V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

List of Non Major Elective Courses (NME)
(2024-2025 onwards)

PG PROGRAMMES

Name of the Course	Semester	Course Code	Department	
			Offered by	**Offered for**
Introduction to Epigraphy	II	24PHIN21	History	Students other than M.A. History Discipline
Communication Strategies for Leadership Success	III	24PHIN31		
Functional English	II	24PENN21	English	Students other than M.A. English Discipline
English for Careers	III	24PENN31		
ஆளுமை மேம்பாடு	II	24PTAN21N	Tamil	Students other than M.A. Tamil Discipline
தகவல் தொடர்பியல்	III	24PTAN31		
Accounting for Managers -1	II	24PCON21N	Commerce	Students other than Commerce Discipline
Accounting for Managers -II	III	24PCON31		
Entrepreneurship Development	II	24PBAN21	Business Administration	Students other than Business Administration Discipline
Employability Skills	III	24PBAN31		
Mathematics for Life Sciences	II	24PMTN21	Mathematics	Students other than M.Sc. Mathematics Discipline
Statistics for Life and Social Sciences	III	24PMTN31		
Solid Waste Management	II	24PPHN21	Physics	Students other than M.Sc. Physics Discipline
Sewage and Waste Water Treatment and Reuse	III	24PPHN31		

Chemistry in Everyday Life	II	24PCHN21	Chemistry	Students other than M.Sc. Chemistry Discipline
Industrial Chemistry	III	24PCHN31		
Food Preservation	II	24PHSN21	Home Science - Nutrition and Dietetics	Students other than M.Sc. Home Science – Nutrition and Dietetics Discipline
Nutrition and Health	III	24PHSN31		
Nutritional Biochemistry	II	24PBCN21	Biochemistry	Students other than M.Sc. Biochemistry Discipline
Molecular Basis of Diseases and Therapeutic Strategies	III	24PBCN31		
Tissue engineering	II	24PBON21	Biotechnology	Students other than M.Sc. Biotechnology Discipline
Gene manipulation Technology	III	24PBON31		
Web Programming	II	24PCSN21	Computer Science	Students other than Computer Science Discipline
Python Programming	III	24PCSN31		
Fundamentals of Web Design	II	24PCAN21N	Computer Applications	
Fundamentals of Cyber Security	III	24PCAN31		

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**Introduction to Epigraphy** (offered by the Department of History for the students other than M.A. History Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PHIN21**		Internal 25	External 75

Course Outcomes:

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

CO 1: identify the importance of inscriptions in writing history. [K1]

CO 2: trace the historical values of inscription through the ages. [K2]

CO3: discuss the evolution of inscription, script and the writing methods in the study of epigraphy. [K2]

CO 4: analyse the conditions of ancient and medieval state through the study of inscriptions. [K3]

CO 5: examine the use of inscriptions as historical source.[K4]

UNIT I

Epigraphy-Definition –Importance of epigraphy for writing history – Format of Inscription – Authenticity. (12 hours)

UNIT II

Nature of the material- stone, metal, clay, terra-cotta, pottery, wood, papyrus, parchment.

Types of inscriptions- monumental- archival- Incidental. (12 hours)

UNIT III

Origin of Writing in India – Indus Script and its decipherment – Brahmi and Kharosthi Script. (12 hours)

UNIT IV

Origin of Writing in South India – Tamili - Tamil Brahmi – Vattezhuthu – Grantha Script.

(12hours)

UNIT V

Inscriptions as historical source material- Inscriptions of Indus civilization-Asokan Pillar inscriptions - Inscriptions of Gupta period- Inscriptions in Tamilnadu - Mangulam–Sittannavasal. (12 hours)

TEXT BOOK

Venkataraman,R. (1985).*Indian Archaeology (A Survey)*, Udumalpet: Ennes Publications.

Reference Books:

Krishnan, A. (2002). *Tamil Civilization in Epigraphy*, New Delhi: Bharatiya Kala Prakasan.

Satyamurthy, K. (1992). *Text Book of Indian Epigraphy*, Delhi: Low Price Publications.

Sircar, D.C. (1965). *Indian Epigraphy*, Delhi: Motilal Banarsidass.

Venkataraman, R, Subrahmanian. N. (1980). *Tamil Epigraphy – A Survey*, Madurai: Ennes Publications, Madurai, 1980.

Buhler,George, Indian Paleography, Indian Studies Past and Present; Calcutta; 1959

Dani.A.H, Indian Paleography, Munshiram Manoharlal Publishers; 3 edition,2011

Sivaramamurthy. C., Indian Epigraphy and South Indian Scripts, Bulletin of the Madras Government Museum,1952

Web Sources:

1. https://www.britannica.com/topic/epigraphy
2. https://www.researchgate.net/publication/338197502_Inscriptions_As_A_Source_of_History
3. https://asi.nic.in/Ancient_India/Ancient_India_Volume_9/article_9.pdf

Course Code 24PHIN21	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	3	2	2	-	-	-	2	1	2	1
CO2	3	2	3	-	-	-	1	1	2	1
CO3	3	2	-	-	-	-	1	1	-	1
CO4	3	2	2	2	2	2	1	1	-	1
CO5	3	2	2	2	2	2	1	1	-	1

3 – Strong, 2 – Medium, 1 - Low

Dr.M.Babyrani
Head of the department

Mrs.M.Maheswari
Course designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**Communication Strategies for Leadership Success** (offered by the Department of History for the students other than M.A. History Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course NME		Credits: 2	
Course Code **24PHIN31**		Internal 25	External 75

Course Outcomes:

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

CO1: label the basic definitions of Communication and Communication Skills.[K1]

CO2: discuss the types of effective skills. [K2]

CO3: express the methods to improve communication skill. [K2]

CO4: discover the importance of Communication in day today life.[K3]

CO5: focus the communication strategies for leadership success. [K4]

UNIT -I-

Definition of communication-methods of communication-Definition of communication skills.

(9 Hours)

UNIT-II

Communication Skill -Listening –conciseness- body language- confidence- Open mindedness- Use of Correct Medium-Volume and Clarity- Nonverbal cues- Responsiveness.

(9 Hours)

UNIT- III

Improvement of Communication Skills-Readiness to seek and receive Constructive Criticism-Practice- Attendance of classes and workshop – effective usage of opportunities.

(9 Hours)

UNIT-IV

Effective Communication in workplace- Clarity and concise- practice of empathy-Assertion- calm and consistence. (9 Hours)

UNIT-V

Corporate communication- Importance – Types of skills- Writing skills- presentation and public speaking skills- communication with data- Research and critical thinking- Technical skills - usage of chat bots, block chain, virtual reality . (9 Hours)

Learning Resources

Recommended Books

Kerry Patterson, Crucial Conversations: Tools for Talking When Stakes Are High Audio CD – Audiobook,

Andrew Sobal and Jerold Panas, 10 skills for effective Business communication

References

Paul A. Argenti, Corporate communication

Paul A. Argenti, The power of Corporate Communication: crafting the voice and image of Business

Web sources

https://www.rock.so/blog/communication-strategies

https://www.revechat.com/blog/effective-customer-service-communication/

https://www.opencolleges.edu.au/informed/features/10-tips-effective-communication-online-offline/

Course Code 24PHIN31	**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	3	2	2	2	1	1	2	2	2	2
CO2	3	2	3	2	1	1	1	2	2	2
CO3	2	2	2	2	2	2	2	2	2	2
CO4	3	3	3	3	3	3	3	2	3	2
CO5	1	1	1	1	1	1	1	1	1	2

3 – Strong, 2 – Medium, 1 - Low

Dr.M.Babyrani
Head of the Department

Dr.R.Malathi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**FUNCTIONAL ENGLISH** (offered by the Department of English for the students other than M.A. English Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PENN21**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: describe the significance of language proficiency in speaking and writing. [K1]

CO2: identify the effective use of communication skills for professional enhancement. [K2]

CO3: explain the usage of English words in different contexts in life and at work.. [K2]

CO4: apply the functional aspects of spoken and written skills to informal and formal contexts [K3]

CO5: examine the effective strategies to develop the soft skills required for employability. [K4]

UNIT I - Public Speaking

Characteristics of a good speaker

Preparatory Steps, Structuring the Contents

Audience Awareness, Modes of Delivery

Vocal Aspects, Time Management (15 Hours)

UNIT II - Speech for Situations

Speech to inform

Speech to persuade

Speeches for special occasions (10 Hours)

UNIT III - Occupational Skills

Notice

Email

Resume (10 Hours)

UNIT IV - Interview Skills

Prepare and practice for Interviews

General Questions in an Interview

Presentation Skills (15 Hours)

UNIT V - Interpersonal Skills

Team Development

Relationship and Communication

Negotiation (10 Hours)

TEXT BOOKS

Beebe, Steven A. & Beebe, Susan A. *Public Speaking Handbook*. Boston: Pearson, 2017.

Mitra, Barun K. *Effective Technical Communication: A Guide for Scientists and Engineers*. Oxford University Press, 2006.

Mohan, Krishna, et al. *Developing Communication Skills*. New Delhi: Macmillan Publishers India Ltd., 2009.

REFERENCE BOOKS

Lock, Graham. *Functional English Grammar: An Introduction for Second Language Teachers*. Cambridge University Press, 1995.

Sudha,S. *Job Fair Keys.* Madurai : Jayalakshmi Publications, 2017.

Web Resources

https://blog.vantagecircle.com/team- development/5.

https://2012books.lardbucket.org/books/a-primer-on communication-

https://www.pon.harvard.edu/daily/negotiation-skills-daily/what-is negotiation/

https://in.indeed.com/career-advice/interviewing/interviewing-skills

https://careerwise.minnstate.edu/careers/occupational- skills.html

Course Code	**PO1**		**PO2**		**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
24PENN21	**PSO 1.a**	**PSO 1.b**	**PSO 2.a**	**PSO 2.b**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	3	3	3	2	2	2	1	3	3
CO2	3	3	3	3	2	2	2	1	3	3
CO3	3	3	3	3	2	2	2	1	3	3
CO4	3	3	3	3	2	2	2	1	2	3
CO5	3	3	3	3	2	2	2	1	2	3

Strong (3) Medium (2) Low (1)

Mrs.P.Amirthayogam
Dr.V.Navaneethamani Dr. S.Anitha
Head of the Department **Course Designers**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**English for Careers** (offered by the Department of English for the students other than M.A. English Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course (NME)		Credits: 2	
Course Code **24PENN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: state the significance of various communication skills. [K1]

CO2: discuss the effective use of communication skills for professional enhancement. [K2]

CO3: identify the different skills essential for work place and presenting ideas effectively. [K2]

CO4: apply the functional aspects of spoken and written skills in formal and informal contexts. [K3]

CO5: analyse the effective strategies to develop the soft skills required for employability. [K4]

UNIT I - Effective Writing

Features of Effective Writing

Business correspondence

Resume

Report writing, Technical Writing

(9 Hours)

UNIT II - Administrative Process

Agenda preparation

Preparing minutes

Writing a Memorandum

(9 Hours)

UNIT III - Communication

Presenting Data in Verbal modes

Presenting Data in Non- verbal modes

Presenting Data in Visual modes (9 Hours)

UNIT IV - Effective lecturing

Preparing Effective Lectures

Preparing Persuasive Speech

(9 Hours)

UNIT V - Telephone Etiquette

Types of Specialized Telephone Calls

Developing Telephone Skills

Telephone Etiquette (9 Hours)

TEXT BOOKS

V. Saraswathi & Maya.K. Mudbhatkal (2000). *English for Competitive Examinations*, Chennai: Emerald Publishers.

Hariharan S, Sundararajan N, and Shanmugapriya S P, (2020). *Soft Skills*, Chennai: MJP Publishers. Print Farhathullah, T.M. (2005). *Communication Skills for Undergratuates,* Chennai: RBA Publications.

Beebe, Steven A. & Beebe, Susan A. (2017). *Public Speaking Handbook*. Boston: Pearson.

Mitra, Barun K. (2006). *Effective Technical Communication: A Guide for Scientists* and *Engineers*. Oxford University Press India.

Mohan, Krishna, et al. (2009). *Developing Communication Skills*. New Delhi: Macmillan Publishers India Ltd.

REFERENCE BOOKS

Oxford English for Careers Technology 1 Student Book Paperback – StudentEdition, 28 June 2007 by Eric Glendinning

English for Careers: Business, Professional, and Technical

Lock, Graham. (1995). *Functional English Grammar: An Introduction for Second Language Teachers*. Cambridge University Press.

Sudha,S. *(2017). Job Fair Keys.* Madurai : Jayalakshmi Publications.

