Sri Ramakrishna College of Arts and Science
(Autonomous)

(Formerly S.N.R. Sons College)
(Affiliated to Bharathiar University)
(Re-Accredited with 'A' Grade by NAAC)
(An ISO 9001:2008 Certified Institution)
Nava India, Coimbatore-641 006, Tamil Nadu, India.

"Scheme of Examination along with Distribution of Marks and Credits"

CBCS & OBE PATTERN
UNDER GRADUATE PROGRAMMES

BSc Computer Science

(For the students admitted during the academic year 2018-2019 and onwards)

Part	Study Components and Course Title	CIA	Comprehensive Exam		Comprehensive Exam Total	Total	Credit
			Online	Descriptive Theory			
Semester – I							
I	Language-I: 18T01 Tamil – I / 18H01 Hindi – I / 18F01 French – I / 18M01 Malayalam – I /18A01 Arabic - I	30	-	70	70	100	3
II	18E01 English-I	30	-	70	70	100	3
III	18CSC01 CORE I – Digital Fundamentals	30	20	50	70	100	4
III	18ITC01 CORE II – Programming in C	30	20	50	70	100	4
III	18CSC02 CORE III Practical – 1: Office Automation and Multimedia using Photoshop	30	-	70	70	100	3
III	18ITC02 CORE IV Practical – 2: Programming in C Lab	30	-	70	70	100	3
III	18CS101 ALLIED I Mathematics I: Numerical and Statistical Methods	30	20	50	70	100	4
IV	18VE01 Value Education #	100			-	100**	1#
IV	18CPE01 PACE – I @	-			100	100**	1@
IV	18CSJC1 JOC – I $	-					1$

Semester –II							
I	Language II: 18T02 Tamil – II / 18H02 Hindi – II/ 18F02 French – II/ 18M02 Malayalam – II /18A02 Arabic -II	30	-	70	70	100	3
II	18E02 English-II	30	-	70	70	100	3
III	18CACP01 CORE V – Object Oriented Programming With C++ & Lab	50	-	50	50	100	5
III	18CAC01 CORE VI – Data Structures	30	20	50	70	100	4
III	18CSC07 CORE VII - Computer Organization and Architecture	30	20	50	70	100	4
III	18CAC02 CORE VIII - Practical – 3: Data structures Lab using C	30	-	70	70	100	3
III	18CA201 ALLIED II Mathematics-II- Discrete Mathematics	30	20	50	70	100	4
IV	18ES01 Environmental Studies #	100			-	100**	1#
IV	18CPE02 PACE – II @	-			100	100**	1@
IV	18CSJC2 JOC – II$	-					1$
Semester III ~							
III	18CSC03 CORE IX - Java Programming	30	20	50	70	100	4
III	18CSC04 CORE X Practical – 4 : Java Programming Lab	30	-	-	70	100	3
III	18ITC03 CORE XI - Computer Networks	30	20	50	70	100	4
III	18ITC04 CORE XII Practical – 5: RDBMS Lab	15	-	-	35	50	2
III	OPEN ELECTIVE – I	30	20	50	70	100	3
III	18MATC05 ALLIED III: Operations Research	30	20	50	70	100	4
III	18ITC05 Skill Based Course – I: RDBMS	30	20	50	70	100	3
IV	18BT01 Basic Tamil I / 18AT01 Advanced Tamil I$$	100	-	-	-	100**	1$
IV	18CPE03 PACE – III @	-	-	-	100	100**	1@
IV	18CSJC3 JOC – III$	-	-	-	-	-	1$

