



## ISLAMIYAH WOMEN'S ARTS AND SCIENCE COLLEGE

Recognised by the UGC under Section 2(f) and 12(B) of UGC Act 1956

Permanently Affiliated with Thiruvalluvar University and

Approved by the Government of Tamil Nadu

Accredited by NAAC with "B" Grade

#10, BYPASS ROAD, NEWTOWN, VANIYAMBADI – 635 752

Phone: 04174 – 235266

### PO, PSOs and COs

Sl.No	Department	Regulation
1	PG AND RESEARCH DEPARTMENT OF ENGLISH	2017-18 (III YEAR) 2020-21 (I & II YEAR)
2	LANGUAGE (TAMIL)	2020-21 (I & II YEAR)
3	DEPARTMENT OF BUSINESS ADMINISTRATION	2017-18 (III YEAR) 2020-21 (I & II YEAR)
4	DEPARTMENT OF COMPUTER APPLICATIONS	2017-18 (III YEAR) 2020-21 (I & II YEAR)
5	PG DEPARTMENT OF COMPUTER SCIENCE	2017-18 (III YEAR) 2020-21 (I & II YEAR)
6	DEPARTMENT OF COMMERCE (COMPUTER APPLICATIONS)	2017-18 (III YEAR) 2020-21 (I & II YEAR)
7	PG AND RESEARCH DEPARTMENT OF COMMERCE	2017-18 (III YEAR) 2020-21 (I & II YEAR)
8	PG DEPARTMENT OF BIOCHEMISTRY	2017-18 (III YEAR) 2020-21 (I & II YEAR)
9	PG DEPARTMENT OF NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS	2017-18 (III YEAR) 2020-21 (I & II YEAR)
10	DEPARTMENT OF CHEMISTRY	2017-18 (III YEAR) 2020-21 (I & II YEAR)
11	LANGUAGE(URDU)	2020-21 (I & II YEAR)
12	DEPARTMENT OF INTERIOR DESIGN AND DECOR	2017-18 (III YEAR) 2020-21 (I & II YEAR)
13	PG AND RESEARCH DEPARTMENT OF MATHEMATICS	2017-18 (III YEAR) 2020-21 (I & II YEAR)
14	DEPARTMENT OF ZOOLOGY	2020-21 (I & II YEAR)



  
Principal  
Islamiyah Women's Arts and Science College  
Vaniyambadi - 635 752



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### **PG & RESEARCH DEPARTMENT OF ENGLISH**

#### **B.A (ENGLISH)**

#### **PROGRAMME OUTCOMES**

PO1: Able to have a holistic understanding of English literature.

PO2: Able to develop a sense of social responsibility

PO3: Able to have environmental awareness.

PO4: Able to preserve cultural values.

PO5: Able to develop compassion for fellow human beings.

PO6: Able to learn lessons from the prescribed texts.

PO7: Able to motivate others.

PO8: Able to appreciate the positive traits.

PO9: Able to empower the weak towards betterment.

PO10: Able to live and motivate others to live

#### **PROGRAMME SPECIFIC OUTCOMES**

PSO1: Able to understand and appreciate the language of literary works.

PSO2: Able to communicate confidently in real life's situation.

PSO3: Able to write in flawless language.

PSO4: Able to interpret different genres.

PSO5: Able to face the competitive job market.

PSO6: Able to develop their personality.

PSO7: Able to develop attitude in challenging situations.

PSO8: Able to acquire analytical skills.

PSO9: Able to comprehend the nuances of life.

PSO10: Able to develop leadership qualities

## **COURSE OUTCOME**

### **SEMESTER I**

**COURSE: COMMUNICATIVE ENGLISH I (ENGLISH) CREDIT: 4**

CO1: Understand and analyze different genres of Poetry and poetical rhythm.

CO2: Classify the different themes and concepts of Prose.

CO3: Inculcate some basic ethics and morals by understanding how characters are portrayed.

CO4: Understand the function of Grammar and able to frame own sentences.

**COURSE: INDIAN WRITING IN ENGLISH (CORE PAPER)**

**CREDIT: 3**

CO1: To understand the various features of Indian Literature in English.

CO2: To get a glimpse of the regional literatures in English.

CO3: To make the students be aware of the superstitious practices in Indian culture.

CO4: To inculcate the spiritual and moral values from the Indian Sages.

CO5: To analyze the aspects of Indian in Indian writing in English.

**COURSE: ADVANCED ENGLISH GRAMMAR (CORE PAPER)**

**CREDIT: 3**

CO1: Analyze different ways in which grammar has been described

CO2: Understand the difference between Spoken and Written.

CO3: Compare and Contrast various Components of grammar , using examples

CO4: Identify the grammatical structure

CO5: Recognize the various rules of grammar.

**COURSE: LITERARY FORMS AND GLOSSARY OF TERMS (ALLIED)**

**CREDIT: 3**

CO1: Acquaint with minor forms of Literature in English.

CO2: Classify the correct usage of terms

CO3: Analyze the particular forms literally

CO4: Expose and explain with examples about the literary devices used.

**COURSE: PROFESSIONAL ENGLISH –I (PE)**

**CREDIT: 3**

CO1: To develop the Language skills of students by offering adequate practice in professional context.

CO2: To enhance the lexical, grammatical and socio-linguistic and Communicative competence.

CO3: To develop strategic competence will help in efficient communication.

CO4: To sharpen students critical thinking skills and makes students naturally aware of the target situation.

**SEMESTER II**

**COURSE: COMMUNICATIVE ENGLISH -II(ENGLISH)**

**CREDIT: 4**

CO1: Understand and analyze different genres of Poetry and poetical rhythm.

CO2: Classify the different themes and concepts of Prose.

CO3: Inculcate some basic ethics and morals by understanding how characters are portrayed.

CO4: Understand the function of Grammar and able to frame own sentences.

**COURSE: BRITISH LITERATURE I (CORE PAPER)**

**CREDIT: 3**

CO1: Recognize different author's creative and imaginative writings through poetry.

CO2: Identify social status, class system that prevailed in Britain.

CO3: Compare and contrast between different characters.

CO4: Produce their own historical analysis and develop historical knowledge.

**COURSE: AMERICAN LITERATURE I (CORE PAPER)**

**CREDIT:3**

CO1: Identify the variety of forms and genres of poetry from diverse cultures, epic, free verse.

CO2: Explain the concepts of American Literature.

CO3: Analyze the major themes of American Literature.

CO4: Use historical sources and historical contexts.

**COURSE: SOCIAL HISTORY OF ENGLAND (ALLIED) CREDIT: 5**

CO1: Understand the antiquities of England.

CO2: Define religious groups like Catholics, Puritanism, and Protestantism.

CO3: Classify the periods like Elizabethan, Queen Anne, and Victorian.

CO4: Compare and contrast the growth of England.

**COURSE: PROFESSIONAL ENGLISH –II (PE) CREDIT: 3**

CO1: Develop their competence in the use of English with particular reference to the workplace situation.

CO2: Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the work place.

CO3: Develop their competence and competitiveness and thereby improve their Employability skills.

CO4: Helps students with a research bent of mind develops their skills on writing reports and research proposals

**SEMESTER III**

**COURSE: FOUNDATION III CREDIT: 4**

CO1: Understand and analyze different genres of Poetry and poetical rhythm.

CO2: Classify the different themes and concepts of Prose.

CO3: Inculcate some basic ethics and morals by understanding how characters are portrayed.

CO4: Understand the function of Grammar and able to frame own sentences.

**COURSE: BRITISH LITERATURE II (CORE PAPER) CREDIT: 4**

CO1: Recognize different author's creative and imaginative writings through poetry.

CO2: Identify social status, class system that prevailed in Britain.

CO3: Compare and contrast between different characters.

CO4: Produce their own historical analysis and develop historical knowledge.

## **COURSE: INTRODUCTION TO ENGLISH PHONETICS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Student gets knowledge about medium of speech and medium of writing.

CO2: Students are taught about intricacies of articulating English sounds.

CO3: Students enrich information about understanding English Phonetics.

CO4: Students attempt to represent Written Language using marks on Phonetics sounds.

## **COURSE: HISTORY OF ENGLISH LITERATURE I (ALLIED)**

**CREDIT: 3**

CO1: Classify the various contributions of writers in the age of Chaucer.

CO2: Understand religious changes that occurred during the development of Drama.

CO3: Describe the life and works of Shakespearean Era.

CO4: Examine the writing style of Milton's age.

CO5: Evaluate the works of writer's in the age of Dryden.

## **COURSE: SKILLS FOR EMPLOYMENT I**

**(SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: Define the values and career choices through individual skill assessment.

CO2: Apply the necessary steps to achieve the goal.

CO3: Develop and practice the skills for the better communication.

CO4: Improve personality development.

## **COURSE: LANGUAGE SKILLS & COMMUNICATION I**

**(NME)**

**CREDIT: 2**

CO1: Understand different people at different level.

CO2: Apply the learned skill in communication.

CO3: Improve communication skills.

CO4: Develop personality.

## **SEMESTER IV**

### **COURSE: FOUNDATION IV**

**CREDIT: 4**

CO1: Understand and analyze different genres of Poetry and poetical rhythm.

CO2: Classify the different themes and concepts of Prose.

CO3: Inculcate some basic ethics and morals by understanding how characters are portrayed.

CO4: Understand the function of Grammar and able to frame own sentences.

### **COURSE: BRITISH LITERATURE III (CORE PAPER)**

**CREDIT: 4**

CO1: Recognize different author's creative and imaginative writings through poetry.

CO2: Identify social status, class system that prevailed in Britain.

CO3: Compare and contrast between different characters.

CO4: Produce their own historical analysis and develop historical knowledge.

### **COURSE: HISTORY OF ENGLISH LANGUAGE**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Able to define language.

CO2: Classify the various stages of development of English language.

CO3: Compare and contrast the varieties of English used all over the world.

CO4: Understand clearly the coining of different words through different languages spoken in the world.

### **COURSE: HISTORY OF ENGLISH LITERATURE II**

**(ALLIED)**

**CREDIT: 5**

CO1: Classify the various contributions of writers in the age of Pope.

CO2: Understand social strategies that occurred during the development of Johnson's Era.

CO3: Describe the development of prose in the age Wordsworth.

CO4: Examine the role of novel in the age of Tennyson.

CO5: Evaluate the works of Hardy.

**COURSE: WRITING FOR SPECIAL PURPOSE**

**(SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: Define the values and career choices through individual skill assessment.

CO2: Apply the necessary steps to achieve the goal.

CO3: Develop and practice the skills for the better communication.

CO4: Improve personality development.

CO5: Enable students to learn the techniques of writing

CO6: To help them become more competent and confident writers.

**COURSE: LANGUAGE SKILLS & COMMUNICATION II**

**(NME)**

**CREDIT: 2**

CO1: Understand different people at different level.

CO2: Apply the learned skill in communication.

CO3: Improve communication skills.

CO4: Develop personality.

**SEMESTER V**

**COURSE: BRITISH LITERATURE IV (CORE PAPER)**

**CREDIT: 4**

CO1: Compare and contrast British Literature with Indian Literature.

CO2: Outline the study of Elizabethan Age.

CO3: Analyze the growth of English Literature.

CO4: Understand the history of British Literature.

CO5: To introduce Twentieth century British literature.

CO6: To comprehend the development of trends in British literature.

CO7: To view British literature in its socio-cultural and political contexts.

CO8: To understand the theme, structure and style in twentieth century British literature.

CO9: To learn interpretative techniques like modernism and post-modernism in order to apply



in the literary texts of various genres.

**COURSE: SHAKESPEARE (CORE PAPER)**

**CREDIT: 4**

CO1: To make students understand the characteristics of Shakespearean tragedy

CO2: To stress the significance of filial love

CO3: To enable the students to appreciate the qualities of Shakespearean comedy

CO4: To show how Shakespeare excels as poet

CO5: To give a brief introduction to Shakespearean criticism

**COURSE: LITERARY CRITICISM (CORE PAPER)**

**CREDIT: 4**

CO1: Develop student's ability to understand a literary piece.

CO2: Develop the ability to conduct literary research.

CO3: Examine the representative text of the seminal literary critics.

CO4: Understand intrinsic and extrinsic criticism.

CO5: Expose to the concept of the historical perceptions over the centuries.

CO6: Understand the relationship between literature and criticism

CO7: Understand Aristotle's concept of Tragedy

CO8: Understand that the end result of novel as the whole man alive

CO9: Understand T.S. Eliot as a modern critic

CO10: Understand current literary theory

**COURSE: SUBALTERN LITERATURE (CORE PAPER)**

**CREDIT: 4**

CO1: To know the themes of subaltern poetry

CO2: To critically analyses the poems of subaltern literature

CO3: To know the theme of marginalization in Chinua Achebe's The Sacrificial Egg and Mahaswethadevi's Draupadhi.

CO4: To appreciate the plays of subaltern playwrights, Asif Currimbhoy and Wole Soyinka

CO5: To know the theme of hegemony in the novels of Amitav Ghosh and Khalid Hosseini

**COURSE: JOURNALISM (INTERNAL ELECTIVE) CREDIT: 3**

CO1: To give students a better understanding on the development of history journalism in global and Indian context.

CO2: Introduce students the concept related to News and Journalistic practice

CO3: Ignites knowledge of professional Journalism and helps students to strengthen the underpinnings of journalism.

CO4: Stimulates the students on getting knowledge about how newspaper encourages photo-journalism development.

CO5: Prepares students as a good reporter and capable interpreter of society

CO6: Imparts knowledge of sciences and history of arts to make one's way up in a world to meet out increasingly demanding competence in the field of journalism.

CO7: Modality prepares a student to learn how to write editorials columns and feature articles.

CO8: Classify newspaper as a recorder of news and events.

**COURSE: CONTENT WRITING (SKILL BASED SUBJECT) CREDIT: 3**

CO1: Expose students of English literature to the world of „, and creation“.

CO2: By providing a platform for writing contents for Advertisement, Websites, Product descriptions and Social media contents ( for clients to express, inform, entertain or persuade the audience/ readers) enhances the artistic and analytic function of the student.

CO3: Writing will play a vital role in the era of “startups”. With technical expertise along with good writing skills can provide a great career opportunity to a student

**SEMESTER VI**

**COURSE: CONTEMPORARY LITERATURE**

**(CORE PAPER)**

**CREDIT: 5**

CO1: To introduce a wide range of contemporary literature.

CO2: To understand the variety of existing literary culture.

CO3: To expose the students to know the development of English language

CO4: To expose the students to know to variety of characters

CO5: To promote the students to read contemporary literature.

## **COURSE: INDIAN WRITING IN TRANSLATION**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To introduce the student to the polyphony of modern Indian literature in translation.

CO2: To understand the multi-faceted nature of cultural identities in the various Indian literature in translation.

CO3: To compare literary texts produced across Indian regional landscapes to seek similarities and differences in thematic and cultural perspectives.

CO4: To explore images in literary productions those express the writer's views on their society.

CO5: To enable the students to understand and appreciate the richness and complexities of the respective languages

## **COURSE: NEW LITERATURES IN ENGLISH (CORE PAPER)**

**CREDIT: 4**

CO1: To introduce the finest works in English belonging to various countries.

CO2: To give insight into the dogma free world of spiritualism.

CO3: To enable the students to analyze literary works from different environment and different cultures.

CO4: To show how English language has become a tool against colonialism.

CO5: To give an objective view of dichotomies in society.

CO6: Understand the cultural dominance, inequality with peculiar presentation.

## **COURSE: ENGLISH FOR INFORMATION TECHNOLOGY**

**(INTERNAL ELECTIVE)**

**CREDIT: 3**

CO1: To make students familiar with internet and its usage

CO2: To help them learn the basic ways of exploring internet

CO3: To enhance their knowledge of using multimedia.

CO4: To improve their knowledge of computer in learning and teaching English

CO5: To enable them create their own blogs and web page

**COURSE: CREATIVE WRITING (INTERNAL ELECTIVE) CREDIT: 3**

CO1: To know the process of beginning and growth of English Language.

CO2: To write travelogues and advertisements

CO3: To write scripts for TV and Radio Programs.

CO4: To write clearly and effectively and creatively.

**COURSE: ENGLISH LANGUAGE AND TEACHING**

**(SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Explain various teaching strategies.

CO2: Determine the aims of English Language teaching.

CO3: Compute with new methodology of teaching.

CO4: Evaluate the basic concept and principles of English Language teaching



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### **M.A (ENGLISH)**

#### **PROGRAMME OUTCOMES**

PO1: Learn and interpret old style of English.

PO2: Able to represent different ages and their classes.

PO3: Able to communicate effectively with proper pronunciation.

PO4: Able to create specific skills in learning creative performance.

PO5: Able to create ecological concern.

PO6: Able to create Motivational writings.

PO7: Re explore political, social and economic role in literature.

PO8: Circumstances for the formulation of Diasporas' communities can be learnt.

PO9: Get an idea of validity and reality.

PO10: Understand the changing trends of English literature and higher education.

#### **PROGRAMME SPECIFIC OUTCOMES**

PSO1: Learn and understand the literary terms and forms.

PSO2: Able to interpret the concepts of modernism and postmodernism.

PSO3: Able to link the relationship between language and literature

PSO4: Understand and analyse the sufferings of the natives of different countries.

PSO5: Subaltern thoughts are discussed via criticism.

PSO6: Rein force student's literary competence.

PSO7: Translation work is done.

PSO8: Differentiate between feminism and womanise.

PSO9: Learn and understand language teaching theories.

PSO10: Understand the relevance of studying classic texts.

## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: BRITISH POETRY (CORE PAPER)**

**CREDIT: 4**

CO1: To sensitize them to feel the pulse of poetic expression by making them understand and appreciate beat, rhythm, rhyme, etc.

CO2: To enable them to understand the concepts related to Elizabethan I, Metaphysical, Romantic, Victorian, Modern & Postmodern poetry, to name a few

CO3: To make them appreciate poetry by critically analyzing the poems in terms of theme, content, background, etc.

CO4: Students will be able to learn the metaphysical poets and their style of writings.

CO5: Students will be able to know the love and lust towards opposite gender

#### **COURSE: AMERICAN LITERATURE (CORE PAPER) CREDIT: 4**

CO1: To enable the students to have an overview of major authors who have given significant contributions to the development of American literature.

CO2: The social and political events that have influenced the literary movements can be understood by the study of representative authors.

CO3: Students will be able to know the prominent women writers

CO4: Students will be able to distinguish the various thinking of American society

CO5: Students will be able to understand transcendentalists and naturalists

CO6: Students will be able to learn the seclusion temper and patriarchal society

#### **COURSE: INDIAN LITERATURE IN ENGLISH (CORE PAPER)**

**CREDIT: 4**

CO1: To help the students appreciate the richness in Indian writing in English.

CO2: To acquaint the students with the eminent Indian writers in English.

CO3: Students will be able to know the complete picture of Indian writers and their uniqueness

CO4: Students will come to know the traditional and cultural background

CO5: Students will acquire the idea about the customs and superstitious belief of Indian

**COURSE: ADVANCED LINGUISTICS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To enrich learners with the knowledge of the scientific study of language and to provide insights into the nature of language.

CO2: To familiarize learners with the discourse of linguistics and to provide exposure to the variety of theoretical and practical manifestations of linguistics.

CO3: To enable students to gain an informed approach on how language interfaces with literatures as well as with societal concerns and also to show how it feels into the discipline of cognitive sciences

CO4: Students will be able to understand the importance of language

CO5: Students will learn how the language has emerged

**COURSE: FOLK TALE AND MYTH (CORE ELECTIVE)**

**CREDIT: 3**

CO1: Students will be able to know folklore and myth.

CO2: Students will be able understand folk literature.

CO3: Students will be able to come to know the culture of the Greek and Italian writers.

CO4: Students will be able to learn and apply richness of Folk Literature.

CO5: Students will be able to get the knowledge about myth criticism.

**COURSE:PUBLIC SPEAKING AND CREATIVE WRITING**

**(OPEN ELECTIVE)**

**CREDIT: 3**

CO1: To help students understand the techniques of Creative Writing

CO2: To give practice in Writing

CO3: To enable students write any Creative Form of Literature Students will be able to understand the features of writings

CO4: Students will be able to understand how to proof read and edit

CO5: Students will be able to become the best writer with unique styles

CO6: Students will understand the taste of poem

## **SEMESTER II**

### **COURSE: BRITISH DRAMA (CORE PAPER)**

**CREDIT: 4**

CO1: The students will also acquire and develop histrionic skills.

CO2: Students in drama and theatre arts will learn the importance of responsibility to their community

CO3: Analyze, interpret and evaluate the dramatic literature and theatrical productions.

CO4: Demonstrate proficiency in specific skills like: acting, directing, choreography, play writing or dramaturgy.

### **COURSE: TRANSLATION THEORY AND PRACTICE**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To make the students learn about the history of translation.

CO2: To understand the challenges and identify the problems of translation.

CO3: To carry out translation exercises.

CO4: To recognize the impact and aspects of translation.

CO5: To understand the target language and its art of process, products and reproduction of translation.

### **COURSE: CONTEMPORARY LITERARY THEORY –I**

**(CORE PAPER)**

**CREDIT:4**

CO1: To help the students understand literary theory as a system to critically interpret literary texts.

CO2: To enable the students to understand the broad spectrum of thought that is covered by literary theory and also to enhance their literary research.

CO3: Enhances the students to develop critical skills, analysis and much other communication skills-oral and written.

CO4: Students are finally equipped with various tools, techniques and strategies of interpretation.



## **COURSE:NEW LITERATURE IN ENGLISH (CORE ELECTIVE)**

**CREDIT: 4**

CO1: The course aims to develop the students in a comprehensive understanding of the finest works English, belonging to post-colonial countries.

CO2: To familiarize with some of the greatest writers and cultures in those countries

CO3: Critically examines the New Literature thoughts and pain expressed through the various work.

CO4: Poetry discusses the cultural pain of the people. ∞ The expression of Woman to her child are expressed

## **COURSE:JOURNALISM AND MASS COMMUNICATION**

**(OPEN ELECTIVE)**

**CREDIT: 3**

CO1: To enable the students to get knowledge of the press, its history and other media.

CO2: To know the uses and Importance of the Mass Media.

CO3: To get the knowledge of Print Media.

CO4: To evaluate the worthiness of Media.

## **SEMESTER III**

### **COURSE: NON-FICTIONS AND PROSE**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To familiarize the student with the essays of Francis Bacon, his-epigrammatic style and aphorisms.

CO2: To acquaint the student with the Holy Bible, its language and the Utopia as an ideal state

CO3: To enjoy autobiographical elements of Charles Lamb's essays, his unique style, pathos and humor, the personal essay of the Romantic age

CO4: To probe the philosophical thought of Russell, the Post-Colonial aspects as highlighted in George Orwell.

CO5: To acquaint the students with the critical views of T.S. Eliot on the metaphysical poets

like Donne and assimilate their literary content

CO6: To impart the role of humor in everyday life - how an ordinary incident acquires philosophical dimensions in G.K Chesterton.

## **COURSE: RESEARCH METHODOLOGY**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To help students prepare a Dissertation of their own

CO2: To prepare students for quality research in future

CO3: To train students in using parenthetical documentation as recommended in MLA Hand Book

CO4: To learn regarding the concept, definition and variable

## **COURSE: CONTEMPORARY LITERARY THEORY – II**

**(CORE PAPER)**

**CREDIT: 4**

CO1: The aim of this course is to familiarize students with major trends in twentieth century literary Theory in order to explore ongoing debates in literary criticism and their application in critical practice

CO2: Students would be expected to acquaint themselves with the principal hypotheses and reading strategies of the following schools to see how each critical practice includes and excludes issues relevant to other practices.

CO3: Enhances the students to develop critical skills, analysis and many other communication skills, oral and written.

CO4: The students are firmly equipped with various tools, techniques and strategies of interpretation.

## **COURSE: AFRICAN AND CANADIAN WRITINGS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: To make the students acquainted with the emerging literatures of the particular countries

CO2: To know more about the exploited people.

CO3: Open up new avenues for their future research work.

CO4: Exposure to thoughts of the oppressed.

CO5: Reaction of the Colonized people.

**COURSE: CHILDRENS LITERATURE (CORE ELECTIVE)**

**CREDIT: 3**

CO1: To enable students to get a glimpse of worldwide trends in children's prose

CO2: To let the students aware of the variety of children's fiction

CO3: To enable the students to understand and appreciate world drama meant for children

CO4: To enlighten students about the richness of folk tales and wonder of comic strips

**COURSE: SOFT SKILLS (OPEN ELECTIVE)**

**CREDIT: 3**

CO1: To enhance the language skill of the learner

CO2: To provide LSRW skills.

CO3: To build the Fluency of the learner.

CO4: Role of Public speaking and telephonic conversation.

CO5: Highlighting Business presentation.

**SEMESTER IV**

**COURSE: WORLD LITERATURE IN TRANSLATION**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Translation theory helps the students to learn it as an interdisciplinary study and to borrow from the various fields of study that supports translation

CO2: It helps the students to learn the theory of description and application of translation to interpret and localize.

CO3: It disseminates literatures around the world

**COURSE:SHAKESPEARE (CORE PAPER) CREDIT: 4**

CO1: To know about the English folklore and Shakespeare's use of illusions in the form of fairies.

CO2: To know about the use of catharsis in tragedy through the character of Hamlet.

CO3: To enable students to learn about the history of Henry IV presented in the art form of drama.

CO4: To enable students learn about political intrigue, power struggles, war and the plight of impassioned lovers.

CO5: To make students learn about the varieties of interpretations on the works of Shakespeare and encourage them to critically appreciate his work.

**COURSE: SINGLE AUTHOR STUDY (CORE PAPER)**

**CREDIT: 4**

CO1: To make the students learn the various forms of genre of a single author

CO2: To make the students explore the works of Rabindranath Tagore.

CO3: The poetic outburst of Tagore

CO4: Tagore's foreseeing in his works.

CO5: In Views of Tagore's Modernity in his writings.

CO6: The sound exposure and experience of the Tagore's dramatic views.

**COURSE: GENDER STUDIES (CORE ELECTIVE)**

**CREDIT: 3**

CO1: To make students familiarize themselves with different waves of feminism, demonstrate logical reasoning regarding the perception of the female sex by the male. Beginning of the second wave of feminism.

CO2: A lecture which emphasizes the need for a woman to own a room and money to be able to write. Brings an understanding of women's plight in the male dominated society.

CO3: Women's struggle to succeed amidst the stereotypes, especially that of Virginia Woolf whilst suffering from man's dominance.

CO4: A rewriting of mythological stories. Revisiting myth and presenting them through

the feminist eyes.

CO5: A symbolic representation of women trapped in a male body to portray the real

**COURSE: FANTASY FICTION (OPEN ELECTIVE)**

**CREDIT: 3**

CO1: To introduce students to various definitions of fantasy fiction

CO2: To improve the imagination of students.

CO3: To introduce students to the history of fantasy fiction

CO4: To Sketch the growth of fantasy Fiction through ages.

CO5: To build their imagination through the story.

CO6: To realize the importance of creativity.



## **ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE**

Recognised by the UGC under Section 2(f) and 12(B) of UGC Act 1956

Permanently Affiliated with Thiruvalluvar University and

Approved by the Government of Tamil Nadu

Accredited by NAAC with "B" Grade

#10, BYPASS ROAD, NEWTOWN, VANIAMBADI – 635 752

Phone: 04174 – 235266

### **LANGUAGE (TAMIL)**

#### **PROGRAM SPECIFIC OUTCOMES**

PSO1: Understand the Indian & Tamilans culture of ancient Tamilians especially Period of Liberation & after Independence

PSO2: Understand the values for life through Thirukkural& Epics

PSO3: Understand Tamil Devotion Literature on Saivism, Vashnavism, Islam, and Christians.

PSO4: Understand the 20th century poet and poetry's, Types of Tamil Grammar, Foreign words & Glossaries.

#### **COURSE OUTCOME**

#### **SEMESTER I**

#### **COURSE: LANGUAGE (TAMIL)**

**CREDIT: 4**

CO1: Able to write poetry

CO2: To know about 20<sup>th</sup> century Poets History

CO3: To Learning patriotic, History through Poem, & Prose

CO4: To create awareness on Social evils among students.

CO5: Understand and practice the foreign words, methods to write prose and poetry without errors, & Types of Tamil Grammar

## **SEMESTER II**

### **COURSE: LANGUAGE (TAMIL)**

**CREDIT: 4**

CO1: Understand devotional Literature

CO2: To Learn Good Manners

CO3: To knowing the glories of the Lord (Siva, Vishnava, Islamic & Christian)

CO4: Develop the knowledge to interviews and learning to prepare reports

## **SEMESTER III**

### **COURSE: LANGUAGE (TAMIL)**

**CREDIT: 4**

CO1: Cultivate a sense of discipline and lead life of integrity through Thirukkural

CO2: Analyze the importance of family values, humanity and honesty through Kappiyangal

CO3: Able to lead the life of purity by comprehending devotional Literature

CO4: Develop a humanitarian outlook.

