A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF ENGLISH

SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: ENG101C Title: A COURSE IN COMMUNICATION AND SOFT SKILLS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Listening Skills – 1. Importance of Listening
		2. Types of Listening
Jan - 2021	Ι	Listening Skills – Barriers to Effective Listening
	II	Speaking Skills – Sounds of English: Vowels and
		Consonants
	III	Grammar –Concord and Modals
Feb-2021	II	Speaking Skills – Word Accent and Intonation
	III	Grammar – Articles, Prepositions and Tenses
		(Present/Past/Future)
Mar-2021	III	Grammar – Question Tags, Sentence Transformation
		(Voice, Reported Speech & Degrees of Comparison) and
		Error Correction
	IV	Writing – Punctuation and Spelling
April-21	V	Soft Skills – Positive Attitude and Emotional Intelligence,
		Telephone Etiquette

SEMESTER – II

CURRICULAR PLAN

Subject Code: ENG 201C

Title: A COURSE IN READING & WRITING SKILLS

Month	Unit No.	Topic to be covered
	Ι	Netaji Subhas Chandra Bose on students & politics
June - '21	II	Upagupta
	III	An Astrologer's Day
	IV	Vocabulary: Conversion of Words
	Ι	The Night Train at Deoli
July-'21	II	Coromandel Fishers
	III	Girls
	IV	One Word Substitutes, Collocations
	V	Notices, Agendas and Minutes
	Ι	The Doll's House
Aug-'21	II	Ode to the West Wind
	III	Florence Nightingale
	IV	Phrasal Verbs and Idioms
	V	Expansion of Ideas and Paragraph Writing
Sep-'21	IV	Note Making/Taking
	V	Curriculum Vitae and Resume
	V	Official Letters
	V	E-Correspondence

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SEMESTER – III

2020-2021 CURRICULAR PLAN

Title : GENERAL ENGLISH - II

	Unit No.	Topic to be covered
Month		
	Ι	Shyness My Shield
Nov-2020	II	Once Upon A Time
	V	Expansion of an idea
	Ι	Aurangzeb's Letter To His Teacher
Dec-2020	II	Our Casuarina Tree
	V	JAM Sessions, Information Transfer
	Ι	A Letter from Abraham Lincoln To His Son's Teacher
Jan-'21	III	The Open Window
	V	Note Taking. Brain Storming the topic through Diagram
	III	The Beloved Charioteer
Feb-'21	IV	Kanyasulkam
	V	Reporting for the Media
Mar-'21	V	Note Making,
		Writing for the Media
		Describing a Picture

Subject Code: ENG 301C

SEMESTER – III

2020-21 CURRICULAR PLAN

Subject Code: CSS 301C Title : COMMUNICATION AND SOFT SKILLS – II

Month	Unit No.	Topic to be covered
	Ι	Pronunciation – 1 : The Sounds of English
Nov-2020	II	Pronunciation – 2 : Word Accent
	II	Pronunciation - 2 : Intonation
Dec-2020	III	Speaking Skills – 1: Conversation Skills
		Interview Skills
		Presentation Skills
		Public Speaking
	IV	Speaking Skills – 2 : Role Play
Jan-'21		Debate
		Group Discussion
	V	Writing Skills : Spelling
Feb-'21		Punctuation
		Report Writing
		Revision
Mar-'21		

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PRINCIPAL AG & SG Siddhartha Degree College of Arts&Science (Autonomous),Vuyyu:)

SEMESTER - IV

2020-2021 CURRICULAR PLAN

Subject Code: CSS 401C Title : COMMUNICATION AND SOFT SKILLS – II

Month	Unit No.	Topic to be covered
	Ι	Soft Skills – Positive Attitude, Body Language
June - '21	IV	Letter Writing
	V	Resume & Curriculum Vitae
	Ι	Emotional Intelligence, SWOT/C Analysis
July-'21	II	Paragraph Writing – Paragraph Structure, Development
		of Ideas
	Ι	Emotional Intelligence, Netiquette
Aug-'21	III	Paraphrasing – Elements of Effective Paraphrasing,
		Techniques for Paraphrasing
Sep-'21	III	Summarizing – What makes a good summary? Stages of
_		Summarizing
	IV	E-Correspondence
	V	Dialogue Writing

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A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF TELUGU

SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: TEL101

Title: GENERAL TELUGU

Month	Unit No.	Topic to be covered
Dec-2020	Ι	మధుర స్నేహం
Jan - 2021	II	రాజనీతి
	III	ధౌమ్య ధర్మోపదేశం
Feb-2021	IV	సుభద్రా పరిణయం
	V	సీతా రావణ సంవాదం
Mar-2021	V	సంధులు, సమాసాలు, అలంకారాలు
April-2021	V	ఛందస్సు

SEMESTER – II

CURRICULAR PLAN

Subject Code: TEL 201 C Title: GENERAL TELUGU

Month	Unit No.	Topic to be covered
L (01		1. ఆధునిక కవిత్వం
June - 21	Ι	2. మనిపి
		3. హరిజన శతకం
T 1 (01	II	1. తెలుగు కథానిక
July-'21		2. భయం (కథ)
		3. ఆకలి (కథ)
	III	1. తెలుగు నవల
Aug-'21		2. రథ చక్రాలు (నవల)
	IV	1. తెలుగు నాటకం
Sep-'21	IV	2. యక్షగానం (నాటిక)
	V	1. తెలుగు సాహిత్య విమర్శ
		2. విమర్ళ స్వరూప స్వభావాలు

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: TEL 301C

Title: GENERAL TELUGU - II

	Unit No.	Topic to be covered
Month		
NI 2020	Ι	ప్రాచీన కవిత్వం
Nov-2020		1. వామనావతారం
	Ι	2. శాలీవాహన విజయం
Dec-2020	II	II. ఆధునిక కవిత్వం
		1. హరిజన శతకం
I (01	II	2. మనిషి
Jan-'21	III	గద్యభాగం
		1. తెలుగు భాష
E 1 (01	III	2. వ్యక్తిత్వ వికాసం
Feb-'21	IV	ఛందస్సు
	V	అలంకారాలు
Mar-'21		

2020-2021 CURRICULAR PLAN

Subject Code: LEP 401

Title : LEADERSHIP EDUCATION

Month	Unit No.	Topic to be covered
June - '21	Ι	1. వ్వ్యవస్థ 2. నిర్వహణ
July-'21	II	3. నాయకత్వం 4. అబ్యాసం
Aug-'21	IV	5. ప్రేరణ 6. వ్యక్తిత్వం 7. గ్రూపులు
Sep-'21	V	8. సంఘర్షణ 9. జట్టు నిర్మాణం

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF HINDI

SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: ENG101C

Title: GENERAL HINDI

Month	Unit No.	Topic to be covered
Dec-2020	Ι	साहित्यकीमहत्ता
	व्याकरण	विलोमशब्द
Jan - 2021	II	मुक्तिधन
	III	सच्चीवीरता
		लिंग
	व्याकरण	वचन
Feb-2021	IV	गूदडसाई
	V	मित्रता
	व्याकरण	काल
Mar-2021	VI	उसनेकहाथा
	ट्याकरण	पत्रलेखन
		अन्वाद

CURRICULAR PLAN

Subject Code:HIN 201C

Title: GENERAL HINDI

Month	Unit No.	Topic to be covered
T (01	Ι	संकृतिऔरसाहित्य
June - 21	II	जरिया
	व्याकरण	संधिविच्छेद
T 1 (01	III	भारतएकहै
July-21	IV	भूखहइताल
	व्याकरण	वाक्योंकीशुद्धि
Aug (21	V	एचआईवी/एड्सHIV/AIDS
Aug- 21	ट्याकरण	अनुवाद
		पत्रलेखन
		कारक
Sep-'21	VI	परमात्माकृता
		Rivision

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: HIN301C

Title : GENERAL HINDI

	Unit No.	Topic to be covered
Month		_
Nov 2020	Ι	कबीरदास-साखी
1NOV-2020	II	मातृभूमि
		अनुवाद
D 2020	III	सूरदासबालवर्णन
Dec-2020	IV	हिन्दीसाहित्यकाइतिहास
		ज्ञानाश्रयीशाखा
		प्रेमाश्रयीशाखा
Ing (21	V	मातृभाषाकेप्रति
Jan- 21	ट्याकरण	परिपत्र
		ज्ञापन
		सूचना
E.1. (21	VI	तोड़तीपत्थर
Feb- 21	मामान्यनितंध	समाचारपत्र
	(General	पर्यावरणऔरप्रदूषण
	essay s)	कंप्यूटर
	• •	बेकारीकीसमस्या

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF COMMERCE

2020-2021 CURRICULAR PLANS

SEMESTER – I

Subject Code: COMT11BTitle: FUNDAMENTALS OF ACCOUNTING

Month	Unit	Learning Units
Dec-2020	Ι	Introduction Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).
Jan - 2021	II	Subsidiary Books: Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).
Feb-2021	III	Trial Balance and Rectification of Errors: Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)
Mar-2021	IV	Bank Reconciliation Statement: Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).
April-21	V	Final Accounts: Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

Subject Code:COMT12ATitle: BusinessOrganization and Management

Month	Unit	Learning Units
Dec-2020	Ι	Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organization.
Jan - 2021	II	Forms of Business Organizations: Features, Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company.
Feb-2021	III	Company Incorporation: Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association – Content of Prospectus.

Mar-2021	IV	Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs. Management - Levels of Management.
April-21	V	Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organization – Line and staff of Organization.

Subject Code: Title: BusinessEnvironment

Month	Unit	Learning Units
Dec-2020	Ι	Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope -Macro and Micro Dimensions of Business Environment -Environmental Analysis- Purpose &Techniques.
Jan - 2021	II	Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans
Feb-2021	III	Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI
Mar-2021	IV	Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetization, GST and their Impact - Political Stability - Legal Changes
April-21	V	Global Environment: Globalization – Meaning – Role of WTO – WTO Functions -IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalization

$Subject\ Code: Title:\ \textbf{ENTREPRENEURSHIP}\ \textbf{DEVELOPMENT}$

Month	Unit	Learning Units
	Ι	Entrepreneurship: Entrepreneur characteristics – Classification of
		Entrepreneurships –Role of Entrepreneurship in economic development –Start-ups.
	II	IdeaGeneration and Project Formulation:Sources of New Ideas inEntrepreneurships – Techniques for generating ideas - Preparation of ProjectReport –Content; Guidelines for Report preparation – Project Appraisal techniques–Economic Analysis; Financial Analysis; Market Analysis
	III	Institutions Supporting and Taxation Benefits: Central level Institutions: NABARD; SIDBI, NSIC – state level Institutions –DICs- SFC- SSIDC- Government Policy for SSIs- tax Incentives and Concessions –Non-tax Concessions Rehabilitation and Investment Allowances.

Unit	Learning Units	Lecture Hours
Ι	Introduction to Online-Business-Definition-Characteristics- Advantages of Online Business-Challenges- Differences between off-line business, e-commerce and Online Business.	10
II	Online-business Strategies-Strategic Planning Process- Procurement -Logistics & Supply Chain Management- Customer Relationship management.	10
III	Designing Online Business Website – Policies - Security & Legal Issues - Online Advertisements - Payment Gateways - Case Study	10

Subject Code: CAA-302G/C Title: Advanced Accounting

	Unit	Learning Units
Month		
Nov-2020	Ι	Accounting for Non-Profit Organisations: Non-Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems)
Dec-2020	II	Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).
Jan-'21	III	Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems)
Feb-'21	IV	Partnership Accounts-I : Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner (including problems)
Mar-'21	V	Partnership Accounts-II : Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).

Subject Code: CBS-303G/C Title:Business Statistics

Month	Unit	Learning Units
Nov-2020	Ι	Introduction to Statistics: Definition, Importance and limitation of statistics, Collection of data, Schedule and questionnaire, Frequency distribution, Tabulation
Dec-2020	II	Measures of Central Tendency: Characteristics of measures of central tendency, Types of Averages, Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode
Jan-'21	III	Measures of dispersion and Skewness: Properties of dispersion, Range, Quartile Deviation, Mean deviation, Standard deviation, Coefficient of Variation, Skewness Definition, Karl Pearson's and Bowley's Measures Of skewness
Feb-'21	IV	Measures of Relation: Meaning and use of correlation, Types of correlation, Karl Pearson's correlation coefficient, Probable Error, Spearman's Rank correlation, Regression analysis comparison between correlation and Regression, Regression Equations
Mar-'21	V	Analysis of Time Series & Index Numbers Meaning and utility of time series, Components of Time series, Measurement of trend and Seasonal Variations, Techniques of Time series analysis, Methods of averages(Semi, Moving averages), Least square method, Index Numbers, Methods of Construction of Index numbers, Price index numbers, Limitations of index numbers

Subject Code: CM 304 G Title:Marketing

Month	Unit	Learning Units
Nov-2020	Ι	Introduction: Concepts of Marketing: Need, Wants and Demand - Marketing Concepts – Marketing Mix - 4 P's of Marketing – Marketing Environment.
Dec-2020	II	Consumer Behaviour and Market Segmentation : Buying Decision Process – Stages – Buying Behaviour – Market Segmentation –Bases of Segmentation - Selecting Segments – Advantages of Segmentation
Jan-'21	III	Product Management: Product Classification – Levels of Product - Product Life Cycle - New Products, Product Mix and Product Line Decisions - Design, Branding, Packaging and Labelling.

Feb-'21	IV	Pricing Decision : Factors Influencing Price – Determination of Price – Pricing Strategies: Skimming and Penetration Pricing.
Mar-'21	V	Promotion and Distribution: Promotion Mix - Advertising - Sales promotion - Publicity – Public Relations - Personal Selling and Direct Marketing - Distribution Channels – Online Marketing

Subject Code:CBL-501(U) Title Business Leadership

Unit	Learning Units
Ι	Unit-I: Introductory: Leadership - Traits, Skills and Styles-
	Leadership Development - Quanties of a Good Leader.
II	Unit-II: Decision-Making and Leadership: Leadership for
	Sustainability - Power, Influence, Impact - Leadership Practices -
	Organizations and Groups: Organizational Culture and Leadership
	- Leadership in Business Organizations
III	Unit-III: Special Topics: Profiles of a few Inspirational Leaders
	in Business – Jemshedji Tata - Aditya Birla - Swaraj Paul - L N
	Mittal - N R Narayana Murthy - AzimPremji, etc.

Subject Code: CCOA-502 G/C CTitle:Cost Accounting

Month	Unit	Learning Units
Nov-2020	Ι	Introduction : Distinguish between Financial Accounting, Cost Accounting and management accounting - Cost Concepts and Classification – Cost Centre and Cost Unit – Preparation of Cost Sheet.
Dec-2020	II	Elements of Cost: Materials : Material control – Selective control, ABC technique – Methods of pricing issues – FIFO, LIFO, Weighted average, Base stock methods, choice of method(including problems).
Jan-'21	III	Labour and Overheads: Labour: Control of labour costs – time keeping and time booking – Idle time –Methods of remuneration – labour incentives schemes - Overheads: Allocation and apportionment of overheads – Machine hour rate.
Feb-'21	IV	Methods of Costing: Job costing – Process costing - treatment of normal and abnormal process losses – preparation of process cost accounts – treatment of waste and scrap, joint products and by products (including problems).
Mar-'21	V	Costing Techniques : Marginal Costing – Standard costing – Variance Analysis (including problems).

Subject Code: CTAX 503 CCTitle: TAXATION

Month	Unit	Learning Units
Nov-2020	Ι	Introduction: Objectives - Principles of Taxation - Brief History - Basic Concepts; Capitaland Revenue; Basis of Charge - Exempted Incomes - Residential Status – Incidence of Taxation.
Dec-2020	II	Direct and Indirect Taxes – Service Tax – VAT – Central Sales Tax – Latest Developments.
Jan-'21	III	Computation of income under different heads: Income from Salary; Income from HouseProperty; Deductions u/s 80C to 80U - Income from Capital Gains; Income from Other Sources(simples problems).
Feb-'21	IV	Taxation System in India : Objectives; Tax Holiday; Modes of Tax Recovery (Section 190 and 202); Payments and Refunds; Filing of Returns.
Mar-'21	V	Tax Planning : Tax Avoidance and Tax Evasion; Penalties and Prosecutions; Income TaxAuthorities.

Subject Code: CGST-503G/CTitle :GOODS&SERVICE TAX FUNDAMENTALS

Month	Unit	Learning Units
Nov-2020	Ι	Introduction: Overview of GST - Concepts – Limitations of VAT – Need for Tax Reforms - Justification for introduction of GST - Shortcomings and advantages at the Central Level and State Level on introduction of GST- Process of Introduction of GST - Constitutional Amendments.
Dec-2020	II	GST:Principles – Models of GST: Austrlian, Candian, Kelkar-Shah – BagchiPoddar -Comprehensive structure of GST model in India: Single, Dual GST– Transactions covered under GST.
Jan-'21	III	Taxes and Duties : Subsumed under GST - Taxes and Duties outside the purview of GST: Tax on items containing Alcohol – Tax on Petroleum products - Tax on Tobacco products - Taxation of Services
Feb-'21	IV	Inter-State Goods and Services Tax : Major advantages of IGST Model – Interstate Goods and Service Tax: Transactions within a State under GST – Interstate Transactions under GST - Illustrations
Mar-'21	V	Time of Supply of Goods & Services : Value of Supply - Input Tax Credit – Distribution of Credit -Matching of Input Tax Credit - Availability of credit in special circumstances- Cross utilization of ITC between the Central GST and the State GST.

Month	Unit	Learning Units
Nov-2020	Ι	The Earth: Internal structure of the Earth – Latitude – Longitude – Realms of the Earth –Evolution of the Earth – Environmental pollution - Global Warming - Measures to be taken to protect the Earth.
Dec-2020	Π	India – Agriculture: Land Use - Soils - Major crops – Food and Non-food Crops – Importance of Agriculture – Problems in Agriculture – Agriculture Development.
Jan-'21	III	India – Forestry: Forests – Status of Forests in Andhra Pradesh – Forest (Conservation)Act, 1980 – Compensatory Afforestation Fund (CAF) Bill, 2015 - Forest Rights Act, 2006 and its Relevance – Need for protection of Forestry.
Feb-'21	IV	India – Minerals and Mining: Minerals – Renewable and non Renewable – Use of Minerals – Mines – Coal, Barites, etc. – Singareni Coal mines and Mangampeta Barites – Districtwise Profile.
Mar-'21	V	India – Water Resources – Rivers: Water resources - Rationality and equitable use of water – Protection measures - Rivers - Perennial and peninsular Rivers - Interlinking of Rivers -Experience of India and Andhra Pradesh.

Subject Code CCB 505CE G/C Title: Central Banking

Month	Unit	Learning Units
Nov-2020	Ι	Introduction: Evolution and Functions of Central Bank - Development of Central Banks in Developed and Developing countries - Trends in Central Bank Functions.
Dec-2020	II	Central banking in India: Reserve Bank of India - Constitution and Governance, Recent Developments, RBI Act Interface between RBI and Banks.
Jan-'21	III	Monetary and Credit Policies: Monetary policy statements of RBI - CRR - SLR – Repo Rates - Reverse Repo Rates - Currency in circulation - Credit control measures.
Feb-'21	IV	Inflation and price control by RBI: Intervention mechanisms - Exchange rate stability -Rupee value - Controlling measures.
Mar-'21	V	Supervision and Regulation: Supervision of Banks - Basle Norms, Prudential Norms, Effect of liberalization and Globalization - Checking of money laundering and frauds.

Month	Unit	Learning Units
Nov-2020	Ι	Rural Credit: Objectives and Significance of Rural credit - Classification of rural credit -General Credit Card (GCC) – Financial Inclusion - Rupay Card.
Dec-2020	II	Rural Credit Agencies: Institutional and Non-institutional Agencies for financingagriculture and Rural development - Self-Help Groups (SHG) - Financing for Rural Industries.
Jan-'21	III	Farm Credit: Scope - Importance of farm credit - Principles of Farm Credit - Types- Cost of Credit problems and remedial measures - Kisan Credit Card (KCC) Scheme
Feb-'21	IV	Sources of Farm Credit: Cooperative Credit: PACS - APCOB - NABARD SLBC- Lead Bank Scheme - Role of Commercial and Regional Rural Banks - Problems of recovery and over dues.
Mar-'21	V	Farm Credit Analysis: Eligibility Conditions - Analysis of 3 R's (Return, RepaymentCapacity and Risk-bearing Capacity) - Analysis of 3 C's of Credit (Character, Capacity and Capital) - Crop index reflecting use and farm credit - Rural Credit Survey Reports

Subject Code:CACC201G/C C Title :Financial Accounting

Month	Unit	Learning Units
June - '21	Ι	Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).
July-'21	II	Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors – Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).
Aug-'21	III	Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).
Sep-'21	IV	Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).
Oct-10	V	Joint Venture Accounts: Joint Venture - Features - Difference between Joint Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

Month	Unit	Learning Units
June - '21	Ι	Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope -Macro and Micro Dimensions of Business Environment -Environmental Analysis- Purpose &Techniques.
July-'21	II	Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans
Aug-'21	III	Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI
Sep-'21	IV	Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetization, GST and their Impact - Political Stability - Legal Changes
Oct-10	V	Global Environment: Globalization – Meaning – Role of WTO – WTO Functions -IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalization

Subject Code:CACC-201G/C C

Title: Accounting for Service Organizations

Month	Unit	Learning Units
	Ι	Non-Trading/ Service Organizations:
		Concept - Types of Service Organizations – Section (8) and other
June - 21		Provisions of Companies Act,2013.
	II	Electricity Supply Companies:
T 1 (01		Accounts of Electricity supply companies: Double Accounting system
July-'21		– Revenue Account – Net Revenue Account – Capital Account –
		General Balance Sheet (including problems).
	III	Bank Accounts
		Bank Accounts – Books and Registers to be maintained by Banks –
Aug-21		Banking Regulation Act, 1969 - Legal Provisions Relating to
		preparation of Final Accounts (including problems).
Sep-'21	IV	Life Insurance Companies
		Life Insurance Companies – Preparation of Revenue Account, Profit
		and Loss Account, Balance Sheet (including problems) – LIC Act,
		1956.
Oct-10	V	General Insurance
		Principles – Preparation of final accounts – with special reference to
		fire and marine insurance (including problems) – GIC Act, 1972.

Month	Unit	Learning Units
	Ι	Contract
T (01		Meaning and Definition of Contract-Essential elements of valid
June - 21		Contract -Valid, Void and Voidable Contracts - Indian Contract Act,
		1872 Definition of Valid Offer, Acceptance and Consideration -
		Essential elements of a Valid Offer, Acceptance and Consideration.
	II	Capacity of the Parties and Contingent Contract
		Rules regarding to Minors contracts - Rules relating to contingent
July-'21		contracts – Different modes of discharge of contracts-Rules relating to
		remedies to breach of contract.
	III	Sale of Goods Act 1930
		Contract of sale – Sale and agreement to sell – Implied conditions and
Aug-'21		warranties – Rights of unpaid vendor.
Sep-'21	IV	Consumer Protection Act, 1986
		Introduction, Aims and objectives of the Act - Definition -
		Consumer Rights - Unfair and restrictive trade practices - consumer
		protection Councils - Consumer disputes Redressal agencies -
		Penalties for violation.
Oct-10	V	Cyber Laws
		Cyber Law and Contract Procedures - Digital Signature - Safety
		Mechanisms

Subject Code: CIT-403G CTitle: Income Tax

Month	Unit	Learning Units
Nov-2020	Ι	Introduction: Income Tax Law – Basic concepts: Income, Person, Assesses, Assessment year, Agricultural Income, Residential status, Income exempt from tax (Theory only).
Dec-2020	II	Income from salary: Allowances, perquisites, profits in lieu of salary, deductions from salary income, computation of salary income and qualified savings eligible for deduction u/s 80C(Simple- problems).
Jan-'21	III	Income from House Property: Annual value, let-out/self occupied/deemed to be let-out house, deductions from annual value - computation of income from house property (Simple- problems)
Feb-'21	IV	Income from Capital Gains – Income from other sources – (from Individual point of view) -chargeability – and assessment (Simple- problems).
Mar-'21	V	Computation of total income of an individual – Deductions under section - 80 (Simple- problems).

Month	Unit	Learning Units
Nov-2020	Ι	Introduction Meaning & Definition of Bank – Functions of Commercial Banks – Kinds of Banks -Central Banking Vs. Commercial Banking.
Dec-2020	II	Banking Systems Unit Banking, Branch Banking, Investment Banking- Innovations in banking – e-banking - Online and Offshore Banking, Internet Banking - Anywhere Banking - ATMs- RTGS.
Jan-'21	III	Banking Development Indigenous Banking - Cooperative Banks, Regional Rural banks, SIDBI, NABARD -EXIM Bank.
Feb-'21	IV	Banker and Customer Meaning and Definition of Banker and customer – Types of Customers - GeneralRelationship and Special Relationship between Banker and Customer - KYC Norms.
Mar (21	V	Collecting Banker and Paying Banker
Mar-21		

Subject Code CBTP-401C CTitle: Banking Theory & Practice

Subject Code : CEM -601G/C C

Title: Event Management

Unit	Learning Units
Ι	Event Concept: Corporate Events and Customer's needs - Types of Events - Corporate hospitality – Exhibitions – Trade Fairs – Conferences –Business and Government Meets - Corporate event packages - Menu Selection - Customization.
II	. Outdoor Events: Logistics, Types of Outdoor events, Risk management - Health and safety, Marketing and sponsorship, HR Management, Programming and Entertainment.
III	Celebrity Events: Launches, Fashion shows, National festivals and high- profile charity events - Liaison with agents, Contract Negotiations, Client briefings, Celebrity wish lists and expectations - Liaisoning with Govt. Departments.

