
List of Non Major Elective Courses (NMEC) Offered

PG PROGRAMMES

Name of the Course	Course Code	Semester	Department
History of Freedom Movement in India (A.D. 1885 - 1947)	20PHIN31	III	History
English for Job Aspirants	20PENN31	III	English
தமிழும் பிற துறைகளும்	20PTAN31	III	Tamil
Taxation Concepts and Assessment	20PCON31	III	Commerce
Entrepreneurship	20PBAN31/ 20PBAN31N	III	Business Administration
Mathematics for Competitive Examinations	20PMTN31	III	Mathematics
Digital Electronics	20PPHN31	III	Physics
Chemistry for Competitive Examinations	20PCHN31/ 20PCHN31N	III	Chemistry
Apiculture	20PZYN31	III	Zoology
Nutrition and Health	20PHSN31	III	Home Science - Nutrition and Dietetics
Clinical Biochemistry	20PBCN31	III	Biochemistry
Web Programming	20PCSN31	III	Computer Science
Fundamentals of Information Technology	20PITN31	III	Information Technology
Web Technology	20PCAN31	III	Computer Applications



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VIRUDHUNAGAR - 626 001

M.A. History

(2020 -21 onwards)

Semester III	HISTORY OF FREEDOM MOVEMENT IN INDIA (A.D. 1885-1947)	Hours/Week: 5	
Non Major Elective Course		Credits : 4	
Course code 20PHIN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: recognize the remarkable events of the Indian National movement for the Freedom Struggle. [K1]
- CO2: illustrate the prominence of our freedom fighters and their sacrifices. [K2]
- CO3: identify the policies and plans of Britishers in India. [K3]
- CO4: analyze the pros and cons in the National Movements. [K4]
- CO5: construct their knowledge over significance of National Movements towards Independence. [K5]

UNIT I

Indian National Congress: Formation of the Congress – objectives - Moderates – Gopala Krishna Gokhale – Partition of Bengal – Extremists –Bala Gangadara Tilak - Swadeshi Movement- Surat Split. (18 Hours)

UNIT II

Formation of Muslim League - Home Rule Movement – Annie Besant - Lucknow Pact 1916 - Rowlatt Act – JallianWala Bagh Tragedy- Khilafat and Non-Co-operation Movement. (18 Hours)

UNIT III

The Swaraj Party - Simon Commission – Nehru Report 1928 – Jinnah's 14 points – Poorna Swaraj – Civil Disobedience Movement – Round Table Conferences – Gandhi-Irwin Pact –Communal Award – Poona Pact. (18 Hours)

UNIT IV

August offer - Cripps Proposals – Quit India movement 1942–Desai -Liaquat Pact –
C.R.Formula– Netaji Subash Chandra Bose - Indian National Army. (18 Hours)

UNIT V

Towards Transfer of Power: Wavell Plan – Simla Conference 1945 – Cabinet Mission
Plan 1946 – Mountbatten Plan – Indian Independence Act, 1947. (18 Hours)

TEXT BOOK

Venkatesan, G. (2001). *History of Freedom Struggle in India*, Rajapalayam: V.C.
Publications.

REFERENCE BOOKS

1. Bakshi,S.K. (2008). *History of Indian Independence Struggle*, New Delhi: Mahaveer & sons.
2. Betty Paul Thottam,(2002). *Freedom struggle 1857-1947*, Chennai: Blackie Books.
3. Bipan Chandra. (2000). *India's Struggle for Independence (A.D 1857 – 1947)*, Delhi: Penguin Publications.
4. Dipti Prasath Barooah. (1989). *History of Freedom Movement1857-1947*, New Delhi, Om Sons Publications.
5. Hukam Chand. (2010). *History of Indian Freedom Movement*, New Delhi: Omega Publication.
6. Kauleshwar Rai. (2000). *Freedom Struggle*, Allahabad: Kithab Mahal Publications.

Course Code 20PHIN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	-	-	-	-	M	M
CO2	H	M	-	-	-	M	-	M
CO3	H	M	-	-	L	L	M	M
CO4	H	M	-	-	L	-	-	M
CO5	H	M	-	-	L	M	M	M

Dr.M.Geetha
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Dr.N.Anitha
Course Designer



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VIRUDHUNAGAR - 626 001

M.A. English

(2020 -2021 onwards)

Semester III	ENGLISH FOR JOB ASPIRANTS	Hours/Week: 5	
Non Major Elective Course		Credits: 4	
Course Code 20PENN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: define verbal and non-verbal communication skills to enhance their personality, strengthen their self-confidence and uphold workplace etiquettes. [K1]
- CO2: discuss the interpersonal skills to communicate effectively in career contexts. [K2]
- CO3: apply the acquired knowledge of job skills and management skills in official correspondence and technical writing. [K3]
- CO4: analyse the leadership qualities at corporate levels to work in a team with professional ethics and societal responsibilities. [K4]
- CO5: prove their people skills, professional skills and spoken and written communication skills required for career prospects. [K5]

UNIT I SOFT SKILLS

Communication Skills, Interpersonal Skills, Leadership Qualities, Lateral Thinking, Creativity and Innovation, Time Management, Stress Management, People Skills, Ego Styles, Professional Skills (15 Hours)

UNIT II LIFE SKILLS

VERBAL

Hierarchical Communication, Etiquette, Interpersonal Speaking, Seven Stages for creating an effective speech

NON VERBAL

Artifacts, Chronemics, Kinesics, Proxemics (15 Hours)

UNIT III BODY LANGUAGE SKILLS

Guidelines for Body language

Self Confidence Training (15 Hours)

UNIT IV INTERVIEW SKILLS

Types of Interview

Preparation for the Interview

Mock Interview (15 Hours)

UNIT V WRITING SKILLS

Resume, Curriculum Vitae, Covering Letter, Note Taking, Note Making, Notice,

Circulars, Agenda, E-mail (15 Hours)

TEXT BOOKSAcharya N.K.(2017). *Communication Skills*. New Delhi : Pearl Books.Ajith, Anuradha .(2009). *Soft Skills for Aspiring Leaders*. Chennai: Emerald Publishers.Hariharan. S, N.Sundararajan, S.P.ShanmugaPriya.(2010). *Soft Skills*.

Chennai: MJPPublishers.

REFERENCE BOOKTengse Ajay R.(2015). *Soft Skills: A Textbook for Undergraduates*. Hyderabad: Orient Blackswan

Course Code 20PENN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	M	L	L	M	-	H
CO2	H	H	M	M	L	M	-	M
CO3	H	H	M	L	M	H	-	M
CO4	H	H	H	H	M	H	-	H
CO5	H	H	M	H	L	M	-	H

Dr.G.Athirshakumari
Head of the DepartmentDr.S.Cinthana
Dr.T.GangaParameswari
Mrs.P.Amirthayogam
Course Designers



வே.வ.வன்னியப்பெருமாள் பெண்கள் கல்லூரி

(விருதுநகர் இந்து நாடார்களுக்குப் பாத்தியப்பட்டது)
மதுரை காமராசர் பல்கலைக்கழகத்தின் கீழ் தன்னாட்சி உரிமம் பெற்றது
(தேசிய தரமதிப்பீட்டுக் குழுவின் மறுமதிப்பீட்டில் (மூன்றாம் சுற்று) 'A' அந்தஸ்து பெற்றது)
விருதுநகர் - 626001

பிறதுறை மாணவியர்க்கு
(2020 - 2021ம் ஆண்டில் சேரும் மாணவர்களுக்கிரியது)