WEB RESOURCES

https://www.worldcat.org/formats- editions/864901969?referer=di&editionsView=true
https://www.academia.edu/34266181/Oxford_English_For_Careers_TECHNOLOGY_1_Teachers_Resource_book_David_Banamy
https://www.nature.com/scitable/topicpage/effective-writing-13815989/
https://libraryguides.mdc.edu/c.php?g=988097&p=7290942

Course Code	**PO1**		**PO2**		**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
24PENN31	**PSO 1.a**	**PSO 1.b**	**PSO 2.a**	**PSO 2.b**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	1	1	3	3	-	1	1	2	2	2
CO2	1	1	3	3	-	1	1	2	2	2
CO3	1	1	3	3	-	1	1	2	2	2
CO4	1	1	3	3	-	1	1	2	2	2
CO5	1	1	3	3	-	1	1	2	2	2

Strong (3) Medium (2) Low (1)

Dr. V. Navaneethamani
Head of the Department

Dr. B. Kanagalakshmi
Course Designer

வே. வ. வன்னியப்பெருமாள் பெண்கள் கல்லூரி
(விருதுநகர் இந்து நாடார்களுக்குப் பாத்தியப்பட்டது)
மதுரை காமராசர் பல்கலைக்கழகத்துடன் இணைக்கப் பெற்ற தன்னாட்சி கல்லூரி
தேசிய தரமதிப்பீட்டுக்குழுவினரால் நான்காவது சுற்றில் 'A++' அந்தஸ்து பெற்றது
விருதுநகர்
சிறந்த கல்வி உயர்ந்த பண்பு

இரண்டாம் பருவம்	தமிழ் இலக்கிய வரலாறு (offered by the Department of Tamil for the students other than M.A. Tamil Discipline) **(2024-2025)**	நேரம் / வாரம் : 4	
பிற துறை மாணவர்களுக்கான விருப்பப் பாடம்		தரமதிப்பு : 2	
பாடக் குறியீட்டு எண் **24PTAN21**		அக மதிப்பெண் 25	புற மதிப்பெண் 75

கற்றல் வெளிப்பாடு

இந்த பாடத்திட்டம் முடிந்த பிறகு மாணவர்கள்,

CO1: தமிழ் இலக்கிய வரலாற்றைக் கால முறைப்படி கணினித் தமிழ் வரை அறிந்து கொண்டு எடுத்துரைப்பர். [K1]

CO2: தமிழின் தமிழரின் வாழ்க்கை விழுமியங்களைப் புரிந்து கொள்வர் [K2]

CO3 இலக்கியங்கள் தோன்றியதன் வரலாறுஇ காலஇ சமுதாயஇ அரசியல் பின்னணியை அறிவர். [K2]

CO4 : இலக்கியங்கள்இ இலக்கணங்கள் குறித்து அறிந்து கொள்வதால் ' போட்டித் தேர்வுகளில் வெற்றி பெறுவர். [K3]

CO5 தமிழிலக்கியங்களில் காலந்தோறும் ஏற்படுகின்ற மாற்றங்களைத் தற்காலச் சமூகச் சூழலோடு வளர்ச்சி நிலையோடு ஒப்பிட்டு இனம் காண்பர். [K4]

கூறு I தமிழின் இனிமையும்- பழமைச் சிறப்பும்- சங்க இலக்கியம் - பதினெண் கீழ்க்கணக்கு நூல்கள் (12 மணிநேரம்)

கூறு II பக்தி இலக்கியம் - காப்பியங்கள் - கம்பராமாயணம் (12 மணிநேரம்)

கூறு III சிற்றிலக்கியங்கள் - இலக்கண நூல்கள்- நிகண்டுகள் - அகராதிகள் (12 மணிநேரம்)

கூறு IV சித்தர் இலக்கியம்- தமிழ் வளர்த்த சான்றோர்கள்- இருபதாம் நூற்றாண்டு கவிஞர்கள்- நாட்டுப்புற இலக்கியங்கள் (12 மணிநேரம்)

கூறு V சிறுகதை இலக்கியம்- நாவல் இலக்கியம்- அறிவியல் தமிழ் - இணையமும் தமிழும் (12 மணிநேரம்)

பாடநூல்

1. முனைவர் பு. இந்திரா காந்தி ,முனைவர் பொ. திராவிட மணி, தமிழ் இலக்கிய வரலாறு

பார்வை நூல்கள்

1. முனைவர் சி சேதுராமன், தமிழ் இலக்கிய வரலாறு
2. டாக்டர் மா .ராசமாணிக்கனார் ,தமிழ் மொழி இலக்கிய வரலாறு
3 .மது.ச .விமலானந்தம், தமிழ் இலக்கிய வரலாறு
4. ஞா தேவநேய பாவாணர், தமிழ் இலக்கிய வரலாறு
5. தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு

Course Code 24PTAN21	PO1		PO2		PO3	PO4	PO5	PO6	PSO7	PSO8
	PSO 1.a	PSO 1.b	PSO 2.a	PSO 2.b	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	3	3	3	3	3	1	3	3	2	1
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	-	3	3	-	-
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	-	3	3	-	-

(Strong -3, Medium-2, Low-1)

Dr.B.Nagajothi
Head of the Department

Dr.P.Aruljothi
Course Designer

-

வே. வ. வன்னியப்பெருமாள் பெண்கள் கல்லூரி
(விருதுநகர் இந்து நாடார்களுக்குப் பாத்தியப்பட்டது)
மதுரை காமராசர் பல்கலைக்கழகத்துடன் இணைக்கப் பெற்ற தன்னாட்சி கல்லூரி
தேசிய தரமதிப்பீட்டுக்குழுவினரால் நான்காவது சுற்றில் 'A++' அந்தஸ்து பெற்றது
விருதுநகர்
சிறந்த கல்வி உயர்ந்த பண்பு

முதல் பருவம்	**ஆளுமை மேம்பாடு** (offered by the Department of Tamil for the students other than M.A. Tamil Discipline) **(2025-2026 onwards)**	நேரம் / வாரம் : 4	
பிற துறை மாணவர்களுக்கான விருப்பப் பாடம்		தரமதிப்பு : 2	
பாடக் **குறியீட்டு எண்** **24PTAN21N**		அக மதிப்பெண் 25	புற மதிப்பெண் 75

கற்றல் வெளிப்பாடு

இந்த பாடத்திட்டம் முடிந்த பிறகு, மாணவர்கள்

CO1: ஆளுமை குறித்த கருத்துகளைப் புரிந்து கொண்டு எடுத்துரைப்பர். [K1]

CO2: ஆளுமை பண்பின் கூறுகளை உணர்ந்து வெளிப்படுத்துவர். [K2]

CO3: ஆளுமை பண்பினைப் பாதிக்கும் காரணிகளை உணர்ந்து வெளிப்படுத்துவர். [K2]

CO4: ஆளுமை மேம்பாடு ஆளுமையை மேம்படுத்தும் வழிமுறைகள் முதலியவற்றில் சிறப்பறிவைப் பெறுவர்.[K3]

CO5: ஆளுமைப்பண்பின் பல்வேறு கூறுகளை அறிந்து கொள்வதால் நேர்முகத் தேர்வுகளைப் பயமின்றி அணுகும் திறன் பெறுவர் [K4]

கூறு I

ஆளுமைப் பண்பு - உளவியலாளர்களின் ஆளுமைப் பண்பின் கூறுகள்- தனிமனிதனின் ஆளுமையை நிர்ணயிக்கும் பண்பு நலன்கள்- வெவ்வேறு பருவங்களில் ஆளுமைப் பண்பின் வளர்ச்சி - குழந்தைப் பருவம் – வளர் இளம் பருவம் இளமைப் பருவம் - முதுமைப் பருவம்

(12 மணிநேரம்)

கூறு II

ஆளுமைப் பண்பை நிர்ணயிக்கும் காரணிகள் - ஆளுமைப் பண்பை நிர்ணயிக்கும் உடலியல் காரணிகள் – ஆளுமைப் பண்பைப் பாதிக்கும் சமூகக் காரணிகள் –சுற்றுச்சூழல் காரணிகள் -ஆளுமைப் பண்பின் கூறுகள் –உடல் தோற்றம் – கட்டுப்பாடு –நகைச்சுவை உணர்வு - சமூக மதிப்பும் நட்பும்

(12 மணிநேரம்)

கூறு III

ஆளுமைப் பண்பைப் பாதிக்கும் காரணிகள் – இடவியல் காரணிகள் –சமூக அரசியல் காரணிகள் -உளவியல் காரணிகள் -ஆளுமைப் பண்பு வளர்ச்சி - சில பார்வைகள் –உடல் வளர்ச்சி-மன வளர்ச்சி – நிதி வளர்ச்சி –சமூக வளர்ச்சி -ஆன்மிக வளர்ச்சி

(12 மணிநேரம்)

கூறு IV

ஆளுமைப் பண்பை மேம்படுத்தும் உளவியல் வழிமுறைகள் –பண்புகளும் பழக்கங்களும் – சிந்தனையின் செல்வாக்கு –கால மேலாண்மை – நிதி மேலாண்மை – சாதனை படைக்க உதவும் வழிமுறைகள்

(12 மணிநேரம்)

கூறு V

தமிழ்நீதி நூல்கள் காட்டும் வழி – தெளிவான சிந்தனை –ஆளுமைப் பண்புடையோரின் நடத்தைகள் – மரபுவழி நற்பண்புகள் – ஆளுமை மேம்படத் தேவையான உயர்பண்புகள் – சொல்லாட்சியில் ஆளுமை கொண்டோரின் சிறப்புகள்- ஆளுமைப்பண்பு மேம்பட ஔவையின் அறிவுரைகள்

(12 மணிநேரம்)

பாடநூல்

1. ஆளுமை மேம்பாடு – எஸ் . சுந்தர சீனிவாசன்
   தாமரை பப்ளிகேஷன்ஸ் (பி) லிட்
   41 – சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்
   அம்பத்தூர் சென்னை -600 098.
   நான்காம் பதிப்பு –ஜீலை 2016

பார்வை நூல்கள்

1. ஆளுமை வளர்ச்சி முனைவர் இரா.ச.சுகிர்தா பஸ்மத்
   நி யூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட்
   41 – சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்
   அம்பத்தூர் சென்னை -600 098.
   இரண்டாம் பதிப்பு –ஜீலை 2016

2. கால நிர்வாகம் பெ.வேலுச்சாமி
   தாமரை பப்ளிகேஷன்ஸ் (பி) லிட்
   41 – சிட்கோ இண்டஸ்டிரியல் எஸ்டேட்
   அம்பத்தூர் சென்னை -600 098.
   இரண்டாம் பதிப்பு –ஜீலை 2013

3. வெற்றிப் படிக்கட்டுகள்	வெ.இறையன்பு ஐ.ஏ.எஸ். நி யூ செஞ்சுரி புக் ஹவுஸ் (பி) லிட் 41 – சிட்கோ இண்டஸ்டிரியல் எஸ்டேட் அம்பத்தூர் சென்னை -600 098. இரண்டாம் பதிப்பு – ஆகஸ்ட் 2008
4. நேர நிர்வாகம்	பேரா.எஸ்.லாரன்ஸ் ஜெயக்குமார் சக்தி பப்ளிஷிங் ஹவுஸ் 1 ஜீர்தெரு பழைய வண்ணாரப்பேட்டை சென்னை -600 021.
5. வளமான எண்ணங்களில் மலரும் அற்புதங்கள்	ஆரிசன் ஸ்வெட் மார்டன் கண்ணதாசன் பதிப்பகம் 23 கண்ணதாசன் சாலை தியாகராய நகர் சென்னை -600 017. முதற் பதிப்பு –டிசம்பர் 2005
6. எண்ணங்களை மேம்படுத்துங்கள்	டாக்டர்.எம்.ஆர். காப்மேயர் கண்ணதாசன் பதிப்பகம் 23 கண்ணதாசன் சாலை தியாகராய நகர் சென்னை -600 017. இருபத்துஒன்பதாம்பதிப்பு –ஜீலை 2008
7.முகமலர்ச்சியு வெற்றிகளும்	ஆரிசன் ஸ்வைட் மார்டன் கண்ணதாசன் பதிப்பகம் 23 கண்ணதாசன் சாலை தியாகராய நகர் சென்னை -600 017. முதற் பதிப்பு –ஏப்ரல் 2006

Course Code 24PTAN21N	**PO1**		**PO2**		**PO3**	**PO4**	**PO5**	**PO6**	**PSO7**	**PSO8**
	PSO 1.a	**PSO 1.b**	**PSO 2.a**	**PSO 2.b**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	3	3	3	3	1	3	3	2	1
CO2	3	3	3	3	3	3	3	3	3	3
CO3	3	3	3	3	3	-	3	3	-	-
CO4	3	3	3	3	3	3	3	3	3	3
CO5	3	3	3	3	3	-	3	3	-	-

(Strong -3, Medium-2,Low-1)

Dr.B.Nagajothi
Head of the Department

Dr.P.Aruljothi
Course Designer

வே. வ. வன்னியப்பெருமாள் பெண்கள் கல்லூரி
(விருதுநகர் இந்து நாடார்களுக்குப் பாத்தியப்பட்டது)
மதுரை காமராசர் பல்கலைக்கழகத்துடன் இணைக்கப் பெற்ற தன்னாட்சி கல்லூரி
தேசிய தரமதிப்பீட்டுக்குழுவினரால் நான்காவது சுற்றில் 'A++' அந்தஸ்து பெற்றது
விருதுநகர்
சிறந்த கல்வி உயர்ந்த பண்பு