CO5: Able to prepare Bio-Data, Agenda, Report, Personal and Official letters

### **COURSE: BASIC TAMIL**

**CREDIT: 2**

CO1: Understand basics of Tamil Language

CO2: Enables them to enhance their language skills.

CO3: Enables them to develop creative reading and writing.

CO4: Able to participate in dialogue without any difficulty

## **SEMESTER IV**

### **COURSE: LANGUAGE (TAMIL)**

**CREDIT:4**

CO1: Recognize the excellence of ancient Tamil literature

CO2: Develop interest in Sangam literature

CO3: Understand the customs and manners of Tamil Language

CO4: Develop the noble attitudes, relationship with other organisms and living a good life

CO5: Develop the skill of Translation.

**COURSE: BASIC TAMIL**

**CREDIT: 2**

CO1: Learn and practice the methods of writing sentence without errors.

CO2: Understand social value of short stories and develop creative skills.

CO3: Learn Translation and Interviews.





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### **B.B.A (DEPARTMENT OF BUSINESS ADMINISTRATION)**

#### **PROGRAMME OUTCOMES (PO)**

- PO1: Ability to apply knowledge of management theories and practices to solve business problems.
- PO2: Ability to foster analytical and critical thinking for data-based decision making.
- PO3: Ability to develop interpersonal skills to communicate effectively.
- PO4: Ability to analyze the various accounting concept to take decisions and prepare the trial balance and Balance sheet, etc.,
- PO5: To start business and become self-reliant and self-employed.
- PO6: Ability to identify and address ethical issues and apply them in organizational settings.
- PO7: Ability to continuously learn and adapt to the dynamics of business and society.

#### **PROGRAM SPECIFIC OUTCOMES (PSO)**

- PSO1: To provide conceptual and depth knowledge of various functional areas of business enterprise.
- PSO2: To impart and encourage Learn to work in teams
- PSO3: To impart and understand the elements of the complex world of business.
- PSO4: To impart knowledge of field visit and training to use techniques of Management
- PSO5: To build up self - confidence and ability in students to take up self - serviceable business ventures.
- PSO6: To build skills to apply knowledge in project report writing.
- PSO7: To impart moral values and social responsibilities
- PSO8: To imparts the students to identify their own values.

## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: PRINCIPLES OF MANAGEMENT**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Understand the concept of management.

CO2: Able to plan and make decisions.

CO3: Able to differentiate organization structure and know the functioning.

CO4: Able to delegate work, differentiate between power and authority.

CO5: Able to coordinate activities in an organization.

#### **COURSE: BUSINESS MATHEMATICS AND STATISTICS – I**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Able to apply basic terms of statistical data solving practical problems field of business.

CO2: Able to explain basic methods of measure of central tendency.

CO3: Able to solve problems in the areas of simple and compound interest account, use of compound interest.

CO4: Able to discuss effects of various types and methods of interest account.

CO5: Able to connect acquired knowledge and skills with practical problems.

#### **COURSE: BUSINESS ORGANIZATION (ALLIED)**

**CREDIT: 3**

CO1: Understand the basic fundamentals of the business organization.

CO2: Attain the knowledge of various forms and types of the business organization.

CO3: Understand the main working aspects of organizations.

CO4: Acquires in depth understanding of the stock exchanges and its functions.

CO5: Gain knowledge about Trade Associations and Chamber of commerce.

## **SEMESTER-II**

### **COURSE: BUSINESS ENVIRONMENT (CORE PAPER) CREDIT: 3**

CO1: Able to learn about the factor affecting the business environment.

CO2: Understand the economic system influencing the organization and the impact from macro-economic parameters, GDP, growth rate, population and fiscal deficit.

CO3: Able to understand the political environment, government and business relationship in India.

CO4: Able to know the non-banking financial companies and NBFC's influence in the organizations.

### **COURSE: BUSINESS MATHEMATICS AND STATISTICS – II (CORE PAPER) CREDIT: 3**

CO1: Identify statistical tools needed to solve various business problems.

CO2: Able to find out the correlation and regression.

CO3: Develop time series component of time series secular trend seasonal variation, cyclical variation, irregular variation.

CO4: Students can use index number, weighted and UN weighted index numbers in practical applications.

### **COURSE: PRINCIPLES OF BANKING SYSTEM (ALLIED) CREDIT: 5**

CO1: Able to know the origin of banks and concept of social responsibility of banks.

CO2: Able to know the role played by the banking sector.

CO3: Understand the various public and private sector banks in India.

CO4: Understand the functions of modern commercial banks.

CO5: Able to learn various financial services which are useful in the economy.

## **SEMESTER- III**

### **COURSE: PRODUCTION AND MATERIAL MANAGEMENT**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Understand the concept of operations and relationship between operations and other business functions.

CO2: Analyses and evaluate various production and scheduling techniques, and to identify appropriate location for factories.

CO3: Able to implement work and method study procedures.

CO4: Able to plan and implement suitable materials planning principles and practices in operations.

CO5: Able to plan and implement store keeping and material handling and to rate vendors.

### **COURSE: FINANCIAL ACCOUNTING (CORE PAPER)**

**CREDIT: 4**

CO1: Understand the basic concepts, rules and principles of accounting.

CO2: Understand the concepts of subsidiary books.

CO3: Able to know the preparation of financial accounting, procedure to prepare trading, profit and loss account and balance sheet.

CO4: Able to know the procedure for issue, reissue and forfeiture of shares.

CO5: Know the different method for calculating the single entry system and their uses.

### **COURSE: HUMAN RESOURCE MANAGEMENT**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Understand the concepts, and basic functions of human resource management.

CO2: Learn the implementation and evaluation of employee recruitment and selection process.

CO3: Acquire the knowledge in identifying the training needs and methods.

CO4: Understand the need and methods of performance appraisal.

CO5: Analyse the key issues related to compensation, mentoring, career planning, promotion, transfers and termination.

**COURSE: MANAGERIAL ECONOMICS (CORE PAPER) CREDIT: 4**

CO1: Understand the concepts and reasons of existence of firms and optimal decision making.

CO2: Learn to analyse the market supply and demand on market dynamics.

CO3: Acquire knowledge on production and cost analysis.

CO4: Able to know the applications of price discrimination.

CO5: Able to analyse the output decision of monopolistic and oligopolistic firms.

**COURSE: OFFICE MANAGEMENT (ALLIED) CREDIT: 3**

CO1: Understand the management of office, methods and environment.

CO2: Attain the knowledge of location, layout and the environment of an office.

CO3: Recognize the use of office furniture, appliances and equipment's.

CO4: Handling of inward mail and outward mail service and to know the mechanical devices for written communication.

CO5: Understand the responsibilities and skills required by the office manager and the skill of record management.

**COURSE: BUSINESS COMMUNICATION (SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: Understand communication methods and its types.

CO2: Able to distinguish among various levels of organizational communication and its process.

CO3: Trained in effective business writing and acquire in depth understanding of economic and cultural environment of tourism.

CO4: Able to understand the various traditional and modern equipment used for communication.

**COURSE: MEDICINAL CHEMISTRY (NME) CREDIT: 3**

CO1: Understand chemical constituents of medicinal plants

CO2: Compare the biological functions of Vitamins

CO3: Analyze the use of drugs for diseases

## **SEMESTER-IV**

### **COURSE: ORGANIZATIONAL BEHAVIOUR (CORE PAPER)**

**CREDIT: 4**

CO1: Able to know the importance of organizational behavior, factors influencing organizational behavior and its historical development.

CO2: Analyze the use of group cohesiveness and group dynamics.

CO3: understand and recognize how the leadership styles are followed in the organization.

CO4: Understand the significance of organizational culture in functioning an organization.

CO5: Able to evaluate the culture and conflicts prevail in the organization.

### **COURSE: TAXATION (CORE PAPER)**

**CREDIT: 4**

CO1: Able to understand the concept of indirect tax and to know current taxation structure prevailing in India.

CO2: Able to understand the concepts of central sales taxes in India and to know the categories of collection taxes and offence and penalties for not paying sales taxes.

CO3: Understand the concepts of custom duties, levy of customs and exemption of goods and levy rules.

CO4: Understand the authorities of customs and excise officers and refund of customs duty and imposing of fines.

CO5: Able to understand the concept of different rate of taxes for various goods and services and find the difference VAT and GST.

### **COURSE: MANAGEMENT ACCOUNTING (CORE PAPER) CREDIT: 4**

CO1: Develop the ability to collect, analyze and communicate the quantitative and non-quantitative information.

CO2: Assist the management in making more effective planning and control decision.

CO3: Compare and contrast the basic management accounting concept and their application in managerial decision making.

CO4: Analyze and assess the financial situation of a firm with the help of ratio analysis.

**COURSE: OPERATION RESEARCH (CORE PAPER)**

**CREDIT: 3**

CO1: Identify and develop operational research models from the verbal description of the real system.

CO2: Knowledge and understanding the characteristics.

CO3: Understand the mathematical tools that are needed to solve optimization problems.

CO4: Use mathematical tools to solve the proposed model.

CO5: Develop the report that describes the solving techniques, analysis the result and propose recommendations.

**COURSE: RETAIL MANAGEMENT (ALLIED)**

**CREDIT: 5**

CO1: Understand the concepts and functions of retailer.

CO2: Gain knowledge about retail property development in India.

CO3: Able to apply the technology tools that aid merchandise planning.

CO4: Able to determine retail pricing strategies.

CO5: Able to identify the opportunities offered in retail as a career.

**COURSE: ENTREPRENEURIAL DEVELOPMENT**

**(SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: Able to understand the enterprise, entrepreneur and entrepreneurship.

CO2: Able to get the complete picture of government programs available for entrepreneurs.

CO3: Able to understand and prepare business plan make presentation.

CO4: Able to write project report for starting an entrepreneur.

CO5: Able to assess the qualities of an entrepreneur and learn to be a successful entrepreneur.

**COURSE: TRAINING AND DEVELOPMENT (NME)**

**CREDIT: 2**

CO1: Able to learn the basic training needs and functions of training development.

CO2: Able to know the various on-the-job and off-the-job techniques of training.

CO3: Able to have a clear picture about their career planning and development.

CO4: Able to know the information about the different management training institutes in India.

**COURSE: CHEMISTRY IN EVERYDAY LIFE (NME)**

**CREDIT: 2**

CO1: Understand the basics of chemistry in everyday life

CO2: Identify the food colours.

CO3: Analyze diary chemistry

**SEMESTER V**

**COURSE: MARKETING MANAGEMENT (CORE PAPER)**

**CREDIT: 4**

CO1: Able to identify the primary marketing activities of an organization.

CO2: Able to use marketing information and research to develop marketing strategies for targeting customers.

CO3: Able to understand the price elasticity and how it can be used to set price for a product.

CO4: Able to evaluate how to use distribution channels to market the products/ services effectively.

CO5: Able to use the appropriate promotional tools for the promotion of products/services.

**COURSE: BUSINESS LAW (CORE PAPER)**

**CREDIT: 4**

CO1: Understand the fundamental legal principles in developing various contracts.

CO2: Able to understand the commercial laws in the business world.

CO3: Able to identify the common forms of business associations and elements of Corporate Governance.

CO4: Able to understand the legality and statute of frauds in contracts.

CO5: Able to develop insights regarding the laws and transactions related to sale of goods.

**COURSE: COST ACCOUNTING (CORE PAPER)**

**CREDIT: 4**

CO1: Understand the importance of cost ascertainment, cost reduction and control.

CO2: Compare and contrast the Financial Accounting with Cost Accounting

CO3: Prepare the Cost sheet, Tender and Quotations.

CO4: Determine the Levels of stock and methods of pricing of material issues.



CO5: Compute the various methods of wage payment and Incentive plan

CO6: Classify and analyze the Primary and Secondary Distribution of Overheads.

**COURSE: COMPUTER APPLICATION IN BUSINESS (CORE PAPER)**

**CREDIT: 4**

CO1: Know about the emergence of computers and various software solution used for business.

CO2: Learn to Microsoft Office Word and how it is applied in business.

CO3: Learn the application of Microsoft Excel and how different calculations can be done by using it.

CO4: Application of Microsoft PowerPoint in Business and learned how it is useful for Business Presentations.

CO5: Understand the working of EDI, E-Commerce, Smart Cards and its various applications.

**COURSE: HUMAN RESOURCE MANAGEMENT (ELECTIVE)**

**CREDIT: 5**

CO1: Understand the concepts and basic functions of Human Resource Management.

CO2: Learn the implementation and evaluation of employee recruitment and selection processes.

CO3: Understands the need and methods of performance appraisal.

CO4: Able to analyse the key issues related to compensation, mentoring, career planning, promotion, transfers and termination.

**COURSE: E – BUSINESS (SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Able to define appreciate the difference between traditional and electronic business.

CO2: Know basic infrastructure required to build an E-business and secure it.

CO3: Become familiar electronic data interchange and how does it help in transaction besides learning the importance of web.

CO4: Understanding of Electronic Data Interchange and its Application in Business

CO5: Able to use various electronic governance media and tools.

## **SEMESTER- VI**

### **COURSE: INDUSTRIAL RELATIONS AND LABOUR LAWS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Understand the importance of industrial relation and know the role of trade union and know the industrial disputes and their resolutions.

CO2: Understand the salient features of health, safety, welfare and wage legislations.

CO3: Understand the different committees and various methods of strike and prevention.

CO4: Understand the meaning of industrial unrest and reasons for employee dissatisfaction and disciplinary action.

### **COURSE: ENTREPRENEURIAL DEVELOPMENT (CORE PAPER)**

**CREDIT: 4**

CO1: Able to understand the enterprise, entrepreneur and entrepreneurship.

CO2: Able to get the complete picture of government programs available for entrepreneurs.

CO3: Able to understand and prepare business plan make presentation.

CO4: Able to write project report for starting an entrepreneur.

CO5: Able to assess the qualities of an entrepreneur and learn to be a successful entrepreneur.

### **COURSE: GROUP PROJECT (CORE)**

**CREDIT: 6**

CO1: Develop the training program capacity among the students.

CO2: Understand the various functions of the organization during the training period

CO3: Identify and collect the various sources of data through primary and secondary data

CO4: Understand the various statistical tools.

CO5: Apply the suitable statistical tool and analyze the result

CO6: Identify the findings and suggestions

CO7: Understand the report writing

CO8: Outline the conclusion

**COURSE: INVESTMENT MANAGEMENT (ELECTIVE) CREDIT: 3**

CO1: Understand the Investment objectives and its management

CO2: Define mutual funds, real assets, modern investments

CO3: Classify risk and computations of expected risks and returns

CO4: Evaluate time value for money, bond valuations, capital assets pricing

CO5: Outline various investment analysis

**COURSE: RURAL MARKETING MANAGEMENT (ELECTIVE)**

**CREDIT: 3**

CO1: Understand the various alternatives available for investment.

CO2: Identify the new product development and product strategy.

CO3: Able to measure the risk and return.

CO4: Able to value equity and bonds and gain knowledge of the various strategies followed by investment practitioners.

**COURSE: CREATIVITY AND INNOVATION**

**(SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Understand creativity, innovation and convergent thinking.

CO2: Recognize the thinking hats method and brain storming.

CO3: Analyze the attitude towards lateral thinking.

**COURSE: EXTENSION ACTIVITY**

**CREDIT: 1**

CO1: Able to acquire leadership qualities and democratic attitude.

CO2: Able to utilize their knowledge in finding practical solution to individual and community problems.



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## **BACHELOR OF COMPUTER APPLICATIONS (BCA)**

### **PROGRAMME OUTCOMES**

PO1: Students will have a broad foundation in their major subjects of their choice with scientific reasoning, problem solving and analytical skills.

PO2: The students are trained in a breadth and depth of experimental techniques using modern instrumentation which help them to take up higher education or jobs after the course.

PO3: They develop the ability to effectively communicate scientific information in written and oral formats

PO4: They acquire the ability to work in teams and apply basic ethical principles.

### **PROGRAM SPECIFIC OUTCOMES**

PSO1: Able to develop Software and can serve as a Software developer and Programmer.

PSO2: Able to serve as the Software Professional in different IT Sectors with enhanced knowledge of software.

PSO3: Understand the Networking concepts and can serve as a Network Infrastructure Developer.

PSO4: Able to serve as a Database developer and also as DBMS Administrator by thoroughly learning DBMS.

PSO5: Able to serve as the Web Designers/Website Developers by knowing various Web Development Software.

PSO6: Able to present their innovations in more unique way by using Software.

## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: PROGRAMMING IN C (CORE PAPER)**

**CREDIT: 4**

CO1: The Student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions

CO2: The Student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.

CO3: The Student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions.

CO4: The Student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C.

CO5: The Student will be able to understand the concepts of Fundamental Algorithms, Factoring Methods.

#### **COURSE: PROGRAMMING IN C LAB (CORE PRACTICAL)**

**CREDIT: 2**

CO1: Enhance the analyzing and problem solving skills and use the same for writing programs in C.

CO2: Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards.

CO3: Learn to debug a given program and execute the C program.

CO4: To have enough practice the use of conditional and looping statements.

CO5: To implement arrays, functions and pointers.

#### **COURSE: MATHEMATICAL FOUNDATIONS I**

**(ALLIED)**

**CREDIT: 3**

CO1: Understand set theory

CO2: Learn Symbolic Logic concepts.

CO3: Understand Binary Operation, Differentiation, Two dimensional analytical geometry.

CO4: Implement concepts to convert between metric, household and Apothecary Units.

## **SEMESTER - II**

### **COURSE: C++ & DATA STRUCTURE (CORE PAPER) CREDIT: 4**

CO1: The Student will be able to understand the concepts of object oriented programming Apply structure and inline functions.

CO2: The Student will be able to understand the concepts of the types of inheritances and Applying various levels of Inheritance for real time problems Apply the OOPs concepts class and object.

CO3: Understand Explain the file concept and exception handlings in C++

CO4: The Student will be able to understand the concepts of Stacks and Queue using array and pointers.

CO5: The Student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.

CO6: The Student will be able to understand the concepts of Sorting and Searching Algorithms.

### **COURSE: C++ AND DATA STRUCTURE LAB**

**(CORE PRACTICAL)**

**CREDIT: 2**

CO1: Understand the creating and deleting the objects with the concepts of Constructors and Destructors.

CO2: Demonstrate the Polymorphism concepts and Operator Overloading

CO3: Understand basic Data Structures such as Arrays, Linked List, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.

CO4: Apply algorithm for solving problems like Sorting and Searching.

CO5: Apply algorithm and use Graphs and Trees as tools to visualize and simplify problems.

### **COURSE: MATHEMATICAL FOUNDATIONS II (ALLIED)**

**CREDIT: 5**

CO1: Understand Matrix, Skew-Symmetric Matrix

- CO2: Understand Cayley-Hamilton theorem
- CO3: Analyze definite integrals
- CO4: Implement analytical geometry
- CO5: Understand 3-Dimension
- CO6: Compare area and volume using Integration
- CO7: Analyze Planes and Straight Lines
- CO8: Analyze Hermitian and Skew-Hermitian

### **SEMESTER - III**

#### **COURSE:PROGRAMMING IN JAVA (CORE PAPER) CREDIT: 4**

- CO1: Use an integrated development environment to write, compile, run and test simple object oriented java programs.
- CO2: Read and make elementary modifications to java programs that solve real-world problems.
- CO3: Validate input in a java program.
- CO4: Identify and fix defects and common security issues in code.
- CO5: Students are able to know about a General-purpose and Purely object-oriented programming language including data types, control statements, and classes
- CO6: Students are able to Secured, well-suited for internet programming using applets and GUI-based

#### **COURSE:E-COMMERCE (CORE PAPER) CREDIT:4**

- CO1: The Student will be able to understand the concepts of E-commerce and its different types and describe the network infrastructure for E-commerce.
- CO2: The Student will be able to understand the concepts of networks and fundamental of security concepts, security services to counter them, understand the fundamental properties of cryptography Techniques.
- CO3: The Student will be able to understand the concepts of electronic payment systems, online security and understand the fundamentals of create a E-commerce web site.
- CO4:The Student will be able to understand the concepts of the basic fundamentals of electronic document interchange EDI, supply chain management process.

CO5: The Student will be able to understand the concepts of internet trading relationships including inter organization and intra-organizations.

**COURSE: OPERATIONS RESEARCH (CORE PAPER) CREDIT: 4**

CO1: The Student will be able to understand the concepts of optimization and to formulate and Solve Linear Programming problems.

CO2: The Student will be able to understand the concepts of Transportation problem and Assignment problem.

CO3: The Student will be able to understand the concepts of sequencing problem.

CO4: The Student will be able to understand the concepts of PERT-CPM and their applications in product planning control.

CO5: The Student will be able to understand the concepts of Solve the Minimal Spanning Tree Problem, Shortest Route Problem, Maximal Flow Problem and Minimal Cost Capacitated Flow Problem.

**COURSE: JAVAPROGRAMMINGLAB  
(CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement Package, Inheritances and interfaces

CO2: Analyze Flow, Border and Grid Layouts Validate input in a java program

CO3: Evaluate Dialogs, Menu and Frame

CO4: Implement User defined Exception Handling

CO5: Implement RMI, Net Beans, IO Streams, Multithreading, Swing Concepts

**COURSE:FINANCIALACCOUNTING (ALLIED) CREDIT: 3**

CO1: To introduce the basic concepts and conventions to the students, this would help in development of accounting knowledge.

CO2: To understand the concept of Double entry system this helps in preparation of various books of accounts.

CO3: To develop the capability of students to prepare the Final Accounts of a Small Business



Concern.

CO4: To introduce the concept of Single entry system of Accounting which helps them to prepare the accounts from incomplete records.

CO5: To enhance the Accounting Knowledge by introducing the practical uses of Average Due Date and Bank Reconciliation Statement.

## **COURSE: WEB TECHNOLOGY**

**(SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: The Student will be able to understand the concepts of HTML.

CO2: The Student will be able to understand the concepts of java scripts.

CO3: The Student will be able to understand the concepts of user defined functions.

CO4: The Student will be able to understand the concepts of Active Server Page.

CO5: The Student will be able to understand the concepts of – OLEDB connection class.

## **COURSE: TRAINING AND DEVELOPMENT (NME)**

**CREDIT: 2**

CO1: Understand the training needs and responsibilities of on the job and off the job training.

CO2: Understand importance of career Planning.

CO3: Understand psychology of the learning process on which training is based.

CO4: Analyze the training needs of an organization.

## **SEMESTER - IV**

### **COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEMS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Describe the database architecture and its applications Sketch the ER diagram for real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Describe the various normalization forms Apply the normalization concepts for a table

of data Practices a table and implement the normalization concepts.

CO4: Explain the storage and accessing of data.

CO5: Illustrate the query processing in database management. Define the concurrency control and deadlock concept

## **COURSE: ENTERPRISE RESOURCE PLANNING**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Understand the functionalities of Enterprise resource planning

CO2: Understand Characterize the ERP implementation procedures

CO3: Understand the elements of ERP

CO4: Understand the available ERP packages

CO5: Understand the models of ERP with other related technologies

## **COURSE: WIRELESS DATA COMMUNICATION (CORE PAPER)**

**CREDIT: 4**

CO1: Understand the concepts of basic OSI layers.

CO2: Understand the concepts of signals and transmission media.

CO3: Understand the basic concepts of error detection and DLC

CO4: Understand the Characterize of wireless transmission technologies

CO5: Understand the concepts of Security.

## **COURSE: RDBMS LAB (CORE PRACTICAL)**

**CREDIT: 3**

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL, DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set Operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)

**COURSE: FINANCIAL ACCOUNTING II (ALLIED) CREDIT: 5**

- CO1: To Understand the concept of Branch Accounting and enable the students to prepare Accounts for various types of Branches.
- CO2: To enhance the procedure for preparing Departmental Accounts.
- CO3: To Develop the skill of the students in preparing Hire Purchase Accounting, both in the books of Hire Purchaser and Hire Vendor.
- CO4: To Understand the Accounting procedure for Partnership in cases like Admission, Retirement, Death.
- CO5: To Understand the Accounting procedure for Dissolution and Insolvency of a Partner.

**COURSE: INTERNET OF THINGS (SKILL BASED SUBJECT)**

**CREDIT: 2**

- CO1: Analyze various protocols for IoT
- CO2: Develop web services to access/control IoT devices.
- CO3: Design a portable IoT using Raspberry Pi
- CO4: Deploy an IoT application and connect to the cloud.
- CO5: Analyze applications of IoT in real time scenario

**COURSE: MANAGEMENT CONCEPTS (NME)**

**CREDIT: 2**

- CO1: Understand the functions and responsibilities of managers.
- CO2: Analyze tools and techniques to be used in the performance of the managerial job.
- CO3: Analyze and understand the environment of the organization.
- CO4: To develop cognizance of the importance of management principles.

**SEMESTER – V**

**COURSE: MOBILE APPLICATIONS DEVELOPMENT  
(CORE PAPER)**

**CREDIT: 3**

- CO1: Acquire knowledge of Mobile Applications Development

CO2: Understand Eclipse and Android Studio

CO3: Implement mobile applications development in Emulator

CO4: Understand Mobile databases

CO5: Understand Android Services and Android User Interface

**COURSE: OPERATING SYSTEM (CORE PAPER) CREDIT: 3**

CO1: Analyze various operating system services

CO2: Compare and contrast various scheduling algorithm

CO3: Understand memory management techniques

CO4: Implement various file management techniques

**COURSE: DATA COMMUNICATION AND NETWORK (CORE PAPER) CREDIT: 2**

CO1: Understand data communication and prepare them for better computer networking

CO2: Prepare logical and physical network drawings for fairly simple networks, specifying network and link types, plus costs

CO3: Evaluate a java program using javadoc.

**COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB (CORE PRACTICAL) CREDIT: 3**

CO1: Implement Basic Android Applications

CO2: Implement Activity, Intent, Spinner

CO3: Understand Android Studio and Eclipse

CO4: Implement Progress Bar, Gaming Apps, Alert Dialog

**COURSE: OPERATING SYSTEM LAB (CORE PRACTICAL) CREDIT: 3**

CO1: Implement various scheduling algorithm concept

CO2: Analyze producer consumer problem using semaphore

CO3: Implement memory management techniques

CO4: Implement a program for system calls

**COURSE:DATAMINING(ELECTIVE)**

**CREDIT: 3**

CO1: Understand the concepts of data mining and data models

CO2: Acquire good knowledge of data pre processing.

CO3: Understand the concept of data classification.

CO4: Understand the concept of data cluster analysis.

**COURSE:SOFTWAREENGINEERING (SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Understand Software Engineering

CO2: Analyze different Process Models like Waterfall Model, Evolutionary Process Model

CO3: Explain about the Data Engineering and System Architecture Design

CO4: Compare the Black Box and White Box Testing

CO5: Analyze the Project Management.

**SEMESTER - VI**

**COURSE:CLOUDCOMPUTING (CORE PAPER)**

**CREDIT: 5**

CO1: Understand the basic functions, principles and concepts of cloud systems.

CO2: Understand the basic concepts of cloud computing.

CO3: Determine the various services available for developing cloud.

CO4: Troubleshoot the various securities in cloud.

CO5: Evaluate the programming model technique available in cloud.

CO6: Acquire sufficient knowledge about the cloud.

**COURSE: OPENSOURCEPROGRAMMING (CORE PAPER) CREDIT: 4**

CO1: Understand the basic concepts of HTML5&CSS

CO2: Analyze various Linux commands & security models

- CO3: Discussion on MYSQL and PHP database connectivity
- CO4: Evaluate PHP Controls, structures and arrays
- CO5: Implement basic form processing with PHP and MYSQL

**COURSE:ASP.NETLAB (CORE PRACTICAL)**

**CREDIT: 3**

- CO1: Implement validation controls.
- CO2: Implement Web server controls.
- CO3: Implement ADO.NET and how to access database
- CO4: Evaluate Ad rotator programs.

**COURSE: OPEN SOURCEPROGRAMMINGLAB  
(CORE PRACTICAL)**

**CREDIT: 3**

- CO1: Implement frames & tables in HTML
- CO2: Implement various CSS styles and list concept.
- CO3: Evaluate basic shell programs
- CO4: Implement cookies and session concept

**COURSE:MOBILECOMPUTING (ELECTIVE)**

**CREDIT: 3**

- CO1: Acquire Good Knowledge of Wireless Communication to Students.
- CO2: Understand Fundamentals of Wireless Communication.
- CO3: Analyze Security, Mobility, Scalability and Their Unique Characteristics in Wireless Network.
- CO4: Apply Knowledge of TCP/IP extension in Mobile computing.