Title: Marketing

Month	Unit	Learning Units			
Nov-2020	Ι	Introduction: Concepts of Marketing: Product Concept – Selling Concept – Societal Marketing Concept – Marketing Mix - 4 P's of Marketing – Marketing			
Dec-2020	II	Consumer Markets and Buyer Behaviour: Buying Decision Process – Stages – Buying Behaviour – Market Segmentation – Selecting Segments – Advantages of Segmentation.			
Jan-'21	III	Product Management: Product Life Cycle - New products, Product mix and Product line decisions - Design, Branding, Packaging and Labelling.			
Feb-'21	IV	: Pricing Decision: Factors influencing price determination, Pricing strategies: Skimming and Penetration pricing.			
Mar-'21	V	Promotion and Distribution: Promotion Mix - Advertising - Publicity – Public relations - Personal selling and Direct marketing - Distribution Channels – Online marketing- Global marketing.			

Subject Code:CAU-603GE G/CTitle:Auditing

Month	Unit	Learning Units		
	Ι	Introduction : Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing – Accounting vs Auditing – Role of Auditor in Checking		
Nov-2020		Corporate Frauds.		
	II	Types of Audit : Based on Ownership, Time and Objective - Independent, Financial, Internal, Cost, Tax, Government, Secretarial Audits		
Dec-2020				
	III	Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme Audit Note Book Audit Working Papers Audit Evidence		
Jan-'21		Internal Check, Internal Audit and Internal Control.		
	IV	Vouching and Investigation : Definition and Importance of Vouching – Objectives of Vouching - Vouching of Cash and Trading Transactions – Investigation -		
Feb-'21		Auditing vs. Investigation		
	V	Company Audit and Auditors Report : Auditor's Qualifications – Appointment and Reappointment – Rights, Duties, Liabilities and Disqualifications - Audit		
Mar-'21		Report: Contents – Preparation - Relevant Provisions of Companies Act, 2013.		

Month	Unit	Learning Units				
Nov-2020	Ι	Management Accounting: Interface with Financial Accounting and Cost Accounting - Financial Statement analysis and interpretation: Comparative analysis – Common size analysis and trend analysis (including problems).				
Dec-2020	II	Ratio Analysis: Classification, Importance and limitations - Analysis and interpretation of Accounting ratios - Liquidity, profitability, activity and solvency ratios (including problems).				
Jan-'21	III	Fund Flow Statement: Concept of fund: Preparation of funds flow statement. Uses and limitations of funds flow analysis (including problems).				
Feb-'21	IV	Cash Flow Statement: Concept of cash flow – Preparation of cash flow statement – Uses and limitations of cash flow analysis (including problem				
Mar-'21	V	Break-Even Analysis and Decision Making: Calculation of Break-even point - Uses and limitations - Margin of safety – Make/Buy Decision - Lease/own Decision (including Problems).				

Subject Code : CFS 605 CE G/C TitleFinancial Services

Month	Unit	Learning Units
Nov-2020	Ι	Financial Services: Role of Financial Services - Banking and Non Banking Companies – Activities of Non Banking Finance Companies- Fund Based Activities - Fee Based Activities .
Dec-2020	II	Merchant Banking Services: Scope and importance of merchant banking services - Venture Capital - Securitization - Demat services - Commercial Papers – Treasury bills
Jan-'21	III	Leasing and Hire-Purchase: Types of Lease, Documentation and Legal aspects – Fixation of Rentals and Evaluation - Hire Purchasing- Securitization of debts - House Finance.
Feb-'21	IV	Credit Rating: Purpose – Types – Credit Rating Symbols – Agencies: CRISIL and CARE – Equity Assessment vs. Grading – Mutual funds.
Mar-'21	V	Break-Even Analysis and Decision Making: Calculation of Break-even point - Uses and limitations - Margin of safety – Make/Buy Decision - Lease/own Decision (including Problems).

Subject Code : CMFS 606 CE G/C

Title: Marketing of Financial Services

Month	Unit	Learning Units
	Ι	Difference between Goods and Services: Managing Service Counters –
Nov-2020		Integrated Service Management – Service Elements.
Dec-2020	II	:Constructing Service Environment – Managing People for service Advantage – Service Quality and Productivity – Customer Loyalty.
Jan-'21	III	Pricing and Promotion Strategies: Pricing strategies – Promotion strategies – B2B Marketing – Marketing Planning and Control for services.
Feb-'21	IV	Distributing Services: Cost and Revenue Management – Approaches for providing services - Channels for Service provision – Designing and managing Service Processes.
Mar-'21	V	: Retail Financial Services - Investment services – Insurance services - Credit Services - Institutional Financial Services - Marketing practices in select Financial Service Firms.

DEPARTMENT OF ECONOMICS

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: ECO - 101C. Title: MICRO ECONOMIC ANALYSIS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	ECONOMIC ANALYSIS and METHODOLOGY
Ian - 2021	п	THEORY OF CONSUMPTION
Jaii - 2021	11	THEORY OF CONSOMETION
Feb-2021		
	III	THEORY OF PRODUCTION
Mar-2021		
	IV	THEORY OF EXCHANGE
	V	THEORY OF DISTRIBUTION
April-21		
	V	THEORY OF DISTRIBUTION

2020-2021 CURRICULAR PLAN Subject Code: ECO - 201C. Title: MACRO ECONOMIC ANALYSIS

	TT •4	
Month	Unit	Topic to be covered
	No.	
JUNE - 21	Ι	
		NATIONAL INCOME
JULY - 21	II	THEORY OF EMPLOYMENT
	II	THEORY OF EMPLOYMENT
AUGUST - 21		
	III	MONEY and BANKING
SEPTEMBER - 21	IV	INFLATION and TRADE CYCLES
	V	FINANCE and INSURANCE
OCTOBER - 21	V	FINANCE and INSURANCE

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF ECONOMICS

SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code: ECO - 301C Title :- DEVELOPMENT ECONOMICS

	Unit No.	Topic to be covered
Month		-
Nov-2020	Ι	ECONOMIC GROWTH and DEVELOPMENT
Dec-2020	II	MODERN ECONOMIC GROWTH
Jan-'21	III	MODERN ECONOMIC GROWTH THEORIES OF
		DEVELOPMENT and UNDER DEVELOPMENT
Feb-'21	IV	STRATEGIES OF ECONOMIC DEVELOPMENT
Mar-'21	V	INSTITUTIONS and ECONOMIC DEVELOPMENT

2020-21 CURRICULAR PLAN

Subject Code: ECO - 401C

Title : BANKING and INTERNATIONAL TRADE

Month	Unit No.	Topic to be covered
JUNE - 21	Ι	TRADE CYCLES and INFLATION
JULY - 21	Π	BANKING
AUGUST - 21	III	NON BANKING FINANCIAL INSTITUTIONS
SEPTEMBER - 21	IV V	CONCEPTS OF SHARES - DEBENTURES MACRO ECONOMIC POLICY
OCTOBER - 21	V	MACRO ECONOMIC POLICY

SEMESTER – V

2020-2021 CURRICULAR PLAN

Subject Code: ECO - 501C

Title : ECONOMIC DEVELOPMENT and INDIAN ECONOMY

Month	Unit No.	Topic to be covered
Nov-'20	Ι	CONCEPT OF ECONOMIC GROWTH
Dec-'20	II	SUSTAINABLE DEVELOPMENT
Jan-'21	III	BASIC FEATURES OF INDIAN ECONOMY
Feb-'21	IV	NATIONAL INCOME IN INDIA
	V	ECONOMIC REFORMS
Mar -21	V	ECONOMIC REFORMS

$\boldsymbol{SEMESTER-V}$

2020-21 CURRICULAR PLAN

Subject Code: ECO - 502C

Title : INDIAN and ANDHRAPRADESH ECONOMY

Month Unit No.

Topic to be covered

Nov-'20		
	Ι	INDIAN AGRICULTURE
Dec-'20	II	STRUCTURE and GROWTH OF INDIAN
		INDUSTRI
	III	DISINVESTMENT IN INDIA
Jan-'21		
Feb-'21	IV	PLANING IN INDIAN ECONOM
	V	ANDHRA PRADESH ECONOMY Y
Mar -21	V	ANDHRA PRADESH ECONOMY

SEMESTER – VI 2020-21 CURRICULAR PLAN

Subject Code: ECO – 601GE Title : AGRICULTURAL ECONOMICS

Month	Unit No.	Topic to be covered
JUNE - 21	Ι	NATURE and SCOPE OF AGRICUITURAL ECONOMICS
JULY - 21	II	CONCEPT OF PRODUCTION FUNCTION
AUG - 21	III	GROWTHB and PRODUCTIVITY TRENDS Iin INDIAN AGRICULTURE
SEP- 21	IV V	SYSTEMS OF FARMING EMERGING TRENDS IN PRODUCTION
OCT - 21	V	EMERGING TRENDS IN PRODUCTION

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF HISTORY

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: HIS - 101C. Title: ANCIANT INDIAN HISTORY and CULTURE

(FROM INDUS VALLEY CIVILIZATION)

Month	Unit No.	Topic to be covered
Dec-2020	Ι	ANCIENT INDIAN CIVILIZATION
Jan - 2021	II	ANCIENT INDIAN HISTORY & CULTURE
F 1 0001		
Feb-2021		
	III	HISTORY& CULTURE OF SOUTH INDIA
Mar-2021		
	IV	
		INDIA FROM 3 rd CENTURY AD TO 8 th CENTURY AD
April-21		HISTORY & CULTURE OF SOUTH INDIA
*	V	

DEPARTMENT OF HISTORY

SEMESTER – II 2020-2021 CURRICULAR PLAN Subject Code: HIS- 201C Title: MEDIEVAL INDIAN HISTORY& CULTURE (1206A.D to 1764A.D)

3.6	T T 4 .	
Month	Unit	Topic to be covered
	No.	
JUNE - 21	Ι	
		IMPACT OF TURKISH INVASION
JULY - 21	Π	IMPACT OF ISLAM ON INDIAN SOCIETY AND CULTURE
AUGUST - 21	III	EMERGENCE OF MUGHAL EMPIRE
SEPTEMBER - 21	IV	MUGHALs ADMINISTRATION – RISE OF MARATHAS
OCTOBER - 21	V	INDIA UNDER COLONIAL HEGEMONY

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: HIS - 301C Title :- MODERN INDIAN HISTORY & CULTURE(1764-1947 A.D)

	Unit No.	Topic to be covered
Month		
Nov-2020	Ι	1857 REVOLTS

Dec-2020	II	SOCIOAL, RELIGIOUS & SELF – RESPECT MOVEMENTS
Jan-'21	III	CAUSES FOR THE GROWTH OF NATIONALISM
Feb-'21	IV	FREEDOM STRUGGLE FROM 1920 to 1947
Mar-'21	V	MUSLIM LEAGUE& THE GROWTH OF COMMUNALISM

SEMESTER – IV

2020-21 CURRICULAR PLAN

Subject Code: HIS- 401C

Title SOCIAL REFORM MOVEMENT &FREEDOM STRUGGLE

Month	Unit No.	Topic to be covered
JUNE - 21	Ι	SOCIO RELIGIOUS & SELF RESPECT MOVEMENT
JULY - 21	II	GROWTH OF NATIONALISM
AUGUST - 21	III	FREEDOM STRUGGLE (1885-1920)
SEPTEMBER - 21	IV	FREEDOM STRUGGLE (1920- 1947)
OCTOBER - 21	V	MUSLIM LEAGUE & GROWTH OF COMMUNALISM

DEPARTMENT OF HOSTORY SEMESTER – V

CURRICULAR PLAN

Subject Code: HIS-502 C Title : HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)

Month	Unit No.	Topic to be covered
Nov-'20	Ι	ANDHRA THROUGH 16 th & 19 th
		CENTURIES AD
Dec-'20	II	ANDHRA UNDER BRITISH RULE
Jan-'21	III	SOCIAL REFORM & NEW LITERARY MOVEMENTS
Feb-'21	IV	FREEDOM MOVEMENT IN ANDHRA
Mar -21	V	MOVEMENT FOR SEPARATE ANDHRA STATE

SEMESTER – VI

2020-21 CURRICULAR PLAN

Subject Code:HIS- 601GE Title : HISTORY OF MODERN EUROPE (FROM 19th CENTURY to 1945 A.D)

Month	Unit No.	Topic to be covered
JUNE - 21		
	Ι	INDUSTRIAL REVOLUTION

JULY - 21	II	UNIFICATION MOVEMENT IN ITALY & GERMANY
AUG - 21	III	COMMUNIST REVOLUTION IN RUSSIA
SEP- 21	IV	WORLD WAR 1
OCT - 21	V	WORLD WAR 2

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF POLITICAL SCIENCE SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: POL - 101C.

Title: Basic Concepts of Political Science

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Introduction scope of Political Science
Jan 2021	п	State Theories of Origin of the state
Jan - 2021	11	State-Theories of Origin of the state
Feb-2021		Sovereignty
	III	
Mar-2021		
	IV	Law, Liberty & Equality
April-21		
	V	Rights & Duties

DEPARTMENT OF POLITICAL SCIENCE SEMESTER – II 2020-2021 CURRICULAR PLAN Subject Code: POL - 201C. Title: Concept Theories and Institutions

Month	Unit No.	Topic to be covered
JUNE - 21	Ι	
		Democracy
		· · · · · · · · · · · · · · · · · · ·

JULY - 21	II	Ideology
AUGUST - 21	III	Constitutionalism
SEPTEMBER - 21	IV	Executive
OCTOBER - 21	V	Popular Control

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DEPARTMENT OF POLITICAL SCIENCE SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code :- 301C Title :- Indian costitution

	Unit No.	Topic to be covered
Month		-
Nov-2020	Ι	Introduction of Constitution
Dec-2020	II	Philosophy of Indian Constitution
Jan-'21	III	Union Government
Feb-'21	IV	Centro and State
Mar-'21	V	Judiciary

DEPARTMENT OF POLITICAL SCIENCE SEMESTER – IV 2020-21 CURRICULAR PLAN

Subject Code: POL - 401C Title : Indian Political Process

Month	Unit No.	Topic to be covered
JUNE - 21	Ι	Introduction to Indian Party System

JULY - 21	II	Elections in India
AUGUST - 21	III	Politiocal Parties in India
SEPTEMBER - 21	IV	Voting Behaviour
OCTOBER - 21	V	Trends in Political System

DEPARTMENT OF POLITICAL SCIENCE SEMESTER – V 2020-2021 CURRICULAR PLAN

Subject Code POL- 501C Title : Indian Political Taught

Month	Unit No.	Topic to be covered
Nov-'20	Ι	
		Manudharma Kotilya Ardhasasthra
Dec-'20	II	
		Gandhi Sathyagraha Jyothirao pule Social Reforms
Jan-'21	III	Nehre Non-Alignment Ambedkar Social Momment
Feb-'21	IV	
	V	M.N Roy Radical Humanism
		Jaya Prakash Narayana Sarvodaya

DEPARTMENT OF POLITICAL SCIENCE SEMESTER – V 2020-21 CURRICULAR PLAN

Subject Code: POL - 502C

Title : Westren Political Taught

Month	Unit No.	Topic to be covered
Nov-'20		
	Ι	Plato Dharma Educational System Ideal State
Dec-'20	II	Aristotle Ideal State Theory of Revolutions

Jan-'21	III	Machiavelli Political ideas Hobbes, lock Rousseau Social Contract Theories
Feb-'21	IV	Hegel Civil Society KarlMarx Communuism

DEPARTMENT OF POLITICAL SCIENCE

SEMESTER – VI

2020-21 CURRICULAR PLAN

Subject Code: POL – 601GE Title : Local Self Government in Andhra Pradesh

Month	Unit No.	Topic to be covered
JUNE - 21		
	Ι	Local Self Government uses, Three Tire System in
		Local Self Government
		73 rd and 74 th Amendments in Rural and Urban Local
JULY - 21	II	Self Governments
	Ш	Structure and Functions of Panchavathi Rai in Andhra
AUG - 21		Pradesh
		Structure and Functions of Urban Local Bodiesin
SEP- 21	IV	Andhra Pradesh
OCT-21	V	Role of Leader Ship and Emerging Challenges

DEPARTMENT OF POLITICAL SCIENCE

SEMESTER – VI

2020-21 CURRICULAR PLAN

Subject Code: POL – 602CE Title : International Relations

Month	Unit No.	Topic to be covered
JUNE - 21		
	Ι	Basic Concept of International Relations
JULY - 21	II	Approaches to the study of International Relations

	III	International Relations 1914-1945
AUG - 21		
		International Relations 1945 Onwards
SEP- 21	IV	
OCT-21	V	International Organizations

DEPARTMENT OF POLITICAL SCIENCE

SEMESTER – VI

2020-21 CURRICULAR PLAN

Subject Code: POL –603CE Title : Indian Foreignn Policy

Month	Unit No.	Topic to be covered
JUNE - 21		
	Ι	Evolution of Indian Foreignn Policy
		Non Alignment and UNO
JULY - 21	II	
	III	Indias Relation with USA and China
AUG - 21		
		India and her Neighbours
SEP- 21	IV	

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF ENVIRONMENTAL STUDIES

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: HVPE-101. Title: HUMAN VALUES AND PROFESSIONAL ETHICS

Month	Unit No.	Topic to be covered
Dec-2020	I	Value Education, Definition, Concept and Need
		for Value Education 2. The Content and Process
		of Value Education 3. Self-Exploration as a
		means of Value Education 4. Happiness and
		Prosperity as parts of Value Education
		ANCIENT INDIAN CIVILIZATION
Jan - 2021	II	Human Being is more than just the Body 2.

		Harmony of the Self ('I') with the Body 3. Understanding Myself as Co-existence of the Self and the Body 4. Understanding Needs of the Self and the Needs of the Body
Feb-2021	111	 Family as a basic unit of Human Interaction and Values in Relationships 2. The Basics for respect and today's Crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love 3. Comprehensive Human Goal : The Five dimensions of Human Endeavour
Mar-2021	IV	. The Basics for Ethical Human conduct 2. Defects in Ethical Human Conduct 3. Holistic Alternative and Universal order 4. Universal Human Order and Ethical Conduct
April-21	V	 Value Based Life and Profession 2. Professional Ethics and Right Understanding 3. Competence in Professional Ethics 4. Issues in Professional Ethics – The Current scenario 5. Vision for Holistic Technologies, Production System and Management Models

DEPARTMENT OF ENVIRONMENTAL STUDIES

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: ENE-301 Title: ENVIRONMENTAL EDUCATION

Nov-2020	Unit No.	Topic to be covered
Dec-2020	Ι	Multidisciplinary nature of environmental education;
Jan-'21		scope and importance. 2. Man as an integral product
		and part of the Nature. 3. A brief account of land,
		forest and waterresources in India and their
		importance. 4. Biodiversity : Definition; importance
		of Biodiversity - ecological, consumptive, productive,
		social, ethical and moral, aesthetic, and option value.
		5. Levels of Biodiversity: genetic, species and
		ecosystem diversity.
Feb-'21		1. Human population growth and its impacts on
Mar-'21	II	environment; land use change, land degradation, soil
		erosion and desertification. 2. Use and over-
		exploitation of surface and ground water,

Nov-2020	III	construction of dams, floods, conflicts over water (within India). 3. Deforestation: Causes and effects due to expansion of agriculture, firewood, mining, forest fires and building of new habitats. 4. Non- renewable energy resources, their utilization and influences. 5. A brief account of air, water, soil and noise pollutions; Biological, industrial and solid wastes in urban areas. Human health and economic risks. 6. Green house effect - global warming; ocean acidification, ozone layer depletion, acid rains and impacts on human communities and agriculture. 7. Threats to biodiversity: Natural calamities, habitat destruction and fragmentation, over exploitation, hunting and poaching, introduction of exotic species, pollution, predator and pest control 1. Concept of sustainability and sustainable development with judicious use of land, water and forest resources; afforestation. 2. Control measures for various types of pollution; use of renewable and alternate sources of energy. 3. Solid waste management: Control measures of urban and industrial waste. 4. Conservation of biodiversity: In- situ and ex-situ conservation of biodiversity. 5. Environment Laws: Environment Protection Act; Act; Wildlife Protection Act; Forest Conservation Act. 6. International agreements: Montreal and Kyoto protocols; Environmental movements: Bishnois of Raiasthan, Chipko, Silent valley.
		Kyoto protocols; Environmental movements: Bishnois of Rajasthan, Chipko, Silent valley.

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU DEPARTMENT OF MATHEMATICS

SEMESTER – I 2020-2021 CURRICULAR PLANS

Subject Code:MAT101C

Title: Differential Equations

Month	Unit No.	Topic to be covered
Jan - 2021	III	Bridge Course and basic definitions of D.E
Feb-2021	III	Higher order linear differential equations - I
Mar-2021	IV	Higher order linear differential equations - II
April-2021	V	Higher order linear differential equations – III
	Ι	D.E of First order and First degree
May - 2021	II	Orthogonal Trajectories, D.E of First order and but not of
		First degree

SEMESTER - II

CURRICULAR PLAN

Subject Code:MAT 201C

Title: SOLID GEOMETRY

Month Unit No.

Topic to be covered

June - '21	Ι	The Planes
July-'21	II	The Lines
Aug-'21	II	The Lines
	III	The Sphere
Sep-'21	III	The Sphere
	IV	The Cone - I
Oct - '21	V	The Cone - II

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: MAT 301C Title: Abstract Algebra and Real Analysis - I

Unit No.	Topic to be covered
	_
Ι	The Groups
II	The Sub Groups and Cosets and Lagrange's theorem
III	Normal Sub Groups
IV	Real Numbers, Sequences and Series
V	Infinite Series
	Unit No. I II III IV V

SEMESTER - IV

2020-2021 CURRICULAR PLAN

Subject Code: MAT401C

Title : Abstract Algebra and Real Analysis - II

Month	Unit No.	Topic to be covered
May – '21	Ι	Homeomorphisms and Isomorphisms
June - '21	II	Permutations Groups and Cyclic Groups
July-'21	III	Limits and Continuity
-	IV	Differentiation and Mean Value theorems
Aug-'21	V	Riemann Integration

SEMESTER - IV

2020-2021 CURRICULAR PLAN

Subject Code: ANS402C

Title : Analytical Skills

Month	Unit No.	Topic to be covered
May – '21	Ι	Test of Reasoning - I
June - '21	II	Test of Reasoning - II
July-'21	III	Arithmetic Ability
-	IV	Quantitative Aptitude
Aug-'21	V	Business Computations

SEMESTER - V

2020-2021 CURRICULAR PLAN

Subject Code: MAT 501C Title: Ring Theory and Vector Calculus

Month	Unit No.	Topic to be covered
Nov-2020	Ι	Vector differentiation

Dec-2020	II	Vector Integration
Jan-'21	III	Vector Integration and its applications
Feb-'21	IV	Rings - I
Mar-'21	V	Rings - II

$\mathbf{SEMESTER}-\mathbf{V}$

2020-2021 CURRICULAR PLAN

Subject Code: MAT 502C

Title: Linear Algebra

	Unit No.	Topic to be covered
Month		
Nov-2020	Ι	Matrices
Dec-2020	II	Vector Space - I
Jan-'21	III	Vector Space - II
Feb-'21	IV	Linear Transformations
Mar-'21	V	Inner Product Space

SEMESTER – VI

2020-2021 CURRICULAR PLAN

Subject Code: MAT601GE

Title :Numerical Analysis

Month	Unit No.	Topic to be covered
May - '21	Ι	Errors in Numerical Computations
-	II	Solution of Algebraic and Transcendental equations
June - '21	III	Finite Differences and Interpolation
July-'21	IV	Central Differences
Aug-'21	V	Interpolation with unequal intervals

SEMESTER – VI

2020-2021 CURRICULAR PLAN

Subject Code: MAT602CE

Title :Integral Transforms

Month	Unit No.	Topic to be covered
May - '21	Ι	Application of L.T to solutions of D.E - I
June - '21	II	Application of L.T to solutions of D.E - II
July-'21	III	Application of L.T to solutions of I.E I
	IV	Fourier Transforms - I
Aug-'21	V	Fourier Transforms - II

SEMESTER – VI

2020-2021 CURRICULAR PLAN

Subject Code: MAT603CE

Title : Advanced Numerical Analysis

Month	Unit No.	Topic to be covered
May – '21	Ι	Curve fitting
	II	Numerical Differentiation
June - '21	III	Numerical Integration
July-'21	IV	Solutions of Simultaneous linear systems of equations
Aug-'21	V	Numerical solution of O.D.E

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DEPARTMENT OF PHYSICS

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code : PHY 101C Title: Mechanics, waves & oscillations

Month	Unit No.	Topic to be covered
Dec-2020	Ι	 Mechanics of Particles Review of Newton's Laws of Motion, Motion of variable mass system, Motion of a rocket, Multistage rocket, Concept of impact parameter, scattering cross-section, Rutherford scattering-concept only. Mechanics of Rigid bodies Rigid body, rotational kinematic relations, Equation of motion for a rotating body, Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of atom and nucleus in magnetic field, Precession of the equinoxes
Jan - 2021	II	3. Motion in a Central Force Field Central forces, definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force, Kepler's laws of planetary motion- Proofs, Kepler's third law from inverse-square law of Gravitation. Motion of satellites, Basic idea of Global Positioning System (GPS).
Feb-2021	III	Introduction to relativity, Frames of reference, Galilean transformations, absolute frames, Michelson-Morley experiment, Postulates of Special theory of relativity, Lorentz transformation, time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation
Mar-2021	IV	 5. Undamped, Damped and Forced oscillations: Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator, Forced harmonic oscillator – Their differential equations and solutions, Resonance, Logarithmic decrement, Relaxation time and Quality factor. 6. Coupled oscillations: Coupled oscillators-Introduction, Two coupled oscillators, N-coupled oscillators and wave equation.
		7. Vibrating Strings: Transverse wave propagation along a stretched string, General solution of wave equation and its significance, Modes of vibration of stretched string clamped at ends, Overtones and Harmonics, Melde's strings.

April-21	V	
		8. Ultrasonics:
		Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics
		by piezoelectric and magnetostriction methods, Detection of ultrasonics,
		Applications of ultrasonic waves, Ultrasonic interferometer.