மூன்றாம் பருவம்	**தகவல் தொடர்பியல்** (offered by the Department of Tamil for the students other than M.A. Tamil Discipline) **(2024-2025 onwards)**	**நேரம் / வாரம் : 3**	
பிற துறை மாணவியர்களுக்கான விருப்பப் பாடம்		**தரமதிப்பு : 2**	
பாடக் குறியீட்டுஎண் 24PTAN31		**அக மதிப்பெண் - 25**	**புற மதிப்பெண் - 75**

கற்றல் வெளிப்பாடு

இந்த பாடத்திட்டம் முடிந்த பிறகு@ மாணவர்கள்,

CO1: மக்கள் தகவல் தொடர்பியலையும் அதன் உள்ளடக்கங்களையும் அறிந்து கொள்வர். [K1]

CO2: தகவலியல் கருவிகளின் பாகுபாடுகளைக் கற்றறிவர். [K2]

CO3: ஊடகத் தொடர்புக் கோட்பாடுகளைக் கற்றுணர்வர்.[K2]

CO4: வானொலியின் தனித்தன்மைகளையும் அதன் நிகழ்ச்சி ஒளிபரப்புகளையும் ஆய்ந்தறிவர்.[K3]

CO5: செயற்கைக்கோள் வழி ஒளிபரப்பப்படும் முறைமைகளை அறிந்து கொள்வர்.[K4]

கூறு I

தொடர்பியல் விளக்கம் - மக்கள் தொடர்பியல் – விளக்கம் -தொடர்பியல் சாதனங்களின் பாகுபாடுகள்- மரபு வழி, அச்சு வழி வேறுபாடுகள்

(9 மணி நேரம்)

கூறு II

இதழ்களின் வளர்ச்சி - சமுதாய முன்னேற்றத்தில் இதழ்களின் பங்கு - இதழ்களின் நெறிமுறைகள் - இதழ்களின் நிர்வாக அமைப்பு - ஆசிரியர் பிரிவு - வணிகப் பகுதி - இயந்திரப் பகுதி (9 மணி நேரம்)

கூறு -III

இந்தியாவில் வானொலி - தொலைக்காட்சி வரலாறு - வானொலி, தொலைக்காட்சி அமைப்பு - ஒலி, ஒளி பரப்புகள் - செயற்கைக் கோள்கள்- தனியார் தொலைக்காட்சிகளின் பரவல் - வானொலி சுதந்திரம் - பிரச்சார் பாரதி - தொலைக்காட்சியின் செய்திகள் நிறைகளும், குறைகளும்

(9 மணி நேரம்)

கூறு - IV

இந்தியாவின் திரைப்பட வரலாறு - சினிமாவின் தொடக்க காலம் - தமிழ்த் திரை உலகின் 'முதல்'கள் - திரைப்படச் சங்கங்கள் – கலைப்படங்கள் - மத்திய, மாநில அரசுகளும், திரைப்பட வளர்ச்சியும் - திரைப்படத் தணிக்கைகள்.

(9 மணி நேரம்)

கூறு - V

தகவல் தொடர்பியலில் அறிவியல் - தொழில்நுட்பம் பயன்படும் கருவிகள்-

சிடி ரோம் – கணிப்பொறி – இணையம் – பேஜர் - தொலைவரி அச்சு - தொடர்பியலில் கணிப்பொறியின் பயன்கள் - தொடர்பியலிலும், இதழியலிலும் கணிப்பொறியின் பயன்கள் - இதழியலில் கணிப்பொறியின் பயன்கள் - மக்கள்தொடர்பு அலுவலரின் பணிகள் - தொடர்பியல் சாதனங்களும் மக்கள் கருத்தும்.

(9 மணி நேரம்)

பாடநூல்

1. மருதநாயகம். இரா. இருபத்தோராம் நூற்றாண்டில் மக்கள் தகவல் தொடர்பியல், நியுசெஞ்சுரி புத்தக நிறுவனம், சென்னை.(2020)

பார்வை நூல்கள்

1.கிட்டிணசாமி வெ. தகவல் தொடர்பியல்

2.நல்லதம்பி வெ.தொலைக்காட்சியும் பிற தகவல் துறைகளும்

3.ஆலிஸ் அ. 1995 மக்கள் தகவல் தொடர்பியல் கலைச்சொல் அகராதி, திருச்சி: மதுமதி பப்ளிகேஷன்ஸ்.

4.குருசாமி மா.பா. 1988. இதழியல் கலை. திருச்செந்தூர்: வண்ணன் வெளியீடு

5.கோதண்டபாணி இரா.1997. இதழியல் மதுரை கற்பகம் வெளியீடு

6. இராசா.கி மக்கள் தகவல் தொடர்பியல், திருச்சி, பார்த்திபன் பதிப்பகம்.

Related Online Contents (MOOC, SWAYAM, NPTEL, Websites etc.]

Web Sources

https://www.tamlidigitallibrary.in

www.tamilvu.org

www.lamlidigilallibrary.in

www.wikipedia.com

www.noolaham.org

Course Code 24PTAN31	PO1		PO2		PO3	PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2.a	PSO 2.b	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	3	2	3	2	3	3	2	2	3	3
CO2	2	2	2	3	2	3	2	3	2	2
CO3	3	3	3	2	3	2	2	2	3	3
CO4	3	2	3	3	3	3	3	3	2	2
CO5	2	2	3	3	2	3	2	3	3	3

(Strong -3, Medium-2, Low-1)

Dr.B.Nagajothi — **Head of the Department**

Dr.K.Prema — **Course Designer**

-

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**TAXATION CONCEPTS AND ASSESSMENT** (offered by the Department of Commerce for the students other than M.Com Discipline) **(2024-2025)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PCON21**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: state the basic concepts, e-filing, ITR forms, provisions and procedures related to income tax. [K1]

CO2: determine the residential status of an individual and apply the provisions in various heads of income. [K2]

CO3: illustrate the taxable income under various heads of income [K2]

CO4: calculate the taxation provisions regarding incidence of tax, valuation of perquisites indexed cost and various types of assessment. [K3]

CO5: analyse the tax deducted at source and calculate income tax for individual. [K4]

UNIT I

Tax System in India: Classification of Taxes - 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).

(12 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 Head Salary - Form 16 (Simple Problems). (12 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). (12 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). (12 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-filling of ITR - Permanent Account Number – Form 26 AS - Types of Assessment -Tax Planning, Tax Avoidance and Tax Evasion. (12 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 24PCON21	**PO1**		**PO2**	**PO3**	**PO4**	**PO5**		**PO6**	**PO7**	**PO8**
	PSO 1.a	**PSO 1.b**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5.a**	**PSO 5.b**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	3	2	-	-	1	-	1	-	3
CO2	3	3	2	2	2	1	-	1	-	1
CO3	3	3	2	2	2	1	-	1	-	1
CO4	3	3	2	2	2	1	-	1	-	2
CO5	3	3	2	2	2	1	-	1	-	2

Strong (3) Medium (2) Low (1)

Dr. M. Ponnien Selvi
Head of the Department

Dr. J. Mahamayi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**ACCOUNTING FOR MANAGERS – I** (offered by the Department of Commerce for the students other than M.Com Discipline) **(2025-2026 onwards)**	Hours/Week:4	
Elective Course (NME)		Credits:2	
Course Code 24PCON21N		Internal 25	External 75

COURSE OUTCOMES

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

CO1: state the meaning of the prescribed accounting concepts. [K1]

CO2: describe the journal entries and ledger posting required for the prescribed contents. [K2]

CO3: explain the method of preparing bank reconciliation statements, final accounts and rectifying errors. [K2]

CO4: journalise the given transactions, prepare ledger and rectify errors. [K3]

CO5: adjust for additional information and prepare final accounts. [K4]

UNIT I

Introduction for Accounting:

Meaning and scope of Accounting, Basic Accounting concepts and conventions – Objectives of Accounting – Accounting transactions. (12 hours)

UNIT II

Double Entry Book Keeping:

Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance.

(12 hours)

UNIT III

Subsidiary Books:

Subsidiary book – Preparation of cash book – single column, double column and triple columns cash book. (12 hours)

UNIT IV

Bank Reconciliation and rectification of errors:

Bank reconciliation statement – Errors – Types – Errors disclosed and not disclosed by trial balance - Rectification of errors – Suspense account. (12 hours)

UNIT V

Final Account:

Preparation of Final Accounts – Adjustments – Closing stock, Outstanding, Prepaid and accrued, depreciation, bad and doubtful depts., provision and discount on debtors and creditors. (12 hours)

SELF STUDY FOR ASSIGNMENT

1. Types of Accounts.

2. Single Entry System Vs Double Entry System

NOTE

Composition of Question paper:

Problem: 80%

Theory: 20%

TEXT BOOK

Reddy T.S., & A. Murthy (2023)– *Financial Accounting*- Chennai :Margham Publication.

REFERENCE BOOKS

1. Arulanandam, M A., & Raman K.S (2015). *Advanced Accountancy*, Mumbai: Himalaya Publishing House Revised Edition.

2. Charumathi and Vinayagam.(2002). Financial Accounting, Delhi: S.Chand and Sons.

3. Jain S.P & Narang K.L.(2016). *Financial Accounting*, Delhi: Kalyani Publishers.

4. Gupta R.L & Gupta V.K.(2016). *Financial Accounting*, Delhi: Sultan Chand & Chand..

Course Code 24PCON21N	**PO1**		**PO2**	**PO3**	**PO4**	**PO5**		**PO6**	**PO7**	**PO8**
	PSO 1.a	**PSO 1.b**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5.a**	**PSO 5.b**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	3	2	-	-	1	-	1	-	3
CO2	3	3	2	2	2	1	-	1	-	1
CO3	3	3	2	2	2	1	-	1	-	1
CO4	3	3	2	2	2	1	-	1	-	2
CO5	3	3	2	2	2	1	-	1	-	2

Dr.M.Ponnien Selvi
Head of the Department

Dr.K.Prabhavathi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**ACCOUNTING FOR MANAGERS – II** (offered by the Department of Commerce for the students other than M.Com Discipline) **(2024-2025 onwards)**	Hours/Week:3	
Elective Course (NME)		Credits:2	
Course Code 24PCON31		Internal 25	External 75

COURSE OUTCOMES

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

CO1: state the meaning of basic concepts of cost and management accounting. [K1]

CO2: describe the need and importance of cost and management accounting and the procedure for preparing cost sheet and financial statements. [K2]

CO3: explain the functions and methods of preparing cost sheet comparative and common size statement..[K2]

CO4: prepare the cost sheet and financial statement and calculate ratios. [K3]

CO5: perform financial statement analysis and ratio analysis.[K4]

Unit I

Introduction to Cost Accounting:

Cost Accounting – meaning – nature, scope, functions, need, importance and limitations.

(9 hours)

Unit II

Cost concept and Preparation of Cost Sheets:

Cost concepts – meaning and classification of Cost – elements of Cost – Preparation of Cost Sheets.

(9 hours)

UNIT III

Introduction to Management Accounting:

Management Accounting – meaning, nature, scope and functions, need importance and limitations – Management Accounting Vs Cost Accounting, Management Accounting Vs Financial Accounting. **(9 hours)**

Unit IV

Analysis and Interpretation of Financial Statements:

Analysis and Interpretation of Financial Statements – nature, objectives, methods – comparative statements, common size statement and Trend analysis.

(9 hours)

Unit V

Ratio Analysis:

Ratio Analysis – meaning – Interpretation, benefits and limitations – Preparation of ratios from Profit and Loss Account (Simple problem)

(9 hours)

SELF STUDY FOR ASSIGNMENT

1. Techniques of Cost Control

2.Ethics in Management Accounting.

Problem: 40%
Theory : 60%

Text Book

1. Pillai,R.S.N, & Bagavathi, V(2013). Cost Accounting, New Delhi: S.Chand and Company Ltd.,
2. Ramachandran, R.& Srinivasan R.(2018).Mangement Accounting, Trichy: Sriram Publications.

Reference Book

1. Jain, S.P, & Narang, K.L.((2010). Cost Accounting, New Delhi: Kalyani Publishers.
2. Maheswari, S.N., (2009. Accounting for Management, New Delhi: sultan Chand & sons.

Course Code 24PCON31	PO1		PO2	PO3	PO4	PO5		PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3	PSO 4	PSO 5.a	PSO 5.b	PSO 6	PSO 7	PSO 8
CO1	3	3	2	-	-	1	-	1	-	3
CO2	3	3	2	2	2	1	-	1	-	1
CO3	3	3	2	2	2	1	-	1	-	1
CO4	3	3	2	2	2	1	-	1	-	2
CO5	3	3	2	2	2	1	-	1	-	2

Dr.M.Ponnien Selvi
Head of the Department

Dr.K.Prabhavathi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**ENTREPRENEURSHIP DEVELOPMENT** (Offered by the Department of Business Administration for the Students other than M.B.A. Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course NME		Credits: 2	
Course Code **24PBAN21**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: understand the concept of entrepreneur, sources of ideas and problem of rural entrepreneur. [K1]

CO2: describe the functions of an entrepreneur, input requirement and dimensions of social responsibilities of business. [K2]

CO3: identify the remedial measure of women entrepreneur, intrapreneurship and ASPIRE. [K2]

CO4: choose the mode of entry into international business and use Pradhan Mantri Mudra Yojana and Startup India Initiative. [K3]

CO5: analyze the qualities of true entrepreneur, development of women entrepreneur, entrepreneurship in backward areas in India and barriers of international entrepreneurship. [K4]

UNIT I

Entrepreneurship: An Overview - Definition of Entrepreneurship - Nature and Characteristics of Entrepreneurship.

