

C. ABDUL HAKEEM COLLEGE

(AUTONOMOUS)

[Affiliated to Thiruvalluvar University, Vellore]
Melvisharam-632 509



Syllabus under CBCS Pattern
Learning Outcome Based Curriculum Frame work
[LOCF]
with effect from 2018 onwards

B.Sc. Computer Science

Prepared By
Department of Computer Science

Programme Outcomes (PO) for Bachelor of Science (B.Sc.):

PO1: Critical Thinking and Scientific Reasoning

Capable of critical thought after attaining basic disciplinary knowledge and understanding of major concepts, theoretical principles and experimental findings for scientific reasoning in the field of basic sciences.

PO2: Problem Solving

Ability to have effective problem solving skills in relevance to the society based on the knowledge and skills acquired from sciences.

PO3: Skill Development

Capable of demonstrating research, including wider interdisciplinary areas, as well as the ability to use current information technology in science-related fields. Improving the standard of science with a strong scientific temperament, leadership, and governing abilities.

PO4: Computational/Digital Literacy

Capable of locating, retrieving, and evaluating various science-related needs using computer/mobile-based digital literacy and search resources.

PO5: Effective Communication

Ability to communicate deep technical science information in writing and orally.

PO6: Moral and Ethical Awareness

Capable of carrying out their work with integrity and accuracy, avoiding unethical behaviours such as exaggeration, falsification, misrepresentation or plagiarism.

PO7: Social Responsibility

Demonstrate numerous social issues, empathy and equity-based personal growth, as well as the opportunity to volunteer in real life and function as a true citizen.

PO8: Life-long Learning

Capable of self-paced and self-directed learning for personal growth, as well as imparting knowledge/skills for society re-skilling.

PSO for B. Sc Computer Science

PSO1: Apply the knowledge of computer science in the domain of programming

PSO2: Solve the complex Problems in the field of computer science with an understanding of the societal, legal and cultural impacts of the solution

PSO3: Foundation of Mathematical concepts:

Ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm

PSO4: form a part of member in a team with right attitudes

PSO5: Apply fundamental principles and methods of computer science to a wide **range of applications**

PSO6: Design, correctly implement and document solutions to significant computational problems

PSO7: Impart an understanding of the basics of our discipline

PSO8: Prepare for continued Professional development

PSO9: Develop proficiency in the practice of computing

For Candidates admitted from June 2018 onwards)
C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM-632509
DEPARTMENT OF COMPUTER SCIENCE

B.Sc. COMPUTER SCIENCE
CBCS PATTERN (REGULATIONS 2018 - 2019)

THE COURSE OF STUDY, CREDITS AND SCHEME OF EXAMINATIONS

I YEAR

S.No	Part	Course Title	Subject Codes	Hrs/ week	Cre dits	Title of the Paper	Maximum Marks		
I YEAR SEMESTER I							CIA Mark	EXT Mark	TOTAL Mark
1	I	Language	U18FTA101/ U18FUR101	6	4	Tamil/Urdu/Others-I	25	75	100
2	II	English	U18FEN101	6	4	English-I	25	75	100
3	III	Main-Theory	U18MCA101	6	5	Fundamentals of IT and C Programming	25	75	100
4	III	Main-Practical	U18MCAP11	3	2	Practical-I MS Office and C Programming Lab	25	75	100
5	III	Allied-I Theory	U18AMA101/ U18AMA102	7	5	Mathematics-I/ Mathematical Foundations-1	25	75	100
6	IV	Environmenta I Studies	U18CES101	2	2	Environmental Studies	25	75	100
				30	22		150	450	600
I YEAR SEMESTER II							CIA Mark	EXT Mark	TOTAL Mark
7	I	Language	U18FTA201/ U18FUR201	6	4	Tamil/Urdu/Others- II	25	75	100
8	II	English	U18FEN201	4	4	English-II	25	75	100
9	III	Main-Theory	U18MCA201	6	4	C++ and Data Structure	25	75	100
10	III	Main-Practical	U18MCAP21	3	2	Practica-II C++ and Data Structure Lab	25	75	100
11	III	Allied-I Theory	U18AMA201/ U18AMA202	7	5	Mathematics-II/ Mathematical Foundations-II	25	75	100
12	IV	Soft Skills	U18CSS201	2	1	Soft Skills	25	75	100
13	IV	Value Education	U18CVE201	2	2	Value Education	25	75	100
				30	22		175	525	700

II YEAR

S.No	Part	Course Title	Subject Codes	Hrs/ week	Cred its	Title of the Paper	Maximum Marks		
II YEAR SEMESTER III							CIA Mark	EXT Mark	TOTAL Mark
14	I	Language	U18FTA301/ U18FUR301	6	4	Tamil/Urdu/Others-III	25	75	100
15	II	English	U18FEN301	6	4	English-III	25	75	100
16	III	Main-Theory	U18MCA301	3	3	Python	25	75	100
17	III	Main-Practical	U18MCAP31	3	3	Practical-III Python Lab	25	75	100
18	III	Allied-II Theory	U18AMA302	4	4	Statistical Methods & their Applications –I	25	75	100
			U18AMC301	7**	5**	Advanced Data Structures-I			
	III	Allied-II Practical	U18AMAP41	3	0	Allied Practical	0	0	0
19	IV	Skill Based Subject	U18SCA301	3	3	Operating System (SBS-I)	25	75	100
20	IV	Non Major Elective	U18NCA301	2	2	Information Technology (NME-I)	25	75	100
				30	23		175	525	700
II YEAR SEMESTER IV							CIA Mark	EXT Mark	TOTAL Mark
21	I	Language	U18FTA401/ U18FUR401	6/4*	4/3*	Tamil/Urdu/Others-IV	25	75	100
29	I	Urdu Lab	U18FURP41	2*	1*	Practical Urdu	25	75	100
22	II	English	U18FEN401	6	4	English-IV	25	75	100
23	III	Main-Theory	U18MCA401	4	3	Advanced Java Programming	25	75	100
24	III	Main-Practical	U18MCAP41	3	3	Practical-IV Advanced Java Lab	25	75	100
25	III	Allied-II Theory	U18AMA402	4	4	Statistical Methods & their Applications –II	25	75	100
			U18AMC401	6**	5**	Advanced Data Structures-II			
26	III	Allied-II Practical	U18AMAP41	2	2	Allied Practical	25	75	100
27	IV	Skill Based Subject	U18SCA401	3	3	Internetworking and TCP/IP (SBS-II)	25	75	100
28	IV	Non Major Elective	U18NCA401	2	2	HTML Basics (NME-II)	25	75	100
				30	25		225	675	900

* Urdu., ** Allied Subjects

III YEAR

S.No	Part	Course Title	Subject Codes	Hrs/ week	Cred its	Title of the Paper	Maximum Marks		
III YEAR SEMESTER V							CIA Mar k	EXT Mark	TOTAL Mark
30	III	Main- Theory	U18MCA501	6	5	Database Management System	25	75	100
31	III	Main-Theory	U18MCA502	6	5	Visual Basic Programming	25	75	100
32	III	Main-Practical	U18MCAP51	6	3	Practical-V Visual Basic Programming Lab	25	75	100
33	III	Main-Practical	U18MCAP52	6	3	Practical-VI Oracle Lab	25	75	100
34	III	Elective	U18ECA501/ U18ECA502/ U18ECA503	4	3	(Choose any one) Digital Logic and Microprocessor/ Programming in C #/ Software Testing (Elective-I)	25	75	100
35	III	Main	U18EINP51	0	2	Internships Training	25	75	100
36	IV	Skill Based Subject	U18SCA501	2	2	Cryptography and Network Security (SBS-III)	25	75	100
				30	23		175	525	700
III YEAR SEMESTER VI							CIA Mar k	EXT Mark	TOTAL Mark
37	III	Main- Theory	U18MCA601	6	5	Web Programming	25	75	100
38	III	Main-Theory	U18MCA602	6	5	R Programming	25	75	100
39	III	Main-Practical	U18MCAP61	3	3	Practical-VII Web Programming Lab	25	75	100
40	III	Main-Practical	U18MCAP62	4	3	Practical-VIII R Programming Lab	25	75	100
41	III	Main-Project	U18MCAP60	4	3	Project and Viva Voce	25	75	100
42	III	Elective	U18ECA601/ U18ECA602/ U18ECA603	4	3	(Choose any one) Grid and Cloud Computing/Mobile Computing/Intro duction to Data Mining (Elective-II)	25	75	100
43	IV	Skill Based Subject	U18SCA601	3	2	Big-Data Analytics (SBS-IV)	25	75	100
44	V	Extension Activities	U18CEA601	0	1	Extension Activities	100	-	100
				30	25		275	525	800

**OVERALL COURSE
CREDITS & MARKS STRUCTURE**

PART	COURSE TITLE	NO OF PAPERS	HOURS	CREDITS	MARKS FOR EACH PAPER	TOTAL MARKS
I	Tamil/Urdu/Others	4	24/22*	16/15*	100	400
I	Practical Urdu	1	2*	1*	100	100
II	English	4	22	16	100	400
III	Main-Theory	8	43	35	100	800
III	Main- Practical	8	31	22	100	800
III	Main- Project	1	4	3	100	100
III	Allied-I Theory	2	14	10	100	200
III	Allied-II Theory	2	8	8	100	200
III	Allied-II Practical	1	5	2	100	100
III	Major Elective	2	8	6	100	200
III	Internships Training	1	0	2	100	100
IV	Non Major Elective	2	4	4	100	200
IV	Skill Based-Subjects	4	11	10	100	400
IV	Soft Skills	1	2	1	100	100
IV	Environmental Studies	1	2	2	100	100
IV	Value Education	1	2	2	100	100
V	Extension Activities	1	0	1	100	100
	TOTAL	44	180	140	-	4400

PART TYPE	COURSE TYPE	NUMBER OF PAPERS	NUMBER OF HOURS	CREDITS	MARKS
I	TAMIL/URDU/OTHERS	4+1*	24	16	500
II	ENGLISH	4	22	16	400
III	MAJOR, ALLIED, ELECTIVE & INTERNSHIP TRAINING	25	113	88	2500
IV	NON-MAJOR, EVS, SOFT SKILLS, SKILL BASED & VALUE EDUCATION	9	21	19	900
V	EXTENSION ACTIVITIES	1	-	1	100
	TOTAL	44	180	140	4400

* Urdu

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.A., / B.Sc., / B.Com., Corp. Sec. Course effective from the year 2018-2019

Year: I Year Subject Code : **U18FTA101** Semester: I

Part I Title TAMIL - I

Credits: 4 Max. Marks. 75

ghlj;jpl;lk;

பாடத்திட்டம்

அலகு-ஐ பக்தி

- | | |
|--------------|--|
| 1. திருமூலர் | - திருமந்திரம் (7 பாடல்கள்) |
| 2. முமேத்தா | - நாயகம் ஒருகாவியம் -
1. தலைக்குவிசை 2.சிலந்தி செய்தசெயல் |
| 3. சேவியர் | - இயேசுவின் கதை -
1.சிலுவை, 2. உன்னதரின் உயிர்ப்பு |

அலகு-ஐஐகவிதை

- | | |
|------------------|---|
| 1. பாரதியார் | - கண்ணம்மாஎன் குழந்தை (முழுவதும்) |
| 2. பாரதிதாசன் | - குடும்பவிளக்கு - முதியோர்
காதல்(தேர்ந்தெடுத்த10பாடல்கள் மட்டும்) |
| 3. கவிமணி | - ஆறு தன் வாலாறு கூறுதல் |
| 4. நாகாமாசன் | - கறுப்புமலர்கள் - 1.வானவில் , 2.கடல் |
| 5. அப்துல் காசர் | - மின்னல் திரிகள் - மெழுகுவர்த்தியும்
ஊதுவத்தியும் |

அலகு-ஐஐஐ உரைநடை

- | | |
|---------------------|------------------------------|
| 1. அப்துல் ரகுமான் | - எம்மொழிசெம்மொழி |
| 2. வாசுதேவகுமாரசாமி | - அறிவியலும் வறுமையொழிப்பும் |
| 3. வெ.இரையன்பு | - நோம் கமகாத்தில் இல்லை |

அலகு-ஐஐ சிறுகதை

- | | |
|-----------------------|------------------------------|
| 1. மேலான்மைபொன்னுசாமி | - அன்புவாசம் |
| 2. வைரமுத்து | - இப்படியும் ஒருவன் இறந்தான் |
| 3. வண்ணதாசன் | - ஓர் உல்லாசப் பயணம் |

அலகு-ஏ

(அ) இலக்கியவாலாறு

- | | |
|--------------------------|---|
| 1. பக்திநாம இலக்கியங்கள் | - அறிமுகம் (சைவம், இசுலாம்,கிறித்தவம்) |
| 2. இக்கால இலக்கியங்கள் | - தோற்றமும் வளர்ச்சியும் (கவிதை,உரைநடை,சிறுகதை) |

(ஆ) திறனறிப் பயிற்சி

1. அகாவரிசைப்படுக்குதல்
2. வல்லினம் மிகும் இடங்கள்
3. வல்லினம் மிகா இடங்கள்
4. சந்தப்பிழைநீக்குதல்
5. பொதுக் கட்டுரை

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all I Year UG Course effective from the year 2018-2019

Year: I Year Subject Code **U18FUR101** Semester I

Part - I Title: **URDU - I**

Credits: 4 Max. Marks. 75

Prose, Grammar & Letter Writing

OBJECTIVES :	<ul style="list-style-type: none">✓ To promote students' proficiency in the basics of Urdu.✓ To accelerate their zeal to cultivate Writing Skills.✓ To strengthen their reading and receptive skills.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will acquire the required academic efficiency.➤ They will be learning the techniques of exemplary writing.➤ They will develop ability to foster fast reading of Texts.

Unit – I

- 1.SAIR PAHLAY DARWESH KI – Meer AmmaDehalvi
- 2.UMEED KI KHUSHI – Sir Syed
- 3.Letter to the Principal Seeking Leave

Unit – II

- 1.MIRZA GHALIB KE AKHLAQ WA ADAT – MoulanaHali
- 2.ZUBAIDA KHATOON – Abdul Haleem Sharar
- 3.Zameer AurUskiKhismien
- 4.Letter to the Manager of a Firm Seeking Employment

Unit – III

- 1.NOOR JHAN – Mohamed Hussain Azad
- 2.SAWERE JO KAL ANKH MERI KHULI – Patras Bukhari
- 3.Sifat AurUskiKhimein
- 4.Letter to a Publisher of Book Seller Placing Order for Books

Unit – IV

- 1.KHUD GHARAZ DOST – Duputi Nazeer Ahmed
- 2.SIR SYED MARHOOM AUR URDU LITERATURE – Allama Shibli
- 3.Letter to the Father / Guardian Asking Money for Payment of College Fees

Unit – V

- 1.Letter to a Friend Inviting Him to Your Sister's Marriage
- 2.Sifat AurUskiKhimein
- 3.Fe'l AurUskiKhimein
- 4.Lawazim-E-Ism
- 5.Alat-E-Fael "Nay" Aur Almat-E-Mafo'ol "Ko" KeQuaide

BOOK PRESCRIBED: "ADAB-E-JAMEEL"

Published by Dept. of Urdu, C. Abdul Hakeem College, Melvisharam

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for All UG Course effective from the year 2018-2019

Year: I Year Subject Code : U18FHN101 Semester : I
Part - I Title: **Hindi - I**
Credits: 4 Max. Marks. 75

UNIT – I

PROSE: GADYA MUKUR

Lessons prescribed:

1. AATMA NIRBHARTHA by Pt. Balkrishna Bhatt
2. MITRATA by Ramchandra Shukla
3. MADHUR BHASHAN by Gulab Roy
4. HEENGVALA by Subhadra Kumari Chauhan
5. AJATSHATRU by Jayshankar Prasad

UNIT – II. APPLIED GRAMMAR-

Prescribed Points: 1. Gender, 2. Number, 3. Causal Verbs, 4. Voice, 5. Spell Check.

UNIT – III LETTER WRITING:

Prescribed Letters: (Personal & Commercial):

1. Ordering for books, 2. Letter for Employment, 3. Letter of Complaint,
4. Opening an Accounting Bank, 5. Letter to Parents, 6. Letter to a Friend.

UNIT – IV FUNCTIONAL HINDI - I: Administrative & Business Terminology: TERMS from English to Hindi & Terms from Hindi to English

UNIT – V FUNCTIONAL HINDI - II: Administrative & Business Terminology: PHRASES from Hindi to English

BOOK FOR STUDY: GADYA MUKUR, Ed. SHAIK ABDUL WAHAB, RAKA PRAKASHAN, ALLAHABAD, 2011

BOOKS FOR REFERENCE:

1. HINDI VYAKARAN BY SHASTRI & APTE, D.B.H. PRACHIN SABHA, CHENNAI, 1998
2. PRAMANIK ALEKHAN AUR TIPPAN, PROF. VIRAJ, RAJPAL & SONS, KASHMERE GATE, DELHI, 2001

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all I Year UG Course effective from the year 2018-2019

Year:	I Year	Subject Code:	U18FEN101	Semester:	I
Part - I	Title:	ENGLISH - I			
Credits:	4	Max. Marks. 75			

UNIT - I

PROSE

- | | |
|--------------------------------|-------------------|
| 1. The Curse of Untouchability | M.K. Gandhi |
| 2. India and Democracy | Dr. B.R. Ambedkar |
| 3. The Ant and the Grasshopper | W.S. Maugham |
| 4. My Lost Dollar | Stephan Leacock |

UNIT – II

POETRY

- | | |
|-----------------------------|---------------------|
| 1. All the World is a Stage | William Shakespeare |
| 2. La Belle Dame Sans Merci | John Keats |
| 3. Ozymandias | P.B. Shelley |
| 4. River | A.K. Ramanujan |

UNIT - III

SHORT STORIES

- | | |
|--------------------------|---------------|
| 1. The Doctor's Word | R. K. Narayan |
| 2. The Model Millionaire | Oscar Wilde |

UNIT - IV

ONE-ACT PLAY & BIOGRAPHY

- | | |
|--------------------------|----------------|
| 1. The Refund | Fritz Karinthy |
| 2. Biography of Socrates | |

UNIT - V

WARM UP

1. Lexical Skills:

1. Words
2. Synonyms and Antonyms
3. Homonyms, Homophones
4. Words often confused

2. Descriptive Grammar:

1. Describing the Parts of Speech
2. The Phrase and The Clause
3. The Sentence and its types
4. Nouns

3. Traditional Grammar:

1. The Tenses- Introduction

Present Tense

- Simple Present Tense
- Present Continuous Tense
- Present Perfect Tense
- Present Perfect Continuous Tense

2. Voice of the Verb

4. Communication Skills (LSRW):

1. Greeting
2. Introducing
3. Inviting someone
4. Seeking Permission

English for Communication - I

5. Composition:

1. Letter Writing
2. Dialogue Writing
3. Report Writing
4. Précis Writing

English for Communication - I

5. Reading for Comprehension

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM **Syllabus for B.Sc. Computer Science effective from the Year 2018-2019**

Year	I Year	Subject Code:	U18MCA101	Semester : I
Major -1	Title			
Credits:	5	Fundamentals of IT and C Programming Max Marks: 75		

Objective:

To provide the students basic knowledge of computers and to know the basics of IT and to the C basics Programming Knowledge. On Completion of the course, students will be able to

COURSE OUTCOME(S)	
CO1	❖ To Know the basics, computer memory and its storage also about architecture.
CO2	❖ Understand input and output media, computer languages and also about computer software.
CO3	❖ To get the idea about internet tools, computer security, Trends of IT.
CO4	❖ Able to study the C language, its operations and expression, Input & Output statements, Knowledge of using Loop control statement.
CO5	❖ Usage of Arrays, Pointers, the Study of Functions, need of storage class, purpose of Structure and Union.