Semester IV							
III	18CAC03 CORE XIII – Cloud Computing	30	20	50	70	100	4
III	18CAC04 CORE XIV Practical – 6: Software Testing Lab	30	-	-	70	100	3
III	18ITC07 CORE XV Practical – 7: Web Technology Lab	15	-	-	35	50	2
III	Elective I	30	20	50	70	100	4
III	18COC01 ALLIED IV: Business Accounting	30	20	50	70	100	4
III	18ITC08 Skill Based Course – II: Web Technology	30	20	50	70	100	3
IV	18BT02 Basic Tamil II /18AT02 Advanced Tamil II #	100	-	-	-	100**	1$
IV	18CPE04 PACE – IV @	-	-	-	100	100**	2@
IV	18CSJC4 JOC – IV$	-	-	-	-	-	1$
Semester V							
III	18CAC05 CORE XVI - Operating System	30	20	50	70	100	4
III	18CAC06 CORE XVII Practical – 8: Operating System Lab	30	-	-	70	100	3
III	18CSC06 CORE XVIII Practical – 9: Python Programming lab	15	-	-	35	50	2
III	OPEN ELECTIVE – II	30	20	50	70	100	3
III	18CS501 CORE XIX: Project Work and VivaVoce	80	-	-	20	100	6
III	18CSC05Skill Based Course III: Python Programming	30	20	50	70	100	3
IV	18CST01 Industrial Training	-	-	-	-	-	1$
IV	18CPE05 PACE – V @	-	-	-	100	100**	2@
IV	18CSJC5 JOC – V$	-	-	-	-	-	1$
Semester VI							
III	18CAC07 CORE XX – PHP Programming	30	20	50	70	100	4
III	18CAC08 CORE XXI Practical - 10: PHP Programming Lab	30	-	-	70	100	3

III	181TC09 CORE XXII Practical – 11: Mobile Application Development Lab	15	-	-	35	50	2
III	Elective II	30	20	50	70	100	4
III	18ITC10 Skill Based Course – IV : Mobile Application Development	30	20	50	70	100	3
V	Extension Activities 18NS01NSS/18NC01 NCC/18SP01 SPORTS /18YR01 / YRC/18SI01 SIS/18YHO1 Yoga for Human Excellence / 18SB01 Swachh Bharat Abhiyan #	100	-	-	-	100**	1

$ Extra credit courses for the candidates who opted other languages in Part – I , JOC, add on course and training.

No Comprehensive Examinations. Only Continuous Internal Assessment (CIA)

@ No Continuous Internal Assessment (CIA). Only Comprehensive Examinations.

** Marks will not be included in CGPA calculations.

& Add on course maximum of 2 credit one credit for each course

~ Any one core course will be replaced with Swayam Course, Subject to availability.

List of Elective papers (Can choose any one of the paper as electives)		
Elective – I	A	18ITC06 Software Engineering
	B	18CSE01 Software Project Management
	C	18CSE02 Artificial Intelligence & Expert System
Elective – II	A	18CSE03 Client Server Technology
	B	18CSE04 Data Mining & Warehousing
	C	18CSE05 Cyber Security and Robotics

List of Open Elective papers offered by the dept.	
Open Elective – I	18CSI01 Fundamentals and Current Trends of Information Technology
Open Elective – II	18CSI02 Internet of Things

Summary												
Part	**Subject**	**Papers**		**Credit**		**Total credits**	**Papers**			**marks**	**Total marks**
Part I	Languages	2		3		6	2			100	200
Part II	English	2		3		6	2			100	200
Part III	Core	22	1	6	6	92	18	100	1800	2000	2400
			1	5	5						
			9	4	36	76					
			7	3	21						
			4	2	8		4	50	200		
	Allied	4		4		16	4	100	400	400	
	OPEN ELECTIVES	2		3		6	2			100	200
	Electives	2		4		8	2			100	200
	Skill Based	4		3		12	4			100	400
											3600
Part IV	Lang.	2		1		2$	2			100	200**
	PACE	3		1		3@	5			100	500**
		2		2		4@					
	EVS & VE	2		1		2#	2			100	200**
	JOC	5		1		5$	-			-	-
	Add on credit course	2		1		2$	2			-	-
	Industrial Training	1		1		1$	-			-	-
Part V	@ Extension	1		1		1	1			100	100**
	Total					140					

$ - Extra credit courses
**-NOT INCLUDED IN TOTAL MARKS
Note : Total credits may vary between 140 – 145

Syllabus Coordinator
Dr. Manikandaprabhu P
Assistant Professor

BOS-Chairman
Dr. Maria Priscilla G
BOS in Computer Science
Sri Ramakrishna College of Arts & Science
(formerly SNR Sons College)
Coimbatore-641006

18ITC01 - PROGRAMMING in C

(Common to Computer Science / Information Technology / Computer Application)

AIM: To enable students to have an insight on programming

OBJECTIVES

- To learn strategies to solve a problem using computer
- To enable students to learn about the basic features of C Programming Language
- To learn the various decision making and looping statements
- To learn how to program using arrays and functions
- To learn about structures and pointers
- To learn file management in C