**COURSE:MULTIMEDIASYSTEMS**

**CREDIT: 3**

- CO1: Understand the concept of Multimedia
- CO2: Compare different medium like text,audio,video,graphics and animation.
- CO3: Analyse Application program interface
- CO4: Acquire good knowledge about different Multimedia Software

**COURSE:ASP.NET (SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Understand basic concepts of ASP.NET.

CO2: Evaluate different validation controls.

CO3: Analyze Architecture of ADO.net.

CO4: Understand how to access database in web application.



## **ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE**

Recognised by the UGC under Section 2(f) and 12(B) of UGC Act 1956

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Approved by the Government of Tamil Nadu

Accredited by NAAC with "B" Grade

#10, BYPASS ROAD, NEWTOWN, VANIYAMBADI – 635 752

Phone: 04174 – 235266

### **PG DEPARTMENT OF COMPUTER SCIENCE**

### **BACHELOR OF COMPUTER SCIENCE (B.Sc)**

#### **PROGRAMME OUTCOMES**

PO1: Students will have a broad foundation in their major subjects of their choice with scientific reasoning, problem solving and analytical skills.

PO2: The students are trained in a breadth and depth of experimental techniques using modern instrumentation which help them to take up higher education or jobs after the course.

PO3: They develop the ability to effectively communicate scientific information in written and oral formats

PO4: They acquire the ability to work in teams and apply basic ethical principals.

#### **PROGRAM SPECIFIC OUTCOMES**

PSO1: Develop student's computer knowledge, their basic understanding of software commonly used in Educational and IT Sectors.

PSO2: Understand how to organize information accurately by using the different software available to perform activities accurately and quickly.

PSO3: Understand how to present their innovations in more unique way by using Software.

PSO4: Develop the various IT Skills to the electronic databases. Use the System Analysis Design paradigm to critically analyze a problem.

PSO5: Solve the problems in the Information Technology environment (Networking Concepts and their broad usages)

PSO6: Understand how to function effectively as a team to accomplish a task of Software Development.



## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: PROGRAMMING IN C (CORE PAPER)**

**CREDIT: 4**

CO1: The Student will be able to understand the concepts of Constants, Variables, and Data Types, Operators and Expressions

CO2: The Student will be able to understand the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.

CO3: The Student will be able to understand the concepts of Arrays, Character Arrays and Strings, User Defined Functions.

CO4: The Student will be able to understand the concepts of Structure and Unions, Pointers, File Management in C.

CO5: The Student will be able to understand the concepts of Fundamental Algorithms, Factoring Methods.

#### **COURSE: PROGRAMMING IN C LAB**

**(CORE PRACTICAL)**

**CREDIT: 2**

CO1: Enhance the analyzing and problem solving skills and use the same for writing programs in C.

CO2: Write diversified solutions, draw flowcharts and develop a well-documented and indented program according to coding standards.

CO3: Learn to debug a given program and execute the C program.

CO4: To have enough practice the use of conditional and looping statements.

CO5: To implement arrays, functions and pointers.

#### **COURSE: MATHEMATICAL FOUNDATIONS I (ALLIED)**

**CREDIT: 3**

CO1: Understand set theory

CO2: Learn Symbolic Logic concepts.

CO3: Understand Binary Operation, Differentiation, two dimensional analytical geometry.

CO4: Implement concepts to convert between metric, household and Apothecary Units.

## **SEMESTER - II**

### **COURSE: C++ & DATA STRUCTURE (CORE PAPER) CREDIT: 4**

CO1: The Student will be able to understand the concepts of object oriented programming

Apply structure and inline functions.

CO2: The Student will be able to understand the concepts of the types of inheritances

and Applying various levels of Inheritance for real time problems Apply the

OOPs concepts class and object.

CO3: Understand Explain the file concept and exception handlings in C++

CO4: The Student will be able to understand the concepts of Stacks and Queue using array and pointers.

CO5: The Student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.

CO6: The Student will be able to understand the concepts of Sorting and Searching Algorithms.

### **COURSE: C++ AND DATA STRUCTURE LAB**

**(CORE PRACTICAL)**

**CREDIT: 2**

CO1: Understand the creating and deleting the objects with the concepts of Constructors and Destructors.

CO2: Demonstrate the Polymorphism concepts and Operator Overloading

CO3: Understand basic Data Structures such as Arrays, Linked List, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.

CO4: Apply algorithm for solving problems like Sorting and Searching.

CO5: Apply algorithm and use Graphs and Trees as tools to visualize and simplify problems.

**COURSE: MATHEMATICAL FOUNDATIONS II (ALLIED) CREDIT: 5**

CO1: Understand Matrix, Skew-Symmetric Matrix

CO2: Understand Cayley-Hamilton theorem

CO3: Analyze definite integrals

CO4: Implement analytical geometry

CO5: Understand 3-Dimension

CO6: Compare area and volume using Integration

CO7: Analyze Planes and Straight Lines

CO8: Analyze Hermitian and Skew-Hermitian

**SEMESTER - III**

**COURSE: PROGRAMMING IN JAVA (CORE PAPER) CREDIT: 3**

CO1: Use an integrated development environment to write, compile, run and test simple object oriented java programs.

CO2: Read and make elementary modifications to java programs that solve real-world problems.

CO3: Validate input in a java program.

CO4: Identify and fix defects and common security issues in code.

CO5: Students are able to know about a General-purpose and purely object oriented programming language including data types, control statements

CO6: Students are able to Secure, well-suited for internet programming using applets  
And GUI-based

**COURSE: PROGRAMMING IN JAVA LAB**

**(CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement Package, Inheritance and interfaces

CO2: Analyze Flow, Border and Grid Layouts Validate input in a java program

CO3: Evaluate Dialogs, Menu and Frame

CO4: Implement User defined Exception Handling

CO5: Implement RMI, Net Beans, IO Streams, Multithreading, Swing Concepts

**COURSE: STATISTICAL METHODS & THEIR APPLICATIONS I**  
**(ALLIED) CREDIT: 3**

CO1: Understand diagrammatic and graphical representation of data.

CO2: Implement Mean, Mode, Median

CO3: Evaluate skewness, co-efficient of skewness

CO4: Implement correlation, regression analysis

CO5: Understand different statistical method

**COURSE: DIGITAL LOGIC DESIGN & COMPUTER ORGANIZATION**  
**(SKILL BASED SUBJECT) CREDIT: 2**

CO1: Understand the basics of Number System

CO2: Understand the concept of Simplification of Boolean expressions using K-map and arithmetic circuits

CO3: Understand the concept of Combinational Logic Circuits

CO4: Understand the concept of Basic structure of Computers

CO5: Understand the concept of Input, Output and Memory Organization

**COURSE: BASIC MATHEMATICS (NME) CREDIT: 2**

CO1: Understand power sets, equality of sets

CO2: Understand binary, octal and hexadecimal numbers

CO3: Evaluate logical statements and connectives

CO4: Understand type of matrices

**SEMESTER - IV**

**COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEMS**  
**(CORE PAPER) CREDIT: 3**

CO1: Describe the database architecture and its applications Sketch the ER diagram for real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Discuss about the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Describe the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts.

CO4: Explain the storage and accessing of data.

CO5: Illustrate the query processing in database management. Define the concurrency control and deadlock concept

**COURSE:RDBMS LAB (CORE PRACTICAL) CREDIT:3**

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL, DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set Operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)

**COURSE: STATISTICAL METHODS & THEIR APPLICATIONS II  
(ALLIED) CREDIT: 3**

CO1: Implement Curve fitting methods

CO2: Understand Baye's Theorem

CO3: Understand Binomial, Poisson, Normal distribution

CO4: Implement test of significance

CO5: Understand one and two way classification.

**COURSE: STATISTICS PRACTICAL (ALLIED) CREDIT: 2**

CO1: Implement Skewness and Kurtosis

CO2: Understand Correlation and Regression

CO3: Understand Curve Fitting

CO4: Evaluate fitting of distributions – Binomial, Poisson, Normal

**COURSE: WIRELESS DATA COMMUNICATION  
(SKILL BASED SUBJECT) CREDIT: 2**

CO1: Understand the concepts of basic OSI layers.

CO2: Understand the concepts of signals and transmission media.

CO3: Understand the basic concepts of error detection and DLC

CO4: Understand the Characterize of wireless transmission technologies

CO5: Understand the concepts of Security.

**COURSE: FOUNDATION MATHEMATICS FOR COMPETITIVE EXAMS**

**(NME)**

**CREDIT:2**

CO1: Understand ratio and proportions

CO2: Understand profit and loss, discounts

CO3: Implement Simple and Complex interest

CO4: Understand time, distance and work

**SEMESTER – V**

**COURSE: MOBILE APPLICATIONS DEVELOPMENT**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Acquire knowledge of Mobile Applications Development

CO2: Understand Eclipse and Android Studio

CO3: Implement mobile applications development in Emulator

CO4: Understand Mobile databases

CO5: Understand Android Services and Android User Interface

**COURSE: OPERATING SYSTEM (CORE PAPER)**

**CREDIT: 3**

CO1: Analyze various operating system services

CO2: Compare and contrast various scheduling algorithm

CO3: Understand memory management techniques

CO4: Implement various file management techniques

**COURSE: DATA COMMUNICATION AND NETWORK**

**(CORE PAPER)**

**CREDIT: 2**

CO1: Understand data communication and prepare them for better computer networking

CO2: Prepare logical and physical network drawings for fairly simple networks, specifying network and link types, plus costs

CO3. Evaluate a java program using javadoc.

**COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB**

**(CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement Basic Android Applications

CO2: Implement Activity, Intent, Spinner

CO3: Understand Android Studio and Eclipse

CO4: Implement Progress Bar, Gaming Apps, Alert Dialog

**COURSE: OPERATING SYSTEM LAB (CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement various scheduling algorithm concept

CO2: Analyze producer consumer problem using semaphore

CO3: Implement memory management techniques

CO4: Implement a program for system calls

**COURSE: DATA MINING (ELECTIVE)**

**CREDIT: 3**

CO1: Understand the concepts of data mining and data models

CO2: Acquire good knowledge of data pre processing.

CO3: Understand the concept of data classification.

CO4: Understand the concept of data cluster analysis.

**COURSE: SOFTWARE ENGINEERING**

**(SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Understand Software Engineering

CO2: Analyze different Process Models like Waterfall Model, Evolutionary Process Model

CO3: Understand about the Data Engineering and System Architecture Design

CO4: Compare the Black Box and White Box Testing

CO5: Analyze the Project Management.

## **SEMESTER - VI**

### **COURSE: CLOUD COMPUTING (CORE PAPER)**

**CREDIT: 5**

CO1: Understand the basic functions, principles and concepts of cloud systems.

CO2: Understand the basic concepts of cloud computing.

CO3: Determine the various services available for developing cloud.

CO4: Troubleshoot the various securities in cloud.

CO5: Evaluate the programming model technique available in cloud.

CO6: Acquire sufficient knowledge about the cloud.

### **COURSE: OPENSOURCE PROGRAMMING (CORE PAPER) CREDIT: 4**

CO1: Understand the basic concepts of HTML5 & CSS

CO2: Analyze various Linux commands & security models

CO3: Discussion on MYSQL and PHP database connectivity

CO4: Evaluate PHP Controls, structures and arrays

CO5: Implement basic form processing with PHP and MYSQL

### **COURSE: ASP.NET LAB (CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement validation controls.

CO2: Implement Web server controls.

CO3: Implement ADO.NET and how to access database

CO4: Evaluate Ad rotator programs.

### **COURSE: OPEN SOURCE PROGRAMMING LAB**

**(CORE PRACTICAL)**

**CREDIT: 3**

CO1: Implement frames & tables in HTML

CO2: Implement various CSS styles and list concept.

CO3: Evaluate basic shell programs

CO4: Implement cookies and session concept



**COURSE:MOBILE COMPUTING (ELECTIVE)**

**CREDIT: 3**

CO1: Acquire Good Knowledge of Wireless Communication to Students.

CO2: Understand Fundamentals of Wireless Communication.

CO3: Analyze Security, Mobility, Scalability and Their Unique Characteristics in Wireless Network.

CO4: Apply Knowledge of TCP/IP extension in Mobile computing.

**COURSE:MULTIMEDIA SYSTEMS (ELECTIVE)**

**CREDIT: 3**

CO1: Understand the concept of Multimedia

CO2: Compare different medium like text,audio,video,graphics and animation.

CO3: Analyse Application program interface

CO4: Acquire good knowledge about different Multimedia Software

**COURSE:ASP.NET (SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Understand basic concepts of ASP.NET .

CO2: Evaluate different validation controls.

CO3: Analyze Architecture of ADO.net.

CO4: Understand how to access database in web application.



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Phone: 04174 – 235266

### **MASTER OF COMPUTER SCIENCE (M.Sc)**

#### **PROGRAMME OUTCOMES**

PO1: Ability to acquire and apply knowledge and understanding of the scientific principals.

PO2: Ability to demonstrate through knowledge, understanding and skills in application of scientific methodology to investigate and report on experimental investigations.

PO3: Possess high awareness of major issues and development of scientific research and competent in initiating, developing and perusing a scientific research.

PO4: Ability to act with integrity and good ethics in their profession and their obligation to society.

#### **PROGRAM SPECIFIC OUTCOMES**

PSO1: Understand programming language easily with the help of Object Oriented Programming Concepts.

PSO2: Understand thoroughly how to use software, able to develop software for the Client

PSO3: Able to built a complete software project, to design, analyze, built, code, test etc.

PSO4: Able to develop Software Solutions for Complex Problems.

PSO5: Understand the Networking concepts and can serve as a Network Infrastructure Developer.

PSO6: Able to Serve as a Database developer and also as DBMS Administrator by thoroughly learning DBMS.

PSO7: Able to Serve as the Web Designers/Website Developers by knowing various Web Development Software.

## **COURSE OUTCOME (CO)**

### **SEMESTER I**

#### **COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Understand database concepts and database management system software

CO2: Understand major DBMS components and their function

CO3: Understand model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model.

CO4: Learn SQL commands to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

CO5: Learn data-intensive application using DBMS APIs.

#### **COURSE: ENTERPRISE JAVA PROGRAMMING**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Learn Applet Programming using various techniques

CO2: Learn applications development using Abstract Window Toolkit and Events

CO3: Learn update and retrieve the data from the databases using JDBC- ODBC

CO4: Develop server side programs in the form of Servlets

CO5: Build up Java Applications using collections and JSP Tags.

#### **COURSE: PROGRAMMING USING C# .NET**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Understand the differences between desktop application and web application.

CO2: Learn to construct classes, methods, and access modifier and instantiate objects.

CO3: Learn to create and manipulate GUI components in C# for windows application.

CO4: Understand code solutions and compile C# projects within the .NET framework.

CO5: Learn to build the desktop application with Database.

**COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM LAB**

**(PRACTICAL)**

**CREDIT: 2**

CO1: Learn to perform DDL, DML Operations

CO2: Implement Constraints

CO3: Understand Nested Queries and Joins

CO4: Implement Cursor, Trigger, Procedure

**COURSE: ENTERPRISE JAVA PROGRAMMING LAB (PRACTICAL)**

**CREDIT: 2**

CO1: Understand Applet Programming

CO2: Implement JDBC and Servlet

CO3: Understand Client Server Networking

CO4: Understand Jasper Report Generation

**COURSE: PROGRAMMING USING C# LAB (PRACTICAL) CREDIT: 2**

CO1: Understand Classes, Objects, Inheritance

CO2: Implement Windows Form Control

CO3: Implement Menu Handling

CO4: Understand ADO.NET Connection

**COURSE: COMPUTER ORGANIZATION (CORE ELECTIVE) CREDIT: 3**

CO1: Understand the types of instructions and the organization of registers  
and memory

CO2: Analyze the translation model of assembly language to machine language.

CO3: Understand the micro-program by mapping the instructions.

CO4: Learn the types of computer organizations.

CO5: Understand the better way of processing by Parallel and Vector Process.

**COURSE: PRINCIPLES OF INTERNET (OPEN ELECTIVE) CREDIT: 3**

CO1: Learn the basics of Internet.

CO2: Understand the concept of www

CO3: Understand Firewall, Digital Certificate

CO4: Learn about Browsers

## **SEMESTER II**

### **COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Understand JSP, JSF and Servlet using MVC approach.

CO2: Develop the web applications using the MVC framework provided by Apache Struts

CO3: Develop Enterprise web application using EJB.

CO4: Implement the Object-Relation Mapping technique using Hibernate

CO5: Understand aspect Oriented Programming using Spring and Spring MVC.

### **COURSE: DESIGN AND ANALYSIS OF ALGORITHMS (CORE PAPER)**

**CREDIT: 3**

CO1: Analyze the running time of the basic algorithms for those classic problems.

CO2: Understand the basic knowledge of algorithm design and its implementation.

CO3: Learn the key techniques of Divide-and-Conquer and Greedy Method.

CO4: Recognize the concept of Dynamic Programming and its algorithms

CO5: Understand Backtracking algorithms.

CO6: Understand Branch and Bound techniques for designing and analyzing algorithms.

### **COURSE: WEB APPLICATION USING C# .NET (CORE PAPER)**

**CREDIT: 3**

CO1: Understand the differences between desktop and web application.

CO2: Learn classes, methods, and accessor and instantiate objects.

CO3: Learn to create and manipulate GUI components in C#.

CO4: Understand code solutions and compile C# projects within the .NET framework.

CO5: Learn to build own desktop application with Database

**COURSE: ADVANCED ENTERPRISE JAVA PROGRAMMING LAB  
(PRACTICAL) CREDIT: 2**

CO1: Understand JSP and MVC

CO2: Implement object oriented and collection mapping

CO3: Implement Association, Component and Inheritance Mapping

CO4: Understand Spring Actions and Spring MVC

**COURSE: DESIGN & ANALYSIS OF ALGORITHM LAB (PRACTICAL)  
CREDIT: 2**

CO1: Implement Divide and Conquer Algorithm

CO2: Implement Greedy Method

CO3: Implement Back tracking, Pin Backing

CO4: Implement Travelling Sales Person Problem

**COURSE: WEB APPLICATION USING C# .NET LAB (PRACTICAL)  
CREDIT: 2**

CO1: Understand Web Configuration File

CO2: Implement Rich Controls, Components

CO3: Understand Data Access

CO4: Understand Custom Controls and Rich Controls

**COURSE: CLOUD COMPUTING (CORE ELECTIVE) CREDIT: 3**

CO1: Understand the broad perspective of cloud architecture and model.

CO2: Understand the concept of parallel and distributed computing

CO3: Understand the different technologies.

CO4: Understand the features of virtualization.

CO5: Learn to design the trusted cloud computing system with different cloud platforms

**COURSE: PRINCIPLES OF WEB DESIGN (OPEN ELECTIVE)**

**CREDIT: 3**

CO1: Learn to combine basic HTML elements to create Web pages.

CO2: Understand the use of HTML tags and tag attributes to control a Web page's appearance.

CO3: Learn to add absolute URLs, relative URLs, and named anchors to Web pages.

CO4: Understand using tables and frames as navigational aids on a Website.

CO5: Control appearance web pages by applying style sheet.

**SEMESTER III**

**COURSE: DISTRIBUTED OPERATING SYSTEM (CORE PAPER)**

**CREDIT: 4**

CO1: Understand foundations of Distributed Systems.

CO2: Understand memory management concepts

CO3: Understand in detail the system level and support required for distributed system.

CO4: Understand the shell script commands of Unix

CO5: Learn LINUX

**COURSE: XML AND WEB SERVICES (CORE PAPER)**

**CREDIT: 4**

CO1: Understand fundamental XML technology

CO2: Understand the use of JSON

CO3: Learn the role of web services in commercial applications

CO4: Learn the emerging standard protocols like SOAP, WSDL and UDDI.

CO5: Analyze the role of web services in CMS

**COURSE: PROGRAMMING USING PYTHON**

**(CORE PAPER)**

**CREDIT: 3**

CO1: Learn the fundamental concepts of Python

CO2: Understand Basics of Python programming language

CO3: Solve simple problems using Python

CO4: Acquire fundamental knowledge and skills on Python Programming

CO5: Understand the nuances of this language.

CO6: Learn the usage of modules and packages in Python

CO7: Familiarize with file concepts in Python

CO8: Familiarize with web concepts using Python.

**COURSE: DISTRIBUTED OPERATING SYSTEM LAB (PRACTICAL)**

**CREDIT: 2**

CO1: Learn Shell Scripts

CO2: Implement shell programs using Branching and Looping Statements

CO3: Understand CPU Processes and Memory un usage using shell script.

**COURSE: XML AND WEB SERVICES LAB (PRACTICAL)**

**CREDIT: 2**

CO1: Learn XML Document

CO2: Understand XSLT Elements

CO3: Implement XPath Node sets and Number functions

CO4: Learn to implement XML with XSD

**COURSE: PYTHON PROGRAMMING LAB (PRACTICAL)**

**CREDIT: 2**

CO1: Understand String operations

CO2: Understand Dictionaries

CO3: Implement Flow Control and Functions

CO4: Understand File Handling, Exception Handling and Regular Expressions

**COURSE: NETWORK SECURITY (ELECTIVE)**

**CREDIT: 3**

CO1: Learn some of the driving factors needed for network security

CO2: Identify and classify attacks and threats

CO3: Compare and contrast symmetric and asymmetric encryption systems.

CO4: Identify the web systems vulnerable to attack.

CO5: Learn secure mail applications and security protocols



**COURSE: PROGRAMMING USING C++**

**(OPEN ELECTIVE)**

**CREDIT: 3**

CO1: Understand object oriented programming and advanced C++ concepts.

CO2: Understand the various functions and arguments in object oriented programming.

CO3: Understand the classes and objects in C++.

CO4: Learn inheritance and polymorphisms.

CO5: Understand the concepts of files and exception handling.

**SEMESTER IV**

**COURSE: MOBILE APPLICATION DEVELOPMENT**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Learn Android OS

CO2: Understand Intents, Activities and Fragments

CO3: Understand View and View Groups

CO4: Learn SQLite

CO5: Learn Xamarin

**COURSE: SOFTWARE PROJECT MANAGEMENT (CORE PAPER)**

**CREDIT: 4**

CO1: Provide sound knowledge in Project Management.

CO2: Understand the importance of requirement gathering

CO3: Explore different models in Software Development

CO4: Understand the workflow of a Project

CO5: Identify various actors in the activity

**COURSE: MOBILE APPLICATIONS DEVELOPMENT LAB**

**(PRACTICAL)**

**CREDIT: 2**

CO1: Learn Android Applications

CO2: Understand UI Controls

CO3: Implement SQLite Database

CO4: Implement Emailing, Telephony and SMS

**COURSE: PROJECT (CORE)**

**CREDIT: 5**

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end

CO4: Understand about project design.

CO5: Analyze testing and its types.

CO6: Troubleshoot software coding.

CO7: Understand about software maintenance.

CO8: Evaluate project documentation.

CO9: Understand project software requirement specification.

CO10: Understand how to develop real time projects.

**COURSE: BIG DATA ANALYTICS (ELECTIVE)**

**CREDIT: 3**

CO1: Understand the needs for Big Data and its environments.

CO2: Learn the basic requirements of Big Data Technologies.

CO3: Understand Map Reduce programming framework(Hadoop).

CO4: Learn NoSQL DB's Cassandra and MongoDB

CO5: Understand Hive and Pig technologies for analyzing the Big Data.

**COURSE: RESEARCH METHODS AND ETHICS (OPEN ELECTIVE)**

**CREDIT: 3**

CO1: Understand research processes (reading, evaluating, and developing);

CO2: Perform literature reviews using print and online databases;

CO3: Identify, explain, compare, and prepare the key elements of a research proposal/report;

CO4: Compare and contrast quantitative and qualitative research.



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### **DEPARTMENT OF COMMERCE (COMPUTER APPLICATIONS)**

#### **PROGRAMME OUTCOMES**

PO1: To enable learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment.

PO2: To Develops communication skills and build confidence to face the challenges of the corporate world.

PO3: To Enhance the capability of decision making at personal and professional levels.

PO4: To make the students industry ready and develop various managerial and accounting skills for better professional opportunities.

PO5: To Develops entrepreneurial skills amongst learners.

PO6: To strengthens their capacities in varied areas of commerce and industry aiming towards holistic development of learners.

PO7: To develop a thorough understanding of the fundamentals in Commerce and Finance.

PO8: To systematize experiences and strengthen the professional competencies of student and teachers.

PO9: To have critical thinking skills, which will enable them to understand, appreciate and critically.

PO10: Can evaluate real world developments in the field of commerce.

#### **PROGRAMME SPECIFIC OUTCOMES**

PSO1: Understand Commercial Activities Covered by Advanced Technology Like Computerized Accounting, E – Commerce, E – Banking, Mobile Banking, and E – Taxation.

PSO2: Obtain Knowledge of Various Provisions of Income Tax Act, & their application in Computation of Individuals & Firms under Various Heads of Income.

PSO3: Students have a Plethora of Choices to Pursue Professional Courses Such As M.Com CA  
M. Com, MBA, CMA, ICWA, M.Com CA etc.

PSO4: Students Will Be Able to Pursue Their Career in Teaching and Research

PSO5: Develop entrepreneurial qualities & skills & awareness about self employment

## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: FINANCIAL ACCOUNTING (CORE PAPER) CREDIT: 3**

CO1: Understand the systems of Financial Accounting.

CO2: Prepare the basic accounting Principles.

CO3: Evaluate the methods of recording depreciation.

CO4: Prepare the Final Accounts, Profit & Loss Account and Balance sheet of a Company.

CO5: Able to compute profit incomplete records.

#### **COURSE: BUSINESS APPLICATIONS & ACCOUNTING SOFTWARE**

##### **(CORE PAPER)**

**CREDIT: 3**

CO1: Understand the basics of Computer.

CO2: Able to create a word document, worksheet and its formatting.

CO3: Design MS -PowerPoint presentation.

CO4: Able to prepare generate financial reports.

CO5: Creating Company voucher and stock group in Tally ERP 9.

#### **COURSE: BUSINESS STATISTICS-I (ALLIED)**

**CREDIT: 3**

CO1: Understand the basics of statistical tools in business.

CO2: Enable the student to calculate various averages.

CO3: Understand to compute measures of dispersion.

CO4: Compare various methods of computing Skewness.

CO5: Able to Understand SQC and different Control Charts.

**COURSE: PROFESSIONAL ENGLISH - I**

**CREDIT: 3**

CO1: Recognize their own ability to improve their own competence in using the language.

CO2: Understand the importance of reading for life.

CO3: Understand the importance of writing in academic life.

CO4: Use language for speaking with confidence in an intelligible and acceptable manner.

CO5: Write simple sentences without committing error of spelling or grammar.

**SEMESTER - II**

**COURSE: FINANCIAL ACCOUNTING-II (CORE PAPER)**

**CREDIT: 3**

CO1: Understand the accounting methodology for Branch Accounting.

CO2: Prepare the Departmental trading and Profit & Loss Account.

CO3: Able to Calculate interest on Hire purchase and to prepare accounts for hire purchase contract.

CO4: Outline the fundamentals and reconstitution of Partnership Firm.

**COURSE: SOFTWARE & TALLY LAB (CORE PRACTICAL) CREDIT: 3**

CO1: Understand the concepts of MS-Word.

CO2: Understand the concepts of MS-Excel.

CO3: Understand the concepts of MS-Power Point and Tally.

CO4: Able to create MS-Office Applications

**COURSE: BUSINESS STATISTICS-II (ALLIED)**

**CREDIT: 5**

CO1: Understand basics of Business statistics.

CO2: Computation of correlation Coefficient and rank correlation.

CO3: Derive regression equation.

CO4: Able to calculate various index numbers.

CO5: Able to derive various averages in time series.

CO6: Understand different probability theorem.

CO7: Able to apply statistical tools in business decisions.

**COURSE: PROFESSIONAL ENGLISH - II****CREDIT: 3**

CO1: Understand the importance of communication skills.

CO2: Recognize their own ability to improve their own competence in listening, reading and writing.

CO3: Understand the importance of negotiation strategies.

CO4: Understand the importance of presentation skills.

CO5: Able to understand the critical thinking skills.

**SEMESTER - III****COURSE: CORPORATING ACCOUNTING-I (CORE PAPER) CREDIT: 4**

CO1: Understand different methods of valuation of shares.

CO2: Understand different methods of valuation of debentures.

CO3: Acquire the knowledge of acquisition of Business and accounting treatment.

CO4: Prepare the statement of Profit and Loss Account and Balance Sheet.

CO5: Able compute different methods of Purchase Consideration and Prepare Amalgamation, Absorption and Internal& External reconstruction.

**COURSE: BUSINESS LAW (CORE PAPER)****CREDIT: 4**

CO1: Understand the concept and provisions of Indian Contract act.

CO2: Able to know the rules of valid and void contract.

CO3: Understand the laws relating to indemnity and guarantee.

CO3: Acquire the knowledge of Agency creation.

CO4: Understand the law relating to sale of goods act.