Entrepreneur: Evolution - Entrepreneur and Managers – Types of Entrepreneurs - Functions of Entrepreneur - Distinguish between Entrepreneur and Intrapreneur.

(12 Hours)

UNIT II

Establishing Entrepreneurial Systems: Search for Business Idea – Sources - Idea Processing and Selection – Input Requirements – Project Identification and Classification - Internal and External Constraints – Project Life Cycle - Project Formulation - Project Selection.

(12 Hours)

UNIT III

Definition of Micro, Small and Medium Enterprises: MSME - Importance of Small Scale Industry.

Institutions Assisting Entrepreneurs: DIC - SIPCOT - TIIC - SIDBI - IDBI

Family Business: Meaning – Characteristics – Types - Advantages & Disadvantages of Family Business - Major Challenges Faced by Family Business. (12 Hours)

UNIT IV

Rural Entrepreneurship: Rural Entrepreneurship - Meaning – Importance – Benefits– Problems - How to Develop Rural Entrepreneurship – NGO and Rural Entrepreneurship.

Social Entrepreneurship: Meaning – Characteristics – Importance.

Entrepreneurship Development Programme: Need – Objectives– Problems – Phases of EDP (12 Hours)

UNIT V

Women Entrepreneurship: Concept of Women Entrepreneurship – Functions and Types of Women Entrepreneur – Problems and Remedies of Women Entrepreneur - Cases of Women Entrepreneurs.

Export Business: Nature – Forms - Advantages & Disadvantages of Export Business. (12 Hours)

SELF STUDY FOR ASSIGNMENT

1.Internal and External Constraints faced by an entrepreneur in business.

2.Case Studies Relating to Social Entrepreneurs.

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.

WEB RESOURCE

1. http://www.jimssouthdelhi.com/sm/BBA6/ED.pdf
2. https://www.cengage.com/highered
3. https://roadmapresearch.com/entrepreneurship-beyond-curriculum
4. The International Journal of Entrepreneurship and Innovation

Course Code 24PBAN21	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.b	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	3	3	3	2	3	-	2	2	3	3
CO2	3	3	2	1	-	3	3	-	2	2
CO3	3	2	3	2	2	3	2	2	3	3
CO4	3	3	3	2	1	3	2	-	3	2
CO5	2	3	2	2	-	3	1	3	2	2

Strong (3) Medium (2) Low (1)

Dr. P. Suganthi
Head of the Department

Mrs.S.Jeya Shree
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**EMPLOYABILITY SKILLS** (offered by the Department of Business Administration for the Students other than M.B.A. Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective course NME		Credits: 2	
Course Code **24PBAN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: understand the foundational concepts of employability by identifying key personal and professional skills, exploring core competencies required in various roles, and recognizing the importance of interpersonal and cognitive abilities in the workplace. [K1]

CO2: explain workplace competencies by demonstrating role-specific capabilities, constructing a professional profile for job applications, and solving analytical problems to enhance selection performance.[K2]

CO3: comprehend employability by utilizing personal skill sets, engaging in collaborative workplace practices, and preparing effective self-marketing documents for job readiness.[K2]

CO4: apply key employability elements by evaluating foundational skill types, assessing functional role-based competencies, and interpreting quantitative reasoning to support career advancement decisions.[K3]

CO5: analyze workplace preparedness by examining core job competencies, evaluating interpersonal effectiveness, and assessing the impact of professional presentation in employment scenarios.[K4]

UNIT I

Introduction to Employability Skills: Meaning – Definition – Hard skills and soft skills – Employability skills and vocational skills – Employability and employment – Employability attributes. (9 Hours)

UNIT II

Unpacking Employability Skills: Embedded employability skills – Dimensions of competency – Task skills –Task Management skills – Contingency Management skills – Job/Role Environment skills. (9 Hours)

UNIT III

Inter – Relationships of Employability Skills: Communication – Teamwork – Problem solving – Initiative and Enterprise – Planning and Organizing – Self management – Learning – Technology. (9 Hours)

UNIT IV

Resume Writing : Meaning – Features of good resume – Model (Exercise). Etiquettes – Dress, Cleanliness, Etiquettes to be followed inside the employment seeking process. (9Hours)

UNIT V

Arithmetic and Logical Reasoning Skills – Exercise (9 Hours)

ASSIGNMENT

1. Role Environment skills
2. Features of good resume

TEXT BOOKS

1. Trought, F. (2017). *Brilliant Employability Skills: How to Stand Out from the Crowd in the Graduate Job Market*, United Kingdom, Pearson Education Limited.
2. Chaita, M. V. (2016). *Developing Graduate Employability Skills: Your Pathway to Employment*, United States, Universal Publishers.
3. Dr. K. Alex, *Soft Skills*, S Chand & Co Ltd.

REFERENCE BOOKS:

1. Fafinski, S., Finch, E. (2014). *Employability Skills for Law Students*, United Kingdom: OUP Oxford.
2. R. S. Aggarwal , *A Modern Approach to Verbal and Non- Verbal Reasoning*.
3. J.K. Chopra, *Winning Interview Skills*, Compiled & Edited.

Course Code	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
24PBAN31	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	3	3	1	2	3	3	1	3	-	-
CO2	3	2	-	1	2	-	2	-	-	-
CO3	2	3	1	-	1	2	-	2	1	-
CO4	3	3	2	-	2	-	1	2	-	2
CO5	3	3	2	1	2	-	2	-	-	

Strong (3) Medium (2) Low (1)

Dr. P. Suganthi — **Head of the Department**

Mrs.S.Jeya Shree — **Course Designer**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**MATHEMATICS FOR LIFE SCIENCES** (offered by the Department of Mathematics for the students other than M.Sc. Mathematics Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PMTN21**		Internal 25	External 75

COURSE OUTCOMES

On completion of the course, students will be able to

CO1: recall the concept of sequences, Eigen values and eigen vectors, study equilibrium and stability. [K1]

CO2: find the sequence, the order of matrix and study the dynamics of vectors. [K2]

CO3: understand the fundamental concept of sequences and matrix theory. [K2]

CO4: apply the concept of sequences and matrix theory in real life problems. [K3]

CO5: examine the sequences, Leslie matrix models and long term population structure of the corresponding models. [K4]

UNIT I

Sequences and Discrete Difference Equations, Sequences, Limit of a Sequence, Discrete Difference Equations, Geometric and Arithmetic Sequences, Linear Difference Equation with Constant Coefficients, Introduction to Pharmacokinetics. (12 Hours)

UNIT II

Vectors and Matrices, Vector Structure: Order Matrices Vector Algebra, Dynamics: Vectors Changing over Time. (12 Hours)

UNIT III

Matrix Algebra, Matrix Arithmetic, Applications. (12 Hours)

UNIT IV

Long-Term Dynamics or Equilibrium, Notion of an Equilibrium, Eigenvectors, Stability. (12 Hours)

UNIT V

Leslie Matrix Models and Eigenvalues, Leslie Matrix Models, Long-Term Growth Rate (Eigenvalues), Long-Term Population Structure (Corresponding Eigenvectors). (12 Hours)

TEXT BOOK

E.N. Bodine, S. Lenhart, and L. J. Gross, Mathematics for the Life Sciences, Princeton University Press, 2014.

Unit	Chapter	Section
I	5	5.1 - 5.5
II	6	6.1 - 6.3
III	7	7.1 and 7.2
IV	8	8.1 -8.3
V	9	9.1 - 9.3

REFERENCE BOOKS

1. L. J. S. Allen, An Introduction to Mathematical Biology, Pearson, 2006
2. J.D. Murray, Mathematical Biology - I. An Introduction, Springer-Verlag, 2002.

Website and e-Learning Source

https://www.classcentral.com/course/swayam-biostatistics-and-mathematical-biology-13925

Course Code 24PMTN21	PO1		PO2	PO3	PO4		PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3	PSO 4.a	PSO 4.b	PSO 5	PSO 6	PSO 7	PSO 8
CO1	3	3	2	2	2	2	1	3	2	1
CO2	3	3	2	2	2	2	1	3	2	1
CO3	3	3	2	2	2	2	1	3	2	1
CO4	3	3	2	2	2	2	1	3	2	1
CO5	3	3	-	2	2	2	1	3	2	1

Strong (3) Medium (2) Low (1)

Dr.M.C.Maheswari — **Head of the Department**

Mrs.G.Nagalakshmi — **Course Designer**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**STATISTICS FOR LIFE AND SOCIAL SCIENCES** (offered by the Department of Mathematics for the students other than M.Sc. Mathematics Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course (NME)		Credits: 2	
Course Code **24PMTN31**		Internal 25	External 75

COURSE OUTCOMES

On completion of the course, students will be able to

CO1: define sampling and sample designs, measures of dispersion, Chi-square, F test and Yates corrections. [K1]

CO2: understand the concept of sample size for their study and test of significance. [K2]

CO3: explain special distributions and the hypothesis testing of their samples. [K2]

CO4: apply the knowledge gained in various methods of distribution in real life problems. [K3]

CO5: analyze various distributions in real life problems. [K4]

UNIT I

Collection of Data: Introduction, Primary and Secondary Data- Methods of Collecting Primary Data. **Sampling and Sample Designs:** Introduction- Census and Sample Method- Theoretical Basis of Sampling- Essentials of Sampling- Methods of Sampling-Non-Probability Sampling Methods- Probability Sampling Methods- Size of Sample- Merits and Limitations of Sampling-Sampling and Non-Sampling Errors.

Measures of Central Value: Types of Averages-Arithmetic Mean- Calculation of Arithmetic Mean—Continuous Series- Median- Calculation of Median—Continuous Series- Computation of Quartiles- Deciles-Percentiles, Etc. (9 Hours)

UNIT II

Measures of Dispersion: Significance of Measuring Variation-Range-The Interquartile Range or the Quartile Deviation-Merits and Limitations-The Standard Deviation.

(9 Hours)

UNIT III

Theoretical Distribution: Binomial-Poisson and Normal Distributions.

Statistical Inference-Tests of Hypotheses: Hypothesis Testing- Introduction- Standard Error and Sampling Distribution-Estimation-Tests of Significance for Large Samples-Tests of Significance for Small Samples. (9 Hours)

UNIT IV

Chi-Square Test and Goodness of Fit: Introduction-Chi-Square Defined-Conditions for Applying Chi-Square Test-Yates' Corrections-Uses of Chi-Square Test-Additive Property of Chi-Square-Chi-Square Test for Specified Value of Population Variance-Misuse of Chi-Square Test-Limitations on the Use of Chi-Square Test.

(9 Hours)

UNIT V

F-Test and Analysis of Variance: The F-Test or the Variance Ratio Test-Applications of F-Test-Analysis of Variance- Analysis of Variance in Two-Way Classification Model.

(9 Hours)

TEXT BOOK

Gupta, S. P. (2017). *Statistical Methods*, Forty Fifth Revised Edition, Sultan Chand & Sons, New Delhi.

Unit	Volume	Chapter	Page No.
I	I	3	39-47
		4	63-89
		7	178-189, 196-203, 206-211
II		8	273-293
III	II	2	833-846, 852-859, 860-879
		3	906-918, 925-930, 934-948
IV		4	977-1005
V		5	1030-1060

REFERENCE BOOKS

1. Goon A.M. Gupta. A.K. and Das Gupta, B. (1987). *Fundamental of Statistics*, vol.2 World Press Pvt. Ltd., Kolkatta.
2. Yule, G.U. and Kendall, M.G. (1956). *An introduction to the theory of Statistics*, Charles Griffin.