UNIT : 1

Computer Basics- Computer Organization and Architecture-Computer Memory and Storage [Chapters 1,2 & 3]

UNIT : 2

Input Output Media-IT Basics-Computer Programming in Languages-Computer Software [Chapters 4,8,10 & 11]

UNIT: 3

The Internet-Internet tools-Computer Security-Current and future trend in IT [Chapters 17,18,19 & 23]

UNIT: 4

Introduction to C- The C Declaration-Operators and Expression- Input and Output in C-Decision Statements- Loop Control Statements.[Chapters 1 to 6]

UNIT: 5

Arrays- Pointers-Functions-Storage Class- Structure and Union-Files. [Chapters-7,9,10,11,13 & 14]

TEXT BOOKS:

1. Introduction to Information Technology, ITL Education Solutions Limited, Second Edition, Pearson Education.
2. Programming with ANSI and Turbo C, Ashok.N.Kamthane, Pearson Education, Seventh Edition.

REFERENCE BOOKS:

1. Let us C, Kanetkar-BPB publications
2. Programming in C, E. Balagurusamy-TMH
3. The Complete Reference, H.Schild-TMH edition

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM
Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year: I Year **Subject Code :** U18MCAP11 **Semester :** I
Practical-I Title: MS Office & C Programming
Lab

Credits: 2 **Max Marks:** 75

Objective:	To Enhance the basic understanding of MS Word basic.
	To Impart MS Excel Basics
	To Make students familiarize with MS Power Point Basics.

MS Office

1. MS-Word Basics
2. MS-Excel Basics
3. MS-Power Point Basics

C Programming Lab

1. Summation of Series: Sin [X], Cos[X] and Exp[X]. Compare with built in function
2. Counting the number of vowels, constants, words, white space in a line of text and array of lines
3. Reverse a String and check for palindrome
4. G.C.D. of two numbers using recursion
5. Npr/Ncr [in a Single Program] using recursion
6. Matrix Manipulation: Matrix addition, subtraction and Multiplication
7. Program to sort an element using quick sort
8. Program to find the specified element from array, binary search
9. Program to print student grade using structure
10. Program for Command Line Arguments

11. Program for File Copying

On completion of the course, students will be:

- ❖ Design simple programs using summation of series. They are $\sin(x)$, $\cos(x)$, and $\exp(x)$. Understand various concepts using recursion provide solution to matrix manipulation.
- ❖ Provides solution to structure, command line arguments and also about file copying

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year: I Year Subject Code **U18AMA101** Semester I

Allied - 1 Title: **MATHEMATICS - I (ALLIED)**

Credits: 5 Max. Marks. 75

OBJECTIVES:	This course covers basic ideas of theory of equations, matrices & calculus.
COURSE OUTCOME(S):	At the end of the course, the students will able to:
CO1	Evaluate the sum of the series by using Binomial, Logarithm, and Exponential series.
CO2	Examine the nature of the roots of the polynomial equation, reciprocal equations and Application of Newton's method to find approximate solution of the polynomial equations.
CO3	Identify the different types of a matrix and calculate eigen values and corresponding eigen vectors of a square matrix.
CO4	Compute nth derivative, Jacobians , Evaluate Curvature, Radius of Curvature ,Construct the PDE by eliminating arbitrary constants, arbitrary functions and solve different types of nonlinear PDE's.

UNIT-I: ALGEBRA

Partial Fractions – Binomial - Exponential and logarithmic Series (without Proof)-Simple problems.

UNIT-II: THEORY OF EQUATIONS

Polynomial Equations with real Coefficients - Irrational roots - Complex roots-Transformation of equation by increasing or decreasing roots by a constant - Reciprocal equations - Newton's method to find a root approximately - Simple problems.

UNIT-III: MATRICES

Symmetric - Skew-Symmetric - Orthogonal and Unitary matrices - Rank of a matrix - Consistency of equations - Eigen roots and eigen vectors - Cayley Hamilton theorem (without proof)-Verification and computation of inverse matrix.

UNIT-IV: DIFFERENTIAL CALCULUS

n^{th} derivatives - Leibnitz theorem (without proof) and applications - Jacobians -Concepts of polar-co-ordinates-Curvature and radius of curvature in Cartesian co-ordinates.

UNIT-V: PARTIAL DIFFERENTIAL EQUATIONS

Formation - complete integrals and general integrals - Four standard types - Lagrange's equation and simple problems.

Recommended Text:

P.Duraipandian and S.Udayabaskaran,(1997) Allied Mathematics, Vol. I & II. Muhil Publishers,Chennai.

Reference Books:

1. P.Balasubramanian and K.G.Subramanian,(1997) Ancillary Mathematics. Vol. I & II. TataMcGraw Hill, New Delhi.
2. S.P.Rajagopalan and R.Sattanathan,(2005) Allied Mathematics .Vol. I & II. Vikas Publications,New Delhi.
3. P.R.Vittal (2003) Allied Mathematics . Marghan Publications, Chennai
4. P.Kandasamy, K.Thilagavathy (2003) Allied Mathematics Vol-I, II S.Chand & company Ltd., NewDelhi-55.
5. Isaac, Allied Mathematics. New Gamma Publishing House, Palayamkottai.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year: I Year Subject Code **U18AMA102** Semester I

Allied - 1 Title: **MATHEMATICAL FOUNDATIONS – I**
(ALLIED)

Credits: 5 Max. Marks. 75

Objectives	This course covers basic ideas of symbolic logic, sets, binary operations, Differentiations & Analytical geometry of two dimensions.
COURSE OUTCOME(S)	
CO1	❖ Define various types of logical operators and test whether the given argument is valid or not.
CO2	❖ Show different types of properties of sets by using venn diagram and find the number of elements of a set.
CO3	❖ Distinguish between permutations and combinations and solve problems using permutation and combination formulas.
CO4	❖ Find the value of the limits and compute the derivative of a function calculate the radius of the curvature.
CO5	❖ Drive equations of a straight line and circle in different forms and also express the equation of circle passing through the points.

UNIT-I: SYMBOLIC LOGIC

Proposition, Logical operators, conjunction, disjunction, negation, conditional and biconditional operators, converse, Inverse, Contra Positive, logically equivalent, tautology and contradiction. Arguments and validity of arguments.

UNIT-II: SET THEORY

Sets, set operations, Venn diagram, Properties of sets, number of elements in a set, Cartesian products, relations & functions.

Relations: Equivalence relation. Equivalence class, partially and totally Ordered sets.

Functions: Types of Functions, Composition of Functions.

UNIT-III: BINARY OPERATIONS

Types of Binary Operations: Commutative, Associative, Distributive and identity.

Boolean algebra: simple properties. Permutations and Combinations.

UNIT-IV: DIFFERENTIATION

Simple problems using standard limits,

$$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a}, \lim_{x \rightarrow 0} \frac{\sin x}{x}, \lim_{x \rightarrow 0} \frac{\tan x}{x}, \lim_{x \rightarrow 0} \frac{e^x - 1}{x}, \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n, \lim_{n \rightarrow 0} (1 + n)^{\frac{1}{n}}$$

Differentiation, successive differentiation, Leibnitz theorem, Tangent and normal, angle between two curves, Curvature and radius of Curvature (Cartesian coordinates).

UNIT-V: TWO DIMENSIONAL ANALYTICAL GEOMETRY

Straight Lines - Circles.

Recommended Text:

P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.

Reference Books:

1. U. Rizwan, Mathematical Foundation - SciTech, Chennai
2. V.Sundaram & Others, Discrete Mathematical Foundation - A.P.Publication, Sirkali.
3. P.Duraipandian & Others, Analytical Geometry 2 Dimension - Emerald publication 1992 Reprint.
4. Manicavachagom pillay & Natarajan. Analytical Geometry part I - Two Dimension - S.Viswanathan (printers & publication) Put Ltd., 1991.

Year: I Year Subject Code **U18CES101** Semester I
Part IV Title: **Environmental Studies**
Credits: 2 Max. Marks. 75

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Objectives:

To understand the environment around us and to conserve our nature.

Course outcome: At the end of course the students shall able to

CO1. Describe the available food and natural resources.

CO2. Explain the structure and functions of ecosystem

CO3. Elaborate the control of environmental pollution.

CO4. Analyze the social issues of human beings.

UNIT-I: INTRODUCTION TO ENVIRONMENTAL SCIENCES: NATURAL RESOURCES : Environmental Sciences - Relevance - Significance - Public awareness - Forest resources - Water resources - Mineral resources - Food resources - conflicts over resource sharing - Exploitation - Land use pattern - Environmental impact - fertilizer - Pesticide Problems - case studies.

UNIT-II: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION: Ecosystem - concept - structure and function - producers, consumers and decomposers - Food chain - Food web - Ecological pyramids - Energy flow - Forest, Grassland, desert and aquatic ecosystem. Biodiversity - Definition - genetic, species and ecosystem diversity - Values and uses of biodiversity - biodiversity at global, national (India) and local levels - Hotspots, threats to biodiversity - conservation of biodiversity - Insitu & Exsitu.

UNIT-III: ENVIRONMENTAL POLLUTION AND MANAGEMENT Environmental Pollution - Causes - Effects and control measures of Air, Water, Marine, soil, solid waste, Thermal, Nuclear pollution and Disaster Management - Floods, Earth quake, Cyclone and Landslides. Role of individuals in prevention of pollution - pollution case studies.

UNIT-IV: SOCIAL ISSUES - HUMAN POPULATION Urban issues - Energy - water conservation - Environmental Ethics - Global warming - Resettlement and Rehabilitation issues - Environmental legislations - Environmental production Act. 1986 - Air, Water, Wildlife and forest conservation Act - Population growth and Explosion - Human rights and Value Education - Environmental Health - HIV/AIDS - Role of IT in Environment and Human Health - Women and child welfare - Public awareness - Case studies.

UNIT-V: FIELD WORK Visit to a local area / local polluted site / local simple ecosystem -
Report submission

Suggested Readings:

1. KUMARASAMY, K., A.ALAGAPPA MOSES AND M.VASANTHY, 2004. ENVIRONMENTAL STUDIES, BHARATHIDSAN UNIVERSITY PUB, 1, TRICHY
2. RAJAMANNAR, 2004, ENVIRONEMNTAL STUDIES, EVR COLLEGE PUB, TRICHY
3. KALAVATHY,S. (ED.) 2004, ENVIRONMENTAL STUDIES, BISHOP HEBER COLLEGE PUB., TRICHY

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.A., / B.Sc., / B.Com., Corp. Sec. Course effective from the year 2018-2019

Year: I Year Subject Code **U18FTA201** Semester II
Part I Title: TAMIL - II
Credits: 4 Max. Marks. 75

பாடத்திட்டம்

அலகு-ஐ நீதி

1. திருக்குறள் - 1.செய்ந்நன்றி அறிதல் , 2.நட்பு, 3.பிரிவாற்றாமை
2. நாலடியார் - தேர்ந்தெடுத்த 10செய்யுள்
3. விவேகசிந்தாமணி - தேர்ந்தெடுத்த 7செய்யுள்

அலகு-ஐஐவாழ்க்கைவாலாறு

1. நவாப்சி.அப்துல் ஹக்கீம்
2. டாக்டர்.ஐடாஸ்கடர்
3. டாக்டர்.முவாதாசனார்

அலகு-ஐஐஐ நாடகம்

1. பேரறிஞர்.அண்ணா - வழக்குவாபஸ்
2. பசங்காலிங்கனார் - மானம் பெரிதே!
3. இன்துலாப் - மணிமேகலை (சிறைவிடுகதை)

அலகு-ஐஏ திரைப்படல்

- | | |
|--------------------------------|--------------------------------------|
| 1. கண்ணதாசன் | 1. ஆறு மனம் - ஆறு மனமே ஆறு |
| | 2. வாழ்க்கை - வாழ்நினைத்தால் வாழலாம் |
| 2. பட்டுக்கோட்டைகல்யாணசுந்தரம் | 3. விவசாயி - கடவுள் ஏனும் முதலாளி |
| | 4. ஏழைஏக்கம் - கையிலேவாங்கினேன் |
| 3. வாலி | 5. பரிவு - புத்தன் காந்தி ஏசு |
| | 6. பிரிவு - தரைமேல் பிறக்கவிட்டார் |

அலகு-ஏ

(அ) இலக்கியவாலாறு

1. நீதி இலக்கியங்கள்
2. நாடகம் தோற்றமும் வளர்ச்சியும்

(ஆ) திறனறிப் பயிற்சி

1. மரபுப் பெயர்கள் - அறிமுகம்

2.

வழுஉச் சொற்கள் - அறிமுகம்

3. பிறமொழிச் சொற்களைநீக்குதல்
4. வடமொழிச் சொற்களைநீக்குதல்
5. விண்ணப்பம் எழுதுதல்

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Part - I Title:

URDU – II

Credits: 4

Subject Code **U18FUR201**

Max. Marks. 75

manzoomath,ghazaliAth & TRANSLATION

OBJECTIVES:	<ul style="list-style-type: none">✓ To enhance students' creative thinking.✓ To trigger the literary skills dormant in them.✓ To train them to advance their Translation Skills.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will be able to expand the frontiers of their creative intellect.➤ Their fascination for Literature will get doubled or tripled.➤ The translation skills will help them professionally.

Unit – I

- | | | |
|--------------------|---|-------------------------------------|
| 1.Naghma-e-Hasrath | – | Akbar allahbadi |
| 2.Meer taqi meer | - | Hasthiapnihabbab ki si hai |
| 3.Khaja meer dard | - | Tohmaten chand apnezimmz dhar chale |

Unit – II

- | | | |
|----------------------|---|--------------------------------|
| 1.Qaumi Geeth | – | Allama iqbal |
| 2.Shaik Ibrahim zauq | - | Layihayathaayeqaza le chali |
| 3.Mirza Ghalib | - | Dil hi to hai na sang wakhisht |

Unit – iii

- | | | |
|------------------------------|---|--------------------------|
| 1.Nisar main teri galiyon ke | – | Faiz ahmed faiz |
| 2.Momin khan momin | - | Adam mein rehthe |
| 3.Jigar muradabade | - | Dil gaya ronaqhayathgayi |

Unit – iv

- | | | |
|--|---|-----------------------------------|
| 1.Wo nabion mein rahmath laqab pane wala | - | Masaddas hali |
| 2.Firaq | - | Sar mein soudabhinahin |
| 3.Kawish badri | - | Az sare nav fikr ka aaghaaz karna |
- chahiye
- 4.A general passage translation from english to urdu

Unit – v

- | | | |
|-----------------|---|---|
| 1.Taj mahal | – | Sahirludhyanwi |
| 2.Shakir naithi | - | Shahid maqsood ek din rubaroo ho jayega |
| 3.Parveen | - | CShalna ka hosalanaye |
- 4.A general passage translation from english to urdu

BOOK PRESCRIBED: “ADAB-E-JAMEEL”

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for All UG Course effective from the year 2018-2019

Year:	I Year	Subject Code :	U18FHN201	Semester :	II
Part - I	Title:		Hindi – II		
Credits:	4			Max. Marks.	75

Syllabus and books prescribed:

Unit –I One act play: ‘**Gadya Mukur**’

lessons prescribed:

1. Deepdan by Ramkumarvarma,
2. Beemar ka Ilaaj by uday shankar bhatt
3. Gaon ka eeshwar by laxminarayan lal

Unit –II Short story: text – ‘gadya **mukur**’

lessons prescribed:

1. Namak ka daaroga by premchand
2. Usne kaha tha by guleri
3. Mahuye ka ped by markandey

Unit –III Translation practice: English to english.
passages.

Unit –IV Dialogue Writing:

Prescribed Communications:

- | | |
|----------------------------|---------------------------|
| 1. Adhyapak aur vidyarthi | 2. Doctor aur rogi |
| 3. Dukandar aur grahak | 4. Do yaatri (ya) musafir |
| 5. Dukandar aur vidyarthi. | 6. Dak ghar mein |

Unit –V Applied grammar: usage in two different Meanings.

Books for study: 1. Gadya mukur, ed. Shaik abdul wahab, raka prakashan, allahabad, 2011.

2. anuvad abhyas – III d.b. Hindi prachar sabha, chennai
2009.

Books for reference: 1.

1. Bolchal ki hindi, dr.susheela gupta, lokbharati
Prakashan, allahabad, 2006
2. Hindi vyakaran: satri & apte, d.b.h.p. Sabha, chenna, 1998.

Published by dept. Of urdu, c. Abdul hakeem college, melvisharam

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all I Year UG Course effective from the year 2018-2019

Year: I Year Subject Code: **U18FEN201** Semester: II
Part - II Title: ENGLISH - II
Credits: 4 Max. Marks. 75

UNIT - I

PROSE

- | | |
|---|----------------|
| 1. The Eternal Silence of These Infinite Crowds | N.C. Chaudhari |
| 2. Comfort | Aldous Huxley |
| 3. The Challenge of Our Time | E.M. Foster |
| 4. Words of Wisdom | ChetanBhagat |

UNIT – II

POETRY

- | | |
|------------------------------------|----------------|
| 1. Kubla Khan | S.T. Coleridge |
| 2. I Know Why the Caged Bird Sings | Maya Angelo |
| 3. Punishment in Kindergarten | Kamala Das |
| 4. The Unknown Citizen | W.H. Auden |

UNIT - III

SHORT STORIES

- | | |
|------------------|---------------------|
| 1. A Devoted Son | Anita Desai |
| 2. A Cup of Tea | Katherine Mansfield |

UNIT - IV

ONE-ACT PLAY & BIOGRAPHY

- | | |
|---------------------------------------|---------------------|
| 1. Funeral Oration from Julius Caesar | William Shakespeare |
| 2. Biography of Sir Syed Ahmed Khan | |

UNIT - V

WARM UP

1. Lexical Skills:

1. One Word Substitutes
2. Correct Usage of words
3. Commonly misspelt words

4. Formation of plurals

2. Descriptive Grammar:

1. Articles and its kinds
2. Prepositions and its kinds
3. Pronouns
4. Kind of Pronouns
5. Verbs – Transitive and Intransitive Verbs

3. Traditional Grammar:


1. The Tenses- Introduction

Past Tense


- (a) Simple Past Tense
- (b) Past Continuous Tense
- (c) Past Perfect Tense
- (d) Past Perfect Continuous Tense

2. Direct and Indirect Speech

4. Communication Skills (LSRW):

1. Offering a Suggestion
 2. Asking For Advice
 3. Persuading
 4. Complimenting
- 
- English for Communication - I

5. Composition:

1. Electronic Mail
 2. Body Language
 3. Facing and Interview
 4. Negotiating
- 
- English for Communication - I

1. Group Discussion

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year: I Year Subject Code : U18MCA201 Semester: II

Major-2 Title: C++ and Data Structure

Credits: 4

Max Marks : 75

Objective:

- To understand the basics of Object Oriented Programming and their applications.
- To gain knowledge of objects, Class, Data Abstraction, Encapsulation, Inheritance, Polymorphism and Dynamic Binding.
- To know about constructing programs and easy to learn all the basic data structure concepts.