**COURSE: BANKING, THEORY, LAW & PRACTICE****(CORE PAPER)****CREDIT: 3**

CO1: Describe origin of banks and role of Central bank in India.

CO2: Understand the traditional and modern function of the Commercial Banks.

CO3: Identify different methods of Bank Account.

CO4: Acquire the knowledge on Negotiable Instruments.

CO5: Describe about different method of lending and its policies.

## **COURSE: MANAGEMENT INFORMATION SYSTEM**

**(CORE)**

**CREDIT: 4**

CO1: Understand the basics of Number System

CO2: Understand the concept of Simplification of Boolean expressions using K-map  
and arithmetic circuits

CO3: Understand the concept of Combinational Logic Circuits

CO4: Understand the concept of Basic structure of Computers

CO5: Understand the concept of Input, Output and Memory Organization

## **COURSE: MERCHANT BANKING**

**(ALLIED)**

**CREDIT: 3**

CO1: Understand knowledge of merchant bankers.

CO2: Acquire the knowledge of stock exchanges.

CO3: Understand the capital market instruments.

CO4: Acquire the knowledge about Portfolio Management.

## **COURSE: ELEMENTS OF INSURANCE**

**(NME)**

**CREDIT: 2**

CO1: Understand the concepts of Insurance.

CO2: Understand the different policies in Life Insurance.

CO3: Acquire the knowledge of Marine Insurance.

CO4: Understand the concepts of Fire Insurance.

## **SEMESTER - IV**

## **COURSE: CORPORATE ACCOUNTING II**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Evaluate different methods of valuation of Goodwill and Share.

CO2: Acquire knowledge of preparing liquidator's Final Statement and Affairs.

CO3: Prepare Bank and Insurance Company Accounts.

CO4: Describe Capital and Revenue Profit and Consolidate Balance sheet.

CO5: Understand the limitations of Historical Cost Accounting and evaluate the methods of CPP methods and CCA methods.

**COURSE: PRINCIPLES OF MARKETING  
(CORE PAPER)**

**CREDIT:4**

CO1: Understand and describe basics of Marketing.

CO2: Identify market segmentation and Consumer Behavior.

CO3: Acquire knowledge of marketing policy and life cycle of the product.

CO4: Evaluate and determine channel of distribution.

CO5: Identify recent marketing in the Global Scenario.

**COURSE: RELATIONAL DATABASE MANAGEMENT SYSTEM  
(CORE PAPER)**

**CREDIT: 4**

CO1: Acquire the knowledge of database architecture and its applications Sketch the ER diagram for real world applications Uses various ER diagram for a similar concepts from various sources.

CO2: Understand the relational algebra and calculus Construct various queries in SQL and PL/SQL Compiles various queries in SQL, Relational Calculus and Algebra.

CO3: Understand the various normalization forms Apply the normalization concepts for a table of data Practices a table and implement the normalization concepts.

CO4: Acquire the knowledge of the storage and accessing of data.

CO5: Illustrate the query processing in database management.

**COURSE: RDBMS LAB (CORE PRACTICAL)**

**CREDIT: 3**

CO1: Design and Implement a database schema for a given problem domain.

CO2: Populate and Query a database using SQL DDL/DML Commands.

CO3: Build well formed in String Date/Aggregate Functions.

CO4: Design and Implement a database query using Joins, Sub-Queries and Set operations.

CO5: Program in SQL including Objects (Functions, Procedures, Triggers)



**COURSE: E COMMERCE AND ITS APPLICATIONS**

**(ALLIED)**

**CREDIT: 5**

- CO1: Understand the concepts of E-Commerce.
- CO2: Acquire the major challenges of B2C and E-Commerce.
- CO3: Understand the E-Hub and its Concepts.
- CO4: Prepare e-mail Id and etiquettes.
- CO5: Define the Web Browsing, Web sites and Web designs.
- CO6: Determine the Internet and its operation.
- CO7: Compare the difference between B2C and B2B

**COURSE: INDUSTRIAL ORGANIZATION (SKILL BASED SUBJECT)**

**CREDIT: 2**

- CO1: Understand the basic Industrial growth and current Scenario.
- CO2: Describe different ownership of the firm.
- CO3: Able to know about physical facilities, plant location and plant layout.
- CO4: Evaluate the product design, production planning and control.
- CO5: Understand different types of purchasing policy and inventory control.

**SEMESTER V**

**COURSE: COST ACCOUNTING I**

**(CORE PAPER) CREDIT: 4**

- CO1: Able to understand the Nature and Scope of Cost Accounting, and Computation of Cost Sheet and Tenders.
- CO2: Able to learn the preparation of Material Purchase and Control.
- CO3: Able to impart knowledge about Methods of pricing of Material Issues.
- CO4: Able to study about preparation of Labour Cost Control and calculate the wages and bonus of labourers.
- CO5: Able to gain knowledge about Distribution of Overheads.

**COURSE: MANAGEMENT ACCOUNTING(CORE PAPER) CREDIT: 4**

CO1: Able to learn the preparation of Financial Statement analysis.

CO2: Able to gain effective knowledge about Ratio Analysis.

CO3: Able to gain effective knowledge about Fund Flow and Cash Flow Statement.

CO4: Able to study about Standard Costing techniques.

CO5: Able to gain knowledge on the preparation of Budget and Budgetary Control.

**COURSE: BUSINESS MANAGEMENT(CORE PAPER) CREDIT: 4**

CO1: Able to gain knowledge pertaining to Fundamentals of Management.

CO2: Able to gain effective knowledge pertaining to develop planning.

CO3: Able to understand organising, authority and responsibility and departmentation.

CO4: Able to acquire knowledge on span of supervision, motivation, leadership, and communication.

CO5: Able to understand the techniques of control and coordination.

**COURSE: INTERNET AND ITS APPLICATIONS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: Able to gain knowledge pertaining to Fundamentals of web resources.

CO2: Able to gain effective knowledge pertaining to internet explorer.

CO3: Able to understand and creating E-mail id.

CO4: Able to acquire knowledge on HTML headers and viruses.

CO5: Able to understand the recent trends in digital marketing.

**COURSE: INCOME TAX LAW AND PRACTICE I**

**(ELECTIVE)**

**CREDIT: 3**

CO1: Able to understand the basic level of Income tax Act.

CO2: Able to gain effective knowledge on tax calculation of salaried people.

CO3: Able to gain knowledge on the tax calculation on house property income.

CO4: Able to obtain knowledge on income tax of business/ professional income.

CO5: Able to understand the administrative set up of income tax department and their powers.

## **COURSE: COMPUTER APPLICATIONS IN BUSINESS**

**(SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Able to understand the basic concepts of Computer.

CO2: Able to understand and create MS- Word.

CO3: Able to understand and create MS- Excel.

CO4: Able to understand the concept of E- Commerce and SMART card Applications.

## **SEMESTER VI**

### **COURSE: COST ACCOUNTING II**

**(CORE PAPER)**

**CREDIT: 5**

CO1: Able to understand the computation of Job, Batch, Contract Casting.

CO2: Able to learn the preparation of process Costing.

CO3: Able to impart knowledge about calculation of Operating Costing.

CO4: Able to study about preparation of Marginal Costing.

CO5: Able to gain knowledge about Reconciliation of Cost and Financial Accounts.

### **COURSE: WEB TECHNOLOGY**

**(CORE PAPER)**

**CREDIT: 5**

CO1: Able to understand the basics of HTML.

CO2: Able to learn how to create style sheet rules.

CO3: Able to impart knowledge about object in HTML.

CO4: Able to study about HTML server control methods.

CO5: Able to gain Knowledge about cookies and working with data.

## **COURSE: WEB TECHNOLOGY LAB**

**(CORE PAPER)**

**CREDIT: 5**

CO1: Able to understand HTML program using HTML basic tags.

CO2: Able to create hyper link, image and table on web page.

CO3: Able to understand the concept of Script language to display the content on web site.

CO4: Able to create web page and cookies program on web page.

CO5: Able to understand the various concepts of web Application programs.

## **COURSE: INCOME TAX LAW AND PRACTICE II**

**(ELECTIVE)**

**CREDIT: 3**

CO1: Able to know the calculation of taxes for gain on capital asset.

CO2: Able to know the tax on other source and its calculation.

CO3: Able to know the adjustment of carry forward Income/ Expenditure.

CO4: Able to expertise in preparation of total income of individual/ firm etc.

CO5: Able to gain knowledge on filing of income tax returns.

## **COURSE: ENTERPRISE RESOURCE PLANNING**

**(ELECTIVE)**

**CREDIT: 3**

CO1: Able to describe about business process Index ERP System.

CO2: Able to understand sales order Processing and CRM in ERP Environment.

CO3: Able to identify production and sales forecasting under SAP ERP.

CO4: Able to understand system of Industrial Credit Management and Profitability analysis.

CO5: Able to outline the system of preparing Payroll and Travel Management under ERP Software.

## **COURSE: INDUSTRIAL RELATIONS**

**(SKILL BASED SUBJECT)**

**CREDIT: 3**

CO1: Able to understand the basic concepts of industrial relations.

CO2: Able to know the origin and growth and need of trade unions.

CO3: Able to understand the concept of collective bargaining and workers participation  
in management.

CO4: Able to acquire practical knowledge on industrial dispute Act 1946.

CO5: Able to gain knowledge through understanding the provisions of the factories Act 1948.



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### **PG AND RESEARCH DEPARTMENT OF COMMERCE**

#### **B.COM GENERAL**

#### **PROGRAMME OUTCOMES**

PO1: To enable learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment etc.

PO2: To develop communication skills and build confidence to face the challenges of the corporate world

PO3: To Enhances the capability of decision making at personal and professional levels.

PO4: To make the students industry ready and develop various management and accounting skills for better professional opportunities.

PO5: To Develops entrepreneurial skills amongst learners.

PO6: To strengthens their capacities in varied area of commerce and industry aiming towards holistic Development of learners.

PO7: To develop a thorough understanding of the fundamentals in Commerce and Finance.

PO8: To systematize experiences and strengthen the professional competencies of student teachers.

PO9: To have critical thinking skills, which will enable them to understand, appreciate and critically.

PO10: Can evaluate real world developments in the field of commerce.

#### **PROGRAMME SPECIFIC OUTCOME**

PSO1: Learners venture into Managerial position, Accounting areas, Banking Sectors, Auditing, Company Secretaryship, Teaching Profession, Stock Agents, Government Employment etc. Enables learns to prove themselves in

different Professional examinations like CA, CS, CAT, GRE, CMA, MPSC, UPSC etc.

PSO2: Enable learners to demonstrate Progressive learning of various tax issue and tax forms related to individuals and businessmen and setting up their own business start-up.

PSO3: The vast syllabi cover various fields of commerce and accountancy which help students grasp practical and theoretical knowledge.

PSO4: Learners will gain thorough systematic and subject skills within various disciplines of commerce. Business. Accounting, economics, finance, auditing and marketing.

PSO5: Learners will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO6: Learner's will acquire the skills effective communication, decision making, problem solving in day-to-day business affairs

PSO7: Learners will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO8: To imbibe knowledge and develop an understanding of learning and teaching.

PSO9: Learners will be able to do higher education and advance research in the field of commerce and finance.

## **COURSE OUTCOME**

### **COURSE : PROFESSIONAL ENGLISH: I**

**CREDIT: 3**

CO1: Recognise their own ability to improve their own competence in using the language

CO2: Use language for speaking with confidence in an intelligible and acceptable manner.

CO3: Understand the importance of reading for life

CO4: Read independently unfamiliar texts with comprehension

CO5: Understand the importance of writing in academic life.

CO6: Write simple sentences without committing error of spelling or grammar.

### **COURSE: FINANCIAL ACCOUNTING (CORE PAPER)**

**CREDIT: 3**

CO1: The students will be able to understand basic fundamentals of double entry system accounting.

CO2: The students will be able to prepare final accounts.

- CO3: The students will be able to understand the depreciation accounting.
- CO4: The students will be able to prepare the accounting for single entry system.
- CO5: The students will be able to – understand the importance of tally Accounting.

**COURSE: BUSINESS ORGANIZATION (CORE PAPER) CREDIT: 3**

- CO1: The students will be able to gain knowledge about business and profession.
- CO2: The students will be able to understand the different forms of business organization.
- CO3: The students will be able to explore the theories of plant location and characteristics of layout.
- CO4: The students will be able to know the concepts of business combination and function of chamber of commerce, Trade Association.
- CO5: The students will be able to understand the basic concepts of MNCs

**COURSE: INDIAN ECONOMY-1 (ALLIED –I) CREDIT: 3**

- CO1: The students will be able to understand the various indicators of economic development.
- CO2: The students will be able to understand the importance, causes and impact of population growth.
- CO3: The students will be able to gain knowledge about the role of agriculture in economic development.
- CO4: The students will be able to gain knowledge about the role of agriculture labour, problems and remedies.
- CO5: The students will be able to understand the industrial development during plan period.

**SEMESTER II**

**COURSE: PROFESSIONAL ENGLISH: II CREDIT: 3**

- CO1: Ability to improve their own communicative competence.
- CO2: Ability to persuasive communicative skill.
- CO3: Understand the importance of digital competence.
- CO4: Develop creativity and imagination power
- CO5: Understand the importance of workplace communication and academic writing.



**COURSE: FINANCIAL ACCOUNTING-II (CORE PAPER) CREDIT: 3**

CO1: The students will be able to understand the basic fundamentals of branch accounting.

CO2: The students will be able to understand the basic fundamentals of department accounting.

CO3: The students will be able to understand the hire purchase and installment system of accounting.

CO4: The students will be able to prepare the accounts of partnership.

CO5: The students will be able to understand the basic of tally account

**COURSE: OFFICE MANAGEMENT (CORE PAPER) CREDIT: 3**

CO1: The students will be able to gain knowledge about nature and scope of organization.

CO2: The students will be able to gain effective knowledge about administrative arrangements and physical conditions.

CO3: The students will be able to gain knowledge of office Equipments and office system.

CO4: The students will be able to know about office correspondence.

CO5: The students will be able to learn about office supervisor.

**COURSE: INDIAN ECONOMY-II (ALLIED) CREDIT: 5**

CO1: The students will be able to understand the formation of national income.

CO2: The students will be able to acquire knowledge about the planning in India.

CO3: The students will be able to clarify the economic reforms and LPG policy.

CO4: The students will be able to understand the transport system and policy India.

CO5: The students will be able to understand the information technology in India.

**SEMESTER III**

**COURSE : CORPORATE ACCOUNTING-I**

**(CORE PAPER)**

**CREDIT: 5**

CO1: The students will be able to understand the basic concepts relating to issue of shares and make accounting entries.

CO2: The students will be able to make accounting entries for and redemption of preference shares.

CO3: The students will be able to be acquainted with accounting treatment for acquisition of business.

CO4: The students will be able to understand the accounting procedures related to profits prior to incorporation.

CO5: The students will be able to prepare company final account & company balance sheet.

## **COURSE: LEGAL ASPECTS OF BUSINESS**

**(CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to know the frame of Indian contract act 1872.

CO2: The students will be able to understand the other essential element of Indian contract 1872.

CO3: The students will be able to aware the provisions of special contracts and modes of discharge.

CO4: The students will be able to acquire knowledge of sale of goods act 1930.

CO5: The students will be able to consciousness on consumer protection act 1986.

## **COURSE: BUSINESS CORRESPONDENCE**

**(COR THEORY)**

**CREDIT: 3**

CO1: The students will be able to understand the basic concepts of business correspondence.

CO2: The students will be able to prepare the business letter style.

CO3: The students will be able to know the different types of business letters , offers, orders, complaints

CO4: The students will be able to acquire the knowledge of preparing letters, of applications with cv, resume etc.

CO5: The students will be able to understand the types and characteristics of business report

## **COURSE: BUSINESS STATICSTIC AND OPERATIONAL RESEARCH**

**(CORE PAPER)**

**CREDIT: 3**

CO1: The students will be able to acquired skills analysis and interpretation of data

CO2: The students will be able to gained knowledge on measures of central tendency and their application in business

CO3: The students will be able to learned about Correlation and regression

CO4: The student will be able to get familiarized about index Numbers and time series

CO5: The students will be able to solved challenging problems by using appropriate statistical tools

**COURSE: BUSINESS ECONOMICS-1 (ALLIED) CREDIT: 3**

CO1: The students will be able to understand the concept of business economics, objectives and scope.

CO2: The students will be able to gain knowledge of the demand forecasting and demand forecasting methods.

CO3: The students will be able to gain knowledge on utility concept.

CO4: The students will be able to acquire knowledge of demand fore casting and demand forecasting methods.

CO5: The students will be able to gain knowledge of production function and returns to scale.

**COURSE: COMPUTER APPLICATION IN BUSINESS (SKILL BASED SUBJECT) CREDIT: 2**

CO1: The students will be able to gain basic knowledge about computer concept and terminology.

CO2: The students will be able to acquired skills to produce word processing documents.

CO3: The students will be able to demonstrated basic skills involving MS excel sheet.

CO4: The students will be able to acquired skills on data base.

CO5: The students will be able to enhanced knowledge on business presentation by using presentation software.

**SEMESTER - IV**

**COURSE: CORPORATE ACCOUNTING II (CORE PAPER) CREDIT: 4**

CO1: Impart the knowledge of valuing shares and goodwill of the company

CO2: Understand the accounting procedures related to Alteration of share capital and Internal Reconstruction

CO3: Be acquainted with accounting procedures for Mergers and acquisitions.

CO4: Prepare consolidated financial statements of Holding company and its subsidiary companies.

CO5: Know the accounting procedures related to preparation of bank accounts.

**COURSE: BUSINESS MANAGEMENT (CORE PAPER) CREDIT: 4**

CO1: Knowledge pertaining to fundamentals of management

CO2: Knowledge pertaining to development planning

CO3: Understand organizing and staffing

CO4: Knowledge pertaining to motivation structures.

CO5: Advanced Programming techniques using control and coordination

**COURSE: COMPANY LAW (CORE PAPER) CREDIT: 3**

CO1: To Learn about Nature, Scope and Kinds of Company

CO2: To gain effective knowledge about Formation of a Company

CO3: To effectively impart knowledge about Prospectus of company

CO4: To Know about Members of Company

CO5: To learn about Directors of Company and Winding up of Company.

**COURSE: MODERN BANKING (CORE PAPER) CREDIT: 3**

CO1: The students will be able to acquire the knowledge of different types of banking

CO2: The students will be able to know the measures and methods of credit control in central bank.

CO3: The students will be able to understand the concept of SBI.

CO4: The students will be able to study the different types of development banking in India.

CO5: The students will be able to acquire the new concepts of E-Banking.

**COURSE: E-COMMERCE**

**(SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: To understand the knowledge of E-Commerce

CO2: Gaining Knowledge on E-Marketing.

CO3: Know the E-Payment system.

CO4: Knowledge on Electronic Data Interchanges (EDI)

CO5: Conceive an idea of legal framework for E-Commerce

**COURSE: BUSINESS ECONOMICS-II (ALLIED)**

**CREDIT: 5**

CO1: To understand the cost and revenue analysis in business.

CO2: To gain knowledge of the pricing of perfect competition, monopoly and monopolistic competition.

CO3: To gain knowledge of theories of Distribution.

CO4: To acquire knowledge on the capital budgeting

CO5: To gain knowledge decision making under certainty and uncertainty.

**SEMESTER -V**

**COURSE: COST ACCOUNTING - I (CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to understand the Nature and Scope of Cost Accounting, and Computation of Cost Sheet and Tende

CO2: The students will be able to learn the preparation of Material Purchase and Control.

CO3: The students will be able to impart knowledge about Methods of pricing of Material Issues.

CO4: The students will be able to study about preparation of Labour Cost Control.

CO5: The students will be able to gain knowledge about Distribution of Overheads.

**COURSE: PRACTICAL AUDITING (CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to acquire the basic concepts of auditing

CO2: The students will be able to learn the meaning and importance of internal audit, internal check and control.

CO3: The students will be able to understand the verification of vouchers and vouching

CO4: The students will be able to study the auditor's appointment, removal, qualification and disqualification.

CO5: The students will be able to identify the auditor's reports and its kinds.

**COURSE: MANAGEMENT ACCOUNTING (CORE PAPER) CREDIT: 5**

CO1: The students will be able to learn the preparation of Financial Statement Analysis.

CO2: The students will be able to gain effective knowledge about Ratio Analysis.

CO3: The students will be able to impart knowledge about Fund Flow and Cash Flow Analysis

CO4: The students will be able to study about Marginal Costing techniques.

CO5: The students will be able to know about the preparation of Budget and Budgetary Control.

**COURSE: INCOME TAX LAW AND PRACTICE- I**

**(CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to understand the basic level of Income tax Act.

CO2: The students will be able to know the tax calculation on house property income

CO3: The students will be able to achieve knowledge on tax calculation of salaried people.

CO4: The students will be able to obtain knowledge on income tax of business / professional income

CO5: The students will be able to understand the administrative set up of income tax department and their powers.

**COURSE: ENTREPRENEURIAL DEVELOPMENT (ELECTIVE)**

**CREDIT:3**

CO1: The students will be able to understand the basic concepts and theories of entrepreneurship.

CO2: The students will be able to exemplify knowledge on course contents, curriculum and constraints of EDP.

CO3: The students will be able to conceive business ideas and convert them into business projects.

CO4: The students will be able to become familiar with institutions support various form of assistance and subsidies.

CO5: The students will be able to learn the MSMEs schemes provided to budding entrepreneurs

**COURSE: PRINCIPLES OF MARKETING (SKILL BASED SUBJECT)**

**CREDIT: 2**

CO1: The students will be able to understand the basic principles and practices of marketing.

CO2: The students will be able to be aware of the important of products, standard of branding, packing and quality management.

CO3: The students will be able to understand the pricing mechanism of marketing.

CO4: The students will be able to know the basic aspects of the channels of distribution and buyer's behaviours.

CO5: The students will be able to articulate sales Promotional techniques used in modern marketing.

**SEMESTER VI**

**COURSE: COST ACCOUNTING – II (CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to taught the Computation of Job, Batch, Contract Costing

CO2: The students will be able to learn the preparation of Process Costing.

CO3: The students will be able impart knowledge about calculation of Operating Costing

CO4: The students will be able to study about preparation of Standard Costing.

CO5: The students will be able to gain knowledge about Reconciliation of Cost and Financial Accounts.

**COURSE: INCOME TAX LAW AND PRACTICE II**

**(CORE PAPER)**

**CREDIT: 4**

CO1: The students will be able to know the calculation of taxes for gain on capital asset.

CO2: The students will be able to know the tax on other source and its calculation.

CO3: The students will be able to know the adjustment of carry forward income/Expenditure.

CO4: The students will be able to expertise in preparation of total income of individual/ firm etc.

CO5: The students will be able to gain knowledge on filing of income tax returns.

**COURSE: FINANCIAL MANAGEMENT (ELECTIVE) CREDIT: 4**

CO1: The students will be able to understand the basic Principles and practices of Financial management.

CO2: The students will be able to determine the amount of Capital, Organization and Structure. Reduce cost of Capital and Operating Risks

CO3: The students will be able to have the knowledge and practice of arriving financial decision makings.

CO4: The students will be able to acquire practical knowledge on Calculation of working capital.

CO5: The students will be able to gain knowledge on leverage and portfolio management.

**COURSE: SERVICE MARKETING(ELECTIVE) CREDIT: 3**

CO1: To understand the concepts and evolution of service marketing

CO2: Explore the 4 Ps of service marketing

CO3: To Perceive the strategies in service marketing

CO4: To explore the quality issues of service marketing.

CO5: To understand the different services organization.

**COURSE: INVESTMENT MANAGEMENT (ELECTIVE) CREDIT: 3**

CO1: To understand the Fundamentals of Investment

CO2: Knowledge pertaining to Security Investment.

CO3: Knowledge about Non Security Investment.

CO4: Scientific reasoning about Risk and Return.

CO5: Reflective thinking through Fundamental and Technical Analysis



**COURSE: HUMAN RESOURCES MANAGEMENT**

**(ELECTIVE)**

**CREDIT: 2**

CO1: The students will be able to understand the basic of Human Resource Management.

CO2: The students will be able to get the ability to plan Human resource

CO3: The students will be able to attain knowledge about leadership qualities through Recruitment and Selection.

CO4: The students will be able to know Comprehension about Training and Development.

CO5: The students will be able to get awareness about Performance and Potential Appraisal.



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Phone: 04174 – 235266

## **MASTER OF COMMERCE**

### **M.COM (GENERAL)**

### **PROGRAMME OUTCOMES**

PO1: Apply the knowledge of the business policies, auditing, finance etc, both at the macro and micro level.

PO2: To analyze the economic, social and environmental issues related to business.

PO3: To comprehend applicability of management principles to situation in global business world and develop legal and ethical value for the continuous development of business venture.

PO4: Demonstrate critical thinking skills in understanding managerial issues and problems related to the global economy and international business.

PO5: Identify, evaluate and resolve real-time business problems with the specialized knowledge developed through practical training.

## **PROGRAM SPECIFIC OUTCOMES**

- PSO1: To impart the students with higher level knowledge and understanding of contemporary trends in commerce and business finance.
- PSO2: To equip the students to evaluate environmental factors that influence business operation with the conceptual requirement and skills on preparation and interpretation of financial statements.
- PSO3: To prepare the students to apply statistical methods and proficient use of tools for modeling and analysis of business data
- PSO4: To facilitate the students to apply capital budgeting techniques for investment decisions.
- PSO5: To prepare students to appraise the structure and operations of banking system.
- PSO6: To prepare the students for an in depth analysis of investment, portfolio management, investment banking and liquidation of investments.
- PSO7: To develop competency in the students about the laws and regulations, and roles of commercial, government and central banks in controlling money market and inflation.
- PSO8: To facilitate the students to analyze and frame micro financing schemes for rural banking.
- PSO9: To impart concept of risk mitigation in financial sectors and their role in investment decisions of individuals and business enterprises.
- PSO10: To provide the guidance to students to plan and undertake research in a chosen discipline

## **COURSE OUTCOME**

### **SEMESTER – I**

## **COURSE: ADVANCED FINANCIAL MANAGEMENT**

**(CORE PAPER)**

**CREDIT: 4**

- CO1: The student will be able to understand the functions of finance Management.
- CO2: The student will be able to know about the long term sources of funds and environment of working capital.
- CO3: The student will be able to gain information about capital structure and leverage

CO4: The student will be able to gain knowledge about capital investment decision

CO5: The student will be able to be acquainted with on the subject of working capital Management.

## **COURSE: ACCOUNTING FOR MANAGERIAL DECISIONS**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to understand the concept of

Accounting for Decision making

CO2: The student will be able to understand the Ratio Analysis Leverage analysis budgeting and budgetary control

CO3: The student will be able to understand the analysis of Fund flow and cash flow statements

CO4: The student will be aware of the Marginal Costing, Applications and its technique

CO5: The student will be able to know Financial decisions Making

## **COURSE: MARKETING MANAGEMENT (CORE PAPER) CREDIT:4**

CO1: The students will be able to know the core market and their functions.

CO2: The students will be able to know the various kinds of Pricing and various stages in product life cycle, new product development.

CO3: The students will gain knowledge about the marketing channel and distribution.

CO4: The students will learn about the kinds of advertisement and qualities of good salesman.

CO5: The Student will know about the recent trend in modern marketing and digital marketing.

## **COURSE: ADVANCED BUSINESS STATISTICS**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to know Partial and Multiple Correlations.

CO2: The Student will be able to know Probability And Binomial Distribution.

CO3: The Students will know the issues surrounding Sampling, Hypothesis, Z Test and T Test.

CO4: The Student will be able to have The Awareness About Application Of Chi- Square Distribution.

CO5: The Student will be able to Know About Analysis Of Variance And FTest

## **COURSE: COMPUTER APPLICATIONS IN BUSINESS**

**(CORE ELECTIVE)**

**CREDIT:3**

CO1: The student will be able to understand the various components of a computer system  
:Storage Devices, Input Devices & Output devices

CO2: The student will be able to develop an idea about World Wide Web and Internet  
browsing

CO3: The student will be able to know about the Preparation and presentation of business  
documents using Word Document

CO4: The student will be able to will gain knowledge of about Preparation and presentation of the business  
documents using Excel Sheet.

CO5: The student will be able to acquire the knowledge about how to Prepare PPT-  
PowerPoint presentation using various Transitions, Animations and other layouts.

## **COURSE: PRINCIPLES OF INTERNET (OPEN ELECTIVE)**

**CREDIT:3**

CO1: Students are able to learn the basics of Internet.

CO2: Students are able to provide fundamental knowledge WWW.

## **SEMESTER – II**

### **COURSE: CORPORATE LAWS (CORE PAPER)**

**CREDIT:4**

CO1: Define Corporate Personality, Corporate Governance, E-Governance and describe the Corporate  
Governance Code in Companies Act.

