>Course outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Implement the application of available energy resources. • Apply knowledge in biotechnology to environmental quality evaluation, monitoring and remediation of contaminated environments. • Elaborate on different methods of various Industrial Testing. 			
UNIT	TOPICS	NO. OF LECTURES	
Unit I Renewable sources of Energy	<p>Energy sources renewable – Solar energy, wind power, geothermal energy and hydropower, Biomass energy,</p> <p>Biogas technology- biogas plant & types, Bio digester.</p> <p>Biogas- composition, production and factors affecting production, uses. Biofuels – ethanol production. Microbial hydrogen production Biodiesel, Petrocrops</p>	10	
Unit II Industrial effluent treatment	<p>Biological processes for industrial effluent treatment - Aerobic biological treatment, Activated sludge process, CASP, Advanced activated sludge processes (any two) Biological filters, RBC, FBR</p> <p>Anaerobic biological treatment- Contact digesters, Packed bed reactors, Anaerobic baffled digesters, UASB. Solid waste treatment</p> <p>Pollution indicators & biosensors - Biodegradation of xenobiotics- persistent compounds, chemical properties influencing biodegradability, microorganisms in biodegradation.</p>	10	
Unit III Waste water treatment	<p>Wastewater treatment: Introduction, Biological treatment, impact of pollutants on bio treatment, use of packaged organisms and genetically engineered organisms in waste treatment.</p> <p>Heavy metal pollution: Sources, microbial systems for heavy metal accumulation, techniques used for heavy metal removal.</p>	10	

	Bioremediation: Biosorption by bacteria, fungi and algae, factors affecting biosorption limitations of biosorption.	
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Learner's space: Learn production of zero carbon (or carbon negative) renewable fuels; Artificial Photosynthesis. Commercial application of use of consortia of microorganisms in Bioremediation.

MOOC:

1. Wastewater Treatment and Recycling - Course (nptel.ac.in), Duration - 12 weeks, Credit points - 3.
2. Environmental Biotechnology - Course (nptel.ac.in)

Pedagogy: Animated videos, Google classroom for E- Notes, Presentations, Group Discussion, YouTube videos, Case study of examples, E- Journals.

Reference books:

1. Environmental Biotechnology Allan Scragg Oxford University press
2. Environmental Biotechnology Indu Shekhar Thakur IK International (Basic concepts and applications).
3. Environmental Biotechnology by M. H. Fulekar
4. Environmental Biotechnology (Industrial pollution management) S. N. Jogdand, Himalaya Publishing house.
5. Environmental Chemistry – A. K. De

ICT backup:

1. <https://www.youtube.com/watch?v=3UafRz3QeO8>
2. <https://www.csir.res.in/achivement/csir-pride/energy>
3. <https://youtu.be/QERmaMtEtY8>
4. <https://youtu.be/67BvwMofkMU>
5. <https://youtu.be/uAyVcR17COs>

Course Code	Title	CATEGORY	Credits
BT24407OE	APPLIED CHEMISTRY	OPEN ELECTIVE	2
<p>Course objectives: - The objective of this course is to have a firm foundation in the fundamentals and applications of organic and green chemistry, fundamentals and applications of current chemical theories for the physical world.</p> <p>Course outcomes: - By the end of the course the student will:</p> <ul style="list-style-type: none"> • Elaborate on the natural products, its origin and applications. • Explain basic concepts in polymer chemistry and Nanomaterials • Describe different aspects green chemistry, principles and application of green chemistry. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Natural Product Chemistry	<p>Natural Product Chemistry: Primary and Secondary Metabolites.</p> <p>Natural products from Microorganisms and Fungi: Antibiotics, non-antibiotic drugs from fungal and other microbial sources, microbial phytotoxins</p> <p>Natural products from plants: Glycosides & Saponins, Alkaloids, Steroids & triterpenoids, Flavonoids, Coumarins & Lignans, Essential oils</p> <p>Chromatographic Separation of Natural Products: Separation Techniques: Planar chromatography: HPTLC Column chromatography: HPLC, GC</p>	10	
UNIT II Polymers and Nanomaterials	<p>Polymers: Introduction to Polymers. Types of Polymers - Monomer, Polymer, Homopolymer, Copolymer, Thermoplastics and Thermosets, Addition and Condensation Polymers (Examples and Uses) Stereochemistry of Polymers. Biodegradable Polymers.</p> <p>Nanomaterials: Introduction to Nanomaterials. Forms of Nanomaterials: Nanoparticles, Nanofilms and Nanotubes Synthesis and Characterization of Nanomaterials. Applications of Nanomaterials.</p>	10	

<p style="text-align: center;">UNIT III Green Chemistry and Synthesis</p>	<p>Introduction to Green Chemistry; Need and Relevance of Green Chemistry; Goals of Green Chemistry. Limitations/ Obstacles in the pursuit of the goals of Green Chemistry.</p> <p>Principles of Green Chemistry. Green Synthesis in Industry: Green Materials, Green Reagents, Green Solvents and Green Catalysts.</p> <p>Future Trends in Green Chemistry: Green chemistry in sustainable development.</p>	<p>10</p>
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Learner's space: Structure elucidation of Natural products, Examples of nanomaterial products. Significance of green chemistry for sustainable development can be studied.

Pedagogy: PPTs, Preparation of charts, Video based lectures

References books:

1. Chemistry of Natural Products, O. P. Agarwal, Goel Publishing House
2. Trease and Evans Pharmacognosy, William C. Evans, 16th edition
3. Polymer Science-V.R. Gowariker, Viswanathan
4. Nanomaterials: B. Viswanathan

ICT backup:

1. <https://www.researchgate.net/profile/Br-Rajeswara-Rao/post/What-is-the-most-efficient-method-for-extraction-of-phytochemicals-from-plants/attachment/59d6460ec49f478072eae357/AS%3A273831233556481%401442297861959/download/Natural+Products+Chemistry-Cooper%2C+Nicola.pdf>
2. <https://www.intechopen.com/books/secondary-metabolites-sources-and-applications/introductory-chapter-secondary-metabolites>
3. <https://www.frontiersin.org/articles/10.3389/fmicb.2019.00914/full>

Course code	Course Title	Category	Credits	Number of lectures
BT24408VS	PRACTICAL PAPER 2 (Practical of Molecular Diagnostics & Biostatistics and Bioinformatics)	VSC 2	2	6

1. Isolation, Quantitative Analysis and AGE of Genomic DNA from Yeast.
2. Isolation and Quantification of RNA from Yeast.
3. Restriction Mapping Problems.
4. RFLP- Kit Based.
5. DNA Amplification – PCR.
6. Familiarization with NCBI, EMBL, DDBJ, PIR, KEGG Databases.
7. Use of NCBI BLAST Tool.
8. Pairwise and Multiple Sequence Alignment and Phylogeny.
9. Classification of Proteins using CATH/SCOP.
10. Visualization PDB Molecules using Rasmol/Raswin.

Course code	Course Title	Category	Credits	Number of lectures
BT24409SE	PRACTICAL PAPER 3 (Practical of Environmental Biotechnology & Applied Chemistry)	SEC 2	2	6

1. Determination of Total solids from an effluent sample.
2. Study of physico-chemical parameters (pH, colour, turbidity, BOD, COD) of an industrial effluent sample.
3. Most Probable Number (MPN) – Presumptive, Confirmed and Completed tests.
4. Bioremediation of metal.
5. Instrumentation - GC, HPLC, HPTLC analysis (Lab visit)
6. Qualitative detection of Secondary metabolites
7. Separation of any one secondary metabolite by TLC
8. Chemical and Biological Synthesis of Silver Nanoparticles and its characterisation by UV- Vis Spectrophotometer.
9. Visit to STP / CETP

Course Code	Title	CATEGORY	Credits
BT24410AE	RESEARCH METHODOLOGY	AEC	2
<p>Course objectives: - The objective of this course is to develop research aptitude, logical thinking and reasoning.</p> <p>Course Outcomes: - By the end of the course the student will be able to:</p> <ul style="list-style-type: none"> • Describe basic principles of research methodology and identify a research problem. • Discuss various types of research design and data collection methods. • Write, analyze & interpret research articles. 			
UNIT	TOPICS	NO. OF LECTURES	
UNIT I Introduction to Research Methodology and Research Problem	Meaning of Research; Objectives of Research; Motivation in Research; Types of Research; Research Approaches; Significance of Research; Research Methods versus Methodology; Research Process; Criteria of Good Research; Problems Encountered by Researchers in India; What is a Research Problem? Selecting the Problem; Necessity of Defining the Problem; Technique Involved in Defining a Problem	10	
UNIT II Research Design and Data Collection	Meaning of Research Design; Need for Research Design; Features of a Good Design; Important Concepts Relating to Research Design; Different Research Designs; Basic Principles of Experimental Designs; Developing a Research Plan- Collection of Primary Data; Observation Method; Interview Method; Collection of Data through Questionnaires; Collection of Data through Schedules; Other Methods of Data Collection, Collection of Secondary Data, Selection of Appropriate Method for Data Collection, Case Study Method	10	
UNIT III Interpretation and Report Writing	Meaning of Interpretation, Technique of Interpretation, Precaution in Interpretation - paraphrasing, Significance of Report Writing, Different Steps in Writing Report, Layout of the Research Report, Types of Reports, Oral Presentation, Mechanics of Writing a Research Report, Precautions for Writing Research Reports Bibliography (APA and MLA) Presenting Research: Oral and Poster Publication, Impact factor of Journals, H- Index, Plagiarism Research Organizations in Biological Sciences in India: DBT, DST, CCMB, NIV	10	

Learner's space: Use of data collection methods in Semester VI projects, conducting survey-based research project, Exploring online software's for statistical analysis of data

MOOC:

1. <https://www.coursera.org/learn/research-methods>,
2. <https://www.coursera.org/specializations/data-collection>
3. <https://www.classcentral.com/course/swayam-academic-and-research-report-writing-20220>

Pedagogy: Google classroom, E-journals, Discussion, PPTs

Reference books:

1. Research Methodology: Methods and Techniques, C. R. Kothari, New Age International Publishers
2. Research Methods for the Biosciences. Holmes, Moody & Dine. Oxford University Press

ICT backup:

1. <https://gradcoach.com/what-is-research-methodology/>
2. [https://www.cusb.ac.in/images/cusb-files/2020/el/cbs/MCCOM2003C04%20\(Business%20Research%20Methods\)Research_Methodology_C_R_Kothari.pdf](https://www.cusb.ac.in/images/cusb-files/2020/el/cbs/MCCOM2003C04%20(Business%20Research%20Methods)Research_Methodology_C_R_Kothari.pdf)
3. <https://eduvoice.in/types-research-methodology/>
4. https://www.researchgate.net/publication/325546150_WRITING_RESEARCH_REPORT
5. <https://eduvoice.in/types-research-report-writing/>
6. <https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism#:~:text=Plagiarism%20is%20presenting%20someone%20else's,is%20covered%20under%20this%20definition.>

Evaluation Pattern

1. **Core Courses:** The College will conduct all the semester examinations of 100 marks per Theory Paper in the prescribed pattern of 40 marks of internal assessment/Project work and 60 marks for semester end examination. **The student will have to secure a minimum of 40% marks in internal assessment as well as semester end examination per theory paper, for all the above theory papers.**
2. **For Courses of OE, AEC, CC, FP/CEP:** The College will conduct all the semester examinations of 50 marks per Theory Paper in the prescribed pattern of 20 marks of internal assessment/Project work and 30 marks for semester end examination. **The student will have to secure a minimum of 40% marks in internal assessment as well as semester end examination per theory paper, for all the above theory papers.**
3. The College will conduct all the semester examinations of 100 marks per Practical Paper at the end of each semester. **The student will have to secure a minimum of 40% marks in the examination per practical paper, for all the above practical papers.**