Website and e-Learning Source

https://alison.com/course/the-fundamentals-of-statistics?utm_source=google&utm_medium=cpc&utm_campaign=PPC_Tier-4_First-Click_Courses-_Broad_&utm_adgroup=Course-2075_The-Fundamentals-of-Statistics&gclid=CjwKCAjw6IiiBhAOEiwALNqncf9ojFI3Uc738RVoW7KdG4FiGqFXcEA4OeJQLENoFw8gUYqltWhUkRoC1QMQAvD_BwE

Course Code 24PMTN31	**PO1**		**PO2**		**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
	PSO 1.a	**PSO 1.b**	**PSO 2, a**	**PSO 2.b**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	1	3	3	1	-	3	3	1	-
CO2	3	2	3	1	2	2	3	3	1	-
CO3	3	2	3	1	2	2	3	3	1	-
CO4	3	1	2	3	2	2	2	3	1	-
CO5	3	1	1	2	3	3	2	3	1	-

Strong (3) **Medium (2)** **Low (1)**

Dr.M.C. Maheswari
Head of the Department

Dr. T.Anitha
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**SOLID WASTE MANAGEMENT** (offered by the Department of Physics for the students other than M.Sc. Physics Discipline) **(2024-2025 onwards)**	Hours/Week:4	
Elective Course (NME)		Credits:2	
Course Code **24PPHN21**		Internal25	External 75

COURSE OUTCOMES

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

CO1: explain the SWM for economic development and environmental protection and tools and equipment [K1]

CO2: explain the types of solid wastes.[K2]

CO3: describe Municipal Solid waste and non-municipal solid waste. [K2]

CO4: apply physics concepts for effective solid waste management in view of environmental protection. [K3]

CO5: analyze the status of solid waste management in the nearby areas. [K4]

UNIT I

SOLID WASTE MANAGEMENT: Introduction - Definition of solid waste - Types – Hazardous Waste: Resource conservation and Renewal act – Hazardous Waste: Municipal Solid waste and non-municipal solid waste. (12 hours)

UNIT II

SOLID WASTE CHARACTERISTICS: Solid Waste Characteristics: Physical and chemical characteristics - SWM hierarchy - factors affecting SW generation (12 hours)

UNIT III

TOOLS AND EQUIPMENT: Tools and equipment - Transportation - Disposal techniques - Composting and land filling technique (12 hours)

UNIT IV

HAZARDOUS SOLID WASTE – Types of hazardous solid waste, their characteristics & their harmful effects on community- Safe methods of disposal of hazardous waste & their management principles - Sources, generation, and storage of Bio-medical waste -Transportation and disposal of Bio- medical waste with necessary precautions.

UNIT V

ECONOMIC DEVELOPMENT: SWM for economic development and environmental protection Linking SWM and climate change and marine litter. (12 hours)

TEXT BOOK:

George Tchobanoglous, (2002). Handbook of Solid Waste Management, Second Edition,Tata McGraw Hill

REFERENCE BOOKS::

1. Christian Ludwig, Samuel Stucki, Stefanie Hellweg, (2012). Municipal Solid Waste Management, Springer Berlin Heisenberg
2. A.Bhide (1983), Solid Waste Management, Indian National Scientific Documentation Centre, New Delhi Edition ASIN: B0018MZ0C2
3. George Techobanoglous, Kreith, Frank (2002). Solid Waste, McGraw Hill Publication, New Delhi 9780071356237
4. D. L. Manjunath, (2006). Environmental Studies, Pearson Education Publication, New Delhi, 20061SBN-I3: 978-8131709122
5. K.Sasikumar, (2009). Solid Waste Management, PHI learning, New Delhi, ISBN 8120338693.

WEB SOURCES

1. https://www.meripustak.com/Integrated-Solid-Waste-Management-Engineering-Principles-And-Management-Issues-125648
2. https://testbook.com/learn/environmental-engineering-solid-waste-management/
3. https://www.meripustak.com&gclid=Cj0KCQjwuuKXBhCRARIsA-gM0iVpismAJN93CHA1sX6NuNeOKLXfQJ_jxHCOVH3QXjJ1iACq30KofoaAmFsEALw_wcB
4. :\Users\ADMIN\Downloads\https://images.app.goo.gl/tYiW2gUPfS2cxdD28
5. https://amzn.eu/d/5VUSTDI

Course code 24PPHN21	PO1		PO2	PO3	PO4	PO5	PO6		PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6.a	PSO 6.b	PSO 7	PSO 8
CO1	3	1	2	1	1	3	-	3	-	1
CO2	3	1	2	2	1	3	-	3	-	1
CO3	3	1	2	2	1	3	-	3	-	-
CO4	2	1	1	2	3	3	-	3	1	-
CO5	2	1	2	2	3	3	-	2	1	-

Strong (3) Medium (2) Low (1)

Mrs P.Kanmani

Head of the Department

Mrs.P.S.Saritha

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**SEWAGE AND WASTE WATER TREATMENT AND REUSE** (offered by the Department of Physics for the students other than M.Sc. Physics Discipline) **(2024-2025 onwards)**	**Hours/Week: 3**	
Elective Course (NME)		**Credits:2**	
Course Code 24PPHN31		**Internal 25**	**External 75**

COURSE OUTCOMES

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

CO1: understand the significance of waste water recovery, reuse of waste water and methods of recovery and reuse of waste water. [K1]

CO2: explain the issues related to waste water, recovery methods and disinfection techniques of waste water treatment. [K2]

CO3: explain physical and chemical disinfectant techniques of waste water treatment. [K2]

CO4: apply learned concepts for waste water treatment and reuse of waste water. [K3]

CO5: analyze the status of sewage and waste water management in the nearby areas. [K4]

UNIT I

SOURCES OF WASTE WATER AND SIGNIFICANCE OF RECOVERY & REUSE: Sources of waste water (domestic, industrial and agricultural) – environmental issues – health issues- water scarcity issues- areas of application (9 Hours)

UNIT II

RECOVERY OF WASTE WATER: Methods of recovery: Flocculation - Sedimentation - sedimentation with coagulation - Filtration - sand filters - pressure filters - horizontal filters - vector control measures in industries - chemical and biological methods of vector eradication (9 Hours)

UNIT III

DISINFECTION: Introduction to disinfection and sterilization: Disinfectant - UV radiation - Chlorination - Antisepsis - Sterilant - Aseptic and sterile -Bacteriostatic and Bactericidal - factors affecting disinfection. (9 Hours)

UNIT IV

CHEMICAL DISINFECTION: Introduction - Theory of Chemical Disinfection - Chlorination Other Chemical Methods - Chemical Disinfection Treatments Requiring - Electricity - Coagulation/Flocculation Agents as Pretreatment - DisinfectionBy-Products(DBPs) (9 Hours)

UNIT V

PHYSICAL DISINFECTION: Introduction - Ultraviolet Radiation - Solar Disinfection - Heat Treatment - Filtration Methods - Distillation - Electrochemical Oxidation Water Disinfection by Microwave Heating. (9 Hours)

TEXT BOOKS

1. Anirudhha Balachandra, (2013), Drinking water and disinfection technique,CRC press
2. Shashi Bushan, Jain (2015), Design of Water and Wastewater Treatment Systems (CV- 424/434)
3. Material prepared by Department of Physics (Self Finance)

REFERENCE BOOKS

1. Frank. R Spellman , (2020), Handbook of Water and Wastewater Treatment Plant Operations, CRC Press
2. Mritunjay Chaubey, (2021),Wastewater Treatment Technologies, , Wiley
3. Metcalf and Eddy, (2002), Wastewater Engineering, 4th ed., McGraw Hill Higher Edu.
4. Lancaster, (2010), Green Chemistry: An Introductory Text, 2nd edition, RSC publishing.

WEB SOURCES

1.https://www.google.co.in/books/edition/Drinking_Water_DisinfectionTechniques/HVbNBQAAQBAJ?hl=en

2.https://www.meripustak.com/Integrated-Solid-Waste-Management-Engineering-Principles-And-Management-Issues-125648?

Course code 24PPHN31	**PO1**		**PO2**	**PO3**	**PO4**	**PO5**	**PO6**		**PO7**	**PO8**
	PSO 1.a	**PSO 1.b**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6.a**	**PSO 6.b**	**PSO 7**	**PSO 8**
CO1	3	-	3	-	-	1	-	2	2	2
CO2	3	-	3	-	-	1	-	2	2	2
CO3	3	2	2	2	1	2	-	2	2	2
CO4	3	2	2	2	1	2	-	2	2	2
CO5	3	2	2	2	1	3	1	2	2	2

Strong (3) Medium (2) Low (1)

Mrs.P.Kanmani
Head of the Department

Mrs.P.Kanmani
course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**CHEMISTRY IN EVERYDAY LIFE** (offered by the Department of Chemistry for the students other than M.Sc. Chemistry Discipline) **(2024-2025 onwards)**	**Hours/week: 4**	
Elective Course **NME-1**		**Credits: 2**	
24PCHN21		**Internal** **25**	**External** **75**

Course Outcomes:

On completion of the course, students will be able to

CO1: understand the basic concepts of dairy products, cosmetics, food nutrients, agriculture and environmental pollutants. [K1]

CO2: classify the milk and cosmetic products, food and plant nutrients, pesticides, sources of air and water pollution. [K2]

CO3: interpret the composition and preparation of dairy products, cosmetics, fertilizer, pesticides, composition of air and water pollutants. [K2]

CO4: illustrate on the characteristics of dairy products and cosmetics, structure and function of carbohydrates, vitamins, fats, oil, fertilizer, pesticides, effect of air and water pollution. [K3]

CO5: analyze the effect of heat on milk, composition of cosmetics, purity of fats and oil, manufacture of fertilizers and pesticides, treatment for air and water pollutants. [K4]

UNIT - I

Dairy Chemistry

Composition and structure of milk - milk lipids –fat globules –milk enzymes –vitamins – minerals - physical properties of milk –effect of heat –milk processing –clarification –pasteurization - homogenisation –milk products - cream, butter, ice cream, milk powder and ghee. (12 Hours)

UNIT II

Chemistry in Cosmetics

Dental Preparations: Tooth pastes- ingredients, their characteristics and functions- Mouth washes (Composition only)-Face powder (Composition only), Deodorants and antiperspirants-Distinction between astringents and deodorants, deodorant powders (Composition only) - shampoo - different types and formulations, hair conditioners and setting lotions. Hair colourants: Hair lighteners and bleaches, Temporary colourant, Semi-permanent colourants, permanent colourants – vegetable dyes. (12 hours)

UNIT III

Chemistry in Food

Carbohydrates: Structure, function and Chemistry of some important mono and disaccharides**.**

Vitamins: Classification and Nomenclature. Sources, deficiency diseases and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1.

Oils and fats: Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like aregemone oil and mineral oils. (12 hours)

UNIT IV

Chemistry in Agriculture

Fertilizers: Classification of Fertilizers- Straight Fertilizers, Compound/Complex Fertilizers, Fertilizer Mixtures -NPK, superphosphate, triple superphosphate, preparation and uses –Micro and macronutrients and their role in plant growth

Pesticides: Classification of pesticides with examples. Insecticides-Manufacture and uses of insecticides-DDT, BHC -Fungicides: Preparation of Bordeaux mixture -Mention of lime-sulphur, creosote oil and formula. (12 hours)

UNIT V

Pollution chemistry

Air Pollution: Air pollutants, effects and prevention - Green house gases and acid raid.Ozone hole and CFC's.Photochemical smog and PAN.Catalytic converters for mobile sources.Bhopal gas tragedy.

Water Pollution: sources, effects and control measures-Detergents- pollution aspects, eutrophication- Pesticides and insecticides-pollution aspects.Heavy metal pollution- Treatment of industrial liquid wastes.Sewage and industrial effluent treatment. (12 hours)

TEXT BOOKS

1. B. K. Sharma: introduction to Industiral Chemistry, Goel Publishing, Meerut (1998)
2. JayashreeGhosh, (2013), *Fundamental concepts of applied chemistry*, S.Chand&Company Ltd
3. Analysis of Foods – H.E. Cox: 13. Chemical Analysis of Foods – H.E.Cox and pearson.
4. Handbook on Feritilizer Technology by Swaminathan and Goswamy, 6th ed. 2001, FAI.

REFERENCE BOOKS

1. Sivasankar.B, (2009), *Engineering Chemistry*, Tata McGraw-Hill Education Pvt.Ltd.
2. Jain.P.C. and Dr.Monika Jain, (2013), *Engineering Chemistry*, DhanpatRai Publishing Company Pvt.Ltd.

Course Code 24PCHN21	**PO1**		**PO2**	**PO3**		**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
	PSO 1a	**PSO 1b**	**PSO2**	**PSO 3a**	**PSO 3b**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO 1	3	2	2	3	3	2	3	3	3	3
CO 2	3	3	3	3	3	2	2	2	3	3
CO 3	3	2	3	2	3	1	1	2	2	2
CO 4	3	3	2	2	2	1	2	2	2	2
CO 5	3	2	2	3	3	2	3	2	3	2

Strong (3) Medium (2) Low (1)

Dr.J.Kavitha
Head of the Department

Dr. C. Vidya Rani
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

M.Sc. CHEMISTRY

(2024-2025 onwards)

Semester III	**INDUSTRIAL CHEMISTRY** (offered by the Department of Chemistry for the students other than M.Sc. Chemistry Discipline) **(2024-2025 onwards)**	**Hours/week: 3**	
Elective Course **NME**		**Credits:2**	
24PCHN31		**Internal** **25**	**External** **75**

Course Outcomes:

On completion of the course, students will be able to

CO1: understand the chemical concepts involved in small scale, leather and polymer products; chemistry involved in paint, pigments, energy resources and biofuels. [K1]

CO2: acquire knowledge about the manufacturing processes of small scale industrial products, leather, polymer, pigments and paints and biofuels. [K2]

CO3: analyse purity of industrial products. [K2]

CO4: apply the concept to harvest more energy from the natural resources and produce quality products. [K3]

CO5: prepare the novel industrial products such as leather, polymer, pigments and paints and biofuels. [K4]

UNIT - I

Small scale Industries

Preparation of Safety matches, agarbatties, naphthalene balls, wax candle, shoe polish, gum paste, writing/ fountain pen ink, chalk/crayons, plaster of paris, silicon carbide crucibles. (9 hours)

UNIT - II

Leather Chemistry

Introduction –structure of hide and skin –leather processing –process before tannage –flaying and curing –tanning process –methods of tanning –vegetable tanning –chrome tanning –aldehyde tanning –finishing processes after tanning –Tannery effluent and by –product problems –treatment of tanning wastes.