<u>SEMESTER – II</u>

CURRICULAR PLAN

Subject Code : PHY-201C

Title: WAVE OPTICS

Month	Unit No.	Topic to be covered
June -'21	Ι	 Aberrations: Introduction – monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration-the achromatic doublet. Achromatism for two lenses (i) in contact and (ii) separated by a distance. Interference : Division of wavefront: Principle of superposition-coherence-conditions for interference of lightFresnel's biprism-determination of wavelength of light. Determination of thickness of a transparent material using biprism –Determination of the thickness of a thin sheet of transparent material. Change of phase on reflection – Stoke's Law.
July-'21	III	3. Division of Amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (cosine law) –colors of thin films-Non reflecting films-interference by a plane parallel film illuminated by a point source- Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film). Determination of diameter of wire- Newton's rings in reflected light- Determination of wavelength of monochromatic light. Michelson interferometer- Determination of wavelength of monochromatic light.
Aug-'21	IV	4. Diffraction: Introduction, distinction between Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction –Diffraction due to single slit and circular aperture-Limit of resolution-Fraunhoffer diffraction due to double slit-Fraunhoffer diffraction pattern with N slits (diffraction grating). Resolving power of grating-Determination of wavelength of light in normal and oblique incidence methods using diffraction grating. Fresnel's half period zones-area of the half period zones-zone plate-comparison of zone plate with convex lens-difference between interference and diffraction.
		5. Polarisation :
		Polarized light: methods of polarization polarization by reflection, refraction, double refraction, scattering of light-
Sep-'21	V	Brewster's law-Mauls law-Nicol prism polarizer and analyzer- Quarter wave plate, Half wave plate-optical activity, analysis of light by Laurent's half shade polarimeter-Babinet's compensator.
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1		6. Lasers and Holography:
		Lasers: introduction, spontaneous emission, stimulated emission. Population Inversion, Laser principle-Einstein coefficients-Types of lasers-He-Ne laser, Ruby laser- Applications of lasers. Holography: Basic principle of holography-Gabor hologram and its limitations, Applications of holography

<u>SEMESTER – III</u>

CURRICULAR PLAN

Subject Code: PHY-301C

Title: WAVE OPTICS

Month	Unit No.	Topic to be covered
	Ι	1. Aberrations: Introduction – monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration-the achromatic doublet. Achromatism for two lenses (i)in contact and (ii) separated by a distance.
NOV-20	Π	2. Interference : Division of wavefront: Principle of superposition-coherence-conditions for interference of light. Fresnel's biprism-determination of wavelength of light. Determination of thickness of a transparent material using biprism –Determination of the thickness of a thin sheet of transparent material. Change of phase on reflection – Stoke's Law.
DEC-20	III	3. Division of Amplitude: Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (cosine law) –colors of thin films-Non reflecting films-interference by a plane parallel film illuminated by a point source- Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film). Determination of diameter of wire- Newton's rings in reflected light- Determination of wavelength of monochromatic light. Michelson interferometer- Determination of wavelength of monochromatic light.
JAN-'21	IV	4. Diffraction: Introduction, distinction between Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction –Diffraction due to single slit and circular aperture-Limit of resolution-Fraunhoffer diffraction due to double slit-Fraunhoffer diffraction pattern with N slits (diffraction grating). Resolving power of grating-

		Determination of wavelength of light in normal and oblique incidence methods using diffraction grating.Fresnel's half period zones-area of the half period zones-zone plate- comparison of zone plate with convex lens-difference between interference and diffraction.
		5.Polarisation :
FEB-'21	V	Polarized light: methods of polarization polarization by reflection, refraction, double refraction, scattering of light- Brewster's law-Mauls law-Nicol prism polarizer and analyzer- Quarter wave plate, Half wave plate-optical activity, analysis of light by Laurent's half shade polarimeter-Babinet's compensator.
		6. Lasers and Holography:
		Lasers: introduction spontaneous emission, stimulated emission.
		Population Inversion, Laser principle-Einstein coefficients-Types
		of lasers-He-Ne laser, Ruby laser- Applications of lasers.
		Holography: Basic principle of holography-Gabor hologram and
		its limitations, Applications of holography
MAR-21	V	

2020-2021 CURRICULAR PLAN

Subject Code: PHY-401C Title: Thermodynamics & Radiation physics

Month	Unit No.	Topic to be covered
Apr-2021	Ι	1.Kinetic theory of gases Introduction –Deduction of Maxwell's law of distribution of molecular speeds, Transport phenomena-Viscosity of gases- thermal conductivity-diffusion of gases.
		2. Thermodynamics
May-2021	Π	Introduction- Isothermal and adiabatic process- Reversible and irreversible processes-Carnot's engine and its efficiency- Carnot's theorem-Second law of thermodynamics. Kelvin's and Claussius statements-Entropy, physical significance – Change in entropy in reversible and irreversible processes- Entropy and disorder-Entropy of Universe-Temperature- Entropy (T-S) diagram-Change of entropy of a perfect gas- change of entropy when ice changes into steam.
		3. Thermodynamic potentials and Maxwell's equations
Jun-2021	III	Thermodynamic potentials-Derivation of Maxwell's thermodynamic relations-Clausius-Clayperon's equation- Derivation for ratio of specific heats-Derivation for difference of two specific heats for perfect gas. Joule Kelvin effect-expression for Joule Kelvin coefficient for perfect.

		4. Low temperature Physics
Jul-2021	IV	Introduction-Joule Kelvin effect-liquefaction of gas using porous plug experiment Joule expansion-Distinction between adiabatic and Joule Thomson expansion-Expression for Joule Thomson cooling-Liquefaction of helium, Kapitza's method- Adiabatic demagnetization, Production of low temperatures - applications of substances at low-temperature-effects of chloro and fluoro carbons on ozone layer.
		5. Quantum theory of radiation
Jul-2021	V	Blackbody-Ferry's black body-distribution of energy in the spectrum of black body-Wein's displacement law, Wein's law, Rayleigh-Jean's law-Quantum theory of radiation- Planck's law-Measurement of radiation-Types of pyrometers –Angstrom pyroheliometer-determination of solar constant, Temperature of Sun.

<u>SEMESTER – V</u>

2020-2021 CURRICULAR PLAN

Subject Code : PHY 501C Title : Electricity, Magnetism and Electronics

1		
Dec-2020	Ι	 1.Electrostatics Gauss's law Statement and its proof-Electric field intensity due to (1) Uniformly charged sphere and (2) an infinite conducting sheet of charge. Electric potential- Equipotential surface – potential due to i) a point charge ii)charged spherical shell. 2.Dielectrics Electric dipolement and molecular polarizability- Electric displacement D, electric polarization P – relation between D, E, and P- Dielectric constant, susceptibility.
Jan - 2021	Π	 3. Electric and magnetic field Biot – Savart's law and calculation of B due to long straight wire, a circular current loop and solenoid. Hall effect-determination of Hall coefficient and applications. 4.Electromagneticinduction Faraday's law – Lenz's law self and mutual inductance, coefficient of coupling, calculation of self inductance of a long solenoid, energy stored in magnetic field. Tansformer- energy losses and efficiency.
Feb-2021	III	 5.Alternating current and electro magnetic waves Alternating current –Relation between current and voltage in LR and CR circuits, vector diagrams, LCR series and parallel resonant circuit, Q- factor, power in AC circuits. 6.Maxwell's equations

		Idea of displacement current- Maxwell's equations (integral and differential forms) (no derivation) Maxwell's wave equation(with derivation), Transverse nature of electromagnetic wave. Pointing Vector (statement and proof) production of electromagnetic wave Hertz experiment.
Mar-2021	IV	7.Basic electronics: PN junction diode Zener diode ,I-V characteristics, PNP and NPN Transistors, CB,CE and CC configuration Relation between α β and Γ transistors (CE) characteristics,Transistor as an amplifier.
April-21	V	Digital electronics: Number systems-conversion of binary to decimal system and vice versa. Binary addition and subtraction (1's and 2's complement methods) laws of Boolean algebra-De Morgan's laws- statement and proof basic logic gates, NAND and NOR as universal gates Half adder and FULL adder.

<u>SEMESTER – V</u>

2020-2021 CURRICULAR PLAN

Subject Code: PHY- 502C Title : MODERN PHYSICS

Dec-2020	Ι	 1. Atomic and molecular physics Introduction – Drawbacks of Bohr's atomic model – Sommerfeld's elliptical orbits- relativistic correction (no derivation). Vector atom model and Stern & Gerlach experiment quantum numbers associated with it. L-S and j-j coupling schemes. Zeeman Effect and its experimental study. Raman effect, stokes and Anti stokes lines. Quamtum theory of Raman effect. Experimental arrangement – Applications of Raman effect.
Jan - 2021	П	 2. Matter waves & Uncertainty Principle Matter waves, de Broglie's hypothesis – wavelength of matter waves, Properties of matter waves – Davisson and Germer experiment, uses of electron diffraction-Phase velocity and Group velocity (definitions only)- relation between phase velocity and Group velocity–Heisenberg's uncertainty principle for position and momentum (x and p) & energy and time (E and t). Experiment verification.
Feb-2021	III	3.Quantum (wave) mechanics Basic postulates of quantum mechanics – Schrodinger time independent and time dependent wave equation – derivations. Physical interpretation of wave function. Applications of Schrodinger wave equation to particle in one dimensional infinite box. Harmonic oscillator.
		4.General properties of Nuclei Basic ideas of nucleus – size,mass,charge density(matter energy),

IV	binding energy, angular momemtum, parity, magnetic moment, electric quadrupole moments. Liquid drop model and shell model (qualitative aspects only)- Magic numbers. 5. Radioactivity decay
	Alpha decay : basis of α – decay processes. Range of α -
	particles, Geiger's Law, Geiger- Nuttal law. β – decay, β ray
	continuous and discrete spectrum, neutrino hypothesis.
	6.Crystal structure
V	Amorphous and crystalline materials, unit cell, Miller indices, reciprocal lattice, types of lattices, diffraction of X- rays by crystals, Bragg's law, experimental techniques, Laue's method and powder diffraction method.
	7. Superconductivity:
	Introduction – experimental facts, critical temperature – critical field – Meissner effect – isotope effect – Type I and Type
	II superconductors – BCS theory (elementary ideas only) – applications of superconductors.
	IV V

<u>SEMESTER – VI</u>

2020-2021 CURRICULAR PLAN

Subject Code: PHY 601 GE Title : ANALOG AND DIGITAL ELECTRONICS

	r	1
Apr-2021	Ι	 FET Construction ,Working ,Characteristics and uses; MOSEFT-enhancement MOSEFT,Depletion MOSEFT, Construction and Working, drain Characteristics of MOSEFT, applications of MOSEFT. Photo electric devices: structure and operation, Characteristics and applications of LED and LCD.
		3.Operational amplifier : Characteristics of ideal and practical
May-2021	II	oP-amp (IC-741),Basic differential OP-amp supply voltage, IC identification, internal blocks of OP-amp, its parameter off set voltages and currents, CMRR, slew rate, Concept of Virtual ground.
		4.Applications of OP-amp : OP-amp as voltage amplifier,
		summing amplifier, difference amplifier, comparator, Integrator,
Jun-2021	III	Differentiator.
		5. Data processing circuits: Multiplexers, De –Multiplexers,
		encoders, decoders, Characteristics 6. For Digital IC's –RTL, DTL, TTL, CMOS (NAND&NOR
L.1 2021	IV	Gates
Jui-2021		
		7 .Sequential digital circuits: Flip-flops, RS, clocked SR, JK, D, T. Master-Slave, Elin-flops
Jul-2021	V	8. Counters: Asynchronous counters-modulo 4counter-modulo
		16 ripple counter, Decade counter, Synchronous counter.

<u>SEMESTER – VI</u>

2020-2021 CURRICULAR PLAN

Subject Code: PHY 602 CE

Subject Code: PHY 603C

Title : INTRODUCTION TO MICROPROCESSOR AND MICROCONTROLLER

Apr-2021	Ι	MICROPROCESSOR: General architecture of microprocessor, architecture of 8085 microprocessor, 8085 pin diagram, Concept of data bus, address bus, and control bus, 8085 programming instruction classification.
May-2021	Ш	8085 Interfacing Memory Introduction-Memory structure and its requirements-basic concepts in memory interfacing. Address Decoding-Interfacing circuit. Port- mapped I/O or Direct I/O interface (8-bit Addressing)-Memory Indirect I/O mapped Interfaces (16-bit Addressing)-Port mapped versus Memory mapped I/O. I/O Device Interfacing.
Jun-2021	III	8085 Microprocessor Applications Introduction-Programmed data transfer scheme. Direct Memory Access (DMA) –Types. 8255A PPI-Block diagram. 8259A PIC-Pin diagram and functional description. 8257 Programmable DMA controller-Block diagram and Pin description.
Jul-2021	IV	8051 Architecture-I: Types of microcontrollers- microcontroller architecture, CISC, RISC, operation of microcontroller, basic building blocks of microcontroller, comparison of microcontroller and microprocessor- block diagram of 8051-I/o pins and ports.
		Microcontroller Resources.
		8051 Architecture-II: 8051 Flag bits and PSW register and DPTR register- Memory Organization- Special function registers- PSW register-Counters and
Jul-2021	V	Timers-Serial I/O-8051 Microcontroller Interrupts.

<u>SEMESTER – VI</u>

2020-2021 CURRICULAR PLAN

Title:Computational Methods and Programming

Apr-2021	Ι	 Fundamentals of C language: C character set – Identifiers and keywords – structure of c program. Constants- variables- Data types- Declarations of variables – Declaration of storage class – Defining symbolic constants – Assignment statement. Operators : Arithmetic operators- Relational operators – Logic operators – Assignment operators – Increment and decrement operators – Conditional operators

May-2021	II	 3.Expressions and I/O statements : Arithmetic expressions – precedence of arithmetic operators – Type converters in expressions – Mathematical (Library) functions – Data input and output – The getchar and putchar functions – Scanf – Printf simple programs. 4.Control statements: IF – ELSE statements – Switch statements – The operators – GO TO- while, DO-While, FOR statements – BREAK and CONTINUE statements.
Jun-2021	III	 5.Arrays: One dimensional and two dimensional arrays – Initialization –Type declaration – Inputting and outputting of data for arrays – Programs of matrices addition, subtraction and multiplication. 6.User defined functions: The form of C functions – Return values and their types – Calling a function – Category of functions. Nesting of functions. Recursion. ANSI C functions – Function declaration. Scope and life of variables in functions.
Jul-2021	IV	 7.Linear and Non-Linear equations: Solution of Algebra and transcendental equations – Bisection, Falsi position and Newton – Rhapson methods – Basic principles – Formulae – algorithms. 8.Simultaneous equations: Solutions of simultaneous linear equations – Guass elimination and Gauss seidel iterative methods – Basic principles – Formulae- Algorithms
Jul-2021	V	Interpolations : Concept of linear interpolation – Finite differences – Newton's and Lagrange's interpolation formulae – principles and Algorithms. 9.Numerical differentiation and integration : Numerical differentiation – algorithm for evaluation of first order derivatives using formulae based on Taylor's series – Numerical integration – Trapezodal and Simpson's 1/3 rule – Algorithms.

<u>SEMESTER – VI</u>

2020-2021 CURRICULAR PLAN

Subject Code: PHY 604 CE Title: : Electronic Instrumentation

Apr-2021	Ι	 Basic of measurements: Instruments accuracy, precision, sensitivity- errors in measurements- Basic meter movement-PMMC (Permanent Magnetic Moving Coil). Measurement of dc current: DC ammeter- multi range ammeters-the ARYTON Shunt or universal Shunt. Measurement of dc voltage: DC Voltmeter – Multi Range Voltmeter- Voltmeter sensitivity.
May-2021	Π	 4.Analog Multimeter: Multimeter - as dc ammeter-as dc voltmeter-as ac voltmeter- as ohm meter-Multimeter operating instructions. 5.Digital instruments: Principle and working of digital instruments, characteristics of a digital meter, working principle of digital voltmeter.

Jun-2021	III	 6.CRO: Block diagram of basic CRO, construction of CRT, electron gun, electrostatic focusing and acceleration (only explanation), time base operation, synchronization, front panel controls, specifications of CRO and their significance. 7.Applications CRO: Measurement of voltage- dc and ac, frequency, time period. Special features of dual trace CRO. Digital storage oscilloscope: block diagram and principle of working.
Jul-2021	IV	 8.Diode as Rectifier – Half wave rectifier, Full wave rectifier – construction, working and efficiency. (no derivation) 9.Feedback in Electronic circuits – Positive and Negative feedback, expressions for gains, advantages of negative feedback, Oscillators, Barkhausen criteria, RC phase shift oscillator (no derivation)
Jul-2021	V	 10.Signal Generators: Block diagram, working and specifications of low frequency signal generators, pulse generator, function generator. 11.Bridges: Measurement of resistance by Wheat stone's Bridge- Sensitivity of Wheat stone's Bridge- Applications of Wheat stone's Bridge-Limitations of Wheat stone's Bridge.

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU DEPARTMENT OF CHEMISTRY SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code:CHE101C

Title: Inorganic and Physical chemistry

Month	Unit No.	Topic to be covered
Dec-2020	1	Chemistry of P block elements
Jan - 2021	4	Liquid crystals
Feb-2021	3	Solid state, Gaseous state
Mar-2021	2	Transition elements, Inner transition elements
April-21	5	Colligative properties

SEMESTER – II

CURRICULAR PLAN

Subject Code:CHE 201C

Title: Organic and General chemistry

Month	Unit No.	Topic to be covered
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June - '21	4	Chemical bonding & Surface chemistry
July-'21	5	Stereo chemistry of carbon compounds
Aug-'21	3&1	Benzene and its reactivity Saturated hydro carbons Cyclo alkanes
Sep-'21	2	Unsaturated hydro carbons

SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code: CHE 301C

Title :Inorganic and organic chemistry

	Unit No.	Topic to be covered
Month		
	5	Carboxylic acids and their derivatives
Nov-2020		Active methylene compounds
	1	Chemistry of d block elements
Dec-2020		
	2	Theories of bonding in metals
Jan-'21		
	3	Halogen compounds
Feb-'21		
	4	Carbonyl compounds
Mar-'21		

SEMESTER – IV

2020-2021 CURRICULAR PLAN

Subject Code: CHE 401C Title :Spectroscopy and Physical chemistry

Month	Unit No.	Topic to be covered
June - '21	1	Spectrophotometry Electronic spectroscopy
July-'21	2	Infrared spectroscopy NMRspectroscopy

Aug-'21	4&5	Electro chemistry-1 Electro chemistry-2 Phase rule
Sep-'21	3	Dilute solutions

SEMESTER - V(501)

2020-21 CURRICULAR PLAN

Subject Code: CHE-501 Title :Inorganic, Organic & Physical Chemistry

Month	Unit No.	Topic to be covered
June	1	Co ordination chemistry
July	2	Magnetic properties of metal complexes
August	3	Nitro hydro carbons
September	4	Nitrogen compounds
October	5	thermodynamics

SEMESTER – V(502)

2020-21 CURRICULAR PLAN

Subject Code: CHE-502

Title :Inorganic, Organic & Physical Chemistry

Month	Unit No.	Topic to be covered
June	3	Carbohydrates
July	4	Amino acids and Proteins
August	2	Hetero cyclic compounds
September	1	Reactivity of Metal complexes
October	5	Chemical kinetics

SEMESTER – VI(GE)

2020-21 CURRICULAR PLAN

Subject Code: CHE-601GE

Title : Analytical methods in Chemistry

Month	Unit No.	Topic to be covered
November	4	Ion exchange,paper chromatography
December	5	TLC,Column chromatography
January	3	Separation techniques in chemical analysis
February	2	Treatment of Analytical data

March	1	Quantitative analysis

2020-21 CURRICULAR PLAN

Subject Code: CHE-602CE Title : Organic spectroscopic techniques

Month	Unit No.	Topic to be covered
November	1	NMR spectroscopy
December	2	NMR spectroscopy
January	3	Electronic spectra of poly atomic molecules
February	4	UV& Visible spectroscopy
March	5	Electron spin resonance spectroscopy

SEMESTER – VI(CHE-603CE)

2020-21 CURRICULAR PLAN

Subject Code: CHE-603CE Title :Advanced organic reactions

Month	Unit No.	Topic to be covered
November	1	Organic photo chemistry
December	2	Organic photo chemistry
January	3	Protecting groups and organic reactions
February	4	Synthetic reactions
March	5	New synthetic reactions

SEMESTER – VI

2020-21 CURRICULAR PLAN

Subject Code: CHE-604CE

Title : Pharmaceutical and Medicinal chemistry

Month	Unit No.	Topic to be covered
November	1	Pharmaceutical terminology
December	2	Nomenclature
January	3	Synthesis and therapeutic activity of drugs
February	4	Pharmacodynamic drugs

March	5	HIV-AIDS

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF BOTANY

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: BOT-101C

Title: Microbial diversity, Algae and Fungi.

Month	Unit No.	Topic to be covered
		Origin and Evolution of Life, Microbial diversity
		Origin of life - theories introduction: Lamarckism, Darwinism and Neo Darwinism.
Dec 2020	т	Geological time scale
Dec-2020	1	Microbial diversity: Mycoplasma - Chlamydia – Archaebacteria – Actinomycetes.
		VIRUSES AND BACTERIA
		Viruses: General account of Viruses, structure, replication and transmission of
		Plant Diseases caused by Viruses.
1 2021	TT	Bacteria: Structure, nutrition, reproduction and economic importance. Outlines of
Jan - 2021	11	Plant diseases of important crop plants caused by Bacteria (Citrus canker, leaf blight
		of rice, Angular leaf spot of Cotton) and their control.
		CYANOBACTERIA AND LICHENS
		Cyanobacteria: General account of cell structure, thallus organization and their uses
E.1. 2021	ш	as Biofertilizers.
Feb-2021	111	Structure, reproduction and life history of Nostoc and Scytonema.
		Lichens – Morphology – Anatomy – Reproduction – Economic importance.
		Algae
M 2021	IV	General account, Fritsch classification of Algae and economic importance.
Mar-2021		Structure, reproduction, life history of Oedogonium, Vaucheria and Ectocarpus.
		FUNGI
		General characters, classification (Alexopolous) and economic importance.
		Structure, reproduction and life history of Albugo, Penicillium, Puccinia.
April-21	V	General account of plant diseases caused by Fungi (Late blight of potato, Red rot of
<i>i</i> .thu ₋₇ 1		Sugarcane and Paddy Blast) and their control.

SEMESTER – II

CURRICULAR PLAN

Subject Code: BOT- 201C

Title: Basics of vascular plants and phytogeography

Month	Unit No.	Topic to be covered
	Ι	Pteridophytes
June - '21		General characteristics of Pteridophyta; classification of Smith (1955)uptodivisions.

		Occurrence, morphology,anatomy, reproduction (developmental details are notneeded) and life historyof (a) <i>Lycopodium</i> (Lycopsida) and (b) <i>Marsilea</i> (Filicopsida). Stelar evolution in Pteridophytes Heterospory and seed habit.
July-'21	II	Gymnosperms General characteristics of Gymnosperms; Sporneclassificationuptoclasses. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life history of (a) <i>Cycas(Cycadopsida)</i> and (b) Gnetum (Gnetopsida) Outlines of geological time scale. A brief account on Cycadeoidea
Aug-'21	IV	Basic aspects of Taxonomy Aim and scope of taxonomy; Species concept: Taxonomic hierarchy, species, genus and family. Plant nomenclature: Binomial system, ICBN- rules for nomenclature. Herbarium and its techniques,BSI herbarium and Kew herbarium; concept of digital herbaria. Bentham and Hooker system of classification
Sep-'21	V	Systematic Taxonomy Systematic description and economic importance of the following families: (a) Asteraceae (b) Asclepiadaceae(c)Amaranthaceae (d) Euphorbiaceae(e) Arecaceaeand(f) Poaceae(g) Annonaceae (h) Curcurbitaceae(i) Orchidaceae 4.2 Outlines of Angiosperm Phylogeny Group (APG IV).
Sep-'21	V	PhytogeographyPrinciples of Phytogeography, Distribution (wides, endemic, discontinuous species)Endemism – types and causes.Phytogeographic regions of World.Pytogeographic regions of India.Vegetation types in Andhra Pradesh

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: BOT- 301C

Title: Plant Taxonomy and plant physiology

Month	Unit No.	Topic to be covered
Nov-2020		Plant physiology : 1. Importance of water to plant life, physical properties of water,

	IV	2. Diffusion, Imbibition and osmosis; water potential, osmotic potential
		and pressure potential.
		3. Absorption, transport of water, ascent of sap.
		4. Transpiration – types, stomata structure, movements and significance.
D 2020		Mineral nutrition, Fertilizers and Enzymes
Dec-2020		1. Mineral Nutrition: Essential macro and micro mineral nutrients and
	\mathbf{V}	their role, mineral uptake (active and passive), deficiency symptoms.
		2. Nitrogen cycle- biological nitrogen fixation.
		3. Enzymes: Nomenclature, characteristics, mechanism and regulation of
		enzyme action, enzyme kinetics, factors regulating enzyme action.
Ion (21		Introduction to Plant Taxonomy
Jan- 21		1. Fundamental components of taxonomy (identification, nomenclature,
	Ι	classification types and phylogeny)
		2. Salient features of Bentham & Hooker classification.
		3. Role of chemotaxonomy, Cytotaxonomy and Embryology in relation to
		Taxonomy.
		4. APG IV System of Classification – 2016.
Feb (21		Systematic Taxonomy
100-21		1. Nomenclature and Taxonomic resources: An introduction to
	II	International Code of Botanical Nomenclature; Principles, Rules and
		Recommendations.
		2. Systematic study and economic importance of plants belonging to the
		following families: Annonaceae, Capparidaceae, Rutaceae, Cucurbitaceae
		and Apiaceae
		Sustantia Tananamu
Mar-'21		Systematic faxonomy
	III	1. Systematic study and economic importance of plants belonging to the
		To lowing families:
		Asteraceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae, Orchidaceae
		and Poaceae.