Evaluation Pattern

For S.Y.B.Sc. Biotechnology (Theory: Core Courses)

1.	INTERNAL ASSESSMENT	40 Marks
1.1	One class test (Objectives/ Multiple Choice)	20Marks
1.2	Assignment/ Project/ Presentation/Book or Research paper Review	15Marks
1.3	Active Participation, Overall performance	05 Marks
2.	EXTERNAL ASSESSMENT (Semester End Examination)	60 Marks
	N.B. 1. All questions are compulsory 2. All questions carry equal marks.	
Q.1.	Based on Unit-I, II & III Multiple choice questions/Fill in the blanks /Match the column/Give one word/Name the following/Give an example/Explain the term/Define	12
Q.2.	Unit-I Long Answer Question Short Answer Question	12 12/08/06 04/02
Q.3.	Unit-II Long Answer Question Short Answer Question	12 12/08/06 04/02
Q.4.	Unit-III Long Answer Question Short Answer Question	12 12/08/06 04/02
Q.5.	Short Notes based on Unit I, II and III (Solve any three out of six)	12

Evaluation Pattern
For S.Y.B.Sc. Biotechnology
(Theory: Courses of OE, AEC, CC, FP/CEP)

1	INTERNAL ASSESSMENT		20 Marks
1.1	One class test (Objectives/ Multiple Choice)		10Marks
1.2	Assignment/ Project/ Presentation/Book or Research paper Review		10Marks
2	EXTERNAL ASSESSMENT (Semester End Examination)		30 Marks
N.B. 1. All questions are compulsory 2. All questions carry equal marks.			
Q.1.	Unit-I Long Answer Question Short Answer Question	10 05+05 OR 04+06 OR 04+04+02	
Q.2.	Unit-II Long Answer Question Short Answer Question	10 05+05 OR 04+06 OR 04+04+02	
Q.3.	Unit-III Long Answer Question Short Answer Question	10 05+05 OR 04+06 OR 04+04+02	

Evaluation Pattern
S.Y.B.Sc Biotechnology (PRACTICAL)

1.	EXTERNAL ASSESSMENT	100 Marks
	Experiment –1(Major technique)	25
	Experiment –2 (Major technique)	25
	Experiment -3 (Minor technique)	15
	Experiment -4 (Minor technique)	15
	Viva/ Identification/ Spots	10
	Journal	10
	TOTAL MARKS	100



**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S,
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND
COMMERCE, (AUTONOMOUS) DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

Faculty of Science

**DEPARTMENT OF BIOTECHNOLOGY
(Programme: Masters of Science, M.Sc.)**

**SYLLABUS FOR
M.Sc. – Biotechnology (Semester III and IV) NEP-2020
Choice Based Credit System (CBCS)**

(With effect from the Academic Year: 2024-2025)


**Ms. Sandeeptha Rathindran
BoS Chairperson**


**Prof. (Dr.) K. R. Jagdeo
I/C Principal**

M.Sc. Biotechnology Part-II Course Structure

Semester- III

Sr. No.	Course code	Course Title	Category	Teaching hours/ week	Total Marks	Credits
1.	BT24301MM	Clinical Microbiology	Major Mandatory 1	4	100	4
2.	BT24302MM	Enzyme Technology	Major Mandatory 2	4	100	4
3.	BT24303MM	(Practical of Clinical Microbiology & Nanobiotechnology)	Major Mandatory 3	6	100	3
4.	BT24304MM	(Practical of Enzyme Technology & Nanobiotechnology)	Major Mandatory 4	6	100	3
5.	BT24305ME	Nanobiotechnology	Major Elective	4	100	4
6.	BT24306RP	Research Project	Research Project	8	100	4

Semester- IV

Sr. No.	Course code	Course Title	Category	Teaching hours/ week	Total Marks	Credits
1.	BT24401MM	Bioinformatics & Biostatistics	Major Mandatory 1	4	100	4
2.	BT24402MM	Biotechnology and Environment	Major Mandatory 2	4	100	4
3.	BT24403MM	Practical Paper (Practical of Bioinformatics & Biostatistics & Biotechnology and Environment)	Major Mandatory 3	8	100	4
4.	BT24404ME	Drug Discovery & Clinical Pharmacology	Major Elective	4	100	4
5.	BT24405RP	Research Project	Research Project	12	100	6

SEMESTER III

Course code	Course Title	Category	Credits
BT24301MM	CLINICAL MICROBIOLOGY	Major Mandatory 1	4

Course Objectives: To acquaint the students with the knowledge of pandemic diseases, significance of epidemiology, emerging viral, bacterial, parasitic pathogens and advanced methods for determining antimicrobial susceptibility, drug resistance and various aspects of biofilms.

Course Outcomes: By the end of the course, the student will be able to:

- Elaborate on the role of viruses in pandemic diseases and suggest diagnostic and treatment methods.
- Discuss the Epidemiological principles in prevention & control of disease.
- Outline the Organizations involved in disease control & research.
- Describe the pathogenesis clinical manifestations, diagnosis and treatment of bacterial, viral and parasitic infections.
- Summarize on the conventional and advanced methods of drug susceptibility testing.

Unit	Topics	Number of lectures
Unit I Viruses and Pandemic	Introduction to Pandemic diseases and causative agent like H1N1, MERS, SARS, Swine flu, COVID-19, Nipah virus, Ebola virus. Structure of these virus-coat and envelope protein, genome composition Pathogenesis (Mechanism of infection) and Acute Clinical manifestations (Signs and symptoms) of H1N1, MERS, SARS, Swine flu, COVID-19, Nipah virus, Ebola virus Diagnosis, and Treatment for H1N1, MERS, SARS, Swine flu, COVID-19, Nipah virus, Ebola virus Economic and Social loss due to Viruses	15
Unit II Epidemiology of infectious diseases	Concept of Host, Reservoir, Source of infection, Carrier, Epidemic, Endemic, Pandemic, Outbreak History, Definition scope, importance of epidemiology Epidemiology, Health & Public Health Epidemiological principles in prevention & control of disease Measures of disease frequency – Concept of incidence, prevalence, Incidence rate, cumulative incidence, case Fatality Epidemiological studies Organizations in disease control & Research – WHO, CDC, UNICEF, NACO, ICMR, NARI, NIV & NGOs	15
Unit III Pathogens and Emerging infections	Emerging Pathogens / Infections: Diseases caused by Bacteria / parasites/ viruses Name of causative agent, Name of disease caused, History, Antigenic structure, virulence factors, source of infection, Transmission, Pathogenesis, Clinical manifestations, Laboratory diagnosis, Treatment, Prophylaxis, vaccines, Current research and developments	15

	Bacteria as emerging pathogens / Diseases caused by bacteria: MOTT, Legionella, Conditions caused by <i>Helicobacter pylori</i> Viruses as emerging pathogens / Diseases caused by viruses: HIV (AIDS), Chikungunya, Dengue, Parasites as emerging pathogens / Diseases caused by parasites : Malaria , <i>Entamoeba histolytica</i> (Amoebic dysentery)	
Unit IV Biofilms & Antimicrobial Activity	Structure of Biofilm – Extracellular polymeric substances, Biofilm architecture. Stages in formation of Biofilm. Microbial interactions in Biofilms (Quorum sensing) Need for formation of Biofilms by Microorganisms Microorganisms commonly associated with biofilms on indwelling medical devices Response of biofilms to host defence mechanisms & antimicrobial agents Recent advances in biofilm management. Conventional methods of drug susceptibility testing Advanced methods- Macro & Micro broth dilution methods, Time kill curves, serum killing curves, checker-board assays. Detection of drug resistance in Staphylococci, Streptococci, Enterococci. Automated methods of sensitivity testing.	15

References:

1. Microbiology An introduction 10th edition Gerald Tortora, Burdell Funke, Christine Case, pearson Education Inc. Publication 2010
2. Basic Epidemiology R. Bonita, Beaglehole, T. Kjellstrom, 2nd Edition, 2006, WHO
3. Principles of Epidemiology in Public Health Practice, Third edition, US Department of Health & Human Services, CDC, 2012
4. Martin Rusnák, Viera Rusnáková, Georges Kamto, RELATIONS BETWEEN EPIDEMIOLOGY AND PUBLIC HEALTH, 2018 <https://www.researchgate.net/publication/323964710>
5. Evaluation and use of Epidemiological evidence for environmental health risk assessment guideline document World Health Organization 2000 eur/00/5020369
6. Ananthanarayan and Paniker's Textbook of Microbiology, by Reba Kanungo, 10th ed Universities Press; Tenth edition, 2017
7. Koneman's Colour Atlas & Textbook of Diagnostic microbiology, 7th edition, 2017, Lippincott, Williams & Wilkins.
8. Mackie & McCartney Medical Microbiology, J. G. Collee, J. P. Duguid, A. G. Fraser, B. P. Marmion, Thirteenth edition, Churchill Livingstone
9. Bailey and Scotts Diagnostic Microbiology Forbes, Sahem et al 12th ed, Moshby

Course code	Course Title	Category	Credits
BT24302MM	ENZYME TECHNOLOGY	Major Mandatory 2	4

Course Objectives: To make the students familiar with the basic concepts of enzymes like enzyme kinetics, techniques of enzyme purification, need for enzyme engineering and its benefits with applications, role of enzymes as a diagnostic tool and use of enzymes as Biosensors.

Course Outcomes: By the end of the course, the student will be able to:

- Elaborate on the techniques of enzyme purification.
- Describe the enzyme kinetics and the regulation of enzyme activity.
- Outline the applications of enzymes in diagnosis, therapy, industrial application and as biosensors.
- Discuss the outcomes of enzyme deficiencies.

Unit	Topics	Number of lectures
Unit I Introduction to enzymology	Brief history and introduction; chemical nature and properties of enzymes; mechanism of action of enzyme; catalytic power and specificity of enzymes; types of catalysis; enzyme kinetics, enzyme inhibition; enzyme specificity; regulation of enzyme activity; allosteric enzymes and their kinetic properties; units of enzymes; non protein enzymes; coenzymes and cofactors; isoenzymes	15
Unit II Enzyme purification and enzyme engineering	Techniques of enzyme purification: Based on molecular size, solubility of proteins and electric charge, adsorption properties Other techniques: Immobilized metal ion affinity chromatography, Hydrophobic interaction chromatography, Reversed phase chromatography and Chromatofocusing. Enzyme engineering – Introduction, Objectives, Principles, Examples and Steps involved in enzymes engineering. Applications of enzyme engineering.	15
Unit III Industrial & medical application of enzymes	Textile Industry, Detergent Industry, Pulp and Paper Industry, Animal Feed Industry Enzyme Technology for Detoxification of Mycotoxins in Animal Feed, Phytases for Feed Applications and Leather Industry. Enzyme Applications for Human and Animal Nutrition. Biosensors – Introduction, instrumentation, Types and examples. Enzymes based sensors as diagnostic tools- Biosensors for Blood Glucose, Biosensors for Urea in Blood and Urine, Biosensors for Uric Acid, Biosensors for Arginine, Biosensors for Asparagine, Biosensors for Creatinine,	15

	Biosensors for Cholesterol, Allosteric enzyme based biosensors.	
Unit IV Enzyme Deficiencies, diagnostic enzymes and therapeutics	Disorders of amino acid metabolism- Phenylketonuria, Alkaptonuria, Homocystinuria. Disorders of carbohydrate metabolism – Galactosemia, Hereditary fructose intolerance, Hereditary lactose intolerance. Disorder of lipid metabolism - Gaucher disease, Fabry disease. Disorders of purine and pyrimidine metabolism- HGPRT deficiency, Adenosine deaminase deficiency, Orotic aciduria. Enzymes in diagnosis of diseases- Liver disorders, Cancer, Cardiac disorders. Role of Other enzymes- Lysozyme, Butyrylcholinesterase and Lipases. Therapeutic uses of enzymes - enzymes in replacement therapy, enzymes in cancer treatment, enzymes for fibrinolysis, enzymes used for various treatments and enzyme gene therapy.	15