மூன்றாம் பருவம்	தமிழும் பிறதுறைகளும்	நேரம் /வாரம் : 5	
பிறதுறை மாணவியர்களுக்கான விருப்பப் பாடம்		தரமதிப்பு : 4	
பாடக் குறியீட்டு எண் 20PTAN31		அகமதிப்பெண் 40	புறமதிப்பெண் 60

கற்றல் வெளிப்பாடு

இந்த பாடத்திட்டம் முடிந்த பிறகு, பிறதுறை மாணவர்கள்

- CO1: தமிழின் தொன்மை, பண்பாட்டினை அறிந்து வெளிப்படுத்துவர். [K2]
CO2: தமிழைப் பிறதுறைகளுடன் தொடர்புபடுத்தி அறிந்து எடுத்துரைப்பர். [K2]
CO3: தமிழ் மொழி மற்றும் தமிழரின் விழுமியங்களைப் பயன்படுத்தக் கற்றுக் கொள்வர். [K3]
CO4: மேலை நாடுகளின் அறிவியல் வளர்ச்சியைத் தமிழ் இலக்கியங்கள் வழி ஒப்பிட்டறிந்து வெளிப்படுத்துவர். [K4]
CO5: போட்டித் தேர்வு மற்றும் பிறதுறை சார்ந்த வேலை வாய்ப்பிற்குத் தயாராவதன் வழி வாழ்வின் மதிப்பீடுகளைப் பெறுவர். [K5]

கூறு 1

தமிழ் - மொழியும் வரலாறும் - தமிழரின் உலகம் - வரலாறு - நிலம் - தொன்மை -
மொழி - அகரம் - தமிழினிமை

(18 மணிநேரம்)

கூறு 2

உடல் அறிவியலும் மருத்துவமும் - மனித உடல் - உடல் இயக்கம் - பிணிகள் -
மருத்துவம் - மருந்தும் உணவும் - உணவு மரபு - சித்த மருத்துவம்

(18 மணிநேரம்)

கூறு 3

நுண்கலைகள் - கட்டிடக் கலை - கோயில் சிற்பம் - ஓவியம் - சித்திரம் - சிற்பங்கள் -
கோலம் (18 மணிநேரம்)

கூறு 4

நுண்கலைகள் - தமிழிசை - இசைஒலிகள் (மண்ணிசை) - தமிழர் இசை - இசைக்
கருவிகள் - ஆடல்கலை (18 மணிநேரம்)

கூறு 5

தாவரவியலும் கணிதமும் - தாவரங்கள் - மரங்கள் - தாவர அறிவியல் கணிதம் -
கணித்தல் - காலக்கணக்கு (18 மணிநேரம்)

பாட நூல்

மாத்தளை சோமு, (2005). வியக்க வைக்கும் தமிழர் அறிவியல், திருச்சி -3.
தமிழ்க்குரல் பதிப்பகம்.

பார்வை நூல்கள்

1. தொ.சிராஜ் உன்னிசாநாசர்,லொ.ஆ.உமாமகேஸ்வரி,அபிதாசபாபதி, 2003.
தமிழ் இலக்கியத்தில் அறிவியல் சிந்தனைகள், வானதி பதிப்பகம், சென்னை -17.
2. மயிலை சீனிவேங்கடசாமி, 2002. தமிழர் வளர்த்த அழகுக் கலைகள் - மணிவாசகர்
பதிப்பகம், சென்னை.

Course Code 20PTAN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	H	H	H	L	H	H
CO2	H	H	H	H	H	L	H	H
CO3	H	H	H	H	H	L	H	H
CO4	H	H	H	H	H	L	H	H
CO5	H	H	H	H	H	L	H	H

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VIRUDHUNAGAR - 626 001

M.Com.

(2020-21 onwards)

Semester III	TAXATION CONCEPTS AND ASSESSMENT	Hours/Week: 5	
Non Major Elective Course		Credits: 4	
Course Code 20PCON31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: state the basic concepts, provisions and procedures related to income tax. [K1]
- CO2: describe the heads of incomes and exempted incomes, categorise ITR forms and explain e-filing. [K2]
- CO3: determine the residential status of an individual and calculate income under various heads of income. [K3]
- CO4: analyse the taxation provisions regarding incidence of tax, valuation of perquisites, indexed cost and various types of assessment. [K4]
- CO5: identify tax deducted at source and calculate income tax for individual. [K5]

UNIT I

Tax System in India: Classification of Taxes -Definition of Important Terms - Assessment Year, Previous Year, Assessee, Person, Income- Agricultural Income- Kinds of Agricultural Income, Partly Agricultural Income - Residence - Determination of Residential Status (Individual only) - Incidence of Tax-Computation of Taxable Income - Exempted Income (any 20). (15 Hours)

UNIT II

Income from Salary: Meaning - Definitions - Different Forms of Salary -Allowances - Taxable Allowances, Allowances Exempt up to Specified Limit, Fully Exempted Allowances, Perquisites - Valuation of Perquisites, Residential Accommodation, Motor Car - Treatment of Death cum Retirement: Gratuity, Pension, Leave Salary - Deductions Allowed under the HeadSalary - Form 16 (Simple Problems). (15 Hours)

UNIT III

Income from House Property: Computation of Gross Annual Value of Let Out House Property - Self Occupied House Property - Format - Deductions Allowed - Form ITR2 Schedule HP (Simple Problems).

Profits and Gains from Business or Profession -Business, Profession- Deductions Expressly Allowed, Disallowed (Simple Problems). (15 Hours)

UNIT IV

Capital Gains: Meaning of Capital Assets- Kinds of Capital Assets - Computation of Short Term Capital Gain, Long Term Capital Gain (Formats) - Ascertaining Indexed Cost of Acquisition, Indexed Cost of Improvement- Tax on Capital Gain (excluding exemption from capital gain).

Income from Other Sources: Incomes Chargeable - (Simple Problems). (15 Hours)

UNIT V

Deductions from Gross Total Income: Section 80C, 80D, 80DD, 80DDB, 80E, 80G and 80TTA.

Assessment Procedure: Tax Rates for Individuals for Current Assessment Year - Income Tax Authorities - ITR Forms - Due Dates for Filing of Returns - Steps for e-filing of ITR - Permanent Account Number – Form 26 AS - Types of Assessment -Tax Planning, Tax Avoidance and Tax Evasion. (15 Hours)

SELF STUDY FOR ASSIGNMENT

1. Tax Deducted at Source
2. Calculation of Income Tax of Individual for a Given Taxable Income.

Note:

Composition of Question paper: Theory : 40%
Problem : 60 %

TEXT BOOK

Mehrotra, H.C., & Goyal, S.P. (Current Assessment Year). *Income Tax Law and Accounts*. New Delhi: Sahitya Bhawan Publishers.

REFERENCE BOOKS

1. Vinod Singhania, K. (Current Assessment Year). *Direct Taxes Law and Practice*. New Delhi: Taxmann Publication Private Ltd.
2. Gaur and Narang, D.B. *Income Tax Law and Practice*. New Delhi: Kalyani Publishers.
3. Hariharan, N. (Current Assessment Year). *Income Tax Law and Practice*. Chennai: Vijay Nicole Imprints Private Ltd.
4. Reddy. T.S., & Hari Prasad Reddy, Y. (Current Assessment Year). *Income Tax Law and Practice*. Chennai: Margham Publications.