2020-2021 CURRICULAR PLANS

Subject Code: BOT - 401C

Title: – Plant Embryology and Plant Physiology

Month	Unit No.	Topic to be covered
		EMBRYOLOGY
		Introduction: History and Importance of Embryology.
		Anther structure, Microsporogenesis and development of male
June - '21	Ι	

		gametophyte.
		Ovule structure and types; Megasporogenesis; Monosporic; Bisporic and
		Tetrasporic types of female gametophyte / embryosac development.
		Pollination - Types, Fertilization.
		EMBRYOLOGY AND PALYNOLOGY
T 1 (01	TT	Endosperm Development and types.
July-'21	11	Embryo - development and types.
		Polyembryony and Apomixis - an outline. Palynology: Principles and
		applications.
		PLANT METABOLISM- I
Aug-'21	III	Photosynthesis: Electromagnetic spectrum, absorption and action spectra;
		Red drop and Emerson enhancement effect, concept of Z scheme in
		photosystems, Photosynthetic pigments, mechanism of photosynthetic
		electron transport and evolution of oxygen, photo phosphorylation, carbon
		assimilation pathways: C3, C4 & CAM and Photorespiration.
		Translocation of organic substances: Mechanism of phloem transport,
		source-sink relationships
		PLANT METABOLISM- II
Sep-'21	IV	Respiration: Aerobic and Anaerobic, Glycolysis, Krebs cycle, electron
1		transport system, mechanism of oxidative phosphorylation, pentose
		phosphate pathway.
		Lipid Metabolism: Structure and functions of lipids, conversion of lipids to
		carbohydrates, Beta-oxidation.
		GROWTH AND DEVELOPMENT
		Growth and development: Definition, phases and kinetics of growth.
		Physiological effects of phytohormones - auxins, gibberellins, cytokinins,
Aug (21	V	ABA and ethylene
Aug-21	v	Physiology of flowering and photoperiodism, role of phytochrome in
		flowering.
		Stress Physiology: Concept and plant responses to water, salt and
		temperature stresses.
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2020-21 CURRICULAR PLAN

Subject Code: BOT- 501C

Title: Cell Biology, Biology, Genetics and Plant Breeding.

Month	Unit No.	Topic to be covered
		Cell Biology
Nov-2020		Cell, Ultra Structure and functions of cell wall.
	Ι	Molecular Organization of cell membranes.

	III	 Chromosomes; morphology, organization of DNA in a chromosome (Nucleosome model) Euchromatin and Heterochromatin. Mendelian Inheritance Mendelian Inheritance (Mono – Di-hybrid Crosses), Back cross and Textcross. Linkage: concept, complete and In-complete Linkage, Coupling and Repulsion; LinkageMaps Based on Two and Three Point cross. Crossing over concept and significance.
Dec-2020	Π	Genetic Material DNA as the Genetic Material: Griffith's and Avery's Transformation Experiment. Hershey - Chase Bacteriophage experiment. DNA Structure (Watson & crick model) and replication of DNA (SemiConservative). Types of RNA (mRNA, tRNA, rRNA), their structure and function.
Jan-'21	IV	Gene Expression Organization of gene, Transcription and Translation. Mechanism and regulation of Gene Expression in Prokaryotes (Lacoperon). Mutations: Chromosomal Aberrations, Gene Mutations and Transposable Elements
Feb-'21	V	Plant BreedingIntroduction and objectives of Plant Breeding.Methods of Crop Improvement: Procedure, Advantages and limitations ofIntroduction,Selection and Hybridization (Out lines only).
Mar-'21		Revision

2020-21 CURRICULAR PLAN

Subject Code: BOT- 502C

Title: Plant Ecology and Phytogeography.

Month	Unit	Topic to be covered
	No.	
		Ecology: Definition, branches and significance of ecology.
Nov-		Claimatic factors: Light, Temperature.
2020	Ι	Edaphic factor: Origin, formation, composition and soil profile.

		Biotic factor, Ecological adaptations of Plants.
		Ecosystem Ecology
Dec-2020		Ecosystem: concept and components, energy flow, food chain, food web,
		Ecological Pyramids.
	II	Productivity of ecosystem-Primary, Secondary and Net productivity.
		Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.
		Population & Community ecology.
Jan-'21		Population-defination, characteristics and importance (Density, Natality,
	III	Mortality, Growth Curves) outlines-ecotypes.
		Plant communities- characters of a community, outlines –
		Frequency, density, cover, life forms, Biological Spectrum.
		Ecological Succession: Hydrosere and Xerosere
		Phytogeography
Feb-'21		Principles of Phytogeography, Distribution (Wides, Endemic, Discontinous
	IV	species.
		Phytogeographic regions of India.
		Endemism – types and Causes.
Mar-'21	V	Plant Biodiversity and its Importance
		Definition, Levels of Biodiversity – genetic, species and ecosystem.
		Biodiversity and Hot-spots of India: North Eastern, Himalayas and
		Western Ghats.
		Loss of Biodiversity-causes and Conservation (In-situ and Ex-Situ
		Methods).
		Dovision
		Kevision

CURRICULAR PLAN

Subject Code: BOT- 601C

Title: Plant tissue culture and its Biotechnological Applications

Month	Unit	Topic to be covered
	No.	
		PLANT TISSUE CULTURE – 1
Apr-'21	Ι	

		 History of plant tissue culture research - basic principles of plant tissue callus culture, meristems culture, organ culture, Totipotency of cells. Sterilization procedures, culture media mcomposition and preparations of explanats. Murashige and Skoog's (MS medium), Cell and protoplast culture. Somatic Hybrids and Cybrids (out lines), Artificial Seeds, Somaclonal variations. Applications of Tissue culture (Brief account).
May -'21	II	Plant Tissue culture -2 Endosperm culture – Embryo culture -culture requirements – applications, embryo rescue technique.
		Recombinant DNA technology
Jun-'21	III	 r- DNA technology: Steps in r-DNA technology and tools. Cloning Vectors: Prokaryotic (pBR322, Ti plasmid and Lambda phage, Eukaryotic Vectors (YAC and briefly PAC). Gene cloning (Bacterial Transformation and selection of recombinant clones, PCR
		Mediated gene cloning)
Jul –'21	IV	Methods of gene transfer Methods of gene transfer- Agrobacterium-mediated, direct gene transfer By Electroporation, Microinjection, Micro projectile bombardment. Selection of transgenics- selectable marker and reporter genes (Luciferase, GUS, GFP).
Jul -'21	V	 Applications of Biotechnology Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, Insect resistance, virus resistance. Genetic modification – transgenic plants for pest resistant (Bt-cotton); herbicide resistance (Round Up Ready soybean); improved agronomic traits flavar savar tomato,Golden rice.

CURRICULAR PLAN

Subject Code: BOT- 602 C

Title: Plant Diversity and Human Welfare.

Month	Unit No.	Topic to be covered
		Plant diversity and its scope:

Apr-'21	Ι	Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agro biodiversity and Vavilov Crop centers. Values and uses of biodiversity: Ethical and aesthetic values, Uses of plants.
May -'21	Π	Loss of biodiversity: Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agro biodiversity, projected scenario for biodiversity loss. Management of plant biodiversity: Organizations associated with biodiversity Management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR; Biodiversity legislation and conservations, Biodiversity information management andCommunication.
Jun-'21	III	Contemporary practices in resource management : Environmental Impact Assessment (EIA), Geographical Information System GIS, Solid and liquid waste management.
Jul –'21	IV	Conservation of biodiversity Conservation of genetic diversity, species diversity. Social approaches to conservation, Biodiversity awareness Programmes, Sustainable development.
Jul -'21	V	Role of plants in relation to Human Welfare Importance of forestry, their utilization and commercial aspects- a) Avenue trees, b) ornamental plants of India. Fruits and nuts: Important fruit crops their commercial importance. Wood, fiber and their uses.

CURRICULAR PLAN

Subject Code: BOT- 602 C

Title: Ethno Botany and Medicinal Botany

Month Unit Topic to be covered	
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	No.	
		Ethnobotany
Apr-'21	Ι	Introduction, concept, scope and objectives
		Major and minor ethnic groups or Tribal's of India, and their lifestyles.
		Plants used by the tribal populations:
		a) Food plants, b) Intoxicants c) Beverages, d) Resins and oils and
		miscellaneous uses.
		Role of ethnobotany in modern Medicine
May -'21	II	Role of Ethnobotany in modern medicine with special example;
		Rauvolfiasepentina, Artemisia annua, Withaniasomnifera.
		Significance of the following plants in ethno botanical practices (along with their
		habitat and morphology)
		a)Azadirachtaindica, b)Vitexnegundo,c)Ocimum sanctum,,d) phyllanthus niruri
		Medico-Ethnobotanical Sources of India.
Jun-'21	Ш	Ethno botany as a tool to protect interests of ethnic groups
		Sharing of wealth concept with few examples from India.
		Biopiracy, Intellectual Property Rights and Traditional Knowledge.
T 1 (01	13.7	History, Scope and Importance of Medicinal Plants, Indigenous Medicinal Sciences
Jul - 2l	IV	Definition and Scope-Ayurveda: History, origin, panchamahabhutas, saptadhatu
		Homeonathy: Origin of Homeonathy medicinal systems Basis of Homeonathy
		plants used in Homeopathy medicine.
		Conservation of endangered and endemic medicinal plants.
Jul -'21	V	Definition: endemic and endangered medicinal plants,
		Red list criteria
		In situ conservation: Sacred groves, National Parks
		Ex situ conservation: Botanical Gardens, Seed Banks

CURRICULAR PLAN

Subject Code: BOT- 602 C

Title: Pharmacognosy and Phyto chemistry.

Month	Unit	Topic to be covered
	No.	

		Pharmacognosy
Apr-'21	Ι	Definition, Importance
_		Classification of drugs - Chemical and Pharmacological
		Drug evaluation methods
		Organoleptic and microscopic studies:
May -	II	Organoleptic and microscopic studies with reference to nature of active principles
·21		and common adulterants of
		a) Adhatoda vasica(leaf) b) Strychnosnuxvomica (seed),
		c)Rauwolfia serpentina(root) d)Zinziberofficinalis e)Catharanthusroseus
		Secondary Metabolites:
Jun-'21	III	Definition of primary and secondary metabolites and their differences, Major types -
		terpenes, Phenolics, alkaloids, terpenoids, steroids.
		A brief idea about extraction of alkaloids. Origin of secondary metabolites-detailed
		account of Mevalonate pathway, Shikimate pathway.
		Phytochemistry:
Jul - '21	IV	Biosynthesis and sources of drugs:
		Structural type biosynthesis importance of simple Phenolic compounds, coumarins,
		Flavonoids.
		Steroids, sterols: Biosynthesis, commercial importance.
		Alkaloids: Different groups, biosynthesis, bioactivity.
		Volatile oils, aromatherapy.
		Enzymes, proteins and amino acids as drugs:
Jul -'21	V	Vaccines, toxins and toxoids, immune globulins, antiserums,
		Vitamins, Antibiotics – chemical nature, mode of action.
		Pharmacological action of plant drugs - tumor inhibitors, PAF antagonists, antioxidants,
		phytoestrogens and others.

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU DEPARTMENT OF ENGLISH SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: PNT -501C

Title: PLANT NURSERY

Month	Unit No.	Topic to be covered
Feb-2021	Ι	Introduction to plant nursery Plant nursery: Definition, importance. Different types of nurseries –on the basis of duration, plants produced, structure used. Basic facilities for a nursery; layout and components of a good nursery. Plant propagation structures brief. Bureau of Indian Standards (BIS-2008) related to nursery
Mar-2021	II	Necessities for nursery Nursery beds - types and precautions to be taken during preparation. Growing media, nursery tools and implements, and containers for plant nursery, in brief. Seeds and other vegetative material used to raise nursery.in brief. Outlines of vegetative propagation techniques to produce planting material. Sowing methods of seeds and planting material.
April-21	III	Management of nursery Seasonal activities and routine operations in a nursery. Nursery management – watering, weeding and nutrients; pests and diseases. Common possible errors in nursery activities. Economics of nursery development, pricing and record maintenance. Online nursery information and sales systems.

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF ZOOLOGY

SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: ZOO101C

Title: Biology of Non – Chordates

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Whittaker's five kingdom concept and classification of Animal
		Kingdom.
		General Characters and classification of protozoa up to classes
		with suitable examples
		Phylum - Protozoa: Type study: Elphidium
Jan - 2021		Phylum Porifera
	II	General characters and classification up to classes with suitable
		examples
		Skelton in Sponges, Canal system in sponges
		Phylum – Coelenterata
		General characters and classification up to classes with suitable
		examples
		type study: Obelia – Morphology, Structure of polyp & Medusa
		Polymorphism in coelenterates
		Corals and coral reefs
Feb-2021		General characters and classification up to classes with suitable
	III	examples
		Life cycle and pathogen city of Fasciola hepatica Parasitic
		Adaptations in helminthes Phylum Nemathelminthes
		Life cycle and pathogen city of Ascarislumbricoides
		General characters and classification up to classes with suitable
	IV	examples
		Evolution of Coelom and Coelomoducts
		Vermiculture - Scope, significance, earthworm species,
		processing, Vermicompost, economic importance of
		vermicompost
Mar-2021	IV	Phylum Arthropoda
		Vision and respiration in Arthropoda
		Peripatus - Structure and affinities
	V	Phylum Mollusca
		General characters and classification up to classes with suitable
		examples
		Pearl formation in Pelecypoda
April-21	V	Water vascular system in star fish
		Larval forms of Echinodermata
		PhylumHemichordata
		Balanoglossus - Structure and affinities
		Duunogrossus - Duucture and arminues

CURRICULAR PLAN

Subject Code: ZOO 201C

Title: Animal Diversity – Biology of Chordates

Month	Unit No.	Topic to be covered
	Ι	General characters and classification of Chordata up to
June - '21		classes
		Protochordata- Salient features of Cephalochordata,
		Affinities of Cephalochordata.
		Salient features of Urochordata
		Structure and life history of Herdmania
		Retrogressive metamorphosis –Process and Significance
		Crale to mate Committee Commission of
July '21	п	Cyclostomata, General characters, Comparison of
July- 21	11	Petromyzon and Myxine
		Pisces: General characters of Fisnes
		Scolloaon: External features, Digestive system, Respiratory
		System, Structure and function of
		Mignation in Eicher
		Migration in Fisnes
		Types of Scales
	III	Dipiloi Compared shows store of A numbric
		Classification of Amphibians to orders with examples
		Classification of Amphibiaup to orders with examples
Aug_'21		Repuind: General characters of Repuind, Classification of
7 tug- 21	Ш	factures Disactive system Descinctory system Structure and
		function of Uppert structure and function of Drain
		Identification of Deisenous engloss and Skull in rentiles
		Aves General characters of Aves
		Columba livia: External features Digestive system
		Respiratory system Structure and function of Heart
	IV	structure and function of Brain
Sep-'21	IV	Migration in Birds
•		Flight adaptation in birds
		General characters of Mammalia
	V	Classification of Mammalia upto sub - classes with
		examples
		Comparision of Prototherians, Metatherians and Eutherians
		Dentition in mammals

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: ZOO	301C	Title: Cytology, Genetics and Evolution.
Month	Unit No.	Topic to be covered
Nov-2020	Ι	Cytology - I :-Electron microscopic structure of cell Plasma membrane - Fluid mosaic model, Transport functions plasma membrane (Active &Passive)
	II	Cell Organelles :- Stricture and functions of Endoplasmic reticulum, Golgi body, Ribosome's, Lysosomes, Mitochondria
Dec-2020	П	DNA: Watson & Crick model, Semi Conservative Replication. RNA - Structure, types & functions of RNA. Chromosomes - Structure, types & functions, Giant Chromosomes (lamp brush & Polytene)
Jan-'21	III	Genetics-I:- Mendel's Laws of Inheritance, Incomplete dominance and co-dominance Lethal alleles, Epistasis , Linkage and crossing over.
	IV	Genetics – II :- Sex determination - Genic balance theory / Bridges theory, Barr bodies. Sex linked inheritance.
Feb-'21	IV	Extra chromosomal inheritance (Kappa particles in Paramecium) Blood group inheritance
Mar-'21	V	Evolution:- Origin of life,. Hardy -Weinberg Equilibrium, Lamarckism ,Darwinism, Neo – Darwinism Isolation, Speciation (Allopatric and Sympatric).

2020-21 CURRICULAR PLAN

Subject Code: ZOO 401C

Title: Embryology, Physiology and Ecology.

Month	Unit No.	Topic to be covered
		Developmental biology and embryology
Nov-2020		Gametogenesis (Spermatogenesis, Oogenesis in mammals)
		Fertilization, Types of eggs.
	I	Types of cleavage
		Formation and function of fetal membrane in chick embryo
		Development, types of placenta in mammals
		Physiology-I
Dec-2020		Elementary study of process of digestion
	II	Absorption of digested food
		Structure of mammalian Lung& mechanism of respiration,
		transport of oxygen and carbon dioxide circulation-
		structure and function of heart and cardiac cycle excretion-
		structure if nephron, urine formation, counters current
		mechanism
		Physiology-II
		Structure & functional properties of Nerve Cell; Production
	III	& propagation of nerve Impulse. Synaptic transmission.
T (01		Muscle contraction – ultra structure of muscle fiber,
Jan-'21	TT	molecular and chemical basis of muscle contraction
	111	Endocrine glands – structure, secretions and the functions
		(of hormones) of pituitary gland, thyroid, parathyroid,
		adrenal gland and pancreas
		Hormonal control of reproduction in mammals
Fab (21		Ecology-I
160-21		Important abiotic factors of ecosystem – temperature, light,
	IV	water, oxygen and CO_2
	1,	Nutrient cycles- Nitrogen, Carbon and Phosphorous
		Components of ecosystem (example: lake), food chains and
		Final web, energy flow in ecosystem
Mar_'21		Community interactions, mutualism, common soliem
Iviai - 21		Community interactions- mutualism, commensatism,
	V	Zoogoography
		Zoogeography Study of a busical formal a continuities of Oriental Assetuation
		Study of physical faunal peculiarities of Oriental, Australian
		and Ethiopian regions

2020-2021 CURRICULAR PLAN

Subject Code: **ZOO 501C** Title : Animal Biotechnology

Dec-2020	I	Restriction modification systems : Types I, II and III- Nomenclature, Applications of Type II restriction enzymes in genetic engineering ,DNA polymerases, transferase, kinases and phosphatases, and DNA ligases Cloning Vectors: : Properties of Cloning Vectors Plasmid vectors:pBR and pUC 18, Bacteriophage and, Cosmids.Artificial Chromosome Vectors: BACs, YACs,
Jan - 2021	II	Cloning: Procedure of gene cloning, Use of linkers and adaptors. Microinjection, electroporation, biolistic method (gene gun). PCR:- Basics of PCR, Principle and Procedure of PCR. DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing. Southern, Northern and Western blotting. DNA finger printing,
Feb-2021	III	Cell culture media: Natural and Synthetic, Types Cell cultures-: primary culture, secondary culture. Continuous cell lines , Established Cell lines (common examples such as MRC, HeLa, CHO, BHK,) Cryopreservation of cultures, Hybridoma Technology:- Cell fusion, Production of Monoclonal antibodies (mAb), Applications of mAb .Stem cells: Types of stem cells- Embryonic and Adult Stem Cells, Diabetes and Parkinson's diseases.
Mar-2021	IV	Manipulation of reproduction in animals, Artificial Insemination, <i>In vitro</i> fertilization. Super ovulation, Embryo transfer, Embryo cloning. Transgenic Animals- Production of Transgenic Animals- sheep, fish.
April-21	V	Industry: Fermentation- Different types of Fermentation. Submerged & Solid state, batch, Fed batch & Continuous (Short notes only) Downstream processing - Filtration, centrifugation, chromatography, spray drying, Fisheries : Polyploidy in fishes

2020-2021 CURRICULAR PLAN

Subject Code: **ZOO 502**C Title : : Animal Husbandry.

Dec-2020	Ι	General introduction to poultry farming, Principles of poultry housing. Poultry houses. Systems of poultry farming. Management of chicks, growers, layers, and Broilers.
Jan - 2021	II	Poultry feed management – Principles of feeding. Nutrient requirements for different stages of layers and broilers. Methods of feeding- Whole grain feeding system, Grain and mash method, All mash method, Pellet feeding. Poultry diseases – viral, bacterial, fungal and parasitic (two each); symptoms, control and management.
Feb-2021	III	Selection, care and handling of hatching eggs, Egg testing. Methods of hatching. Brooding and rearing, Sexing of chick
Mar-2021	IV	Breeds of Dairy Cattle and Buffaloes – Definition of breed; Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds. Systems of inbreeding and crossbreeding. Housing of dairy animals – Selection of site for dairy farm; systems of housing – loose, housing system. Conventional dairy
April-21	V	Care and management of dairy animals - Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks. Cleaning and sanitation of programme. Records to be maintained in a dairy farm.

2020-2021 CURRICULAR PLAN

Subject Code: ZOO 601C Title : *Immunology*

		Introduction to basic concepts in Immunology.
		Innate and adaptive immunity
Apr-2021	_	Cells and organs of Immune system
	I	Cells of immune system
		Organs of immune system
		Antigens
		Basic properties of antigens
May-2021		B and T cell epitopes, haptens and adjuvants
	II	Factors influencing immunogenicity
		3.1 Antibodies
		Struture of an antibody
Jun-2021		Classes and functions of antibodies
		Antigen and antibody interactions.
		Monoclonal antibodies and their production.
		Structure and functions of major histocompatibility
		complexes
	IV	Exogenous and Endogenous pathways of antigen
		presentation and processing Basic properties and functions of
Jul-2021		mediator molecules. (cytokines,
		interferonsand complement proteins). Mechanisms of
		humoral and cell mediated immunities
		Immune system in health and disease
		Classification and brief description of various types of hyper
Jul-2021	V	sensitivities
		Introduction to concepts of autoimmunity and
		immunodeficiency
		Vaccines
		General introduction to vaccines
		Types of vaccines

2020-2021 CURRICULAR PLAN

Subject Code: ZOO 602C Title: Principles of Aquaculture

		Introduction / Basics of Aquaculture: - Definition,
		Significance and History of Aquaculture
Apr-2021	-	Present status of Aquaculture – Global and National
	I	scenario
		Major cultivable species for aquaculture: freshwater,
		brackish water and marine.
		Criteria for the selection of species for culture
		Types of Aquaculture: - Freshwater, Brackishwater and
		Marine
May-2021		Concept of Monoculture, Polyculture, Composite culture,
	II	Monosex culture and integrated fish
		Farming
		Culture systems: - Ponds, Raceways, Cages, Pens, Rafts
		and water recirculating systems
		Culture practices:-Traditional, extensive, modified
		extensive, semi-intensive and intensive cultures
		of Fish and shrimp.
		Design and construction of aqua farms :- Criteria for the
		selection of site for freshwater and brackish
Jun-2021		Water pond farms, Design and construction of fish and
		shrimp farms
	III	Seed resources: - Natural seed resources and Procurement
		of seed for stocking: Carp and shrimp
		Nutrition and feeds: - Nutritional requirements of a
		cultivable fish and shellfish
		Natural food and Artificial feeds and their importance in
		fish and shrimp culture
		Management of carp culture ponds: - Culture of Indian
		major carps: Pre-stocking management –
Jul-2021	IV	Dewatering, drying, Predators, weeds and algal blooms and
		their control, Liming and Fertilization;
		Stocking management – Stocking density and stocking;
		Post-stocking Management – Feeding, water Quality,
		growth and health care; and harvesting of ponds
		Culture of giant freshwater prawn
		Culture of shrimp (Penaeus monodon or Litopenaeus
		vannamei)
	V	Culture of pearl oysters
Jul-2021		Culture of seaweeds-species cultured, culture techniques,
		important by-products, prospects
		Culture of ornamental fishes – Setting up and
		maintenance of aquarium; and breeding.