References:

1. Lehninger Principles of Biochemistry (4th Ed. Nelson, D., and Cox, M.; W.H. Freeman and Company, New York, 2005.
2. Satyanarayan and Chakrapani, Biochemistry. New Delhi, Elsevier Health Sciences APAC, 2013.
3. Berg JM, Tymoczko JL, Stryer L (2002): Biochemistry, 5th ed., Freeman WH and Co., New York.
4. https://shodhganga.inflibnet.ac.in/bitstream/10603/100595/7/07_chapter%201.pdf General Introduction to enzymes.
5. <https://iopscience.iop.org/book/978-0-7503-1302-5/chapter/bk978-0-7503-1302-5ch1> Introduction to enzymes and their applications.
6. Biochemistry by Lehninger, 2nd Ed, Kalyani publication 2008.
7. Understanding enzymes (3rd edition). Edited by Trevor Palmer, Ellis Horwood, Chichester, 1991.
8. Protein purification principles, High Resolution Methods, and Applications, 3rd Edition, Jan-Christer Janson, John Wiley & Sons, Inc., Hoboken, New Jersey.
9. <https://www.biotecharticles.com/Applications-Article/Methods-of-Purification-of-Enzymes-583.html>
10. https://www.creative-enzymes.com/service/enzyme-purification_307.html Enzyme Purification
11. http://web.sungshin.ac.kr/~spark/class/enzchem/EnzChem_ch02.pdf Chapter 2 - purification of enzymes
12. <https://www.labome.com/method/Protein-Purification.html>
13. <http://www1.lsbu.ac.uk/water/enztech/index.html> Chapter 6 Enzyme preparation and use
14. <https://docplayer.net/20937505-Protein-purification-nison-sattayasai-khon-kaenuniversity-thailand-1-introduction-2-extraction-of-protein.html>
15. http://www.processdevelopmentforum.com/ppts/posters/Protein_purification_methods-overview,_29155460.pdf
16. https://www.researchgate.net/publication/281102215_How_to_purify_proteins.
17. Fundamentals of Enzyme Engineering, Young Je Yoo, Yan Feng, Yong-Hwan Kim, Camila Flor J. Yagonia, : Springer Netherlands 2017.

Course code	Course Title	Category	Credits	Number of lectures
BT24303MM	PRACTICAL PAPER 1 (Practical of Clinical Microbiology & Nanobiotechnology)	Major Mandatory 3	3	6

1. Viral Titering – Plaque Assay, Tissue Culture Infectious Dose (TCID), Chicken Embryo Infectious Dose (CEID)
2. Immunoassays: For detection of the virus antigens by ELISA / RIA
3. Diagnosis of dengue (kit method)
4. Antibiotics susceptibility testing by broth Macro dilution method & Micro broth dilution method
5. Study of microbial biofilm formation on various surfaces & Biofilm visualization by staining
6. Demonstration of minimum biofilm inhibition concentration of antibiotics/disinfectants.
7. Biosynthesis and characterization of eco-friendly silver nanoparticles by using plant/leaf extracts/green tea.
8. Synthesis and characterization of zinc sulfide nanoparticles by reverse micelle method.

Course code	Course Title	Category	Credit	Number of lectures
BT24304MM	PRACTICAL PAPER 2 (Practical of Enzyme Technology & Nanobiotechnology)	Major Mandatory 4	3	6

1. Microbial Enzyme production:
 - Partial purification using ammonium sulphate precipitation.
 - Dialysis of the salt-precipitated protein.
 - Assessing the enzyme activity and the protein content.
2. Effect of inhibitors/ chemicals on enzyme activity.
3. Extraction of enzymes from plant sources.
4. Measurement of Enzymatic Activity by Using a Colorimetric Assay.
5. Measuring Lactase Enzymatic Activity.
6. To determine Specific activity of α Amylase from different sources.
7. Synthesis and characterization of eco-friendly silver nanoparticles and its separation using the Thin-Layer Chromatographic Method
8. Synthesis of alginate beads and investigation of citric acid release from a nanoshell coating of polymer
9. Antimicrobial activity testing of Nanoparticles/nanocomposites.

Course code	Course Title	Category	Credits
BT24305ME	NANOBIOTECHNOLOGY	Major Elective	4

Course Objectives: To familiarize the students with the concept of nanotechnology and how it can be used to improve our everyday life, and also acquaint them with the knowledge of synthesis and applications of nanomaterials in the field of medicine and understanding of nanotoxicology.

Course Outcomes: By the end of the course, the student will be able to:

- Elaborate on the various applications of nanomaterials.
- Summarize on the types of nanomaterials and nanostructures found in nature.
- Discuss the role of nanotechnology in drug delivery.
- Give an account of the toxicity and factors responsible for the Nanomaterial toxicity.

Unit	Topics	Number of lectures
Unit I Overview of nanotechnology	Introduction: Nanotechnology, Nature's biological pathway, Examples of nanomaterials and nanostructures found in nature. Nanometer-scale materials: Nanometer-Scale Metals Nano Metal Oxides, Nanopolymers, Quantum Dots, Carbon nanostructures. Nanorobotics devices of nature ATP synthase, the kinesin, myosin, dynein, flagella modulated motion. Nanotechnology and Future Socioeconomic challenges	15
Unit II Synthesis of Nanomaterials	Synthesis of nanometer-scale materials- Top down and Bottom up approaches. Self-Assembly of nanoparticles and its mechanism. Bio-directed synthesis and assembly of nanomaterials Synthesis and Assembly of Nanoparticles and nanostructures Using Bio-Derived Templates	15
Unit III Nanotechnology in drug delivery	Biological Barriers to Nanocarrier- Mediated Delivery of Therapeutic and Imaging Agents, Nano-Sized Carriers for Drug Delivery, nano enabled drug delivery system, nanorobotics in medicine, Nanomedicine: biopharmaceutics, implantable materials, implantable chemicals, surgical aids Ethical issues in Nanobiotechnology with special reference to nanomedicine	15
Unit IV Applications of nanotechnology and Nanotoxicology	Applications of Nanomaterials. Nanotoxicology: Unique Properties, Toxicity of Nanomaterials, Factors Responsible for the Nanomaterial Toxicity, Routes of Exposure, Mechanisms of Nanoparticle Toxicity, In Vitro Testing Methods for Nanomaterials, Ecotoxicity Analyses of Nanomaterials	15

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8. Oded Shoseyov, Ilan Levy NanoBioTechnology_ BioInspired Devices and Materials of the Future (2008, Humana Press)
9. Textbook of Nanoscience and Nanotechnology by B.S. Murty, P. Shankar, Baldev Raj, B B Rath, James Murday
10. Arun Kumar - Nanomedicine in drug delivery-CRC Press _ Taylor & Francis (2013).
11. Yuliang Zhao, Zhiyong Zhang, and Weiyue Feng - Toxicology of Nanomaterials-Wiley- VCH (2016)
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SEMESTER IV

Course code	Course Title	Category	Credits
BT24401MM	BIOINFORMATICS & BIOSTATISTICS	Major Mandatory 1	4
<p>Course Objectives: To familiarize the students with the knowledge of specific databases and perform effective database searches, DNA sequence analysis, phylogenetic analysis and protein modelling tools. Also it will impart knowledge about data collection and biostatistical tools.</p> <p>Course Outcomes: By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> • Explain vast array of databases and their resources. • Apply tools of multiple sequence alignment and protein modelling. • Apply commonly used statistical methods and interpret their results. • Express hypothesis using various tools of biostatistics. 			
Unit	Topics	Number of lectures	
Unit I Basics of Bioinformatics and DNA sequence analysis	<p>Bioinformatics basics: Computers in biology and medicine; Database concepts; Protein and nucleic acid databases; Structural databases; databases and search tools: biological background for sequence analysis; Identification of protein sequence from DNA sequence; searching of databases similar sequence; NCBI; publicly available tools; resources at EBI; resources on web; database mining tools.</p> <p>DNA sequence analysis: gene bank sequence database; submitting DNA sequences to databases and database searching; sequence alignment; pairwise alignment techniques; motif discovery and gene prediction;</p>	15	
Unit II Multiple sequence alignments and protein modelling	<p>Multiple sequence alignment; flexible sequence similarity searching with the FASTA3 program package; use of CLUSTALW and CLUSTALX for multiple sequence alignment;</p> <p>Submitting DNA protein sequence to databases: SEQUIN, genome centres; submitting aligned sets of sequences, updating submitted sequences,</p> <p>Methods of phylogenetic analysis.</p> <p>Protein modelling: introduction, mapping properties onto surfaces, assigning secondary structures;</p> <p>Sequence alignment- methods, evaluation, scoring; protein completion: backbone construction and side chain addition; small peptide methodology; software accessibility; building peptides; protein displays</p>	15	

<p>Unit III Introduction to Biostatistics</p>	<p>Introduction and scope of statistics in biological studies and basic concepts. Collection of data, by different sampling methods Measures of central tendency Measures of Dispersion: Variance/ standard deviation, coefficient of variation and standard error. Confidence limits for mean and proportion. Probability and Basic concepts: Normal and binomial distribution. Correlation and regression analysis for a bivariate data: Scatter diagram</p>	<p>15</p>
<p>Unit IV Tools of biostatistics</p>	<p>Test of Hypothesis: Null hypothesis, alternate hypothesis, test statistics, Type I and Type II errors, level of significance and critical region. Z test: for a single sample, two samples and two sample proportion. t-test a single sample, two samples and testing the significance of the correlation. Coefficient: t paired test, x² test: As a goodness of fit and in 2x2 contingency test</p>	<p>15</p>

References:

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2. Mount, D. W. (2001). Bioinformatics: Sequence and Genome Analysis. Cold Spring Harbor, NY: Cold Spring Harbor Laboratory Press.
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4. Pevsner, J. (2015). Bioinformatics and Functional Genomics. Hoboken, NJ.: Wiley-Blackwell.
5. Bourne, P. E., & Gu, J. (2009). Structural Bioinformatics. Hoboken, NJ: Wiley-Liss.
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8. William G. Cochran, Sampling Techniques (3th Edition), Wiley and sons
9. Boris V. Gnedenko, Theory of Probability (6th Edition), CRC Press, 13-May-1998
10. Oscar Kempthorne, Klaus Hinkelmann, Design and Analysis of Experiments, Volume1: Introduction to Experimental Design, 2nd Edition, ISBN: 978-0-471-72756-9 December 2007
11. Acheson Johnston Duncan, Quality Control and Industrial Statistics (5th Edition), Irwin; 5 edition January 1, 1986
12. BK Mahajan, Methods in Biostatistics (7th Edition), Published December 1st 2008 by JP Medical Ltd

Course code	Course Title	Category	Credits
BT24402MM	BIOTECHNOLOGY AND ENVIRONMENT	Major Mandatory 2	4

Course Objectives: To make the students aware about the biotechnology based solutions for environmental issues, ethical and safety aspects of genetically modified products, concepts and strategies related to nutraceutical and functional foods production and applications.

Course Outcomes: By the end of the course, the student will be able to:

- Apply environmental quality evaluation, monitoring and remediation techniques.
- Summarize importance of carbon footprint and concept of environmental sustainability.
- Explain role of transgenic crops, nutraceuticals with its health benefits.
- Outline the need for biosafety and bioethical conflicts in biotechnology.