(9 hours)

UNIT- III

Polymer Chemistry

History and significance of polymers- characteristics of polymers-Identification of polymers – polymers as adhesives, fillers, reinforcements-common plastic polymers used in packaging –PET,HDPE, PVC ,LDPE and PP- biodegradable polymers-composition of biodegradable plastics. starch –based plastics, bacteria –based plastic, Soy –based plastics –applications of biodegradable polymers–medical sutures,pins and dental implants. (9 hours)

UNIT IV

Pigments and Paints

(a) White pigments –white lead, Zinc oxide, lithopone, titanium dioxide – characteristics and uses.

Blue pigments: ultra marine blue , cobalt blue and iron blue – characteristics & uses

Red pigments: Red lead, synthetic iron oxide - characteristics & uses

Green pigments: Chrome green, Reinmann's green –uses.

(b) P**aints:** Requirements of a good paint –constituents of paint- manufacture of paints –emulsion paints – latex paints –varnishes –manufacture and uses –lacquers. (9 hours)

UNIT V

Energy resources and Biofuels:-

Energy resources- conventional and non –conventional energy resources.

Biofuels-introduction, types of bio fuels (bioethanol and biodiesel)- raw materials for the synthesis of bio fuels, properties of bio fuels standard specification of biofuel, uses of biofuels –modification of vegetable oils as biodiesel. (9 hours)

TEXT BOOKS

1. BK. Sharma, *Industrial Chemistry*, GOEL Publishing House, Meerut

2. K.Bagavathi Sundari, *Applied Chemistry*; MJP Publishers, Chennai,

3. Jayashree Ghosh, *Fundamental concepts of applied chemistry*, S.Chand &Company Ltd, Ram Nagar, New Delhi.

REFERENCEBOOKS

1. Dr. Vandana Meshram - Ingle, *A Textbook of Industrial Chemistry*, Educational Publisher and Distributors.

2. Raghunath B. Toche, Satish Kale, Eknath H. Gade, *A Textbook of Industrial Chemistry*, Vision Publications.

Course Code 24PCHN31	**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**
CO 1	3	3	3	3	3	3	2	2	2	2
CO 2	3	3	3	3	3	3	2	2	2	2
CO 3	3	3	3	3	3	3	2	2	2	2
CO 4	3	3	2	3	3	3	2	2	2	2
CO 5	3	3	2	3	3	3	2	2	2	2

Strong (3) Medium(2) Low (1)

Dr.J.Kavitha
Head of the Department

Dr.M.Vairalakshmi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**FOOD PRESERVATION** (offered by the Department of Home Science – Nutrition and Dietetics for the students other than M.Sc. Home Science – Nutrition and Dietetics Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PHSN21**		Internal 25	External 75

COURSE OUTCOMES

On completion of the course, students will be able to

CO1: describe the concept and principles of food preservation. [K1]

CO2: write the processing steps for preserving food by using drying, sugar, salt, low and high temperature. [K2]

CO3: explain the appropriate method to preserve different foods [K2]

CO4: determine the effects of preservation methods on the quality of foods [K3]

CO5: analyse the use of modern technology in food preservation.[K4]

UNIT I

Introduction to Food Preservation

Concept, importance of food preservation, Common terms used in food preservation. Different methods and Principles of preservation. (12 hours)

UNIT II

Preservation by Low Temperature

Use of Refrigerated Storage, principles and methods. Use of Freezing temperatures: Slow and fast freezing of foods and Cryogenic freezing of foods, dehydro freezing, Frozen storage and thawing of foods (12 hours)

UNIT III

Preservation by High Temperature

Preservation of foods by high temperatures.Blanching, Pasteurization and Sterilization of foods. General process of canning of foods (12 hours)

UNIT IV

Preservation by using sugar, principles of gel formation, preparation of jam, jelly, marmalade, preserves, candies, glazed and crystallized fruits, problems encountered in preparation and FPO specification. (12 hours)

UNIT V

Preservation by Drying

Principles and application of drying and dehydration of foods Different types of drying and dryers.

Preservation by using chemicals and salt – chemical preservatives – role of preservation – permitted preservatives and levels – preparation and preservation of fruit juices, pickling – types of pickles (12 hours)

TEXT BOOK

1. Vennila, P. (2003). Principles on preservation of fruits and vegetables, Tamilnadu: Ratna publications.

REFERENCES BOOKS

1. Prakash Triveni. (2010). Food Preservation, New Delhi: Aadi Publication.
2. Shafiur Rahman,M. (2007). Hand Book of Food Preservation, Newyork: Marcel Dekker Inc,
3. Mc.Willims and Paine. (2009). Modern Food Preservation, New Delhi: Surjeet Publications.
4. Karnal, Marcus and Lund, D.B. (2003). Physical Principles of Food Preservation, New Jersey: CRC Press Inc.
5. VanGarde, S.J. and Woodburn, M. (2001). Food Preservation and Safety Principles and Practice, Ahmedabad: Surbhi Publications.

6. Sivasankar, B. (2002). Food Processing & Preservation, New Delhi: Prentice Hall India Learning Private Limited
7. Khetarpaul, Neelam, (2005).Food Processing and Preservation, New Delhi :Daya Publications.
8. Norman N. Potter, Joseph H. Hotchkiss, (2009). Food science, 5 th ed. New York : Springer Science & Business Media.

E-LEARNING RESOURCES

https:// www.embibe .com/food -preservation/

https://agripathshala.com/lessons/principles-of-food-preservation

www.onlinebiologynotes.com/food-preservation-from-microbial-spoilage-principles

https://www.researchgate.net/publication/347909697_FOOD_PRESERVATION

PEDAGOGY

Lecture, journal reviewing, Assignments, Power point presentations, video presentations.

Mapping of Co with PSO:

Course Code 24PHSN21	**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**
CO 1	3	3	1	1	2	1	3	3	1	2
CO 2	3	3	1	3	3	2	3	3	1	3
CO 3	3	3	2	3	3	2	3	3	1	3
CO 4	3	3	1	3	3	2	3	3	3	3
CO 5	3	3	1	3	3	2	3	3	3	3

Strong (3) Medium (2) Low (1)

Dr.D.Vijayarani — **Head of the Department**

Mrs.T.Devi — **Course Designer**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**NUTRITION AND HEALTH** (offered by the Department of Home Science – Nutrition and Dietetics for the students other than M.Sc. Home Science – Nutrition and Dietetics Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course (NME)		Credits: 2	
Course Code **24PHSN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: describe the health, nutrition, nutrients, nutritional status and list the sources of nutrients [K1].

CO2: classify the food groups, macro and micro nutrients and identify the factors affecting BMR [K2].

CO3: explain the importance of balanced diet, food pyramid and the effects of nutrient deficiency diseases on human health [K2].

CO4: write the dimensions of health, energy value of food, BMR, RDA and functions of macro and micro nutrients [K3].

CO5: focus the nutritional requirements of macro and micro nutrients for various age group [K4].

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. (9Hours)

UNIT II

Energy-definition, unit of measurement, BMR–definition and factors affecting BMR. Carbohydrate and Dietary fibre - classification, sources, functions, nutrient requirements and deficiency. (9Hours)

UNIT III

Protein and Fat - definition, classification, sources, functions, nutrient requirements and deficiency. (9Hours)

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. (9Hours)

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. (9Hours)

Textbook

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

References

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	**PO1**		**PO2**	**PO3**		**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
24PHSN31	**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	3	2	2	2	2	1	3	1`	-	-
CO2	3	2	2	2	2	1	3	2	-	-
CO3	3	2	2	3	3	3	3	2	-	-
CO4	3	2	2	3	3	3	3	2	-	-
CO5	3	2	2	3	3	3	3	2	-	2

Strong (3) Medium (2) Low (1)

Dr.D.Vijayarani Mrs.S.Balasaraswathi

Head of the Department **Course Designer**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**NUTRITIONAL BIOCHEMISTRY** (offered by the Department of Biochemistry for the students other than M.Sc. Biochemistry Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PBCN21**		Internal 25	External 75

COURSE OUTCOMES

On successful completion of this course, students should be able to:

CO1: recall the basic concepts of food groups, BMR, SDA and nutrients. [K1]

CO2: describe the biological importance of biomolecules in human nutrition. [K2]

CO3: summarise the nutritional requirements and biochemical change in different physiological states of human. [K2]

CO4: identify the causes and clinical manifestations of different nutrient deficiency diseases. K3]

CO5: assess the interrelationships between biomolecules within the human body to maintain the sustainable health. [K4]

UNIT I

Basic concepts – Nutrition – Food groups and balanced diet. Novel Foods. Calorific value of foods: Direct and indirect calorimetry. Empty calories. Basal metabolic rate: Factors affecting BMR. SDA and physical activity. Calculation of day's energy requirement. Assessment of nutritional status. Lactose intolerance. Nutritional requirement and biochemical changes in different physiological states -infancy, childhood, pregnancy, lactation, and ageing. Sports nutrition.

(12 Hours)

UNIT II

Elements of nutrition – Plant and animal sources of simple and complex carbohydrates, fats and proteins and their requirement. Biological significance, deficiency and toxicity of macronutrients and micronutrients. Role of dietary fibre. Protein sparing action of carbohydrates and fats. Essential amino

acids. Essential fatty acids. Effects of naturally occurring food toxins, preservatives, additives, alcohol and tobacco on health. **(12 Hours)**

UNIT III

Vitamins and Minerals- Dietary sources, classification, biochemical functions, requirements, absorption, metabolism and excretion. Vitamin B complex as coenzyme. Nutritional significance of dietary calcium, phosphorus, magnesium, iron, iodine, zinc and copper. **(12 Hours)**

UNIT IV

Malnutrition - Diseases arising due to Protein - Calorie Malnutrition and undernutrition (Kwashiorkor and Marasmus), Prevention of malnutrition. Deficiency diseases associated with vitamin B complex, vitamin C and A, D, E & K vitamins - Mineral deficiency diseases - aetiology, sign and symptoms and dietary supplementation. Enrichment and fortification (vitamins and minerals)

(12 Hours)

UNIT V

Nutrition in diseases - Aetiology, signs and symptoms , treatment and dietary management during fever(Typhoid and Malaria) and infectious diseases(COVID-19), Jaundice, hyper acidity (Ulcer), Atherosclerosis, Hypertension, kidney diseases and diabetes in adults. Starvation and Obesity. Inter-relationship of nutrition, infection, immunity and poverty **(12 Hours)**

TEXT BOOKS

Sri Lakshmi, B. (2018). Nutrition Science, 6 th Edition, New Delhi: New Age International Ltd.

REFERENCE BOOKS

1.Chatterjea, M.N. (2012). Textbook of medical biochemistry, 8 th edition, New Delhi: Jaypeebrothers medical publishers.

2. Denise R. Ferrier. (2020). Lippincott illustrated reviews biochemistry, South asian edition, NewDelhi: wolters kluwer India pvt ltd.

3. Nagini, S. (2007). Textbook of biochemistry, 2 nd edition, Chennai: Scitech publications.

4. Sathyanarayana, U. (2020). Biochemistry, 5 th edition, Netherland: Elsvier.

5. Sharma, D.C. (2017). Nutritional biochemistry, New Delhi: CBS publishers and distributors.
6. Singh, S.P. (2006). Principles of biochemistry, New Delhi: CBS publishers.

Course Code 24PBCN21	**PO1**		**PO2**	**PO3**		**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
	PSO 1a	**PSO 1b**	**PSO 2**	**PSO 3a**	**PSO 3b**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	2	2	2	2	2	2	2	2	1	2
CO2	2	2	2	2	2	2	3	2	2	2
CO3	2	2	2	2	2	3	2	2	3	2
CO4	2	2	2	2	2	2	2	2	2	2
CO5	2	2	2	2	2	2	2	2	2	2

Strong (3) Medium (2) Low (1)

Dr.P.Annapoorani
Head of the Department

Mrs.P.Ramalakshmi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**MOLECULAR BASIS OF DISEASES AND THERAPEUTIC STRATEGIES** (offered by the Department of Biochemistry for the students other than M.Sc. Biochemistry Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course NME		Credits: 2	
Course Code **24PBCN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1 : recall the fundamental concepts of diabetes, cancer, neurodegenerative disorders, renal diseases and cardiovascular diseases including their pathophysiology, diagnosis and treatment. [K1]

CO2 : explain the molecular mechanisms, diagnostic techniques and treatment strategies for diabetes, cancer, neurodegenerative, renal, and cardiovascular diseases. [K2]

CO3 : describe the pathophysiology, complications and management approaches for diabetes, cancer, neurodegenerative, renal and cardiovascular diseases. [K2]

CO4 : apply diagnostic and therapeutic knowledge to assess and manage diabetes, cancer, neurodegenerative, renal and cardiovascular diseases. [K3]

CO5 : analyze the molecular and clinical aspects of diabetes, cancer, neurodegenerative, renal and cardiovascular diseases for effective diagnosis and treatment. [K4]

UNIT I

Mechanism of blood sugar regulation in human body: Pathophysiology of Type I and II diabetes, Diabetes – investigation methods for the diagnosis of diabetes. Nutritional care. Complications related to diabetes – Diabetic cardiovascular disease, retinopathy, neuropathy and nephropathy. Cellular and molecular mechanism of development of diabetes- Management of type I and Type II diabetes, drugs for the treatment of diabetes. **(9Hours)**

UNIT II

Biology of cancer: Overview of hallmarks of cancer. Tumorigenesis, Tumor progression and mechanism of Metastasis. Proto-oncogene to oncogene. Oncogene- myc and src family. Tumor suppressor gene-Rb and p53 pathway in cancer. Molecular techniques in cancer diagnosis. Treatment of cancer- surgery, radiotherapy, chemotherapy, hormonal treatment, and biological therapy. Introduction to personalized medicine. **(9 Hours)**

UNIT III

Brain- neuronal network- memory- Neurogenerative diseases- Parkinson and Alzheimer Disease- molecular understanding of the neurodegenerative diseases- treatment modalities. **(9 Hours)**

UNIT IV

Acute and chronic renal failure, glomerular diseases–glomerulonephritis, nephritic syndrome, diabetes insipidus, diagnosis of kidney disease.