COURSE OUTCOME(S)	
CO1	To Know the basics of C++ Understanding of Control Structures
CO2	Able to understand the idea of Functions, Constructors and Destructors
CO3	Effects of pointers and arrays. Purpose of Exception Handling.
CO4	Meaning of string processing and its uses.
CO5	To know the value of Arrays, records and Pointers, Stacks, Queues, Recursion

Unit : 1

Introduction to C++ - Input and Output –Declaration- Control Structures
[Chapter-1 to 4]

Unit : 2

Functions – Classes and Objects – Constructors and Destructors -Operator overloading & type Conversion-Inheritance [Chapter- 5 to 9]

Unit : 3

Pointers and Arrays-Polymorphism and Virtual Functions-Applications with

Files-Exception Handling [Chapter-10, 12, 13, 14 & 15]

Unit : 4

Introduction - Preliminaries – String Processing [Chapter 1, 2 & 3]

Unit : 5

Arrays, Records and Pointers-Linked List – Stacks, Queues, Recursion
[Chapter- 4, 5 & 6]

TEXT BOOK:

1. Ashok N.Kamthane, “Object Oriented Programming with ANSI & TurboC++”,Pearson Education Publications, Fifth Editions.
2. Data Structures, Revised First Edition, Seymour Lipschutz, McGraw HillEducation (India) Private Limited.

REFERENCE BOOKS:

1. E. Balagurusamy,”C++ Programming”T.M.H.Publications
2. Herbert Schildt,”C++ the Complete Reference”T.M.H. Publications
3. Robert Lafore,”OOP with C++”
4. Ellis Horowitz & Sartaj Sahni “ Fundamentals of Data Structures, Galgotia booksource.
5. Tanenbaum, “ Data Structures Using C” ,TMH
6. A.K. Sharma, “ Data Structure Using C”, Pearson Education
7. P. S. Deshpande and O.G. Kakde, “C & Data Structure”, Wiley Dreamtech,

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year:	I Year	Subject	U18MCAP21	Semester:	II
		Code:			
Part - II	Title:	C++ and Data Structure Lab			
Credits:	2			Max. Marks.	75

1. Program to implement classes, create object and member functions
2. Program to count the number of vowels, consonants, white spaces, special characters in a string
3. Program to calculate simple interest. Hide the data elements of the class using private keyword
4. Program to find the area of rectangle, triangle and sphere. Use concept of Function Overloading
5. Program to Implement the concept of Operator Overloading
6. Program to Implement the Concept of all types of Inheritance
7. Program to write and read text in a file. Use ofstream and ifstream classes
8. Program to perform read and write operations with objects using write() and read() functions.
9. Bubble Sort
10. Stack Using Array
11. Queue Using Pointer
12. Infix to Postfix Conversion
13. Postfix Expression Evaluation
14. Quick Sort
15. Towers of Hanoi

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the Year 2018-2019

Year: I Year Subject Code **U18AMA201** Semester II

Allied - 2 Title: **ALLIED MATHEMATICS - II(ALLIED)**

Credits: 5 Max. Marks. 75

OBJECTIVES :	This course covers basic ideas of integrals, trigonometry functions, Laplace transform & Vector analysis.
COURSE OUTCOME(S): At the end of the course, the students will able:	
CO1	Use Bernoulli and Reduction formulae to evaluate the single integrals and Define Beta and Gamma functions and to solve the double & triple integrals & to expand Fourier series for several functions.
CO2	Express multiples of θ in terms of powers of θ of trigonometry function and vice versa..
CO3	Define Laplace Transforms, Inverse Laplace Transforms and its application to solve ordinary differential equations.
CO4	To know the concepts and simple applications of Vector differentiation and Vector integration.

UNIT-I : INTEGRAL CALCULUS

Bernoulli's formula for integration by parts - Reduction formulae for:
 $\int x^n e^{ax}$, $\int \sin^n x dx$, $\int \cos^n x dx$, (with proof & problems),
 $\int_0^{\pi/2} \sin^m x \cos^n x dx$ (no proof, problems only) -
properties of definite integrals and simple problems.

UNIT-II: APPLICATION OF INTEGRATION

Evaluation of double, triple integrals -
Fourier series for functions in $(0, 2\pi)$ and $(-\pi, \pi)$.

UNIT-III: TRIGONOMETRY

Expansions of $\sin^n \theta$, $\cos^n \theta$, $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expansions of $\sin \theta$, $\cos \theta$, $\tan \theta$ in terms of θ - Hyperbolic and inverse hyperbolic functions - Logarithms of complex numbers.

UNIT-IV : LAPLACE TRANSFORMS

Laplace Transformations of standard functions and simple properties - Inverse Laplace transforms- Applications to solutions of linear differential equations of order 1 and 2-simple problems.

UNIT-V: VECTOR ANALYSIS

Scalar point functions - Vector point functions - Gradient - divergence - curl - Directional derivatives- Unit to normal to a surface - Line and surface integrals - Gauss, Stoke's and Green's theorems(without proofs) - Simple problem based on these Theorems.

Recommended Text:

P.Duraipandian and S.Udayabaskaran,(1997) Allied Mathematics, Vol. I & II. Muhil Publishers,Chennai.

Reference Books:

1. P.Balasubramanian and K.G.Subramanian,(1997)Ancillary Mathematics. Vol. I & II. Tata McGrawHill, New Delhi.
2. S.P.Rajagopalan and R.Sattanathan,(2005) Allied Mathematics .Vol. I & II. Vikas Publications, NewDelhi.
3. P.R.Vittal(2003). Allied Mathematics . Marghan Publications, Chennai.
4. P.Kandasamy, K.Thilagavathy (2003) Allied Mathematics Vol-I, II S.Chand & company Ltd., NewDelhi-55.
5. Isaac, Allied Mathematics. New Gamma Publishing House, Palayamkottai.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: I Year Subject Code **U18AMA202** Semester II

Allied - 2 Title: **MATHEMATICAL FOUNDATIONS II(ALLIED)**

Credits: 5 Max. Marks. 75

Objectives	This Course Covers Basic ideas of matrices, integrations and Analytical geometry of three dimensions.
COURSE OUTCOME(S)	
CO1	❖ Identify whether the given square matrix is a symmetric or skew symmetric or hermitian or skew hermitian or not and find the rank, characteristic equation, eigen values, eigen vectors of a matrix.
CO2	❖ Analyze whether the given system of linear equations consistent or not consistent solve simultaneous linear equations.
CO3	❖ Discuss the different types of integrations involving trigonometric functions and solve integrations by using simple substitutions methods.
CO4	❖ Evaluate some special kinds of integrals and evaluate integrals by applying integration by parts, Reduction formulas.
CO5	❖ Drive the equations of plane passing through points and express the equation of straight line.

UNIT-I: MATRICES

Multiplication of matrices, Singular and Non-Singular matrices, Adjoint of a Matrix, Inverse of a matrix Symmetric and Skew-Symmetric, Hermitian and Skew-Hermitian, Orthogonal and unitary matrices, Rank of a matrix, Solution of Simultaneous Linear equations by

(i) Cramer's rule.

(ii) Matrix Inversion Method.

UNIT-II: MATRICES

Test for Consistency and Inconsistency of linear equations, (Rank Method), characteristic roots and characteristic vectors, Cayley - Hamilton theorem, matrix of linear transformations: reflection about the x, y axes and the line $y = x$, rotation about the origin through an angle, expansion or compression, shears, translation.

UNIT-III: INTEGRATION

Simple problems, integration of rational function involving algebraic expressions of the form

$$\frac{1}{ax^2+bx+c}, \frac{1}{\sqrt{ax^2+bx+c}}, \sqrt{ax^2+bx+c}, \frac{px+q}{ax^2+bx+c}, \frac{px+q}{\sqrt{ax^2+bx+c}},$$

$(px+q)\sqrt{ax^2+bx+c}$. Integrations using simple substitutions, integrations involving trigonometric functions of the form

$$\frac{1}{a+b\cos x}, \frac{1}{a+b\sin x}, \frac{1}{a^2\sin^2x+b^2\cos^2x} \text{ Integration by parts.}$$

UNIT-IV: INTEGRATION

Properties of definite integrals. Reduction formulae for

$$\int x^n e^{ax} dx, \int \sin^n x dx, \int \cos^n x dx, \int x^m (1-x)^n dx, \int \sin^m x \cos^n x dx.$$

UNIT-V: ANALYTICAL GEOMETRY OF THREE DIMENSIONS

Planes, Straight lines.

Recommended Text:

P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.

Reference Books:

1. U. Rizwan, Mathematical Foundation - SciTech, Chennai
2. V.Sundaram & Others, Discrete Mathematical Foundation - A.P.Publication, Sirkali.
3. P.Duraipandian & Others, Analytical Geometry 3 Dimension – Emerald publication 1992 Reprint.
4. Manicavachagom Pillay & Natarajan. Analytical Geometry part II - three Dimensions - S.Viswanathan (printers & publication) Put Ltd., 1991.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for All I Year UG Course effective from the year 2018-2019

Year: I Year Subject Code: **U18CSS201** Semester: II

Part - II Title: **SOFT SKILLS**

Credits: 1 Max. Marks. 75

UNIT I

1. Ability to listen and document what you have heard
2. Reading and comprehension

UNIT II

3. Ability to read and follow instructions
4. Ability to interpret and transcode information

UNIT III

5. Asking for and responding to information
6. Communication skills with public, fellow employees, supervisors and customers

UNIT IV

7. Spelling and Grammar
8. Ability to fill out a job application

UNIT V

9. Expressing courtesy
10. General and Individual Traits:
(a) Honesty
(b) Reliability
(c) Good Attitude
(d) Common Sense

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: I Year Subject Code **U18CVE201** Semester II

Allied - 2 Title: **Value Education**

Credits: 2 Max. Marks. 75

Objectives:

To understand the human values and ethical issues.

Course outcome: At the end of course the students shall able to

CO1. Describe the basic concept of human values.

CO2. Explain the structure and responsibility of families

CO3. Elaborate the human ethical relationships.

CO4. Analyze the modern welfare and globalization.

UNIT-I Value Education - Definition - relevance to present day - Concept of Human Values
- self introspection - Self-esteem.

UNIT-II Family values - Components, structure and responsibilities of family -
Neutralization of anger - Adjustability - Threats of family life - Status of women in family
and society - Caring for needy and elderly - Time allotment for sharing ideas and concerns.

UNIT-III Ethical values - Professional ethics - Mass media ethics - Advertising ethics -
Influence of ethics on family life - psychology of children and youth - Leadership qualities -
Personality development.

UNIT-IV Social values - Faith, service and secularism - Social sense and commitment -
Students and Politics - Social awareness, Consumer awareness, Consumer rights and
responsibilities - Redressal mechanisms.

UNIT-V Effect of international affairs on values of life/ Issue of Globalization - Modern
warfare - Terrorism. Environmental issues - mutual respect of different cultures, religions
and their beliefs.

Suggested Readings

1. T. Anchukandam and J. Kuttanimathathil (Ed) Grow Free Live Free, KrisituJyoti Publications, Bangalore (1995)
2. Mani Jacob (Ed) Resource Book for Value Education, Institute for Value Education, New Delhi 2002.
3. DBNI, NCERT, SCERT, Dharma Bharti National Institute of Peace and Value Education, Secunderabad, 2002.
4. Daniel and Selvamony - Value Education Today, (Madras Christian College, Tambaram and ALACHE, New Delhi, 1990)
5. S. Ignacimuthu - Values for Life - Better Yourself Books, Mumbai, 1991.
6. M.M.M.Mascaronhas Centre for Research Education Science and Training for Family Life Promotion - Family Life Education, Bangalore, 1993

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.A., / B.Sc., / B.Com., (CS)effective from the year 2019-2020

Year: II Year

Subject Code: **U18FTA301**

Semester: III

Language - 3

Title:

Tamil - III

Credits: 4

Max. Marks. 75

OBJECTIVES	1. தமிழ் மொழியின் பண்புகளை மாணவர் மனதில் பதிய வைத்தல். 2. காப்பியத்தின் படிமை, சிறப்பு, விழுமியங்கள் ஆகியவற்றைக் கற்பித்தல். 3. செவ்வியல் இலக்கியங்களை அறியச் செய்தல். 4. தமிழில் உள்ள இலக்கிய வடிவங்களை அறிமுகப்படுத்தி புடைப்புக்கற்றைக் கண்ணாற்றல். 5. இலக்கிய இலக்கணக் கற்றல் வழி போட்டிக் தேர்வுகளுக்கு ஆயத்தப்படுத்தல்.
COURSE OUTCOME(S)	
CO1	தமிழில் உள்ள காப்பிய இலக்கியங்களையும் கதை வழி வாழ்வியலையும் அறிய வைத்தல்.
CO2	நெடுங்கவிதைகளைப் பயிற்றுவதன் மூலம் நவீன கிறிஸ்தவ முறைகளில் ஈடுபட கண்ணாற்றல்.
CO3	உரைநடையின் அடிப்படைத் திறனையும் பிழையின் விழுமியம் முறையையும் சமூக உண்மைகளையும் நிலைநாட்டல்.
CO4	இலக்கணத்தைப் பயிற்றுவதன் மூலம் சிறந்த மொழியாக்க முயற்சிக்கு ஆயத்தப்படுத்தல்.
CO5	காலந்தோறும் தமிழ் இலக்கியங்களில் மாறுபடும் பாடுபொருள் வடிவம் முறையியல்வற்றை இலக்கிய வரலாற்றின் வழி உணர்த்தல், மொழித்திறன் பயிற்சி வழி மொழி நடையை மேம்படுத்தல்.

பாடத்திட்டம்

அலகு-I காப்பியம்

1. சிலப்பதிகாரம் - கனாகத்திரம் உரைக்க கதை (முழுவதும்)
2. மணிமேகலை - ஆபத்திரன் திரம் அறிவிக்க கதை (முழுவதும்)
3. சீவக சிந்தாமணி - விமலையார் இலம்பகம் (தேர்ந்தெடுத்த 20 பாடல்கள்)

அலகு-II புதுக்காவியம்

1. பாதிதாசன் - சுஞ்சீவி பர்வதத்தின் சரால் (முழுவதும்)
2. துறவி - நளவெண்பா - கவி நீங்கு காண்டம் - 'நீங்கினான் கவி'

அலகு-III உரைநடை

1. கலைஞர் முகருணாநிதி - சிந்தனையும் செயலும் - அழக்தாறு ஒழுக்கம்
2. தொபாமசிவம் - விடுபுக்கள் - 'சமூக வரலாற்றுப் பார்வையில் திருவிழாக்கள்'
3. சுதிசிவம் - வாழப் பழகுவோம் - 'மனம் போல வாழ்வு'

அலகு-IV இலக்கணம்

1. எழுத்து - முதல் சார்பெழுத்துக்கள் சொல் - பகுபத உறுப்புகள் ஆகுபெயர், வழக்கு அணி - உவமை உருவகம் சொற்பொருள் தந்தறிப்பேற்றம் எடுத்துக்காட்டு உவமை.

அலகு-V (அ) இலக்கிய வரலாறு

1. ஐம்பெருங்காப்பியங்கள், ஐங்குறுநாற்பதுபாட்டங்கள்
2. உரைநடை, தோற்றமும் வளர்ச்சியும்

(ஆ) திரைப்படப் பயிற்சி

1. அமைவுக்கக் கருவிகள்
2. அறிக்கை மற்றும் செய்தி எழுத்துகள்

பார்வை புரட்டுகள்

1. செய்திகள், கிராபிக் - சி.அப்துல் ஹக்கீம், கல்வாரி வெளியீடு, 2019 ஆம் வெளியீடு.
2. சித்திரவழி செய்தியும் - கணபதி (மகாநகராட்சி) பதிப்பகம், 127, பிராகசம், புதுச்சேரி -18
காணல், சென்னை -2017
நாணகரம் பதிப்பு -2017
3. விடுபட்டவை - கொடியாட்சிவம், மணி பதிப்பகம், 29ஏ, பாகவர கீழ்க் கெடு, பாணையர்கோட்டை, மூன்றாம் பதிப்பு -2016
4. வாழும் புகழேனும் - கவிச்சிவம், வாழ்வு பதிப்பகம், 13, கீழ்க்கயாலா கெடு, கீழ்க்க, சென்னை, மூன்றாம் பதிப்பு -2003
5. வணக்கம் நோக்கில் - கவிச்சிவம், இலக்கிய வரலாறு, வாழ்வு பதிப்பகம், 13, கீழ்க்கயாலா கெடு, கீழ்க்க, சென்னை, மூன்றாம் பதிப்பு -2003
6. நம்மில், இலக்கணம் - பாகவர, கொடியாட்சிவம், பதிப்பு, பதிப்பகம், 1269, 32-ஆம் கெடு, கணபதிவகம், மூலக, கம்பர் கையாடல், சென்னை -40
மூன்றாம் பதிப்பு -2012

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year:	II	Subject	U18FUR301	Semester:	III
	Year	Code:			
Language - 3	Title:	Urdu - III			
Credits:	4			Max. Marks.	75

AFSANA, MAZMOONNAWESI&MUKALAMA NIGARI

OBJECTIVES:	<ul style="list-style-type: none">✓ To arouse interest for Non-Detailed Texts.✓ To equip them with ample knowledge to pen their own articles.✓ To instill in them a flair for translation.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will care more for Non-Detailed Texts on par with Detailed Texts.➤ They will sharpen necessary skills to draft essays on varied themes.➤ They will succeed in their official routine with their ability to translate.