Unit	Topics	Number of lectures
Unit I Biotechnology in Environment Protection	Environmental pollution: urban aspects (biomedical waste, e-waste, solid waste) Environmental Monitoring: concepts, strategies, and applications of nanotechnology Biofouling and biodeterioration: agents and protection methods Bioremediation: Biodegradation and bioconversion of natural and xenobiotic compounds Phytoremediation overview, microbially assisted phytoremediation, genetic strategies for advancing phytoremediation potential in plants. Heavy Metal Bioremediation- conventional and advanced methods	15
Unit II Environmental sustainability	Concept of sustainability, carbon footprint and credits Biomass management Sustainability in agriculture: Bio-pesticides, Bio-fertilizers and Integrated Pest management Energy and Environment: Bioenergy Metagenomics: concept, strategies, and applications in environmental biotechnology	15
Unit III Transgenic crops and nutraceuticals	Transgenic crops-Bt based & others and fallacies associated, GM based phytonutrients Food security dilemma- GM food Vs Organic food Nutraceuticals and Functional Foods: Definition, characteristic features, and classification; Sources, Applications of nutraceuticals in human health and nutrition- health effects of commonly used nutraceuticals and functional foods, Safety and Regulatory guidelines	15

<p>Unit IV Biosafety and ethical conflicts</p>	<p>Biosafety- history, Need for containment and levels (microorganisms, plants and animals – both GMOs and LMOs), primary containment of biohazards, BSCs, Clean Room technology Regulatory guidelines: both national and International for food and food ingredients produced using GMOs, GM crops and livestock, Cartagena Protocol, Role of IBSC, RCGM, GEAC, and others Safety and Environment Impact concerns with respect to GMOs, LMOs, GM foods, Crops and Livestock, Risk assessment, management and communication including GMP, GLP, and HACCP, Generally, Recognised as Safe (GRAS) , Bioethical conflicts in Biotechnology: ELSI of HGP, Ethical concerns in GM utilized for consumption, agricultural benefits or human therapy.</p>	<p>15</p>
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References:

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2. Alan H. Scragg (2006) Environmental Biotechnology, 1 st edition, Oxford University Press
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13. Traavik. T and Lim Li Ching, (2007): Biosafety first. Tapir Academic Press

Course code	Course Title	Category	Credits	Number of lectures
BT24403MM	PRACTICAL PAPER (Practical of Bioinformatics & Biostatistics & Biotechnology and Environment)	Major Mandatory 3	4	8

1. Introduction and use of various genome databases.
2. Sequence information resource: Using NCBI, EMBL, Genbank, Entrez, Swissprot/ TrEMBL, UniProt.
3. Similarity searches using tools like BLAST and interpretation of results.
4. Multiple sequence alignment using ClustalW.
5. Phylogenetic analysis of protein and nucleotide sequences.
6. Using RNA structure prediction tools.
7. Use of different protein structure prediction databases (PDB, SCOP, CATH).
8. Measures of dispersion: Standard deviation for grouped and ungrouped data: standard value for the mean and proportion Confidence limits for the mean and proportion
9. Probability: Normal distribution and Binomial distribution use of normal tables
10. Correlation and Regression: Estimation of correlation coefficient, to fit regression equations from bivariate data
11. Test of hypothesis: a) Z-test, b) t-test c) x² test d) f-test
12. Bioremediation- isolation of metal tolerant organisms & study their growth characteristics and pattern.
13. Isolation of pesticide degraders.
14. Pollution indicators- Detection and Identification.
15. Soil ecosystem analysis/ analysis of microorganisms of soil.
16. Detection of heavy metals concentration in soil/ water .

Course code	Course Title	Category	Credits
BT24404ME	DRUG DISCOVERY & CLINICAL PHARMACOLOGY	Major Elective	4

Course Objectives: To provide the students' knowledge about Clinical Trial Design and Indian Regulations, Pharmacovigilance and the processes involved in manufacturing of biopharmaceuticals.

Course Outcomes: By the end of the course, the student will be able to:

- Discuss drug discovery-design pathway using in-silico tools.
- Elaborate on ADR and its mechanism.
- Outline the framework of clinical trials and summarize the roles and responsibilities of Stakeholders in the Sharing of Clinical Trial Data.
- Summarize the processes involved in manufacturing of biopharmaceuticals.

Unit	Topics	Number of lectures
Unit I Drug design and Development	Introduction to the drug discovery & development <ul style="list-style-type: none"> • Source of drugs • Structural effects on drug action • Drugs derived from natural products • General principles of pharmacology • Drug development and testing process Approaches to new drug discovery <ul style="list-style-type: none"> • Computer-aided drug design • Identification of novel drug candidates and drug targets • Construction of the signalling network of a drug using integer linear programming • Identification for druggable targets of a disease 	15
Unit II Clinical Trial Design and Indian Regulations	Clinical Trial Design <ul style="list-style-type: none"> • Basic framework of clinical trial • Randomized clinical trials and different phases • Adaptive randomization methods • Seamless design • Internal pilot design • Design selection factors Regulations <ul style="list-style-type: none"> • The national regulatory body • Key documents in clinical research • Regulatory requirements for the conduct of clinical trials in India The Roles and Responsibilities of Stakeholders in the Sharing of Clinical Trial Data <ul style="list-style-type: none"> • Participants in clinical trials, • Investigators, • Research institutions and universities • Journals and Professional societies 	15

<p>Unit III Pharmacovigilance</p>	<ul style="list-style-type: none"> • Scope and purposes of pharmacovigilance • Adverse Drug Reactions (ADR) • ADR classification • Nature and mechanism of ADR • Concept of safety • Phases and types of DATA <p>The process of Pharmacovigilance</p> <ul style="list-style-type: none"> • Signal detection, evaluation and investigation, • Communication <p>Methods of evaluating effectiveness of action</p> <p>International regulatory collaboration</p> <ul style="list-style-type: none"> • WHO, CIOMS, ICH, ISoP, ISPE 	<p>15</p>
<p>Unit IV Manufacturing of Biopharmaceuticals</p>	<p>Guides to good manufacturing practice: The manufacturing facility, Clean rooms, Cleaning, decontamination and sanitation (CDS), Water for biopharmaceutical processing</p> <p>Microbiological considerations and Excipients</p> <p>Delivery systems</p> <p>Product analysis: Protein-based contaminants, Removal of altered forms of the protein of interest from the product stream, Detection of protein-based product impurities, Immunological approaches to detection of contaminants, Endotoxin and other pyrogenic contaminants, Microbial and viral contaminants, Miscellaneous contaminants, Validation studies, Labelling and Packaging</p>	<p>15</p>

References:

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- 2 Basic & Clinical Pharmacology, 2017, Fourteenth Edition, Section I, Chapter 1. Bertram G. Katzung, Editor ISBN 978-1-259-64115-2 MHID 1-259-64115-5 ISSN 0891-2033
- 3 Software based approaches for drug designing and development: A systematic review on commonly used software and its applications, Bulletin of Faculty of Pharmacy, Cairo University 55 (2017) 203–210 Prasad G. Jamkhande, Mahavir H. Ghante, Balaji R. Ajgunde
<http://dx.doi.org/10.1016/j.bfopcu.2017.10.001>
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8. An Introduction to Pharmacovigilance, Second Edition *Patrick Waller and Mira Harrison-Woolrych* ISBN 9781119289753 (Adobe PDF)

Evaluation pattern M.Sc. Part II Biotechnology (Autonomous) 2024 -2025

The examination of 100 marks per Theory Paper for each course will be conducted in the pattern of 40 marks of internal assessment/Project work and 60 marks for Semester end examination. The student will have to secure a minimum of 40% marks in the Internal assessment and Semester end examination per theory paper.

The Semester examinations of 100 marks per Practical Paper at the end of each semester will be conducted. The student will have to secure a minimum of 40% marks in the examination per practical paper.

In M.Sc Part-II Semester III and Semester IV, the students will have to undergo Research project in any subject related laboratories, companies or research institutions.

OR

The Project work will be carried out by the student with the guidance of the concerned Faculty Member who will be allotted the student as the Guide for the Project.

Evaluation Pattern for M.Sc. Biotechnology Part II (Theory)

1.	INTERNAL ASSESSMENT	40 Marks
1.1	One class test (Objectives/ Multiple Choice)	20 Marks
1.2	Assignment/ Project/ Presentation/Book or Research paper review report/Business proposal presentation/Case-study	15 Marks
1.3	Active Participation, Overall performance	05 Marks
2.	EXTERNAL ASSESSMENT (Semester End Examination)	60 Marks
	N.B. 1. All questions are compulsory 2. All questions carry equal marks.	
Q.1.	Based on Unit-I, II, III & IV Multiple choice questions/Fill in the blanks /Match the column/Give one word/Name the following/Give an example/Explain the term/Define/Give significance/State the role of/ State True or false.	12
Q.2.	Unit-I Long Answer Question Short Answer Question	12 12/08/06 04/02
Q.3.	Unit-II Long Answer Question Short Answer Question	12 12/08/06 04/02

	Q.4.	Unit-III Long Answer Question Short Answer Question	12 12/08/06 04/02
	Q.5	Unit-IV Long Answer Question Short Answer Question	12 12/08/06 04/02

Evaluation Pattern
M.Sc Biotechnology Part II (PRACTICAL)

1.	EXTERNAL ASSESSMENT	100 Marks
	Experiment –1(Major technique)	25
	Experiment –2 (Major technique)	25
	Experiment -3 (Minor technique)	15
	Experiment -4 (Minor technique)	15
	Viva/ Identification	10
	Journal	10
	TOTAL MARKS	100

Academic Council dated March, 4th 2024 as per Item Number: 1.03



DOMBIVLI SHIKSHAN PRASARAK MANDAL'S,

(AUTONOMOUS) DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)

Faculty of Commerce
DEPARTMENT OF ACCOUNTANCY
(Programme : B.Com.)

SYLLABUS FOR
S.Y.B.Com. – ACCOUNTANCY (Semester III and IV)
(Under New Education Policy 2020)

(with effect from the Academic Year: 2024-2025)

A. Gunde
04/05/24

PROGRAMME OUTCOMES

- Development of formal Communication Skills (B.C.)
- Awareness regarding growing environmental issues and conservation
- Better understanding human values and contemporary issues of the society.
- Practical knowledge regarding accounting, mathematical and statistical equations and their uses.
- Knowledge regarding all the dimensions of business & corporate world.
- Insight about Economic concepts, Policies & Indian Economics.
- Practical knowledge regarding computer system and it's application.
- Understanding regarding Indian Taxation System.
- Knowledge regarding applicability of accounting concepts.

B.Com. Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

S.Y.B.Com.

Semester - III

Sr.No.	Course Code	Course Title	Category	Teaching Hours	Total Marks	Credits
1.	AC24313MM	Accountancy and Financial Management – III	Major	60	100	03
2.	AC24314MM	Financial Accounting and Auditing –Introduction to Management Accounting	Major	45	100	02

Semester – IV

Sr.No.	Course Code	Course Title	Category	Teaching Hours	Total Marks	Credits
1.	AC24415MM	Accountancy and Financial Management – IV	Major	60	100	03
2.	AC24416MM	Financial Accounting and Auditing- Auditing	Major	45	100	02

SYLLABUS

SEMESTER – III

ACCOUNTANCY AND FINANCIAL MANAGEMENT-III

(Credit Points: 3)

Objectives :

1. To impart knowledge regarding concepts of Financial Accounting Tally is an accounting package which is used learning to maintain accounts.
2. To understand the procedure for amalgamation of partnership firms.
3. To understand about the accounting settlement in conversion of firm to company.
4. To state the purpose and preparation of statement of cash flow statement

Sr.No.	Name of Topic	No. of Lectures
1.	Introduction of Basic Tally Accounting Software	15
2.	Amalgamation of Partnership Firm	15
3.	Conversion of Partnership firm into a Limited Company	15
4.	Cash Flow Statement(Indirect Method Only)	15

CONTENTS:

Sr. No.	Modules	No. of lectur
1.	Module1: Introduction of Basic Tally Accounting Software	15
	<ul style="list-style-type: none"> • Introduction to Tally Accounting Software • Account Groups(Ledger, Creation of Groups, Journal Entries) • Preparation of various types of vouchers in Tally • Generation of the various reports available from Tally • Preparation of various reports by considering the records of Partnership Firm. 	
2.	Module2: Amalgamation of Partnership Firm	15
	<ul style="list-style-type: none"> (i) Realization Method only (ii) Calculation of Purchase Consideration (iii) Journal/ Ledger accounts of old firms (iv) Preparing Balance Sheet of New Firm (v) Adjustment of goodwill in the New Firm (vi) Realignment of capital in the new firm by current accounts/ cash or a combination thereof Excluding Common Transactions between the amalgamating firms 	
3.	Module3: Conversion of Partnership firm into a Limited Company	15
	<ul style="list-style-type: none"> (i) Realization method only (ii) Calculation of New Purchase Consideration, Journal/ ledger Accounts of old firms. 	