(9 Hours)

UNIT V

Introduction to cardiovascular diseases, Lipids and lipoproteins in coronary heart disease-cardiac enzymes, Molecular changes during cardiac remodeling – hypertrophy of hearts – heart failure-treatment modalities. **(9 Hours)**

Reading List (Print and Online)

1. Barr, A. J. (2018). *The biochemical basis of disease*. Portland Press.
2. Biology Discussion. *Biochemical basis of diseases*. https://www.biologydiscussion.com/diseases-2/biochemical-basis-of-diseases/44276

Text Books

1. Thomas, H., & Gillham, B. (1989). *Wills' biochemical basis of medicine* (2nd ed.). Elsevier.
2. Feuer, G., & de la Iglesia, F. (2021). *Molecular biochemistry of human diseases*. CRC Press.

Reference Books

1. Harrison, T. R. (1994). *Principles of internal medicine* (13th ed.). McGraw-Hill Companies.

2. Sonntag, O., & Oswald, M. (2002). *Tietz fundamentals of clinical chemistry* (5th ed.). W.B. Saunders.

Course code (24PBCN31)	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	1a	1b	2	3a	3b	4	5	6	7	8
CO 1	2	2	2	2	2	2	2	2	1	2
CO 2	2	2	2	2	2	2	3	2	2	2
CO 3	2	2	2	2	2	3	2	2	3	2
CO 4	2	2	2	2	2	2	2	2	2	2
CO 5	2	2	2	2	2	2	2	2	2	2

Strong (3) Medium (2) Low (1)

Dr.P.Annapoorani
Head of the Department

Dr.R.Salini
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**TISSUE ENGINEERING** (offered by the Department of Biotechnology for the students other than M.Sc. Biotechnology Discipline) **(2024-2025 onwards)**	**Hours/Week: 4**	
Elective Course (NME)		**Credits: 2**	
Course Code 24PBON21		**Internal 25**	**External 75**

COURSE OUTCOMES

On successful completion of this course, students should be able to:

CO1: recall fundamentals of tissue engineering [K1]

CO2 : illustrate the basis of growth and differentiation, *in vitro* control of tissue development and structural engineering [K2]

CO3: describe the basic scientific principles that support the methods used in tissue engineering such as growth and differentiation[K2]

CO4: apply various tissue engineering techniques for the production of biomaterials[K3]

CO5: analyze the importance of applications of tissue engineering [K4]

UNIT I

Basic biology of tissue engineering: The basis of growth and differentiation-morphogenesis and tissue engineering (12 Hours)

UNIT II

In vitro control of tissue development-Growth factors-Tissue engineering bioreactors-In vitro synthesis of Tissue and organs- Organotypic and histotypic engineered tissues. 3D cell culture-Tissue assembly in microgravity (12 Hours)

UNIT III

Biomaterials in tissue engineering-Scaffolds, extracellular matrix, polymers and nanocomposites. Approaches to transplanting engineered cells (12 Hours)

UNIT IV

Bioartificial pancreas, Hepatassist liver support system, Artificial Womb, Heamatopoietic system: Red blood cell substitutes, Renal replacement devices (12 Hours)

UNIT V

Structural tissue engineering-Bone regeneration through cellular engineering, Skin tissue engineering, Brain implants-Neural stem cells, Periodontal applications (12 Hours)

TEXT BOOKS

1. Bernhard Palsson, Sangeeta Bhatia (2014) Tissue Engineering,2nd Edition,Pearson Pub.
2. Robert Lanza, Robert Langer, Joseph P. Vacanti (2020) Principles of Tissue Engineering,5th Edition,Academic Press.
3. Xiaohong Wang, Changsheng Liu, Ali Khademhosseini, Yilin Cao(2010) Tissue Engineering: Fundamentals and Applications,1st Edition,John Wiley & Sons
4. Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen, Jack E. Lemons (2020) Biomaterials Science: An Introduction to Materials in Medicine,4th Edition, Academic Press

REFERENCE BOOKS

1. Sylvia, S. Mader, 2011, Human Biology, 12th edition, Mc Graw Hill, USA.
2. Robert P. Lanaza, Robert Langer and Joseph Vacanti, 2011. Principles of Tissue Engineering. 5th edition Academic Press.
3. Micklem.H.S., Loutit John.F., 2004, Tissue grafting and radiation, Academic Press, New York..
4. Penso.G., Balducci.D., 2004.Tissue cultures in biological research, Elsevier, Amsterdam

Web Resources:

- www.nuigalway.ie/anatomy/tissue_engineering.html

Course code 24PBON21	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1a	PSO 1b	PSO 2	PSO 3a	PSO 3b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO 1	2	2	2	1	1	2	3	2	2	2
CO 2	2	1	1	2	2	2	2	2	2	1
CO 3	1	1	2	2	2	2	2	2	2	1
CO 4	2	1	2	2	2	2	2	2	1	1
CO 5	1	3	1	1	1	2	2	2	2	1

Strong (3) **Medium (2)** **Low (1)**

Dr.V.Jeyasimga

Head of the Department

Dr.R.Gurupavithra

Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester: III	**GENE MANIPULATION TECHNOLOGY** (offered by the Department of Biotechnology for the students other than M.Sc. Biotechnology Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective course NME		Credits: 2	
Course code 24PBON31		Internal 25	External 75

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

CO1: recall the basics of Basics of Gene Manipulation Technology (K1)

CO2: acquire adequate knowledge in the use of Genome Sequencing and Transcriptomics (K2)

CO3: Apply the knowledge to create Constructions of DNA Libraries Constructions of DNA Libraries.(K2)

CO4: explain the benefits of Protein Engineering & Pharmaceutical Products (K3)

CO5: Evaluate the importance of Gene Cloning & Applications of Gene Cloning(K4)

UNIT-I

Basics of Gene Manipulation Technology-Restriction Enzymes-Cutting and Joining Reactions-Vectors-Selection of Recombinants- Agarose Gel Electrophoresis-Southern Blotting-Hybridization-Autoradiography-PCR- Native Page- SDS-Page-2D Gel Electrophoresis- Western Blotting.

(9 Hours)

UNIT-II

Constructions of DNA Libraries- Vectors Used In the Construction of CDNA and Genomic DNA Libraries- Chromosome Walking- Positive Selection and Subtractive Hybridization- Preparation of (BAC/YAC Library). (9 Hours)

UNIT-III

Genome Sequencing and Transcriptomics- Sanger's Sequencing, Whole Genome Shot gun Sequencing- Comparative Genome Sequencing- Transcriptome Analysis- DNA Microarray- Expression of Recombinant Proteins. (9 Hours)

UNIT-IV

Protein Engineering & Pharmaceutical Products- Site Directed Mutage nesis- Protein Analysis- Therapeutic Protein- Vaccines. (9 hours)

UNIT-V

Applications of Gene Cloning- creating Transgenic Animals and Plants- Reporter Genes- Animal Cloning, Gene expression in plants- Biosafety and Bioethics (9 Hours)

Text Books

1. Sandy B. Primrose, Richard Twyman,(2006),Principles of Gene Manipulation and Genomics,Wiley-Blackwell,(7th edition) ,ISBN: 978-1-405-13544-3
2. R.W. Old,(1985)Principles of gene manipulation: An introduction to genetic engineering, University of California Press, ISBN-10 : 0520041437
3. Nicholl, D. S. T. (2008). *An introduction to genetic engineering*. Cambridge University Press.(3rd ed)

References Books

1. Christopher Howe,(2014) An Introduction Gene Cloning And Manipulation,Cambridge University Press, ISBN 0511296533,(2nd edition)
2. Sambrook, J., & Russell, D. W. (2001). *Molecular cloning: A laboratory manual* Cold Spring Harbor Laboratory Press,(3rd ed., Vol. 1).
3. Brown, T. A. (2010). *Gene cloning and DNA analysis: An introduction*, Wiley-Blackwell publisher,(6th ed.).
4. Thiel, T. (2002). *Biotechnology: Nucleic acids to protein—A laboratory project*. Tata McGraw Hill publisher
5. Old, R. W., & Primrose, S. B. (1994). *Principles of gene manipulation*. Blackwell Science. (5th ed.)
6. Setlow, J. K. (Ed.). (2002). *Genetic engineering: Principles and methods* (Vol. 24). Springer. ISBN: 978-0-306-47473-2
7. Glick, B. R., & Pasternak, J. J. (1994). *Molecular biotechnology: Principles and applications of recombinant DNA*. ASM Press.

Web Sources

- https://biokamikazi.files.wordpress.com/2013/06/gene-and-genomics.pdf
- https://www.egyankosh.ac.in/bitstream/123456789/96178/1/Unit-11.pdf
- https://uomustansiriyah.edu.iq/media/lectures/4/4_2019_04_09!08_45_57_PM.pdf
- https://www.kwcsangli.in/uploads/Principles-of-Gene-Manipulation-and-Genomics-PDFDrive-.pdf
- https://lecturesug3.files.wordpress.com/2013/02/primrose-principle-of-gene-manupulation.pdf

Course Code 24PBON31	**PO1**		**PO2**	**PO3**		**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
	PSO 1a	**PSO 1b**	**PSO 2**	**PSO 3a**	**PSO 3b**	**PSO 4**	**PSO 5**	**PSO 6**	**PSO 7**	**PSO 8**
CO1	3	2	2	3	3	3	2	3	3	2
CO2	2	2	2	2	2	3	2	3	2	2
CO3	2	2	1	2	2	3	2	3	1	1
CO4	3	2	2	3	3	2	3	3	2	2
CO5	3	3	2	3	1	3	3	3	2	2

Strong (3) **Medium (2)** **Low (1)**

Dr.V.Jeyasimga
Head of the Department

Ms.K.Srinithi
Course designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**WEB PROGRAMMING** (offered by the Department of Computer Science for the students other than Computer Science Discipline) **(2024-2025 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PCSN21**		Internal 25	External 75

COURSE OUTCOMES

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

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

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

CO3: describe various tags and create elegant web page using HTML [K2]

CO4: apply various style sheets, form and frame set tag to design a web page.[K3]

CO5: distinguish appropriate usage of HTML tags for elegant view of webpage. [K4]

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.

(12 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.

(12 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.

(12 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.

(12 Hours)

UNIT V

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

(12 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 24PCSN21	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO 1	2	2	-	-	1	-	-	-
CO 2	2	2	-	-	2	-	-	1
CO 3	3	2	1	-	3	-	-	1
CO 4	3	3	2	2	3	-	-	-
CO 5	3	3	3	2	3	-	-	2

Strong (3) Medium (2) Low (1)

Mrs. P. Aruna Devi
Head of the Department

Mrs. P. Aruna Devi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Re-accredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**PYTHON PROGRAMMING** (offered by the Department of Computer Science for the students other than Computer Science Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course NME		Credits: 2	
Course Code **24PCSN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1: explain the features, history, and fundamental concepts of Python programming, including literals, identifiers, data types, and operators. [K1]

CO2: demonstrate the use of functions, recursion, and string manipulation techniques for efficient programming. [K2]

CO3: describe the concepts in file handling operations such as reading, writing, renaming, and deleting files. [K2]

CO4: apply decision control and looping statements to implement conditional logic and iteration in Python programs. [K3]

CO5: analyze and implement various data structures such as lists, tuples, and dictionaries for data organization and manipulation. [K4]

UNIT I

Basics of Python Programming: Features of Python - History of Python — Literal Constants - Variables and Identifiers - Data Types of Identifiers – Input operations- Comments – Indentation – Operators and Expressions. (9 Hours)

UNIT II

Decision Control Statements: Introduction - Selection/Conditional Branching statements - Basic Loop Structures/Iterative Statements - Nested loops- The break Statement – The continue Statement – The pass Statement. (9 Hours)

UNIT III

Functions and Modules: Introduction - Function Definition – Function Call – Variable Scope and its Lifetime – The return Statement - Fruitful Functions - Recursive Functions: Greatest Common Divisor – The Fibonacci Series. **Python Strings Revisited:** Introduction - Concatenating, Appending and Multiplying Strings - Built-in String Methods and Functions – Comparison Strings. (9 Hours)

UNIT IV

Data Structures: Lists: Access values in List- Updating values in Lists- Nested lists – Cloning Lists - Basic list operations - List Methods. Tuples: Creating Tuples - Accessing values in a Tuple - Updating Tuple - Deleting Elements in Tuple – Nested Tuples– Advantages of Tuples over Lists. (9 Hours)

UNIT V

Data Structures: Dictionaries: Creating a Dictionary - Adding and Modifying an item in a Dictionary – Modifying an entry – Deleting items – Built-in Dictionary Functions and Methods - Difference between Lists and a Dictionary. **File Handling:** Types of Files - Opening and Closing Files -Reading and Writing Files - File Positions- Renaming and Deleting files. (9 Hours)

SELF-STUDY:

Python Strings Revisited : Slice Operation, ord() and chr() Functions, in and not in Operators (6.6-6.8)

TEXT BOOK

Reema Thareja. (2017). *Python Programming using problem solving approach*, 2nd Edition, Oxford University Press.