2020-2021 CURRICULAR PLAN

Subject Code: ZOO 603C Title: Aquaculture Management

		Breeding and Hatchery Management:- Bundh Breeding
		and Induced breeding of carp by Hypophysation; and
Apr-2021		Use of synthetic hormones.
	Ι	Types of fish hatcheries: Hatchery management of Indian
		major carps
		Breeding and Hatchery management of <i>Penaeus monodon</i>
		Litopenaeus vannamei
		Breeding and Hatchery management of giant freshwater
		prawn
		Water quality Management:-Water quality and soil
		characteristics suitable for fish and shrimp culture
May-2021		Identification of oxygen depletion problems and control
	II	mechanisms in culture ponds Liming materials. Organic
		manures and Inorganic fertilizers commonly used and Their
		implications in fish ponds
		Feed Management :- Live Foods and their role in shrimp
		larval nutrition.
Jun-2021		Supplementary feeds: Principal foods in artificial diets:
		Types of feeds: Feed additives and
	III	Preservatives: role of probiotics. Feed formulation and
		manufacturing: Feed storage Feeding strategies: Feeding
		devices, feeding schedules and ration size: Feed evaluation-
		feed conversion efficiencies and ratios
		Disease Management :- Principles of disease diagnosis
		and health management:
Jul-2021	IV	Prophylaxis, Hygiene and Therapy of fish diseases
		Specific and non-specific defense systems in fish: Fish
		immunization and Vaccination
		Etiology, Symptoms, prophylaxis and therapy of common
		fish diseases in fish ponds
		Etiology, Symptoms, prophylaxis and therapy of common
		shrimp diseases in shrimp ponds
		Economics and Marketing :- Principles of aquaculture
		economics – variable costs, cost-
	V	benefit analysis, Fish marketing methods in India; Basic
Jul-2021		concepts in demand and price analysis.
		Fisheries Extension : Fisheries Training and Education in
		India; Role of extension in community
		development.
		Fish Genetics Genetic improvement of fish stocks –
		Hybridization of fish. Gynogenesis, Androgenesis,
		Polyploidy, Transgenic fish, Cryopreservation of gametes,
1		

2020-2021 CURRICULAR PLAN

Subject Code: ZOO 604C Title: Postharvest Technology

		Handling and Principles of fish Preservation: - Handling
		of fresh fish, storage and transport of
Apr-2021		fresh fish, post mortem changes (Rigor mortis and
	l	spoilage), spoilage in marine fish and freshwater fish.
		Principles of preservation- cleaning, lowering of
		temperature, rising of temperature, use of salt, use of fish
		preservatives, exposure to low radiation
		Methods of fish Preservation :- Traditional methods - sun
		drying, salt curing, pickling and smoking.
May-2021		Advanced methods – chilling or icing, refrigerated sea
	II	water, freezing, canning, Irradiation and Accelerated
		Freeze drying (AFD).
		Processing and preservation of fish and fish by-
		products:-Fish products – fish minced meat, fish
Jun-2021		meal fish oil, fish liquid (ensilage), fish protein
	ш	concentrate, fish chowder, fish cake, fish sauce, fish
	111	salads, fish Powder, pet food from trash fish, fish manure.
		Fish by-products – fish glue, ising glass, chitosan, pearl
		essence, shark fins, fish leather and fish maws.
		Seaweed Products: - Preparation of agar, algin and
		carrageen. Use of seaweeds as food for
		human consumption
		Sanitation and Quality control :- Sanitation in processing
1 1 2021	TV.	plants - Environmental hygiene and Personalhygiene in
Jui-2021	1V	processing plants.
		Quality Control of fish and fishery products – pre-
		processing control, control during processing and
		control after processing.
		Regulatory affairs in industries
		Quality Assurance, Management and Certification :-
	V	Seafood Quality Assurance and Systems:
Jul-2021	V	Good Manufacturing Practices (GMPs); Good Laboratory
Jui-2021		Practices (GLPs); Standard Operating
		Procedures (SOPs) Concept of Hazard Analysis and
		Critical Control Points (HACCP) in seafood safety.
		National and International standards – ISO 9000: 2000
		Series of Quality Assurance System.

2020-2021 CURRICULAR PLAN

Subject Code: ZOO 601C Title: Immunology

		Introduction to basic concepts in Immunology.
		Innate and adaptive immunity
Apr-2021		Cells and organs of Immune system
1	Ι	Cells of immune system
		Organs of immune system
		Antigons
		Antigens
May-2021		Dasic properties of antigens
1v1ay-2021	П	B and I cell epitopes, naptens and adjuvants
	- 11	Factors influencing immunogenicity
		3.1 Antibodies
1 2021		Struture of an antibody
Jun-2021		Classes and functions of antibodies
	TTT	Antigen and antibody interactions.
	111	Monoclonal antibodies and their production.
		Structure and functions of major histocompatibility
		complexes
Jul-2021	IV	Exogenous and Endogenous pathways of antigen
		presentation and processing Basic properties and functions
		of mediator molecules. (cytokines.
		interferonsand complement proteins). Mechanisms
		of humoral and cell mediated immunities
		Immune system in health and disease
		Classification and brief description of various types of
	V	hyper sensitivities
Jul-2021		Introduction to concepts of autoimmunity and
		immunodeficiency
		Vaccines
		General introduction to vaccines
		Types of vaccines

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF ZOOLOGY

SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: AQU 101C

Title: Basic principles of aquaculture

Month	Unit No.	Topic to be covered
		Concept of Blue Revolution - History and definition of
		Aquaculture.
	Ι	Scope of Aquaculture at global Level, India and Andhra Pradesh.
Mar-2020		Fresh water aquaculture, brackish water aquaculture and
		mariculture
		Different Aquaculture systems – Pond, Cage, Pen, Running water,
		Extensive, Intensive and & Semi-Intensive Systems and their
		significance. Monoculture, Polyculture and Monosex culture
		systems Aquaculture versus Agriculture, Present day needs with
		General Concents of Ecology, Carrying Canacity and Ecod
	П	Chaing
	11	Cildills
Apr - 2020		Lotic and lentic systems, streams and springs
		Nutrient Cycles in Culture Ponds – Phosphorus, Carbon and Nitrogen
		Importance of Plankton and Beninos in culture ponds, nutrient
		aynamics and algar blooms, concepts of Productivity,
		estimation and improvement of productivity
	III	Classification of ponds based on water resources – spring, rain
		water, flood water, well water and water course ponds
May_2020		Functional classification of ponds - head pond, hatchery, nursery,
May-2020		rearing, production, stocking and
	IV	quarantine ponds
		Hatchery design.Important factors in the construction of an ideal fish
		pond - site selection, topography, nature of the soil, water resource
	IV	Lay out and arrangements of ponds in a fish farm
Jun-2020		Construction of an ideal fish pond – space allocation,
		structure and components of barrage pond.
	V	Pond management factor
		Need of fertilizer and manure application in culture
		ponds; Role of nutrients; NPK contents of different
		fertilizers and manures used in aquaculture; and
		precautions in their application
	V	Physico-chemical conditions of soil and water optimum for
Jul-2020		culture -temperature, depth, turbidity, light, water and
		shore currents, PH, DOD, CO2 and nutrients; measures to
		increase oxygen and reduce ammonia & hydrogen sulphide
		in culture ponds; correction of PHEradication of predators
		and weed control – advantages and disadvantages of weed,
		toxing used for weed control and control of productors
		toxins used for weed control and control of predators

DEPARTMENT OF ZOOLOGY SEMESTER – II 2020-2021 CURRICULAR PLAN

Subject Code: AQU 201C

Title: Biology of fin fish & shell fish

Month	Unit No.	Topic to be covered
Aug-2020	Ι	General Characters and classification of fishes & crustaceans up to the level of Class
		Fish and Crustaceans of commercial importance
		Sense organs of fishes and crustaceans.
		Specialized organs in fishes – electric organ, venom and toxins
		Buoyancy in fishes- swim bladder and mechanism of gas secretion
Aug - 2020	II	Natural fish food, feeding habits, feeding intensity, stimuli for feeding, utilization of food, gut content analysis, forage ratio Principles of Age and growth determination; growth regulation, Growth rate measurement – scale method, otolith method, skeletal parts as age indicators
		Length-frequency method, age composition, age-length keys, absolute and specificgrowth, back calculation of length and growth, annual survival rate, Length-weight relationship.
Sep-2020	III	Breeding in fishes, breeding places, breeding habits & places, breeding in natural environment and in artificial ponds, courtship and reproductive cycles
		Induced breeding in fishes Breeding in shrimp, oysters, mussels, clams, pearl oyster, pila, and cephalopods.
Sep 2020	IV	Parental care in fishes, ovo-viviparity, oviparity, viviparity, nest building & brooding
		Embryonic and larval development of fishes. Embryonic and larval development of shrimp, crabs and molluscs of commercial importance
		Environmental factors affecting reproduction and development of cultivable aquatic fin & shell fish
		Endocrine system in fishes.
		Neurosecretary cells, androgenic gland, ovary, chromatophores,
Oct-2020	V	Molting, molting stages, metamorphosis in crustacean shell fish

DEPARTMENT OF ZOOLOGY SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code: AQU 301C

Title: Fish nutrition & Feed technology

Month	Unit No.	Topic to be covered
Nov-2020	Ι	Requirements for energy, proteins, carbohydrates, lipids, fiber, micronutrients for different stages
		of cultivable fish and prawns
		Essential amino acids and fatty acids, protein to energy ratio, nutrient interactions and protein sparing effect
		Dietary sources of energy, effect of ration on growth, determination of feeding rate, check tray
		factors affecting energy partitioning and feeding
Dec - 2020	II	Fed conversion efficiency, feed conversion ratio and protein efficiency ratio
		Wet feeds, moist feeds, dry feeds, mashes, pelleted feeds, floating and sinking pellets, advantages of pelletization
		Manual feeding, demand feeders, automatic feeders, surface spraying, bag feeding and tray feeding Frequency of feeding
Jan-2021	III	Feed ingredients and their selection, nutrient composition and nutrient availability of feed ingredients
		Feed formulation – extrusion processing and steam pelleting, grinding, mixing and drying, pelletization, and packing
		Water stability of feeds, farm made aqua feeds, micro-coated feeds, micro-encapsulated feeds and micro- bound diets
		Microbial, insect and rodent damage of feed, chemical spoilage during storage period and proper storage methods.
Feb-2021	IV	Binders, anti-oxidants, probiotics Feed attractants and feed stimulants Enzymes, hormones, growth promoters and pigments
	V	Anti-metabolites, afflatoxins and fiber . Protein deficiency, vitamin and mineral deficiency symptoms Nutritional pathology and ant-nutrients
		Importance of natural and supplementary feeds, balanced diet.
Mar-2021	V	
DEPARTMENT OF ZOOLOGY SEMESTER – IV 2020-2021 CURRICULAR PLAN

Subject Code: AQU 401C

Title: Fresh water & Brackish water Aquaculture

Month	Unit No.	Topic to be covered
Mar-2021	Ι	Status, scope and prospects of fresh water aquaculture in the world, India and AP Different fresh water aquaculture system
Apr - 2021	Π	Major cultivable Indian carps – Labeo, Catla and Cirrhinus & Minor carps Exotic fish species introduced to India – Tilapia, Pangassius and Clarius sp. Composite fish culture system of Indian and exotic carps Impact of exotic fish, Compatibility of Indian and exotic carps and competition among them
May-2021	III	Recent developments in the culture of clarius, anabas, murrels, Advantages and constraints in the culture of air-breathing and cold water fishes- seed resources, feeding, management and production Special systems of Aquaculture- brief study of culture in running water, re-circulatory systems, Cages and pens, sewage-fed fish culture
Jun-2021	IV	Fresh water prawns of India - commercial value Macrobrachium rosenbergii and M. Malcomsonii– biology, seed production, pond preparation stocking, management of nursery and grow-out ponds, feeding, mprphotypes and harvesting
Jul-2021	V	Culture of P.mondon – Hatchery technology and Culture practices including feed and disease management Culture of L. vannamei – hatchery technology and culture practices including feed and diseas management. Mixed culture of fish and prawns.

DEPARTMENT OF ZOOLOGY SEMESTER – V 2020-2021 CURRICULAR PLAN

Subject Code: AQU 501C

Title: Fish health management

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DEPARTMENT OF ZOOLOGY SEMESTER – V 2020-2021 CURRICULAR PLAN

Subject Code: AQU 502C

Title: Extension, Economics & Marketing

Month	Unit No.	Topic to be covered
		1-1 Meaning and scope of economics with reference to fisheries
Aug-2021	Ι	
Sep- 2021	Ι	Basic concepts of economics – goods, services, wants and utility, demand and supply, value price, market demand and individual demand, elasticity of demand, law of diminishing marginal utility
		Theory of production, production function in fisheries
		various factors influencing the fishery product's price
		Fisheries marketing
	II	Basic marketing functions, consumer behavior and demand, fishery
		market survey and test marketing a product
Oct 2021		Fish marketing – prices and price determination of fishes Marketing institutions- primary (producer fishermen, fishermen cooperatives, and fisheries corporations) and secondary
001-2021	11	(merchant/agent/speculative middlemen)
		Methods of economic analysis of business organizations
		Preparation of project and project appraisal
	III	Fisheries economics
		Aquaculture economics- application of economics principles to
		aquaculture operations Various inputs and production function.
		Assumptions of production function in aquaculture analysis, least cost combination of inputs, laws of variable proportions
Nov-2021	III	Cost and earnings of aquaculture systems – carp culture, shrimp farming systems, hatcheries, Cost and earnings of fishing units and freezing plants
		Socio-economic conditions of fishermen in Andhra Pradesh, Role of Matsyafed and NABARD in uplifting fishermen's conditions, fishermen cooperatives
		Contribution of fisheries to the national economy
	117	Fisheries extension
	1 V	Fisheries extension – scope and objectives, principles and features of
		fisheries extension education
	IV	Fisheries extension methods and rural development
		Adoption and diffusion of innovations
	V	Transfer of technology
Dec-2021		ICAR programs – salient features of ORP, NDS, LLP, IRDP, ITDA,
		KVK, FFDA, FCS, FTI, TRYSEM
		Training – meaning, training vs. education and teaching
		DAATT centers and their role in tot programs, video conferencing,
		education of farmers through print and electronic media.

DEPARTMENT OF CHEMISTRY (PG)

A.G.& S.G. Siddhartha Degree College of Arts & Science, Vuyyuru-521165		
SEMESTER TEACHING PLAN		
Department: Chemistry(PG)	Course Code: CH1T1	
Semester: I	Course Name: General Chemistry	
Month	Topics to be covered during the month	
July	Treatment of analytical data : Classification of errors – Determinate and indeterminate errors –Minimisation of errors – Accuracy and precision – Distribution of random errors – Gaussian distribution – Measures of central tendency – Measures of precision – Standard deviation – Standard error of mean – student's t test – Confidence interval of mean – Testing for significance – Comparison of two means – F – test – Criteria of rejection of an observation – propagation of errors – Significant figures and computation rules – Control charts – Regression analysis – Linear least squares analysis.	
Aug	Introduction to Molecular Spectroscopy: Motion of molecules-Degrees of freedom –Energy associates with the degrees of freedom-Type of spectra. Microwave spectroscopy: Classification of molecules, rigid rotator model, effect of isotopic substitution on the transition frequencies, Intensities non-rigid rotator- Microwave spectra of polyatomic molecules.	
	Rotational Vibrational Spectroscopy: Harmonic oscillator, vibrational	
Sep	energies of diatomic molecules, zero-point energy, force constant and bond strengths, anharmonicity, Morse potential energy diagram. Vibration – rotation spectroscopy. PQR branches, Born–Openheimer approximation, selection rules, normal modes of vibration, group frequencies, overtones, hot bands, applications.	
Oct	Titrimetric Analysis: Classification of reactions in titrimetric analysis- Primary and secondary standards-Neutralisation titrations-Theory of Neutralization indicators-Mixed indicators- Neutralisation curves-Displacement titrations- Precipitation titrations-Indicators for precipitation titrations-Volhard method-Mohr method- Theory of adsorption indicators-Oxidation reduction titrations-Change of electrode potentials during titration of Fe(II) with Ce(IV)- Detection of end point in redox titrations-Complexometric titrations- Metal ion indicators-Applications of EDTA titrations-Titration of cyanide with silver ion.	
Nov	Symmetry and Group theory in chemistry: Symmetry elements, symmetry operation, definition of group, sub group, relation between order of a finite group and its sub group. GMT tables Abelian and non-abelian groups. Point group. Schonfiles symbols, Find out Point group of a molecule (yes or no Method). Representation of groups by Matrices (representation for the Cn, Cnv, Cnh, Dn etc. groups to be worked out, explicitly). Character of a representation. The great Orthogonality theorem (without proof) and its importance. Character tables and their use. Construction of Character tables.	

A.G.& S.G. Siddhartha Degree College of Arts & Science, Vuyyuru-521165 SEMESTER TEACHING PLAN		
Department: Chemistry(PG)	Course Code: CH1T2	
Semester: I	Course Name: Inorganic Chemistry	
Month	Topics to be covered during the month	
July	Introduction to Exact functions, derivation of wave equation using operator concept. Discussion of solutions of Schrodinger's equation to some model systems viz. particle in one dimensional box (applications), three-dimensional box, Rigid rotator system and the Hydrogen atom. Variation theorem, linear variation principle, perturbation theory (first order and non-degenerate), Application of variation method to the Hydrogen atom. Quantum Mechanical Results: Schrodinger equation, importance of wave function, Operators, Eigen values and Eigen	
Aug	Metal–ligand bonding: Crystal Field Theory of bonding in transition metal complexes-Splitting of d-orbitals in octahedral, tetrahedral, square planar, Trigonal bipyramidal and Square pyramidal fields. Tetragonal distortions - Jahn-Teller effect. Applications and limitations of CFT. Experimental evidences for covalence in complexes. Molecular Orbital Theory of bonding for Octahedral, tetrahedral and square planar complexes. π -bonding and MOT	
Sep	Metal – ligand Equilibria in solutions: Step wise and over all formation constants. Trends in stepwise constants (statistical effect and statistical ratio). Determination of formation constants by Spectrophotometric method (Job's method) and pH metric method (Bjerrum's). Stability correlations - Irwing - William's series. Hard and soft acids and bases (HSAB).	
Oct	Structure and Bonding: $p\pi$ - $d\pi$ bonding, Bent's rule, Non-valence cohesive forces, VSEPR theory. Molecular Orbital theory, Molecular orbitals in triatomic (BeH ₂) molecules and ions (NO ₂ ⁻) and energy level diagrams. Walsh diagrams for linear (BeH ₂) and bent (H ₂ O) molecules.	
Nov	Chemistry of non- transition elements: Halogen oxides and oxyfluorides, Spectral and Magnetic properties of Lanthanides and Actinides. Analytical applications of Lanthanides and Actinides. Synthesis, properties and structure of B-N, S-N, P-N cyclic compounds. Intercalation compounds. Metal π - complexes: preparation, structure and bonding in Nitrosyl, Dinitrogen and Dioxygen complexes.	

Department: Chemistry(PG)	Course Code: CH1T2
Semester: I	Course Name: Organic Chemistry
Month	Topics to be covered during the month
July	Nature of bonding and Aromaticity: Nature of bonding: Localised and Delocalized, Delocalised chemical bonding conjugation, cross conjugation, hyper conjugation, Tautomerism. Aromaticity: Concept of Aromaticity, Aromaticity of five membered, six membered rings - Non benzonoid aromatic compounds:-cyclopropenylcation, Cyclobutadienyldication, cyclopentadienyl anion-tropyllium cation and cyclooctatetraenyl dianion. Homoaromaticity, Anti aromaticity
	Reactive intermediates & Reactive Species: Reactive intermediates:
Aug	Generation, Structure, Stability, Detection and Reactivity of Carbocations, Carbanions, Free radicals, Carbenes, Nitrenes and Arynes.Reactive Species: Generation and reactivity of Electrophiles, Nucleophiles, Dienophiles, Ylids
Sep	Addition Reactions: Additions: Addition to carbon – carbon multiple bonds, HX, X2, HOX, stereo chemistry of addition, formation and reaction of epoxides, syn and anti hydroxylation, hydrogenation(catalytic and Non catalytic), synthetic reactions of CO and CN and Cram's rule.
Oct	Eliminations Reactions:Types of elimination (E1, E1cB, E2) reactions, mechanisms, stereochemistry and orientation, Hofmann and Saytzeff's rules, Syn elimination versus anti elimination. Competitions between elimination and substitution.Dehydration, dehydrogenation, dehalogenation, decarboxylative elimination, pyrolytic eliminations.
Nov	Substitution Reactions: Aliphatic Nucleophilic substitutions: The SN2, SN1, mixed SN1 and SN2 and SNi reactions : Mechanism, effect of structure, nucleophile, leaving group on substitutions. The neighbouring group mechanism, participation by σ and π bonds, anchimeric assistance.Aromatic Nucleophilic substitution: The SNAr (Addition – Elimination), SN1(Ar) mechanisms and benzyne mechanism (Elimination – Addition).Reactivity- effect of substrate structure, leaving group and attacking nucleophile. The Von-Richter, Sommelet – Hauser and Smiles rearrangements.

Department: Chemistry(PG)	Course Code: CH1T2
Semester: I	Course Code: CH1T2
Month	Course Name: Physical Chemistry
July	Thermodynamics – I: Classical thermodynamics - Brief review of first and second laws of thermodynamics - Entropy change in reversible and irreversible processes - Entropy of mixing of ideal gases - Entropy and disorder – Free energy functions - Gibbs-Helmholtz equation - Maxwell partial relations - Conditions of equilibrium and spontaneity - Free energy changes in chemical reactions: Van't Hoff reaction isotherm - Van't Hoff equation - Clausius Clapeyron equation - partial molar quantities - Chemical potential - Gibbs- Duhem equation - partial molar volume - determination of partial molar quantities - Fugacity - Determination of fugacity - Thermodynamic derivation of Raoult's law.
Aug	 Surface phenomena and phase equilibria - Surface tension - capillary action - pressure difference - across curved surface (young - Laplace equation) - Vapour pressure of small droplets (Kelvin equation) - Gibbs-Adsorption equation - BET equation - Estimation of surface area - catalytic activity of surfaces – ESCA, X- ray fluorescence and Auger electron spectroscopy. Surface active agents - classification of surface active agents - Micellization -
Sep	 Electrochemistry – I - Electrochemical cells - Measurement of EMF - Nernst equation – Equilibrium constant from EMF Data - pH and EMF data - concentration cells with and without transference – Liquid junction potential and its determination - Activity and activity coefficients - Determination by EMF Method - Determination of solubility product from EMF measurements. Debye Huckel limiting law and its verification. Effect of dilution on equivalent conductance of electrolytes - Anomalous behaviour of strong electrolytes. Debye Huckel-Onsagar equation - verification and limitations, conductometric titrations
Oct	Chemical kinetics - Methods of deriving rate laws - complex reactions - Rate expressions for opposing, parallel and consecutive reactions involving unimolecular steps. Theories of reaction rates -collision theory - Steric factor - Activated complex theory - Thermodynamic aspects – Unimolecular reactions - Lindemann's theory - Lindemann-Hinshelwood theory. Reactions in solutions - Influence of solvent - Primary and secondary salt effects - Elementary account of linear free energy relationships - Hammet - Taft equation - Chain reactions - Rate laws of H2-Br2, photochemical reaction of H2 - Cl2, Decomposition of acetaldehyde and ethane - Rice-Herzfeld mechanism
Nov	Potentiometry: Advantages of potentiometric methods - Reference electrode - Standard hydrogen electrode .Acid- alkali or Neutralisation titration, Oxidation – reduction titrations, Precipitation titrations, complexometric titrations, Methods of end point location (Graphical, Differentiation method, Pinkhof- Treadwell method). Calomel electrode -Indicator electrodes: Metal-metal ion electrodes - Inert electrodes - Membrane electrodes - theory of glass membrane potential - Direct potentiometry, potentiometric titrations - Applications.

Semester: II	Course Code: CH2T2
Month	Course Name: Inorganic Chemistry
July	Reaction mechanism of transition metal complexes: Kinetics of octahedral substitution, acid hydrolysis, base hydrolysis-conjugate base (CB) mechanism. Direct and indirect evidences in favour of CB mechanism. Anation reactions. Reactions without metal-ligand bond cleavage. Factors affecting the substitution reactions in octahedral complexes. Trans effect on substitution reactions in square planar complexes. Mechanism of redox reactions, outer sphere mechanism, cross reactions and Marcus –Hush equation, inner sphere mechanism.
Aug	Term symbols and Electronic spectra: Term symbols: Term symbols and their derivation, Microstates, Hunds rules to predict ground terms and ground states. List of ground energy and higher energy terms from d1 to d9 configurations; Electronic spectra of transition metal complexes: Spectroscopic terms. Selection rules, Slator–Condon parameters, Racah parameters, Term separation energies for dn configurations, Orgel diagrams. Tanabe-Sugano diagrams for d1 to d9 configurations. Calculations of Dq, B and β parameters. Charge transfer spectra.
Sep	Bio-inorganic chemistry and Magnetic properties of complexes: Storage and transport of dioxygen by Hemoglobin and Myoglobin, Vitamin B12 and its importance. Magnetic properties of transition metal complexes: Types of magnetism, factors affecting Para magnetism, anomalous magnetic moments - Orbital and spin contribution, spin-orbit coupling and magnetic moments chiro optical properties, cotton effect and Faraday effect.
Oct	Non-metal cages and metal clusters: Structure and bonding in phosphorous-oxygen, phosphorous-Sulphur cages; structure and bonding in higher boranes with (special reference to B12 icosahedra). Carboranes, metalloboranes, metallocarboranes. Classification- LNCs and HNCs, Isoelectronic and Isolobal relationships, electron counting rules: Wade's and Lauher's rules. M-M multiple bonding; preparation, structure and bonding in dinuclear [Re2C18] 2- ion, trinuclear [Re3C19], tetra nuclear W4(OR)16, hexa nuclear [Mo6C18]4+ and [Nb6C112]2
Nov	Organometallic chemistry of transition metals: Classification and electron counting rules, hapticity, synthesis, structure and bonding of Olefinic complexes, Acetylene complexes, ferrocene, dibenzene chromium, cyclo heptatriene and tropylium complexes of transition metals. Reactions of organometallic compounds - oxidative addition reductive elimination, insertion and elimination. Applications of organometallic compounds, Catalytic hydrogenation, Hydroformylation, alkene polymerization.

Semester: II	Course Code: CH2T2
Month	Course Name: Inorganic Chemistry
	Chemistry Laboratory safety symbols – Meaning:
T 1	Corrosive, carcinogenic, Harmful, toxic, dangerous to environment,
July	Explosive, flammable, Narcotic, Oxidizing, Lachrymatory, Radioactive,
	irritant, gases under pressure, general laboratory safety precautions.
	Environmental Chemistry:
Aug	Ambient air quality standards, Acid rain, Smog, Greenhouse effect, Bhopal gas tragedy, Vishakhapatnam polymer industry tragedy, Renewable and Nonrenewable energy resources, DO, COD, BOD, Toxicity of lead, mercury, arsenic and Cadmium
	Bioinorganic Chemistry:
Sep	Essential elements, biological significance of Na, K, Mg, Ca, Fe,
	Metalloporphyrin – Structure and functions of hemoglobin, Myoglobin
	Biological functions of Hormones:
Oct	Introduction, Types of harmones, Role of Anderstrone, Progestrone and
	thyroxin, action of cortisone, Insulin
	Medicinal Chemistry:
Nov	The role of vitamins – K,E,D,C,B – complex, classification of antibiotics,
INOV	mechanism of antibiotics action - role of ampicillin, chloromycetin and
	amoxicillin as antibiotics.