Course Code 20PCON31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	L	M	-	H	-	H
CO2	H	M	L	M	-	H	-	L
CO3	H	M	L	M	-	H	-	L
CO4	H	M	L	M	-	H	-	M
CO5	H	M	L	M	-	H	-	M

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M.B.A.

(2020 -21 onwards)

Semester III	ENTREPRENEURSHIP	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PBAN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: identify their personal characteristics and interests to that of the “successful” entrepreneur. [K1]

CO2: discuss the business opportunities available and input requirements for startup under rural, global and women entrepreneurship. [K2]

CO3: demonstrate the significance, problems faced and remedies to overcome problems of MSME, rural & women entrepreneurs. [K3]

CO4: analyze the different modes and types of international and domestic Entrepreneurship. [K4]

CO5: Construct business plan and assess sources of finance & support for small business and entrepreneurs. [K5]

UNIT I

Entrepreneurship: Definition - Nature and Characteristics of Entrepreneurship- Evolution of the Concept of Entrepreneurship- Entrepreneurs & Managers- Qualities of True Entrepreneur- Types of Entrepreneurs-Functions of an Entrepreneur.

(18 Hours)

UNIT II

Establishing entrepreneurial systems: Search for Business Idea – Sources of Ideas – Idea Processing and Selection –Input Requirements – Rewards and Motivation.

(18 Hours)

UNIT III

Women Entrepreneurship: Development of Woman Entrepreneur, Problems and Remedial Measures of Women Entrepreneur – Intrapreneurship.

International Entrepreneurship: Mode of Entry into International Business – Barriers – Domestic Vs International. (18 Hours)

UNIT IV

Rural entrepreneurship: Importance – Development – Problems – Entrepreneurship in backward areas in India, farm entrepreneurship –MSME. (18 Hours)

UNIT V

Institutions assisting Entrepreneurship: Introduction and functions of: DIC – TIIC – SIPCOT – SIDBI – Contemporary Schemes for Entrepreneurs by Government of India and Tamil Nadu. (18 Hours)

SELF STUDY FOR ASSIGNMENT

1. Preparation of Business Plan
2. Case Studies relating to Entrepreneurship

TEXT BOOKS

1. Gupta, C.B. &Srinivasan, N.P. (2010). *Entrepreneurial Development*, New Delhi:Sultan Chand & Sons, Revised Edition.
2. Khanka, S.S. (2012). *Entrepreneurial Development*, New Delhi: S.Chand& Company, Revised Edition.

REFERENCE BOOKS

1. Saravanavel, P. (2001). *Entrepreneurship Development – Principles Policies and Programmes*, Madras: Ess Pee Kay Publishing House.
2. Peter F. Drucker, (2002). *Innovation and Entrepreneurship – Practice and Principles*, United Kingdom: Elsevier Ltd.

Course Code 20PBAN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	M	M	-	M	L	L
CO2	M	L	H	H	-	M	L	-
CO3	H	M	H	H	-	H	-	L
CO4	H	L	M	M	-	H	-	-
CO5	H	M	H	H	M	H	L	-

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Ms. R. Revathy
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M.B.A.

(2023-2024 onwards)

Semester III	ENTREPRENEURSHIP	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PBAN31N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: identify their personal characteristics and interests to that of the “successful”

entrepreneur. [K1]

CO2: discuss the business opportunities available and input requirements for startup under

rural, global and women entrepreneurship [K2]

CO3: interpret the significance, problems faced and remedies to overcome problems of

MSME, rural & women entrepreneurs.[K3]

CO4: analyze the different modes and types of international and domestic

Entrepreneurship.[K4]

CO5: evaluate business plan and assess sources of finance & support for small business and

entrepreneurs. [K5]

UNIT I

Entrepreneurship: Definition - Nature and Characteristics of Entrepreneurship- Evolution of the Concept of Entrepreneurship- Entrepreneurs & Managers- Qualities of True Entrepreneur- Types of Entrepreneurs - Functions of an Entrepreneur. (18 Hours)

UNIT II

Establishing entrepreneurial systems: Search for Business Idea – Sources of Ideas – Idea Processing and Selection –Input Requirements – Rewards and Motivation.

(18 Hours)

UNIT III

Women Entrepreneurship: Development of Women Entrepreneurs - Problems and Remedial Measures of Women Entrepreneur – Growth of Women Entrepreneurship - Intrapreneurship.

International Entrepreneurship: Mode of Entry into International Business – Barriers – Domestic Vs International. (18 Hours)

UNIT IV

Rural entrepreneurship: Importance – Development – Problems – Entrepreneurship in backward areas in India, farm entrepreneurship. (18 Hours)

UNIT V

Institutions: Introduction and functions of DIC - SIDBI.

Government Schemes for Entrepreneurs in India: Startup India Initiative – ATAL Innovation Mission – Pradhan Mantri Mudra Yojana – ASPIRE.

Social Responsibilities of Business - Introduction to Concept - Dimensions (18 Hours)

SELF STUDY FOR ASSIGNMENT

1. Preparation of Business Plan
2. Case Studies relating to Entrepreneurship

TEXT BOOKS

1. Gupta, C.B. & Srinivasan, N.P. (2010). *Entrepreneurial Development*, New Delhi: Sultan Chand & Sons, Revised Edition.
2. Khanka, S.S. (2012). *Entrepreneurial Development*, New Delhi: S.Chand & Company, Revised Edition.

REFERENCE BOOKS

1. Saravanavel, P. (2001). *Entrepreneurship Development – Principles Policies and Programmes*, Madras: Ess Pee Kay Publishing House.
2. Peter F. Drucker, (2002). *Innovation and Entrepreneurship – Practice and Principles*, United Kingdom: Elsevier Ltd.

Course Code 20PBAN31N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO1.a	PSO1.b	PSO2	PSO3.a	PSO3.b	PSO4	PSO5	PSO6	PSO1.a	PSO1.b
CO 1	H	H	M	M	M	M	-	M	L	L
CO 2	M	M	L	H	H	H	-	M	L	-
CO 3	H	H	M	H	H	H	-	H	-	L
CO 4	H	H	L	M	M	M	-	H	-	-
CO 5	H	H	M	H	H	H	M	H	L	-

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VIRUDHUNAGAR - 626 001

M.Sc. MATHEMATICS

(2020 - 21 onwards)

Semester III	MATHEMATICS FOR COMPETITIVE EXAMINATIONS	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PMTN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, students will be able to

CO1: retrieve the basic arithmetic for mental calculations. [K1]

CO2: Explain the basic concepts in arithmetic and diagrammatic representation of the data. [K2]

CO3: apply their analytical ability and computational skills in solving problems. [K3]

CO4: analyze problems in various competitive examinations in effective manner. [K4]

CO5: develop their analytical and critical thinking. [K5]

UNIT I

Arithmetic Ability

H.C.F and L.C.M - Fraction - Simplification–Laws of Exponents – Laws of Surds - Average (15 Hours)

UNIT II

Arithmetic Ability

Partnership - Percentage – Ratio and Proportion - Profit and Loss. (15 Hours)

UNIT III

Arithmetic Ability

Simple Interest – Compound Interest – Mixture (or) Allegation - Time and Distance. (15 Hours)

UNIT IV**Arithmetic Ability**

Trains – Time and Work – Problem based on Ages. (15 Hours)

UNIT V**Data interpretation**

Tabulation-Bar Graphs-Pie Charts-Line Graphs (15 Hours)

TEXT BOOKS

1. Tyra and Kundan.K., *Objective Maths for all Competitive Exams*, BSC Publishing Co. Pvt. Ltd.
2. Aggarwal.R.S., (Reprint 2014). *Quantitative Aptitude*, Chand & Co, Revised Edition.