(iii) Preparing Balance Sheet of New Company

Module4: Cash Flow Statement(Indirect Method Only)

15

(i) Preparation of Cash Flow Statement with reference to Accounting Standard No.3. (Indirect Method Only)

Subject: Financial Accounting And Auditing-V:

Introduction To Management Accounting

(Credit Points: 2)

Objectives :

1. To impart the knowledge of basic concepts of management accounting.
2. To enable the learner to analyze and interpret the vertical financial statement.
3. To make the learner understand the classification of ratios based on financial statements.
4. To enhance the ability of learner to know the working capital management.
5. To enable the learner to know the different methods of capital budgeting.

S. No.	Name of Topic	No. of Lectures
1.	Introduction to Management Accounting	05
2.	Analysis & Interpretation of Vertical Financial Statements (Only Comparative Analysis)	10
3.	Ratio Analysis (Income Statement & Composite Ratios)	12
4.	Working Capital Management	08
5.	Capital Budgeting	10

Modules	No. of lectur
Module 1: Introduction to Management Accounting	10
<ul style="list-style-type: none"> (i) Meaning (ii) Nature (iii) Scope (iv) Functions (v) Decisions Making Process (vi) Financial Accounting v/s Management Accounting 	
2. Module 2: Analysis & Interpretation of Financial Statements (Only Vertical Statements)	10
<ul style="list-style-type: none"> (i) Study of Balance Sheet and Income Statement/ Revenue Statements in vertical form suitable for analysis (ii) Relationship between items in Balance Sheet and Revenue Statement 	
3. Module 3: Ratio Analysis (Excluding reverse ratio & interpretation)	15
<p>(Based on Vertical Form of Financial statements- Meaning, Classification, Du Point Chart, Advantages and Limitations)</p> <p>A. Revenue Statement Ratio:</p> <ul style="list-style-type: none"> (i) Gross Profit Ratio (ii) Expenses Ratio (iii) Operating Ratio (iv) Net Profit ratio (v) Net Operating Profit ratio (vi) Stock Turnover Ratio. <p>B. Combined Ratio:</p> <ul style="list-style-type: none"> (i) Return on Capital employed (Including Long Term Borrowings) (ii) Return on Proprietor's fund (Shareholders Fund and Preference Capital) (iii) Return on equity Capital (iv) Dividend Payout Ratio (v) Debt service Ratio 	

	(vi) Debtors Turnover (vii) Creditors Turnover (practical Questions on Ratio analysis)	
	Module 4: Working Capital Management	15
	(i) Concept, Nature of working Capital, Planning of Working Capital (ii) Estimation/ projection of Working Capital Requirement in case of Trading and Manufacturing Organization (iii) Operating Cycle	
5.	Module 5: Capital Budgeting	10
	(i) Introduction (ii) The Classification of Capital Budgeting Projects (iii) Capital Budgeting Process (iv) Capital Budgeting Techniques- Payback Period, Accounting Rate of return, Net Present Value, The profitability Index, Discounted Payback(Excluding Calculation of Cash Flow)	

ACCOUNTANCY AND FINANCIAL MANAGEMENT-IV

(Credit Points: 3)

atives :

1. To Learn the accounting treatment for redemption of fully paid –up preference shares, par paid up preference shares and fully called-up but partly paid up preference shares.
2. To know the accounting treatment for issue and redemption of debentures at par, discount at premium.
3. To understand the valuation of investment
4. To acquaint knowledge for preparation of Cash Flow, Fund Flow and Graph of financial statements with tally Software.

r.No.	Name of Topic	No. of Lectures
1.	Redemption of Preference Shares	15
2.	Redemption of Debentures	15
3.	Investment Accounting	15
4.	Preparation of Cash Flow Statement using Tally Accounting Software	15

ONTENTS:

	Modules	No. of lectures
	<p>Redemption of Preference Shares</p> <ul style="list-style-type: none"> • Provisions of Companies Act for redemption of Preference Shares (Sec.55 of the Companies Act,2013), Companies (Shares and Debentures) Rules. • Methods of Redemption of fully paid up Preference Shares as per Companies Act,2013: The proceed of a fresh issue of shares, the capitalization of undistributed profits and combination of both, calculation of minimum fresh issue to provide the fund for redemption (Question on entries and/ or Balance Sheet) <p>Note: Companies governed by Section 133 of the Companies Act, 2013 and comply with the accounting standards prescribed for them. Hence, the balance in security premium account not to be utilized for premium payable on redemption of preference shares.</p>	15
2.	<p>Redemption of Debentures</p>	15
	<ul style="list-style-type: none"> • Introduction: Provision of section 71(1) and (4) of the Companies Act, 2013, Creation and Investment of DRR including The Companies (Share Capital and Debentures) Rules, 2014, the methods of writing- off- discount /loss on issue of debentures; Terms of issue of debentures • Methods of redemption of debentures: By payment in lump sum and by payment in installments (excluding from by purchase in open market), Conversion. <p>(Question on entries, ledgers and/ or Balance Sheet and/ or redemption of preference shares)</p>	
3.	<p>Investment Accounting (w.r.t. Accounting Standard -13)</p>	15
	<ul style="list-style-type: none"> • For Shares (Variable income bearing securities) • For Debentures/ Preference shares (Fixed income bearing securities) • Accounting for transactions of purchase and sale of investments with ex and cum interest prices and finding cost of investment sold and carrying cost as per weighted average method (Excl. brokerage) • Columnar format for investment account. 	
4.	<p>Preparation of Cash Flow Statement using Tally Accounting</p>	15

software

- | | |
|--|--|
| • Preparation of Cash Flow, Fund Flow and Graph of financial statements. | |
|--|--|

**SUBJECT : FINANCIAL ACCOUNTING AND AUDITING-VI:
AUDITING
(Credit Points: 2)**

Objectives :

1. To enhance ability of examining system for internal check
2. It helps the learner to Understand and conduct effective audit in an efficient and timely manner
3. It Impart Stringent control over all the Activities of an Organization.

Make them aware about Vouching and Verification of Books of Accounts.

	Name of Topic	No. of Lectures
	Introduction to Auditing	15
2.	Audit Planning, Procedure & Documentation	10
3.	Audit Techniques & Internal Audit	10
4.	Audit Techniques: Vouching & Verification	10

CONTENTS :

Sr. No.	Modules	No. of lectures
1.	Introduction to Auditing	10
	A. Basics- Financial Statements, Users of Information, definition of Auditing, Objectives of Auditing, Inherent limitations of Audit, Difference	

between Accounting and Auditing, Investigation and Auditing.

- B. Errors and Frauds- Definition, Reasons and Circumstances, Types of Error, Types of Frauds, Risk of fraud and Error in Audit, Auditors Duties and responsibilities in case of fraud.
- C. principles of Audit, Materiality, True and Fair View
- D. Types of Audit- Meaning, Advantages, Disadvantages of Balance Sheet Audit, Interim Audit, Continuous Audit, Concurrent Audit and Annual Audit, Statutory Audit.

2. Audit Planning, Procedure & Documentation

10

- A. Audit Planning- Meaning, Objectives, factors to be considered, sources of obtaining information, discussion with client, Overall Audit Approach.
- B. Audit Program- Meaning, Factors, Advantages and Disadvantages, Overcoming Disadvantages, Methods of Work, Instruction before commencing work, Overall Audit Approach.
- C. Audit Working Papers- Meaning, Importance, Factors determining Form and Contents, Main Functions/Importance, Features, Contents of Permanent Audit file, Temporary Audit File, Ownership, Custody, Access of Other Parties of Audit Working Papers, Auditors Lien on Working Papers, Auditors lien on Client's Books.

3. Audit Techniques & Internal Audit

10

- A. Test Check- Test Checking V/s. Routine Checking, test check meaning, features, factors to be considered, when Test Checks can be used, advantages, disadvantages, precautions.
- B. Audit sampling- Audit Sampling , meaning purpose, factors in determining sample size- Sampling Risk, tolerable Error and expected error, methods of selecting Sample Items Evaluation of sample results auditors liability on conducting audit based on Sample.
- C. Internal Control- Meaning and purpose, review of internal control, advantages, auditors duties, review of internal control, Inherent limitations of Internal Control, internal control samples for sales and debtors, purchases and creditors, wages and salaries. Internal Checks v/s. Test Checks.
- D. Internal Audit: Meaning, basic principles of establishing Internal Audit, objectives, evaluation of internal Audit by statutory auditor, usefulness of

Internal Audit, Internal Audit v/s External Audit, Internal Checks V/s. Internal Audit.

Audit Techniques: Vouching & Verification

10

- A. Audit Income: Cash Sales, Sales on Approval, Consignment Sales, Sales Returns Recovery of bad Debts written off, Rental Receipts, Interest and dividends Received Royalties Received
- B. Audit of Expenditure: Purchases, Purchase Returns, Salaries and Wages, Rent, Insurance Premium, Telephone expense Postage and Courier, Petty Cash expenses, Travelling Commission Advertisement, Interest Expense.
- C. Audit of Assets Book Debts/ Debtors, Stocks- Auditors General Duties; Patterns, Dies and Loose Tools, Spare Parts, Empties and Containers Quoted Investments and Unquoted Investment Trade Marks/ copyright Patents Know-How, Plant and Machinery, Land and Buildings , Furniture and Fixtures.
- D. Audit of liabilities: Outstanding Expenses, Bills Payable Secured Loans, Unsecured Loans, Contingent Liabilities.

EVALUATION PATTERN (60:40)

INTERNAL EXAMINATION PATTERN : 40 MARKS

Sr.No.	Details	Marks
1.	(A) CLASS TEST : 20 MARKS	20
	(i) Multiple Choice Questions : [10M]	
	(ii) Solve the short practical problems : [10M]	
2.	(B) PRACTICAL WORK : 20 MARKS Tally Based Project	20
	Total	40

SEMESTER END EXAMINATION PATTERN : 60 MARKS

DURATION: 2 hours

Questions	Marks
1 Multiple Choice Questions: (any 15 out of 18)	[15M]
2 Practical Problem. R	[15M]
2 Practical Problem. 2 Practical Problem.	[15M]
4 Practical Problem. R	[15M]
4 Write Short Notes on: (any 3 out of 5) (5 marks each)	[15M]
Total	60

REFERENCE BOOKS FOR ACCOUNTANCY AND FINANCIAL MANAGEMENT PAPER III& PAPER IV, FINANCIAL ACCOUNTING & AUDITING PAPER VI&VII:

Sr. No.	Name of Reference Book	Authors' Name	Publication
1.	Introduction to Accountancy	T. S. Grewal	S. Chand and Company (P) Ltd.
2.	Advance Accounts	Shukla & Grewal,	S. Chand and Company (P) Ltd.
3.	Advanced Accountancy	R. L Gupta and M Radhaswamy	S. Chand and Company (P) Ltd.
4.	Modern Accountancy	Mukherjee and Hanif	Tata Mc. Grow Hill & Co. Ltd
5.	Financial Accounting	Lesile Chandwichk,	Pentice Hall of India Adin Bakley (P) Ltd.