Unit – I

1.KAFAN	–	Prem Chand
2.JAMUN KA PED	–	Krishan Chander

Unit – II

1.KHUSH NASEEB	–	Ali Akbar Amburi
2.DARD KA EHSAS	–	Ameerunnisa

Unit – III

1.BHOLA	–	Rajender Singh Bedi
2.NAYA QANOON	–	Saadath Husain Manto

Unit – IV

1.NOOR-O-NAR	–	Ali Abbas Hussani
2.AAKHR PAISA BACH HI GAYA	–	B.S.Ramaiya

Unit – V

1.Guldasta-E-Mazameen	-	O-InshaPardazi By Mohammed Arif Khan
2. A General Passage for Translation From Urdu To English		

BOOK PRESCRIBED: “ADAB-E-JAMEEL”

Published by Dept. of Urdu, C.Abdul Hakeem College, Melvisharam.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all UG Courses effective from the year 2019-2020

Year: II Year Subject Code: U18FHN301 Semester: III
Language - 3 Title: Hindi - III
Credits: 4 Max. Marks. 75

SYLLABUS AND BOOKS PRESCRIBED:

- I. Medieval poetry:
- | | |
|-------------|-------------------|
| 1. Kabir | – Dohe 1 – 8 only |
| 2. Surdas | – Pad 1 – 4 only |
| 3. Meerabai | - Pad 1 & 2 only |
| 4. Tulsidas | - Dohe 1 – 8 only |
| 5. Rahim | – Dohe 1 – 8 only |
| 6. Bihari | – Dohe 1 – 8 only |

Text: raka hindi kavya sangrah, raka prakashan, allahabad

- II. Drama: Andher nagari by bharatendu harischandra
lokbharathi prakashan, allahabad.

III. Idioms and proverbs: meanings only

IV. Applied grammar:

- | | |
|---|------------------------------|
| 1. Synonyms. | 2. Antonyms. |
| 3. One word substitution. | 4. Tense – no sub divisions. |
| 5. Change into abstract nouns.(common noun to abstract noun & adjective to abstract noun) | |

Ref

1. Vyavaharik hindi vyakaran by dr.hardev bahri.Lokbharathi prakashan, allahabad.
2. Hindi shabda samarthyas by prabhath prakashan
New delhi.

V. History of hindi literature: general information

About the prescribed poets belong to first three

Periods

- | | | |
|----------------|---------------|-----------------|
| 1.chand bardai | 2. Vidyapathi | 3. Ameer khusro |
| 4. Jayasi | 5. Nandadas | 6. Keshav das |
| 7. Ghananad | & 8. Dev only | |

Ref: 1. Hindi sahitya ka ithihas, ramchandra
Shukla, karvi prakashan, jaipur.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year: II Year Subject Code: **U18FEN301** Semester: III

Foundation Title: **English - III**
English - 3

Credits: 4 Max. Marks. 75

Objectives

- To introduce learners to the standard literary texts
- To enable them appreciate literature
- To help them develop LSRW skills and communicate effectively

Course Outcome(s)

- **CO1:** To introduce world renowned writers to students.
- **CO2:** To introduce world renowned poets to students.
- **CO3:** To make them understand the nuances of Short stories.
- **CO4:** To acquaint students with the writings of world renowned personalities.
- **CO5:** To make them understand the Fundamentals of English Grammar and Composition.

UNIT - I

PROSE

- | | |
|--------------------------|--------------------|
| 5. Futurology | Aldous Huxley |
| 6. Engine Trouble | R. K. Narayan |
| 7. I have a Dream | Martin Luther King |
| 8. Function of Education | J Krishnamurthi |

UNIT – II

POETRY

- | | |
|----------------------------|--------------------|
| 5. Poor Girl | Maya Angelou |
| 6. Solitary Reaper | William Wordsworth |
| 7. The Tyger | William Blake |
| 8. My Grand Mother's House | Kamala Das |

UNIT - III

SHORT STORIES

- | | |
|------------------|---------------|
| 3. The Last Leaf | O' Henry |
| 4. Sparrows | K Ahmed Abbas |

UNIT - IV

ONE-ACT PLAY& BIOGRAPHY

- | | |
|------------------|--------------|
| 1. The Proposal | Anton Chekov |
| 2. Father Damien | G. F. Lamb |

UNIT - V

WARM UP

1. Lexical Skills
2. Descriptive Grammar
3. Traditional Grammar
4. Communication Skills (LSRW)
5. Composition

WARM UP

1. Lexical Skills

- Foreign Words and Special Terminology
- Building Vocabulary (Affixes)
- Phrasal Verbs
- Idioms and Phrases

2. Descriptive Grammar

- Adjectives
- Kinds of Adjectives
- Adverb
- Kinds of Adverbs
- Participles, Gerund & Infinitive

3. Traditional Grammar

- The Tenses – Introduction
- Future Tense – Simple Future Tense, Future Continuous Tense, Future Perfect Tense & Future Perfect Continuous Tense.
- Degrees of Comparison

4. Communication Skills (LSRW)

- Expressing Sympathy
- Expressing Gratitude
- Complaining
- Apologizing

5. Composition

- Public speaking
- Seminar
- Writing a Memorandum
- Expansion of Proverbs

Books Prescribed:

HALL OF FAME – III Board of Editors, Published by Emerald publishers, Egmore, Chennai – 600 008: www.emeraldpublishers.com, Mail: info@emeraldpubliser.com

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II Year **Subject Code:** U18MCA301 **Semester:** III

Part 3 Title: Python

Credits: 3 **Max. Marks. 75**

Objectives	Python facilitates the students to enrich the programming skills
COURSE OUTCOME(S)	
CO1	<ul style="list-style-type: none"> ❖ Provides the basics of Python development ❖ Writing simple Python programs gives basic knowledge
CO2	<ul style="list-style-type: none"> ❖ Students benefits with Control Structure ❖ Creating functions and std maths function
CO3	<ul style="list-style-type: none"> ❖ Makes students bright in function development with module ❖ Provides easy acquaintance of function oriented programmingskills
CO4	<ul style="list-style-type: none"> ❖ Programming skills through list ❖ Arranging elements through sorting skill
CO5	<ul style="list-style-type: none"> ❖ Enriching knowledge through objects ❖ Creating awareness about inheritance and exception handling

Unit : 1

The context of software development: software, development tools, programming with python, writing python program - Values and variables: integer values, variables and assignments, identifiers, floating point types, control codes, user input, eval function, controlling the print function – Expressions and arithmetic: expression, operator precedence, comments, errors, arithmetic examples, more arithmetic operators, algorithms [Chapters 1, 2 and 3]

Unit : 2

Conditional execution: Boolean expression, simple if statement, if else statement, compound Boolean, nested conditional, multiway decisions, conditional expressions, errors in conditional statement – Iterations: while statement, definite vs indefinite loops, for statement, nested loops, abnormal loop termination, infinite loops, iterations examples.- Using functions: Introduction-standard mathematical functions, time function, random numbers, importing issues [Chapters 4, 5, 6]

Unit : 3

Writing functions: function basics, using functions, name function, parameter passing, function example, custom vs standard functions- More on functions: global variables, default parameters, recursion, function reusable, documenting function and module, function as data.

[Chapters 7, 8]

Unit : 4

Lists: using list, list assignment and equivalence, list bounds, slicing, list and functions, prime generation- List Processing: sorting, flexible sorting, searching, list permutation, random permuting a list, reversing a list [Chapters 9, 10]

Unit : 5

Object: Using object, string object, list object- Custom types: geometric points, methods, custom type's examples, class inheritance- Handling exceptions: Motivations, exception examples, using exception, customexception.

[Chapters 11, 12, 13]

Prescribed Text Books:

1. “Learning to program with Python”, Richard.L.Halterman,2011 edition

Books for Reference:

1. Mark Lutz, Learning Python,O'Reilly,fifth edition, 2013
2. Bill Lubanovic, Introducing Python, fifth edition, 2014
3. David.M.Beazley, Python Essential reference, developers library, fourth edition 2009.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II **Subject** U18MCAP31 **Semester:** III
Year **Code:**
Part 3 **Title:** **Practical –III Python Lab**
Credits: 3 **Max. Marks. 75**

Objectives	<ul style="list-style-type: none">❖ Skills developed thorough basic Python programs❖ Knowledge enriches via searching & sorting Python programs❖ Provides game development skills through Python Programming
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1. Compute GCD of two numbers
2. Find the square root of number (Newton's Method)
3. Exponentiation (Power of a number)
4. Find the maximum of a list of numbers
5. Linear Search
6. Binary Search
7. Selection Sort
8. Insertion Sort
9. Merge Sort
10. Find a Prime numbers
11. Multiply matrices
12. Programs that take command line arguments(word count)
13. Find the most frequent words in a text read from a file
14. Simulate Elliptical orbits in Py-game
15. Simulate Bouncing ball using Py-game
16. Odd or Even

17. Simple Calculator
18. Leap year or not
19. Factorial
20. Fibonacci Series
21. Armstrong Number
22. Exchange the values of two variables
23. Distance between two points
24. Circulating N-Values
25. Sum of N Numbers

Learning Outcome:

Students yields maximum benefits from Python programming. It enhances the student's knowledge with latest development in programming skills. It benefits students through basic mathematical programming skills.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc., Computer Science effective from the year 2019-2020

Year: II Year

Subject Code: **U18AMA302**

Semester: III

Allied - 3 Title: **STATISTICAL METHODS AND THEIR APPLICATIONS - I
(ALLIED)**

Credits: 4

Max. Marks. 75

Objectives	❖ To study the statistical methods and their applications.
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Course Outcomes: At the end of the Course, the Students will able to	
CO1	Understand different types of Classification of data, Tabulation of data and diagrammatic representation.
CO2	Understand mean, median, mode, G.M, H.M.& problems.
CO3	Understand Range, Q.D, M.D, S.D, coefficient of variation & problems.
CO4	Understand Karl Pearson's, Bowley's coefficient of skewness, measure of Kurtosis and moments and Problems.
CO5	Understand Correlation and Regression problems.

UNIT-I

Introduction – Scope and limitations of statistical methods – Classification of data- Qualitative classification–Quantitative classification –Geographical classification – chronological classification – Tabulation of data – diagrammatic and graphical representation of data – Histogram –Frequency curve – Frequency polygon – Bar-diagram – Pie-diagram.

Chapter-1, 3, 4 full

UNIT –II

Measures of location : Arithmetic mean , median , mode , geometric mean and harmonic mean. Merits and Demerits - Simple problems.

Chapter -5 full

UNIT –III

Measures of dispersion: Range , Quartile deviation, mean deviation, standard deviation, combined standard deviation, coefficient of variation- Merits and Demerits – simple problems.

Chapter -6 full

UNIT-IV

Measures of Skewness: Karl Pearson's coefficient of skewness-Discrete and continuous class interval series, Bowley's coefficient of skewness- Discrete and continuous class interval series - Measures of Kurtosis moments-simple problems.

Chapter -7 full

UNIT-V

Correlation –definitions&formula (without theorems)Karl Pearson's - Spearman's rank correlation formula, Regression Analysis: Regression line of y on x- Regression line of x on y-simple problems.

Chapter -13 Pages:13.1 to 13.48(without theorems)

Chapter – 14 Pages: 14.1 to 14.18

Note:

The Proportion between Theory and problems shall be 20:80

Recommended text Books:

P.R.Vittal & V.Malini "Statistical and Numerical Methods", Margham Publications, Chennai - 17.

Books for references:

- 1.Fundamentals of Mathematical Statistics –S.C.Gupta & V.K.Kapoor –Sultan Chand.
- 2.Statistical Methods – Snedecor G.W & Cochran W.G. Oxford.
- 3.Elements of Statistics – Mode .E.B-Prentice Hall.
- 4.Statistical Methods –Dr.S.P. Gupta – Sultan Chand Sons.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II Subject: U18AMC301 Semester: III
Year Code:

Part 3 Title: Advanced Data Structures-I

Credits: 5 Max. Marks. 75

Objectives	<ul style="list-style-type: none">❖ To assess how the choice of data structures and algorithm design methods❖ To solve problems using data structures such as linear list and stack, queue and etc
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CO1	❖ To gain experience with binary search trees and building new ideas in list
CO2	❖ To explain the basic concepts and definitions of graphs
CO3	❖ To implement and gain knowledge in different types of sorting
CO4	❖ To develop spanning tree in the form of greedy methods
CO5	❖ Understand the concepts of multistage graph and backtracking

Unit : 1

Trees Binary tree – Complete binary tree - linked and sequential representation of binary tree – traversing binary tree – algorithm- binary search tree searching, inserting and deleting in a binary search tree.

Unit : 2

Trees & Graph B-Tree (definition, searching, insertion and deletion in a B-Tree)
- Graph and multi-graph - Sequential representation of graph – linked representation of graph –Operations of graph – traversing a graph

Unit : 3

Algorithm & Sorting Definition of algorithm-Criteria-Algorithm Specification- Divide and Conquer algorithm- Binary Search – Maximum and Minimum- Merge sort – Insertion Sort – Selection Sort – Heap Sort - Strassen's matrix multiplication.

Unit : 4

Minimum Cost & Greedy Method Spanning tree- minimum Spanning tree: Prim's & Kruskal algorithm – Shortest Path: Dijkstra's algorithm – topological sorting- Knapsack Problem – Greedy algorithm for job sequencing with deadlines.

Unit : 5

Backtracking Multistage Graph – Backtracking: General Method – 8 Queens Problem – Sum of Subsets - Graph Coloring – Hamiltonian Cycles – travelling salesperson.

Prescribed Text Books:

1. Data Structures,[Seymour Lipschutz],Second Edition, McGraw Hill Book Company.
2. Computer Algorithms/C++, Second Edition, [Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran],Universities Press

Books for Reference:

1. Introduction to algorithms, Coreman T.H., Leiserson C.E. and Rivest R.L., PHI 1998
2. Introduction to the design and analysis of algorithms, AnanyLevitin, Pearson Education, 2nd Edition
3. Data Structures using C++, Varsha.H.Patil, Oxford University Press, 2012 Edition.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II Year Subject Code: **U18AMAP41** Semester: III

Part 3 Title: **PRACTICAL STATISTICAL METHODS AND
THEIR APPLICATIONS**

Credits: 0 Max. Marks. 75

Objectives: To apply statistical techniques in problems.

1. Formation of uni-variate and bi-variate frequency distribution.
2. Diagrams and Graphs.
3. Measures of Location.
4. Measures of Dispersion.
5. Skewness and Kurtosis.
6. Correlation and Regression.
7. Curve Fitting : $y=ax+b$, $y=ax^2+bx+c$, $y=ax^b$, $y=ae^{bx}$.
8. Fitting of distribution – Binomial, Poisson, Normal.
9. Test of significance small sample and large sample tests.
10. Analysis of variance: one way classification, Two way classification Design of Experiments –C.R.D, R.B.D, L.S.D.

Books For Reference:

- 1.Statistical Methods by S.P. Gupta & V.K. Kapoor.
- 2.Fundamentals of Applied Statistics – S.C. Gupta & V.K. Kapoor.

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Part 3 Title: Operating System (SBS-I)

	COURSE OUTCOME(S)
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Introduction to OS – OS System Structure – OS system operation – Process management – memory management – Storage management – Protection and Security.

OS services – user OS interface – system calls – types – System Programs – OS design and implementation – virtual machines – OSdebugging

Process Management – Process Concepts – Process Scheduling – Operations on Process – IPC – Multithreaded Programming.

Unit : 4

Process Scheduling – Basic Concepts - Scheduling Criteria – Scheduling algorithm – thread scheduling - Multiple processors scheduling

Unit : 5

Synchronization – Critical Section Problem - Monitors – Semaphores –Deadlocks

Prescribed Text Books:

1. Operating system concept by Silberschatz, galbin, gane (7th edition)
2. Operating system by william stallings (6th edition)

Books for Reference:

1. “Operating Systems: A Concept-Based Approach” by D M Dhamdhare
2. “Operating Systems: A Modern Perspective” by Gary J Nutt
3. “MODERN OPERATING SYSTEMS” by Andrew S Tanenbaum

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for all UG Courses effective from the year 2019-2020

Year: II Year Subject Code: U18NTA301 Semester: III
Non-Major - 1 Title: **Basic Tamil – I (NME - I)**
Credits: 2 Max. Marks. 75

OBJECTIVES	1. தமிழ் மொழியின் அடிப்படை பண்புகளை மாணவர் மனதில் பதிய வைத்தல் 2. தாய்மொழியின் பழமை சிறப்பு, விழுமியங்கள் ஆகியவற்றைக் கற்பித்தல் 3. அடிப்படை இலக்கணத்தைக் கற்கச் செய்தல் 4. தமிழ்ப் படைப்புகளை வாசிக்கப் பழக்தல் 5. தமிழ்மொழியை எழுதவும் பேசவும் ஆயத்தப்படுத்தல்
COURSE OUTCOME(S)	
CO1	தமிழ் எழுத்துக்களை ஒலி வடிவம், வரி வடிவம் என பிரித்து அறிய வைத்தல்.
CO2	தமிழின் அடிப்படை இலக்கினை வடிவ மாறுதல்களை விளக்கி எடுத்துரைத்தல்.
CO3	எளிமையான தமிழ்ச் சொற்களை அறிமுகப்படுத்தி பொருளை விளக்குதல்
CO4	அதிகம் பயன்படும் பெயர், வினை, மற்றும் தொகுப்புச் சொற்களை அமைக்க பயிற்சி வழங்கல்
CO5	எளிமையான சிறுகதைகளின் வழி வாசிப்புத் திறனை மேம்படுத்தல்.

பாடத்திட்டம்

அலகு-I எழுத்து

- உயிர் எழுத்துக்கள், மெய்யெழுத்துக்கள் - வகை, எண்ணிக்கை அறிதல்
- உயிர் மெய் எழுத்துக்கள், வல்லினம், மெல்லினம், இடையினம்

அலகு-II எழுத்து

திணை, பால், எண், இடம், காலம், ஒருமை - பன்மை வேறுபாடு, குறில் நெடில் வேறுபாடு

அலகு-III சொல்

- ஒரெழுத்து ஒரு மொழி பெயர் (பூ,ஆ,கா...) வினை (வா,போ...)
- ஈரெழுத்து ஒரு மொழி பெயர் (கனி, பனி...) வினை (நில், படி...)
- தொடர் மொழி : முக்கனி ,முத்தமிழ், மூவேந்தர் ,நாற்றிசை, ஐம்பொறி , அறு கவைகள் - இவற்றை விளக்குக.

அலகு-IV சொல்

1. பெயர்ச்சொல் , வினைச்சொல் வகைகள்
2. பறவைப் பெயர்கள், விலங்குகளின் பெயர்கள், மலர்கள், வானவில்லின் வண்ணங்கள், இந்திய மொழிகள், எண்கள் (ஒன்று முதல் பத்து வரை எழுத்தால் எழுதுதல்)

அலகு-V சிறுகதை நேர்மை தந்த பரிசு

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for all UG Courses effective from the year 2019-2020

Year: II Year Subject Code: **U18NUR301** Semester: III
Non-Major - 1 Title: **Functional Urdu – I (NME - I)**
Credits: 2 Max. Marks. 75

OBJECTIVES:	<ul style="list-style-type: none">✓ To popularize Urdu among Non-Urdu Knowing students.✓ To introduce them to the basic infrastructure of Urdu.✓ To train them in exact pronunciation of Urdu words.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will learn the primary lessons in Urdu.➤ They will develop the ability to form simple sentences.➤ They will gain proficiency in Urdu Calendar.

Unit I

Urdu alphabet Reading & Writing practice in Urdu

Unit II

Word completion,
Pronunciation, Connecting words.

Unit III

Vowels,
Prepositions & Urdu Numerals.

Unit IV

Formation of Simple Sentences.

Unit V

Conversation &
Urdu Calendar (Week days and Months).