CO2: Discuss the prohibition of certain Agreements, Abuse of Dominant Position and regulation of  
Combinations under The Competition Act.

CO3: Enumerate the Powers and Functions of SEBI.

CO4: Describe the provisions related to listing of Securities, Public Offerings and discuss the prohibition of  
Insider Trading in various regulations of SEBI

CO5: Discuss the provisions related to Regulation and Management of Foreign

Exchange, Related Offences, Penalties and Appeals Procedure under FEMA, 1999.

CO6: Elucidate the Corporate Insolvency Resolution Process and Liquidation Process under Insolvency and Bankruptcy Code, 2016.

## **COURSE: HUMAN RESOURCE MANAGEMENT**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to understand the concepts of Human Resource Management

CO2: The student will be able to understand Recruitment and Selection Procedure

CO3: The student will be able to know the various ways of solving the employee grievances procedure.

CO4: The student will be able to know the evaluation methods of Performance Appraisal

CO5: The student will be able to evaluate the Different Techniques of Training

## **COURSE: ADVANCED CORPORATE ACCOUNTING**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to make them aware about the accounts of banking companies.

CO2: The student will gain knowledge on preparation of accounts of insurance companies.

CO3: The student will be able to know develop knowledge of holding company concept & preparation of consolidated balance sheet.

CO4: The student will be able to know about Inflation accounting and CPP method

CO5: The student will be able to know about Human Resource Accounting in India

## **COURSE: E-COMMERCE (CORE LECTIVE)**

**CREDIT:3**

CO1: The students will be able to understand the Applications of Ecommerce in business

CO2: The students will be able to understand the Network Infrastructure of ECommerce.

CO3: The students will be able to understand the Internet Protocols in ECommerce.

CO4: The students will be able to understand the Network Security in ECommerce.

CO5: The students will be able to understand the Types of Digital Documents in ECommerce.

**COURSE: PRINCIPLES OF WEB DESIGN (OPEN ELECTIVE)**

**CREDIT:3**

CO1: The Students are able to learn how to combine basic HTML elements to create Web pages.

CO2: The Students are able to understand the use of HTML tags and tag attributes to control a Web page's appearance.

CO3: The Students are able to capable to learn how to add absolute URLs, relative URLs, and named anchors to Web pages.

CO4: The Students are able to gain a good understanding of using tables and frames as navigational aids on a Web site.

CO5: The students are able to control appearance web pages by applying style sheet.

**SEMESTER – III**

**COURSE: GOODS & SERVICES TAX (CORE PAPER)**

**CREDIT:4**

CO1: The students will able to know and familiarize with the fundamentals of Taxation.

CO2: The students will able to know GST and its history of GST and their types.

CO3: The students will able to know the exempted goods and Services under GST Act.

CO4: The students will able to know the Administration of GST and Authority.

CO5: The students will able to know how to avail the Appeal and Revision under GST Act.

**COURSE: ORGANIZATIONAL BEHAVIOUR**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to understand the basic concept of organizational behavior and foundations of individual behavior

CO2: The student will be able to develop an idea about different motivational theories and evaluate motivational strategies used in a variety of organizational settings.

CO3: The student will be able to understand the foundation of group dynamics and the nature of stress and its management.

CO4: The student will be able to evaluate the appropriateness of various leadership styles and how to deal with organizational conflict.

CO5: The student will be able to understand different types of organizational structures and importance of organizational effectiveness

**COURSE: ADVANCED COST ACCOUNTING**

**(CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to understand the basic concepts in Cost Accounting and also familiarizing with the preparation of Cost Sheets, Tenders and Quotations.

CO2: The student will be able to understand Preparation of Process Costing.

CO3: The student will be able to know the Standard Costing and Variance Analysis

CO4: The student will be aware of the Cost control and Cost Reduction.

CO5: The student will be able to develop the knowledge about Activity based costing.

**COURSE: RESEARCH METHODOLOGY (CORE PAPER)**

**CREDIT:4**

CO1: The student will be able to understand the basics of Research Methodology.

CO2: The student will be able to know the Data Collection and Sampling

CO3: The student will have understanding of Processing Data.

CO4: The student will be able to have the awareness of Data Analysis through opt Statistical Tools

CO5: The student will be able to know about Research Report and SSPS package

**COURSE: SERVICES MARKETING (CORE ELECTIVE)**

**CREDIT:3**

CO1: The student will be able to understand the Essential Elements of marketing mix in Service marketing

CO2: The student will be able to develop an idea about marketing strategies for various services marketing-mix.

CO3: The student will be able to know and learn about Product support services and identify the problems of Service quality management

CO4: The student will be able to learn the of Marketing of financial services.

CO5: The student will be able to acquire the knowledge about CRM.



**COURSE: SOFT SKILLS (OPEN ELECTIVE)**

**CREDIT:3**

CO1: The students can recap the language skills, Grammar, Vocabulary, Phrase, Clause and sentences.

CO2: The learner can build his fluency gradually.

CO3: The students can acquaint with LSRW skills and can also develop his Non- Verbal Communication.

CO4: The students are taught about the Learning etiquettes

CO5: The student can also learn about the importance of Business Etiquette.

**SEMESTER – IV**

**COURSE: DIRECT TAXES (CORE PAPER)**

**CREDIT:4**

CO1: The Students we able to Contrast the Different Basic Concepts in Income TaX

CO2: The Students we able to understand and Compute Salary Income and Income from House Property

CO3: The Students we able to understand and Construct the Statements for Business. Income, Professional Income and Capital Gains

CO4: The Students we able to understand and Compute Income from Other Sources and Total Income of Individuals

CO5: The Students we able to understand and Trace Assessment Procedure and Familiarizing Tax Planning

**COURSE: INVESTMENT & PORTFOLIO MANAGEMENT  
(CORE PAPER)**

**CREDIT:4**

CO1: Making the students being well aware of types of financial markets

CO2: Testing the knowledge of students about measurement of risk and return.

CO3: Asses the performance of students in relation to Fundamental Analysis, Economic Analysis, Industry Analysis and Company Analysis.

CO4: Evaluate student's knowledge on valuation of equity shares, preference shares,

debentures and bonds

CO5: Getting the students to familiarize Efficient Market Hypothesis

**COURSE: PROJECT DEVELOPMENTS (CORE PAPER) CREDIT:5**

CO1: The students will be able to understand the Project and its development:

CO2: The students will be able to understand the Capital expenditure decisions of projects.

CO3: The students will be able to understand the Economic Viability of the project.

CO4: The students will be able to understand the Sources of Project Finance.

CO5: The students will be able to understand the Project schedule and control mechanism.

**COURSE: INFORMATION TECHNOLOGY IN BUSINESS**

**(CORE ELECTIVE)**

**CREDIT:3**

CO1: The Students will be able to develop skills to practice information systems in Business.

CO2: The Students will be able understand the Accounting and Financial Information Systems.

CO3: The Students will be able to develop to skill by preparing to online business

CO4: The Students will be able to know the Security Issues in E-Commerce and Risk management approach to e-commerce security.

CO5: The student will be able to understand the relevant information technology, growth of internet and Usage of Internet to society



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### **PG DEPARTMENT OF BIOCHEMISTRY**

#### **B.Sc.BIOCHEMISTRY**

#### **PROGRAMME OUTCOME**

PO1: After completion of Biochemistry program students will be able to get exposed to strong theoretical and practical background in fundamental concepts.

PO2: To get insights of multiple important technical areas of Biochemistry.

PO3: To apply contextual knowledge and modern tools of biochemical research for solving problems.

PO4: To make them able to express ideas persuasively in written and oral form to develop their leadership qualities.

PO5: To demonstrate professional and ethical attitude with enormous responsibility to serve the society.

#### **PROGRAMME SPECIFIC OUTCOME**

PSO1: Ability to analyze the various biological components through analytical tools in living cells and molecular machinery.

PSO2 : Development of practical laboratory skills and strong speculative foundation in the cross over discipline of Chemistry, Microbiology & Bioinformatics.

PSO3: Understanding of the applications of Biochemistry in various fields such as

Clinical Biochemistry, Genetic Engineering, Molecular biology & Biotechnology.

PSO4 : Acquire practical skills that will prepare for a future career in the interdisciplinary subjects.

## **COURSE OUTCOME**

### **SEMESTER-I**

#### **COREPAPER- I**

##### **COURSE: CELL BIOLOGY (CORE PAPER)**

**CREDIT-4**

CO1:To analyse the structures and basic components of cells.

CO2:To study the difference between prokaryotes and eukaryotes.

CO3:To understand the compartmentalization in cell biology.

CO4:To gain knowledge on the biological role of extracellular matrix

CO5:To acquire knowledge on the importance of gap and tight junction

### **SEMESTER-II**

#### **COREPAPER- II**

##### **COURSE: BIOMOLECULES (CORE PAPER)**

**CREDIT-4**

CO1:To Understand the structures and functions of carbohydrates

CO2:To illustrate the classification, structure , properties of amino acids.

CO3:To Acquire knowledge about the classification of proteins, levels of structural organization of proteins.

CO4:To Gain knowledge on the structure and properties of nucleic acids.

CO5:To study the importance of various lipids

## **CORE PRACTICAL-1**

**COURSE: PRACTICAL -I (CORE PRACTICAL)**

**CREDIT-4**

CO1. Qualitatively analyze the carbohydrates and amino acids and report the type of Carbohydrate based on specific tests.

CO2 .Differentiate the carbohydrates based microscopic examination of the crystal Structure.

CO3. Quantify glucose by benedict's method

CO4 .Quantify ascorbic acid in lemon by Dichlorophenol indo phenol dye method

CO5. Determine lipid properties of unsaturation and fatty acid content by SAPnumber and iodine number.

### **SEMESTER-III**

### **COREPAPER- III**

**COURSE: ANALYTICALBIOCHEMISTRY (CORE PAPER)**

**CREDIT-5**

CO1: To obtain analytical skills and practical knowledge on various techniques involved in biochemistry.

CO2: To determine pH &pOH using electrochemical techniques.

CO3: To gain knowledge on the methodology involved in separation and characterization of proteins, Nucleic acid by various electrophoresis techniques.

CO4: To understand the separation and purification of macromolecules using chromatography

CO5: To understand atomic structure, radiation and its hazards, detection and measurement of radioactivity using GM counter and Scintillation counter.

### **ALLIED -2**

### **PAPER - 3**

### **MICROBIOLOGY I**

**CREDIT-3**

CO1. To gain knowledge on history of microbiology and various types of microscopes

CO2. To learn about cell structure and staining methods

CO3. To understand Microbial Classification and genome organization

CO4. To gain knowledge on culturing microorganisms and microbial growth

CO5. To learn about antimicrobials and various groups of microorganisms.

## **SKILL BASED SUBJECT-I**

### **COURSE:FIRST AID (SKILL BASED)**

**CREDIT-2**

CO1: To understand the importance of first aid

CO2: To gain practical knowledge on the treatment for medical emergency

CO3: To acquire knowledge on the treatment for various wounds

## **NON-MAJOR ELECTIVE**

### **COURSE: FOODANDNUTRITION (NME)**

**CREDIT-2**

CO1:To realizing the fact that “Food as medicine”

CO2:To analyze the importance of carbohydrates with their sources

CO3:To gain knowledge on the sources and functions of fats in the body

CO4:To illustrate the biological significance of proteins in the body

CO5:To gain insights on the types of vitamins and minerals with their biomedical significance.

## **SEMESTER IV**

### **COREPAPER- IV**

### **COURSE: PLANT BIOCHEMISTRY (CORE PAPER)**

**CREDIT-4**

CO1:To gain knowledge on the plant physiology

CO2:To understand the events of photosynthesis

CO3:To identify the functions of growth hormones

CO4:To understand the mechanism of nitrogen fixation

CO5:To illustrate the responses of plants to the stress

## **ALLIED - 2**

### **PAPER - 4**

## **MICROBIOLOGY – II**

**CREDIT-3**

CO1. To gain knowledge about the importance of microorganisms in soil and agriculture

CO2. To understand the role of microorganisms in air and water

CO3. To learn about foodborne microorganisms

CO4. To gain knowledge on microbial production of industrially important compounds

CO5. To learn about various microorganisms causing diseases in humans.

## **SKILL BASED SUBJECT-II**

**COURSE: BIOSTATISTICS (SBS)**

**CREDIT-2**

CO1: To understand the definition of biostatistics and its scope.

CO2: To Ascertain the methods and importance of data collection and presentation

CO3: To Examine the usage of statistical tools like measure of central tendency and  
Measure of dispersion

CO4: To apply hypothesis testing via t, f, z and chi square statistical distribution

CO5: To deduce ANOVA and make statistical decision.

## **NON MAJOR ELECTIVE**

**COURSE: LIFESTYLE DISEASES & PREVENTION (NME)**

**CREDIT-2**

CO1. To understand the basics of lifestyle diseases.

CO2. To identify lifestyle Prone Disorders

CO3. To gain knowledge on the Communicable and Non-Communicable Disease

CO4. To understand the importance of maintaining good health

CO5. To lead a healthy lifestyle to cope up with modern life.

## **CORE PRACTICAL-II**

**COURSE: 1. COLORIMETRY 2. BIOCHEMICAL PREPARATION**

**3. CHROMATOGRAPHIC SEPARATION 4. ELECTROPHORETIC**

**TECHNIQUE**

**CREDIT-3**

CO1. Estimate phosphorus and protein using colorimetric method

CO2. Exhibit the knowledge of isolation of biomolecules like starch, casein and albumin  
from biological samples

CO3. Obtain hands on training in basic separation technique like paper

chromatography, thin layer chromatography to separate amino acids and sugars

CO4. Obtain hands on training to separate chlorophyll, carotenes of flower pigments  
and protein using column Chromatography

CO5. Demonstrate the principle and working of SDS PAGE and its applications.

## **ALLIED PRACTICAL II**

### **ALLIED MICROBIOLOGY PRACTICAL**

CO1. To gain knowledge about laboratory procedures in Microbiology

CO2. To use microscopes in the study of microorganisms

CO3. To learn about media preparation

CO4. To observe and isolate microorganisms from samples

CO5. To learn about enumeration of microorganisms.

## **SEMESTER-V**

### **COREPAPER-V**

#### **COURSE: ENZYMES AND INTERMEDIARY METABOLISM (CORE PAPER)**

**CREDIT -6**

CO1. To acquire fundamental knowledge on enzymes and their importance in biological reactions.

CO2. To know the mechanism of enzyme and its importance in biological reactions.

CO3. To determine the biochemical reactions, central metabolic pathways and kinetics of energy and homeostasis of metabolism.

CO4. To gain insights into metabolic engineering for the production of useful bio molecules

CO5. To understand the importance of high energy compounds, electron transport chain synthesis of ATP under aerobic and anaerobic conditions.

### **COREPAPER-VI**

#### **COURSE: GENETICS & MOLECULAR BIOLOGY (CORE PAPER)**

**CREDIT-5**

CO1. To understand the major experimental approaches

CO2. To gain knowledge about the steps involved in replication, transcription and translation.

CO3. To study the salient features of genetic code

CO4. To acquire knowledge of gene & to know how genes are expressed

CO5. To be aware of the regulation of cellular processes, signaling and proliferation in prokaryotic cells.



## **COREPAPER-VII**

**COURSE: HUMAN PHYSIOLOGY AND NUTRITIONAL  
BIOCHEMISTRY (CORE PAPER) CREDIT -4**

- CO1. To understand the types and functions of blood cells
- CO2. To learn the structure and functions of the different organs
- CO3. To understand the mechanism of digestion ,absorption and respiration in the body
- CO4. To gain knowledge on the importance of nutrients in body
- CO5. To acquire a deep in sight on the significance of vitamins and minerals in the body.

## **ELECTIVE SUBJECT**

**COURSE: MEDICAL LABORATORY TECHNOLOGY-I&II**

**(ELECTIVE) CREDIT-3**

To obtain practical skills to analyze biological samples.

- CO1. To perform collection and preservation of biological samples.
- CO2. To estimate hematological parameters
- CO3. To examine urine and stool sample for normal and abnormal constituents
- CO4. To acquires skills to culture microorganism.

## **SKILL BASED SUBJECT**

**COURSE: BIOSTATISTICS – I &II(SBS) CREDIT-3**

- CO1. To understand the definition of biostatistics and its scope. Ascertain the methods and importance of data collection and presentation
- CO2. To examine the usage of statistical tools like measure of central tendency and measure of dispersion
- CO3. To apply hypothesis testing via t, f, z and chi square statistical distribution& Basic definition of Probability
- CO4. To deduce the results of correlation and regression
- CO5. To deduce ANOVA and make statistical decision.

## **SEMESTER-VI**

### **CORE PAPER-VIII**

#### **COURSE: CLINICAL BIOCHEMISTRY (CORE PAPER)**

**CREDIT-6**

- CO1. To acquire fundamental knowledge blood glucose regulation and diabetes mellitus.
- CO2. To know about the genetic diseases and fatty liver
- CO3. To obtain a knowledge of liver function tests and its interpretation with pathological diseases.
- CO4. To gain insights renal function tests and importance of non-protein nitrogenous compounds.
- CO5. To understand the importance marker enzymes in diseases and gastric function

### **COREPAPER-IX**

#### **COURSE: BIOTECHNOLOGY (CORE PAPER)**

**CREDIT-6**

- CO1. To acquire knowledge on the recombinant DNA
- CO2. To gain insights on the various vectors
- CO3. To analyse the applications of rDNA in biotechnology
- CO4. To acquire the knowledge about animal cell culture
- CO5. To apply knowledge about genetic engineering in various organism.

### **ELECTIVE SUBJECT**

#### **COURSE: IMMUNOLOGY (ELECTIVE)**

**CREDIT-3**

- CO1. To gain a wide knowledge on cells and organs of immune system
- CO2. To study the types of immunity
- CO3. To understand the structure and functions of antibodies
- CO4. To acquire skills to perform immunological techniques.
- CO5. To gain deep in sight on the mechanisms involved during allergic reactions.

### **CORE PRACTICAL-III**

**COURSE: 1. COLORIMETRIC ESTIMATIONS 2.EXPERIMENTS OF ENZYME ASSAY 3.BIOTECHNOLOGY EXPERIMENTS 4.DEMONSTRATION EXPERIMENTS CREDIT-5**

- CO1. Estimate creatinine by Jaffe's method,
- CO2. Estimate urea by DAM-TSC method,
- CO3. To Obtain the knowledge of effect of pH,temperature and substrate concentration on the activity of salivary amylase, urease
- CO4. To obtain technical knowledge of electrophoresis.

### **ELECTIVE PRACTICAL-IV**

**COURSE: MEDICAL LABORATORY TECHNOLOGY CREDIT-3**

- CO1. To obtain practical skills to analyses biological samples.
- CO2. To perform collection and preservation of biological samples.
- CO3. To estimate hematological parameters
- CO4. To examine urine and stool sample for normal and abnormal constituents
- CO5. To acquire skills to culture microorganism.



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### PG DEPARTMENT OF BIOCHEMISTRY

#### M.Sc.BIOCHEMISTRY

### PROGRAMME OUTCOME

PO1: The students achieved for best computational performance in a specific context.

PO2: They cultivate the highest level of learning and technological key outcomes.

PO3: We were chosen social welfare oriented skill based subject and its applications in biology, helps to the students & social welfare.

PO4: Be able to design and Contact Scientific experiments and analyzing the resulting data.

PO5: Able to work as a member of team.

PO6: Be knowledge in classical laboratory techniques and be able to use modern instrumentation.

PO7: Knowledgeable of ethical practical's in science.

PO8: Be able to access search and use the chemical literature.

PO9: We were organizing many extension activities live internship programme, industrial visit, hands on training workshop, project oriented instrumentation programmes. It exposes the students for job opportunity and individual talents.

PO10: These competence of a course possess upon achieved for course specific goals

### PROGRAMME SPECIFIC OUTCOME

PSO1: Acquire knowledge and skills to undertake a career in research in an academic

PSO2: Apply the knowledge of experimental approaches to solve problems of a chemical nature & ability to enter that knowledge to the solution.

PSO3: Drug development and synthesize the knowledge & apply the same for multitude of laboratory applications.

PSO4: Understand and apply the concepts of life Sources, empower the technical knowledge know & practical hands-on training in the field.

PSO5: Its academic, research, industrial & pharmaceutical applications.

## **SEMESTER I**

### **CORE PAPER-I**

**COURSE: ADVANCES IN CELL BIOLOGY(CORE PAPER) CREDIT-4**

- CO1. To study the structure and function of cells
- CO2. To understand about extra cellular matrix and cell communication.
- CO3. To understand the function of intracellular organelles
- CO4. To understand the function of cell cycle mechanism
- CO5. To understand the Division of cells and Cell Death
- CO6. To study the concepts of cell signaling.

### **CORE PAPER-II**

**COURSE: CHEMISTRY OF BIOMOLECULES(CORE PAPER)**

**CREDIT-4**

- CO1. This course emphasizes on various Biomolecules and its significance.
- CO2. To enable students the biological importance of lifeless chemical compounds.
- CO3. To enable the students to learn the basic functions and structures of Biomolecules.
- CO4. On successful completion of the course the students should have understood the significance of the complex bio-molecules, polysaccharides, lipids and proteins.
- CO5. To enable the students to learn the basic functions, structures and biological importance of nucleic acids and porphyrins.
- CO6. To study the structure and functions of vitamins and minerals.

### **CORE PAPER-III**

**COURSE: HUMAN PHYSIOLOGY(CORE PAPER)**

**CREDIT-3**

- CO1. This course provides a comprehensive, balanced introduction to this exciting, evolving and multi-disciplinary field.
- CO2. To understand the circulatory cells, blood and its components.
- CO3. To enable the students to learn or to know the biological, physiological activities of various organs.
- CO4. To understand and the functions, anatomy, histology of each organ systems.
- CO5. To understand how the body works and explains the mechanisms.
- CO6. To understand in depth knowledge of main structure composing human body.

## **ELECTIVE PAPER**

### **COURSE: PLANT BIOCHEMISTRY(ELECTIVE)**

**CREDIT-3**

- CO1. Introduction and provides a comprehensive, balanced introduction to this exciting, evolving and multi-disciplinary field.
- CO2. To enable the students to learn the aspects of photosynthesis.
- CO3. To understand the concept of Nitrogen fixation process and interaction between assimilation and metabolism.
- CO4. To understand the plant metabolism, nutrient absorption and its efficiency.
- CO5. To be aware of various plant hormones and its roles.
- CO6. To identify the process of Dormancy-Germination, Reproduction and Budding process.

## **SEMESTER-II**

### **CORE PAPER-IV**

#### **COURSE: ANALYTICAL BIOCHEMISTRY (CORE PAPER)**

**CREDIT-4**

- CO1. To understand the working principles of analytical instruments.
- CO2. To apply and analyze the biochemical samples using analytical instruments
- CO3. To make the student familiar with the basic concepts of chromatography and spectroscopy utilized for food analysis
- CO4. To acquire some technical knowledge of, and some practical experience with, analysis in electrophoresis
- CO5. To promote capacity building and research biodiversity use and conservation
- CO6. worldwide through the application of molecular markers.

### **CORE PAPER-V**

#### **COURSE:METABOLIC REGULATION AND DISORDERS (CORE PAPER)**

**CREDIT-4**

- CO1. To understand the rate of acceleration of the biochemical reactions in the presence of the biocatalyst (enzymes).
- CO2. To enhance the knowledge about the key biochemical pathways in metabolism and their regulations.
- CO3. To analyze the importance of biochemical metabolic pathways.

CO4. To acquire the concept of anabolism, catabolism and role of high energy compounds in the cell.

CO5. Ability to relate various interrelated physiological and metabolic events.

### **COURSE: ELECTIVE - BIOINFORMATICS**

**CREDIT-3**

CO1. To provide the strong knowledge on computer peripherals and hardware description.

CO2. To impart basic knowledge on operating system.

CO3. To understand about basics in bioinformatics and different types of database.

CO4. To develop sound knowledge on structural prediction of RNA and protein

CO5. To understand about 3-D Structural analysis of bio molecules.

### **COURSE:PRATICAL-I-ISOLATION AND PURIFICATION**

**CREDIT-5**

CO1. Analyzing the isolation of Glycogen, DNA,RNA

CO2. Estimate the quantitatively Pyruvate, Tryptophan, Ascorbic acid

CO3. Understand the chromatographic techniques

CO4. Understand the separation of Protein and Glutathione

CO5. Estimate the amount of iron, Sodium.

### **COURSE: PRATICAL-II ENZYMOLOGY AND PURIFICATION**

#### **AND KINETIC STUDIES**

**CREDIT-5**

CO1:Estimate the amount of isolation of acid phosphates .

CO2: Understand the assay of clinical important of enzymes

CO3: Understand the handling and maintenance of microbial techniques

CO4: Analyze the assay of serum enzymes

CO5: Understand the various media preparation

CO6: Able to know the techniques PCR PAGE TLC.

## **SEMESTER III**

### **CORE PAPER-VI**

#### **COURSE: MOLECULAR ENDOCRINOLOGY (CORE PAPER)**

**CREDIT-4**

- CO1. To impart knowledge on molecular mechanism and Endocrine system.
- CO2. To provide knowledge on hormonal action and metabolic functions.
- CO3. To create awareness on hormonal imbalance and regulations.
- CO4. To impart basic knowledge on hormone cascade system.
- CO5. To develop sound knowledge on steroids and its importance.

### **CORE PAPER-VII**

#### **COURSE: ENZYME TECHNOLOGY (CORE PAPER)**

**CREDIT-4**

- CO1. To impart knowledge on classification and active sites of enzymes.
- CO2. To provide knowledge on enzyme kinetics.
- CO3. To create awareness on role of inhibitors and catalytic enzymes.
- CO4. To impart basic knowledge on coenzymes and isoenzymes.
- CO5. To develop sound knowledge on Industrial and clinical enzymology.

### **CORE PAPER-VIII**

#### **COURSE: BIOTECHNOLOGY(CORE PAPER)**

**CREDIT-4**

- CO1. To impart knowledge on basic tools in genetic engineering.
- CO2. To provide knowledge on cloning vectors and DNA sequencing.
- CO3. To create awareness on gene transfer and its applications.
- CO4. To impart basic knowledge on Industrial biotechnology.
- CO5. To develop sound knowledge on Bio safety and bio hazards.
- CO6. To develop sound knowledge on Bio safety and bio hazards.



## **CORE ELECTIVE**

### **COURSE: PHYTOMEDICINE**

**CREDIT-3**

- CO1. To provide the acquire knowledge on medicinal use of plants and plant extracts for therapeutic purposes.
- CO2. To develop, promote and nurture research activities in phytomedicine
- CO3. To develop and advance the knowledge to meet social needs for safe and effective herbal drugs
- CO4. To understand the mechanism of herbal medicine to cure Cardiac, CNS, Respiratory and psychosis disorder
- CO5. To learn propagation of medicinal plants, Hazards of Herbal drug adulteration and marketing.

## **NON MAJOR-OPEN ELECTIVE**

### **COURSE: MUSHROOM CULTIVATION(NME)**

**CREDIT-3**

- CO1. To impart knowledge on types of mushrooms.
- CO2. To provide knowledge on cultivation process.
- CO3. To create awareness on edible mushrooms.
- CO4. To impart basic knowledge on mushroom storage.
- CO5. To develop sound knowledge on mushroom nutritive values and recipes.

## **SEMESTER IV**

### **CORE PAPER-IX**

### **COURSE: RESEARCH METHODOLOGY(CORE PAPER)**

**CREDIT-4**

- CO1. To impart knowledge on research problem and finding scientific articles with Internet.
- CO2. To provide knowledge on collection and analysis of data using statistical tools.
- CO3. To create awareness on bioinformatics and biological databases.
- CO4. To impart basic knowledge on animal experimentation and intellectual property rights.
- CO5. To develop sound knowledge on preparation of research reports.

## **CORE PAPER-X**

**COURSE: ADVANCED CLINICAL BIOCHEMISTRY(CORE PAPER)** **CREDIT-4**

- CO1. To know the abnormal constituents in urine and CSF, Amniotic fluid collections.
- CO2. To impart knowledge on the disorders of carbohydrate metabolism, nucleic acid metabolism, lipid metabolism and amino acid metabolism.
- CO3. To develop an understanding of organ function tests.
- CO4. To develop knowledge on the concepts on diagnostic enzymology tests.
- CO5. To understand the basic concepts of antioxidants and cancer.

## **CORE ELECTIVE**

**COURSE: NANOBIO TECHNOLOGY** **CREDIT-3**

- CO1. To provide the strong knowledge on Nano biomaterials.
- CO2. To impart basic knowledge on Nano biotechnology.
- CO3. To understand about Nano medicines.
- CO4. To develop sound knowledge on protein microarrays.
- CO5. To understand about nanoparticle synthesis.