Semester: II	Course Code: CH2T2
Month	Course Name: Organic Chemistry
July	Named reactions: Aldol condensation, Benzoin condensation, Cannizzaro condensation, claisen condensation, Dieckmann condensation, Perkin condensation, Stobbe condensation, Reformatsky reaction, Mannich reaction, Reimer-Tiemann reaction, Vilsmeier-Haack reaction, Shapiro reaction, McMurray reaction, Michael addition reaction, Wittig reaction, Stork – Enamine reaction, Acyloin condensation, Robinson ringannulation and Simmon-Smith reaction
Aug	Stereo Chemistry-I: Concept of chirality, Recognition Symmetry elements. Definition and classification of Stereoisomers, Enantiomer, Diastereomer, Homomer, Epimer, Anomer, Configuration and Conformation, Configurational nomenclature: D,L and R, S nomenclature. Molecular representation of organic molecules: Fischer, Newman and Sawhorse projections and their inter-conversions.Geometrical Isomerism. Cis-trans, E, Z- and Syn and anti nomenclature, Methods of determining configuration of Geometrical isomers using physical, spectral and chemical methods.
Sep	Stereo Chemistry-II: Definition of Conformation, Conformational analysis of acyclic molecules – alkanes and substituted alkanes. Conformational analysis of monocyclic molecules – cyclohexane – chair, boat and twist boat - mono and disubstituted cyclohexanes and conformation around carbon hetero atom bonds having C– O & C–N. Confirmationand intramolecular hydrogen bonding
Oct	Green chemistry & Phase transfer catalysis: Introduction to Green chemistry, Principles and concepts of Green chemistry, Green Catalysis, Biocatalysis, renewable resources, Green Reagents, examples of green reactions-synthesis of Ibuprofen, Clean Fischer-Indole synthesis comparison of the above with conventional methods. Introduction to Microwave organic synthesis: introduction, advantages and disadvantages. Applications: solvents (water and organic solvents), solvent free reactions (Solid state reactions).
Nov	Chemistry of Nanomaterials: Introduction, carbon nanotubes: structure of single and multi-walled carbon nanotubes, synthesis-solid and gaseous carbon source-based production techniques, synthesis with controlled orientation. Growth mechanism of carbon nano tubes-catalyst free growth, catalyst activated growth, general properties and applications.

Semester: II	Course Code: CH2T2
Month	Course Name: Organic Spectroscopy
July	UV- Visible Spectroscopy: Mechanics of measurement – Energy transitions – Simple chromophores – Auxochrome, Absorption shifts (Bathochromic shifts, Hypsocromic shift, Hyper chromic shift, Hypo chromic shift). UV absorption of Alkenes – polyenes, unsaturated cyclic systems . UV absorption of Carbonyl compounds α,β -unsaturated carbonyl systems - UV absorption aromatic systems – solvent effects – geometrical isomerism – acid and base effects – typical examples – calculation of λ max values for simple molecules using Woodward -Fieser rules
Aug	IR Spectroscopy: Mechanics of measurement – Fundamental modes of vibrations -Stretching and bending vibrations – Factors effecting vibrational frequency-hydrogen bonding. Finger print region and its importance. Typical group frequencies for – CH, -OH, -NH, -CC, -CO and aromatic systems - Application in structural determination Examples – simple problems
Sep	Nuclear Magnetic Resonance Spectroscopy (1HNMR – First Order PMR): Introduction:Nuclear spin-Basic principle of -NMR - nuclear resonance –saturation-Larmor's frequency-Relaxation- Instrumentation(Cw and FT) shielding and de shielding of magnetic nuclei- chemical shift and its measurements, factors influencing chemical shift, spin–spin interactions and factors influencing spin -spin coupling- Dynamic NMR- coupling constant J. and factors effecting J value.
Oct	Mass Spectrometry I Introduction- ionization methods-EI, CI, ES, MALDI and FAB – advantages and disadvantages-molecular ion peak and its importance, meta stable peak, Nitrogen rule and extension of nitrogen rule. Determination of Molecular weight and determination of molecular formulae- Isotopic Peaks- Identification of single chlorine atom and double chlorine atom single bromine atom and double bromine atoms in organic compounds. Instrumentation.
Nov	Mass Spectrometry II Fundamental fragmentation process- Stevenson's rule- radical site initiated cleavage- charge site initiated cleavage- two bond cleavage- Retrodielalder cleavage- Mc- Lafferty rearrangement and other cleavages. Mass spectral fragmentation of alkanes, cycloalkanes, alkenes, alkynes, aromatic hydrocarbons, alcohols, phenols, thiols, ethers, carbonyl containing compounds (Aldehydes, ketones, esters and carboxylic acids), nitrogen compounds, alkyl chlorides and alkyl bromides, Examples of mass spectral fragmentation of organic compounds with respect to their structure determination

Semester: II	Course Code: CH2T2
Month	Course Name: Physical Chemistry
July	Third law of Thermodynamics and Statistical thermodynamics : Nernst Heat theorem -Third law of thermodynamics - Its limitations - Determination of absolute entropy - Thermodynamic probability and most probable distribution, Entropy and probability - Boltzmann-Plank equation. Ensembles, Maxwell-Boltzmann distribution, Fermi- Dirac statistics, Bose Einsteinstatistics. Partition function - calculation of thermodynamic properties in terms of partition function- Chemical equilibrium and partition function - Translational, rotational and electronic partitionfunction - Entropy of Monoatomic gases (Sackur-Tetrode equation).
Aug	Polymer chemistry and Raman Spectroscopy: Classification of polymers - Free radical,ionic and Zeigler -Natta Polymerization - kinetics of free radical polymerization -Techniques ofpolymerization -Glass transition temperature - Factors influencing the glass transition temperature.Number average and Weight average, Molecular weights –molecular weights determinations –Membrane Osmometry, Light scattering phenomenon. Classical and quantum theories of Ramaneffects, pure rotational, vibrational and Vibrational- rotational Raman spectra, selection rules, mutual exclusion principle
Sep	Electro Chemistry-II: Reference electrode - Standard hydrogen electrode. Calomelelectrode -Indicator electrodes: Metal-metal ion electrodes - Inert electrodes -Membrane electrodes-theory of glass membrane potential, potentiometric titrations, advantages of potentiometric titrations, Conductometric titrations. Electrode potentials - Double layer at the interface - rate ofcharge transfer - Decomposition potential - Over potential - Tafel plots - Derivation of Butler-Volmer equation for one electron transfer - electro chemical potential.
Oct	Chemical kinetics and Photo chemistry: Branching Chain Reactions – Hydrogenoxygenreaction - lower and upper explosion limits - Fast reactions - Study of kinetics by flowmethods - Relaxation methods - Flash photolysis. Acid base catalysis –protolytic and prototropicmechanism. Enzyme catalysis - Michelis-Menten kinetics. Photochemistry: Quantum yield and itsdetermination, Actinometry, Reactions with low and high quantum yields, Photo sensitization,Exciplexes and Excimers, Photochemical equilibrium, Kinetics of collisional quenching - Stern-Volmer equation.
Nov	Symmetry and Group theory in chemistry : Symmetry elements, symmetry operation, definition of group, sub group, relation between order of a finite group and its sub group. GMT tables Abelian and non-abelian groups. Point group. Schonfiles symbols, Find out Point group of a molecule (yes or no Method). Representation of groups by Matrices (representation for the Cn, Cnv, Cnh, Dn etc. groups to be worked out, explicitly). Character of a representation. The great Orthogonality theorem (without proof) and its importance. Character tables and their use. Construction of Character tables.

Semester: III	Course Code: CH4T1
Month	Course Name: Advanced Organic Spectroscopy
	Proton NMR Spectrscopy:
	Determination of structure of organic compounds using PMR data. Spin
July	system, Nomenclature of spin system, spin system of simple and complex PMR spectrum (Study of $AB - A_2 - AB_2$. ABX – ABC – AMX interactions)
	Simplification of complex spectra- nuclear magnetic double resonance, chemical shift reagents, solvent effects on PMR Spectrum .
	ORD& CD Curves: Optical rotatory dispersion : Theory of optical rotatory
Aug	dispersion – Cotton effect –CD curves-types of ORD and CD curves-
U	Octant rule – application in structural studies.
	13C-NMR spectroscopy: Similarities and Difference between PMR and
	CMR-CMR recording techniques -BBC-BBD-SFORD-Gate pulse CMR
Sen	spectrum.
Sep	General considerations, chemical shift (aliphatic, olefinic, alkyne, aromatic,
	heteroaromatic and carbonylcarbon), coupling constants.Typical examples of
	CMR spectroscopy – simple problems
	2D NMR spectroscopy: Definitions and importance of COSY, DEPT,
	HOMCOR, HETCOR, INADEQUATE, INDOR, INEPT, NOESY,
Oct	HOM2DJ, HE12DJ.
001	Study of COSY, DEPT, HOMCOR, HETCOR, INADEQUATE
	INDOR INEPT ,NOESY HOM2DJ, HET2DJ, taking simple organic
	compounds as examples.
	Structural Elucidation of Organic compounds Using UV, IR, 1H-NMR,
	13C-NMR and Mass spectroscopy.
New	
INOV	

Semester: III	Course Code: CH4T1
Month	Course Name: Advanced Organic Spectroscopy
July	Alkaloids: Introduction, Definition, occurrence, role of alkaloids in plants, classification, isolation and general methods for structural elucidation of alkaloids. Structure elucidation of Morphine, Vincristine, Quinine and Reserpine
Aug	Terpenoids : Introduction, Definition, nomenclature, classification, isolation, isoprene rule and general methods for structural elucidation of Terpenoids. Structure elucidation of Zingiberene, Santonin, farnesol and abietic acid.
Sep	Steroids: Introduction, Definition, nomenclature, classification. Occurrence, isolation, physiological action, structure elucidation of Cholesterol, Androsterone, Ttestosterone and Progesterone
Oct	Flavonoids and Isoflavonoids: Introduction, Definition, classification, isolation, physiological action, structure elucidation of Kaempferol and Quercetin
Nov	Pigments: Introduction, classification of natural pigments, introduction and classification of carotenoids, functions of carotenoids in plants and animals, structure and synthesis of α – carotene and β – carotene.

Semester: III	Course Code: CH4T1
Month	Course Name: Advanced Organic Spectroscopy
July	Oxidations: Definition and types of Oxidations, oxidations with ruthenium tetroxide, iodobenzenediacetate, TI(III) nitrate, Chromium (VI) oxidants, Lead tetra acetate, SeO2, MnO2, Ag2CO3, Oppenauer oxidation, perhydroxylation using KMnO4, OsO4, HIO4, oxidation with iodine silver carboxylate (Woodward and Prevost conditions), Definition & mechanism of epoxidation by peracids.
Aug	Reductions : Definition and types of reductions, reduction by dissolving metals - Reduction with metal and liquid ammonia (Birch Reduction of aromatic compounds), Reduction with metal acid - Clemensons reduction, Reduction by hydride transfer reagents, Aluminium alkoxide - Meerwein Pondorf Verley Reduction, LiAlH4, NaBH4, Diisobutylaluminium hydride(DIBAL), Sodium cyano borohydride, trialkyl borohydrides, Reduction with diimide,. Wolff-Kishner reduction
Sep	Molecular Rearrangements:Migration to electron deficient carbon atom.Pinacole-Pinacolone rearrangement,Wagner-Meerwein rearrangement,Dienone-Phenol rearrangement,Benzil-Benzilic acid rearrangement,Favorski rearrangement,Benzil-Benzilic acid rearrangement,Favorski rearrangement,Schmidt,Beckmann rearrangement,Baeyer-Villiger rearrangement,Stevens,Neberrearrangements.Fries,Fischer-Hepp,Orton,Bamberger,Dakin,CumeneHydroperoxide rearrangement.
Oct	Pericyclic Reactions – I :Definition, classification of pericyclic reactions, Molecular Orbital energy level diagrams, electronic configuration in ground and first excited states of Ethylene, 1,3-Butadiene, 1,3,5 – Hexatriene, allyl system, stereo chemical notations – suprafacial, antarafacial, conrotatory and disrotatory modes, Woodward and Hoffmann selection rules. Electrocyclic reactions : Mechanism, Stereochemistry of (4n) and (4n+2) π systems. PMO, FMO and correlation methods. Cyclo additions : Mechanism, stereochemistry of (2+2) and (4+2) π systems, PMO, FMO and correlation methods. Sigmatropic rearrangements : Classification, mechanism for FMO and PMO approach under thermal and photo chemical conditions. (Detailed treatment of Claisen, Cope rearrangements fluxional molecules, aza-cope rearrangements).
Nov	Photochemistry: Photochemical processes: Energy transfer, sensitization and quenching. Singlet and triplet states and their reactivity. Photochemistry of olefins – conjugated olefins, Aromatic compounds–isomerisation–additions. Photochemistry of carbonyl compounds – Norrish type I and II reactions –Paterno – Buchi Reaction. Photoreduction, Photochemical rearrangements–Photo Fries rearrangement, Di- π -methane rearrangement, Barton reaction.

Semester: III	Course Code: CH4T1
Month	Course Name: Advanced Organic Spectroscopy
July	 Formation of carbon-carbon single bonds: Alkylation of relatively acidic methylene groups, alkylation of ketones, enamine and related reactions, umplong (dipole inversion). Allylic alkylation of alkenes, alkylation of α-thiocarbanions- α-selenocarbanions, formation of carbon carbon single bonds by the addition of free radicals to alkenes, synthetic applications of carbenes and carbenoids
Aug	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Sep	Diels-Aider and related reactions: The dienophile, heterodienophile, oxygen as dienophile, The diene, acyclic dienes, heterodienes, 1,2- dimethylene cycloalkanes, vinyl cycloalkenes, and vinyl arenes, cyclic dienes and furans. Intra molecular Diels –Alder reactions, stereochemistry and mechanism of Diels – Alder reaction, retro Diels – Alder reaction, catalysis by lewis acids, photosensitized Diels- Alder reactions and 1,3-dipolar cycloaddition reactions.
Oct	Disconnection approach Introduction to Retro-synthetic analysis, Disconnection approach with suitable examples, Definitions: FGI, Disconnection, synthons, synthetic equivalent, reagent, target molecule, General strategy: choosing a disconnection, greatest simplification, symmetry, high yielding steps, recognizable starting materials. Chemo, regio and stereo selectivity with examples. One group C-C disconnections-Alcohols, carbonyl compounds, alkene synthesis, two group disconnections: 1,3 – dicarbonyl compounds, α,β – unsaturated carbonyl compounds.
Nov	Protecting groups: Theory and importance of functional group protection and deprotection in organic synthesis:-Protecting agents for the protection of functional groups: Hydroxyl group, Amino group, Carbonyl group and Carboxylic acid group carbon-carbon multiple bonds; chemo- and regioselective protection and deprotection. Illustration of protection and deprotection in organic synthesis.

A.G&S.G.S DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

DEPARTMENT OF COMPUTER SCIENCE

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: CSC101C

Title: Problem Solving in 'C'

Month	Unit No.	Topic to be covered
	Ι	Introduction to Algorithms and Programming
Feb-21	II	Languages: Decision Control and Looping Statements
March-21	II III	Break and Continue Statement – Go to Statement Functions: Introduction – using functions – Function declaration/ prototype – Function definition.
April-21	IV	Arrays : Declaration of Arrays – Accessing elements of the Array. Strings: Introduction String and Character functions
May-21	V	Pointers : Introduction to Pointers – declaring Pointer Variables Passing Arguments to Functions using Pointer. Structure, Union.
June-21		Revision

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: CCSC103C

Title: Information Technology

Month	Unit No.	Topic to be covered
Feb-21	I	INTRODUCTION: RAM – ROM – EPROM - PROM and Other types of memory. OPERATING SYSTEM: Meaning - Definition & Functions, Types of OS - Booting process
March-21	II III	Windows: Using the Start Menu –Control Panel – Using multiple. SOFTWARE: System software, Application software, Programming Languages
April-21	IV	Data communication: LAN, WAN, VAN, virtual private network (VPN).
May-21	V	New technologies: Introduction to hyper media, AI, KDD, OLAP, OLTP.
June-21		Revision

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: CSC201C

Title: Data Structures Using 'C'

Month	Unit	Topic to be covered
	No.	
	Ι	Introduction to Data Structures, Principles of Programming and
June-21	II	Analysis of Algorithms . Arrays: Introduction to Linear and Non- Linear
		Data Structures
	II	Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory
July-21	III	Allocation. Stacks, Queue Circular Queues, Double Ended Queues-
		Deques, Priority Queues, Application of Queues
	IV	Binary Trees, Applications of Binary Tree, Properties of Binary Trees
August-21		
	V	Graphs, Searching and sorting
Sep-21		
		Revision
Oct-21		

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: CCSC203C

Title: E-Commerce with Web Designing

Month	Unit No.	Topic to be covered
	Ι	Meaning, Nature, Concepts, Advantages, Disadvantages and reasons for
June-21	II	Transacting Online, Types of E-Commerce, e-commerce Business
		Models.
		Models and methods of e-payments (Debit Card, Credit Card, Smart
		Cards, e-money),
	II	Risks Involved in e-payments.
July-21	III	On-line Business Transactions: Meaning, Purpose, Advantages and
		Disadvantages of Transacting Online, E- Commerce Applications in
		Various Industries
	IV	Website designing : Introduction to HTML, Basic html, Document
August-21		body text, Hyperlinks, Lists, Tables, Images, Frames, Forms and
		XHTML
	V	Security and Encryption : Need and Concepts, E-Commerce Security
Sep-21		Environment: (Dimension, Definition and Scope Of E-Security),
		Security Threats in The E-Commerce Environment
		Revision
Oct-21		

SEMESTER – III

2020-21 CURRICULAR PLANS

Month	Unit No.	Topic to be covered
Nov-2020	I II	Introduction to Java: Naming Conventions and Data Types, Operators in Java, Input and Output, Arrays, Strings, Introduction to OOPs, Classes and Objects
Dec-2020	II III	Methods in Java, Inheritance. Polymorphism, Type Casting, Abstract Classes, Interfaces, Packages, Exception Handling
Jan-'21	IV	Streams, Threads: Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads
Feb-'21	V	Applets, Java Database Connectivity: Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySql Database.
Mar-'21		Revision

Subject Code: CSC 301CTitle: Object Oriented Programming through JAVA

SEMESTER – III

2020-21 CURRICULAR PLANS

Subject Code: CCSC 301C

Title: **OAT**

Month	Unit No.	Topic to be covered
Nov-2020	I II	Concept of Abstract Data Types (ADTs), Lists Arrays, Stacks.
Dec-2020	II III	Queues : Definition, ADT, Array and Linked representations , Trees : Binary Tree, Definition, Properties
Jan-'21	IV	Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees
Feb-'21	V	Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential And Binary Searching.
Mar-'21		Revision

SEMESTER – IV

2020-21 CURRICULAR PLANS

Subject Code: CSC 401C

Title: Data Structures

Month	Unit No.	Topic to be covered
April-21	I II	Concept of Abstract Data Types (ADTs), Lists Arrays, Stacks.
May-2020	II III	Queues : Definition, ADT, Array and Linked representations , Trees : Binary Tree, Definition, Properties
June-'21	IV	Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees
July-'21	V	Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential And Binary Searching.
August-'21		Revision

SEMESTER – IV

2020-21 CURRICULAR PLANS

Subject Code: CCSC 401C Title: Programming in 'C'

Month	Unit No.	Topic to be covered
April-21	I II	Introduction to Algorithms and Programming Languages: Decision Control and Looping Statements
May-2020	II III	Break and Continue Statement – Go to Statement Functions: Introduction – using functions – Function declaration/ prototype – Function definition.
June-'21	IV	Arrays : Declaration of Arrays – Accessing elements of the Array. Strings: Introduction String and Character functions
July-'21	V	Pointers : Introduction to Pointers – declaring Pointer Variables Passing Arguments to Functions using Pointer. Structure, Union.
August-'21		Revision

SEMESTER – V

2020-21 CURRICULAR PLANS

Subject Code: CSC 501C

Title: Database Management System

Month	Unit No.	Topic to be covered
	Ι	Introducing the database and DBMS, Why the database is
Nov-2020	II	important, Historical Roots
		Database Systems, Relational Database & Data Modeling
		Model
	II	Entity Relationship Model
Dec-2020	III	Normalization and Database Design
		Database Design
	IV	Structured Query Language: Introduction to SQL: Data
Jan-'21		Definition Commands, Data Manipulation Commands
Feb-'21	V	Procedural SQL: Introduction to PL/SQL: Triggers, Stored
		Procedures, Pl/ SQL Stored Functions
		Revision
Mar-'21		

SEMESTER – V

2020-21 CURRICULAR PLANS

Subject Code: CSC502C

Title: Software Engineering

Month	Unit No.	Topic to be covered
	Ι	Introduction to Software Engineering & Process : The
Nov-2020	II	Evolving Role of Software, Process, Framework, Process
		Model
	II	Evolutionary Process Models: Prototyping, The Spiral
Dec-2020	III	Model, And The Concurrent Development Model.
		Requirements Engineering: Requirements Engineering Tasks
	IV	Design Process And Design Quality - Design Concepts - The
Jan-'21		Design Model: Data Design Elements
	V	Software Quality:
Feb-'21		Quality and Quality Concepts, Software Quality Assurance
		(SQA), The SQA Plan.
Mar-'21		Revision

SEMESTER – V

2020-21 CURRICULAR PLANS

	Subject Co	ode: CSC505C Title: JAVA
Month	Unit No.	Topic to be covered
	Ι	Fundamentals of Object – Oriented Programming,
Nov-2020	II	Constants, Variables & Data Types
	II	Operators. Instance Working with Strings.
Dec-2020	III	Decision Making & Branching: if statement, Simple if
		statements, if-Else statement, Nesting of if-else statements,
		the else if ladder, the switch, Looping: for. do-while, while
	IV	Classes, Objects & Methods: Introduction, defining a class,
Jan-'21		adding variables, adding methods, creating objects,
		Accessing class members, Constructors, Method
		overloading, Method Overriding, Static members, Nesting of
		methods;
		,
	V	Inheritance: Introduction, Defining interfaces, Extending
Feb-'21		interfaces, Implementing interfaces, Assessing interface
		variables:
		Revision
Mar-'21		

SEMESTER – V

2020-21 CURRICULAR PLANS

Subject Code: CSC506C

Title: DATA BASE MANAGEMENT SYSTEM

Month	Unit No.	Topic to be covered
	Ι	Database Systems Introduction Relational Database &
Nov-2020	II	Data Modeling
	II	Advanced Data Modeling: The Extended Entity Relationship
Dec-2020	III	Model, Entity clustering Normalization and Database
		Design: 1NF, 2NF, 3NF, BCNF, de normalization.
	IV	Structured Query Language: DDL, DML, JOINS
Jan-'21		
	V	Procedural SQL: Introduction to PL/SQL : Triggers, Stored
Feb-'21		Procedures, Pl/ SQL Stored Functions
		Revision
Mar-'21		

SEMESTER - V

2020-21 CURRICULAR PLANS

Subject Code: CSC507C

Title: WEB TECHNOLOGY

Month	Unit No.	Topic to be covered
	Ι	Introduction to HTML, Basic html, Document body text,
Nov-2020	II	Hyperlinks, Lists, Tables, Images, Frames, Forms and
		XHTML
		Cascading Style Sheets: Introduction, Defining your own
		styles, properties
	II	String Manipulations, Mathematical functions, Statements,
Dec-2020	III	Operators.
		Objects in Java Script & Dynamic HTML with Java
		Script, HTML with Java Script: Data validation, Rollover
		buttons, Moving images.
T (01	IV	XML: Introduction to XML, Basic XML, document type
Jan-'21		definition, XML Schema, Document object model, Using
		XML parser.
Feb-'21	V	JSP Lifecycle, Basic Syntax, EL (Expression Language), EL
		Syntax Using FL Variables
		Syntax, Cong DD Variables
		Revision
Mar-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CSC601G

Title: WEB TECHNOLOGY

Month	Unit No.	Topic to be covered
April-21	I II	Introduction to HTML , Basic html, Document body text, Hyper links Style Sheets: Introduction, Defining your own
1		styles, properties
	II	Java Script: java Script, the basics, Variables Objects in
May-2020	III	Java Script & Dynamic HTML with Java Script,
		Dynamic HTML
June-'21	IV	<i>XML:</i> Introduction to XML, Basic XML, document type definition, XML Schema, Document object model, presenting XML, Using XML parser.
	V	JSP: JSP Lifecycle, Basic Syntax, EL (Expression
July-'21		Language), EL Syntax, Using EL Variables
A		Revision
August-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CSC602C

Title: PHP/WORD PRESS

Month	Unit No.	Topic to be covered
	Ι	Installing and Configuring MySql
April-21	II	Working with Functions:
	II	Working with Objects: Creating Objects, Object Instance
May-2020	III	Working with Strings.
		Working with Forms: Creating Forms, Accessing Form
		Input with User defined Arrays, Combining HTML and PHP
		code on a single Page
	IV	Introduction to My SQL and Interfacing with Databases
June-'21		through PHP Understanding the database design process
	V	Word press: Introduction to word press, servers like
July-'21		wamp, bitnami e.tc, installing and configuring word press,
		understanding admin panel.
		Revision
August-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CSC603C

Title: JAVASCRIPT/JQUERY

Month	Unit No.	Topic to be covered
	Ι	JQuery – Basics
April-21	II	jQuery – CSS Methods
	II	jQuery – Events, jQuery – Effects: JQuery Effect Methods,
May-2020	III	Intro to jQuery UI
		Need of jQuery UI in real web sites, Downloading jQuery
		UI, Importing jQuery UI, Draggable, Droppable, Resizable,
		Selectable, Sortable
	IV	Intro to AJAX: Need of AJAX in real web sites, Getting
June-'21		database data using jQueryAJAX, Inserting, Updating,
		Deleting database data using jQuery
	V	Intro to AngularJS: Need of AngularJS in real web sites
July-'21		
		Revision
August-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CCSC605