Semester	I
Credit	**4**
Paper Type	**Core**
Max. Marks	**CIA – 30 + CE - 70**

PREREQUISITE: Basic awareness on computer and mathematics

UNIT – I **11**

Introduction: Computer Algorithms – Developing Algorithms - Flowcharts
Overview of C: History – Importance —Sample programs- Structure of a C Program
Constants, Variables and Data Types: Character set - C Tokens – Constants , Variables and Data Types.
Operators and Expressions: Arithmetic Operator – Relational Operator – Logical Operator – Assignment Operator – Increment and Decrement Operator – Conditional Operator – Bitwise Operator – Special Operator – Arithmetic Expressions - Evaluation of Expressions – Precedence of Arithmetic Operators.

UNIT – II **11**

Managing Input and Output Operations: Reading and Writing a Character – Formatted input and Output.
Decision making and Branching: Decision Making with IF – Simple IF – The IF…ELSE Statement – Nesting of IF….ELSE Statements – ELSE IF Ladder – Switch Statement - ?: Statement – GOTO Statement
Decision Making and looping: While Statement – DO Statement – FOR Statement

UNIT – III **11**

Arrays: Introduction – Declaring and Initializing One Dimensional Array – Declaring and Initializing of Two Dimensional Arrays – Multidimensional Arrays.
Character Arrays and Strings: Declaring and Initializing String Variable – Reading Strings from Terminals – Writing String to Screen – Arithmetic Operation on Characters – Putting Strings together – Comparison of two Strings – String Handling Functions.

UNIT – IV **11**

User Defined functions: Elements of User Defined Function – Definition of Function – Return Values and Types – Function Call and Declaration - Category of Functions – Recursion – Scope and lifetime of variables in functions.
Structures: Definition of Structure – Declaring Structure Variable – Accessing Structure Member – Structure Initializing – Copying and Comparing Structure Variable – Operation on individual Member – Arrays of Structure – Arrays within Structure - Structure within Structure – Structures and Function.

UNIT – V **11**

Pointers: Understanding Pointers – Accessing the Address of the Variable – Declaring and initializing pointer variable – Accessing Pointer Variable – Pointers and arrays – Pointers and Functions – Pointers and structures - Pointers and Character strings
File Management in C: Defining and Opening the File – Closing a File – I/O, Operation on File.

Total Periods: 55 Hrs.

COURSE OUTCOME

Upon the successful completion of the course the student should be able to:

- Explain the basics of programs and programming
- Select appropriate data types and control structures for solving a given problem.
- Illustrate the representation of arrays, strings and usage of string operations.
- Create functions and use structures in programming
- Knowledge of pointers and dynamic memory allocation.
- Explain the basics of file handling mechanism.

TEXT BOOK:

1.V. Rajaraman, "Computer Programming in C", PHI,2009

2. E. Balagurusamy , " Programming in ANSI C ", 4th Ed., Tata McGraw - Hill Publications ,2017.

Unit I: Text 1: Ch-1,2 Text 2:Ch-1,2,3 Unit II: Text 2:Ch-4,5,6 Unit III: Text 2:Ch-7,8
Unit IV: Text 2:Ch-9,10 Unit III: Text 2:Ch-11,12

REFERENCE BOOKS :

1. Yashavant Kanetkar, "Let us C",3rd Ed., BPB Publications, 2013.
2. Gottfried ,"Programming with C", 2nd Ed.,TMH Publications

Prepared by **Approved by**

18ITC02 -Programming in C Lab
(Common to Computer Science / Information Technology / Computer Applications)

Aim: To develop the programming skills in C.

Semester	**1**
Credit	**3**
Paper Type	**Core Practical**
Max Marks:	**CIA – 30 + CE - 70**

COURSE OBJECTIVES
- To be familiar with programming in C Language
- To understand various programs using decision making and looping statements
- To understand simple programs using arrays and functions
- To understand simple programs in structures, pointers and file management

PREREQUISITE: Familiar with basic mathematical knowledge.

1.Implement various Operators

2. Illustrate the concept to manage various formatted input output operations in C

3.Implement Decision making and Branching statements

4. Implement Looping statements

5. Illustrate the concept of Arrays

6.Implement Character arrays and Strings

7.Implement User defined function

8. Implement Structures and Union

9. Implement Pointers

10. Illustrate the concept of files

Total Periods: 33 Hrs.