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for all UG Courses effective from the year 2019-2020

Year:	II Year	Subject Code:	U18NEN301	Semester:	III
Non -Major - 1	Title:	ENGLISH FOR COMMUNICATION - I (NME – I)			
Credits:	2			Max. Marks.	75

Objectives:

- To streamline students' knowledge of sending communication through e-means.
- To strengthen their Non-Verbal Communication.
- To activate their ability to prepare an effective Resume.

Course Outcome:

- Students will learn the benefits of e-business and e-mail.
- They will have the skill to promote their Marginal and Projective Listening Skills.
- They will be able to overcome the problems related to Interviews.

Unit-1 : Mail Communication

- E-Business
- E-Mail
- Writing an E-Mail
- Formatting an E-mail

Unit-2 : Non-Verbal Communication

- Elements of Non-Verbal Communication
- Body Language / Kinesics
- Facial Expressions
- Eye Contact
- Posture
- Gestures

- Unit-3** : Effective Listening
The Listening Process
- Types of Listening
 - Passive Listening
 - Sensitive Listening
 - Active Listening
 - Summary

- Unit-4** : Interview Techniques
- Interview Problems
 - Team Interviews
 - Group Discussion

- Unit-5** : Preparing an Effective CV
- Types of CVs
 - Skills-based CV
 - CV Templates
 - CV Cover Letters.

Prescribed Text : **Business Communication Techniques and Methods,**
by P.Juneja & Aarati Mujumdar, Orient Black Swan.

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year: II Year Subject Code: **U18FTA401** Semester: IV

Language - 4 Title: **Tamil - IV**

Credits: 4 Max. Marks. 75

OBJECTIVES	<ol style="list-style-type: none"> 1. தமிழ் மொழியின் பண்புகளை மாணவர் மனதில் பதிய வைத்தல். 2. தாய்மொழியின் பழமை, சிறப்பு, விழுமியங்கள் ஆகியவற்றைக் கற்பிக்கல். 3. செவ்வியல் இலக்கியங்களை அறியச் செய்தல். 4. தமிழில் உள்ள இலக்கிய வடிவங்களை அறிமுகப்படுத்தி புடைப்பாக்கத்திற்கு துணை நிறுதல். 5. இலக்கிய இலக்கணக் கற்றல் வழி போட்டித் தேர்வுகளுக்கு ஆயத்தப்படுத்தல்.
COURSE OUTCOME(S)	
CO1	சங்க கால சமூகவியலையும் வாழ்வியல் அறங்களையும் அறிய வைத்தல்.
CO2	இடைக்காலத்தில் சமூக அமைப்பினையும் இலக்கிய வடிவ மாறுதல்களையும் விளக்கி எடுத்துரைத்தல்.
CO3	கவிதைகள் வெளிக்காட்டும் சம கால பதிவுகளை எளிமையாக விளக்கி வெளிக்கொணர்தல்.
CO4	இலக்கணத்தைப் பயிற்றுவிப்பதன் மூலம் சிறந்த மொழியாக்க முயற்சிக்கு ஆயத்தப்படுத்தல்.
CO5	காலந்தோறும் தமிழ் இலக்கியங்களில் மாறுபடும் பாடுபொருள் வடிவம் முதலியவற்றை இலக்கிய வாலாற்றின் வழி உணர்த்தல். புடைப்பிலக்கியப் பயிற்சி வழி புடைப்புத்திறனை மேம்படுத்தல்.

பாடத்திட்டம்

அலகு-I சங்க இலக்கியம்

1. குறுந்தொகை - பாடல் எண்கள் : 32, 40, 58, 69, 79, 176 (6 பாடல்கள்)
2. ஐங்குறுநாறு - குறிஞ்சி - கபிலர் - கிள்ளைப்பத்து (முகல் 6 பாடல்கள்)
3. பறநானூறு - பாடல் எண்கள் : 86, 182, 188, 196, 277, 279 (6 பாடல்கள்)

அலகு-II சிற்றிலக்கியம்

1. குற்றாலக் குறவஞ்சி - குற்றால மலை வளம் (6 பாடல்கள்)
2. முக்கூடற் பள்ளு - பள்ளியர் ஏசல் (8 பாடல்கள்)
3. முத்தொள்ளாயிரம் - சோன் -3 சோழன் -3 பாண்டியன் - 3 (9 பாடல்கள்)

அனுகூல-III அறிக்கை

1. அறிந்துக் ஸீமா - 'தெய்வக் காளையோடு'
2. அறிந்துக் ஸ்ரீராமன் - 'காவிரி'
3. அறிந்துக் காமாட்சி - 'காந்தகங்கைப் பதியை நினைவோடு'

அனுகூல-IV இலக்கணங்கள்

வாய்ப்பு - ஸ்ரீராமன் - காளையோடு - ஸீமா - காமாட்சி - காவிரி - காளையோடு

அனுகூல-V(அ) இலக்கணங்களை

1. காவிரி இலக்கணங்கள்
2. காவிரி இலக்கணங்கள்

(ஆ) திணைக்களம் பற்றியவை

1. பன்னாட்டு இலக்கணங்கள் - காவிரி - காவிரி - பற்றியவை

புத்தகங்கள்

1. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் 2019 ஆம் காவிரி இலக்கணங்கள்
2. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் -7 காவிரி இலக்கணங்கள் -2002
3. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் -1 காவிரி இலக்கணங்கள் -1934
4. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் -01 காவிரி இலக்கணங்கள் -2007
5. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் -98 காவிரி இலக்கணங்கள் -2008
6. காவிரி இலக்கணங்கள் - காவிரி இலக்கணங்கள் காவிரி இலக்கணங்கள் -40 காவிரி இலக்கணங்கள் -2012

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year: II Year Subject Code: **U18FUR401** Semester: IV

Language - 4 Title: **Urdu – IV**

Credits: 3 Max. Marks. 75

DRAMA, RUBAYIATH&HISTORY OF URDU LITERATURE

OBJECTIVES:	<ul style="list-style-type: none">✓ To promote students' knowledge of various literary genres like Drama.✓ To effectuate their caliber to pen poems of their own.✓ To motivate them to build lively conversations.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will learn to excel in the art of reading Plays.➤ They will hoan their faculty of imagination.➤ They will emerge as exponents of good conversation.

BOOK PRESCRIBED: "ADAB-E-JAMEEL"

Published by Dept. of Urdu, C. Abdul Hakeem College,
Melvisharam.

Unit – I

1. Darwazakholdo-Krishan Chander [First Quarter]
2. Agoosh-E- Lihad Mein Jab Ke Sona Hoga - Anees
3. Gulshan Mein Phiroou–Anees
4. Meer Taqi Meer

Unit – II

1. Darwazakholdo-Krishan Chander [Second Quarter]
2. GhaflatKihansihseAahBharnaAcha –AkberAllahbadi
3. Har Ek Se Sun NayeFasana Ham Ne – Aker Allahbadi
4. Mirza Ghalib

Unit – III

1. Darwazakholdo-Krishan Chander [Third Quarter]
2. Gunche Teri Zindagi Pe DilHalh Hai -- Josh
3. Gunche Teri Zindagi Pe DilHalh Hai– Josh
4. Sir Syed Ahmed Khan

Unit – IV

- 1.Darwaza kholdo-Krishan Chander [Last Quarter]
- 2.Muflis Hun Na Dowlath Hai Na Sermaya Hai --Amjad
- 3.Is Naam Ki Zindagi Mein KuchJaan To Ho – Amjad
- 4.Moulana Hali
5. Prem Chand

Unit – V

1. Roshan Nahi Karta JalaDethe Hain –Asghar Vellori
2. DhoondaThoKithabon Mein Sadaqath Na Mili –Asghar Vellori
3. AkberIlahbadi
4. Allama Iqbal
5. Krishan Chandar

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for all UG Courses effective from the year 2019-2020

Year:	II Year	Subject Code:	U18FHN401	Semester:	IV
Language - 4	Title:	Hindi - IV			
Credits:	4			Max. Marks.	75

Syllabus and books prescribed:

I. modern poetry:

- | | | |
|----------------------------|----|---------------------|
| 1. yashodhara ka anuthap | by | mythilisharan gupta |
| 2. Jaago jeevan ke prabhat | by | jayshankar prasad |
| 3. Abhi na hoga mera anth | by | nirala. |
| 4. Sukh - dukh | by | panth |
| 5. Ve muskate phool nahi | by | mahadevi varma |
| 6. Toota pahiya | by | dharmaveer bharathi |

Text: raka hindi kavya sangrah, raka prakashan, allahabad

ii. (a) Applied grammar:

1. Correction of sentences.
2. Tatsam to tadbhav & vice versa

Reference books:

1. Vyavaharik hindi vyakaran by dr. hardev bahri.
2. Lokbharathi prakashan, allahabad.

III. History of hindi literature: general information

About the prescribed poets/writers from modern period.

1. Agneya
2. Sreelal shukla
3. Nagarjun.
4. dinkar
5. Mannu bhandari.
6. Jagdish gupta
7. Dhoomil
8. Bachchan.

IV. Computer / internet terminology –

prescribed terms from english to hindi.

V. Translation: sentences from english to hindi.

Passages only

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year: II Year Subject Code: **U18FURP41** Semester: IV

Language - 4 Title: **Practical Urdu**

Credits: 1 Max. Marks. 75

OBJECTIVES:	<ul style="list-style-type: none">✓ To monitor students' career prospects through their academic expertise.✓ To train them to be fit enough for jobs in Software Sector.✓ To groom them to be adepts at using various Fronts and Inpage Tools.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will be rolled out as maximum beneficiaries.➤ They will be fully armoured with sensitive software techniques.➤ Their computeracy will help them to gain control over their Professional assignments.

URDU SOFTWARE

[PRACTICAL& VIVA-VOCE]

Prescribed Text Book "URDU SOFTWARE" Publish by NCPUL, New Delhi

LINGUSTIC WITH PRACTICAL (Job Oriented Urdu Software Programme)

Unit I

Introduction to Urdu Software
Practical

Unit II

Key Board and its kinds
Practical

Unit III

Types of Fonts
Practical

Unit IV

Text Alignment
Practical

Unit V

Inpage & Unicode Tools Practical

C. Abdul Hakeem College (Autonomous), Melvisharam.

Syllabus for B.A., / B.Sc., / B.Com., (CS) effective from the year 2019-2020

Year:	II Year	Subject Code:	U18FEN401	Semester:	IV
Foundation English - 4	Title:	English - IV			
Credits:	4	Max. Marks. 75			

OBJECTIVES:

- To encourage a critical consciousness through a study of some popular themes and social concerns.
- To develop writing skills through an introduction to the major genres such as poetry, short story, essay and drama.
- To encourage reading through an introduction to some popular writers

Course Outcome(s)

- **CO1:** To introduce world renowned writers to students.
- **CO2:** To introduce world renowned poets to students.
- **CO3:** To make them understand the nuances of short stories.
- **CO4:** To acquaint students with the writings of world renowned personalities.
- **CO5:** To help them excel in Grammar, Composition and Composition

UNIT - I

PROSE

- | | |
|------------------------------|-----------------|
| 1. The Rule of the Road | A. G. Gardiner |
| 2. Forgetting | Robert Lynd |
| 3. Mobile and Mixed Up | Anil Dharker |
| 4. Water: The Elixir of Life | Sir C. V. Raman |

UNIT - II

POETRY

- | | |
|------------------------------|---------------|
| 1. The Lotus | Toru Dutt |
| 2. The Highway Man | Alfred Noyes |
| 3. Character of a Happy Life | Henry Wotton |
| 4. Refugee Mother and Child | Chinua Achebe |

UNIT - III

SHORT STORIES

- | | |
|----------------------------|---------------|
| 1. Two Gentlemen of Verona | A. J. Cronin |
| 2. The World Renowned Nose | V. M. Basheer |

UNIT - IV

ONE-ACT PLAY& BIOGRAPHY

- | | |
|--------------------------------------|---------------------|
| 1. Love at First Sight – The Tempest | William Shakespeare |
| 1. My Friend, Albert Einstein | Holfman |

UNIT - V

WARM UP

6. Lexical Skills
7. Descriptive Grammar
8. Traditional Grammar
9. Communication Skills (LSRW)
10. Composition

WARM UP

1. Lexical Skills

- Common Errors in English

- Formation of Words
- Spelling and Sound: Introduction to Phonetics
- Vowels and Consonants

2. Descriptive Grammar

- Conjunction and its Kinds
- Interjection
- Regular and Irregular Verbs
- Modals and Auxiliaries Verbs

3. Traditional Grammar

- Question Tags
- Simple, Compound & Complex Sentences
- Figures of Speech (a) Metaphor (b) Irony (c) Oxymoron (d) Personification
(e) Simile

4. Communication Skills (LSRW)

- Phoning
- Offering Help
- Asking for Information
- Making Appointment

5. Composition

- Designing a Resume
- Writing Covering Letters for Resume
- Preparing Agenda for Meetings
- Writing Minutes of Meetings

Books Prescribed:

HALL OF FAME – IV Board of Editors, Published by Emerald publishers,
Egmore, Chennai – 600 008: www.emeraldpublishers.com, Mail:
info@emeraldpubliser.co

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II **Subject**
Year **Code:** U18MCA401 **Semester:** III

Part 3 Title: Advanced Java Programming

Credits: 3 **Max. Marks. 75**

Objectives	Ability to assess how the advanced java works
COURSE OUTCOME(S)	
CO1	Ability to understand the basics of java
CO2	To learn how control structures work in java
CO3	Explain the terms and concepts of inheritances
CO4	Recognize the role of exception handling in java
CO5	Illustrate how AWT used in advanced java

Unit : 1

The history and evolution of Java – an overview of java – Data types, variables, arrays [Chapters 1, 2, 3]

Unit : 2

Operators – Control Statements – Introducing Classes [Chapters 4, 5, 6]

Unit : 3

Methods and Classes – Inheritance – Packages and Interfaces
[Chapters 7, 8, 9]

Unit : 4

Exception Handling – Multithreaded programming – The Applet Class –
Event Handling [Chapter 10, 11, 21, 22]

Unit : 5

Introducing the AWT: Working with windows, graphics – AWT controls –Exploring Swing [Chapter 23, 24, 30]

Prescribed Text Books:

1. The Complete Reference Java, Seventh Edition, Herbert Schildt, TMH

Books for Reference:

1. Programming With Java, Second Edition, Vijay Nicole Imprints, C. Muthu
2. The Java Programming Language, Addison Wesley Publication, Ken Arnold
Gosling and Davis Holmen.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	II	Subject		
	Year	Code:	U18MCAP41	Semester: III
Part 3	Title:	Practical-IV Advanced Java Lab		
Credits:	3			Max. Marks. 75

Objectives	Promotes the programming skill development with advanced java lab
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1. Implementing Dialogs, Menus and Frame
2. Implementing Package, Inheritances and Interfaces
3. Implementing Flow, Border and Grid Layouts
4. Implementing user defined Exception Handling
5. Implementing multithreading
6. Implementing I/O stream file handling
7. Implementing the Calculator using Swing
8. CRUD operation using JDBC
9. Client Server using TCP & UDP socket
10. GUI Application with JDBC
11. Draw a rectangle & Circle using Swing
12. Enable and Disable button using Swing

Learning Outcome:

This Advanced Java Lab exercise provides an innovative method of designing interactive web page using swing. It also promotes database connections skills with JDBC concept.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc., Computer Science effective from the year 2019-2020

Year: II Year Subject Code: **U18AMA402** Semester: IV

Allied - 4 Title: **STATISTICAL METHODS AND THEIR APPLICATIONS - II (ALLIED)**

Credits: 4 Max. Marks. 75

Objectives: To study the statistical methods and their applications-II

Course Outcomes: At the end of the Course, the Students will able to	
CO1	Understand curve fitting & problems.
CO2	Understand a sample space, probability, Baye's theorem, conditional probability, Mathematical expectations & problems.
CO3	Understand Binomial, Poisson and Normal distributions & problems.
CO4	Understand test of significance of small & large samples & problems.
CO5	Understand a one-way, Two-way classification, L.S.D, R.B.D, C.R.D, variance and designs.

UNIT-I

Curve fitting by the methods of least squares $y=ax+b$, $y=ax^2+bx+c$, $y=ax^b$, $y=a e^{bx}$ (Simple problems).

Chapter - 15 full

UNIT-II

Sample space – events – probability- Addition and Multiplication Theorem – Conditional probability-Bayes' Theorem, Random variables, mathematical expectations Addition and Multiplication Theorem, variance, Chebychev's Inequality.(theorems statements only).

Chapter – 8, 9(Pages:9.1 to 9.20), 10, 11 full

UNIT-III

Standard distributions- Binomial, Poisson, Normal distributions and fitting of these distributions- simple problems.

Chapter-17, 18, 20 full

UNIT-IV

Test of significance small sample & large sample- t-test - based on mean, S.D, correlation and proportion- simple problems – properties of t-test – advantages.

Chapter -24 pages:24.12 to 24.42

Chapter -26 pages:26.1 to 26.31

Chapter -27 pages 27.1 to 27.17

UNIT –V

Analysis of variance – One way and Two way classification- ANOVA table- basic principle of design of experiments – Randomizations, replication and local control – Completely Randomized Design (C.R.D) – Randomized Block design(R.B.D) – Latin Square Design (L.S.D) –Merits and Demerits – simple problems.(omit factorial experiments).

Chapter -27 pages: 27.14 to 27.29

Chapter -29 full(omit factorial experiments)

NOTE:

The proportion between Theory and problems shall be 20:80.

Recommended text Books:

P.R.Vittal & V.Malini “Statistical and Numerical Methods”, Margham Publications, Chennai - 17.

Books for references:

- 1.Fundamentals of Mathematical Statistics –S.C.Gupta & V.K.Kapoor –Sultan Chand.
- 2.Statistical Methods – Snedecor G.W & Cochran W.G. Oxford.
- 3.Elements of Statistics – Mode .E.B-Prentice Hall.
- 4.Statistical Methods –Dr.S.P. Gupta – Sultan Chand Sons.

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Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II **Subject** **U18AMC401** **Semester:** III
Year **Code:**

Part 3 Title: Advanced Data Structures-II

Credits: 5 **Max. Marks. 75**

Objectives	<ul style="list-style-type: none"> ❖ To understand and apply the algorithm analysis techniques. ❖ To critically analyze the efficiency of alternative algorithmic solutions for the same problem.
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CO1	❖ Knowing about the fundamentals of the analysis of algorithm efficiency.
CO2	❖ To understand the limitations of algorithmic power.
CO3	❖ To understand different algorithm design techniques.
CO4	❖ To study about flow networks and also about triangular matrices.
CO5	❖ To gaining the knowledge about warshall algorithm and Chinese remainder theorem.

Unit : 1

Introduction - Performance Analysis - Divide and Conquer method - Quick Sort
- Brute Force - Convex Hull - Closest Pair.

Unit : 2

Dynamic Programming: Knapsack and Travelling Salesman Problem -
Connected Components and DFS.

Unit : 3

Branch and Bound LIFO search and LC Branch and Bound - Huffman Trees - Stable Marriage Problem.