## **NON MAJOR OPEN ELECTIVE**

**COURSE:LIFE STYLE-DISEASE AND PREVENTION(NME)** **CREDIT-3**

- CO1. To provide the strong knowledge on obesity, cardiac disease and diabetes.
- CO2. To impart basic knowledge on hypertension.
- CO3. To understand about cancer.
- CO4. To develop sound knowledge on age related diseases.
- CO5. To understand about gallstone.

**COURSE: CORE PRACTICAL-PRACTICAL III BIOCHEMICAL ANALYSIS OF BLOOD, IMMUNOLOGICAL AND MOLECULAR BIOLOGY**

**TECHNIQUES** **CREDIT: 5**

- CO1. To analyze creatinine, urea, glucose by semi auto analyzer
- CO2. To analyze biological samples of serum cholesterol, triglycerides
- CO3. To estimate bilirubin and hemoglobin
- CO4. To analyze blood grouping and Rh typing

CO5. To Demonstrate of ELISA

CO6. To understand the concept of immune diffusion.

**COURSE: ELECTIVE PRACTICAL - PRACTICAL IV HAEMATOLOGICAL  
METHODS AND URINARY ANALYSIS**

**CREDIT: 5**

CO1. To identify Clotting Bleeding Time

CO2. To evaluate the ESR and PTT

CO3. To identify the RBC and WBC count

CO4. To understand urinary analysis

CO5. To demonstrate urinary culture analysis.



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### **PG DEPARTMENT OF NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS**

#### **B.SC. (DEPARTMENT OF NFSMD)**

#### **PROGRAMME OUTCOMES**

1. Academic Excellence: Develop Professional skills in food, nutrition, dietetics, product making, food service, human development and counselling.
2. Scientific Knowledge: Utilize knowledge from the physical and biological sciences as a basis for understanding the role of food and nutrients in health and disease process
3. Understand: Understand and appreciate the role of interdisciplinary sciences in the development and well being of individuals, families and communities
4. Thinking Skills: Ability to critically think, analyze, evaluate and create new knowledge and skills both in the chosen discipline and across other fields like Food Processing Preservation and Community nutrition
5. Modern Tool Usage: Create, Select and apply appropriate techniques, resources and modern technology in food processing industry.
6. Communicative Skills: Communicative effectively on Food Science & Technology activities with society at large and able to write effective reports and documentation and also to participate in public discourse on varied themes.
7. Life Long Learning: Recognize the need and ability to learn and relearn knowledge in the context of technological change

8. Civic and Social Responsibility: Ability to function as a matured democratic citizen as a dietician to formulate their own personalized product, as a public educator and also as a freelancer

9. Professional Development: The programme provides basic understanding of the correlation between food and health and also understanding the role of food underspecific diseased conditions.

10. Quality Research: Ability to design and carryout independent research, to update oneself with current research trends and to evaluate research contribution

### **PROGRAMME SPECIFIC OUTCOMES**

1. Identify and explain nutrients in foods and the specific functions in maintaining health.

2. Know the basic food microbiology and role of microorganism in food industry

3. Use the nutrition care process to make decisions, to identify nutrition related problems and determine and evaluate nutrition interventions.

4. Identify equipment and ingredients required for bakery and confectionary

5. Explain the spoilage and deterioration mechanisms in foods and methods to control deterioration and spoilage.

6. Explain the principles and current practice of processing techniques and the effects of processing parameters on product quality.

7. Discuss basic principles of common food preservation methods.

8. Explain the properties and uses of nutraceuticals

9. Apply knowledge of nutritional biochemistry and physiology to human nutrition metabolism.

10. Apply the principles in planning therapeutic and normal diet.

## **COURSE OUTCOMES**

**SEMESTER: I**

**COREPAPER- I**

**COURSE: FOOD MICROBIOLOGY (CORE PAPER)**

**CREDIT: 4**

- CO1: After studied unit-1, the student will be able to know the different types and morphology of microorganisms
- CO2: After studied unit-2, the student will be able to understand various specialized techniques in food processing and preservation
- CO3: After studied unit-3, the student will be able to acquainted with various sterilization techniques
- CO4: After studied unit-4, the student will be able to preserve the non-perishable food from microbial contamination and spoilage
- CO5: After studied unit-5, the student will be able to differentiate food poisoning and food borne infections.

## **SEMESTER: II**

### **COREPAPER- II**

#### **COURSE: HUMAN PHYSIOLOGY (CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, the student will be able to analyze hematological parameters and blood pressure

CO2: After studied unit-2, the student will be able to understand the relationship between a cell's structure and its function

CO3: After studied unit-3, the student will be able to relate the structure with functions of the tissues and organs

CO4: After studied unit-4, the student will be able to comprehend the structure and functions of the various organ systems of the body

CO5: After studied unit-5, the student will be able to recognize the clinical symptoms of nutritional deficiencies based on anatomical considerations

#### **CORE PRACTICAL -1**

#### **COURSE: A) FOOD MICROBIOLOGY B) HUMAN PHYSIOLOGY CREDIT: 2**

After having this Practical, students are enabling to have knowledge in

CO1: Identify the yeast, moulds, protozoa and bacteria.

CO2: Understand the structure and functions of various Organ systems

CO3: Comprehend the mechanisms of action of organs.

**SEMESTER III**  
**COREPAPER- III**

**COURSE: FOOD SCIENCE (CORE PAPER)**

**CREDIT: 5**

- CO1: After studied unit-1, the student will be able to gain knowledge on food groups and its function, their nutritive value and role in day's diet.
- CO2: After studied unit-2, the student will be able to understand different methods of cooking
- CO3: After studied unit-3, the student will be able to relate skill and techniques in Food preparation with conservation of nutrients, understand the cookery concepts involved in cereals, pulses and vegetables
- CO4: After studied unit-4, the student will be able to comprehend the composition, nutritive value and develop skills in the preparation of milk and fleshy products.
- CO5: After studied unit-5, the student will be able to recognize the smoking point of any cooking oil, evaluate stages of sugar cookery, and apply knowledge on preparation of beverages, and the uses and abuses of spices and condiments.

**COURSE: NUTRITIONAL BIOCHEMISTRY (ALLIED)**

**CREDIT: 3**

- CO1: After studied unit-1, the student will be able to understand the basic concepts of biochemistry and carbohydrate and its role
- CO2: After studied unit-2, the student will be able to gain knowledge on classification and metabolism of protein
- CO3: After studied unit-3, the student will be able to relate biosynthesis and metabolism of lipid



CO4: After studied unit-4, the student will be able to apply knowledge on mechanism of enzyme action and its clinical importance.

CO5: After studied unit-5, the student will be able to recognize inborn errors of metabolism.

**COURSE: BAKERY AND CONFECTIONERY (SBS)**

**CREDIT: 2**

CO1: After studied unit-1, the student will be able to understand the basic ingredients and equipments used in bakery unit

CO2: After studied unit-2, the student will be able to gain knowledge on types and process of yeast products

CO3: After studied unit-3, the student will be able to relate preparation techniques followed in cake preparation

CO4: After studied unit-4, the student will be able to apply knowledge on preparation of cookies and biscuits, able find out faults and remedies in cookies and biscuits preparation

CO5: After studied unit-5, the student will be able to do icing and pastries products.

**COURSE: HEALTH AND FITNESS (NME)**

**CREDIT: 2**

CO1: After studied unit-1, the student will be able to understand self -reflect on health and fitness status

CO2: After studied unit-2, the student will be able to gain knowledge on parameters of fitness

CO3: After studied unit-3, the student will be able to relate the skill on yoga therapy

CO4: After studied unit-4, the student will be able to apply knowledge on physical exercise and basic asana

CO5: After studied unit-5, the student will be able to follow sports nutrition .

## **SEMESTER IV**

### **COREPAPER- IV**

**COURSE: HUMAN NUTRITION (CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, Apply knowledge of biochemistry and physiology to human nutrient metabolism

CO2: After studied unit-2, Gain knowledge on the role of nutrition for health and wellness

CO3: After studied unit-3, Able to find the functions of specific nutrients in maintaining health

CO4: After studied unit-4, Gain knowledge on the Energy requirement by various age groups.

CO5: After studied unit-5, Able to correlate the effect of dietary lipids on heart disease.

### **CORE PRACTICAL – 2**

**COURSE: A) FOOD SCIENCE B) HUMAN NUTRITION**

**CREDIT: 3**

CO1: Gain knowledge on various food groups, role of food items in Indian cookery

CO2: Understand the changes taking place in nutrients while cooking

CO3: Understand the techniques to minimize the nutrients losses while cooking

CO4: Apply knowledge on different stages of crystallization of sugar.

CO5: Gain knowledge on qualitative and quantitative analysis of nutrients present in the given food sample.

**COURSE: FOOD PRESERVATION (ALLIED)**

**CREDIT: 3**

CO1: After studied unit-1, Apply major food preservation techniques and principles

CO2: After studied unit-2, Classify the various types of food spoilage

CO3: After studied unit-Analyze and evaluate novel food processing methods

CO4: After studied unit-1Distinguish between chemical preservation and fermentation

CO5: After studied unit-1Identify and evaluate the suitability of processing for various foods

**ALLIED PRACTICAL – 2**

**COURSE:A) NUTRITIONAL BIOCHEMISTRY B) FOOD PRESERVATION**

**CREDIT:2**

CO1: Gain knowledge on qualitative analysis of carbohydrates, protein and minerals

CO2: Enable to differentiate class I and class II food preservatives.

CO3: Understand the traditional methods of food preservation. CO4:

Apply knowledge on role of temperature in food preservation.CO5:

Gain knowledge on uses of antimicrobial preservative.

**COURSE: FOOD PRODUCT DEVELOPMENT AND MARKETING**

**STRATEGY (SBS)**

**CREDIT: 2**

CO1: After studied unit-1, Apply the principles of quality assurance and food safety to a food product design

CO2: After studied unit-2, Gain knowledge on traditional and designer foods

CO3: After studied unit-3, Enable to plan HACCP-based food safety program that is applicable to the production of a new food product.

CO4: After studied unit-4, Knowledge on packaging materials and SWOT analysis

CO5: After studied unit-5, Enable to Work collaboratively with others on a major investigative project, entrepreneurship skill and accounting procedure.

**COURSE: NUTRITION FOR THE FAMILY (NME)**

**CREDIT:2**

- CO1: After studied unit-1, Able to classify food groups based their functions
- CO2: After studied unit-2, Understand weaning and supplementary foods for infants
- CO3: After studied unit-3, Able to plan and prepare packed lunch
- CO4: After studied unit-4, Knowledge on eating disorder
- CO5: After studied unit-5, Gain knowledge on physiological changes and nutritional needs during old age .

**SEMESTER V**

**COURSE: DIETETICS – II (CORE PAPER)**

**CREDIT: 5**

- CO1: Able to understand principles of diet therapy
- CO2: Knowledge on types of tube feeding and hospital diet
- CO3: Able to modify normal diet for therapeutic purpose
- CO4: Understand the role of dietitian
- CO5: Gain knowledge about etiology, risk factors and clinical features of various disease conditions.

**COURSE: NUTRITION THROUGH LIFE CYCLE (CORE PAPER)**

**CREDIT: 5**

- CO1: Know about growth and development from infancy to adolescent
- CO2: Understand nutrition requirement during pregnancy and lactation
- CO3: Able to plan and prepare a menu for different age group based on RDA
- CO4: Able to fulfill the nutritional needs of various age groups
- CO5: Knowledge on geriatric nutrition.

**COURSE: COMMUNITY NUTRITION (CORE PAPER) CREDIT: 5**

- CO1: Understand the role of interventions to enhance wellness in diverse individuals and groups
- CO2: Skills to develop an educational program for a target population
- CO3: Capable to formulate new food products for a target group
- CO4: Evaluate impact of nutritional awareness program on Nutritional and health status
- CO5: Enable to prepare low cost nutritious food.

**COURSE: HOSPITAL FOOD SERVICE ADMINISTRATION(ELECTIVE)**

**CREDIT: 3**

- CO1: Planning of menu to accommodate the nutritional, dietary and medical needs, cultural and religious requirements and personal preferences of clients
- CO2: Manage nutritional needs of diverse clients in healthcare and other food service settings in collaboration with or under the direction of health care professionals
- CO3: Promote food and nutrition services and healthy living to support marketing plans and the general well-being of clients.

**COURSE: SKILL BASED SUBJECT (INTERNSHIP TRAINING IN HOSPITAL)**

**CREDIT: 2**

- CO1: Gain skill in planning therapeutic diets
- CO2: Ability to be a health professional
- CO3: Apply the knowledge for diet counseling.

## **SEMESTER VI**

### **COURSE: DIETETICS – II(CORE PAPER)**

**CREDIT: 5**

CO1: Gain knowledge on the role of diet therapy for various disease conditions

CO2: Apply the knowledge in planning preparation and distribution of therapeutic diets for various disease conditions

CO3: Enable to provide counsel related to the dietary management

CO4: Equip to become a dietitian on hospital industries.

CO5: Knowledge on genetic disorder.

### **COURSE: FOOD SERVICE MANAGEMENT (CORE PAPER)**

**CREDIT: 3**

CO1: Establish a food service unit

CO2: Manage human resources and solve problems with remedial measures

CO3: Analyze and implement quality control in food service institution

CO4: Promote the product in the market

### **COURSE: HUMAN DEVELOPMENT AND COUNSELLING (CORE PAPER)**

**CREDIT:4**

CO1: Understand the principles of studying growth and development

CO2: Recognize the eight stages of human life span

CO3: Know the concept of prenatal and postnatal care

CO4: Understand the physical and psychological changes in old age.

### **CORE PRATICAL - III**

**COURSE: A) NUTRITION THROUGH LIFE CYCLE B) DIETETICS-I**

**CREDIT: 3**

- CO1: Knowledge on growth and development from infancy to adolescent and nutrient requirement during pregnancy and lactation
- CO2: Able to plan and prepare a menu for different age group based on RDA
- CO3: Understand the types of hospital diet and role of dietitian
- CO4: Able to understand principles of diet therapy and modify normal diet for therapeutic purpose.

### **CORE PRACTICAL - IV**

**COURSE: A) FOOD SERVICE MANAGEMENT B) DIETETICS-II CREDIT: 3**

- CO1: Enable to establish a food service unit
- CO2: Analyze and implement quality control in food service institution
- CO3: Gain knowledge on the role of diet therapy for various disease conditions
- CO4: Equip to become a dietitian on hospital industries.

**COURSE: FOOD STANDARDS AND QUALITY CONTROL(ELECTIVE)**

**CREDIT:3**

- CO1: Understand the specification and standards for different products
- CO2: Comprehend the knowledge gained on food laws and food safety regulations at regional and national level
- CO3: Monitor and evaluate food laws and standards in food service industry
- CO4: Acquire knowledge on food hazards and food adulteration .

**COURSE: NUTRACEUTICALS AND NUTRIGENOMICS (ELECTIVE)**

**CREDIT: 3**

CO1: Understand the developments in the field of nutraceuticals and nutrigenomics

CO2: Comprehend the components of functional foods, food containing of nutraceuticals and the effect of phytochemical in disease in disease conditions

CO3: Know the importance of probiotics and prebiotics in human health

CO4: Knowledge on the principle of nutrigenomics in controlling life style disease.

**COURSE: PERSPECTIVES OF HOME SCIENCE(SBS)**

**CREDIT:2**

CO1: Identify good design, list their goals and values, and set their standards

CO2: Enlist the principles of diet therapy and functioning of food service institution

CO3: Comprehend the key aspects of human growth and development and realize the importance of mastering developmental tasks of each life span stage

CO4: Understand the concept of extension education and its importance.





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### **PG DEPARTMENT OF NUTRITION FOOD SERVICE MANAGEMENT AND DIETETICS**

#### **M.SC. (DEPARTMENT OF FOODS AND NUTRITION)**

#### **PROGRAMME OUTCOMES**

PO1: A strong understanding on the interrelationship between health, food, nutrition and dietetics.

PO2: Gain insight into various diseases and the role of dietician in managing diseases.

PO3: Apply the knowledge in managing a dietary department in a hospital.

PO4: Determining the in-vitro nutrient content of foods through various analytical procedures.

PO5: Gain capacity to identify various nutritional deficiencies and recommend nutritional guidelines to manage/prevent them.

PO6: Apply appropriate knowledge on the nutritional requirements throughout the life span.

PO7: Demonstrate skill in food science and new food product development.

PO8: Interest in venturing as entrepreneurs.

PO9: Capacity to organize community oriented programs on health and nutritional status.

PO10: Develop enormous responsibility in determining health and nutritional status of the society.

#### **PROGRAMME SPECIFIC OUTCOMES**

PSO1: Enable to pursue higher education and research in academic and research institutions.

PSO2: Inculcate comprehensive and analytical skills in food industries and health sectors

PSO3: Excel in community health nutrition for employment in State and Central Government.

PSO4: Develop skills to be successful entrepreneurs in food industries.

PSO5: Demonstrate the ability to plan, organize and conduct community nutrition programs.

PSO6: Exhibit competence in hospital and health sectors with appropriate practical exposure.

PSO7: Explore knowledge and interest in food product development.

PSO8: Explore the current concept of personalized nutrition with reference to nutrigenetics & nutrigenomics.

PSO9: Demonstrate an understanding on the scope and recent developments in food biotechnology.

PSO10: Take up professions in sports nutrition, health & fitness centers and community development projects.

## **COURSE OUT COMES**

### **SEMESTER – I**

#### **COURSE: ADVANCED PHYSIOLOGY (CORE PAPER)**

**CREDIT:5**

CO1: After studied unit-1, the student gain knowledge on body fluids, muscle and nerve tissues.

CO2: After studied unit-2, the student will be able understand the significance of blood, and enumerate the functions of cardiovascular and excretory systems of the body.

CO3: After studied unit-3, the student will be able to comprehend the respiratory and digestive systems of the body.

CO4: After studied unit-4, the student will be able to describe endocrinal and reproductive functions in the body.

CO5: After studied unit-5, the student will understand the significance of nervous system, immune functions and auto immune disorders.

**COURSE: ADVANCED FOOD SCIENCE(CORE PAPER)**

**CREDIT:5**

CO1: After studied unit-1, the student will gain knowledge on physio-chemical changes in cereal and cereal products and factors affecting the quality and quantity of nutrients.

CO2: After studied unit-2, the student will be able learn the structure, cooking methods and factors affecting cooking quality of pulses, vegetables and fruits.

CO3: After studied unit-3, the student will be able enlightened with structure, nutritive value, cooking and preservation of egg, meat and fish.

CO4: After studied unit-4, the student will be able to understand and discuss the types, nutritive value and effect of cooking on milk & milk products and fats & oils.

CO5: After studied unit-5, the student will acquire skills on types, application and uses of sugar, beverages, spices and condiments in Indian cookery

**COURSE: ESSENTIALS OF MACRO NUTRIENTS(MAJOR) CREDIT: 5**

CO1: After studied unit-1, the student gain knowledge on the role of carbohydrates and dietary fiber in human nutrition and disease.

CO2: After studied unit-2, the student will be able understand the significance of lipids in human nutrition and diseases.

CO3: After studied unit-3, the student will be able to comprehend the respiratory and digestive systems of the body.

CO4: After studied unit-4, the student will know the role of proteins in human nutrition and acquire skills to evaluate protein quality

CO5: After studied, the student will understand the role of energy in various physiological conditions of the body.

### **A. HEALTH AND FITNESS (CORE ELECTIVE)**

**CREDIT: 3**

CO1: After studied unit-1, the student will understand and know the relationship between wellness, fitness and health.

CO2: After studied unit-2, the student will be able understand the concept of food, nutrients and health.

CO3: After studied unit-3, the student will be able to understand the concept of fitness training and foster fitness skills and gain the technical ability to run fitness centres.

CO4: After studied unit-4, the student will be able to gain insight on health and know how to prevent and manage lifestyle related diseases/disorders.

CO5: After studied unit-5, the student will gain knowledge on the stress and health management, and learn stress relaxation techniques.

### **SEMESTER – II**

#### **COURSE: ESSENTIALS OF MICRO NUTRIENTS(CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, the student will gain knowledge on role of fat soluble vitamins in the body and will be able to diagnose deficiency/toxicity and know the interaction with other nutrients.

CO2: After studied unit-2, the student will be able learn role of water soluble vitamins in the body and will be able to diagnose deficiency/toxicity and know the interaction with other nutrients.

CO3: After studied unit-3, the student will be able to comprehend about macro minerals and their significance in body.

CO4: After studied unit-4, the student will be able to learn the distribution, functions, deficiency and toxicity of micro minerals and trace minerals.

CO5: After studied unit-5, the student will know the importance of Homeostasis maintenance, electrolyte maintenance and water balance.

## **COURSE: NUTRITION THROUGH LIFE CYCLE (CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, the student will acquire knowledge and compute Recommended Dietary Allowances for individuals, and know the general concepts of growth and development through life cycle.

CO2: After studied unit-2, the student will gain knowledge about the nutritional need and importance during pregnancy and lactation.

CO3: After studied unit-3, the student will acquire skill to formulate weaning foods, plan nutritious menu for infants and pre-school children, based on age/activity specific diets adequate in both quality and quantity

CO4: After studied unit-4, the student will be able to plan nutritious menu for school going children and adolescents and also understand and tackle age specific food related problems and eating behaviours

CO5: After studied unit-5, the student will understand the significance of nutrition during adulthood and elderly and also acquire skill to modify diet for the elderly based on their health problems.

**COURSE: FOOD MICROBIOLOGY(CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, the student gain knowledge to classify and understand the general morphology of microorganisms.

CO2: After studied unit-2, the student will be able understand the significant role of micro-organisms in food, soil and human body.

CO3: After studied unit-3, the student will be able to enumerate about food poisoning, food born hazards and food intoxication of microbial origin to ensure food safety.

CO4: After studied unit-4, the student will be able to learn about the principles of preservation by high and low temperature, and new trends in preservation.

CO5: After studied unit-5, the student will gain knowledge in Sterilization by Physical agents, types of sterilization, Microbiology of water, bacterial examination for water and water treatment.

**COURSE: ADVANCED FOOD SCIENCE&ESSENTIALS OF  
MACRONUTRIENTS (CORE PRACTICAL)**

**CREDIT:4**

CO1: Develop the culinary skills in the preparation of recipes and different stages of sugar cookery

CO2: Demonstrate the effect of fermentation of batter

CO3: Recognize the reactions of food components due to the effect of acid, alkali and heat on the cooking of pulses, vegetables, egg and meat

CO4: Apply the knowledge and skill to identify the microscopic structures of starch and sugar crystals.

**COURSE: A. FOOD STANDARD AND QUALITY CONTROL (CORE ELECTIVE)**

**CREDIT: 3**

CO1: After studied unit-1, the student gain knowledge on the control of food quality and use of food additives.

CO2: After studied unit-2, the student will acquire knowledge on the standards for food quality and on food laws and food adulteration.

CO3: After studied unit-3, the student will acquire skill to determine the quality of foods through subjective and objective methods.

CO4: After studied unit-4, the student will be able to discuss food safety measures, risks and hazards associated with adulterated foods.

CO5: After studied unit-5, the student will understand the significance of food labelling, food packaging merits and demerits.

**SEMESTER – III**

**COURSE: NUTRITIONAL BIOCHEMISTRY(CORE PAPER)**

**CREDIT:4**

CO1: After studied unit-1, the student will know the biochemical activity of enzymes and co-enzymes, biological oxidation process and its related diseases.

CO2: After studied unit-2, the student will be able explain carbohydrate metabolism with bioenergetics and disorders of the metabolism.

CO3: After studied unit-3, the student will be able to gain knowledge on lipid biosynthesis, metabolism, energetic and disorders of lipoprotein metabolism.

CO4: After studied unit-4, the student will be able to describe protein metabolism and disorders of amino acid metabolism.

CO5: After studied unit-5, the student will be able to understand nucleic acid metabolism and disorders, and learn about the functional test to determine health status.

**COURSE: RESEARCH METHODOLOGY AND APPLIED  
STATISTICS(CORE PAPER)**

**CREDIT:3**

CO1: After studied unit-1, the student will understand research, learn the types of data and tools for collecting research data.

CO2: After studied unit-2, the student will learn about sampling design, types, techniques and errors.

CO3: After studied unit-3, the student will be able to gain knowledge on classification and representation of data.

CO4: After studied unit-4, the student will be able to assess numerical data for providing statistical evidences to support the research results.

CO5: After studied unit-5, the student will be able to interpret data with statistical evidences and draft research/format thesis writing/dissertation.

**COURSE: COMMUNITY NUTRITION (CORE PAPER)**

**CREDIT: 3**

CO1: After studied unit-1, the student will learn the concepts of community nutrition, nutritional deficiencies – prevalence and control measures.



CO2: After studied unit-2, the student will gain knowledge in the assessment of nutritional status at community level.

CO3: After studied unit-3, the student will understand and learn national nutritional policy and strategies.

CO4: After studied unit-4, the student will be able to gain knowledge on intervention programmes available at International and National level to alleviate malnutrition.

CO5: After studied unit-5, the student will learn about health care delivery in preventing malnutrition and communicable diseases, and organize nutrition education program

**COURSE: C.PRINCIPLES OF FOOD ANALYSIS(CORE ELECTIVE)**

**CREDIT:3**

CO1: After studied unit-1, the student will learn different methods of foods analysis, trends and demands

CO2: After studied unit-2, the student will acquire skills to analyze the composition of foods.

CO3: After studied unit-3, the student will learn on chemical properties in foods and immunoassay.

CO4: After studied unit-4, the student will understand the chromatographic techniques in food analysis.

CO5: After studied unit-5, the student will acquire skill to extract food pigments and colorants.

**COURSE: VIVA VOCE (INTERNSHIP TRAINING IN HOSPITAL) CREDIT:2**

CO1: Gain skill in planning therapeutic diets

CO2: Ability to be a health professional

CO3: Apply the knowledge for diet counseling.

**SEMESTER IV**

**COURSE: DIET THERAPY (CORE PAPER)**

**CREDIT: 4**

CO1: After studied unit-1, the student will gain knowledge and understand the concept of therapeutic nutrition as nutritional care and support, learn the formulation of therapeutic diets and feeding techniques and take up as dieticians in the hospitals.

CO2: After studied unit-2, the student will be able to categorize diseases, disorders and deficiencies and plan suitable therapeutic diets.

CO3: After studied unit-3, the student will update knowledge on cardio vascular system and advanced techniques involved in the treatment and concept of diet planning for cardio vascular diseases.

CO4: After studied unit-4, the student will learn about the diseases and dietary management of GI system, Liver diseases and diseases.

CO5: After studied unit-5, the student will gain knowledge on kidney diseases, treatment and dietary modifications and be enabled with nutritional support for specific diseases.

**COURSE: B.FOOD SAFETY AND NUTRITION SECURITY(CORE ELECTIVE)**

**CREDIT:3**

CO1: After studied unit-1, the student will understand and learn to address the food safety issues knowing National and International Food Safety Laws and Regulations.

CO2: After studied unit-2, the student will be able to gain knowledge on food hygiene, microbiology of food spoilage and prevention.

CO3: After studied unit-3, the student acquires skills on safety assessment of food and its practices.

CO4: After studied unit-4, the student will learn about various food laws, regulations and its applications.

CO5: After studied unit-5, the student will gain knowledge on food and nutrition security, and strategies to combat insecurity.

**COURSE: C. TECHNIQUES OF FOOD EVALUATION(OPEN ELECTIVE)**

**CREDIT: 3**

CO1: After studied unit-1, the student will gain knowledge to critically evaluate methodologies for nutritional assessment

CO2: After studied unit-2, the student will be enabled with competency to conduct clinical examination and dietary survey.

CO3: After studied unit-3, the student will gain knowledge on biochemical and biophysical tests in assessing nutritional status.

CO4: After studied unit-4, the student will describe the current state of epidemiological evidence for relationships of diet to the development of selected diseases, interpret and evaluate epidemiological data.

CO5: After studied unit-5, the student will be enabled assess nutritional status of a community.

### **CORE PRACTICAL – III**

**COURSE: NUTRITIONAL BIOCHEMISTRY & COMMUNITY NUTRITION  
PRACTICAL**

**CREDIT: 3**

CO1: Understand the concept of therapeutic nutrition as nutritional care and support

CO2: Learn the formulation of therapeutic diets and feeding techniques

CO3: Categorize the diseases, disorders and deficiencies for planning suitable of therapeutic diets

CO4: Update knowledge on advanced techniques and concept of diet planning and of therapeutic diet counseling.

CO5: Take up as a Dietician in the hospitals.

### **CORE PRACTICAL – IV**

**COURSE: DIET THERAPY**

**CREDIT:3**

CO1: Understand the concept of therapeutic nutrition as nutritional care and support

CO2: Learn the formulation of therapeutic diets and feeding techniques

CO3: Categorize the diseases, disorders and deficiencies for planning suitable of therapeutic diets

CO4: Update knowledge on advanced techniques and concept of diet planning and of therapeutic diet counseling.