COURSE OUTCOME

Upon successful completion of the course students will have

- An understanding of basic programming concepts
- An ability to write simple C programs using control structures, arrays and functions
- An ability to implement simple programs using pointers and file concepts.

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18CSC01 - DIGITAL FUNDAMENTALS

(Common to Computer Science / Information Technology / Computer Applications)

Semester	I
Credit	4
Max. Marks	CIA - 30 CE - 70 TOT =100

COURSE OBJECTIVES

- To develop a strong foundation in number systems and Boolean functions.
- To analysis and design of Logic gates, combinational circuits and sequential circuits
- To acquire the basic concepts of A/D Conversion and D/A conversions.

UNIT – 1 INTRODUCTION TO NUMBER SYSTEMS **12**

Digital Vs Analog signals - Number Systems: Binary – Octal – Decimal – Hexadecimal – Conversions of Number systems – Arithmetic operation: Binary addition – Binary subtraction – Binary multiplication – Binary Division – 1's and 2's Compliments addition – subtraction.

UNIT – II CODES AND LOGIC GATES **12**

Introduction to codes – Weighted codes – Non weighted codes – Binary codes – BCD codes – Excess 3 codes – Parity codes – Grey Codes – ASCII codes – Introduction to Logic Gates – Truth Tables – Universal Gates.

UNIT – III BOOLEAN ALGEBRA AND COMBINATIONAL CIRCUITS **12**

Introduction: logic operations – Boolean Algebraic Laws – Reducing Boolean expression – Karnaugh Map representation – Combinational circuits design procedures – Adders – Subtractor – Decoders – Encoders – Multiplexers – Demultiplexer.

UNIT – IV SEQUENTIAL CIRCUITS AND REGISTERS **12**

Introduction and classification **–** Latches **–** Flip Flops: RS Flip Flop **–** JK Flip Flop **–** D Flip Flop **–** T Flip Flops **–** Registers: Shift Registers – Serial in Serial out – Serial in Parallel out – Parallel in Serial out **–** Parallel in Parallel out registers.

UNIT – V COUNTERS AND CONVERTERS **12**

Introduction – Asynchronous counter – Synchronous counter – Ring counter – Mod 10 counter – Converters: Digital to Analog converter – R _2R ladder type – Weighted Resistor type – Analog to digital converter: Counter type – Dual slope – Successive Approximation.

Total Periods: 60

COURSE OUTCOME

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

- ❖ Differentiate Digital and Analog Signals
- ❖ Convert one number systems to the other number system.
- ❖ Define logic gates and also they can describe about various codes.
- ❖ Represent Boolean expression in Karnaugh map and simplify the expressions.
- ❖ Describe the fundamental concepts of sequential circuits.
- ❖ Convert analog signal to digital value and vice versa.

TEXT BOOKS

1. A. Anandkumar," Fundamentals of Digital Circuits", PHI, New Delhi, 4th Edition, 2016.(Unit I – V)
Unit I – chapter 2, Unit II – chapter 3,4, Unit III – 5,6,7, Unit IV – 10,11, Unit V – 12,17

REFERENCE BOOKS

1. M.Morris Mano, "Digital Logic Computer Design", Pearson Education, 5th Edition, 2013.
2. Donald P Leach, Albert Paul Malvino, Goutam Saha, "Digital Principles and Applications", Tata McGraw-Hill, 7th Edition, 2011.
3. V.Rajaraman, "Fundamentals of Computer", PHI, New Delhi, 3rd Edition, 2002.

Prepared By

PRASANNA KUMAR

Approved by

G. MARIA PRISCILLA

18CSC02 OFFICE AUTOMATION AND MULTIMEDIA USING PHOTOSHOP
(Common to Computer Science / Information Technology / Computer Application)

Semester	I
Credit	3
Paper type	Core
Max. Marks	CIA - 30 + CE - 70 TOT =100

COURSE OBJECTIVES

- To develop a strong foundation in the field of office automation.
- A student should grasp the basic concepts of Ms-Word, Ms-Excel, PowerPoint and Ms-Access to understand the key skills of Desktop publishing.
- To design a poster of their own

MS – WORD

1. Preparing a news letter: To prepare a newsletter with borders, two columns text, header and footer and inserting a graphic image and page layout.
2. Illustrate the mail merge concept to at least five companies with your cv.