Total**45****Evaluation Pattern:**

Type of evaluation	Activity	Type of Questions	Marks
Internal evaluation	Class test (theory & practical)	Short length Questions (Any 2 of 3)	10
		Long length Questions (Any 1 of 2)	10
Maximum Marks 40	Assignment /Viva - voce	Project/ Assignments/ case studies/ Presentations/ Viva	15
	Attendance & Active Participation	Attendance	05
	Total		40

Type of Evaluation	Types of Question	Marks
External [60 Marks]	Q.1 Objective Questions (Multiple Choice/ True or False/ Match the Columns/ Fill in the Blanks) (1 Mark Each) All Modules	15
	Q.2 Full length Practical Question	15
	Q.3 Full length Practical Question	15
	Q. 4 Full length Theory Question OR Q. 4 Full length Practical Question	15
	Total	60

Note: Full length questions (Problem based / theory/ case study) of 15 marks each can be subdivided into sub-questions of '08' & '07' marks, '10' & '05' marks, 03 questions of 05 marks, 05 questions of 03 marks.

Recommended References Books

- Theory and Problems of Cost Accounting "Khan & Jain"
- Advanced Cost Accounting by "Jain, S.Narang"
- Cost & Management Accounting Inamdar,
- Cost & Management Accounting - Kishore

	Financial Accounting for Management	Dr. Dinesh Harsalekar	Multi-Tech. Publishing Co. Ltd., Mumbai.
7.	Financial Accounting	P. C. Tulsian	Pearson Publications
8.	Accounting Principles	Anthony, R.N. and Reece J.S.,	Irwin Inc.
9.	Financial Accounting	Monga, J.R. Ahuja	Mayur Paper Back
10.	Indian Accounting Standards	Ashish Bhattacharya	Tata Mc. Grow Hill & Co. Ltd.
11.	Financial Accounting	Williams	Tata Mc. Grow Hill & Co. Ltd.
12.	Company Accounting Standards	ShrinivasanAnand	Taxman
13.	Financial Accounting	V. Rajasekaran	Pearson Publications
14.	Introduction to Financial Accounting	Horngrén	Pearson Publications
15.	Financial Accounting	M. Mukherjee.M. Hanif	Tata McGraw Hill Education Private Ltd
16.	Financial Accounting for Business Managers	Ashish K. Bhattacharyya	Prentice Hall of India Pvt. Ltd.
17.	Contemporary Issues in Accounting	Shashi K. Gupta	Kalyani Publishers.
18.	Financial Accounting	R. Narayanaswamy	Prentice Hall of India
19.	Fundamentals of Financial Accounting	Ashok Sehgal	Taxmann's Publishers
	Student Guide to Auditing Standards for CA Inter	D S Rawat	Taxmann's Publishers
21.	Students Handbook on Auditing & Assurance for CA IPCC	G Sekar And B SarvanaPrasath	Padhuka (CCH)
22.	Auditing and Assurance for CA Intermediate (IPC)	CA Surbhi Bansal	Taxmann's Publishers
23.	Auditing	Bhatia. R.C.	Ane Books Pvt. Ltd
24.	Principles and Practices of Auditing	Sachdeva, B. Singh, S. Kumar, P.	Kalyani Publishers
25.	A handbook of practical Auditing	Tandon, B.N.	S Chand & Company.
26.	Cost and Management Accounting	ColinnDury	
27.	Cost and Management Accounting	Dbarshi Bhattacharyya	pearson Publications 2013

Management Accounting	M.Y.Khan	Mc Graw Hill Education India
Management Accounting	- I.M.Pandey	Vikas Publication House Pvt.Ltd.

Academic Council dated April, 8th 2023 as per Item Number: 1.03



**K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND COMMERCE
(AUTONOMOUS) DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

**Faculty of Commerce
DEPARTMENT OF ACCOUNTANCY
(Programme: B.Com.)**

**SYLLABUS FOR
OPEN ELECTIVE : S.Y.B.Sc. & S.Y.B.A
(Semester IV)
(Under New Education Policy 2020)**

(with effect from the Academic Year: 2023-2024)

Lawde
04/05/24

B.Com. Programme

Under Choice Based Credit, Grading and Semester System

Course Structure

OPEN ELECTIVE

(to be offered for Arts and Science Stream Students)

Semester – IV

Sr.No.	Course Code	Course Title	Category	Teaching Hours	Total Marks	Credits
1	AC24324OE	Investment and Portfolio Management – II	OE	45	50	02

SYLLABUS

INVESTMENT AND PORTFOLIO MANAGEMENT - II

OBJECTIVES:

- To enhance the abilities of learners to incorporate the concept of Portfolio Management.
- To enable the learners to understand the various models and techniques of security and portfolio analysis.
- To enable the learners in understanding, preparing and presenting the financial statements of Departmental Accounts.
- To impart the knowledge of Hire Purchase Transactions.

SEMESTER – II

INVESTMENT AND PORTFOLIO MANAGEMENT - II (AC23224OE)

(Credit Points: 2)

Sr.No.	Name of Topic	No. of Lectures
1.	Introduction to Portfolio Management	10
2.	Analysis of Stock :Fundamental and Technical Perspectives	15
3.	Stock Indices	10

CONTENT

SR. NO.	MODULES	NO. OF LECTURES
	<ul style="list-style-type: none"> • Meaning of Portfolio • Portfolio Management • Portfolio Management Process • Objectives of Portfolio Management • Types of Portfolio Management • Strategies of Portfolio Management • Selection of Portfolio • Selection of Asset Mix 	10
2.	Module 2 : Analysis of Stock : Fundamental and Technical Analysis	15
	<ul style="list-style-type: none"> • Introduction • Investment Analysis • Fundamental Analysis • Macroeconomic Analysis • Industry Analysis • Company Analysis • Field Analysis • Ratio analysis • Meaning of Technical Analysis • Fundamental V/s Technical Analysis • Charting Techniques • Technical Indicators • Testing Technical Trading Rules • Evaluation of Technical Analysis 	
3.	Module3 :	05
	<ul style="list-style-type: none"> • Introduction to Index • Significance of Index • Types of Stock Market Indices • Attributes of an Index • Index Management • Major Indices in India • Application of Indices 	

EVALUATION PATTERN FOR OPEN ELECTIVE (30:20)
INTERNAL EXAMINATION PATTERN : 20 MARKS

Details	Marks
(A) CLASS TEST : 10 MARKS	10
Multiple Choice Questions : (04 Questions – 1 mark each) Explain the terms : (3 Questions – 2 marks each)	
(B) PRACTICAL WORK : 10 MARKS	10

SEMESTER END EXAMINATION PATTERN : 60 MARKS
DURATION: 2 hours

Questions	Marks
Q.1 Multiple Choice Questions: (any 6 out 8)	[06M]
Q.2 Theory Question. OR Q.2 (A) Theory Question.	[08M] [04M] [04M]
Q.3 Theory Question. OR Q.3 (A) Theory Question. (B) Theory Question.	[08M] [04M] [04M]
Q.4 Theory Question. OR Q.4 (A) Theory Question. (B) Theory Question.	[08M] [04M] [04M]
Total	30M

**MANAGEMENT PAPER III& PAPER IV, FIANNACIAL ACCOUNTING &
AUDITING PAPER VI&VII:**

Sr. No.	Name of Reference Book	Authors' Name	Publication
1.	Introduction to Accountancy	I. S. Grewal	S. Chand and Company (P) Ltd.
2.	Advance Accounts	Shukla & Grewal,	S. Chand and Company (P) Ltd.
3.	Advanced Accountancy	R. L Gupta and M Radhaswamy	S. Chand and Company (P) Ltd.
4.	Modern Accountancy	Mukherjee and Hanif	Tata Mc. Grow Hill & Co. Ltd
5.	Financial Accounting	Lesile Chandwick,	Pentice Hall of India Adin
6.	Financial Accounting for Management	Dr. Dinesh Harsalekar	Multi-Tech. Publishing Co. Ltd., Mumbai.
7.	Financial Accounting	P. C. Tulsian	Pearson Publications
8.	Accounting Principles	Anthony, R.N. and Reece J.S.,	Irwin Inc.
9.	Financial Accounting	Monga, J.R. Ahuja	Mayur Paper Back

10.	Indian Accounting Standards	Ashish Bhattacharva	Tata Mc. Grow Hill & Co. Ltd
11.	Financial Accounting	Williams	Tata Mc. Grow Hill & Co. Ltd.
12.	Company Accounting Standards	ShrinivasanAnand	Taxman
13.	Financial Accounting	V. Rajasekaran	Pearson Publications
14.	Introduction to Financial Accounting	Horngren	Pearson Publications
15.	Financial Accounting	M. Mukherjee.M. Haridossan	Tata McGraw Hill Education Private Ltd
16.	Financial Accounting for Business Managers	Ashish K. Bhattacharyya	Prentice Hall of India Pvt. Ltd.
17.	Contemporary Issues in Accounting	Shashi K. Gupta	Kalyani Publishers.
18.	Financial Accounting	R. Narayanaswamy	Prentice Hall of India
	Accounting		
20.	Student Guide to Auditing Standards for CA Inter	D S Rawat	Taxmann's Publishers
21.	Students Handbook on Auditing & Assurance for CA IPCC	G Sekar And B SarvanaPrasath	Padhuka (CCH)
22.	Auditing and Assurance for	CA Surbhi Bansal	Taxmann's Publishers

	CA Intermediate (IPC)		
23.	Auditing	Bhatia. R.C.	Ane Books Pvt. Ltd
24.	Principles and Practices of Auditing	Sachdeva, B. Singh, S. Kumar, P.	Kalyani Publishers
25.	A handbook of practical Auditing	Tandon, B.N.	S Chand & Company.
26.	Cost and Management Accounting	ColinnDury	
27.	Cost and Management Accounting	Dbarshi Bhattacharyya	pearson Publications 2013
28.	Management Accounting	M.Y.Khan	Mc Graw Hill Education India
29.	Management Accounting	- I.M.Pandey	Vikas Publication House Pvt.Ltd.

Academic Council dated March, 4th 2024 as per Item Number: 1.03



**DOMBIVLI SHIKSHAN PRASARAK MANDAL'S,
K.V. PENDHARKAR COLLEGE OF ARTS, SCIENCE AND
COMMERCE (AUTONOMOUS) DOMBIVLI (EAST), DIST. THANE
(Affiliated to University of Mumbai)**

Faculty of Commerce

DEPARTMENT OF ACCOUNTANCY

(Programme: Master of Commerce: M.Com.)

SYLLABUS FOR

M.Com. – ADVANCED ACCOUNTANCY (Semester III and IV)

Under New Education Policy 2020

(with effect from the Academic Year: 2024-2025)

*A. Sawde
04/05/24*

MCom

M.Com. Programme

Under New Education Policy 2020

Course Structure

M.Com. – II (Advanced Accountancy)

(To be implemented from Academic Year 2024-2025)

Course Code	Semester III	Credits	Course Code	Semester IV	Credits
AC24307MM	Advanced Financial Accounting	04	AC24407MM	Corporate financial accounting	04
AC24308MM	Advanced cost accounting	04	AC24408MM	Financial management	04
AC24309MM	Direct tax	04	AC24409MM	Indirect tax: introduction to goods & service tax	04
AC24310MM	International Financial Reporting Standard	04	AC24410ME	Personal Financial Planning	04
AC24311ME	Advanced Auditing	02			
AC24312RP	Research Project	04	AC24411RP	Research Project	06

PROPOSED SYLLABUS UNDER NEP 2020

SEMESTER – III

ADVANCED FINANCIAL ACCOUNTING

(Credit Points: 4)

Objectives :

- To enable the learner to know basics of mergers and acquisition through amalgamation of companies.
- To understand the preparation of final accounts of banking companies.
- To understand the preparation of final accounts of insurance companies.
- To enhance the knowledge of foreign currency conversion.