Unit : 4

Flow Networks: Maxflow- Mincut Theorem - Ford- Fulkerson Method - Inverse of a Triangular Matrix.

Unit V:

Floyd - Warshall Algorithm and Introduction to Modulo Representation of Integers / Polynomials - Chinese Remainder Theorem.

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Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: II Year Subject Code: **U18AMAP41401** Semester: III

Part 3 Title: **PRACTICAL STATISTICAL METHODS AND
THEIR APPLICATIONS**

Credits: 2 Max. Marks. 75

Objectives: To apply statistical techniques in problems.

1. Formation of uni-variate and bi-variate frequency distribution.
2. Diagrams and Graphs.
3. Measures of Location.
4. Measures of Dispersion.
5. Skewness and Kurtosis.
6. Correlation and Regression.
7. Curve Fitting : $y=ax+b$, $y=ax^2+bx+c$, $y=ax^b$, $y=ae^{bx}$.
8. Fitting of distribution – Binomial, Poisson, Normal.
9. Test of significance small sample and large sample tests.
10. Analysis of variance: one way classification, Two way classification Design of Experiments –C.R.D, R.B.D, L.S.D.

Books For Reference:

1. Statistical Methods by S.P. Gupta & V.K. Kapoor.
2. Fundamentals of Applied Statistics – S.C. Gupta & V.K. Kapoor.

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Part 3 Title: Internetworking and TCP/IP (SBS-II)

Credits: 3 **Max. Marks. 75**

Page 82 of 145

Unit : 1

TCP/IP internet services - History & scope of the internet - the internet architecture board - internet protocol and standardization - Wide area and local area networks - Ethernet technology- ARPANET technology - properties of internet - internet architecture - interconnection through IP routers.

Unit : 2

Internet addresses: introduction – universal identifiers –three primary classes of IP addresses – network and broadcast addresses- lookback address – internet addressing authority – the address resolution problem –resolution through direct mapping – ARP refinements – ARP implementations – ARP protocol format.

Unit : 3

Internet Protocol: Introduction – the concept of unreliable delivery – connectionless delivery system – purpose of the internet protocol – the internet datagram – the internet control message protocol – error reporting vs error correction

Unit : 4

User datagram protocol [UDP] : introduction – UDP protocol – format of UDP messages – UDP encapsulation and protocol layering – TCP: introduction – the need for stream delivery – properties of reliable delivery services – providing reliability – passive and active opens

Unit : 5

DNS : introduction – names for machines – flat name space – hierarchical names – TCP /IP internet domain names – inverse mappings – abbreviation of domain names - telnet protocol – FTP,TFTP,NFS.

Prescribed Text Books:

1. Internetworking with TCP / IP Principles, Protocols and Architecture, Douglas E. Comer, third edition , Volume 1, PHI

Books for Reference:

1. Design, implementation and internals – Volume 2, Douglas E.Comer, David .L.Stevens, PHI
2. TCP/IP architecture, design and implementation, Sameer SETH, M.Ajaykumar Venkatesulu. Wiley

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all UG Courses effective from the year 2019-2020

Year: II Year Subject Code: **U18NTA401** Semester: IV

Non-Major - 2 Title: **Basic Tamil – II (NME - II)**

Credits: 2 Max. Marks. 75

OBJECTIVES	<ol style="list-style-type: none"> 1. தமிழ் மொழியின் அடிப்படை புண்புகளை மாணவர் மனதில் பதிய வைத்தல். 2. தாய்மொழியின் படிமை, சிறப்பு, விழுமியங்கள் ஆகியவற்றைக் கற்பித்தல். 3. அடிப்படை இலக்கணத்தைக் கற்கச் செய்தல். 4. தமிழ்ப் புடைப்புகளை வாசிக்கப் படித்தல். 5. தமிழ்மொழியை எழுதவும் பேசவும் ஆயத்தப்படுத்தல்.
COURSE OUTCOME(S)	
CO1	தமிழ் அகராதிகளைப் பயன்படுத்தவும் எழுத்துக்களை நினைவில் கொள்ளவும் பயிற்சி வழங்கல்.
CO2	தமிழ்ச் சொற்களில் சந்திப்பிமை கவிரக்க ஏளிய பயிற்சி வழங்கல்.
CO3	தமிழில் உள்ள ஏளிய மற்றும் இனிய இலக்கியங்களை அறிமுகப்படுத்தி பொருளை விளக்குதல்.
CO4	ஏளிமையான சிறுகதைகளின் வழி வாசிப்புத் திறனை மேம்படுத்தல். மொழி ஆற்றலை வளர்த்தல்.
CO5	கலைச் சொற்களையும் மரபுத் தொடர்புகளையும் மொழிபெயர்த்தல்.

பாடத்திட்டம்

அலகு-I எழுத்து

1.அகர வரிசையில் அமைத்தல் (ஒவ்வொன்றிற்கும் 10 பெயர்கள்)

தமிழ் மரபுங்கள், தமிழ்ப் புலவர்கள், தமிழக ஊர்கள், தலைவர்கள், தமிழ் நூல்கள்.

2. பிறை நக்தி எழுத்து

- | | |
|---|---------------------------------------|
| 1.ஆளும் வேளும் புல்லுக்கு உறுதி | 2. ஆம் செய விற்று |
| 3.பனிவுடைமை நல்ல புன்பு | 4. ஏண்ணை குலியல் நல்லது |
| 5.இங்கு விரக விரக்கப்படும் | 6. நான் புன் மருத்துவரைப் பார்த்தேன் |
| 7.பெருந்து நிருத்தும் இடம் | 8. உணக்கு உளவு தேவையா? |
| 9.கம்பன் வீட்டுக் கட்டுத்தரியும் கவி பாடும் | 10. ஐந்தின் வலையாதது ஐம்பதில் வணையமா? |

அலகு-II

(அ) சேர்த்து எழுத்து : சுட்டு, வினா, திசைப் பெயர் - அடிப்படையிலான சொற்கள்

உதா : அ + இடம் = அவ்விடம், எ + பையன் = ஏப்பையன், வடக்கு + மேற்கு = வடமேற்கு.

(ஆ) பிரித்து எழுத்து : கனி, மரம் - அடிப்படையிலான சொற்கள்

உதா : வாமை + படிம் = வாமைப்படிம் மரம் + வேர் = மரவேர்.

(இ) எதிர்ச்சொல் தருதல் : புண்பு அடிப்படையிலான சொற்கள்

உதா : நன்மை X தீமை நல்ல X கெட்ட உயர்ம் X கடினம் .

அலகு-III செய்யுள்

(அ) ஆத்திதடி (முதல் 12 செய்யுள்)

(ஆ) திருத்தருள் (தருள் எண்கள் : 10, 15, 82, 398, 788)

(இ) கவிமணி - நான் வயது தருவன

அலகு-IV சிறுகதை

1. கொடிக்கக் காய் பாரமா ?
2. மூன்று பொற்காலங்கள்

அலகு-V(அ) தமிழில் மொழிபெயர்க்க

Cell phone, Computer, Television, Demand Draft, E- Mail, Environment, Fax, Internet,

Post office, xerox, Encyclopedia, fond, Laptop, Soft copy, file, car, lorry,

(ஆ) நேர் காணல்

கலைத் துறையினர், அரசியல் தலைவர், விளையாட்டு வீரர், அறிவியல் அறிஞர்

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for all UG Courses effective from the year 2019-2020

Year: II Year Subject Code: U18NUR401 Semester: IV

Non-Major - Title: **Functional Urdu – II (NME - II)**
2

Credits: 2 Max. Marks. 75

OBJECTIVES:	<ul style="list-style-type: none">✓ To advance students' knowledge of Urdu.✓ To impart training in Urdu Composition.✓ To brief them about Urdu poetry.
COURSE OUTCOMES	<ul style="list-style-type: none">➤ Students will learn Urdu equivalents of important Nomenclature.➤ They will develop interest in Urdu poetry.➤ They will acquire the ability to translate technical terms.

Unit I

Basics of Urdu Grammar

Unit II

Names of flowers, fruits,
birds, colours & Vegetables.

Unit III

Composition

(A short paragraph consisting of four or five simple sentences).

Unit IV

Two simple poems.

Unit V

Translation

(Technical terms and a passage).

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Syllabus for all UG Courses effective from the year 2019-2020

Year:	II Year	Subject Code:	U18NEN401	Semester:	IV
Non -Major - 2	Title: ENGLISH FOR COMMUNICATION - II (NME – II)				
Credits:	2				Max. Marks. 75

Objectives:

- To motivate students to build interesting Communication.
- To accelerate their efficiency of Business Correspondence.
- To provide to them effective instruction to excel in different Skills.

Course Outcome:

- Students will master the skill of drafting Notices and Writing Minutes.
- They will strengthen their ability to streamline Business Correspondence.
- They will gain proficiency in Editing and Team-Work Skills.

Unit-1:

An Introduction to Communication Notices, Agendas and Minutes

Unit-2:

Business Correspondence

Speeches

Unit-3:

Meetings

Vocabulary Development

Unit-4:

Editing Skills

Reference Skills

Unit-5:

Teamwork Skills

Emotional Intelligence Skills

Prescribed Text:

Synergy: Communication in English and Study Skills,
by Board of Editors, Orient Longman.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject U18MCA501 Semester: V
Year Code:

Part 3 Title: Database Management System

Credits: 5 Max. Marks. 75

Course Objectives:

1. To design conceptual and implementation schema of a database
2. To implement and manipulate relational and object relational database using SQL and PL/SQL
3. To introduce the concept of distributed database, multimedia database, semi-structured and unstructured database.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Explain the concepts of data models, database language and architecture
CO2	Understand the concepts of query language and ER model
CO3	Design good relational database using Normalization
CO4	Demonstrate the database recovery system and database security
CO5	Understand the challenges of Emerging database technologies

UNIT : 1

Introduction to Database System:

Introduction-basic concepts and definition-data dictionary-database and DB system-DA and DBA-File-oriented system vs DB system-DB language-Transaction Management.

Database System Architecture, Relational Algebra and Calculus:

Introduction- Schemas, sub-schemas and instances, three level ANSI-SPARCDB architecture-Data Independence-Mappings-Structure, components and functions of DBMS-Data Models, Types of DB systems – Relational Algebra introduction-structure of Relational database-Relation Algebra operations- Relational Calculus.

(Refer the Chapter: 1,2 and 4)

UNIT : 2

Relational Query Languages:

Introduction-Codd's rules, ISBL, QUEL, SQL.Embedded SQL, QBE.

Entity-Relationship(ER) Model:

Introduction- Basic ER Concepts-ER diagram Symbols (Refer the Chapter: 5 and 6)

UNIT : 3

Functional Dependency, Decomposition and Normalization:

Introduction-Functional Dependency-Decomposition- Introduction to Normalization-Normal forms-Types-BCNF-4NF-5NF

(Refer the Chapter: 9 and 10)

UNIT : 4

Database Recovery System:

Introduction-Concepts-types of database failures and recovery, recovery techniques, buffer management

Database Security:

Introduction-goals, Discretionary Access Control, Mandatory Access Control,

Firewalls, Statistical Database Security, Data Encryption

(Refer the Chapter:13 and 14)

UNIT : 5

Object-Relational Database

Introduction-History of ORDBMS-ORDBMS Design

Distribution Database Systems:

Introduction-Distributed Databases-architecture-DDBS design

Emerging Database Technologies:

Introduction-internet databases-Digital libraries-Multimedia Databases, MobileDatabases, Spatial Databases

(Refer the Chapter: 16,18 and 21)

Text Book:

1. Database Systems-Concepts, Designs and Application, by Shio Kumar Singh, Pearson Edition

Books for Reference:

1. Database System Concepts, by Abraham Silberschatz, Henry Korth, S. Sudharshan, MGH Edition.
2. Database Systems Models, Languages, design and Application Programming, by Ramez Elmasri, Shamkant, B. Navathe, Pearson Edition.
3. DBMS, by Rajesh Narang, PHI learning Private Limited
4. Introduction to DB System, by Data CJ, Kannan A, S. Swamynathan, Pearson Education.
5. The Complete Reference Oracle database, by Bob Bryla, Kevin

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Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject U18MCA502 Semester: V
Year Code:
Part 3 Title: Visual Basic Programming
Credits: 5 Max. Marks. 75

Course Objectives:

1. To enhance the basic understanding of various elements in VB.
2. To impart UI design and access to back end using various VB objects.
3. To make students familiarize with windows programming through Microsoft Foundation Class [MFC].

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Design simple programs using simple and multiple forms in Visual Basic.
CO2	Understand various event handling mechanisms in VisualBasic.
CO3	Design effective user interface and test Visual Basic applications for real time problems.
CO4	Selects various objects to connect with back-end databases for the given scenario.
CO5	Provides solutions to various contemporary issues using the features of VB and Windows Programming.

UNIT : 1

Introduction to VB- Getting started in Visual Basic – Adding an event procedure-The VB environment: Menu bar –Toolbar - Project Explorer – Toolbox - Properties window - Form designer - Form layout - Immediate window. Adding an event procedure – Adding controls

UNIT : 2

Basics of Programming: Variables: Declaring variables, Types of variables, converting variables types, User-defined data types, Scope & lifetime of variables. Operators: Arithmetic, Relational & Logical operators. I/O in VB: Various controls for I/O in VB, Message box, Input Box, Print statement

UNIT : 3

Decisions and conditions: If statement, If-then-else, Select-case. Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures. Arrays: Declaring and using arrays, one-dimensional and multi-dimensional arrays, Static & dynamic arrays

UNIT : 4

Procedures: General & event procedures, Subroutines, Functions, calling procedures- Working with forms and menus: Adding multiple forms in VB, Hiding & showing forms, Load & unload statements, creating menu, submenu, popup menus, Activate & deactivate events, Form-load event, menu designing in VB Simple programs in VB.

UNIT : 5

Basic graphical user interface concepts - Advanced graphical user interface concepts - Windows common dialogs - The chart and grid controls - The timer, shape, line and toolbar Controls-Files and Files System Control.

Text Book:

1. Visual Basic 6 from the Ground Up, by Gary Cornell, Indian Edition Publications.
2. Visual Basic 6, by Noel Jerke, TMH Publications.

Books for Reference:

1. Programming in Visual Basic 6.0, by Rakesh Saini, M.M.S.Rauthan, ALok Agarwal, Sanjeev Kumar Sharma, Dreamtech Publications.
2. Visual Basic 6.0 Programming by Content Development Group.
3. Visual Basic 2015 unleashed, by Alessandro Del Sole, Pearson Education.
4. Visual Basic 6 How to Program, by Deitel & Deitel, Pearson Education.
5. Oracle Programming with Visual Basic, by Nick Showdon, Sybex Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject		
	Year	Code:	U18MCAP51	Semester: V
Part 3	Title:	Visual Basic Programming Lab		
Credits:	3			Max. Marks. 75

Course Objectives:

- ❖ To study the command and syntax of Visual Basic, to able make a small application to solve a business problem and to understand object oriented programming concepts and how to apply in an application.
- ❖ Students become proficient business analysts, technical experts in SQL and develop essential “Professional Skills” including teamwork, project management and presentation and interviewing techniques.

Perform the following using VB

1. Building Simple Application for Calculator
2. Application with Multiple Forms
3. Application with Dialogs
4. Application with Menus
5. Application using Data Control
6. Application using Format Dialog
7. Drag and Drop Events
8. Creating ActiveX Controls

Perform the following using VB as front-end and Oracle as back-end

9. Student Information System [ADODC Connection]
10. Student Mark Sheet Processing [ADODC Connection]
11. Electricity Bill Preparation [ADODC Connection]
12. Banking Management System [ADODC Connection]
13. Railway Reservation System [ADODB Connection]

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject		Semester:	V
	Year	Code:	U18MCAP52		
Part 3	Title:	Oracle Lab			
Credits:	5			Max. Marks.	75

Course Objectives:

- ❖ PL/SQL Programming is an intense subject that is designed to give the student hands-on exposure to Oracle PL/SQL. The student learns by coding and the class has dozens of in-class exercises and the student will be guided from very simple PL/SQL coding techniques.

SQL & PL/SQL

1. Table Creation with simple queries
2. Constraints [Primary key, foreign key, NOT NULL, Referential integrity]
3. Joins [left, right and equal-joins]
4. Sub Queries
5. Built in Functions [Date & time, mathematical Functions]
6. Procedures
7. Functions
8. Functions with exception handling
9. Cursors
10. Triggers

Perform the following using VB as front-end and Oracle as back-end

11. Library Management System [ADODC Connection]
12. Employee Details for IT company [ADODC Connection]
13. Hospital Management System [ADODB Connection].

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Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject U18ECA501 Semester: V
Year Code:
Part 3 Title: Digital Logic and Microprocessor
Credits: 3 Max. Marks. 75

Course Objectives:

1. Introduce the basic concept of digital and binary system
2. Give the students the concept of digital logic design
3. Students learn the basic tools for the design and implementation of digital modules and sub systems.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	<ul style="list-style-type: none">➤ Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.➤ Understand and examine the structure of various number systems , codes and its application in digital design.
CO2	<ul style="list-style-type: none">➤ Understand, analyze and design the various combinational and sequential circuits
CO3	<ul style="list-style-type: none">➤ Develop the skill to build and troubleshoot digital circuits.➤ Apply the basic postulates of Boolean algebra and shows the correlation between Boolean expressions.➤ Apply the methods for simplifying the Boolean expressions using Quine MC Clauskey Tabulation method
CO4	<ul style="list-style-type: none">➤ Understand the concepts of flip flops and types of flip flops, counters, memories, Programmable logic devices, memory unit, accumulator and digital ICs.

CO5	➤ Assess and solve basic binary math operations using the microprocessor and explain the microprocessors and microcontroller's internal architecture and its operations within the area of manufacturing and its performance.
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UNIT : 1

Introduction-Definition of Digital Computer-Structure-number systems-conversion from one number system to another system-Binary addition, subtraction, multiplication and division-Complements and its types-Binary Codes [Including Problems]-Problems in gray code-Error Detection and Correction Code-Binary Logic-Truth Tables-Problems in Truth Table-Integrated Circuits. [Question Pattern: theory 4 marks and problems 20 marks]

UNIT : 2

Basic Definitions of Boolean Algebra-Axiomatic Definition of Boolean Algebra- Basic theorems, properties-Demorgan theorem-simple problems in Boolean algebra-Boolean functions-Laws of Boolean Algebra-Rules in Boolean Algebra-Duality Theorem-canonical and standard forms-problems in canonical and standard forms-Digital Logic Gates
[Question Pattern: theory 5 marks and problems 19 marks]

UNIT : 3

The Map Method-two, three, four, five variable map-POS Simplifications-SOP Simplifications-Don't Care Conditions-Prime Implicant Method [Quine- Mc Clauskey Tabulation Method Problem] [Question Pattern: theory 4 marks and problems 20 marks]

UNIT : 4

Adder-Subtractor- Encoder-MUX-DeMUX-Problems in MUX-Flip Flops and its Types-Registers: Shift Registers-Ripple and Synchronous Counters-PLA-Design of ALU, Status Register and Accumulator

[Question Pattern: theory 14 marks and Compulsory Problem in Multiplexer: 10 marks]

UNIT : 5

Microprocessors, Microcomputers and Assembly Languages: Microprocessors- Microprocessor instruction set and computer languages- from large computers to single chip microcontrollers, introduction to 8085 Assembly Language Programming: The 8085 Programming model-Instruction Classification- Instruction Data format and storage-how to write, assemble and execute a simple program-overview of 8085 instructions set-Microprocessor architecture and its operations-memory- input and output devices.