Unit	Chapter	Section
TEXT BOOK 1		
I	1	3, 7, 8, 9, 10, 11
II	1	13,14, 15, 16
III	1	18,19,22, 23
IV	1	24,27,30
TEXT BOOK 2		
V	section - II	36, 37, 38, 39

REFERENCE BOOKS

1. Tyra.M and Kundan.K., (2009). *Practice Book on Quicker Maths*, BSC Publishing Co. Pvt. Ltd.
2. Govind Prasad Singh, Rakesh Kumar, (2016). *Quickest Mathematics*, Kiran Institute of Carrer Excellence, Delhi.

Course Code 20PMTN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	H	H	H	H	M	-
CO2	H	M	H	M	M	H	M	-
CO3	H	L	H	H	H	H	M	L
CO4	H	L	H	H	H	H	M	L
CO5	H	L	H	H	H	H	M	L

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Mrs. S. Kohila
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V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

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VIRUDHUNAGAR - 626 001

M.Sc. Physics

(2020-2021 onwards)

Semester III	DIGITAL ELECTRONICS	Hours/Week: 5	
NMEC		Credits: 4	
Course Code		Internal	External
20PPHN31		40	60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: understand number system, Boolean algebra, combinational and sequential circuits. [K1]

CO2: explain basic laws of Boolean algebra, logic diagram using logic gates, combinational and sequential circuits. [K2]

CO3: construct Boolean function using laws, property & theorems, converters, combinational & sequential circuits. [K3]

CO4: discuss about number system, Karnaugh map, arithmetic circuits, types of flip-flop, converters, counters and registers. [K4]

CO5: design logic function using SOP & POS, EX-OR gate using NOR & NAND gates, half adder & full adder using NOR gate and MOD-12 counter. [K5]

UNIT I

Number system: Number system - Binary numbers - Decimal to Binary conversion - Octal numbers - Octal to Binary conversion - Hexa decimal numbers -Hexa Decimal to Binary conversion - Hexa Decimal to Octal conversion - Arithmetic operation - 1's and 2's complement subtraction.

Boolean algebra: Development of Boolean algebra - Boolean logic operations - Basic laws of Boolean algebra - Demorgan's theorem - Sum of products and product of sums - Minterm - Maxterm. (15 Hours)

UNIT II

Logic gates: Introduction - Positive and negative logic designation - Logic gates -Karnaugh map.
Combinational Circuits: Multiplexer - 4 to 1 Multiplexer - 8 to 1 Multiplexer - 16 to 1 Multiplexer – Demultiplexer - 1 to 4 Demultiplexer - 1 to 8 Demultiplexer - 1 to 16 Demultiplexer - Decoder - 3 to 8 decoder - 4 to 16 decoder - BCD to Decimal decoder - BCD to 7 segment decoder/driver - Encoder - Octal to Binary encoder - Decimal to BCD encoder.

(15 Hours)

UNIT III

Arithmetic circuits: Half adder - Full adder - K-Map simplification - Half subtractor - Full subtractor - Parallel Binary adder - Controlled inverter - 4-bit Parallel adder/subtractor - Fast adder - Serial adder - Serial subtraction using 2's complement - 4-bit Serial adder/subtractor - BCD adder - Binary multiplier - Binary Divider.

(15 Hours)

UNIT IV

Flip flops: Types of flip flops - S-R flip flops – D flip flops - JK flip flops - T flip flops - Triggering of flip flops - Master slave flip flops.

Converters: D/A converters - R-2R ladder type - A/D converters - Successive approximation type.

(15Hours)

UNIT V

Counters: Asynchronous counters - Ripple counters with modulus $< 2^n$ - Asynchronous down counter - Up/Down counter - Propagation delay in ripple counter - Synchronous counters - Synchronous down counter - Synchronous Up/Down counter.

Registers: 4 bit shift register - Shift register - Ring counter - Shift counter.

(15 Hours)

TEXT BOOKS

Salivahanan, S and Arivazhagan, S., (2010). *Digital Circuits and Design*, 3rd Edition.

Vikas Publishing House Pvt. Ltd.

UNIT I - CHAPTER 1 - 1.1, 1.2, 1.4 - 1.5.2

CHAPTER 2 - 2.1 - 2.6.2

UNIT II - CHAPTER 3 - 3.1 - 3.3.6

CHAPTER 2 - 2.7

CHAPTER 6 - 6.1 - 6.2.3, 6.4 - 6.5.3, 6.5.6, 6.5.9, 6.7 - 6.7.2.

UNIT III - CHAPTER 5 - 5.1, 5.3-5.17

UNIT IV - CHAPTER 7 - 7.1, 7.3 - 7.8, 7.10

CHAPTER 13 - 13.1, 13.4.2, 13.9.4

UNIT V - CHAPTER 8 - 8.1, 8.2, 8.4, 8.6 - 8.9, 8.11, 8.12

CHAPTER 9 - 9.1, 9.2, 9.2.1, 9.2.3, 9.2.5, 9.2.7, 9.4.1, 9.5

REFERENCE BOOKS

1. Albert Paul Malvino, Donald P., Leach, (2005). *Digital Principles and Applications*, 4th Edition. Tata McGraw Hill Publishing Company Limited.
2. Moris Mano, M., (2001). *Digital Logic and Computer Design*, Prentice Hall of India Private Limited.
3. Somanathan Nair, B., (2002). *Digital Electronics and Logic Design*, Prentice Hall of India Private Limited.
4. Samuel, C., Lee, (2002). *Digital Circuits and Logic Design*, 10th Edition. Prentice Hall of India Private Limited.

Course code 20PPHN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	H	M	L	M	-	-
CO2	H	H	H	M	L	M	-	-
CO3	H	H	H	M	M	H	-	-
CO4	H	H	H	M	M	H	-	-
CO5	H	H	H	H	M	H	-	-

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V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

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VIRUDHUNAGAR - 626 001

M.Sc. CHEMISTRY

(For those who join in the Academic Year 2020-2021)

Semester III	CHEMISTRY FOR COMPETITIVE EXAMINATION	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PCHN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: know the fundamentals of chemistry. [K1]
- CO2: understand the basics of chemistry like elements, symbols, important laws and chemical process in chemistry, concepts of acid and bases, water and their types, environmental chemistry, nuclear chemistry, and chemistry in service of man. [K2]
- CO3: identify the types of chemical reactions, water, solutions, chemical processes, environmental pollutions, nature of metals, chemical formulae, symbol of atoms, polymers, cement, lubricants, soaps, fuels, corrosion, food adulterants, antibiotics, vitamins, and concepts of acids and bases. [K3]
- CO4: analyze the rudiment in chemistry, environmental pollutions, and chemistry in service of man. [K4]
- CO5: interpret important basic terms, concepts, laws, chemical processes, environmental chemistry, and chemistry in service of man. [K5]

UNIT I BASIC CHEMISTRY- I:

Elements – atoms and molecules – Metals and nonmetals – metalloid, alloy, ore and minerals - Chemical formulae and symbols – Important basic terms such as pressure, volume, atomic mass, molecular mass, temperature, atomic number – Types of chemical reactions (exothermic and endothermic, Physical and chemical changes, oxidation and reduction) – ideal and real gas - Important laws of Chemistry (Boyle's law, Charle's law, Hess's law, Grahams law of diffusion, Beer's law, Henry's law, Faraday's law, Law of conservation of matter or energy). (18 Hours)