CO5: Take up as a Dietician in the hospitals.

**COURSE: C.TECHNIQUES OF FOOD EVALUATION(OPEN ELECTIVE)**

**CREDIT: 3**

CO1: After studied unit-1, the student will describe evaluation of food quality.

CO2: After studied unit-2, the student will know about evaluation food quality and conduct sensory analysis.

CO3: After studied unit-3, the student acquires knowledge on sensory tests for evaluation of food quality.

CO4: After studied unit-4, the student will gain knowledge methods of evaluation of food quality.

CO5:After studied unit-5, the student will understand the microbial quality of foods and assays uses to check food quality.



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### **B.SC. (DEPARTMENT OF CHEMISTRY)**

#### **PROGRAM OUTCOMES (PO)**

PO 1: Describe the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in day-to-day life.

PO 2: Employ critical thinking for solving problems using basic chemistry knowledge and concepts.

PO 3: Acquire skills in handling scientific instruments, planning and performing laboratory experiments and drawing logical inferences from the chemical experiments.

PO 4: Analyze the given scientific data critically and systematically to draw a logical conclusion.

PO5: Develop various communication skills such as reading, listening, speaking, etc., to express ideas and views clearly and effectively.

PO6: Create an intellectual curiosity and ability to think in a scientific manner and get sensitized to social and environmental realities.

PO7: Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.

PO8: Capable of self-paced and self-directed learning aimed at personal development and for improving knowledge/skill development and reskilling.

PO9: Demonstrate the knowledge of professional and ethical practices.

PO10: Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.

## **PROGRAM SPECIFIC OUTCOMES (PSO)**

PSO1: Understand the basic concepts of organic, inorganic, analytical, and pharmaceutical.

PSO2: Evaluate the practical knowledge about gravimetric analysis, inorganic analysis and instrumental knowledge.

PSO3: Understand water treatment and analysis.

PSO4: Understand nutritive value of food items and diet.

PSO5: Apply industrial and pharmaceutical related sectors.

## **COURSE OUTCOME**

### **SEMESTER – I**

**COURSE: GENERAL CHEMISTRY-I(CORE PAPER)**

**CREDIT: 6**

CO1: Explains about atomic structure and identify electronic configuration and periodic properties.

CO2: Understand the different types of chemical bonds.

CO3: Describe about nomenclature of aliphatic and alicyclic compounds.

CO4: Analyze different types of states of matter

CO5: Explain about different types of Volumetric Analysis

**COURSE: ZOOLOGY-I(ALLIED)**

**CREDIT : 4**

CO1: Acquire Knowledge about different kinds of animal species.

CO2: Understand the annelida.

CO3: Acquire knowledge about digestive system of protozoa

CO4: Understand the systematic morphology of reptiles and amphibian.

CO5: Acquire knowledge about different species of Aves.

### **SEMESTER- II**

**COURSE: GENERAL CHEMISTRY-II(CORE PAPER)**

**CREDIT : 5**

CO1: Discuss about s and p-block elements group study.

CO2: Analyse the comparative study of alkane

CO3: Explain about dienes and stability of cyclo alkanes

CO4: Discuss about quantum mechanics and thermodynamics

CO5: Describe about first law of the thermodynamics.

**COURSE: ZOOLOGY-II(ALLIED)****CREDIT: 3**

CO1: Understand the principles of cell biology, genetics, development biology, physiology, ecology and evolution.

CO2: Explain the study of the internal structure of animals.

CO3: Deals with diseases of circulatory system.

CO4: Explain the relationship between the organisms and their surrounding environments

CO5: Understand Darwin theory.

**COURSE: VOLUMETRIC ANALYSIS(COREPRACTICAL-I) CREDIT:3**

CO1: Understand lab safety and handling of apparatus.

CO2: Estimate acidimetry.

CO3: Estimate Precipitation Titration.

CO4: Evaluate Permanganometry.

**SEMESTER-III****COURSE: GENERAL CHEMISTRY-III (CORE PAPER)****CREDIT:3**

CO1: Outline inorganic analysis and its applications.

CO2: Deals with carbon, nitrogen and boron family.

CO3: Apply aromaticity and substitution reactions. CO4:

Apply different types of reactions their mechanism

CO5: Evaluate second law of the thermodynamics concept of entropy.

**COURSE: BIO-CHEMISTRY-I (ALLIED)****CREDIT :4**

CO1: Classify the structure and functions of carbohydrates

CO2: Understand the reactions and properties of Amino Acids

CO3: Discuss about the various structures of Proteins

CO4: Outline biological functions and classification of lipids.

CO5: Explain about nucleic acids.

**COURSE: WATER TREATMENT & ANALYSIS (SBS-I)****CREDIT: 3**

CO1: Introduction of water and its components.

CO2: Discuss about water softening methods.

CO3: Explains about desalination of brackish water.

CO4: Deals with analysis of water.

CO5: Discuss with chemicals affecting health.



**COURSE: HEALTH AND NUTRITION(NME)**

**CREDIT : 2**

- CO1: Understand food groups
- CO2: Classification of lipid.
- CO3: Estimation of proteins as body building food
- CO4: Outline food processing and food preservation
- CO5: Explains about minerals

**SEMESTER-IV**

**COURSE: GENERAL CHEMISTRY-IV(CORE PAPER)**

**CREDIT : 3**

- CO1: Describe about noble gases their inertness and Clathrates.
- CO2: Discuss about mono carboxylic acids and amides.
- CO3: Concept related to alcohols phenols and properties.
- CO4: Evaluate Gibbs-Helmholtz evolution Maxwell relations.
- CO5: Explain about III law of thermodynamics.

**COURSE: BIO-CHEMISTRY-II(ALLIED)**

**CREDIT :4**

- CO1: Discuss about TCA Cycle and Glucose Metabolism
- CO2: Outline metabolic disorders like diabetes, jaundice.
- CO3: Classify the enzymes and mechanism of enzyme action.
- CO4: Outline requirement and biological functions of VITAMINS.
- CO5: Understand the central dogma of minerals.

**COURSE: FOOD CHEMSITRY (SBS-II)**

**CREDIT: 3**

- CO1: Discuss about food prevention food additives packaging of foods.
- CO2: Understand fruits and vegetables.
- CO3: Beverages classification and uses
- CO4: Explains about food preservatives
- CO5: Discuss about food additives.

**COURSE: INORGANIC QUALITATIVE ANALYSIS & PREPARATION  
(CORE PRACTICAL-II) CREDIT: 3**

- CO1: Understand Inorganic qualitative analysis and preparation
- CO2: Provide analysis of two cations and two anions.
- CO3: Explain semi micro methods using conventional scheme to be adopted
- CO4: Evaluate preparation of different inorganic compounds

**COURSE: ALLIED BIOCHEMISTRY I&II(ALLIED PRACTICAL)  
CREDIT :2**

- CO1: Evaluate volumetric estimation
- CO2: Estimate Glucose by Benedict's Method
- CO3: Evaluate Glycine by Formal Titration

**COURSE:FIRST-AID(NME) CREDIT: 2**

- CO1: Explain the importance of giving first-aid.
- CO2: Understand knowledge on basic for first-aid treatment in case of injury or accidents.
- CO3: Explain the simple life saving techniques that would greatly help in case of emergency.
- CO4: Understand to react to a given emergency situations correctly.

**SEMESTER -V**

**COURSE: INORGANIC CHEMISTRY-I(CORE PAPER) CREDIT:4**

- CO1: Describes halogens classification of halides comparative study of inter halogen compounds.
- CO2: Understand about coordination compounds, nomenclature and isomerism.
- CO3: Analyze knowledge of VBT and CFT, hybridization and structures of carbonyls
- CO4: Explain different theories of coordination chemistry
- CO5: Explain the nature of the solid state.

**COURSE: ORGANIC CHEMISTRY-I(CORE PAPER) CREDIT:4**

- CO1: Understand the carbohydrates structure elucidation of glucose, sucrose.
- CO2: Describes stereoisomerism elements of symmetry, chirality etc,
- CO3: Explain conformational analysis axial and equatorial interconversions.
- CO4: Deals with preparation, properties and structure of nitro alkanes.
- CO5: Outlines heterocyclic compounds, Huckel's rule, aromaticity and also explain electrophilic substitution reactions.

**COURSE: PHYSICAL CHEMISTRY-I(CORE PAPER)****CREDIT :4**

CO1: Explain about azeotropic mixtures partially miscible liquids.

CO2: Outline applications of phase rule, cooling curves and Gibb's phase rule.

CO3: Evaluate about colligative properties, van't Hoff factors.

CO4: Discuss about equivalent conductance, Kohlrausch's law ionic Mobility, Hittorf's method.

CO5: Explain about conductometric measurements.

**COURSE: ANALYTICAL CHEMISTRY-I (ELECTIVE-I)****CREDIT :3**

CO1: Deals with data analysis, types of errors, solvent extraction

CO2: Explains about purification of liquids, experimental techniques of distillation.

CO3: Discuss about microwave spectroscopy, IR spectroscopy, Raman spectroscopy and their applications.

CO4: Deals with IR spectroscopy.

CO5: Principles of Raman spectroscopy.

**COURSE: PHARMACEUTICAL CHEMISTRY (ELECTIVE-II) CREDIT: 3**

CO1: Outline different types of drugs, various diseases and their treatment importance of Indian medicinal plants.

CO2: Explains about diabetes, composition of Blood and Indian medicinal plants. CO3:

Analyze different types of drugs like analgesics, anesthetics drug affecting CNS

CO4: Discuss about organic pharmaceutical aids, narcotic drugs.

CO5: Deals with antineoplastic drugs and hormones.

**COURSE: APPLIED CHEMISTRY (SBS-III)****CREDIT : 3**

CO1: Classify petrochemicals deals with paper technology, sugar industry.

CO2 : Explains about paper technology.

CO3: Deals with sugar manufacturing.

CO4: Analyze explosives, photography techniques, xerographic copying etc.

CO5: Determine the processing of milk, sterilization homogenization techniques.

## VI SEMESTER

### **COURSE: INORGANIC CHEMISTRY-II(CORE PAPER) CREDIT: 4**

- CO1: Evaluate nuclear stability, N/P ratio and nuclear binding energy magic numbers.  
CO2: Describes nuclear radioactivity, half-life period, thermonuclear reactions.  
CO3: Analyze metallurgical process, zone refining, deals with comparative study of Ti, V, Cr, Mn.  
CO4: Able to make a study of lanthanides and actinides, extraction of thorium and uranium.  
CO5: Explain organometallic compounds.

### **COURSE: ORGANIC CHEMISTRY-II(CORE PAPER) CREDIT :4**

- CO1: Imparts knowledge on mechanism of rearrangement reactions differentiate intermolecular  
CO2: Formulate amino acids and poly peptides, end group analysis.  
CO3: Define proteins and nucleic acids, differentiates DNA and RNA  
CO4: Discuss about organo synthetic reagents and natural products  
CO5: Explain chemistry of natural products.

### **COURSE: PHYSICAL CHEMISTRY-II(CORE PAPER) CREDIT :4**

- CO1: Outline galvanic cells, emf cell, standard hydrogen electrode, reference electrode  
CO2: Define liquid junction potential, quinhydrone and glass electrodes.  
CO3: Evaluate kinetics of reaction by volumetric, polarimetric, spectrophotometric methods.  
CO4: Classify adsorption, catalysis and deals with laws of photochemistry.  
CO5: Explain kinetics of photo chemical reactions.

### **COURSE: ANALYTICAL CHEMISTRY (ELECTIVE-II) CREDIT:4**

- CO1: Understand principles and techniques of chromatographic techniques, CO2:  
Describe principles and applications of HPLC, gas, Liquid chromatography. CO3:  
Apply to ESR spectroscopy and thermo analytical techniques.  
CO4: Discuss about rig rule Mc Lafferty rearrangement  
CO5: Discuss various components with block diagram.

**COURSE: AGRICULTURE & LEATHER CHEMISTRY (SBS-I)**  
**CREDIT:4**

CO1: Outline soil fertility and productivity, soil chemistry

CO2: Explains about fertilizers and manures.

CO3: Outline classification of insecticides, environmental effects of pesticides.

CO4: Apply Dye manufacture of leather, dyeing of leather, treatment of tannery effluents Outline effect of tannery effluents.

CO5: Discuss vegetable tanning, chrome tanning and deliming.

**COURSE: GRAVIMETRIC ESTIMATION (CORE PRACTICAL-IV)**  
**CREDIT:3**

CO1: Describe with gravimetric estimation of sulphate as Barium sulphate

CO2: Evaluate gravimetric estimation of lead as leadchromate

CO3: Discuss about estimation of calcium as calcium oxalate monohydrate.

**COURSE: ORGANIC ANALYSIS & PREPARATIONS**  
**(CORE PRACTICAL-V)** **CREDIT: 3**

CO1: Analyze organic compounds containing one functional group and characterization with one derivative

CO2: Analyze of aldehyde, ketone nitro compounds, ester and amines.

CO3: Outline organic preparations by acylation, halogenations, diazotization

**SUBJECT NAME: PHYSICAL CHEMISTRY EXPERIMENTS**  
**( CORE PRACTICAL-VI)** **CREDIT:3**

CO1: Determine order of reactions by kinetics

CO2: Molecular weight of solutes

CO3: Explains about heterogeneous equilibrium

CO4: Determination of transition temperature.

CO5: Determine cell constant equivalent conductivities by conductivity experiments

CO6: Evaluate potentiometric titrations if strong acid against strong base

CO7: Colorimetry.



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### **LANGUAGE (URDU)**

#### **PROGRAM SPECIFIC OUTCOMES**

#### **COURSE OUTCOME**

#### **SEMESTER –I**

#### **COURSE: LANGUAGE (URDU)**

**CREDITS : 4**

**CO1:** Prose make students Understand National Integration, Communal Harmony, Brotherhood and they inculcate moral and human values within themselves.

**CO2 :** Develop their creative thinking and writing in prose.

**CO3 :** Students will be able to write and use the language correctly and they develop the correct grammar sense.

**CO4 :** They develop the correct grammar sense and its usage.

**CO5 :** Students to develop skill in writing and communicating to other personalities through letter.

**CO6 :** They will be able to communicate effectively.

#### **SEMESTER –II**

#### **COURSE: LANGUAGE (URDU)**

**CREDITS : 4**

**CO1 :** Students will be able to enjoy and appreciate modern poetry .

**CO2 :** Students will be able to learn and inculcate moral and ethical values through Ancient & patriotic poets like Mirza Ghalib , Meer Anees and Allama Iqbal etc.

**CO3** : Students will be able to understand and promote Communal Harmony ,Humanity and patriotism through One Act Plays Drama .

**CO4** : They will be able to study the socio – cultural & political background of Indian Culture and its values through Drama.

### **SEMESTER –III**

**COURSE: LANGUAGE (URDU)**

**CREDITS : 4**

**CO1** : Develop their creative thinking and writing in prose.

**CO2** : They will be aware about the Indian Language and how Urdu Language create and develop.

**CO3** : They will be able to understand Modern periods through Poets and Authors prescribed

**CO4** : Students develop skill to translate from one Language to another through translation practice .

**CO5** : They will be able to learn translation of technical terms and face interviews for the post Urdu translators.

### **SEMESTER –IV**

**COURSE: LANGUAGE (URDU)**

**CREDITS : 4**

**CO1** : They will be able to understand and inculcate loyalty, Human values through short stories .

**CO2** : They will be able to appreciate Modern Fiction and develop interest in Non-detailed.

**CO3** : They have to create writing practice in different topics like literary ,Social ,political ,Scientific etc.

**CO4** : They will be able to knowledge in different aspects of modern world .



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## **B.Sc. (DEPARTMENT OF INTERIOR DESIGN & DÉCOR)**

### **PROGRAMME OUTCOME**

- PO1: To work as graphic designer.
- PO2: To be a design consultant for Interior work.
- PO3: To work as colour consultant.
- PO4: To work as event manager.
- PO5: To Design both residential and commercial spaces.
- PO6: To work as landscape designer.
- PO7: To work as space planner or allocator for commercial areas.
- PO8: To take up interior projects on contract basis.
- PO9: To set up a store with soft furnishings and accessories.
- PO10: To work as the drafter for plans.
- PO11: To work as set and costume designer.

### **PROGRAM SPECIFIC OUTCOMES (PSOs)**

- PSO1: Design consultant for interior work.
- PSO2: Work as landscape Designer and space planner or allocator for commercial areas
- PSO3: Take up interior projects on contract basis
- PSO4: Work as the drafter for plans and colour consultant.
- PSO5: Work as set and costume designer



## **COURSE OUTCOME:**

### **SEMESTER I**

#### **COURSE: DESIGN BASICS (CORE PAPER)**

**CREDIT: 4**

- CO 1: Understand the elements of design.
- CO 2. Understand the various principles of design
- CO 3. Learn the application of principles of design in creating beautiful interiors.
- CO 4. Learn to develop own innovative designs
- CO 5. Compare and contrast the modern trends with the classical interiors.
- CO 6. Impart different types of design in interior spaces.
- CO 7. Understand the aesthetic concept and its application in interior.

#### **COURSE: APPLIED ARTS ON TEXTILES-I (ALLIED)**

**CREDIT: 3**

- CO1: Understand art and apply its principles in the creation and selection of  
Textiles.
- CO2: Develop design in textiles and apply the same on materials.
- CO3: Understand and interpret the various finishing process of fabrics.
- CO4: Identify Different type of Fabrics and its uses in soft furnishings.
- CO5: Understand the manufacturing Techniques of yarn and fabrics.

### **SEMESTER II**

#### **COURSE: COLOUR AND LIGHTING (CORE PAPER)**

**CREDIT: 4**

- CO1: Formulate the innovative approach on color and lighting and its application in interior
- CO2: Understand the sources of color and color and lighting and its dimension
- CO3: Compare and contrast various colour theories
- CO4. Learn the psychological aspects of lighting and colour in interior spaces.
- CO5. Develop colour scheme and lighting fixtures.
- CO6. Learn the amount of lighting required in each space.
- CO7. Learn the various materials in lighting system.

**COURSE: APPLIED ARTS ON TEXTILES-II (ALLIED) CREDIT: 3**

CO1: Create surface enrichment of fabric using embroidery, appliqué, etc.

CO2: Identify and analyze the various folk embroideries in India

CO3: Evaluate figure irregularities and eliminate using optical illusion

CO4. Learn the various stitching techniques.

CO5. Understand the importance of fabrics in soft furnishings.

CO6. Learn to enhance fabric with decoration.

**COURSE: DESIGN BASICS (CORE PRACTICAL) CREDIT: 2**

CO1: Have acquired skills in planning spaces for interior.

CO2: Develop fabric surface enrichment using embroidery, sequins, etc.

CO3: Formulate design and color the fabric using printing techniques like stenciling, block printing, etc.

CO4. Create motifs and designs for window grills, Foot mats and bed spreads.

**COURSE: APPLIED ARTS ON TEXTILES (ALLIED PRACTICAL)**

**CREDIT: 2**

CO1: Create fabric using knitting and crochet.

CO2: Develop fabric surface enrichment using embroidery, sequins, etc.

CO3: Formulate design and color the fabric using printing techniques like stenciling, block printing, etc.

**SEMESTER III**

**COURSE: COMPUTER AIDED DESIGN-I (CORE PAPER)**

**CREDIT: 4**

CO1: Understand the need for AutoCAD software.

CO2: Compare and contrast point fixing methods.

CO3: Identify various tools in AutoCAD software.

CO4. Learn how to use modification tools effectively.

CO5. Understand the tools used for drafting plan.

CO6. Learn the dimensioning techniques in AutoCAD.

**COURSE: INTERIOR DESIGN STUDIO & BUILDING SYSTEM TECHNOLOGY-I (ALLIED)**

**CREDIT: 3**

- CO1: Analyze various construction techniques in interiors.
- CO2: Identify various transportation systems in interiors like elevators, staircases, etc.
- CO3: Plan and design rain water harvesting techniques for residential.
- CO4: Learn the various materials and finishes used in building construction.
- CO5: Understand the types of foundation and its techniques.
- CO6: Learn the structural elements of buildings.

**COURSE: DRAFTSMANSHIP-I (SKILL BASED)**

**CREDIT: 2**

- CO1: Compare and contrast various drafting tools and techniques
- CO2: Understand dimensioning and its methods
- CO3: Develop skills in technical and free hand sketching
- CO4: Develop manual drafting skills.

**COURSE: BASICS OF INTERIOR DESIGN-I (NME)**

**CREDIT: 2**

- CO1: Understand the importance of Interior Design & Decor
- CO2: Understand and apply knowledge of Furniture, Color, and Lighting.
- CO3: Develop Skills Decorating the environment both aesthetically and functionally.

**SEMESTER IV**

**COURSE: COMPUTER AIDED DESIGN-II(CORE PAPER)**

**CREDIT: 4**

- CO1: Understand 3D modeling concepts
- CO2: Compare and contrast various primitive tools such as box, cone, wedge etc.
- CO3: Understand the steps and process of installing lighting and rendering.
- CO4: Learn the various inquiry tools in AutoCAD software.
- CO5: Learn various dimensioning styles and lettering styles.
- CO6: Learn to draw isometric drawings of furniture.

**COURSE: INTERIOR DESIGN STUDIO & BUILDING SYSTEM TECHNOLOGY-II (ALLIED)**

**CREDIT: 3**

- CO1: Understand the importance of acoustics in interior
- CO2: Compare and contrast various HVAC systems
- CO3: Develop electrical plans for residential and commercial spaces.
- CO5. Learn the plumbing plans for residential and commercial spaces.
- CO6. Analyze various building by- laws formulated by government.

**COURSE: DRAFTSMAN SHIP-II (SKILL BASED)**

**CREDIT: 2**

- CO1: Understand plumbing systems in buildings.
- CO2: Analyze orthographic views.
- CO3: Understand the need for symbols used for developing plans
- CO4. Compare and contrast the isometric and perspective views.
- CO5. Learn to draft plans in perspective, orthographic and isometric view.

**COURSE: INTERIOR DESIGN STUDIO & BUILDING SYSTEM TECHNOLOGY (ALLIED PRACTICAL)**

**CREDIT: 2**

- CO1: Develop skills on manual ling drafting floor plan
- CO2: Create elevation view of the buildings
- CO3: Develop perspective and isometric drawings

**COURSE: COMPUTER AIDED DESIGN (CORE PRACTICAL)**

**CREDIT: 3**

- CO1: Create orthogonal views for the layouts
- CO2: Utilize various text and dimension styles in AutoCAD.
- CO3: Design furniture and furnishings using AutoCAD software

**COURSE: BASICS OF INTERIOR DESIGN-II (NME) CREDIT: 2**

- CO1: Understand the importance of Interior Design & Décor.
- CO2: Understand and apply knowledge of Furniture, Color, and Lighting.
- CO3: Develop Skills Decorating the environment both aesthetically and functionally.

## **SEMESTER V**

### **COURSE: FURNITURE IN INTERIOR (CORE PAPER) CREDIT: 4**

- CO1: Learn the various types of furniture used for activities.
- CO2: Develop the knowledge on various styles of furniture.
- CO3: Understand the selection techniques in furniture.
- CO4. Develop skills in furniture arrangement for each room.
- CO5. Learn the concepts of techniques in maintaining the furniture.
- CO6. Understand the various materials used in furniture and its construction techniques.

### **COURSE: FLORICULTURE AND LANDSCAPING (CORE PAPER) CREDIT: 4**

- CO1: Learn the various types of plants and Flowers.
- CO2: Develop the knowledge on Landscaping Plans.
- CO3: Understand the various styles of garden.
- CO4. Develop skills in flower arrangement.
- CO5. Learn the concepts of lawn growth techniques.
- CO6. Understand the various plant growing techniques.

### **COURSE: PLANNING THE LIFE SPACE (CORE PAPER) CREDIT: 4**

- CO1: Learn the various types of Spaces.
- CO2: Develop the knowledge on allocating Spaces.
- CO3: Understand the various architectural plans.
- CO4. Develop skills in traffic pattern and circulation in interior.
- CO5. Learn the concepts of Space saving Techniques.
- CO6. Understand the modern building construction techniques.

### **COURSE: KITCHEN DESIGN (ELECTIVE) CREDIT: 3**

- CO1: Learn the various types Kitchen Layouts and its selection.
- CO2: Develop the knowledge on various finishes and materials used in kitchen.
- CO3: Understand the anthropometric measurement of human body and its effect in kitchen.
- CO4: Learn to design effective kitchen plan which reduces fatigue and discomfort.

**COURSE: RESIDENTIAL SPACE DESIGNING (SKILL BASED)**

**CREDIT:2**

CO1: Learn the housing problems in India and its solution.

CO2: Develop the knowledge on housing Standards.

CO3: Understand the various funding agency and the government schemes for housing.

CO4. Develop zoning and bye laws for building construction.

**SEMESTER VI**

**COURSE: SOFT FURNISHINGS (CORE PAPER)**

**CREDIT: 4**

CO1: Learn the various types of furnishings used in interior.

CO2: Develop the knowledge on various floor coverings and curtain.

CO3: Understand the selection techniques in furnishings.

CO4. Learn various window treatments and its purpose in interior.

CO5. Learn the concepts of techniques of care and maintenance of soft furnishings.

CO6. Understand the various materials used in furnishings and its manufacture techniques.

**COURSE: APPLIED ARTS (CORE PAPER)**

**CREDIT: 4**

CO1: Learn the various Techniques in enrichment of material.

CO2: Develop the knowledge on creating art pieces.

CO3: Understand the various accessories and its placement.

CO4. Develop skills in table setting with decoration.

CO5. Learn the concepts of craft with various skills.

CO6. Understand techniques of art.

**COURSE: PROFESSIONAL PRACTICE (ELECTIVE)**

**CREDIT: 3**

CO1: Learn the space planning for residence and commercial interior.

CO2: Develop the knowledge on estimation of construction.

CO3: Develop skill to formulate quotation and tender for construction.

CO4. Learn the concepts of Specifications.

**COURSE: ERGONOMICS (ELECTIVE)**

**CREDIT: 3**

CO1: Learn the concept of ergonomics.

CO2: Develop the knowledge on various ergonomic factors and its effect in interior.

CO3: Understand the anthropometric dimensions.

CO4: Learn to design ergonomic work areas and improve the work efficiency.

**COURSE: COMMERCIAL SPACE DESIGNING (SKILL BASED)**

**CREDIT: 2**

CO1: Learn the concept of commercial art.

CO2: Develop the knowledge on designing various commercial interiors.

CO3: Understand the window display and interior display techniques.

CO4: Learn various trends in commercial architecture.

**COURSE: FURNITURE AND FURNISHINGS ( CORE PRACTICAL)**

**CREDIT: 3**

CO1: Learn the correct usage of furniture and furnishings in the effective way.

CO2: Develop the knowledge on designing various furniture layouts.

CO3: Understand the techniques in stitches and pleats.

CO4: understand the evaluation of furniture.

**COURSE: FLORICULTURE AND LANDSCPING (CORE PRACTICAL)**

**CREDIT: 3**

CO1: Learn the techniques of designing various gardens.

CO2: Develop the skill in flower arrangements.

CO3: Understand the method of cultivation. CO4:

Learn to identify various ornamental plants.



## **ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE**

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Accredited by NAAC with "B" Grade

#10, BYPASS ROAD, NEWTOWN, VANIYAMBADI – 635 752

Phone: 04174 – 235266

### **B.SC. (DEPARTMENT OF MATHEMATICS)**

#### **PROGRAM OUTCOMES (PO's)**

PO1: Pursue their post graduation and research activities.

PO2: Acquire the skills in a broad range of analytic, scientific, government, financial, health, technical and other positions.

PO3: Demonstrate an understanding of the basic concepts in mathematics, statistics, operations research and their importance in the solution of some real-world problems.

PO4: Create mathematical ideas from basic axioms.

PO5: Recognize and appreciate the connections between theory and applications.

#### **PROGRAM SPECIFIC OUTCOMES (PSOs)**

PSO1: Understand the mathematical concepts and applications in the field of algebra, analysis, computational techniques, optimization, differential equations, engineering, finance and actuarial science.

PSO2: Develop numerical aptitude applying both qualitative and quantitative knowledge for their future career.

PSO3: Acquire good knowledge and understanding in advanced areas of mathematics and Statistics chosen by the students from the given courses.



## **COURSE OUTCOME**

### **SEMESTER I**

#### **COURSE: ALGEBRA (CORE PAPER)**

**CREDIT:3**

- CO1: Know the relationship between roots and coefficients.
- CO2: Identify the nature of the roots of the given equation .
- CO3: Evaluate sum to infinity of the given binomial, exponential and logarithmic series.
- CO4: Identify the types of matrices and calculate the Eigen values of a given square matrix.
- CO5: Know the number theory concepts.