MS – POWER POINT

3. Prepare an organization Chart for a college environment in PowerPoint and advertise it.
4. Prepare a power point presentation for a conference/seminar with all animation effects

MS – EXCEL

5. Worksheet preparation for electricity bill preparation with conditions on unit changes.
6. Draw graphs to illustrate class performance with their marks and grade.

MS- ACCESS

7. Perform sorting on name, place and pin code of student's database and list them in the sorted order. Using queries retrieve specific information.
8. Prepare form and Report using student database.

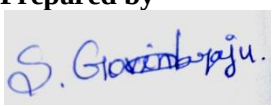
Multimedia using Photoshop

9. Design an invitation for a family function.
10. Design a poster for an intercollegiate program of your college.

Course Outcome **Total Period : 33 Hours**

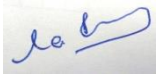
- To identify various applications in Ms-Word, Excel & Access
- To make presentations using Ms-Power point and presenting in software industries.
- To analyze various ways of handling table, forms and reports using Ms-Access.
- To design posters and invitations

Prepared by



S.GOVINDARAJU

Approved by



Dr G MARIA PRISCILLA

PERSONALITY, APTITUDE AND CAREER ENHANCEMENT (PACE – I)

Subject Code: 18CPE01

Common to all the UG streams admitted from AY 2017-18

AIM:

Identifying individual students levels of communication and employability skills through assessments. Imparting the importance of soft skills and career planning for achieving goals, intra-personal skills through motivation and perception. Developing inter-personal skills, teamwork skills and emotional intelligence. Enhancing English language vocabulary and spoken communication skills.

Semester	I
Credit	1
Paper type	Skill based
Max. Marks	Online test : 50 + Viva-Voce : 50 = 100

Course Objectives

To enable students to,

- To identify individual levels of communication and employability skills through assessments.
- To impart the importance of soft skills and career planning for achieving goals.
- To give an account of the importance of intra-personal skills through motivation and perception.
- To enhance the usage of Grammar units like Nouns, Verbs, Tenses, Simple, Compound and Complex Sentences, Active & Passive Voice, Phrases, Synonyms, Antonyms, and Homonyms.
- To enhance English vocabulary and spoken communication skills.

Unit I Assessment of individual levels of communication skills, aptitude and employability skills; Psychometric test, SWOT analysis; Planning on setting goals.

Unit II Introduction to Career planning; Goal setting – Introduction to Soft Skills - Presentation skills - Intra-personal skills.

Unit III Emotional intelligence - Perception and Motivation.-Interpersonal Skills; Team work, styles in leadership.

Unit IV Enhancement of Basic English vocabulary; Parts of Speech, Nouns, Verbs, Tenses, Simple, Compound and Complex Sentences, Active and Passive Voice, Phrases, Synonyms, Antonyms, and Homonyms Descriptive words - Combining sentences, Sentence Formation and Completion.

Unit V Art of communication – the communication process - Word building and Role play; Exercise on English Language through symposiums and workshops.

Instruction Hours per Week: 40

Course Outcomes

On the successful completion of the PACE – I course the student would be able to…

- Identify their individual level of communication, aptitude and employability skills to understand their competency level.
- Plan their career and set their goals.
- Prove their presentation skills and also intra and interpersonal skills.
- Communicate well with improved sentence making skill and vocabulary.

References:

1) A Modern Approach to Verbal and Nonverbal Reasoning by Dr. R. S. Aggarwal
2) A Modern A Modern Approach to Verbal by Dr. R. S. Aggarwal
3) A Modern Approach to Nonverbal Reasoning by Dr. R. S. Aggarwal
4) A Practical Course in Spoken English by J.K.Gangal
5) Effective English Communication for you by V.Shamala
6) Developing Communication Skills by Krishna Mohan & Meera Banerji
7) English for Competitive Exams by Bhatnagar

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Coimbatore – 641006

VALUE EDUCATION

[A one Credit Course offered during Even Semester with effect from 2018-2019 Academic year and onwards]

Syllabus :: Batch 2018-19

(Common to all UG courses)

Semester	
Credit	1
Max. Marks	CIA – 100 TOT =100

COURSE OBJECTIVE:

- To orient about the society, social life, integrity in personal and public
- To learn the concepts of human values and respect for others
- To provide in-depth understanding about moral awareness
- To inculcate a sense of socially responsible citizens.