UNIT II BASIC CHEMISTRY- II: (Only elementary idea can be given)

Different concepts of Acids and Bases (Arrhenius, Bronsted and Lewis) – pH concept (no calculation) – Water – Hard and soft water - Chemical nature of metals- Steel and iron (no manufacture) – heat treatment of steel – Solutions and their types (True, Colloidal and suspension) – uses of colloidal solution – Buffer solution – Nuclear Chemistry – isotopes and radioactivity Definitions of some important chemical processes (Haber's, Contact's, Ostwald's, Process) (18 Hours)

UNIT III ENVIRONMENTAL CHEMISTRY:

Pollution and types of pollutions – Composition of atmosphere – Major regions of atmosphere and their characteristics – Elementary idea of Green house effects and Acid rain – Air pollution – Control of air pollution and their harmful effects – CFC, Global warming, substitute for CFC (Just name only)-Water pollution – Dissolved oxygen – BOD, COD and TDS (elementary idea only) (18 Hours)

UNIT IV CHEMISTRY IN SERVICE OF MAN –I: (Only elementary idea can be given)

Plastics – Classification with examples – Polymer (natural and synthetic) – Soaps and Glass – Annealing of glass – Cement – Constituents and setting and hardening of cement – Rubber – Types with examples and vulcanization of rubber- Corrosion of metal – prevention – Lubricants (definition and classification) – Fuel – Classification with suitable examples - calorific value – LPG and Rocket fuel. (18 Hours)

UNIT V Chemistry in service of man –II: (Only elementary idea can be given)

Food adulterants – common food adulterants and their harmful effects and tests to identify them– Classification and biological functions of Vitamins A, B6, B12, C, D, E and K (structural elucidation not required) – Classification and biological functions of antibiotics – penicillin, chloroamphenicol, streptomycin and tetracycline.

(18 Hours)

TEXT BOOKS

- 1.Puri, B.R. Sharma, L.R. Pathania, M.S. (2003). *Principles of Physical Chemistry*. New Delhi: Vishal Publishing Co, 1st Edition.
- 2.Puri, B.R. Sharma, L.R. & Kalia, K.C. (2008). *Principles of Inorganic Chemistry*, New Delhi: Milestone Publishers, 2nd Edition.

- 3.Sharma, B. K.(2008). *Industrial Chemistry*. Meerut:GOEL Publishing House, 1st Edition.
- 4.Jayashree Ghosh, (2013). *Fundamental Concepts of Applied Chemistry*, New Delhi: S.Chand & Company Ltd.,1st Edition.
- 5 BagavathiSundari, K.(2008). *Applied Chemistry*. Chennai: MJP Publishers, 1st Edition.
6. Tyagi, O.D.and Mehra, M.(2002). *A Text book of Environmental Chemistry*. New Delhi: Anmol Publication, 1st Edition.
7. General Studies Manual,(2013) The TMH Publishers.
8. Ramani,V.(2014).*Food Chemistry*. Chennai: MJP Publishers, 1st Edition.

REFERENCE BOOKS

- 1.Jain, P.C. & Monika Jain, (2013). *Engineering Chemistry*.New Delhi: DhanpatRai Publishing Company Pvt.Ltd., 1st Edition.
- 2.Jayashree Ghosh. (2014).*A Text Book of Pharmaceutical Chemistry*. New Delhi: S.Chand & Company Ltd, 3rd Edition.
- 3.Dara,S.S. (2004). *A Text book of Environmental Chemistry and Pollution Control*. New Delhi: S.Chand & Company Ltd., 7th Edition.

Course Code 20PCHN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	H	H	M	M	M	M
CO2	H	H	H	H	M	M	M	H
CO3	H	H	H	H	M	M	M	M
CO4	H	H	H	H	M	M	M	H
CO5	H	H	H	H	M	M	M	H

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Dr.A.Anitha
Course Designers



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VIRUDHUNAGAR - 626 001

M.Sc. CHEMISTRY

(For those who join in the Academic Year 2022-2023)

Semester III	CHEMISTRY FOR COMPETITIVE EXAMINATION	Hours/Week: 6	
NMEC		Credits: 4	
Course Code 20PCHN31N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: know the fundamentals of chemistry. [K1]

CO2: understand the basics of chemistry like elements, symbols, important laws and chemical process in chemistry, concepts of acid and bases, water and their types, environmental chemistry, nuclear chemistry, and chemistry in service of man. [K2]

CO3: identify the types of chemical reactions, water, solutions, chemical processes, environmental pollutions, nature of metals, chemical formulae, symbol of atoms, polymers, cement, lubricants, soaps, fuels, corrosion, food adulterants, antibiotics, vitamins, and concepts of acids and bases. [K3]

CO4: analyze the rudiment in chemistry, environmental pollutions, and chemistry in service of man. [K4]

CO5: interpret important basic terms, concepts, laws, chemical processes, environmental chemistry, and chemistry in service of man. [K5]

UNIT I CONCEPTS IN CHEMISTRY- I:

Atomic theory: Dalton's and Bohr's theory. Molecules: atomic and molecular mass, empirical and molecular formula. Definition of ore, mineral, alloy with examples. Types of chemical reactions: exothermic and endothermic, oxidation and reduction, addition, substitution and elimination reactions – ideal and real gas : definition. Some Basic laws in chemistry: Boyle's law, Charle's law, Grahams law of diffusion, Beer's law, Henry's law, Faraday's law, Law of conservation of mass, Hess's law,).

(18 Hours)

UNIT II CONCEPTS IN CHEMISTRY- II: (Only elementary idea can be given)

Concepts of Acids and Bases (Arrhenius, Bronsted and Lewis) – pH concept, Buffer solution: definition and types of buffer– Water – Hard and soft water – hardness of water and types- determination of hardness of water by ion exchange process. Solutions and their types: True, Colloidal and suspension – Applications of colloids – Nuclear Chemistry – definitions of isotones, isobars, isotopes - Types of radiation: alpha, beta, gamma radiation.

(18 Hours)

UNIT III ENVIRONMENTAL CHEMISTRY:

Pollution and types of pollutions – Air, Water, land, Radioactive pollution.

Air pollution- Causes and control measures. Green house effect, Ozone depletion and Acid rain.

Water Pollution - Causes – effect of water pollution on groundwater and ocean-BOD, COD - control measures

Soil Pollution: Sources: common soil pollutants, effects of soil pollution-soil erosion, remedial measures. (18 Hours)

Radioactive pollution: sources, harmful effects of radioactive pollutants, nuclear waste and its disposal methods, control measures of radioactive pollution. (18 Hours)

UNIT IV CHEMISTRY IN DAY TO DAY LIFE: (Only elementary idea can be given)

Plastics – Types with examples – Polymer: definition, Types of polymer - natural and synthetic polymers with example. Glass – Annealing of glass – Cement – Constituents and setting of cement – Rubber – Types with examples and vulcanization of rubber- Corrosion of metal – prevention – Lubricants -definition and classification. Fuel – Types with suitable examples - calorific value – Composition of LPG and Rocket fuel. (18 Hours)

UNIT V CHEMISTRY IN SERVICE OF MANKIND –II: (Only elementary idea can be given)

Food adulterants – common food adulterants and their harmful effects and tests to identify them–Sources and deficiency of Vitamins A, B6, B12, C, D, E and K (structural elucidation not required) –Structure and therapeutic uses of antibiotics – penicillin, chloroamphenicol, streptomycin and tetracycline. (18 Hours)

TEXT BOOKS

1. Puri, B.R. Sharma, L.R. Pathania, M.S. (2003). *Principles of Physical Chemistry*. New Delhi: Vishal Publishing Co, 1st Edition.