[Question Pattern: theory 24 marks]

TEXT BOOKS:

1. Digital Logic and Computer Design, by M. Mano, PHI Education.
[Refer for Unit-1,2,3,4]
2. Microprocessor Architecture-Programming and Applications, by R.S. Gaonkar, Wiley Eastern Limited [Refer Unit-5]

Books for Reference:

1. Introduction to Microprocessor, by A.Mathur,Tata MC Graw HillPublications.
2. Digital Logic and Design, by Lyoyd,PHI Education.
3. Digital Principles Design, by Givone, Tata MC Graw Hill Publications.
4. Computer Architecture and Logical Design, by T.C.Bartee,
Tata MC Graw Hill Publications.
5. Microprocessors and Interfacing, by N.Senthil Kumar, M.Saravanan,
S.Jeevananthan,SK Shah, OXFORD Higher Education.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III **Subject**
Year **Code:** U18ECA502 **Semester:** V

Part 3 Title: Programming in C#

Credits: 3 **Max. Marks. 75**

Course Objectives:

1. Gains the skills to exploit the capabilities of C# and of the .NET framework to develop programs useful for a broad range of desktop and web applications.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Outline the .NET environment and its basics.
CO2	Know the C# Operators, branching and looping methods effectively.
CO3	Analyze the C# Arrays strings and structures.
CO4	Learn the concepts of Inheritance, Polymorphism and delegates in C#.
CO5	Develop the skills on Web Based Application Development on .NET Programming.

UNIT : 1

Introducing C# - Understanding .NET: The C# Environment – Overview of C# -Literals, Variables and Data types. (Refer the Chapter-1, 2, 3, 4)

UNIT : 2

Operators and Expressions- Decision Making and Branching- Decision Making and Looping- Methods in C# . (Refer the Chapter-5, 6, 7,8)

UNIT : 3

Handling Arrays- Manipulating Strings- Structures and Enumerations- Classes and Objects. (Refer the Chapter- 9, 10, 11, 12)

UNIT : 4

Inheritance and Polymorphism- Interface: Multiple Inheritance- Operator Overloading-Delegates and Events. (Refer the chapter- 13, 14, 15, 16)

UNIT : 5

Managing Console I/O Operations- Managing Errors and Exceptions- Multithreading in C#- Windows Forms and Web Based Application Development on .NET. (Refer the Chapter- 17, 18, 19, 20)

Text Book:

1. Programming in C# A Primer, by E.Balagurusamy, Tata MC Graw Hill Education.

Books for Reference:

1. C # Programming “Quickly Learn C# Programming”, by Jason Hamilton, Pearson Education.
2. C# for Beginners, by Jonas Fagerberg, Csharp School Education.
3. C# for Beginners, by Nathan Metzler, Pearson Education.
4. C#, by Ryan Turner, Tata MC Graw Hill Education.
5. For Beginners C#, by Erik Myers, Pearson Education.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject Semester: V
Year Code: U18ECA503
Part 3 Title: Software Testing
Credits: 3 Max. Marks. 75

Course Objectives:

1. To describe the principles of system and components testing.
2. To describe the strategies for generating system test cases.
3. To understand the essential characteristics of tool used for test automation.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	<ul style="list-style-type: none">➤ Master the knowledge and comparison of various testing strategies.➤ Learn the understanding and implementation of a Software Development Process.
CO2	<ul style="list-style-type: none">➤ Apply the software testing techniques in commercial environments and assess the adequacy of test suites using control flow, data flow and program mutation.➤ Analyze the requirements specification documents.
CO3	<ul style="list-style-type: none">➤ Build the role of management in a software development.➤ Master in working on a team in a moderate-size software development project.
CO4	<ul style="list-style-type: none">➤ Understanding of Load Testing and its methods.➤ Attain the attributes and assessment of quality, reliability and security of software.

CO5	<ul style="list-style-type: none"> ➤ Identify the inputs and deliverables of a testing process and work together as a team in preparing a report. ➤ Master in Application of Software Testing techniques in commercial environments.
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UNIT : 1

Software Testing Tools: Building software testing strategy- Software Testing Design Techniques- Software Testing tools and Selection of test Automation Products- Software Testing lifecycle and software testing process.

UNIT : 2

Test Plan: Testing effort estimation and test planning- Software test effort estimation technique- predevelopment testing requirements and design phase-best practices in program phase unit, system and integration testing.

UNIT : 3

Issues in Testing: A Case Study on Acceptance testing- implementation on effective test management process- building an effective test organization- performance issues and optimization techniques.

UNIT-4

Testing Strategies: Choosing a load testing strategy-Dodging the bullets- Validating Mission Critical Server Software for Reliability- Probing the BlindSpot- Testing in today's business and usability.

UNIT : 5

Testing Metrix: Testing of Web-based Applications- Testing of embedded software system used in Aerospace Applications- Testing Application for Security- Testing Metrics, Best Practices and Benchmarks.

Text Book:

1. Software Testing Effective Methods, Tools and Techniques, by RenuRajani and Pradeep Oak, Tata MC Graw Hill Education.

Books for Reference:

1. Software Testing Principles and Practices, Seenivasan Desigan and Gopalswamy Ramesh, Pearson Education.
2. Software Testing, Concepts and Operations, by S.A.Kelkar, Willey Publications.
3. Software Quality and Testing, by S.A.Kelkar, Pearson Education.
4. Software Testing, by Paul C.Jorgensen, CRC Press.
5. Software Testing, by Sandeep Desai and Abhishek Srivastava, Pearson Education.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III **Subject** **U18EINP51** **Semester:** V
Year **Code:**
Part 3 **Title:** **Internships Training**
Credits: 2 **Max. Marks. 75**

Course Objectives:

- ❖ Internships are educational and career development opportunities, providing practical experience in a field or discipline.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Apply knowledge of theoretical concepts, tools and resources on the project.
CO2	Analyze and solve complex problems in order to reach substantiated conclusions.

Instructions for Internships:

1. Internship –

- a. Internship with Industry/ Government / NGO / PSU / Any Micro / Small / Medium Enterprise / Online Internship.
- b. Inter/Intra Institutional Activities-Inter/Intra Institutional Workshop /Training/ Working for Consultancy / research Project.

2. Suggested Periods- During summer vacation 4th Semester.

3. Duration- 2 Weeks.

4. Proposed document to be submitted as evidence- Internship Report and Certificate.

Internship Report:

After completion of Internship, the student should prepare a comprehensive report to indicate what he has observed and learnt in the training period. The Student may contact Industrial Supervisor/ Faculty Mentor for assigning special topics and problems and should prepare the final report on the assigned topics. Daily diary will also help to a great extent in writing the industrial report since much of the information has already been incorporated by the student into the daily diary. The training report should be signed by the Internship Supervisor and Faculty Mentor.

5. Evaluation Method – Viva-voce Examination by the Faculty mentor and Faculty from other department.

Internal: 25 Marks (for attendance)

External: 75 Marks (Internship report)

The internship report will be evaluated on the basis of the following criteria:

- i. Originality (15 Marks).
- ii. Adequacy and Purposeful write-up (15 Marks).
- iii. Organization, format, drawings, sketches, style, language etc (15 Marks).

- iv. Variety and relevance of learning experience (15 Marks).
- v. Practical applications, relationships with basic theory and concepts taught in the course (15 Marks).

Note: Internships may be full-time or part-time; they are full-time in the summer vacation and part-time during the academic session.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject Semester: V
Year Code: U18SCA501
Part 3 Title: Cryptography and Network Security
(SBS-III)
Credits: 2 Max. Marks. 75

Course Objectives:

1. This course is very useful to understand the Network Security Attacks.
2. Intruders Protection Mechanisms can be applied through this course.
3. This course is able to understand the Encryption and Decryption Standards

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Know the security attacks and services
CO2	Understand the concept of Encryption Standards
CO3	Implement the authentication details of information
CO4	Understand the Email security and IP Security concepts
CO5	Study about intruders and Malicious Software details

UNIT : 1

Introduction-Security trends-OSI Security Architecture-Security Attacks-Security Services-Security Mechanisms-A Model for network Security- Advanced Encryption Standard. (Refer the Chapter 1, 5)

UNIT : 2

Confidentiality Using Symmetric Encryption-Introduction to number theory-
Public Key Cryptography and RSA(Refer the Chapter 7, 8, 9)

UNIT : 3

Key Management: other Public Key Cryptosystems- Digital Signatures
and Authentication Protocols- Email Security.(Refer the Chapter 10, 13, 15)

UNIT : 4

IP Security: overview, Architecture, authentication header,
encapsulating security payload, combining security associations.

Web Security: Considerations, Secure Socket Layer and Transport
Layer Security-Secure E-transactions.

Intruders: Introduction-definition-intruders detection-password
management.(Refer the Chapter 16, 17, 18)

UNIT : 5

Malicious Software: Viruses and related threats, virus counter
measures,distributed denial of service attacks.

Firewalls: Design principles, trusted systems, common criteria for IT Security
Evaluation. (Refer the Chapter 19, 20)

Text Book:

1. Cryptography and Network Security, by William Stallings, 4th Edition, Pearson Education

Books for Reference:

1. Understanding Cryptography, by Christof Paar, Jan Pelzl, Springer Publications
2. Introduction to Modern Cryptography, by Jonathan Katz, Yehuda Lindell, Chapman & Hall/CRC Taylor & Francis Group Publication
3. Cryptography and Network Security, by Santosh A. Darade, Tech-Neo Publications.
4. Cryptography and Network Security, by Behrouz A Forouzan, Debdeep Mukhopadhyay, MGH Publications.
5. Cryptography and Network Security, by Ajay Raj Parashar, Deepti Mittal, Laxmi Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject Semester: VI
Year Code: U18MCA601
Part 3 Title: Web Programming
Credits: 5 Max. Marks. 75

Course Objectives:

1. To explain the student the need of scripting languages in programming environment
2. This subject deals various tags available in scripting language
3. This course explain about the intrinsic event handlers

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	<ul style="list-style-type: none">➤ Understand the different types of scripting languages currently available highlighting their major advantages, disadvantages and uses➤ Understand Methods used to implement client side scripts within web pages➤ Improve the embedded coding and externally storedcode
CO2	<ul style="list-style-type: none">➤ Apply advance terminology and standards➤ Understand the implication for application design
CO3	<ul style="list-style-type: none">➤ Understand the client – side scripting versus server-side scripting➤ Illustrate features of PHP, XHTML, advantages of PHP over other scripting languages, running a PHPscript➤ Describe the user defined function in PHP, types of arrays, traversing arrays using Loops and working with files and directories

CO4	➤ Make use of Relational Database, SQL, PHP/MySQL Functions and creating MySQL database with PHP
CO5	➤ Examine HTML and database tables, building formsform queries, basic form submission to a Database and editing data with an HTML form

UNIT : 1

Understanding HTML and XHTML Connections - Understanding Cascading Style Sheets - Understanding Java Script - Working with Fonts, Text Blocks, and Lists- Using Tables to Display information - Using External and InternalLinks -Working with Colors, images, and Multimedia. [Refer the Chapter-2, 3, 4, 5, 6, 7,8]

UNIT : 2

Working with Margin, Padding, Alignment, and Floating- Understanding the CSS Box Model and Positioning - Using CSS to do more with Lists, Text and Navigation - Creating Fixed or Liquid Layouts - Understanding Dynamic Websites - Getting Started with Java Script Programming. [Refer the Chapter-9, 10, 11, 12, 13, 14]

UNIT : 3

Using JavaScript Variables, Strings, and Arrays - Using JavaScript function and objects- Controlling Flow with Conditions and Loops- Responding to Events- Using Windows and frames -AJAX Remote Scripting. [Refer the Chapter-16, 17, 18, 19, 20, 24]

UNIT : 4

PHP Language Structure: The Building Blocks of PHP -Flow Control Functions in PHP- Working with Functions -Working with Arrays - Working with objects - Getting involved with the code: Working with Strings, Date and Time. [Refer the Chapter-5, 6, 7, 8, 9,10]

UNIT : 5

Working with Forms – working with cookies and user sessionworking with Images - PHP and MySQL Integration: Understanding the Database Design Process-Using Transactions and Stored Procedures in MySQL-Interacting withMySQL using PHP. [Refer the Chapter-11, 12, 14, 15, 17, 18]

Text Book:

1. HTML, CSS and JavaScript All in One, by Julie C Meloni, SAMS tech Publications.[Refer Units-1, 2 and 3]
2. PHP, MySQL and Apache All in One, by Julie C Meloni, SAMS tech Publications[Refer Units- 4 and 5]

Books for Reference:

1. Learning Web Design, by Jennifer Niederst Robbins, O'Reilly Publications.
2. Cascading Style Sheets, by Bric A Meyer, O'Reilly Publications.
3. Learning PHP, MySQL, Java Script, CSS & HTML5, by Robin Nixon,O'Reilly Publications.
4. Pro Apache Struts with Ajaz, by John Carnell with Rob Harrop Edited by Kunal Mittal, Apress Publications.
5. Pro PHP Application Performance, by Armando Padilla and Tim Hawkins, Apress Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Subject Semester: VI
Year Code: U18MCA602
Part 3 Title: R Programming
Credits: 5 Max. Marks. 75

Course Objectives:

1. This R tool lab course facilitates to apply simple commands in R and explore the data mining tasks with R.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Apply simple commands using R
CO2	Generate code using linear and logistic regression
CO3	Implement classification and clustering using R
CO4	Create code using association mining
CO5	Learn the main R data structure – vector and data frame, compute basic statistics

UNIT : 1

Introduction – Getting Started – Vectors – Matrix and Arrays (Refer the Chapter 1, 2, 3)

UNIT : 2

List - Data Frames – Factors and Tables – Programming Structures (Refer the Chapter 4, 5, 6, 7)

UNIT : 3

Doing Math and Simulations in R - Object Oriented Programming - Input / Output(Refer the Chapter 8, 9, 10)

UNIT : 4

String Manipulation – Graphics – Debugging(Refer the Chapter 11, 12, 13)

UNIT : 5

Performance Enhancement: Speed and Memory – Interfacing R to other languages – Parallel R
(Refer the Chapter 14, 15, 16)

Text Book:

1. An Introduction to R, by William N. Venables and David M. Smith, NetworkTheory Limited Publications.
2. The Art of R Programming – A Tour of Statistical Software Design, by Normal Matloff, No starch Publications.

Books for Reference:

1. R for Data Science, by Hadley Wickham and Garrett Grolemund, O'Reilly Media Publications.
2. Hands-On Programming with R: Write your own functions and Simulations, by Garrett Grolemund, O'Reilly Media Publications.
3. An Introduction to Statistical Learning with Application R, by GarethJames, Daniela Witten, Trevor Hastie, Robert Tibshriani, Springer Publications.
4. R in Action, by Robert.L.Kabacoff, Manning Publications.
5. Practical Data Science with R, by John Mount and Nina Zumel, Manning Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject		Semester:	VI
	Year	Code:	U18MCAP61		
Part 3	Title:	Practical-IV Web			
		Programming			
Credits:	3			Max. Marks.	75

Course Objectives:

To develop an ability to design and implement static and dynamic website. Web Basics: Design web pages through Coding using HTML and DHTML, Browser side scripting using JavaScript with a focus on, Event Handling and Validation, Server Side Scripting, PHP Syntax, variables, loops and Constructs and etc.

Learning Outcome(s):

At the end of the Course, Students should be able to:

- Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.
- Have a Good grounding of Web Application terminologies, internet tools, Ecommerce and other web services.

1	Create a Web Page for Student Self Information								
2	<p>a. Create a HTML document about your University with following formatting-Bold, italics, underline, colors, headings, title, font and font width, background, paragraph, line break, horizontal line, blinking text as well as marquee text.</p> <p>b. Create a HTML document about your College with Ordered and Unordered lists, insert images, use internal and external linking.</p>								
3	Create a web page for your class time table using rowspan and colspan								
4	Create a web page with email chat								
5	Create a simple page using frames and tables								
6	Create a web page for any mobile network communication, using CSS								
7	<p>Create an HTML document (having two frames) which will appear as follows:</p> <table><tr><td>About</td><td>This frame would show the</td></tr><tr><td>Department 1</td><td>contents according to the link</td></tr><tr><td>Department 2</td><td>clicked by the user on the left</td></tr><tr><td>Department 3</td><td>frame.</td></tr></table>	About	This frame would show the	Department 1	contents according to the link	Department 2	clicked by the user on the left	Department 3	frame.
About	This frame would show the								
Department 1	contents according to the link								
Department 2	clicked by the user on the left								
Department 3	frame.								
8	<p>Create an HTML document containing Horizontal frames as follows:</p> <table><tr><td>Department Names(could be along with logos)</td></tr><tr><td>Contents according to the link clicked</td></tr></table>	Department Names(could be along with logos)	Contents according to the link clicked						
Department Names(could be along with logos)									
Contents according to the link clicked									
9	Create a website of 6-7 pages with different effects as mentioned in above problems[6,7,8]								

10	<p>Create a event driven program for the following:</p> <ol style="list-style-type: none"> Print a table of numbers from 5 to 15 and their squares and cubes using alert. Print the largest of three numbers Find the factorial of a number n
11	Enter a list of positive numbers terminated by zero. Find the sum and average of these numbers.
12	Read n numbers. Count the number of negative numbers, positive numbers and zeros in the list.
13	Creating and displaying the arrays of elements using JavaScript
14	Displaying a String with its character using JavaScript
15	Mouse over event
16	Create a new window without toolbar, status bar and address bar
17	Scroll bar using JavaScript
18	<p>Write a Program to display count, from 5 to 15 using PHP loop as given below:</p> <ul style="list-style-type: none"> ➤ You can use for or while loop ➤ You can use variable to initialize count ➤ You can use html tag for line break
19	Write a factorial program using for loop in PHP
20	Write a program to create chess board in PHP using for loop
21	<p>Write a program to calculate Electricity Bill in PHP using if else conditions. The conditions for calculating EB is as follows:</p> <ul style="list-style-type: none"> ✓ For first 50 units-Rs.3.50 per unit ✓ For next 100 units-Rs.4.00 per unit ✓ For next 100 units-Rs-5.20 per unit ✓ For units above 250-Rs.6.50 per unit <p>You can use conditional Statements.</p>

22	Write a Simple Calculator Program [with addition operation, subtraction operation, multiplication operation and division operation], in PHP using switch case.
23	<ul style="list-style-type: none"> a. Write a PHP program to find the length of the string b. Write a PHP program to reverse the string c. Write a PHP program to count the words in the string d. Write a PHP program to convert a string into Uppercase
24	Write a PHP program to check whether a number is positive, negative or zero

Note:

For PHP reference programs, refer the following:

[https:// tutorialsclass.com>exercises](https://tutorialsclass.com/exercises)

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject	Semester: VI
	Year	Code: U18MCAP61	
Part 3	Title:	Practical-VIII R Programming Lab	
Credits:	3		Max. Marks. 75

Course Objectives:

- ❖ Master the use of the R and RStudio interactive environment
- ❖ Expand R by installing R packages.
- ❖ Explore and understand how to use the R documentation.
- ❖ Read structured data into R from various sources.
- ❖ Understand the different data types and data structures in R.