Title: TALLY

Month	Unit No.	Topic to be covered
	Ι	Introduction, Software versions of Tally Introduction of
April-21	II	Tally Software Creation of a company
	II	Groups, pre defined Groups, Creation of New Groups,
May-2020	III	Creation of sub Group Ledger Creation Single and multiple
		Ledgers, Displaying & altering Ledgers, configure Ledger,
		Stock Ledger, Ledgers and their Group Allocation.
	IV	Types of vouchers - recording of vouchers - entry of
June-'21		payment voucher, Receipt voucher, sales voucher, purchase
		voucher, Journal Voucher, Contra Voucher, Debit & Credit
		Note
	V	Customizing the final accounts – Profit and Loss Account,
July-'21		Balance Sheet. Key board shortcuts in Tally. Generating the
		Reports from Tally, Trial Balance.
		Revision
August-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CCSC606C Title: E-COMMERCE

Month	Unit No.	Topic to be covered
	Ι	Introduction to E-Commerce
April-21	II	Business-to-Business Electronic Commerce
	II	Electronic Data Interchange (EDI), EDI: Nuts and Bolts EDI
May-2020	III	and Business.
		Internet and Extranet
	IV	Public Policy:
June-'21		From Legal Issues to Privacy : Legal Incidents, Ethical and
		Other public Policy Issues, Protecting Privacy, Protecting
		Intellectual Property
	V	Infrastructure For EC
July-'21		Network of Networks, Internet Protocols, Web- Based
		client/Server, Internet Security, Selling on the Web, Chatting
		on the Web.
		Revision
August-'21		

SEMESTER – VI

2020-21 CURRICULAR PLANS

Subject Code: CCSC607C

Title: PHP & My Sql

Month	Unit No.	Topic to be covered
	Ι	Installing and Configuring MySql
April-21	II	Working with Functions:
	II	Working with Objects: Creating Objects, Object Instance
May-2020	III	Working with Strings.
		Working with Forms: Creating Forms, Accessing Form
		Input with User defined Arrays, Combining HTML and PHP
		code on a single Page
	IV	Introduction to My SQL and Interfacing with Databases
June-'21		through PHP Understanding the database design process
	V	Word press: Introduction to word press, servers like
July-'21		wamp, bitnami e.tc, installing and configuring word press,
		understanding admin panel.
		Revision
August-'21		

DEPARTMENT OF COMPUTER SCIENCE (PG)

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: 20MCS101

Title: Data Structures

Month	Topic to be covered
July	Introduction and Overview: Elementary Data Organization, Data Structures, Data Structure operations, Algorithms: Complexity, Time-Space Tradeoff. Preliminaries: Mathematical Notation and Functions, Algorithmic Notation, Control Structures, Complexity of Algorithms, Other Asymptotic Notations, Sub Algorithms, Variables, Data Types.
Aug	String Processing: Storing Strings, Character Data Type, String Operations, Word Processing, Pattern Matching Algorithms. Arrays, Records and Pointers: Linear Arrays, Representation and Traversing Linear Arrays, Inserting and Deleting, Bubble Sort, Linear Search, Binary Search, Multidimensional Arrays, Pointer Arrays, Record Structures, Representation of records in memory, Parallel Arrays, Matrices, Sparse Matrices.
Sep	Linked Lists: Representation, Traversing, Searching, Memory Allocation: Garbage Collection, Insertion, Deletion, Header Linked Lists, Two-Way Lists. Stacks, Queues, Recursion: Stacks, Array representation, Linked List representation, Arithmetic Expressions; Polish notation, Quick Sort, Recursion, Towers of Hanoi, Implementation of recursive procedures by stacks, Queues, Linked representation of Queues, DEqueues, Priority Queues.
Oct	Trees: Binary Trees, Representing and Traversing Binary Trees, Traversal Algorithms Using Stacks, Header Nodes, Binary Search Trees, Searching, Insertion and Deletion in Binary Search Trees, AVL Search Trees, Insertion and Deletion in AVL Trees, M-Way Search Trees, Searching, Insertion and Deletion in M-Way Search Tree, B Trees, Searching, Insertion and Deletion in B-Tree, Heap: Heap Sort, Huffman's Algorithms, General Trees.
Nov	Graphs: Terminology, Sequential representation of Graphs, Warshall's Algorithm, Linked representation of Graphs, Operations on Graphs, Traversing a Graph, Topological Sorting. Sorting and Searching: Insertion Sort, Selection Sort, Merging, Merge Sort, Radix Sort, Searching and Data Modification, Hashing.

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: 20MCS102 Title: Programming and Problem Solving Using Python

Month	Topic to be covered
	Basics of Python Programming-Features of Python, History of
Iuly	Python, The Future of Python, Writing and Executing First Python
	Program, Literal Constants, Variables and Identifiers, Data Types,
July	Input Operation, Comments, Reserved Words, Indentation,
	Operators and Expressions, Expressions in Python, Operations
	on Strings, Other Data Types, Type Conversion.
	Basic Loop
	Structures, Nested Loops, The break statement, The continue
Aug	statement, The pass statement. The else statement used with loops.
	Functions and Modules- Function Definition, Function Call, Variable
	Scope and Lifetime, The return statement, More on Defining Functions,
	Recursive functions, Modules, Packages in Python, Standard Library
	Modules. Bythen Strings Devisited Constanting Amending and
	rython Strings Kevisited-Concatenating, Appending and
Sep	Multiplying Strings, String formatting operator, Built in String
	Methods and Functions, Comparing Strings, Regular
	Expressions.
	Data Structures- Sequence, Lists, Functional Programming, Tuple, Sets, Dictionaries.
Oct	Classes and Objects- Classes and Objects, Class Method and self
	Argument, Class variables and Object Variables, Public and Private
	Data Members, Private Methods, Calling a Class Method from
	Another Class Method, Built-in Class Attributes, Class Methods, Static
	Inheritance Inheriting Classes in Python Types of Inheritance
	intertance intertaing classes in 1 years of intertainee,
	Abstract Classes and Interfaces.
Nov	From and Exception Handling -Introduction to Errors and
	Exceptions, Handling Exceptions, Raising Exceptions, Built- in and
	User defined

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: 20MCS103

Title: Computer Organization

Month	Topic to be covered
	Introduction and Overview: Elementary Data Organization, Data Structures, Data Structure operations, Algorithms: Complexity, Time-Space Tradeoff. Preliminaries: Mathematical Notation and Functions, Algorithmic Notation,
	Control Structures, Complexity of Algorithms, Other Asymptotic Notations,
July	Sub Algorithms, Variables, Data Types. Digital Logic Circuits: Digital
	Computers, Logic Gates, Boolean Algebra, Map Simplification,
	Combinational Circuits, Flip-Flops, Sequential Circuits.
	Register Transfer and Micro Operations: Register Transfer Language, Register Transfer, Bus & Memory Transfers, Arithmetic Micro Operations, Logic Micro Operations, Shift Micro Operations, Arithmetic Logic Shift Unit.
Aug	Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing & Control, Instruction Cycle, Memory-Reference Instructions, Input-Output Interrupt.
	Micro Programmed Control: Control Memory, Address Sequencing, Micro Program Example, Design of Control Unit.
Sep	Central Processing Unit: General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control.
Oct	Computer Arithmetic: Introduction, Addition and Subtraction, Multiplication Algorithm, Floating Point Arithmetic Operations, Decimal Arithmetic Unit, Decimal Arithmetic Operations.
Nov	Input-Output Organization: Peripheral Devices, Input-Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt.
	Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory.

SEMESTER – I

2020-21 CURRICULAR PLANS

Subject Code: 20MCS104

Title: FORMAL LANGUAGES AND AUTUMATA

Month	Topic to be covered
	Fundamentals, Introduction to Finite Automata:
	Finite Automaton Model, Acceptance of Strings and Languages,
	Deterministic Finite Automata, Non-Deterministic Finite Automata,
T 1	Transition Diagrams, NFA with E-Transitions, Acceptance of
July	Languages, Conversions and Equivalence: Equivalence between NFA
	with and without E-Transitions, NFA to DFA Conversion,
	Minimization of FSM, Equivalence between two FSM's Finite
	Automata with Output-Moore and Mealy Machines.
	Regular Languages:
	Regular Sets, Regular Expressions, Identity Rules, Constructing Finite
Aug	Automata for a given Regular Expression, Conversion of Finite
U	Automata to Regular Expressions, Pumping Lemma of Regular Sets,
	Closure Properties of Regular Sets.
	Grammar Formalism:
	Regular Grammars-Right Linear and Left Linear Grammars, Context
	Free Grammar, Derivation Trees, Right most and Leftmost Derivation
Sep	of Strings, Ambiguity in Context Free Grammars, Minimization of
1	Context Free Grammars, Chomsky Normal Form, Greiback Normal
	Form, Pumping Lemma for Context Free Languages, Enumeration
	Properties of CFL.
	Push Down Automata:
Oct	Push Down Automata (Definition and Model), Acceptance of CFL,
001	Acceptance by Final State and Acceptance by Empty Stack and its
	Equivalence, Equivalence of CFL and PDA, Interco Version.
Nov	Turing Machine:
	Turing Machine (Definition and Model), Design of Turing Machine,
	Computable Functions, Techniques of Turing Machine Construction.
	Undesirability:
	Properties of Recursively Enumerable Languages, Universal Turing
	Machines (Without any Reference to Undesirable Problems),
	Undesirability of Post Correspondence Problem.
	The Chomsky Hierarchy: Regular Grammars, Unrestricted
	Grammars, Context Sensitive Languages.

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: 20MCS201

Title: Data Base Management Systems

Month	Topic to be covered
	Databases and Database Users: Introduction, An Example, Characteristics of
	the Database Approach, Actors on the Scene, Workers behind the Scene,
	Advantage of Using the DBMS Approach.
	Database System Concepts and Architecture: Data Models, Schemas, and
Inter	Instances, Three-Schema Architecture and Data Independence, Database
July	Languages and Interfaces, The Database System Environment, Centralized
	and Client/Server Architectures for DBMSs.
	The Relational Data Model and Relational Database Constraints:
	Relational Model Concepts, Relational Model Constraints and Relational
	Database Schemas, Update Operations, Transactions, and Dealing with
	Constraint Violations.
	Basic SQL: SQL Data Definition and Data Types, Specifying Constraints in SQL,
	Basic Retrieval Queries in SQL, INSERT, DELETE, and UPDATE Statements in
	SQL.
	More SQL: More Complex SQL Retrieval Queries, Views (Virtual Tables) in
Aug	SQL, Schema Change Statements in SQL.
	The Relational Algebra and Relational Calculus: Unary Relational Operations:
	SELECT and PROJECT, Relational Algebra Operations from Set Theory, Binary
	Relational Operations: JOIN and DIVISION, Additional Relational Operations,
	Examples of Queries in Relational Algebra, The Tuple Relational Calculus, The
	Domain Relational Calculus.
	Data Modeling Using the Entity-Relationship (ER) Model: Using High-
	Level Conceptual Data Models for Database Design, Entity Types, Entity
	Sets, Attributes, Keys, Relationship Types, Relationship Sets, Roles,
	Structural Constraints, weak Entity Types, EK Diagrams, Naming
	The Enhanced Entity-Relationship (FFR) Model Subclasses Super
	classes. Inheritance. Specialization and Generalization. Constraints and
	Characteristics of Specialization and Generalization Hierarchies. Modeling of
Sep	UNION Types Using Categories, A Sample UNIVERSITY EER Schema,
1	Design Choices, Formal Definitions.
	Functional Dependencies: Introduction, Basic Definitions, Trivial and Non-
	Trivial Dependencies, Closure of set of Dependencies, Closure of set of
	Attributes, Irreducible sets of dependencies.
	Further Normalization 1NF, 2NF, 3NF, BCNF: Introduction, Nonloss
	decomposition and functional dependencies, 1 st , 2 nd and 3 nd normal forms,
	Boyce-Codd Normal Form. Multivalued Dependency and Fourth Normal
	Form, Join Dependencies and Filin Normal
Oct	Devices Buffering of Blocks Placing File Records on Disk Operations on
	Files Files of Unordered Records (Heap Files) Files of Ordered Records
	(Sorted Files) Hashing Techniques Parallelizing Disk Access Using RAID
	Technology.
	Indexing Structures for Files: Types of Single-Level Ordered Indexes.
	Multilevel Indexes, Dynamic Multilevel Indexes Using B-Trees and B ⁺ -Trees.
	Introduction to Transaction Processing Concepts and Theory:
Nov	Introduction to Transaction Processing, Transaction and System Concepts,
	Desirable Properties of Transactions, Characterizing Schedules Based on

Recoverability, Characterizing Schedules Based on Serializability,
Transaction Support in SQL.Concurrency Control Techniques: Two-Phase Locking Techniques for
Concurrency Control, Concurrency Control Based on Timestamp Ordering,
Multiversion Concurrency Control Techniques, Validation (Optimistic)
Concurrency Control Techniques, Granularity of Data Items and Multiple
Granularity Locking, Using Locks for Concurrency Control in Indexes.
Distributed Databases: Distributed Database Concepts, Types of Distributed
Database Systems, Distributed Database Architectures, Data Fragmentation,
Replication, and Allocation Techniques for Distributed Database Design.

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: 20MCS105

Title: Formal Languages and Automata Theory

Month	Topic to be covered
	Introduction to software Engineering- The Evolution Role of
July	software, Software, Quality of Software, Software Evolution.
	Software Engineering Process Models-prescriptive models,
	waterfall model, Incremental model, RAD model, Evolutionary
	process model.
	Software Architecture – Software Architecture, Data design,
	Architecture styles and patterns, Architectural design, mapping data
A 110	flow into software architecture. Software Analysis Model-
Aug	Requirements analysis, Data modeling concepts, Object-oriented
	modeling, Class- based modeling, flow-oriented modeling.
	Software Design Engineering-
Sep	Design within the context of software Engineering, Design process and quality, Design concepts, Design model, Pattern based software design. Software Testing Strategies – Static approach to software testing, Validation testing, System testing, Black-Box testing, White-Box testing, Object oriented testing models, Art of Debugging.
	Software Metrics- Framework for product metrics, Metrics for
	analysis, Design, Source code, testing and maintenance, Metrics
Oct	for process and project domains. Software Re-Engineering-
	Software Re-Engineering, Reverse Engineering, Restructuring,
	Forward engineering.
Nov	Project Organization & Responsibilities-,
	Project organizations, evolution of organizations. Process Automation-
	Automation building blocks, project environment. Project control &
	Process Instrumentation- The seven core metrics, Management indicators,
	Quality indicators, Life cycle expectations, Programmatic software metrics, Metrics automation, tailoring the process, Process discriminates
	wiences automation, tanoi ing the process, riocess discriminates.

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: 20MCS203

Title: Operating Systems

Month	Topic to be covered
July	 Introduction: What Operating Systems Do, Computer System Organization, Computer System Architecture, Operating System Structure, Operating System Operations, Process Management, Memory Management, Storage Management, Protection and Security, Kernel Data Structures, Computing Environments, Open Source Operating Systems. Operating-System Structures: Operating System Services, User and Operating System Interface, System Calls, Types of System Calls, System Programs, Operating System Design and Implementation, Operating System Structure. Processes: Process Concept, Process Scheduling, Operations on Processes, Inter Process Communication, Communication in Client-Server Systems.
Aug	 Threads: Overview, Multicore Programming, Multithreading Models, Thread Libraries, Implicit Threading, Threading Issues. Process Synchronization: Background, The Critical Section Problem, Peterson's Solution, Synchronization Hardware, Mutex Locks, Semaphores, Classic Problems of Synchronization, Monitors. CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Thread Scheduling, Multiple Processor Scheduling.
Sep	 Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock. Main Memory: Swapping, Contiguous Memory Allocation, Segmentation, Paging, Structure of the Page Table, Intel 32 and 64-bit Architectures. Virtual Memory: Background, Demand Paging, Copy-on-Write, Page Replacement, Allocation of Frames, Thrashing.
Oct	 Mass Storage Structure: Overview of Mass Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling, Swap Space Management, RAID Structure. File System Interface: File Concept, Access Methods, Directory and Disk Structure, File System Mounting, Protection. File System Implementation: File System Structure, File System Implementation, Directory Implementation, Allocation Methods, Free Space Management, Efficiency and Performance, Recovery.
Nov	 I/O Systems: Hardware, Application I/O Interface, Kernel I/O Subsystem, Transforming I/O Requests to Hardware Operations, STREAMS, Performance. Protection: Goals of Protection, Principles of Protection, Domain of Protection, Access Matrix, Implementation of the Access Matrix. Security: The Security Problem, Program Threats, System and Network Threats, Cryptography as a Security Tool, User Authentication, Firewalling to Protect Systems and Networks.

SEMESTER – II

2020-21 CURRICULAR PLANS

Subject Code: 20MCS204

Title: Computer Networks

Month	Topic to be covered
	Introduction: Uses of Computer Networks: Business Application, Home
	Applications, Mobile Users, Social Issues, Network Hardware: Local Area
	Networks, Metropolitan Area Networks, Wide Area Networks, Wireless
	Networks, Home Networks, Internet Works, Network Software: Protocol
	Hierarchies, Design Issues for the Layers, Connection Oriented and
	Connectionless Services, Service Primitives, The Relationship of Services to
July	Protocols. Reference Models: The OSI Reference Model. The TCP/IP
	Reference Model. A Comparison of OSI and TCP/IP Reference Model. A
	Critique of the OSI Model and Protocols. A Critique of the TCP/IP reference
	model Example Networks: The Internet The Third Generation Mobile
	Phone Networks Wireless LANs RFID and Sensor Networks
	Physical Layer: Guided Transmission Media: Magnetic Media Twisted
	Pair Coaxial Cable nower lines Fiber Ontics
	Data Link Laver: Data Link Laver Design Issues: Services Provided to the
	Network Layer Framing Error Control Flow Control Error Correcting
	Codes Error Detecting Codes Elementary Data Link Protocols: An
	Utopian Simplex Protocol A Simplex Stop and Wait Protocol A Simplex
	Protocol for a Noisy Channel Sliding WindowProtocols: A One Bit Sliding
	Window Protocol A Protocol Using Go Back N A Protocol Using Selective
	Reneat
	The Medium Access Control Sub Laver: Ethernet: Ethernet Cabling
	Manchester Encoding The Ethernet MAC sub layer Protocol The Binary
Aug	Exponential Backoff Algorithm Ethernet Performance Switched Ethernet
	East Ethernet Gigabit Ethernet 10-bit Gigabit Ethernet Wireless I ans. The
	802 11 Protocol Stack The 802 11 Physical Laver The 802 11 MAC Sub
	Laver Protocol The 802.11 Frame Structure Bluetooth : Bluetooth
	Architecture Bluetooth Applications The Bluetooth Protocol Stack The
	Reluctooth Radio Laver. The Bluetooth Link Lavers. The Bluetooth Frame
	Structure DataLink Laver Switching: Uses of Bridges Learning Bridges
	Snanning Tree Bridges Remote Bridges Repeaters Hubs Bridges Switches
	Routers and Gateways Virtual I ANs
	The Network Laver: Network Laver Design Issues: Store and Forward
	Packet Switching Services provided to the Transport Layer. Implementation
	of Connectionless Services Implementation of Connection Oriented Services
	Comparison of Virtual Circuit and Datagram Subnets Routing Algorithms :
	The Optimality Principle Shortest Path Routing Flooding Distance Vector
	Routing Link State Routing Hierarchical Routing Broadcast Routing
Sep	Multicast Routing Internet Working: How Networks Differ How Networks
	can be Connected Concatenated Virtual Circuits Connectionless
	Internetworking Tunneling Internetwork Routing Packet Fragmentation
	The Network Laver in the Internet: The IPVersion 4 Protocol IP address
	Internet Control Protocols OSPF The Internet Gateway Routing Protocol
	BGP The Exterior Gateway Routing Protocol
	The Transport Laver: The Transport Service: Services provided to the
	Unper Layers Transport Services Primitives Reveley Sockets Flamonts of
Oct	Transport Protocols: Addressing Connection Establishment Connection
	Release Flow Control and Buffering Multiplexing The Internet Transport
	Protocols. Introduction to LIDP. Remote Procedure Call The Real Time
	received in the observe and the content of the received of the

	Transport Protocol. The Internet Transport Protocols: TCP Introduction to
	TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header,
	TCP Connection Establishment, TCP Connection Release, Modeling TCP
	Connection Management, TCP Sliding Window TCP Congestion Control,
	TCP Timer Management, Future of TCP.
	The Application Layer: DNS: The Domain Name System: The DNS Name
	Space, Resource Records, Name Servers. Electronic Mail: Architecture and
	Services, The User Agent, Message Formats, Message Transfer, Final
	Delivery. The World Wide Web: Architecture Overview, Static Web Pages,
Nov	Dynamic Web Pages and Web Applications, HTTP-The Hyper Text Transfer
	Protocol. Streaming Audio and Video: Digital Audio, Digital Video,
	Streaming Stored Media, Streaming Live Media, Real Time Conferencing.
	Network Security: Introduction to Cryptography, Public Key Algorithms -
	RSA.

SEMESTER – III

2020-21 CURRICULAR PLANS

Subject Code: MCS 30116

Title: Cryptography And Network Securities

Month	Topic to be covered
	Introduction: Security trends, the OSI security architecture,
	security attacks, securityservices, security mechanisms, a model
	for network security.
	Classical encryption techniques: Symmetric cipher model,
	Substitution techniques, Transposition techniques, Rotor
July	machines, Steganography.
	Block cipher and the data encryption standard: Block cipher
	principles, the strength f DES, Differential and linear
	cryptanalysis, Block cipher design principles.
	Confidentiality using Symmetric Encryption: Placement of
	encryption function, Traffic confidentiality, key distribution,
	random number generator.
	Public key cryptography and RSA: Principles of public key
	crypto systems, The RSA algorithm
	Key management: Other nublic-key crynto systems: Key
Aug	management, diffie-Hellman key exchange.
	Message authentication and hash functions: Authentication
	requirements. Authentication functions, message authentication
	codes, Hash functions, security of hash functions and MAC s.
	Digital signatures and authentication protocols: Digital
Sep	signatures, Authenticationprotocols, Digital Signature standard
	Authentication Applications: Kerberos, X.509 authentication
	service
	Email Security: Pretty good privacy, S/MIME
	IP security: IP security overview, IP security architecture,
Oct	Authentication header, Encapsulating security payload, combining
	security associations, key management.

	Web security: Web security considerations, Secure Socket Layer
	and transport layersecurity, Secure electronic transaction.
Nov	 Intruders: Intruders, Intrusion detection, password management Malicious Software: Viruses and related threads, virus counter measures, distributeddenial of service attacks. Firewalls: Firewall Design principles, trusted systems, common criteria for informationtechnology, security evaluation.

SEMESTER – III

2020-21 CURRICULAR PLANS

Subject Code: MCS30316

Title: Data Mining and Data Warehousing

Month	Topic to be covered
July	Warehouse: What is it, Who Need It, and Why?, Things to Consider, Managing the Data Warehouse, Getting ready for your project, Picking a target and moving forward, Project management benefits, The Scope statement, Work breakdown struc ure, Project estimating, Scope creep & tracking project's progress
Aug	Data Warehouse Design Methodology, The preferred Architecture, Alternate warehouse architectures, Data Marts and Start Schema Design, Fundamentals of ETL Architecture, Partitioning Data, Indexing Data. Data mining - Introduction, Data mining on what kind of data , Data mining functionalities classification of Data mining systems, Major issues in Data mining
Sep	Mining Association rules in large databases - Association rule mining, Miningsingle-Dimensional Boolean association rules from Transactional databases, Mining multi-Dimensional Association rules from relational Databases and Data Warehouses
Oct	Classification and Prediction - Introduction classification by decision tree induction, Bayesian Classification. Other classification methods, classification by back propagation, Prediction, classifier accuracy
Nov	Cluster analysis - Introduction, types of data in cluster analysis, a categorization of major clustering methods, partitioning methods, hierarchical methods Density based methods: DBSCAN, Grid-based method : STING , Model based clustering method: Statistical Approach, outlier analysis.
SEMESTER – III

2020-21 CURRICULAR PLANS

Subject Code: MCS30416

Title: Web technologies

Month	Topic to be covered			
July	Introduction: Introduction to the Internet, WWW, Web Browsers, URL, MIME, HTTP, Security,			
	 XHTML: Introduction, Editing XHTML, First XHTML Example, W3C XHTML Validation Service, Headings, Linking, Images, Special Characters and Horizontal Rules, Lists, Tables, Forms, Internal Linking, meta Elements. CSS: Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking External Style, Positioning Elements, 			
Aug	JavaScript: Introduction to Scripting, Control Statements I, Control Statements II, Functions, Arrays, Objects, Document Object Model, Events.			
	XML and RSS: Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definition, W3C XML Schema Documents, XML Vocabularies, Extensible style sheet language and XSL Transformations, Document Object Model, RSS.s.			
Sep	Ajax-Enabled Rich Internet Applications- Introduction, Traditional Web Applcations Vs. Ajax Applications, RIAs with Ajax, History of Ajax, Raw Ajax Example using the XHttpRequest Object, Using XML and the DOM, Creating a Full- Scale Ajax Enabled Application			
	Web Servers(IIS and Apache): Introduction, HTTP Transactions, Multitier Application Architecture, Client-Side Scripting Versus, Accessing Web Servers, Microsoft Internet Information, Apache HTTP Server, Requesting Documents.			
Oct	Databases: SQL, MYSQL, The Basics of Perl: Origins and Uses of Perl, Scalars and their operations, Assignment Statements, Control Statements, Arrays, Hashes, References, Functions, Pattern Matching, File Input & Output.			
	String Format, The CGI.pm Module, Cookies.			
Nov	PHP: Introduction, PHP basics, String Processing and Regular Expressions, Form Processing and Business Logic, Connecting to a Database, Using Cookies, Dynamic Content, Operator Precedence Chart.			
	JSF: Introduction, Java Web Technologies, Creating and Running a Simple Program, JSF Components, Session Tracking			

SEMESTER – III

2020-21 CURRICULAR PLANS

Subject Code: MCS 305.316

Title: Software Testing

Month	Topic to be covered		
July	Introduction : Some Software Failures, Testing Process,		
	Life Cycle Model		
	Software Testing Activities : Levels of Testing : Unit Testing . Integration Testing.		
	System Testing, Acceptance Testing; Debugging, Software Testing Tools, Software TestPlan		
Aug	Software Verification : Verification Methods, SRS Document Verification , SDD Document Verification , Source Code Reviews, User Documentation Verification		
	Metrics and Models in Software Testing: Software Metrics, Categories of Metrics,		
	Object Oriented Metrics used in Testing, What should we measure during Testing?		
Sep	Functional Testing : Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique		
	Standtrand Testing, Cause-Effect Graphing Technique		
Oct	Structural lesting : Control Flow Testing, Data Flow Testing, Slice Based Testing,		
	Mutation Testing		
Nov	Object Oriented Testing: What is Object Orientation?, What IS Object Oriented		
	Testing?, Path Testing, State based Testing, Class Testing.		