- Puri, B.R. Sharma, L.R. & Kalia, K.C. (2008). *Principles of Inorganic Chemistry*, New Delhi: Milestone Publishers, 2nd Edition.
- Sharma, B. K.(2008). *Industrial Chemistry*. Meerut:GOEL Publishing House, 1st Edition.
- Jayashree Ghosh, (2013). *Fundamental Concepts of Applied Chemistry*, New Delhi: S.Chand & Company Ltd.,1st Edition.
- BagavathiSundari, K.(2008). *Applied Chemistry*. Chennai: MJP Publishers, 1st Edition.
- Tyagi, O.D.and Mehra, M.(2002). *A Text book of Environmental Chemistry*. New Delhi: Anmol Publication, 1st Edition.
- General Studies Manual,(2013) The TMH Publishers.
- Ramani,V.(2014).*Food Chemistry*. Chennai: MJP Publishers, 1st Edition.

REFERENCE BOOKS

- Jain, P.C. & Monika Jain, (2013). *Engineering Chemistry*.New Delhi: DhanpatRai Publishing Company Pvt.Ltd., 1st Edition.
- Jayashree Ghosh. (2014).*A Text Book of Pharmaceutical Chemistry*. New Delhi: S.Chand & Company Ltd, 3rd Edition.
- Dara,S.S. (2004). *A Text book of Environmental Chemistry and Pollution Control*. New Delhi: S.Chand & Company Ltd., 7th Edition

Course Code 20PCHN31N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	H	M	M	M	M
CO2	H	H	H	H	H	H	M	M	M	M
CO3	H	H	H	H	H	H	M	M	M	M
CO4	H	H	H	H	H	H	M	M	M	M
CO5	H	H	H	H	H	H	M	M	M	M

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VIRUDHUNAGAR - 626 001

M.Sc. ZOOLOGY

(2020-21 onwards)

Semester III	APICULTURE	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PZYN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: describe the basic concepts in beekeeping. [K1].
- CO2: understand the role of bees in maintaining healthy ecosystem. [K2]
- CO3: apply knowledge to set up an apiary to promote self employment and Entrepreneurship. [K3]
- CO4: analyse the behavioral patterns of bees along with its seasonal management Practices. [K4]
- CO5: evaluate the beekeeping practices to increase the yield through proper management. [K5]

UNIT I

Introduction: History of beekeeping in India; scope and advantages of beekeeping; honey bee species – *Apis dorsata*, *A. florea* and *A. cerena*. Candidate species for commercial beekeeping, Social life in honeybee, Beekeeping as a cottage industry.

(18 Hours)

UNIT II

Bee colony: Kinds of bees-Queen bee, Drone bee and Worker bee. Life cycle of honeybees. Beekeeping methods - primitive and modern methods. Rearing of honey bees – location and preparation of Apiary. Rearing appliances - bee hive (primitive and modern hive), queen excluder, smoker, bee brush, comb foundation sheet, bee veil, uncapping knife, honey extractor and storage container. Food of honeybee- nectar, honey, pollen, royal jelly and bee bread.

(18Hours)

UNIT III

Behaviour of bees: Bee dance - types and purposes. Swarming – nuptial flight, robbing, absconding and foraging-united stocks. Management in spring, summer and winter seasons.

(18 Hours)

UNIT IV

Products of beekeeping: Honey –Extraction of honey, chemical composition, nutritive value and medicinal value of honey. Bee wax – production and extraction. Royal jelly- Doo little grafting technique and uses, Bee venom – composition, extraction and uses.

(18 Hours)

UNIT V

Enemies of honeybees: Wax-moth, wax beetle and wasps. Diseases of honeybee and its control measures - Brood diseases - Bacterial (American foulbrood), Fungal (Chalk brood) and viral (Sac brood) diseases. Adult diseases – Nosemosis and Acariasis.

(18 Hours)

TEXT BOOKS

1. Tamilselvi.M. and Dr.Abdul Ali.(2018). A Text Book for Apiculture, Chennai: Hi,VijayNicole Imprints.

REFERENCE BOOKS

1. Gosh, G. K. (1994). Beekeeping in India, New Delhi: Ashish Publishing House.
2. Phillips, E.P. (2001). Beekeeping, Jodhpur: Agrobios (India).
3. Mishra, R.C. (2002). Perspectives in Indian Apiculture, Jodhpur: Agrobios (India).
4. Aminul Islam.(2016).Economic Zoology, 1stEdition.IK International publishing House pvt. ltd. New Delhi

Course Code 20PZYN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	M	M	H	H	M	-
CO2	H	H	L	H	H	H	L	-
CO3	H	H	M	H	M	H	M	-
CO4	M	H	L	L	H	H	-	-
CO5	H	H	-	H	H	H	M	-

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M.Sc HOME SCIENCE- NUTRITION AND DIETETICS
 (2020 - 2021 onwards)

Semester III	NUTRITION AND HEALTH	Hours/Week:5	
NMEC		Credits: 4	
Course Code		Internal	External
20PHSN31		40	60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: define health, nutrition, nutrients, nutritional status and list the sources of nutrients. [K1]
- CO2: classify food groups, macro and micro nutrients and write the Recommended Dietary allowances for different age groups of life span. [K2]
- CO3: determine the importance of balanced diet, food pyramid and the effects of nutrient deficiency diseases on human health. [K3]
- CO4: analyze the dimensions of health, energy value of food, BMR, RDA and functions of macro and micro nutrients. [K4]
- CO5: recommend the dietary allowances of macro and micronutrients for different stages of life. [K5]

UNIT I

Health – definition and dimensions of health. Food-definition, classification, food groups (four, five and seven food groups), importance of food groups. Balanced diet - definition, importance, food pyramid. Nutrition - definition, nutritional status and malnutrition.

(15 Hours)

UNIT II

Energy-definition, unit of measurement, BMR–definition and factors affecting BMR. Carbohydrate and Dietary fibre - classification, sources, functions, nutrient requirements and deficiency.

(15 Hours)

UNIT III

Protein and Fat - definition, classification, sources, functions, nutrient requirements and deficiency. (10 Hours)

UNIT IV

Vitamins - definition, classification, food sources, functions, nutrient requirements and deficiency of the following vitamins

Water soluble vitamins - vitamin B₁, B₂, B₆, B₁₂, niacin, folic acid and vitamin C and

Fat soluble vitamins - vitamin A, D, E, K. (20 Hours)

UNIT V

Minerals - definition, classification. Calcium, phosphorus, iron, iodine and zinc - food sources, functions, nutrient requirements and deficiency.

Water - functions and requirement, fluid and electrolyte balance. (15 Hours)

TEXT BOOK

Sri Lakshmi, B. (2020). *Nutrition Science*, 7th Edition, New Delhi: New Age International Ltd.