Sr.No.	Name of Topic	No. of Lectures
1.	Foreign Currency Conversion	15
2.	Final Accounts & Statutory Requirements of Banking Companies	15
3.	Accounting and Statutory Requirements of Insurance Companies	15
4.	Amalgamation of Companies (Merger & Purchases)	15

CONTENTS

Sr. No.	Modules	No. of lectures
1.	Module 1 : Amalgamation of Companies (Merger & Purchases)	15
	<ul style="list-style-type: none"> • In the nature of merger and purchase with corresponding accounting treatments of pooling of interests and purchase method respectively. • Meaning and Computation of purchase consideration. Problems based on purchase method only. 	
2.	Module 2 : Final Accounts & Statutory Requirements of Banking Companies	15
	<ul style="list-style-type: none"> • Final Accounts of Banking Companies • Provisioning of Non-Performing Assets • Form and Requirements of Final Accounts 	
3.	Module 3 : Accounting and Statutory Requirements of Insurance Companies	15
	<ul style="list-style-type: none"> • Accounting Provision for Insurance Act and Insurance Regulation and Development Authorities for • Life Insurance Business • General Insurance Business • Forms and Regulations of Final Accounts for • Life Insurance Business • General Insurance Business 	
4.	Module 4 : Foreign Currency Conversion	15
	<ul style="list-style-type: none"> • Requirements as per Accounting Standards • Foreign Branches 	

ADVANCED COST ACCOUNTING

(Credit Points: 4)

Objectives :

1. To make students understand about the process costing as one of the methods of cost accounting in detail
2. To make students understand various methods of distribution of overheads.
3. To make the students understand ABC – costing technique that assign costs of product, based on the activities those products required
4. To make the students understand a system of management accounting under which accountability is established according to the responsibility delegated to various levels of managers
5. To measure and manage costs and aligning them to the business strategy
6. To make the students understand standardize accounting method and to assist in determining suitable prices of product of firms which adopt this method.

Sr.No.	Name of Topic	No. of Lectures
1.	Process Costing	15
2.	Cost Allocation and Activity Based Costing Systems	15
3.	Responsibility Accounting	15
4.	Strategic Cost Management	08
5.	Uniform Costing	07

CONTENTS

Sr. No.	Modules	No. of lectures
1.	Module 1 : Process Costing	15
	<ul style="list-style-type: none"> • Introduction – Features of Process, Concept of Process Loss, Abnormal Loss, Normal Loss, Abnormal Gain. • Computation of Inter Process Profit – Advantages and Disadvantages. • Computation of Equivalent Production – Weighted Average and FIFO. 	
2.	Module 2 : Cost Allocation and Activity Based Costing Systems	15
	<ul style="list-style-type: none"> • Cost Allocation – Meaning and its Types, Relationship between Resources, Activities, Cost and Cost Drivers, Methods of allocating central costs – cost allocation using Direct Method, Step Down Method and Reciprocal Method. • Activity Based Costing – Introduction, Advantages, Limitations, Identification of Cost Drivers, Practical Problems on Traditional v/s Activity Based Costing System. 	
3.	Module 3 : Responsibility Accounting	15
	<ul style="list-style-type: none"> • Responsibility Accounting – Meaning, Features, Objectives, Assumptions, Problems, Responsibility Centers – Cost, Profit, Revenue and Investment. • Concept of Controllability – Introduction, Measuring Managerial Performance (ROI and Residual Income Approach). 	

	<ul style="list-style-type: none"> • Preparation of Managerial Reports using Segmented Costs and Controllable Costs Approach. 	
4.	Module 4 : Strategic Cost Management	08
	<ul style="list-style-type: none"> • Transfer Pricing – Introduction, Advantages and Disadvantages, Setting Transfer Pricing – Negotiated Transfer Pricing, Cost Based Transfer Pricing. • Target Costing – Introduction, Concept, Objectives, Comparison between Target Costing and Cost Plus Pricing. • Inflation Accounting – Meaning, Features, Conversion of Income Statement, Balance Sheet, Stocks and Net Assets Block using Current Purchasing Power Method. 	
5.	Module 5 : Uniform Costing	07
	<ul style="list-style-type: none"> • Introduction, Meaning, Definition, Objectives, Requisites, Areas of Uniformity, Advantages, Scope, Applications, Key Factors, Difficulties in Uniform Costing, Limitations, Uniform Costing and Interfirm Comparison. • Calculation of Uniform Costing 	

DIRECT TAX

(Credit Points: 4)

Objectives:

1. To accustom the students with certain basic terms of Income Tax.
2. To acquaint them with residential status and scope of total income.
3. To familiarize them with exemptions under section 10.
4. To notify them with computational provisions under the heads "Salary Income", "Income from House Property", "Profits and Gains of Business / Profession", "Capital Gains", "Income from other Sources" and head wise computation for these heads of income.
5. To make aware them with certain deductions from total income and computation of total income for individual and partnership firm assesses.

Sr.No.	Name of Topic	No. of Lectures
1.	Definitions and Basis of Charge	15
2.	Heads of Income	15
3.	Deductions u/s 80 and Exclusions from the Total Income	15
4.	Computation of Income and Tax of Individual, Firm and Company (Excluding MAT) and Provisions for Filing Return of Income, Assessment Procedure of Tax, Advance Tax	15

CONTENTS

Sr. No.	Modules	No. of Lectures
1.	Definitions and Basis of Charge	15
	<ul style="list-style-type: none"> ● Definitions: person, Assessee, Income ● Basis of Charge: Previous Years, Assessment Year, Residential Status, Scope of Total Income, Deemed Income 	
2.	Heads of Income	15
	<ul style="list-style-type: none"> ● Income from Salary ● Income from House Property ● Profits and gains From Business and Profession ● Income from Capital Gains ● Income from Other Sources 	
3.	Deductions u/s 80 and Exclusions from the Total Income	15
	<ul style="list-style-type: none"> ● Deductions: 80C, 80CCF, 80D, 80DD, 80DDB, 80E, 80U ● Exclusions: exemptions related to Specific Heads of Income to be covered with Relevant Provisions, Agricultural Income, Sums received from HUF by a Member, Share of Profit from Firm, Income from Minor Child, Dividend 	
4.	Computation of Income and Tax of Individual, Firm and Company (Excluding MAT) and Provisions for Filing Return of Income, Assessment Procedure of Tax, Advance Tax.	15
	<ul style="list-style-type: none"> ● Computation of Income and Tax of Individual, Partnership Firm & Company. 	

Advanced Auditing

(Credit Points : 02)

Objectives :

- To impart the knowledge of Company Audit among the learners.
- To bring practicability approach among the learners regarding audit under special considerations.
- To enable them to understand the legal aspect behind audit under other laws.

Sr.No.	Name of Topic	No. of Lectures
1.	Company Audit	15
2.	Special Audit	15
3.	Audit under other Laws	15

CONTENTS

Sr.No.	Modules	Number of Lectures
1.	Company Audit	15
	<ul style="list-style-type: none"> • Introduction to Audit - Audit of Ledgers, General Considerations, Scrutiny of Ledgers of Assets, Personal and Revenue Accounts • Company Audit - Audit of Shares, Qualifications and Disqualifications of Auditors, Appointment of auditors, Removal of auditors, Powers and duties of auditors, Branch audit, Joint audit, Special audit, Reporting requirements under the Companies Act, 2013. • Concepts of true and fair and materiality and audit risk in the context of audit of companies. • Audit reports; qualifications, notes on accounts, distinction between notes and qualifications, detailed observations by the statutory auditor to the management vis-a-vis obligations of reporting to the members 	
2.	Special Audits	15
	<ul style="list-style-type: none"> • Special points in audit of different types of undertakings, i.e., Educational institutions, Hotels, Clubs and Hospitals. 	
3.	Audit under other Laws	15
	<ul style="list-style-type: none"> • Cost audit, Environmental Audit, Energy Audit., Audit under different statutes, viz; income tax, other direct tax laws and indirect taxes 	

INTERNATIONAL FINANCIAL REPORTING STANDARDS

(Credit Point:4)

Objectives :

- To equip learner with a comprehensive understanding of the International Financial Reporting Standards.
- To enable the learner will interpret the core IFRS principles and apply them to real world financial situations.
- To ensure that learner will gain knowledge in preparing IFRS-compliant financial statements.

Sr.No.	Modules	No. of Lectures
1.	Conceptual Foundations of Financial Statements	15
2.	Presentation of Financial statements	15
3.	Indian Accounting Standards for Assets, Liabilities and Revenue	15
4.	Presentation of Single Entity Financial Statements Covered by IFRS Convergence	15

15.	Financial Management: Principles and Applications	Sheridhan Titman, Arthur J. Kewon	Pearson Education
16.	Financial Management	Dr. Paresh Shah	Dreamtech Press
17.	Direct-Taxes Law & Practice- with special reference to Tax Planning	Dr. Vinod K. Singhania & Dr. Kapil Singhania	Taxmann Publications Pvt. Ltd.
18.	Direct-Taxes Ready Reckner	Dr. Vinod K. Singhania	Taxmann Publications Pvt. Ltd.
19.	Direct-Tax Planning and Management	Kaushal Kumar Agarwal	Atlantic Publishers & Distributors

1.	Cost Accounting	R.S.N. Pillai&Bhagavati	S.Chand
2.	Studies in Cost Management	S.N. Maheshwari	Sultan Chand & Sons
3.	Cost and Management Accounting	M.E. Thukaram Rao	New Age International
4.	Advance cost Accounting	Ainapure	Manan Prakashan
5.	Cost Accounting : Texts and Problems	M.C. Shukla, T.S. Grewal	S.Chand Publication
6.	Cost Accounting : principals & Practice Book	M.N.Arora, Priyanka Katyal	Vikas Publishing house Ltd.,
7.	Advanced Financial Accounting	Christensen,Cottrell & Baker	Mc-Graw Hill Education
8.	Financial & Managerial Accounting	Jerry J., Paul D. Kimmel, Donald E. Kieso	E-book
9.	Financial Management	Prasanna Chandra	Mc-Graw Hill
10.	Financial Management	I.M. Pandey	Pearson Education
11.	Financial Management	Dr. Mahesh, Dr. Shriprakash G .Soni	Himalaya Publishing
12.	Corporate Financial Accounting	Dr. A. Karim, Dr. S.S. Khanuja	SBPD Publishing House
13.	Corporate Financial Accounting	Dr. Carl S Warren, Dr. James M Reevee	Wardsworth Publishing Co.Inc
14.	Corporate Financial Accounting	Dr. S.K. Singh	SBPD Publications

Q.4 Write Short Notes on: (any 3 out of 5) (5 marks each)	
Total	60

REFERENCE BOOKS :

Sr. No.	Name of Reference Book	Authors' Name	Publication

1.	CLASS TEST : 20 MARKS (Online Mode) <ul style="list-style-type: none"> Multiple Choice Questions : (10 questions : 1 mark each) [10M] Short Practical Problems (MCQ) : (05 questions 2 marks each) [10M] 	20
2.	Power Point Presentation/Group Discussion	10
3.	Research Paper (hand written)/Case Study (hand written)	10
	Total	40

SEMESTER END EXAMINATION (PG)

EVALUATION PATTERN OF SEMESTER END EXAMINATION: 60 MARKS

DURATION: 2 hours

Questions	Marks
Q.1 Multiple Choice Questions: (any 15 out of 18)	[15M]
Q.2 Practical Problem. OR Q.2 Practical Problem.	[15M]
Q.3 Practical Problem. OR Q.3 Practical Problem.	[15M]
Q.4 Practical Problem. OR	[15M]

	<ul style="list-style-type: none"> • Managing Checking and Savings Accounts • Maintaining Good Credit • Credit Cards and Consumer Loans • Vehicle and Other Major Purchases • Obtaining Affordable Housing Income and Asset Protection • Managing Property and Liability Risk • Managing Health Expenses 	
2.	Risk Analysis & Insurance Planning	15
	<ul style="list-style-type: none"> • Risk management and insurance decision in personal financial planning, • Various Insurance Policies and Strategies for General Insurance, Life Insurance, Motor Insurance, Medical Insurance. 	
3.	Retirement Planning & Employees Benefits	15
	<ul style="list-style-type: none"> • Retirement need analysis techniques, Development of retirement plan, Various retirement schemes such as Employees Provident Fund (EPF), Public Provident Fund (PPF), Superannuation Fund, Gratuity, Other Pension Plan and Post-retirement counselling. 	
4.	Investment Planning	15
	<ul style="list-style-type: none"> • Risk Return Analysis • Investing in Stocks and Bonds ,Mutual Fund, Derivatives, Investing in Real Estate, Asset Allocation, Investment strategies and Portfolio construction and management. 	