#### **COURSE: TRIGONOMETRY (CORE PAPER)**

**CREDIT:3**

- CO1: Know the expansions of  $\cos n\theta$ ,  $\sin n\theta$  in powers of  $\cos\theta$  and  $\sin\theta$
- CO2: Expand powers of sines and cosines of  $\theta$  in terms of functions of multiples of  $\theta$
- CO3: Know the concept of hyperbolic functions
- CO4: Find the summation of trigonometric series.
- CO5: Know the logarithm of complex quantities.

#### **COURSE: NUMERICAL METHODS-I (ALLIED)**

**CREDIT:3**

- CO1: Know the Newton-Gregory forward and Backward formula
- CO2: Solve the Gauss forward and backward formula
- CO3: Understand divided difference formula .
- CO4: Find the Lagrange's method and reversion series method.
- CO5: Understand the Gauss-Seidel method.

### **SEMESTER-II**

#### **COURSE: CALCULUS (CORE PAPER)**

**CREDIT:3**

- CO1: Determine extreme values of the given function
- CO2: Know the concept of Cartesian and polar coordinates
- CO3: Gain the knowledge of curvature, evolutes and envelope concepts
- CO4: Evaluate double and triple integrals
- CO5: Solve integration problems.

**COURSE: ANALYTICAL GEOMETRY OF THREE DIMENSIONS(CORE PAPER)**

**CREDIT: 3**

CO1: Know the equation of the plane and its applications

CO2: Gain the knowledge of straight line and its applications

CO3: Solve sphere related problems

CO4: Know the concepts of cone, right circular cone and enveloping cone

CO5: Know the concepts related to cylinder.

**COURSE: NUMERICAL METHODS-II (ALLIED)**

**CREDIT: 3**

CO1: Understand Newton forward & backward differences .

CO2: Understand Simpson's rule.

CO3: Solve the Linear difference Equations.

CO4: Understand Regula Falsi method.

CO5: Analyze Euler's & Picard's method.

**COURSE: NUMERICAL METHODS (ALLIED PRACTICAL)**

**CREDIT: 2**

CO1: Understand Gauss –Jacobi method.

CO2: Understand Gauss –Elimination method.

CO3: Solve the Linear difference Equations.

CO4: Analyze Runge-Kutta's method.

**SEMESTER -III**

**COURSE: DIFFERENTIAL EQUATIONS (CORE PRACTICAL)**

**CREDIT: 5**

CO1: Solve the first order higher degree differential equations

CO2: Solve the second order differential equations

CO3: Know the concept of total differential equations

CO4: Know the applications of Laplace transform

CO5: Solve the partial differential equations.

**COURSE: MATHEMATICS FOR COMPETITIVE EXAMINATIONS– I (SKILL BASED )**

**CREDIT: 2**

CO1: Know the idea H.C.F. and L.C.M.

CO2: Find the Average, square root and cubic root .

CO3: Solve the problems on ages and numbers.

CO4: Know the percentage, profit and loss.

CO5: Analyze the proportion and partnership problems.

**COURSE: MATHEMATICAL STATISTICS – I (ALLIED)**

**CREDIT:3**

CO1: Understand addition and multiplication law of probability

CO2: Implement moment generating function

CO3: Evaluate characteristic function

CO4: Implement Karl –Pearson's coefficient of correlation

CO5: Understand different types of distribution.

**COURSE: GENERAL COMMERCIAL KNOWLEDGE (NME I )**

**CREDIT:2**

CO1: To gain knowledge about commerce, Trade, Industry.

CO2: To learn about forms of business organization.

CO3: To acquire knowledge about company.

CO4: To know about stock Exchange.

CO5: To impart effective knowledge about trade association and chamber of commerce.

**SEMESTER -IV**

**COURSE: VECTOR ANALYSIS AND FOURIER SERIES(CORE PAPER)**

**CREDIT:4**

CO1: Know the physical and geometrical meaning of the derivative.

CO2: Know the physical and geometrical meaning of the divergence and curl.

CO3: Evaluating line, surface and volume integrals.

CO4: Know the applications of Stoke's Theorem, Gauss Divergence Theorem and Green's theorem.

CO5: analyze the Fourier series in both theory and application level.

**COURSE: MECHANICS (CORE PAPER)**

**CREDIT:4**

CO1: Provides basic knowledge of Resultant of forces and Equilibrium of a particle

CO2: Knowledge pertaining to Parallel forces and coplanar forces

CO3: Understand the concept of impact

CO4: To know about Center of mass

CO5: Gain the knowledge of projectile and its applications.

**COURSE: MATHEMATICAL STATISTICS – II(ALLIED)**

**CREDIT:3**

CO1: Understand students‘t’, chi-square and F distribution

CO2: Understand large sample test for proportion, mean and standard deviation

CO3: To know the maximum Likelyhood estimation

CO4: Solve null and alternative hyphothesis.

CO5: Understand one and two way classification.

**COURSE: MATHEMATICAL STATISTICS (ALLIED PRACTICAL)**

**CREDIT: 2**

CO1: Find the statistical data using measures of central tendency.CO2:

Understand Correlation and Regression

CO3:Implement Skewness and Kurtosis

CO4: Evaluate Latin Square Design

**COURSE: ADVERTISING AND SALESMANSHIP (NME II) CREDIT:2**

CO1: Impart knowledge on Advertising

CO2:Get familiarized about advertising agencies

CO3: Get familiarized about recent trends advertising

CO4: Acquired knowledge on fundamental concept of salesmanship.

CO5:Impart knowledge on duties & responsibilities of salesmanship.

**SEMESTER –V**

**COURSE: ABSTRACT ALGEBRA(CORE PAPER)**

**CREDIT:4**

CO1: Identify groups and subgroups.

CO2: Understand homomorphism and isomorphism.

CO3: Solve the problems in permutation.

CO4: Study the basics of rings, ideals and integral domain.

CO5: Apply Euclidean rings in theorems.

**COURSE: REAL ANALYSIS I(CORE PAPER)**

**CREDIT: 4**

CO1: Know the concept count ability

CO2: Identify convergent, divergent sequences

CO3: Solve conditional convergence and absolute convergence problems

CO4: Evaluate limit of a function

CO5: Know the concepts of open, closed sets.

**COURSE: COMPLEX ANALYSIS - I(CORE PAPER)**

**CREDIT:4**

CO1: Gain knowledge about Complex functions and its nature, limits and Analytic functions.

CO2: Gain knowledge about elementary transformations.

CO3: Gain knowledge about line integrals and techniques for solving problems

**COURSE: STATICS (CORE PAPER)**

**CREDIT:4**

CO1: Apply Newton's second law in vector form to problem in more than one dimension.

CO2: Solve Static Problems in one dimension that involve one or more forces of gravity.

CO3: Compare and Contrast Problems relating to the motion and a projectile is the absence of speed.

CO4: Explain basic terms for the description of the motion of particles and fundamental law of mechanics .

**COURSE: DYNAMICS (CORE PAPER)**

**CREDIT:4**

CO1: Identify and apply specific boundary conditions relevant to specific application.

CO2: Analyse the results and draw the appreciate inferences.

CO3: Apply Newton's second law in vector form to problems in one or more than one dimension.

CO4: Evaluate Mechanics problems in one dimension that involve one or more of the forces of gravity, friction and air resistance.

**COURSE: GRAPH THEORY (ELECTIVE)**

**CREDIT: 3**

CO1:know about the basic foundations of graphs, subgraphs and trees.

CO2:Understand the types of graphs.

CO3: learn about connected graphs, Eulerian graphs and Hamiltonian graphs.

**COURSE: MATHEMATICS FOR COMPETITIVE EXAMINATION-II(SKILL BASED)** **CREDIT:3**

CO1: Identify short tricks, tips and Logical method on difficult problems.

CO2: Compare and contrast right approach and earliest to tackle math problems.

CO3: Formulate earliest trick for solving challenging problems in time ,work and distance.

CO4: Plan and find confident in cracking SAT, BANK EXAM , RAILWAY EXAM and other math exams.

**SEMESTER-VI**

**COURSE: LINEAR ALGEBRA (CORE PAPER)**

**CREDIT:4**

CO1: Beginning with Linear Dependence and Linear Independence on Vector Space

CO2: Knowing about Dual spaces and Inner product spaces on Vector space.

CO3: Learning to study about Algebra of Linear transformations and its characteristic roots. CO4:

Converting Linear equations of Vector space to Matrices its canonical and triangular forms.CO5:

Deriving Trace and Transpose of Matrices.

**COURSE: REAL ANALYSIS II (CORE PAPER)**

**CREDIT:4**

CO1: Understand the concept of complete metric space

CO2: Know the difference between continuity and uniform continuity

CO3: Know Riemann integration and its properties

CO4: Solve problems related to Rolle's theorem , law of mean

CO5: Know the convergence of sequences of functions.

**COURSE: COMPLEX ANALYSIS II (CORE PAPER)**

**CREDIT: 4**

CO1: Implement program for GCD, Fibonacci

CO2: Implement program using branching and looping concept

CO3: Implement String Manipulation Concept.

**COURSE: PROGRAMMING IN C LANGUAGE (CORE PAPER)**

**CREDIT:3**

CO1: Understand basic concept of variables ,Data types.

CO2: Apply Operators Expression & Pre processor

CO3: Determine the concept of arrays and its declarations& uses

CO4: Determine the user define return values

CO4: Understand the Stucture and Unions.

**COURSE: PROGRAMMING IN C LANGUAGE (PRACTICAL) CREDIT:2**

CO1: Design a program using looping concepts.

CO2: Create a program for counting vowels & consonants, three dimensional array using array concepts.

CO3: Impliment the program using Fibonacci series & Factorial numbers.

**COURSE: OPERATIONS RESEARCH(ELECTIVE)**

**CREDIT: 3**

CO1: Interpret the solutions in network analysis.

CO2: Knowledge about optimal use of resources.

CO3: Understand to sequence the machines to do the job effectively.

CO4: Analyze the system given and interpret the solutions.

**COURSE: FUZZY MATHEMATICS (ELECTIVE)**

**CREDIT: 3**

CO1: Apply the fuzzy set theory on the statistical method which is given.

CO2: Prepare application on fuzzy logic membership function ,fuzzy inference system.CO3: Decide and prepare between crips and set theory .

CO4: Calculate homomorphic image and fuzzy image.

**COURSE: MATHEMATICS FOR COMPETETIVE EXAMINATIONS –**

**III(SKILL BASED)**

**CREDIT:3**

CO1: Identify short Tricks, Tips and and logical method on difficult problems.

CO2: Compare and contrast right approach and earliest to tackle math problems.

CO3: Formulate earliest trick for solving challenging problems of mathematics in area, volume and surface.

CO4: Calculate time and distance.



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### **PG AND RESEARCH DEPARTMENT OF MATHEMATICS**

#### **M.SC. (DEPARTMENT OF MATHEMATICS)**

#### **PROGRAM OUTCOMES (PO's)**

PO1: Crack lectureship and fellowship exams approved by CSIR-NET and SET.

PO2: Opportunity of employment in schools and colleges as mathematical Teachers and Professors, Analysts in software industries, Research and Development Organizations .

PO3: Innovate and design complex mathematical problems and solutions using Pure and Applied mathematics.

PO4: After completion of M.Sc they can continue their research work like M.Phil/Ph.D.

#### **PROGRAM SPECIFIC OUTCOMES (PSOs)**

PSO1: Apply the concept of graph theory & operations research in real life applications

PSO2: Prepare and motivate students for research studies in mathematical and related fields.

PSO3: Assist students in preparing for competitive examinations like CSIR, SET etc.



## **COURSE OUTCOME (CO)**

### **SEMESTER I**

#### **COURSE: ALGEBRA I(CORE PAPER)**

**CREDIT:5**

CO1: Demonstrate ability to think group actions critically by Cayley's theorem and apply

CO2: The Sylow's theorems to describe the structure of certain finite abelian groups know the internal and external direct product of groups. Also, apply the structure

CO3: Theorem on abelian groups to find the non-isomorphic abelian groups of certain orders. Check the irreducibility of a given polynomial.

CO4: know about module and difference between the algebraic structures, Group, Ring and Module..

CO5: know the Linear transformation in canonical forms. Also, the matrix form of linear transformation and its properties.

#### **COURSE: REAL ANALYSIS I(CORE PAPER)**

**CREDIT: 5**

CO1: understand the concept of functions of bounded variation.

CO2: Discuss the Riemann integration and to solve its related problems.

CO3: Analyse the sequences and series of function and their limits.

CO4: Acquire the knowledge of Infinite Series and Infinite products.

CO5: Have knowledge of uniform convergence of sequence and series.

#### **COURSE: ORDINARY DIFFERENTIAL EQUATIONS (CORE PAPER)**

**CREDIT:4**

CO1: Solve Second order linear differential equations.CO2:

Solve  $n^{\text{th}}$  order differential equations.

CO3: Solve differential equations with variable coefficients.

CO4: Solve differential equations with regular singular points.

CO5: Examine the existence and uniqueness of solutions of differential equations.

CO6: Apply ODE problems for real time applications.

## **COURSE: PRINCIPLES OF INTERNET (NON MAJOR ELECTIVE)**

**CREDIT: 3**

CO1: Learn the basic of internet

CO2: Understand the concept of www CO3:

Understand firewall, digital certificate CO4:

Learn about Browsers

## **COURSE: GRAPH THEORY (MAJOR BASED ELECTIVE)**

**CREDIT: 4**

CO1: Grasp features and properties of special graphs

CO2: Check the given graph is Eulerian or not. Also able to find the Eulerian circuit and Hamiltonian paths of the given graph.

CO3: Find the matching/perfect matching, connectivity of given graphs

CO4: Find independent sets and chromatic number of a given graph.

CO5: Apply coloring and planarity of graphs in real life problems.

## **SEMESTER-II**

### **COURSE: ALGEBRA II (CORE PAPER)**

**CREDIT: 5**

CO1: Demonstrate ability to find the extension field of polynomials. Also, gets the clear understanding of algebraic extensions and algebraic closures.

CO2: Work with the consequences of Galois Theory such as insolubility of certain classes of equations

CO3: Work with finite fields and certain important theorems related to Finite division ring CO4: Use of Frobenius integral quaternions and the Four square theorem

### **COURSE: REAL ANALYSIS II (CORE PAPER)**

**CREDIT: 5**

CO1: Understand the concept of Fourier series and Fourier integrals. CO2:

Discuss the inverse function theorem and implicit function theorem CO3:

Analyse the functions of several variables

CO4: Analyse the concept of inner and outer measure

CO5: Acquire the knowledge of Lebesgue measure

**COURSE: PARTIAL DIFFERENCE EQUATIONS (CORE PAPER)**

**CREDIT:4**

CO1: Formulate and solve Partial Differential Equations (PDE) and apply PDE problems for real time applications.

CO2: Solve partial differential equations of first and second order.

CO3: Classify the partial differential equations.

CO4: Identify the canonical forms of the partial differential equations.

CO5: Analyse the solution of Laplace, Diffusion and Wave equations in Cylindrical and polar coordinates

**COURSE: DIFFERENCE EQUATIONS(MAJOR BASED ELECTIVE)**

**CREDIT:3**

CO1: Solve problems on Linear Difference Equations of Higher order

CO2: Understand the system of Linear Difference Equations

CO3: Apply Z-transform techniques in difference equation.

CO4: Solve problems on Oscillation Theory and Asymptotic Behaviour of Difference

**COURSE: PRINCIPLES OF WEBDESIGN ( NON MAJOR BASED ELECTIVE)**

**CREDIT:3**

CO1:Learn to combine basic HTML to create web pages

CO2: Understand the use of HTML,tags and tag attributes to control a web page's appearance.CO3: Understand using tables and frames as navigational aids on a web site.

CO4: Learn to add absolute URLs, relative URLs and named anchors to web pages.

CO5: Control appearance web pages by applying style sheet.

**SEMESTER -III**

**COURSE: COMPLEX ANALYSIS I (CORE PAPER)**

**CREDIT: 6**

CO1: Understand the differentiability and analytic functions.

CO2: Comprehend the elementary functions and complex integration

CO3: Acquire the knowledge of conformal mappings and Mobius transformations

CO4:Discuss the Maximum Principle, Schwarz' Lemma and Liouville's Theorem

CO5:Procure the applications of the Classification of Singularities.

## **COURSE: TOPOLOGY (CORE PAPER)**

**CREDIT: 5**

CO1: Comprehend the continuous functions on topological spaces, product topology and topology induced by the metric.

CO2: Understand the connected spaces, connected subspaces, components and local connectedness.

CO3: Understand the various countability axioms and the separation axioms.

CO4: Acquire the notions of compactness, compact subspaces, limit point compactness and local compactness.

## **COURSE: DIFFERENTIAL GEOMETRY (CORE PAPER)**

**CREDIT:5**

CO1: Understand the characteristics of curves and surfaces in space and also the fundamental existence theorem for space curves

CO2: Discuss the intrinsic properties of surface.

CO3: Analyse the geodesics and its normal properties and familiar with Gauss Bonnet Theorem

CO4: Discuss the developable

CO5: Understand different types of distribution

## **COURSE: OPERATIONS RESEARCH (MAJOR BASED ELECTIVE)**

**CREDIT:3**

CO1: Analyse various inventory control modules CO2:

Understand the concepts of network techniques CO3:

Discuss the maintenance models in replacements

CO4: Understand inventory control and functional role of inventory

CO5: Analyse various performance of queueing models.

## **COURSE: PROGRAMMING USING C++ (NON MAJOR BASED ELECTIVE)**

**CREDIT:3**

CO1: Understand object oriented programming and advanced C++ concepts

CO2: Understand the various functions and arguments in object oriented programming

CO3: Understand the classes and objects in C++

CO4: Learn inheritance and polymorphisms

CO5: Understand the concepts of files and exception handling

## **SEMESTER -IV**

### **COURSE: COMPLEX ANALYSIS II (CORE PAPER)**

**CREDIT:4**

CO1: Understand the concepts of residues

CO2: Acquire the concepts of entire and meromorphic functions.

CO3: Comprehend the harmonic functions and its consequences.

CO4: Understand the conformal mappings, normal families and Riemann mapping theorem.

CO5: Evaluate the integrals using Cauchy residue theorem.

### **COURSE: FLUID DYNAMICS (CORE PAPER)**

**CREDIT:4**

CO1: Understand the concepts of kinematics of fluids in motions.

CO2: Analyse the examples related to the equation of continuity and acceleration of a fluid

CO3: Discuss two-dimensional flows, the stream function and the Milne Thompson Circle theorem.

CO4: Acquire the concept of three-dimensional flows and derive Stoke's stream function

CO5: Discuss the viscous flows and Navier – Stokes equations of motion of a Viscous fluid.

### **COURSE:FUNCTIONAL ANALYSIS (CORE PAPER)**

**CREDIT:5**

CO1: Analyse the Banach space with examples CO2:

Understand the natural embedding  $N$  in  $N^{**}$  CO3:

Discuss Banach spaces with the Hilbert spaces

CO4: Acquire the open mapping theorem, orthonormal complements and orthonormal sets CO5:

Prove the structure theorems.

### **COURSE: PROJECT**

**CREDIT: 5**

CO1: Acquire good knowledge of project management.

CO2: Understand about project planning.

CO3: Evaluate front end and back end.

CO4: Understand about project design.

CO5: Evaluate project documentation

CO6: Understand how to develop real time project

**COURSE: NUMBER THEORY AND CRYPTOGRAPHY (MAJOR BASED ELECTIVE)**

**CREDIT:3**

CO1: Know the divisibility and Euclidean algorithm CO2:

Find the Enciphering matrices

CO3: Understand the residues and reciprocity

CO4: Evaluate public key cryptography CO5:

Understand the Rao method.



## **ISLAMIAH WOMEN'S ARTS AND SCIENCE COLLEGE**

Recognised by the UGC under Section 2(f) and 12(B) of UGC Act 1956

Permanently Affiliated with Thiruvalluvar University and

Approved by the Government of Tamil Nadu

Accredited by NAAC with "B" Grade

#10, BYPASS ROAD, NEWTOWN, VANIYAMBADI – 635 752

Phone: 04174 – 235266

### **B.Sc. (DEPARTMENT OF ZOOLOGY)**

#### **PROGRAMME OUTCOME**

PO1: Students enrolled in B.Sc. degree program in Zoology will study and acquire complete knowledge of disciplinary as well as allied biological sciences.

PO2: At the end of graduation, they are likely to possess expertise, which will provide them competitive advantage in pursuing higher studies from India or abroad; and seek jobs in academia, research or industries.

PO3: Students will be able to define and explain major concepts in the biological sciences.

PO4: They are able to correctly use biological instrumentation and proper laboratory techniques. Students will be able to communicate biological knowledge in oral and written form.

PO5: Students will be able to identify the relationship or synchronization between structure and function at all levels: molecular, cellular, and organismal. Students should be able to identify, classify and differentiate diverse chordates and nonchordates based on their morphological, anatomical and systemic organization.

PO6 : They will also be able to describe economic, ecological and medical significance of various animals in human life.

PO7: This will create a curiosity and awareness among them to explore the animal diversity and take up wild life photography or wild life exploration as a career option.

PO8: Students undertaking skill enhancement courses like aquaculture, sericulture and apiculture will inculcate skills involved in rearing fish, bees and silk moth which would help them in starting their own ventures and generating self employment making them successful entrepreneurs

PO9 : Acquire skills in diagnostic testing, hematology, histopathology, staining procedures etc. used in clinical and research laboratories will provide them opportunity to work in diagnostic or research laboratory.

PO10: Candidates find opportunities in government departments, environmental agencies, universities, colleges, biotechnological, pharmaceutical, environmental/ecological fields.

PO11: There are numerous career opportunities for candidates completing their B.Sc, M.Sc and Ph.D. in Zoology in public and private sector. Candidates may find jobs as Animal Behaviourist, Conservationist, Wildlife Biologist, Zoo Curator and Wildlife Educator.

## **PROGRAM SPECIFIC OUTCOMES:**

**PSO1:** Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology

**PSO2:** Analyse the relationships among animals, plants and microbes

**PSO3:** Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology

**PSO4:** Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

**PSO5:** Gains knowledge about research methodologies, effective communication and skills of problem solving methods

**PSO6:** Contributes the knowledge for Nation building.

**PSO7:** Understands the complex evolutionary processes and behavior of animals

**PSO8:** Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species.

## **COURSE OUTCOMES**

### **SEMESTER I**

**COURSE: INVERTEBRATES (CORE PAPER)**

**CREDITS 4**

CO1: Describe general taxonomic rules on animal classification

CO2: Classify Protista upto phylum using examples from parasitic adaptation

CO3 : Classify Phylum Porifera to Echinodermata with taxonomic keys

CO4: Imparts knowledge regarding the various Invertebrates species and the regulatory processes.



**COURSE: ALLIED CHEMISTRY-I (ALLIED)****CREDITS 3**

CO1: Explain the term and process used in metallurgy.

CO2: Compare the types of effects of polarisation plays the role in organic reaction.

CO3: Determine The Rate Of Reaction And To Compare The Types Of Catalysis.

CO4: Evaluate the type of nuclear and application of radio-isotopes.

CO5: Classify the type of hybridization and shapes of molecules.

**COURSE: PROFESSIONAL ENGLISH FOR LIFE SCIENCE (PE)****CREDITS 3**

CO1: Students will be enabled to understand the basic objective of the course by being acquainted with specific dimensions of communication skills i.e. Reading, Writing, Listening, Thinking and Speaking.

CO2: Students would be able to create substantial base by the formation of strong professional vocabulary for its application at different platforms and through numerous modes as Comprehension, reading, writing and speaking etc.

CO3: Students will apply it at their work place for writing purposes such as Presentation/official drafting/administrative communication and use it for document/project/report/research paper writing.

CO4: Students will be made to evaluate the correct & error-free writing by being well-versed in rules of English grammar & cultivate relevant technical style of communication & presentation at their work place & also for academic uses.

**SEMESTER II****COURSE: VERTEBRATES (CORE PAPER)****CREDITS 4**

CO1: Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment.

CO2: Classify phylum Protochordates to Mammalia.

CO3: Gains knowledge of functional anatomy of vertebrates from Fishes to Mammals.

CO4: Students will be able to list out the unique characters of Fishes, Amphibians, Reptiles, Aves and Mammals.

**COURSE: ALLIED CHEMISTRY-II (ALLIED)**

**CREDITS 3**

CO 1: Describe the coordination compounds and their applications.

CO 2: Evaluate the role of carbohydrate, Amino acid, proteins and vitamins.

CO 3: Determine the type of conduction in electrochemistry.

CO 4 : Explain the application of points, chromatography techniques.

CO5: Evaluate the types of drug applied for diseases.

**COURSE: CHEMISTRY 1 &II (ALLIED PRACTICAL)**

CO1: Analyze and identify the functional group in the given substance.CO2:

Understand types of reaction.

Co3: Determine the strength of the solutions.

**COURSE: PROFESSIONAL ENGLISH FOR LIFE SCIENCE (PE)**

**CREDITS 3**

CO1: Learners will be able to attend interviews with boldness and confidence.

CO2: Adapt easily into the workplace context, having become communicatively competent.

CO3: Apply to the Research & Development organizations/ sections in companies and offices with winning proposals.

**SEMESTER III**

**COURSE: CELL AND MOLECULAR BIOLOGY (CORE PAPER)**

**CREDITS 4**

CO 1: Acquire knowledge about the history basic techniques in cytology and molecular biology.

CO 2: Get an in depth knowledge about the cell structure.

CO 3: Learn about the cell organelles and their functions.

CO 4: Understand the cell cycle and learn about cancer biology.

CO 5: Learn about the nucleic acid and protein synthesis.

**COURSE: ALLIED BOTANY-II (ALLIED)**

**CREDITS 3**

CO 1;To knowledge of cell and cell organelles

CO 2: To know classification and structure of tissues

CO 3:To understand characters and reproduction of bacteria and viruses

CO 4: To acquire knowledge of algae and fungi

CO 5. To study the structure and life cycle of some bryophytes, pteridophytes and Gymnosperms.

**COURSE: VERMICULTURE ( SBS -I)**

**CREDITS 2**

CO 1: Learn about the characteristics and biology of earthworm.

CO 2: Get an in depth knowledge about the culture techniques.

CO 3: Understand about the methods of composting.

CO 4: Learn the factors for proper maintenance of the vermicomposting beds.

CO 5: Learn about the application and marketing of the compost.

**COURSE: FOOD AND NUTRITION (NME-I)**

**CREDITS 2**

CO 1: Realizing the fact that “Food as medicine”, Classify carbohydrates and analyze their sources and functions in the body.

CO2: Classify fats and analyze their sources and functions in the body.

CO3: Identify and explain proteins in foods and the specific functions in maintaining health.

CO4: Identify the types of vitamins and their biomedical significance of vitamins present in food

CO5: Analyzing the biological importance of major and minor trace elements (Minerals) in the food.

**SEMESTER IV**

**COURSE: GENETICS AND BIOTECHNOLOGY (CORE PAPER)**

**CREDITS 4**

CO1: The student will be able to study effectively, and enable to understand the difference between dominance and epistasis, to enable the students understand types of blood groups in humans.

CO2: The student will be able to describe gene linkage and explain the genetic anomalies caused by changes in chromosome number and structure. To understand the fine structure of genes and gene regulations.

CO3: The student will be able explain DNA mutation and repair mechanisms and different kinds of mutagens and kinds of mutagens. To understand the animal breeding techniques, population structure and genetic polymorphisms.

CO4: The student will be able to determine the applicability of difference kinds of cloning vectors, techniques of genetic engineering, illustrating the use of genomic libraries in gene

detection and characterization.

CO5: The student will be able to analyze the function of applied genetic research in technology, nature and society, understanding the applications of rDNA technology, and identifying the ethical issues related to gene manipulation.

**COURSE: ALLIED BOTANY-II**

**CREDITS 3**

CO1: To familiarize range of characters and economic importance of some families.CO2:

To know structure of mature anther and types of ovules.

CO3: To understand physiology mechanisms of plant.

CO4: To acquire knowledge of ecosystem and environmental pollution

CO5 To study the Mendel's test of monohybrid and dihybrid, evolutionary theories

**COURSE: APICULTURE (SBS -II)**

**CREDITS 2**

CO1: The students will be able to understand the Basics of beekeepingCO2:

The students will be able to understand the role of Bee hive

CO3: The students will be able to understand the Bee enemies, diseases, pesticide poisoning

CO4: The students will be able to understand the Products of bee keeping

CO5: The students will be able to understand the Economics and Marketing

**COURSE: LIFESTYLE DISEASES & PREVENTION ( NME-II )**

**CREDITS 2**

CO1: Define a Balanced Diet. Understand the importance of vitamins and Minerals.

CO2: Identify Lifestyle Prone Disorders.

CO3: Manage physiological and psychological disorders.

CO4: Categorize Communicable And Non-Communicable Disease.

CO5: Maintain good health.