REFERENCE BOOKS

1. Gajalakshmi, R. (2014). *Nutrition Science*, 1st Edition, Chennai: CBS Publishers & Distributors Pvt Ltd.
2. Krause, M.V and Mahan, L.K. (1986). *Food, Nutrition and Diet Therapy*, London: Alan R Liss, Saunders Co.
3. Raheena Begum, M. (2010). *Food, Nutrition and Dietetics*, 3rd Edition, New Delhi: Sterling Publishers Pvt Ltd,
4. Robinson, C.H., Lawler, M.R., Chenoweth, W.L. and Garwick, A.E. (1986). *Normal and Therapeutic Nutrition*, New York: Macmillan Publishing Company.
5. Swaminathan, M. (2018). *Essentials of Nutrition*, Vol I & II, Madras: Ganesh and Company.

Course Code 20PHSN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	H	L	-	L	-	-
CO2	H	H	H	L	M	M	-	-
CO3	H	H	H	L	M	M	-	-
CO4	H	H	H	M	H	M	-	M
CO5	H	H	H	M	H	H	-	M

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Mrs.P.Ramalakshmi
Course Designers



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VIRUDHUNAGAR - 626 001

M.SC. BIOCHEMISTRY

(2020 -2021 onwards)

Semester III	CLINICAL BIOCHEMISTRY (BASICS)	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PBCN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: recall about the normal constituents of urine, blood and their significance in maintaining good health. [K1]
- CO2: understand the mechanisms causation of diseases of liver, kidney and of Cancer will be explained. [K2]
- CO3: find normal and abnormal metabolic functions, the impact of disorders on metabolic processes, an overall picture about the molecular basis of diseases and novel strategies to prevent diseases. [K3]
- CO4: apply the principles and techniques of biochemical instruments and analyze the biochemical constituent and diagnose the disease which helpful the students for further employment in basic research and the health professions. [K4]
- CO5: evaluate the variations in the levels of biochemical constituents and their relationship with various diseases. [K5]

UNIT I

Diagnostic importance of hematological parameters: Blood collection, Anticoagulants. Complete haematogram - Hb, ESR, Haematocrit, Total count and differential count, Eosinophil and platelet count. (Clinical significance and determination)

(15 Hours)

UNIT II

Diagnostic importance of urine: Urine Analysis-Urine collection, Preservatives used in urine sample. Physical analysis- Volume, appearance, pH, colour, odour. Chemical analysis-protein reducing sugar, ketones, Bile salts and bile pigments. Microscopic examination-Casts and crystals.

(15 Hours)

UNIT III

Instrumentation: Principles and applications of glucometer, Cholestrometer, autoanalyser, Pregnancy test, Dipstick method for urine analysis, Arthropometric measurements, Spigmomanometer. (15 Hours)

UNIT IV

Diagnostic importance of blood parameters: Glucose urea, creatinine, cholesterol Uric acid, calcium, phosphorus, protein and bilirubin and Lipid profile-LDL,HDL,Triglycerides. (15 Hours)

UNIT V

Biochemistry of diseases: Diabetes mellitus, myocardial infarction, renal failure, Liver failure. Poly cystic ovarian disease (PCOD), Gout, Hypo thyroidism and hyper thyroidism. Cancer and its types (15Hours)

TEXT BOOK

1. Chatterjea, M. N. & Rana Shinde (2011). *Text book of Medical Biochemistry*, New Delhi: Jaypee Brothers Medical Publishers (P) Ltd., 8th Edition.

REFERENCE BOOKS

1. Deb, A.C. (2001). *Fundamentals of Biochemistry*, Kolkata: New Central Book Agency, 7th Edition.
2. Kanai L Mukherjee & Swarajit Ghosh (2010). *Medical Laboratory Technology*, New Delhi: Vol I, Tata McGraw Hill, 2nd Edition

Course Code 20PBCN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	H	H	M	M	-	-
CO2	H	M	H	H	M	M	-	-
CO3	H	M	H	H	M	M	-	-
CO4	H	M	H	H	M	M	-	M
CO5	H	M	H	H	M	M	-	M

Dr.P.Annapoorani
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VIRUDHUNAGAR - 626 001

M.Sc. COMPUTER SCIENCE

(2020-2021 onwards)

Semester III	WEB PROGRAMMING	Hours/Week: 5	
NMEC		Credits: 4	
Course Code		Internal	External
20PCSN31		40	60

COURSE OUTCOMES

On completion of the course, the learners will be able to

CO1: define Internet technologies, internet browsers, head, body sections and lists in HTML. [K1]

CO2: review tables, style sheets, frames and forms in HTML. [K2]

CO3: use anchor tags, hyperlinks, comment lines, list tag, table tag, style tag, frameset action & method attribute in form. [K3]

CO4: distinguish order and unordered list, various style sheets and various HTML tags. [K4]

CO5: choose appropriate HTML tags for elegant view of webpage. [K5]

UNIT I

Introduction to the Internet: Computers in Business – Networking – Internet – Electronic Mail (E-Mail) – Resource Sharing – Gopher – World Wide Web – Usenet – Telnet – Bulletin Board Service – Wide Area Information Service. **Internet Technologies:** Modem – Internet Addressing – Physical Connections – Telephone Lines. **Internet Browsers:** Internet Explorer – Netscape Navigator. (16 Hours)

UNIT II

Introduction to HTML: Designing a Home Page – History of HTML – HTML Generations – HTML Documents – Anchor Tag – Hyper Links – Sample HTML Documents.
Head and Body Sections: Header Section – Title – Prologue – Links – Colorful Web Page – Comment Lines – Some Sample HTML Documents. (16 Hours)

UNIT III

Designing the Body Section: Heading Printing – Aligning the Heading – Horizontal Rule – Paragraph – Tab Settings – Images and Pictures – Embedding PNG Format Images.
Ordered and Unordered Lists: Lists – Unordered Lists – Heading in a List – Ordered Lists – Nested Lists. (14 Hours)

UNIT IV

Table Handling: Tables – Table Creation in Html – Width of the Table and Cells – Cells Spanning Multiple Rows/Columns – Coloring Cells – Column Specification – Some Sample Tables.
DHTML and Style Sheets: Defining Styles – Elements of Styles – Linking a Style Sheet to an HTML Document – In-line Styles – External Style Sheets – Internal Style Sheets – Multiple Styles. (14 Hours)

UNIT V

Frames: Frameset Definition – Frame Definition – Nested Framesets. **Forms:** Action Attribute – Method Attribute – Enctype Attribute – Drop Down List – Sample Forms. (15 Hours)

TEXT BOOK

Xavier, C. (2015). *World Wide Web Design with HTML*, New Delhi: Tata McGraw Hill Education Private Limited.

UNIT	CHAPTERS	SECTIONS
I	1	1.1 – 1.11
	2	2.1 – 2.4
	3	3.1, 3.2
II	4	4.1 - 4.7
	5	5.1 – 5.7
III	6	6.1 – 6.7
	7	7.1 – 7.5
IV	8	8.1 – 8.7
	9	9.1 – 9.7
V	10	10.1 – 10.3
	12	12.1 – 12.5

REFERENCE BOOKS

1. Deitel, P.T. (2009). *Internet & World Wide Web How To Program*, United States of America: Pearson International Edition.
2. Steven Holzner . (2000). *Html Black Book*, New Delhi: Dreamtech Press.
3. Wendy Willard. (2007).*HTML: A Beginner's Guide*, New Delhi: McGraw Hill Professional.