Learning Outcome(s):

After successful completion of the course, students should be able to:

- ❖ Understand the basics in R programming in terms of constructs, control statements, string functions.
- ❖ Understand the use of R for Big Data Analytics.
- ❖ Learn to apply R Programming for text processing.
- ❖ Able to appreciate and apply the R Programming from a statistical perspective.

Software Lab Based on R Programming

1. Write a R program to create a list containing String, numbers, vectors and a logical values.
2. Write a R Program to merge two given list into one list.
3. Write a program that prints hello world to the screen
4. Write a program that asks the user for a number n and prints the sum of the numbers 1 to n

5. Write a program that prints a multiplication table for number up to 12
6. Write a function that returns the largest element in a list
7. Write a function the computes the running total of a list
8. Write a function that tests whether a String is a Palindrome
9. Implement the following sorting algorithms: selection sort, Insertion sort,Bubble Sort
10. Implement Linear Search
11. Implement Binary Search
12. Implement Matrix Addition, Subtraction and Multiplication

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject	Semester: V
	Year	Code: U18MCAP60	
Part 3	Title:	Project and Viva Voce	
Credits:	3		Max. Marks. 75

Course Objectives:

- ❖ The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/ techniques to solve real life problems related to industry, academic institutions and research laboratories.
- 1. The project is of 4 hours per week one [Semester: VI] semester duration and a student is expected to do planning, analyzing, designing coding and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.
- 2. The project proposal should include the following:
 - ✓ Title
 - ✓ Objectives
 - ✓ Input and output
 - ✓ Details of modules and process logic
 - ✓ Limitations of the project
 - ✓ Tools/ platforms, languages to be used
 - ✓ Scope of future applications

3. For the project work, the internal guide evaluates the work for 25 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follows:
 - Project Report: 30 Marks
 - Viva – Voce: 45 Marks
4. The Project work should be either an individual one or a group of not more than five members.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III **Subject** **Semester:** VI
Year **Code:** U18ECA601
Part 3 **Title:** Grid and Cloud Computing
Credits: 3 **Max. Marks.** 75

Course Objectives:

1. The student should be made to understand how Grid computing helps in solving large scale scientific problems. Gain knowledge as the concept of virtualization that is fundamental to cloud computing. Understand the security issues in the grid and cloud environment.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	➤ Understand how the distributed computing environments can be built from lower lever services.
CO2	➤ Understand the importance of virtualization in the distributed computing and how this has enabled the development of Cloud Computing.
CO3	➤ Analyze the performance of Cloud Computing.
CO4	➤ In-depth knowledge of bid data and Hadoop and its ecosystems, also master in real time data processing using various tools. ➤ Become expert in working on data and managing data resources.

CO5	<ul style="list-style-type: none"> ➤ Learn the concepts of grid security and resource management. ➤ Understand the concepts of grid portals and also the advanced grid middleware.
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UNIT: 1

Introduction: Evolution of Distributed computing: Scalable computing over the internet – Technologies for network based systems – clusters of co – operative computers grid computing infrastructures – cloud computing – service oriented architecture – introduction to Grid Architecture and standards – Elements of Grid– Overview of Grid Architecture

UNIT: 2

Grid Services: Introduction to Open Grid Services Architecture (OGSA) – Motivation – Functionality requirements – Practical & Detailed view of OGSA/OGSI – Data Intensive Grid Service Models – OGSA Services

UNIT: 3

Virtualization: Cloud deployment models: Public Private Hybrid, community – Categories of Cloud Computing: everything as a service infrastructure platform Software – Pros and Cons of Cloud Computing – implementation levels of Virtualization – Virtualization Structure – Virtualization of CPU Memory and I/O devices –Virtual Clusters and Resources Management – Virtualization for DataCenter Automation.

UNIT: 4

Programming Model: Open Source Grid Middleware Packages – Globus Toolkit (GT4) Architecture Configuration – usage of Globus – main components and programming Model – introduction to Hadoop framework – map reduce, input splitting, map and reduce functions, specifying input and output parameters, configuring and running a job – Design of Hadoop file system, HDFS concepts, command line and java interfaced at flow of file read & file write

UNIT: 5

Security: Trust models for Grid security environment – Authentication and Authorization methods – grid security infrastructure – cloud infrastructure security – network host and application level – aspects of data security provider data and its security identity and access management architecture. IAM practices in the cloud, SaaS, PaaS availability in the cloud, key privacy issues in the cloud

TEXT BOOKS:

1. Grid & Cloud Computing, by Bhushan Jadhav & Sonali Jadhav , Technical Publications

Books for Reference:

1. Grid and Cloud Computing, by D. Chitra & A. Kaliappan, Scitech Publication.
2. Fundamentals of Grid Computing, by Frederic Magoules, CRC Press Publication.
3. Grid Computing, by Joshy Joseph & Craig Fellenstein PHI Edition.
4. Cloud Computing Concept, Technology & Architecture by Thomas Erl PHI publication.
5. Essentials of Cloud Computing, by K ChandraSekaran, CRC Press.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Year Subject Code:U18ECA602 Semester: VI

Part 3 Title: Mobile Computing

Credits: 3

Max. Marks. 75

Course Objectives:

2. To learn the basic concepts, aware of the GSM, SMS, GPRS Architecture.
3. To have an exposure about wireless protocols –WLN, Bluetooth, WAP, ZigBee Issues
4. To know the network, Transport Functionalities of mobile communication
5. To understand the concepts of Adhoc and wireless sensor networks
6. To impart knowledge about mobile Application Development

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	Gain the knowledge about various types of wireless data networks and wireless voice networks
CO2	Understand the architectures, the challenges and the solutions of wireless communication those are in use
CO3	Realize the role of wireless protocols in shaping the future internet
CO4	Know about different types of wireless communication networks and their functionalities
CO5	Able to develop simple mobile application using android

UNIT : 1

Wireless Communication Fundamentals, Architecture:

Frequencies Spectrum – Multiplexing – Spread spectrum – GSM vs CDMA
– 2G mobile Wireless services comparison of 2G and 3G – GSM Architecture
– Entities – Call Routing – PLMN – address and identifiers – Network
Aspects – mobility Management – Frequency Allocation – Authentication and
Security – SMS architecture operations – Data Service – Application.

UNIT : 2

Mobile Wireless Short Range Networks:

Introduction - WLAN Equipment – WLAN Topologies – WLAN
Technologies – IEEE 802.11 Architecture – WLAN MAC –security of
WLAN, Power Management – Standards – WAP 2.0 Bluetooth enabled
Devices network – layers in Bluetooth Protocol – security in Bluetooth –
IrDA - Zigbee

UNIT : 3

Mobile IP Network Layer & Transport Layer:

IP and Mobile IP network Layer – Packet delivery and Handover
Management -location Management - Registration – Tunneling and Encapsulation
– Route optimization – dynamic host configuration protocol – VOIP –IPSEC –
Mobile transport Layer – conventional TCP/IP Transport Layer Protocol – Indirect,
Snooping, Mobile

UNIT : 4

Mobile Ad-Hoc, Sensor Networks:

Introduction to Mobile Ad hoc Network – MANET – Routing and Routing Algorithm – Security – Wireless Sensor Networks – Applications – Distributed Network and Characteristics – Communication Coverage- sensing Coverage –localization – Routing – Function Computation – Scheduling

UNIT : 5

Mobile Application Development:

Mobile application Development – Application Development overflow – Techniques for composing Applications – understanding the Android Software's Stack – Android Application Architecture - Developing for Android – the Android Application Life Cycle – The Activity Life Cycle – Creating Your – First Android Activity - Creating Application and Activities – Creating User interfaces – intents– Broadcast Receivers – Adapters – Data Storage, Retrieval and sharing – Geo Services – Creating mobile applications like game, clock, calendar, Converter, phone book, Text Editor.

TEXT BOOKS:

1. Mobile Communications, by Jochen Schillar, Pearson Education.

Books for Reference:

1. Android Application Development For Dummies, by Donn Felker, Wiley Publications.
2. Professional Android 2 Application Development, by Reto Meier, Wrox's Programmer to Programmer Series.
3. Hello, Android: Introducing Google's Mobile Development Platform, by Ed Burnette, Pragmatic Programmers.
4. Android A Programmer's Guide, by Jerome(J.F) DiMarzio, Tata MC Graw Hill Publications.
5. Fundamentals of Mobile Computing, by Prasant Kumar Pattnaik, Rajib Mall, PHI Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year: III Year Subject Code: **U18ECA603** Semester: VI

Part 3 Title: **Introduction to Data Mining**

Credits: 3 Max. Marks. 75

Pre-Requisites:

1. The knowledge of this course is to understand the concepts of Data Mining.
2. Explain the methodologies used for analysis of data
3. Describe the various techniques which enhance the data modeling.
4. Discuss and compare various approaches with other techniques in data mining and data warehousing. Familiar with mathematical foundations of Data mining tools

Course Objectives:

1. Be familiar with mathematical foundations of data mining tools
2. Understand and implement the classical models and algorithms in Data Mining.
3. Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.
4. Master data mining techniques in various application like social, scientific and environmental context.
5. Develop the skill in selecting the appropriate data mining algorithm for solving practical problems.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	<ul style="list-style-type: none">➤ Understand the functionality of various data mining components.➤ Appreciate the strengths and limitations of various data mining models.
CO2	<ul style="list-style-type: none">➤ Explain the analyzing techniques of various data.
CO3	<ul style="list-style-type: none">➤ Describe the different methodologies used in data mining and data warehousing.
CO4	<ul style="list-style-type: none">➤ Compare the different approaches data mining with various technologies.
CO5	<ul style="list-style-type: none">➤ Understand the Online Analytical Processing and information privacy

UNIT-1

Introduction- Data Understanding and Data
Preparation(Refer the Chapter-1, 2)

UNIT-2

Association Rules Mining- Classification
(Refer the Chapter- 3, 4)

UNIT-3

Cluster Analysis – Web Data
Mining(Refer the Chapter- 5, 6)

UNIT-4

Search Engine and Query Mining- Data Warehousing(Refer the Chapter- 7, 8)

UNIT-5

OLAP (Online Analytical Processing)-Information Privacy and Data MiningRefer the Chapter- 9, 10)

Note: For all the five units, exclude the Case Studies

Text Book:

1. Introduction to Data Mining with Case Studies, by G.K.Gupta, Eastern Economy Edition.

Books for Reference:

1. Data Mining Concepts and Techniques, by Jiawei Han and MichelineKamber, Morgan Kaufmann Publishers.

2. Introduction to Data Mining, by Pang Ning Tan,Vipin Kumar, MichaelSteinbanch, Pearson Educations.

3. Introduction to Data Mining Techniques, by Arun K.Pujari, UniversityPress.

4. Data Warehousing Fundamentals, by Paulraj Ponnaiah, Willey Student Edition.

5. The Data Warehouse Life Cycle Toolkit, by Ralph Kimball, Willey Student Edition

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III	Subject		Semester	V
	Year	Code:	U18SCA601	:	I

Part 3 Title: **Big Data Analytics**

Credits: 2 Max. Marks. 75

Course Objectives:

1. To provide an overview of an exciting growing field of Big Data Analytics.
2. To introduce the tools required to manage and analyze big data like Hadoop, NoSql MapReduce.
3. To teach the fundamental techniques and principles of achieving big data analytics with scalability and streaming capability.
4. To enable students to have skills that will help them to solve complex realworld problems in for decision support.

On the completion of the course, Students will be able to:

#	Course Outcome(s)
CO1	➤ Understand the key issues in big data management and its associated applications in intelligent business and scientific computing.
CO2	➤ Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce etc in Big Data Analytics.
CO3	➤ Interpret business models and scientific computing paradigms and apply software tools.

CO4	➤ Achieve adequate perspectives of Big Data Analytics in various Applications like recommender system, Social Media Applications and etc.
CO5	➤ Understand the Machine Learning for Big Data in Health Care Applications and Deep Reinforcement Learning.

UNIT-1

Big Data, Clouds and Internet of things: Enabling technologies for Big Data computing- Data Science and Related Disciplines – Emerging Technologies in the Next Decade – Interactive SMART Technologies – Social Media, Mobile Networks and cloud Computing – Social networks and web Service sites – mobile cellular core Networks – Mobile Devices and internet Edge Networks – Mobile cloud computing infrastructure – Big data Acquisition and Analytics Evolution data analytics over the clouds – Machine intelligence and Big Data Applications - Data Mining and Machine Learning – cognitive computing

Smart clouds, Virtualization and Mashup Services – cloud computing models and services – cloud taxonomy based on services provided – layered Development cloud service platforms – cloud Models for big Data storage and processing – cloud resources for supporting Big Data Analytics – creation of Virtual Machines and Docker Containers – Virtualization of Machine Resources Hypervisors and virtual Machines – Docker Engine and application containers deployment opportunity of VMs/containers – cloud architectures and resource Management – cloud Platform Architectures – VM Management and Disaster Recovery – open stack for constructing Private clouds – container Scheduling and orchestration – VM Ware Packages for building Hybrid clouds – case Studies of IaaS, PaaS and SaaS clouds – AWS Cloud Service offerings – Platform as a Service Clouds – Google App Engine – application SaaS

cloud – the sales force clouds – mobile clouds and inter – cloud Mashup services – Multi – cloud Mashup services – skyline discovery of Mashup services –Dynamic Composition of Mashup services [Refer the Chapter- 1,2]

UNIT-2

IOT SENSING, MOBILE AND COGNITIVE SYSTEM

Sensing technologies for internet of Things – enabling technologies and evolution of IoT – introducing RFID and Sensor Technologies – IoT Architectural and Wireless Support – IoT interactions with GPS, clouds and Smart Machines –local versus Global Positioning Technologies – Standalone versus cloud- centric IoT Applications – IoT interaction Frameworks with Environments – Radio Frequency identification (RFID) – RFID Technology and Tagging Devices – RFID System Architecture – IoT Support of Supply Chain Management – Sensor, Wireless Sensor Networks and Body Area Networks – Global Positioning Systems – cognitive Computing technologies and prototype system -Cognitive Science and Neuro informatics – Brain – Inspired computing chips and systems – Google’s brain Team Projects – IoT contexts for cognitive Services – Augmented and Virtual Reality Applications

SUPERVISED MACHINE LEARNING ALGORITHMS

Taxonomy of Machine Learning Algorithms – Machine learning Based on learning styles- machine learning Based on similarity testing – supervised machine learning styles – supervised machine learning algorithms – unsupervised machine learning algorithms – regression Methods for machine learning – basic concept of regression analysis – linear regression for prediction and forecast – logistic regression for classification – supervised classification methods – rule – based classification – the nearest neighbor classifier – support vector machines – Bayesian network and ensemble methods – Bayesian

classifiers – Bayesian belief networks – random forests and ensemble methods
[Refer the Chapter- 3, 4]

UNIT-3

UNSUPERVISED MACHINE LEARNING ALGORITHMS

Introduction and Association Analysis – introduction to Unsupervised Machine Learning – Association Analysis and A Priori Principle -

Association Analysis Rule Generation – clustering Methods without labels – cluster Analysis for prediction and forecasting – k means clustering for classification – agglomerative hierarchical – clustering – Density based clustering – Dimensionality Reduction and other Algorithms – Dimensionality Reduction Methods – Principal component Analysis (PCA) – Semi – Supervised Machine Learning Methods – how to choose machine Learning algorithms – performance Metrics and Model fitting – Methods to Reduce model over – fitting – methods to avoid model under fitting – effect of using different loss Functions
[Refer the Chapter: 5]

UNIT-4

DEEP LEARNING WITH ARTIFICIAL NEURAL NETWORKS

Introduction Deep Learning Mimics Human Senses – Biological Neurons Versus Artificial Neurons – Deep Learning Versus shallow learning – Artificial neural networks (ANN) – single layer artificial neural network- forward propagation and back propagation in ANN – stacked auto encoder and deep belief network – auto encoder – stacked auto encoder – restricted Boltzmann machine – deep belief networks -convolution on CNN – deep convolution neural networks – other deep learning networks . [Refer the Chapter- 6]

UNIT-5

MACHINE LEARNING FOR BIG DATA IN HEALTHCARE APPLICATIONS

Healthcare problems and machine learning tools – healthcare and chronic disease Detection problem – software libraries for Machine learning applications

– IoT based healthcare systems and Applications – IoT Sensing for Body Signals
– healthcare monitoring systems – physical exercise promotion and smart clothing – healthcare Robotics and mobile health cloud – big Data Analytics for healthcare applications – healthcare big Data preprocessing – predictive Analytics for disease Detection - performance analysis of five disease Detection methods – mobile big Data for disease control – emotion – control healthcare applications – mental healthcare system – emotion interaction through IoT and clouds – Emotion – control via Robotics Technologies –A 5G Cloud – Centric Healthcare system

Deep Reinforcement learning and social Media Analytics Deep learning system and social Media Industry – Deep Learning Systems and software support – reinforcement learning Principles – social media industry and global impact – text and image recognition using ANN and CNN – numeral recognition using Tensor flow for ANN – numeral recognition using convolutional neural networks – medical text analytics by convolution neural networks – deep mind with deep reinforcement learning – Google DeepMind AI programs – Google AlphaGo Game competition – flappybird game using reinforcement learning – big data requirements in social – media applications – social networks and graph analytics – predictive analytics software tools – community detection in social networks.

[Refer the Chapter-7,8]

Text Book:

2. Big – Data Analytics for Cloud, IoT and Cognitive Computing, by KaiHwang and Min Chen, Wiley Publications.

Books for Reference:

1. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizingand Presenting Data, by EMC Education Services.
2. Big Data , The Essential Guide to Work, life and Learning in the age of Insight, by Viktor Mayer-Schonberger and Kenneth Cukier, John MurrayPublishers.
3. Too BIG to IGNORE, The Business Case for Big Data, by Phil Simon, Wiley Publications.
4. Predictive Analytics: The Power to predict who will Click Buy, Lie or Die,by Eric Siegel, Wiley Publications.
5. Big Data Analytics, by Venkat Ankam, Packt Publications.

C. ABDUL HAKEEM COLLEGE (AUTONOMOUS), MELVISHARAM

Syllabus for B.Sc. Computer Science effective from the year 2018-2019

Year:	III Year	Subject Code: U18CEA601	Semester: V
Part 3	Title:	Extension Activities	
Credits:	5		Max. Marks. 75

Semester-6

Extension Activities

Code: U18CEA601

Marks: 100