UNIT - I VALUE EDUCATION & HUMAN EDUCATION 3

Value Education - Definition - relevance to present day - Concept of Human Values - Self Introspection - Self Esteem

UNIT – II SOCIETY & FAMILY VALUES 3

Structure and components of Society, Marriage and Family System – Anger Neutralization, Adjustability - Threats of family life.

UNIT - III ETHICS & LEADERSHIP QUALITIES 3

Ethical values: Ethics, Social Ethics, Public Policy - Leadership qualities: Integrity, Character, Courage - Personality development. Inter-culture Tolerance

UNIT - IV SOCIAL VALUES 3

Social Values, Faith, Service, Commitment and Decency - Fundamental Rights and Responsibilities of citizens

UNIT - V SOCIAL PROBLEMS AND ROLE OF STUDENTS 3

Social Problems: Definition - Poverty, Illiteracy, Unemployment, Exploitation, Obscenity, Immorality - Crimes and Online Crimes - Student unrest, Ragging and Peaceful Campus - Role of Students in tackling social problems

COURSE OUTCOME: Total Periods : 15

- Develop a sense of self respect and respect for others
- Able to occupy one's own social space and help others live peacefully
- Develop scientific temper and logical reasoning and to apply in day to day life

REFERENCE BOOKS

1. Mani Jacob (Ed). 'Resource Book for Value Education', Institute for Value Education, New Delhi. 2002.
2. NCERT. "Value Education". Dharma Bharti National Institute of Peace and Value Education, Secunderabad, 2002.
3. Daniel and Selvamony. "Value Education Today - Madras Christian College, Tambaram and ALACHE, New Delhi, 1990.
4. Ignacimuthu S. "Values for Life". Better Yourself Books, Mumbai, 1991.
5. M.M.M.Mascaronhas. Centre for Research Education Science and Training for Family Life Promotion - Family Life Education, Bangalore, 1993.

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Coimbatore – 641006

VALUE EDUCATION

[A one Credit Course offered during Even Semester
with effect from 2018-2019 Academic year and onwards]

SCHEME OF EXAMINATION

(Continuous Internal Assessment :: April - 2019)

1. Value Education paper is a ONE CREDIT course.
2. The course will have only one Internal Examination (Model Examinations for 3 hours) at the end of the semester.
3. The examination pattern is descriptive type written examination.
4. The course carries a total marks of 100 out of which 80 marks will be allocated for written examination and 20 marks will be earmarked for activity.
5. The Passing minimum is 40 marks out of 100 marks.
6. The assessment will consist of two parts, as detailed below:

SN	Nature	Maximum Marks	Remarks
1.	Descriptive Examination	80 Marks (Section A: 10X4 = 40) (Section B: 5 X 8 - 40)	• Centralised Examination • For 3 Hours Duration • Descriptive type questions • Model Examination only
2.	Activity	20 Marks	Activity (Paper presentation / Quiz/Panel Discussion / Participation in seminar/workshop /Assignment / Seminar/ Model Design) Individual Report to be submitted to the Value Education Teacher
	Total	**100 Marks**	

Course Coordinator **Member Secretary**
Academic Council **Principal**

02.05.2018

Sri Ramakrishna College of Arts and Science (Autonomous)

Coimbatore – 641006

VALUE EDUCATION

[A one Credit Course offered during Even Semester
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SN	Unit	Proposed Activities	References
1.	**Unit – I** Value Education & Human Education	• Assignments • Participation in seminar/workshop	https://www.slideshare.net/hitesh0141/human-values-57703636 https://www.slideshare.net/vinay3711/human-values-professional-ethics
2.	**Unit – II** Society & Family Values	• Assignment / Seminar • Participation in seminar/workshop	https://www.slideshare.net/khimberlybalbuena/society-and-culture-ppt https://www.slideshare.net/arunab/society-and-culture-14735577
3.	**Unit – III** Ethics & Leadership Qualities	• Participation in seminar/workshop • Paper presentation	https://www.slideshare.net/komalsuryavanshi/leadership-qualities-8798588?qid=bde3fb0b-eaba-4d71-8031-69ba121eebd8&v=&b=&from_search=1
4.	**Unit – IV** Social Values	• Quiz • Field Visit / Observation	https://www.slideshare.net/ParminderSingh320/our-social-values?qid=72be767e-11fc-4fed-ac3f-7d7525bf0fec&v=&b=&from_search=1
5.	**Unit – V** Social Problems and Role of Students	• Panel Discussion • Assignment / Seminar	https://www.slideshare.net/gowthamchandrasekar2/social-ills-that-ail-the-indian-society?qid=d37ea10f-9148-427a-b619-6b29293d9120&v=&b=&from_search=4