Course Code 20PCSN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	M	M	-	-	-	L	-	-
CO2	M	M	-	-	-	M	-	L
CO3	H	M	L	-	L	H	-	L
CO4	H	H	M	M	-	H	-	-
CO5	H	H	H	M	L	H	-	M

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VIRUDHUNAGAR - 626 001

M.Sc. INFORMATION TECHNOLOGY (2020 -2021 onwards)

Semester III	FUNDAMENTALS OF INFORMATION TECHNOLOGY	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PITN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1: outline the basic concepts and terminology of information technology to enhance their knowledge. [K1]
- CO2: demonstrate an understanding of the computer's types, general features and hardware to exhibit their skills to progress their career paths. [K2]
- CO3: utilize the impact of E-commerce on business models and strategy to acquire the knowledge of database concepts. [K3]
- CO4: evaluate the usage of computers in business and industries to find the solutions of real time problems. [K4]
- CO5: prescribe the issues related to information security to enhance their lifelong learning.[K5]

UNIT I

Five Generation of Modern Computers: Introduction–First Generation Computers – Second Generation Computers– Third Generation Computers -Fourth Generation Computers - Fifth Generation Computers.

Classifications of Digital Computer Systems: Introduction – Microcomputers – Minicomputers – Mainframes – Supercomputers – Network Computers.

Anatomy of Digital Computer: Introduction – Parts of a Computer.

Central Processing Unit (CPU) and Memory: Introduction – Central Processing Unit (CPU) – Memory – Memory Organization – Random Access Memory (RAM) – Read Only Memory (ROM) – Registers. (15 Hours)

UNIT II

Input Devices: Introduction – Keyboard – Mouse – Track Ball – Game Controllers – Scanners – Barcode Reader – Card Reader – Digitizer – Voice Recognition – Webcams-Digital cameras – Video Cameras (Camcorders) – Optical Character Recognition (OCR) –Optical Mark Recognition (OMR) – Intelligent Character Recognition (ICR) – Magnetic Ink Character Recognition (MICR).

Output Devices: Introduction – Monitor – Printer – Plotter – Multimedia Projector – Speech Synthesizers – Sound Cards and Speakers – Dumb, Smart, and Intelligent Terminals.

(10 Hours)

UNIT III

Computer Networks: Introduction – Overview of a Network – Communication Processors – Communication Media – Telecommunications Software - Types of Networks – Network Topology – Network Protocols – Network Architecture.

Internet & World Wide Web: Introduction –Special about the Internet – Internet Access- Internet Basics – Internet Protocols – Internet Addressing – World Wide Web(WWW) – Web Pages and HTML – Web Browsers .

(20 Hours)

UNIT IV

Introduction To Intranets: Introduction – Characteristics of Intranet – Advantages of Intranets – Business Benefits of Intranets –Drawbacks of Intranets – need of Intranet for an organization – Intranet vs. Groupware – Intranet vs. E-mail – Intranet vs. Client –Server Systems – Extranet – Intranets, Extranets and E-commerce.

Introduction to E-Commerce and E-Business: Introduction – Technological Advancements – E-Commerce Defined – E-Commerce – E-Commerce and E-Business.

(15 Hours)

UNIT V

Computers in Business and Industries: Introduction – Office Automation – People – Ergonomics – Office Automation Technologies – Office Automation Systems – Transaction Processing – Centralized Transaction Processing – Client /Server Systems – Distributed Computing – Tools for Management Control – **Computers at Home:** Introduction Household Business – Business Applications at Home – Smart Cards – Communication, Education and Information – Home Entertainment Redefined – Creativity and Leisure. **Computer in**

Education and Training: Introduction – Computer in Schools – Distance Learning: Virtual Schools. (15 Hours)

TEXT BOOK

Alexis Leon and Mathews Leon, *Fundamentals of Information Technology*, 2nd Edition. Vikas Publishing House Private Limited.

REFERENCE BOOKS

1. Alexis Leon & Mathews Leon, (2009). *Principles of Information Technology*, New Delhi: Vikas Publishing House.
2. Rajaraman, V. *Introduction of Information Technology*, 2nd Edition. PHI Learning Private Limited.

Course Code 20PITN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	M	M	H	H	H	-	L
CO2	H	H	M	M	H	H	-	L
CO3	H	H	L	H	H	H	-	L
CO4	H	H	H	M	H	H	-	L
CO5	H	H	H	H	H	H	-	L

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VIRUDHUNAGAR - 626 001

M.C.A.

(2020 -21 onwards)

Semester III	WEB TECHNOLOGY	Hours/Week: 5	
NMEC		Credits: 4	
Course Code		Internal	External
20PCAN31		40	60

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1 : gain knowledge on the basis of web, web pages, HTML tags, CSS and Java Script. [K1]
- CO2 : understand the concepts of web page creation using HTML, CSS and Java Script. [K2]
- CO3 : make use of HTML, CSS and Java Script to design simple web pages. [K3]
- CO4 : analyze how the web works and the steps of creating a website using HTML, CSS and Java Script, examine G-Suite blog creation. [K4]
- CO5 : choose real time applications and create dynamic web pages and G-Suite blogs. [K5]

UNIT I

How the Web Works: The Internet versus the Web – Serving up your information – A word about browsers – web page addresses – The anatomy of a web page – Putting it all together. **Creating a Simple Web Page:** A web page step by step – Launch a text editor – Step-1 Start with content – Step-2 Give the HTML document structure – Step-3 Identify text elements – Step-4 Add an Image – Step-5 Change the look with a style sheet.

(15 Hours)

UNIT II

Marking Up Text: Paragraphs – Headings – Thematic Breaks – Lists – More content elements – Organizing page content – The inline element roundup – Generic elements. **Adding Links:** The HREF attribute – Linking to pages on the web – Linking within your own site –

Targeting a new browser window – Mail Links – Telephone Links. **Adding Images:** First a word on image formats – The img element.

(15 Hours)

UNIT III

Table Markup: How to use Tables – Minimal Table structure – Table Headers – Spanning Cells – **Forms:** How Forms work – The form Element – Variables and Content – The great form control roundup.

(15 Hours)

UNIT IV

Introducing Cascading Style Sheets: The benefits of CSS – How Style Sheets Work – The big concepts. **Formatting Text:** Basic Font Properties – Advanced Typography with CSS3 – Changing text Color – A Few more Selector types – Text Line Adjustments – Underlined and other decorations – Changing Capitalization – Spaced out – Text Shadow – Changing List Bullets and Numbers.

(15 Hours)

UNIT V

Introduction to Java Script: What is Java Script – Adding Java Script to a page – The anatomy of a script – The browser object – Events – Putting it all together. **Case Study:** Creating a blog using Google Suite.

(15 Hours)

TEXT BOOK

1. **eBook** - Jennifer Niederst Robbins, Mathews Leon – Learning Web Design – A Beginners guide to HTML, CSS, JAVA SCRIPT and Web Graphics, 5th Edition.
2. Creating a blog using Google Suite - study Material prepared by faculties of Computer Applications (PG)

REFERENCE BOOKS

1. Web enabled commercial Application Development using HTML, JavaScript, DHTML and PHP by Ivan Bayross Fourth Revised Edition BPB Publications, Reprinted 2013.
2. Core Web programming Marty Hall, Larry Brown-The SUN Microsystem Press, Second edition, 2001
3. Web Technology: A Developer's Perspective, N.P. Gopalan, J. Akilandeswari, PHI, 2007.

Course Code 20PCAN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	-	-	-	M	-	-
CO2	H	H	-	-	-	M	-	L
CO3	H	M	-	-	-	M	-	-
CO4	M	M	L	L	-	L	-	-
CO5	M	M	L	L	L	L	M	L

N. Santhi
Head of the Department

M. Priyavani
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