SEMESTER – IV

2020-21 CURRICULAR PLANS

Subject Cod	e: 20MCS201	Title: Dot Net Programmings
Month	Topic to be cov	ered
	Getting started with visual basic 2012	
	Object Oriented Programming	
T., 1.,	Errors and Exception Handling	
July	Windows Forms	
	Windows Forms controls-1	
	Windows Forms controls-2	
	Getting started with c# 2012	
Aug	Errors and Exception Handling	
0	Object Oriented Programming	
	Standard Controls	
Sep	Navigation Controls	
	Validation Controls	
	Login Controls	
Oat	Data Base Controls	
Oct	Web Parts Controls	

SEMESTER – IV

2020-21 CURRICULAR PLANS

Subject Code: MCS40216

Title: Mobile Computing

Month	Topic to be covered		
	Introduction		
July	WWW		
	wireless networks generation of Mobile systems		
	Mobile system Architectures		
Aur	GSM		
Aug	GPRS		
	Mobility Management		
_	IPV4		
Sep	MObile IP		
	Mobile Transport Layer		
Oct	Traditional TCP		
	Wireless TCP		
Nov	Next Generation Networks		
	File Systems		
	Mobile Opearting Systems		

SEMESTER – IV

2020-21 CURRICULAR PLANS

Subject Code: MCS403.116

Title: Cloud Computing

Month	Topic to be covered		
July	Era of Cloud Computing Introducing Virtualization		
Aug	Cloud Computing services Open Source Cloud Implementation and Administration		
Sep	Application Architecture for cloud Cloud Programming		
Oct	Risks, Cosequences and costs for cloud Computing AAA Administration for clouds		
Nov	Application Development for Cloud Mobile Cloud Computing		

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DEPARTMENT OF COMMERCE(P.G)

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: CO111 .Title: MANAGEMENT THEORY AND PRACTICE

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Introduction: Management, Concept, Significance, Levels, Skills,
		Functions and
		Principles - Management as an Art, Science and Profession -
		Social responsibilities of business.
		Planning: Nature, Purpose, Process of Planning, Types of Plans –
Jan - 2021	II	Premising &
		Forecasting, Decision Making: Concept, Process, Management By
F 1 0 001		Objectives: Concepts, Process. Advantages and Limitations.
Feb-2021		Organizing: Process - Formal and Informal Organizations -
	111	Departmentation: Methods of Departmentation, Span of Control;
		V.A. Graicuna's Theory - Factors Determining Span of Control -
		Delegation: Concept, Process, Advantages and Principles of
		Effective Delegation; Decentralization: Factors, Advantages and
		Disadvantages. Line and Staff: Concept- Reasons for Conflicts
		between Line and Staff and Measures to Overcome; Committees,
		Types of Committees.
Mar-2021		Staffing: Nature and Importance of Staffing, Elements of Staffing.
	IV	Directing: Meaning, Assumptions of Human Behavior by Douglas
		McGregor, Edgar Shien and Elton Mayo.
April-21		Motivation: Significance, Process-Theories of Maslow, Herzberg,
	V	Porter and Lawler; Leadership: Trait Approach, Leadership Styles,
		Managerial Grid; Likert's Four Systems of Leadership-
		Communication: Importance, Process, Barriers, Measures to
		overcome Barriers of an Effective Communication. Controlling:
		Basis - Control Process, Requirements of adequate Control -
		Techniques of control, PERT and CPM.

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: CO112 .Title: BUSINESS ECONOMICS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Introduction – Definition, Nature and Scope of Managerial
		Economics; Economic Goals of a Business Firm: Profit
		Maximization Vs Wealth Maximization, Sales Revenue
		Maximization.
		Consumer Equilibrium under Cardinal and Ordinal Utility -
Jan - 2021	II	Demand Analysis – Law of Demand – Demand Function and
		determinants of Market Demand - Concept of Price, Cross,
		Income and Promotional Elasticity; their measurement and
		relevance in Managerial Decision - Making Methods of Demand
		Forecasting.
Feb-2021		Firm's Equilibrium – Iso-quant and Iso-cost analysis; Least – Cost
	III	Combination of inputs – The law of Diminishing Marginal Returns
		in Production – Production Function – Total Product, Marginal and
		Average Product Curves, their inter - relationships - Cobb -
		Douglas Production Function and its relevance - Scale and
		proportion, Cost Functions - Derivation of total, marginal and
		average cost functions – Long run cost curves
Mar-2021		Market Structures and their characteristics – Pricing and output
	IV	Decisions of firm under different Market structures - Perfect
		Competition, Pure Monopoly, Oligopoly, Monopolistic / Imperfect
		Competition under short and long runs. Discriminative Monopoly
		Regulation of Monopoly through Prices and Taxes.
April-21		Pricing Practices of Firms - Objectives of Pricing Policy -
	V	Approaches to Pricing New Products; Skimming Price, Penetration
		Pricing, Costs Plus Pricing, Managerial Cost Pricing,
		Psychological Pricing, Odd Number Pricing, Regulated Pricing,
		Predatory Pricing.

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: CO113. Title: BUSINESS ENVIRONMENT

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Business Environment: Components and Significance - Nature of
		Business
		Environment - Techniques of Environmental Scanning and
		Monitoring – Economic Scope –
		Cultural, Political, Technological and External Factors Influencing
		Business Environment –Challenges- Economic systems.
		Economic Environment of Business: Significance for Business -
Jan - 2021	II	Economic
		Planning – Objectives and Achievements; Government policies –
		Industrial policy of 1991;
		Fiscal policy; Economic Reforms and LPG
Feb-2021		Political and Legal Environment of Business: Political Institutions
	III	– Legislature,
		Executive and Judiciary – Changing Dimensions of Legal
		Environment in India; Patents Act-1970, SICA-1985, SEZ Act-
		2005.
Mar-2021		Cultural and Technological Environment: Elements of Socio –
	IV	Cultural
		Environment; Impact on Business – Social Audit - Technological
		Environment in India;
		Technology Transfer – Technology Policy.
April-21		International and Recent Issues in Environment: Multinational
-	V	Corporations;
		Foreign Collaborations and Indian Business; International
		Economic Institutions: WTO, World Bank, IMF and their
		importance to India; Foreign Trade Policies.

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: CO114 .Title: ENTREPRENEURSHIP DEVELOPMENT & BUSINESS MODELS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Evolution, Characteristics, Types, Functions of Entrepreneur -
		Factors influencing entrepreneurship - Barriers to entrepreneurship
		- Growth of Entrepreneurship in India -Women entrepreneurship
		in India - Role of Entrepreneurship in Economic Development
		Idea Generation and Opportunity Assessment: Importance of Ideas
Jan - 2021	II	in Entrepreneurship - Sources of New Ideas - Techniques for
		generating ideas- Steps in assessing business potential of an idea-
		Opportunity Recognition- sources and process- Steps in tapping
		opportunity.
Feb-2021		Financing Of Enterprises: Need for Financial Planning- Sources of
	III	finance, Capital Structure, Term-loan, - Sources of Short-Term
		Finance, Venture capital, Export Finance,- Institutional Finance
		To Entrepreneurs, - Preparation of Business Plans.
Mar-2021		Business Model: Definition Generating a business model - Nine
	IV	building blocks of a canvas (Value Propositions; Key Activities;
		Key Partners; Key Resources; Customer Relationships; Customer
		Segments; Channels; Cost Structure and Revenue Streams)
April-21		Business Excellence Models: Core values and concepts -
	V	Business Excellence frameworks of USA (MBNQA); Europe
		(EFQM) and CII-EXIM Model of India.

DEPARTMENT OF COMMERCE(P.G) SEMESTER – I 2020-2021 CURRICULAR PLAN

Subject Code: CO115. Title: INFORMATION TECHNOLOGY FOR BUSINESS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Information Technology (IT) in Business Environment: Business in the Information Age - Pressures and Responses, Why do we need to know about Information Technology, What is an Information System, Capabilities of Information Systems - Basic concepts of Information Systems, organizations - Structures and IT support - IT support at different organizational levels, Managing IT in organizations
Jan - 2021	Π	IT Infrastructure: Computer Hardware - Input Technologies, Output Technologies - Computer Software - Types of software, general functions of Operating system, Types of application software - Managing organizational Data and Information - Basics of Data arrangement and Access, Traditional file Environment. Databases: Modern Approach, Database Management Systems - Logical Data Models, Data Warehouse. Telecommunications systems and Networks - Network communications software, Internet: Services provided by Internet, World Wide Web, Intranets and Extranets.
Feb-2021	III	Information Systems to Support Business Functions: Transaction Processing Systems, Accounting and Finance Systems, Production Management Systems, Human Resources Management Systems, Integrated Information Systems and Enterprise Resource Planning, Inter- organizational/Global Information Systems. Electronic Commerce - Types, Benefits of E- Commerce, Infrastructure and E-commerce support, Legal and ethical issues in E-commerce. Computer-based Supply chain management and IS Integration: IT supply chain support and systems Integration: Enterprise Resource Planning.
Mar-2021	IV	Data, Knowledge and Decision Support: Decision making and Decision support systems, Enterprise Decision support, Knowledge Management and Organizational Knowledge bases. Intelligent systems in Business: Export systems, Intelligent Agents.
April-21	V	Strategic Advantage and Information Technology: Strategic Organizations in the Information Age, Business Process Re- engineering, Virtual corporations and Information Technology - Implementing IT: Ethics, Impacts and Society, Ethical Issues, Impact of IT on Organizations and Jobs, on Individuals at Work, Societal Impact and Internet Communities, Protecting Information Systems.

SEMESTER – I

2020-2021 CURRICULAR PLAN

Subject Code: CO116 .Title: QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Month	Unit No.	Topic to be covered
Dec-2020	Ι	Matrices, Differentiation, Permutations and combinations:
		Matrices -Basic concepts ,Solving system of equations with
		Cramer's rule and Inverse method - Differentiation and integration
		of simple functions and their applications- Permutations and
		Combinations.
		Correlation and Regression: Correlation: Types of Correlation -
Jan - 2021	II	Simple and Rank Correlation coefficient in the case of two
		variables- Regression: Meaning and importance of Regression
		Analysis. Estimation of Lines of Regression in the case of two
		variables.
Feb-2021		Probability: Concept of Probability: Definitions of Probability,
	III	Addition Theorem of Probability, Conditional Probability and
		Multiplication theorems of Probability, Baye's Theorem of
		Probability and its Applications.
Mar-2021		Theoretical distributions: Binomial Distribution, Poisson
	IV	distribution and Normal distribution - their Properties and
		Applications
April-21		Testing of Hypothesis: Concept of Testing of Hypothesis, Types of
	V	Errors, Standard deviations and Proportions, Z- test for Means, T-
		test, F-test for two variances and Chi-Square test for goodness of
		fit and independent of Attributes and their Applications -
		Confidence intervals.

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO211. Title: FINANCIAL ACCOUNTING AND PACKAGES

Month	Unit No.	Topic to be covered
MAY-2021	Ι	Introduction to Accounting: Concept – Importance and scope –
		Generally AcceptedAccounting Principles – Objectives, Nature and
		Scope of Financial Accounting. – CostAccounting – Management
		accounting.
		Preparation of Financial statements: Income statement and Balance
JUN - 2021	II	sheet –Inventory valuation (Theory) and Depreciation (Theory).
JUL-2021		Financial Analysis: Objectives – Ratio Analysis – Funds Flow &
	III	Cash Flow Analysis.
AUG-2021		Management Accounting: Marginal Costing - CVP analysis -
	IV	Standard costing and Variance analysis.
SEP-2021		Accounting Package- Tally (Theory and practical)
	V	

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO212. Title FINANCIAL MANAGEMENT

Month	Unit No.	Topic to be covered
MAY-2021	Ι	Introduction: Nature, Scope and Objectives of Financial
		Management: Finance
		Function-Profit Goal vs. Wealth Goal Maximization - Financial
		Manager in Modern business
		Organizations (Theory)
		Investment decision: Capital Budgeting process -Methods of
JUN - 2021	II	appraisal: Traditional Techniques and Discounted Cash Flow
		Methods – NPV vs. IRR - Capital rationing (Theory & problems)
JUL-2021		Financing decisions: Concept of leverage – Types of Leverages –
	III	EBIT – EPS
		Analysis – Capital Structure – Theories of Capital Structure – Net
		Income approach – Net
		Operatingincome approach – Traditional view – MM Hypothesis
		Cost of Capital: Types of Cost of Capital - Weighted average Cost
		of capital. Capital Structure Determinants.(Theory & problems)
AUG-2021		Dividend decisions: Kinds of dividends, Dividend Policy types,
	IV	Dividend Theories –Walter's Model – Gordon's Model – M-M
		Hypothesis (Theory & problems)
SEP-2021		Working Capital Management: Meaning, Significance, Types of
	V	Working capital, Determinants of working capital, and Methods of
		Measuring working Capital Requirements - Operating cycle -
		Financing of Working Capital-Management of Cash, Receivables,
		and Inventory (Theory & problems)

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO213. Title: HUMAN RESOURCE MANAGEMENT

Month	Unit No.	Topic to be covered
MAY-2021	Ι	Human Resource Management: Nature and significance, functions
		of HRM, Qualities and Role of HR Manager, HRM Model, HRM
		in a changing Environment.
		Human Resource Planning: Objectives, process, factors affecting
JUN - 2021	II	HR Planning,
		Requisites for successful HR Planning, Recruitment – Factors
		influencing, Sources of
		Recruitment – E- Recruitment-Selection Process – Placement,
		induction and Socialization –
		Promotion and Transfers
JUL-2021		Employee Training: Significance – Identification of Training
	III	Needs – Employee
		Training Methods – Executive Development Methods – Evaluation
		of Training and
		Development Programs – Methods of Evaluation -Limitations to
		its effectiveness
AUG-2021		Performance Appraisal: Scope & Significance - Methods of
	IV	Appraisal – Limitations of Appraisal - Career Planning and
		Development – Counseling- Mentoring-Coaching
SEP-2021		Wage and Salary Administration: Wage Structure and Policy -
	V	Wage Differentials - Wage Payment Methods - Incentives -
		Fringe BenefitsIndustrial Relations: Causes of Disputes and
		Settlement - Role of State in Industrial Relations - Collective
		Bargaining -Employee Participation in Management - Quality of
		Work Life.

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO214. Title: MARKETING MANAGEMENT

Month	Unit No.	Topic to be covered
MAY-2021	Ι	Marketing-Concepts-Approaches to the Study of Marketing -
		Functions of Marketing-Marketing Environment.
HINI 2021	TT	Consumer Behavior – Factors affecting Consumer Behavior-
JUN - 2021	11	Market Segmentation –Market largeting and Positioning –
		Marketing Information System and Marketing Research.
JUL-2021		Marketing Mix: Product Planning – New Product Development –
	III	Product Life Cycle– Branding & Packaging – Product line- Product
		Mix Management- Product Vs Service.
AUG-2021		Pricing and Distribution: Pricing Objectives - Methods and
	IV	Strategies ; Channels of distribution - Channel Selection and
		Management -Retail Management.
SEP-2021		Promotion: Promotion Mix-Personal Selling-Advertising - Sales
	V	Promotion, Publicity and Public Relations - Direct Marketing;
		Promotional strategies- Web Marketing – Integrated Marketing
		Communications.

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO215: Title: BUSINESS RESEARCH METHODS

Month	Unit No.	Topic to be covered
MAY-2021	Ι	Introduction-Importance of Research, Types of research, Research
		Process-Problem Identification- Formulation-Classification,
		Concept and Construction of Hypothesis – Steps in Testing
		Hypothesis.
		Research Design-Meaning, purpose and Principles – Types of
JUN - 2021	II	Research Design – Exploratory- Descriptive- Experimental, Data
		Collection-Sources of Data-Methods of Data Collection-
		Questionnaire Design and Pre Testing of Questionnaire.
JUL-2021		Sampling & Sampling Designs-Determination of Sample Size-
	III	Census Survey Vs Sample Survey -Advantages of Sampling-
		Sampling Methods-Probability Sampling-Non Probability
		Sampling.
AUG-2021		Data Tabulation-Analysis and Interpretation: Tabulation of data
	IV	and general rules of tabulation Graphic and Diagrammatic
		Representation of Data-ANOVA-One way and Two way
		classification.
SEP-2021		Research Report Writing and Presentation: Concept, Purpose,
	V	Guidelines for Research Report Writing – Steps in Report Writing-
		Layout of Report-Types of Research Reports-Presentation of
		Research Report.

SEMESTER – II

2020-2021 CURRICULAR PLAN

Subject Code: CO216.		Title: E-COMMERCE
Month	Unit No.	Topic to be covered
MAY-2021	I	History of E-commerce and Indian Business Context: origin of E-
		commerce - Traditional vs. E-Commerce - Internet and World
		Wide Web- Business Models for e-Commerce-B2C, B2B, C2C &
		C2B, Merits and Limitations- Advantages and Disadvantages of E-
		commerce - Introduction to E-business -E-commerce vs E-business
JUN-2021		Technologies of the World Wide Web- Internet client-server
	II	application-Telnet, PTP, IRC, Chat, ICQ & MIME, Networks &
		Internet :communication switching -Network routers-URL-IPv6-
		TCP web site-Website goals & Objectives Strategies for website
		Development-ISP Broadband Technologies- Hypertext- JavaScript
		and XML
JUL-2021		E-Marketing- Traditional Marketing, Online Marketing-
	111	Advantages of online Marketing - Advertisements in E-commerce-
		various means of advertising- advertisement strategies-Intelligent
		Agents.
AUG-2021		CRM-Traditional methods-Technology support-E-CRM-Customer
	IV	Life Cycle- CRM Capabilities and Customer Life Cycle-Data
		Mining in CRM - e-Supply Chain- Old ways of Managing supply
		and information flow-new ways of managing supply chain- several
		ways to reduce inventory- Real time benefits of e-Supply Chain-
		objectives of SCM -E-supply chain Components and architecture-
		Major trends in E-SCM

DEPARTMENT OF COMMERCE(P.G) SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code: CO301. Title: FINANCIAL ACCOUNTING AND PACKAGES

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Introduction to Accounting: Concept - Importance and scope -
		Generally Accepted Accounting Principles – Objectives, Nature
		and Scope of Financial Accounting Cost Accounting -
		Management accounting
NOV-2021		Preparation of Financial statements: Income statement and Balance
	II	sheet – Bank Reconciliation Statement – Inventory valuation and
		Depreciation.
DEC-2021		Financial Analysis: Objectives – Ratio Analysis – Funds Flow &
	III	Cash Flow Analysis.
JAN-2022		Management Accounting: Marginal Costing - CVP analysis -
	IV	Standard costing and Variance analysis
FEB-2022		Accounting Package- Tally (Theory and practical)
	V	

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: CO302. Title: BUSINESS COMMUNICATION

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Business Correspondence: Significance - Formal, informal and
		semiformal correspondence – Describing company activities and
		structures – Describing job responsibilities – Written
		Correspondence - Differences between formal and informal
		writings – Use of formal vocabulary and functional language in
		business letter writing - Planning effective business letters and
		responses – e-mail writing skills, call taking etiquette/skills.
NOV-2021		Business Correspondence: Significance - Formal, informal and
	II	semiformal correspondence – Describing company activities and
		structures – Describing job responsibilities – Written
		Correspondence - Differences between formal and informal
		writings – Use of formal vocabulary and functional language in
		business letter writing - Planning effective business letters and
		responses – e-mail writing skills, call taking etiquette/skills.
DEC-2021		Business Presentations: Basic presentation techniques - Use of
	III	information in presenting product features – Explaining technical
		features for simplification; Giving and interpreting numerical data,
		Business abbreviations and acronyms - Oral and written
		conventions for expressing numerical information in English.
JAN-2022		Business Reporting: Effective presentation of oral and written
	IV	instructions – Presenting and describing company information:
		Vocabulary of describing graphical and numerical information –
		Summarizing important information concisely.
FEB-2022		Feedback and Evaluation: Giving feedback to others - Use of
	V	questions in selfassessment elicitation - Functional language of
		agreement/disagreement and opinion giving – good/bad feedback –
		Motivating others – Use of conditionals to discuss future
		possibilities – Discourse strategies for effective relationship – team
		building skills.

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: CO303. Title: CORPORATE ACCOUNTING

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Corporate Financial Accounting: Objectives-Scope - Role of
		Corporate AccountantAnalysis and Interpretation of Financial
		Statements - Inflation Accounting.
NOV-2021		Valuation of Shares: Need for Valuation of Shares - Factors
	II	Effecting Value of Shares – Methods of Valuation – Impact of
		Earnings on Share Valuation – Role of Fundamental Analysis and
		Technical Analysis in Share Valuation - Fair Value of a Share -
		Buy Back of Equity Shares.
DEC-2021		Financial Reporting: Concept, Objectives – Users of Financial
	III	Reporting and Specific Purpose of Report – Difficulties in
		Corporate Reporting– Interim Reporting – Problems – Improving
		Financial Reporting - Value Added Statements - Disclosure of
		Value Added Statements – Economic Value Added.
JAN-2022		Consolidated Financial Statements: Definition of Parent or
	IV	Holding and its Subsidiary – Need for Consolidated Financial
		Statement - Preparation of Consolidated Balance Sheet of a
		Holding Company with one Subsidiary – Consolidation of Profit
		of Loss Account –Consolidated Statement of Changes in Financial
		Position.
FEB-2022		New trends in Accounting: Human Resource Accounting -
	V	Environmental Accounting, Social Responsibility Accounting etc.

DEPARTMENT OFCOMMERCE(P.G) SEMESTER – III 2020-2021 CURRICULAR PLAN

Subject Code: CO304. Title: DIRECT TAXES

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Income Tax Act 1961: Basic Concepts, Income, Agriculture
		Income - Residential Status and Incidence of Tax - Incomes
		Exempt from Tax u/s 10.
NOV-2021		Heads of Income of Individuals; Salaries- income from house
	II	property and gain from business or profession, capital gains.
DEC-2021		Head of income from other sources, clubbing up of income set off
	III	and carry forward of losses, deductions from gross total income,
		computation of total income and tax liability.
JAN-2022		Assessment of Individuals, Hindu Undivided Families, Firms,
	IV	Association of Persons, Cooperative Societies and Companies.
FEB-2022		Tax Administration; Income Tax Authorities, Assessment
	V	procedure, collection and recovery of tax, refunds, penalties and
		procedures, appeals and revisions.

DEPARTMENT OF COMMERCE (P.G) SEMESTER – III 2020-2021 CURRICULAR PLAN Subject Code: CO305. Title: ADVANCED BANKING

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Central Banking Concept – Central Banking Policy in Developed
		and Developing Economies – Functions – Note issues – Banker to
		the Government; Banker to Commercial Banks - Credit Control -
		Techniques -Structure and Organization of RBI – Role of RBI as
		Central Bank.
NOV-2021		Structure and Organization of Central Bank in India, USA, UK and
	II	EU–Objectives – Central Banking Policy in Developed and Less
		Developed Countries – A Critical Study of Theory and Practice of
		Central Banking in India, USA and UK.
DEC-2021		Development of Commercial Banking in UK, USA and India -
	III	Study of Nature and Structure of Commercial Banking in India and
		Abroad - Theories of Asset Management - Commercial Banks,
		Recent Developments in Commercial Banking in USA, UK and
		India.
JAN-2022		Economic Stabilization Policy: Objectives of Monetary Policy -
	IV	Choosing Between Conflicting Objectives – Monetary and Fiscal
		Policies and Economic Stabilization – Interdependence of
		Monetary and Fiscal Policies – Debt Management Policy.
FEB-2022		Emerging Trends – Technological Advancement in Banking Sector
	V	-Challenges and Issues - Next Generation Banking.

DEPARTMENT OF COMMERCE(P.G)

SEMESTER – III

2020-2021 CURRICULAR PLAN

Subject Code: CO306: Title: INSURANCE AND RISK MANAGEMENT

Month	Unit No.	Topic to be covered
OCT-2021	Ι	Risk Management process – Risk Identification, Evaluation - Risk
		Management Techniques, Selecting and Implementing Risk
		Management Techniques – Types of Risks – Insurance and risk.
NOV-2021		Commercial Liability Insurance – Commercial Risk Management
	II	Applications – Property – Liability – Commercial Property
		Insurance, Different policies and contracts – Business Liability and
		Risk Management – Workers compensation and Risk Financing
DEC-2021		Property and liability Insurance Coverage – Personal Risk
	III	Management Applications-Property – Liability – Risk
		Management for Auto Owners - Risk Management for Home
		Owners.
JAN-2022		Risk Management Applications – Loss of Life – Loss of Health –
	IV	Retirement Planning and Annuities - Employee Benefits -
		Financial and Estate Planning.
FEB-2022		Risk Management Scenario- Functions and organisation of
	V	Insurers – Government Regulation of Insurance Sector – IRDA –
		Privatization of Insurance – Changes in Insurance Acts – Insurance
		Intermediaries - Insurance Product pricing and Claim valuation -
		Bank Assurance – Foreign Insurers in India