EVALUATION PATTERN (60:40)

INTERNAL EXAMINATION (PG)

INTERNAL EVALUATION PATTERN: 40 MARKS

Sr.No.	Details	Marks
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Sr.No.	Modules	No. of Lectures
1.	Understanding Personal Finance	15
2.	Risk Analysis & Insurance Planning	15
3.	Retirement Planning & Employees Benefits	15
4.	Investment Planning	15

CONTENT :

Sr.No.	Modules	No. of Lectures
1.	Understanding Personal Finance	15
	<ul style="list-style-type: none"> • Introduction • Time value of money applications • Personal financial statements, Cash flow and debt management, tools and budgets Money Management • Tax planning 	

	<ul style="list-style-type: none"> ● GST in Other countries ● Existing Taxes Proposed to be Subsumed under GST ● Principles Adopted for Subsuming the Taxes ● Dual GST ● Benefits of GST ● GST Council ● GST Network (GSTN) and GST regime ● Integrated Goods and Services Tax Act, 2017: Title and Definitions, Administration 	
2.	Collection of Tax under Integrated Goods and Services Tax Act, 2017	15
	<ul style="list-style-type: none"> ● Sec.5 and Sec.6 	
3.	Place of supply of goods or services or both under Integrated Goods and Services Tax Act, 2017	15
	<ul style="list-style-type: none"> ● Sec.10 and Sec.12 	
4.	Authority for advance ruling (AAR) and Appellate Authority for Advance Ruling (AAAR)	15

PERSONAL FINANCIAL PLANNING

(Credit : 04)

Objectives :

- To equip learner with a comprehensive understanding of various aspects of personal finance.
- To enable learner to perform risk analysis and mitigation through insurance planning.
- To familiarize learners with various employee benefits and retirement planning.
- To enable learner to gain practical knowledge about various investment avenues, to perform risk-return analysis and apply them to real world Investment Planning.

Sr.No.	Name of Topic	No. of Lectures
1.	Overview of Goods and Service Tax	15
2.	Collection of Tax under Integrated Goods and Services Tax Act, 2017	15
3.	Place of supply of goods or services or both under Integrated Goods and Services Tax Act, 2017	15
4.	Authority for advance ruling (AAR) and Appellate Authority for Advance Ruling (AAAR)	15

CONTENTS

Sr. No.	Modules	No. of lectures
1.	Overview of Goods and Service Tax	15
	<ul style="list-style-type: none"> ● Introduction and Meaning of GST and IGST ● Scope of GST ● Present /Old Tax Structure v/s GST 	

INDIRECT TAX: INTRODUCTION TO GOODS & SERVICE TAX

(Credit Points: 4)

Objectives:

1. To acquaint the students with certain basic terms of Goods and Services Tax Act.
2. To accustom the students with various transactions for supply and identify levy of a particular tax
3. To apprise the students with provisions related to the term supply, place of supply, time of supply and value of supply.
4. To notify the students with Input Tax Credit.
5. To explain the students with provisions related to registration under GST Act.
6. To inform the students with application of above provisions to various practical situations.

- Basic Principle of Measuring Project Cash Flows
- Increment Principle, Long Term Funds Principle, Exclusion of Financial Cost Principle, Post Tax Principle
- Profitability technique for measurement of cash flow
- Capital Budgeting Techniques : Net Return Value, Internal Rate of Return, Profitability Index Methods
- A Comparison : Project Selection Under Capital Rationing
- (Note : Problems on computation of cash flow, ranking of projects on various techniques, selection and analysis with/without capital rationing. Comparison of IRR with Required rate of return i.e. cut off rate, IRR and mutually exclusive projects with unequal lives, multiple IRR)

3. Management of Working Capital

10

- Meanings, Concepts and policies of working capital
 - Management of Working Capital
 - Issues in Working Capital
 - Estimating working capital needs (only theory)
 - Operating or Working Capital Cycle (only theory)
- Management of Components of Working Capital
- Management of Cash and Marketable Securities : Motives for Holding Cash, Objectives of Cash Management, Factors Determining Cash Needs, Basic Strategies of Cash Management, Cash Management Techniques/Processes, Marketable Securities and Cash Management Practices in India.
 - Receivable Management : Objectives, Credit Policies, Credit Terms and Collection Policies.
 - Inventory Management : Objectives and Techniques.

4. Financial Planning

10

- Introduction
- Meaning of Budget
- Essentials of a budget
- Types of Budgets
- Advantages of Budgeting
- Zero Based Budget
- (Note : Practical Questions on Sales Budget, Production Budget, Material Budget, Cash Budget and Master Budget)

5. Financial Policy and Corporate Strategy
Over-Capitalization and Under-Capitalization

15

- Meaning of Strategic Financial Management
- Strategic Financial Decision making framework
- Functions of Strategic Financial Management
- Financial Planning
- Over-Capitalisation
- Under-Capitalisation

CONTENTS

Sr. No.	Modules	No. of Lectures
1.	Types of Financing	10
	<ul style="list-style-type: none"> ● Introduction ● Needs of Finance and Sources : Long Term, Medium Term, Short Term ● Long Term Sources of Finance ● Owners Capital/Equity Capital ● Preference Share Capital ● Retained Earnings ● Debentures of Bonds ● Loans from Financial Institutions/Banks ● Short Term Sources of Finance ● Trade Credit ● Accrued Expenses and Deferred Income ● Advances from Customers ● Commercial Papers ● Bank Advances : Loans, O/D, Clean O/Ds, Cash Credit, Advances against goods, Bills Purchased, Discounted, Advances against documents of title of goods, Advances against supply of bills, Term Loans. ● Inter Corporate Deposits ● Certificate of Deposits ● Public Deposits 	
2.	Investment Decisions : Capital Budgeting	15
	<ul style="list-style-type: none"> ● Introduction ● Nature of Capital Budgeting ● Purpose of Capital Budgeting ● Capital Budgeting Process ● Types of Capital Investment ● Decisions Project Cash Flows and Net Profit Approval 	

FINANCIAL MANAGEMENT

(Credit Points: 4)

Objectives:

1. To make students understand various sources of finance available for company to raise the funds to meet their requirements .
2. To make students understand various methods of investment decisions taken by the companies and intend to provide understanding of the importance of capital budgeting in the market.
3. To make the students understand to maintain the working capital operating cycle and ensuring its ordered operations, minimizing the cost of capital spent on working capital and maximising the return on current asset investment
4. To make students learn to plan needed for estimating the funds requirement of a business and determining the source of finance with the help of budgets.
5. To make the students understand the financial policies and corporate strategies that govern the financial activities within the organizations.
6. To make students learn the states of over capitalization and undercapitalization of company

Sr.No.	Name of Topic	No. of Lectures
1.	Types of Financing	10
2.	Investment Decisions : Capital Budgeting	15
3.	Management of Working Capital	10
4.	Financial Planning	10
5.	Financial Policy and Corporate Strategy Over-Capitalization and Under-Capitalization	15

CONTENTS

Sr. No.	Modules	No. of lectures
1.	Corporate Financial Reporting	15
	<ul style="list-style-type: none"> ● Introduction to Financial Reporting ● Need for Reporting ● Contents of Financial Report ● Recent Trends in Financial Reporting 	
2.	Valuation of Business for Amalgamation & Merger	15
	<ul style="list-style-type: none"> ● Meaning, Need and Approach ● Methods of Valuation 	
3.	Consolidated Financial Statements	15
	<ul style="list-style-type: none"> ● Meaning, Stand Alone Financial Statements. ● Consolidated Financial Statements – Applicability, Advantages and Disadvantages. ● Procedure of Consolidation of Balance Sheet and Profit & Loss Account (Excluding Cross Holding, Chain Holding and Foreign Subsidiary). 	
4.	Accounting & Statutory Requirements of Co-operative Society	15
	<ul style="list-style-type: none"> ● Accounting Provision of Maharashtra State Co-operative Societies Act and Rules. ● Forms and Requirements of Final Accounts (Excluding Co-operative Housing Society) 	

SEM – IV
CORPORATE FINANCIAL ACCOUNTING

(Credit Points: 4)

Objectives:

1. To impart the knowledge of basics of Financial Statements as per Companies Act.
2. To make the learners aware about the various accounting standards and their practical applicability.
3. To understand the concept of valuation of goodwill, shares and business.
4. To enable the learners to get the practical knowledge about accounting of subsidiary and holding company.

Sr.No.	Name of Topic	No. of Lectures
1.	Corporate Financial Reporting	15
2.	Valuation of Business for Amalgamation & Merger	15
3.	Consolidated Financial Statements	15
4.	Accounting & Statutory Requirements of Co-operative Society	15

	<ul style="list-style-type: none"> • Provisions, contingent liabilities and contingent assets (Theory and Practical) 	
4.	Presentation of Single Entity Financial Statements Covered by IFRS Convergence	15
	<ul style="list-style-type: none"> • Ind AS 1: Accounting policies, Accounting estimates • IAS 8 and Ind AS 8- Events after reporting date • IAS 10 and Ind AS 10 - Structure and contents of financial statements • Preparation of financial statements: Statement of Financial Position (SOFP) - Statement of Profit or Loss (SOPL) - Statement of Changes in Equity (SOCE) - Cash Flow Statement (SOCF) (IAS 7 and Ind AS 7). (Theory and Practical) 	

CONTENTS

Sr.No.	Modules	No. of Lectures
1.	Conceptual Foundations of Financial Statements	15
	<ul style="list-style-type: none"> • The objective of financial reporting; • The main assumptions; • Qualitative characteristics of financial reporting; • Elements of Financial Statements: recognition and measurement 	
2.	Presentation of Financial statements	15
	<p>Presentation of financial statements Accounting standards:</p> <ul style="list-style-type: none"> • Role/objectives of accounting standards, • Development of accounting standards in India - Requirements of international accounting standards - International organizations engaged in accounting harmonization - IASB - FASB - Role of IASB in developing IFRS • IFRS :- Introduction, scope • Indian Accounting standards (Ind AS) : Introduction Road map Comparison of Ind AS, IFRS and AS Conceptual framework Definition of financial elements Principles of recognition, measurements, presentation and disclosure. (Theory and Practical) 	
3.	Indian Accounting Standards for Assets, Liabilities and Revenue	15
	<ul style="list-style-type: none"> • Valuation of Inventories • Cash flow statement Accounting for tangible non-current assets • Accounting for intangible assets • Accounting for impairment of assets • Accounting for borrowing costs • Investment property • Revenue from contracts with customers • Income tax • Employee benefits 	