UNIT	CHAPTERS	SECTIONS
I	3	3.1,3.2,3.5- 3.9,3.11,3.12
II	4	4.1 – 4.7
III	5	5.1 – 5.6, 5.11(5.11.1,5.11.3)
	6	6.1,6.2,6.5,6.9
IV	8	8.2(8.2.1-8.2.5,8.2.8), 8.4(8.4.1, 8.4.3 - 8.4.5, 8.4.9, 8.4.15)
V	8	8.6(8.6.1,8.6.3-8.6.5),8.6.9,8.6.10
	7	7.3 – 7.7

REFERENCE BOOKS

1. Kenneth A. Lambert. *Fundamentals of Python – First Programs*, CENGAGE Publication.
2. VamsiKurama. *Python Programming: A Modern Approach*, Pearson Education.
3. Mark Lutz. *Learning Python*, Orielly.

Course Code 24PCSN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	-	-	1	-	-	-
CO2	2	2	-	-	2	-	-	1
CO3	3	2	1	-	2	2	-	1
CO4	3	3	2	2	3	2	-	-
CO5	3	3	3	2	3	2	-	2

Strong (3) Medium (2) Low (1)

Mrs. P.Aruna Devi — **Head of the Department**

Mrs.S.Rajapriya — **Course Designer**

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**FUNDAMENTALS OF WEB DESIGN** (offered by the Department of Computer Applications for the students other than Computer Science Discipline) **(2024-2025)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PCAN21**		Internal 25	External 75

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 : acquire knowledge of creating web pages. [K2]

CO4 : make use of HTML, CSS and Java Script to design web pages. [K3]

CO5 : analyse how the web works and the steps of creating a website using HTML, CSS and Java Script, examine G-Suite blog creation. [K4]

UNIT I

Internet Basics: Basic concepts – Communicating on the Internet – Internet domains – Internet server identities – Establishing connectivity on the Internet – Client IP address – Transmission control protocol. (12 Hours)

UNIT II

Introduction to HTML: HTML Tags – The structure of HTML program – Text formatting – Text styles – Other text effects. (12 Hours)

UNIT III

Lists: Types of lists - Adding graphics to HTML documents – Tables – Linking documents – Links – Images as hyperlinks – Frames. (12 Hours)

UNIT IV

Introduction to JavaScript: JavaScript in web pages – Basic programming techniques – Functions in JavaScript – Dialogue boxes. (12 Hours)

UNIT V

Forms used by a website – Form object – Dynamic HTML: Cascading style sheets –Class. (12 Hours)

TEXT BOOK

1. Web enabled commercial Application Development using HTML, JavaScript, DHTML and PHP by Ivan Bayross Fourth Revised Edition BPB Publications, Reprinted 2013.

REFERENCE BOOKS

1. Jennifer Niederst Robbins, Mathews Leon – Learning Web Design – A Beginners guide to HTML, CSS, JAVA SCRIPT and Web Graphics, 5th Edition.
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 24PCAN21	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	-	-	-	2	-	-
CO2	3	3	-	-	-	2	-	1
CO3	3	2	-	-	-	2	-	-
CO4	2	2	1	1	-	1	-	-
CO5	2	2	1	1	1	1	2	1

Strong (3) Medium (2) Low (1)

Dr. N. Santhi
Head of the Department

Dr. K.S. Jeyalakshmi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester II	**FUNDAMENTALS OF WEB DESIGN** (offered by the Department of Computer Applications for the students other than Computer Science Discipline) **(2025-2026 onwards)**	Hours/Week: 4	
Elective Course (NME)		Credits: 2	
Course Code **24PCAN21N**		Internal 25	External 75

COURSE OUTCOMES

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

CO1 : Gain knowledge based on the internet, web pages, HTML tags, CSS and JavaScript. [K1]

CO2 : Understand the concepts of web page creation using HTML, CSS and JavaScript. [K2]

CO3 : Acquire knowledge of creating web pages. [K2]

CO4 : Make use of HTML, CSS and JavaScript to design web pages. [K3]

CO5 : analyse how the web works and the steps of creating a website using HTML, CSS and JavaScript.[K4]

UNIT I

A Web of Structured Documents - Introducing HTML and XHTML - Basic Text Formatting - Presentational Elements – Lists - Core Elements and Attributes - Links and Navigation - Basic Links - Understanding Directories and Directory Structures - Understanding URLs - Creating Links with the <a> Element.

(12 Hours**)**

UNIT II

Adding Images Using the <img> Element - Tables - Introducing Tables - Basic Table Elements and Attributes - Adding a <caption> to a Table - Grouping Sections of a Table.

(12 Hours**)**

UNIT III

Forms- Introducing Forms - Creating a Form with the Element - Form Controls - Creating Labels for Controls and the <label> Element - Frames - Introducing the Frameset When To Use Frames.

The Element - The Element - The <noframes> Element -Creating Links between Frames.

(12 Hours)

UNIT IV

Cascading Style Sheets - Introducing CSS - Where You Can Add CSS Rules - CSS Properties - Controlling Text - Text Formatting.

(12 Hours)

UNIT V

Learning JavaScript - What Is Programming About? - How to Add a Script to Your Pages - The Document Object Model - Starting to Program with JavaScript – Variables – Operators - Functions - Conditional Statements – Looping - Events - Built-in Objects.

(12 Hours)

TEXT BOOK

1. Jon Duckett, (2010), "*Beginning HTML, XHTML, CSS, and JavaScript*", Wiley Publishing.

REFERENCE BOOKS

1. Jennifer Niederst Robbins, Mathews Leon, (2013), "*Learning Web Design – A Beginners guide to HTML, CSS, JAVA SCRIPT and Web Graphics*", 5th Edition, DreamTech Press, New Delhi.
2. Ivan Bayross, (2013), "*Web enabled commercial Application Development using HTML, JavaScript, DHTML and PHP*", 4th Revised Edition, BPB Publications.
3. Deven N. Shah (2012), "*A Complete Guide to Internet and Web Programming*", DreamTech Press, New Delhi

Course Code 24PCAN21N	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	2	2	-	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	2	2	2	1	1	2	1	-
CO4	3	1	2	1	1	2	1	-
CO5	3	1	-	-	-	3	1	1

Strong (3) Medium (2) Low (1)

Dr. N. Santhi
Head of the Department

Dr. K.S. Jeyalakshmi
Course Designer

V.V.VANNIAPERUMAL COLLEGE FOR WOMEN
(Belonging to Virudhunagar Hindu Nadars)
An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai
Reaccredited with 'A++' Grade (4th Cycle) by NAAC
VIRUDHUNAGAR
Quality Education with Wisdom and Values

Semester III	**FUNDAMENTALS OF CYBER SECURITY** (offered by the Department of Computer Applications for the students other than Computer Science Discipline) **(2024-2025 onwards)**	Hours/Week: 3	
Elective Course (NME)		Credits: 2	
Course Code **24PCAN31**		Internal 25	External 75

COURSE OUTCOMES

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

CO1 : define basic cyber security concepts, including threats, vulnerabilities, and attacks. [K1]

CO2 : explain the principles of cyber security, such as confidentiality, integrity, and availability. [K2]

CO3 : describe common security mechanisms like authentication, encryption, and firewalls. [K2]

CO4 : demonstrate how to implement basic security measures, strong passwords and two-factor authentication. [K3]

CO5 : examine various cyber attacks to understand their effects and how to prevent them. [K4]

UNIT I

History Of Internet - Internet Addresses - DNS - Internet Infrastructure - World Wide Web- Introduction To Cyber Crime - Classification Of Cyber Crimes - Reasons For Commission of Cyber Crimes - Malware And Its Type - Adware - Spyware - Browser Hijacking Software - Virus - Worms - Trojan Horse - Scareware - Kinds Of Cyber Crime - Cyber Stalking - Child Pornography - Forgery And Counterfeiting - Software Piracy And Crime Related To IPRS - Cyber Terrorism - Phishing - Computer Vandalism - Computer Hacking - Creating And Distributing Viruses Over Internet - Spamming - Cross Site Scripting - Online Auction Fraud - Cyber Squatting - Logic Bombs - Web Jacking - Internet Time Thefts- Denial Of Service Attack - Salami Attack - Data Diddling - Email Spoofing.

(9 Hours)

UNIT II

Authentication - Encryption - Digital Signatures - Antivirus - Firewall - Steganography - Computer Forensics - Why Should We Report Cyber Crime? - Introduction - Some Recent Cyber Crime Incidents - Introduction - Counter Cyber Security Initiatives in India.

(9 Hours)

UNIT III

Generating Secure Password - Guideline For Setting Secure Password - Using Password Manager - What Is A Password Manager - Why You Should Use It? - How Does It Work? - Some Popular Password Managers - Enabling Two-Step Verification - Securing Computer Using Free Antivirus - Configuring Firewall On Mac Computer - Turning On And Configuring The Mac OS X Firewall - Working With Windows Firewall In Windows - Firewall In Windows 7 - Configuring Windows Firewall - How To Start & Use The Windows Firewall With Advanced Security - How To Access The Windows Firewall With Advanced Security - What Are The Inbound & Outbound Rules? - What Are The Connection Security Rules? - What Does The Windows Firewall With Advanced Security Monitor?

(9 Hours)

UNIT IV

Finding the best browser according to the users requirement - Safe browsing - How do I know if a website is secure? - Tips for buying online - Clearing cache for browsers - Clearing cache for chrome browsers above version 10 - Clearing cache for chrome browsers from version 1 to 9 - Clearing cache for safari for IOS, iPhone and iPad - Clearing cache for Safari for MAC OS X - Clearing cache for safari for windows - Clearing cache for internet explorer 9, 10 and 11 - clearing cache for Internet Explorer 8 - Clearing cache for Firefox - Clearing cache for Firefox 33 - Clearing cache for opera - Clearing cache for CCleaner - What is wireless LAN? - Major issues with WLAN - secure WLAN - Wi-Fi at home.

(9 Hours)

UNIT V

Safe browsing guidelines for social networking sites - General tips on using social networking platforms safely - Posting personal details - Friends, followers and contacts - Status updates - Sharing online content - Revealing your location - Sharing videos and photos - Instant chats - Joining and creating groups, events and communities - Email security tips - Smartphone Security Guidelines - Purses, Wallets, Smartphones - Platforms, Setup And Installation - Platforms and Operating Systems - Feature Phones - Branded and locked smartphones -

General Setup - Installing and updating applications - Communicating securely (through voice and messages) with a smartphone - Secure Voice Communication - Sending Messages Securely - Storing Information on your Smartphone - Sending Email from your Smartphone - Capturing Media with your Smartphone - Accessing the Internet Securely from your Smartphone - Advanced Smart Phone Security.

(9 Hours)

TEXT BOOK

Dr.Jeetendra Pande, (2017), "*Introduction to Cyber Security*" Published by Uttarakhand Open University.

REFERENCE BOOKS

1. Anthony Reyes, Kevin O'Shea, Jim Steele, Jon R. Hansen, Captain Benjamin R. Jean Thomas Ralph, (2007), "*Cyber-crime investigations" - Bridging the gaps between security professionals, law enforcement and prosecutors".*
2. Mayank Bhushan, Rajkumar Singh Rathore, Aatif Jamshed, (2017), "*Fundamentals of Cyber Security*" BPB Publications.
3. John G.Voller Black and Veatch, (2014), "*Cyber Security*", Wiley & Sons, Inc., Hoboken, New Jersey.

Course Code 24PCAN31	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	-	-	-	-	2	-	-
CO2	3	-	-	-	-	2	-	1
CO3	3	-	-	-	-	2	-	-
CO4	2	2	-	-	-	1	-	-
CO5	2	2	1	1	1	1	2	1

Strong (3) Medium (2) Low (1)

Dr. N. Santhi
Head of the Department

Dr. N. Santhi
Course Designer