02.05.2018

Course Coordinator
Dr.R.Thirumoorthi
Prof. & Head – Social Work
Sri Ramakrishna College of
Arts and Science (Autonomous)

18CSC07 COMPUTER ORGANIZATION AND ARCHITECTURE

(Common to Computer Science / Information Technology / Computer Applications)

Semester	I
Credit	4
Paper Type	Core Theory
Max. Marks	CIA -30 CE -70 TOT =100

COURSE OBJECTIVES:

- To understand how computers are constructed out of a set of functional units how the functional units operate, interact, and communicate
- To understand the concrete representation of data at the machine level and computations are performed at the machine level
- To know the fundamentals of computer organization and relate these basics to the contemporary design issues
- To provide the students a thorough understanding of the inner workings of a computer system, and the various hardware and software issues related to computers.

UNIT I **12**

Central processing unit – General register organization – Stack organization – Instruction formats – Addressing modes – Data Transfer and manipulation-Program control - RISC.

UNIT II **12**

Pipeline & vector processing: Parallel processing-Pipelining – Arithmetic pipeline – Instruction pipeline – RISC pipeline – Vector processing – Array processors.

UNIT III **12**

Computer arithmetic addition & subtraction – Multiplication algorithm – Division algorithm – Floating point Arithmetic operation.

UNIT IV **12**

Input-Output organization: Input-Output interface- Asynchronous data transfer (Strobe and Handshaking)-Modes of transfer- priority interrupt- Direct memory access – Input-Output processor.

UNIT V **12**

Memory Organization: Memory hierarchy – main memory –Auxiliary Memory-Associative memory – Cache Memory – Virtual memory.

Total Periods: 60

COURSE OUTCOMES

On completion the students will be able to

- Identify the various components of computer system design
- Compare the strengths and weaknesses of the conventional computational organizations.
- Analyze the functions of ALU for various operations.
- Develop the ability and confidence to handle I/O and memory organization.

TEXT BOOK:

1. M.MORRIS MANO, "Computer System Architecture", 3rd Edn, PHI Pub., 2013.
Unit I – chapter 8, Unit II – chapter 9, Unit III – 10, Unit IV – 11, Unit V – 12

REFERENCE BOOKS :

1. John P Hayes "Computer Architecture & Organization", Tata McGraw Hill Pub., Pvt. Ltd, 3rd Edition – 2004
2. Stephan D Burd, "System Architecture", 3rd Edition – Vikas Pub., 2002.

Prepared By

P.KAVITHA

Approved by

Dr. G. MARIA PRISCILLA

Semester	II
Credit	4
Max. Marks	CIA - 30 CE - 70 TOT =100

18CAC01 - DATA STRUCTURES

(Common to Computer Applications, Computer Science and Information Technology)

COURSE OBJECTIVES

- To inculcate knowledge on basic data structures and importance of data structures in computer programs.
- To distinguish the key difference between various data structures and its application purpose.
- To acquire the knowledge about Various Linked Lists, its Applications and Trees and Graphs.
- To analyze the problem, properties, to develop an algorithm and determine the use of appropriate data structures in different real world applications

UNIT–I

11

Introduction: Definition, Structure and properties of algorithms, Development of an algorithm, Data Structures and Algorithms, Data Structure - Definition and Classification. **Arrays:** Introduction, Array operations, Number of elements in an array, Representations of arrays in memory, applications.

UNIT–II

11

Stacks: Introduction -Stack Operations - Stack implementations- **Applications:** Recursive Programming – Evaluations of Expressions. **Queues:** Introduction – Queue Operations – Queue implementations - Limitations of Linear Queue - **Circular Queues :** Operations on a Circular Queue – Implementations of insertion and deletion in a Circular Queue - Other types of queues Priority Queues - Deque. **Applications** of Linear queue – **Applications** of Priority Queue.

UNIT–III

11

Linked Lists: Drawbacks of sequential data structure – Merits of Linked data structures. **Singly Linked List:-** Representations - Insertion and Deletion in a singly Linked Lists. **Circular Linked lists** : Representations – Advantages of Circular Linked lists Over singly Linked Lists - Disadvantages of Circularly Linked Lists – Primitive Operations on Circular Linked lists. **Doubly linked lists:** Representations – Advantages and Disadvantages of Doubly Linked lists - Operations on Doubly Linked lists. **Applications:** Addition of Polynomials.

UNIT–IV

11

Trees: Introduction, Trees-basic terminologies, Representation of Trees. **Binary Trees:** Basic terminologies and types, representation of Binary Trees, Binary tree Traversals, Threaded Binary Trees, Applications.
Graphs: Introduction, Definition and basic terminologies

UNIT–V

11

File organizations: Introduction, Files, Keys, Basic File Operations. Sequential File Organizations, Indexed Sequential File Organizations, Direct File Organizations. **Searching:** Linear search, Binary search. **Sorting:** Merge sort and Quick sort.

Course Outcome: After the completion of the course, the student will be able to:

- Articulate the knowledge of basic data structures, its classifications and its importance in computer programs.
- Analyze and Implement various operations of different data structures in real world problems.
- Design and implement abstract data types such as linked list, stack, queues and trees to solve the problems.
- Understand and implement fundamental algorithms like searching and sorting in various real time applications.

Total Periods: 55 Hrs

-TEXTBOOKS

1. G A V PAI " Data Structures and Algorithms-Concepts , Techniques and Applications"- TATA McGRAW HILL, 6th Reprint -2011. HTTP://WWW.mhhe,com/pai/dsa.

REFERENCEBOOKS

1. Ellis Horowitz &Sartaj Shani "Data And File Structures"- Galgotia Publication.
2. Jean Paul Tremblay, Paul G. Sorenson "An Introduction to Data Structures With Applications"- Second Edition, Tata Mcgraw Hill.

Prepared By

Dr.S.THAVAMANI
COURSE CO-ORDINATOR

Approved By

Dr.D.HARI PRASAD
BOS CHAIRMAN

18CAC02 - DATA STRUCTURES LAB USING C

(Common to Computer Applications, Computer Science and Information Technology)

Semester	II
Credit	3
Paper type	Core
Max. Marks	CIA -30 CE -70 TOT =100

COURSE OBJECTIVES

- To develop skills to design and analyze simple linear and nonlinear data structures.
- To strengthen the ability to identify and apply the suitable data structure for the given real world problem
- To gain knowledge in practical applications of different data structures.

Write C Programs To Illustrate the Data Structure Concepts

1. Create a C Program to find out maximum and minimum of given numbers using an array.
2. Write a C Program to calculate Factorial of a given number using Recursion.
3. Write a C Program to transpose of a given matrix using Two Dimensional Array.
4. Create a Stack and perform the operations like PUSH, POP and VIEW its elements in C.
5. Create a Queue and perform the operations like INSERT, DELETE & VIEW its elements in C.
6. Write a simple code for linear search in C Programming Language.
7. Write a C Program to search an element in an array using binary search.
8. Sort out the given numbers using Merge Sort Techniques in C Programming Language.
9. Sort out the given numbers using Quick Sort Techniques in C Programming Language.
10. Write a C Program to create a Linked List and Display its Length.

COURSE OUTCOME: After the completion of the course, the students will have

- Ability to implement elementary data structures such as stacks, queues, linked lists, trees and graphs.
- Ability to determine the appropriate data structure to represent real world applications.
- Acquired practical knowledge on the application of data structures.
- To Analyze and develop the program for the real world problems by using appropriate data structure.

Total Periods: 33 Hrs

Prepared By

Dr.S.THAVAMANI
COURSE CO-ORDINATOR

Approved By

Dr.D.HARI PRASAD
BOS CHAIRMAN

18CACP01 - OBJECT ORIENTED PROGRAMMING WITH C++ AND LAB

(Common to Computer Science / Information Technology / Computer Application)

Semester	II
Credit	5
Max. Marks	CIA – 50 CE – 50 TOT -100

COURSE OBJECTIVES

- Understand object oriented programming and advanced C++concepts
  - Be able to explain the difference between object oriented programming and procedural programming.
  - Be able to program using more advanced C++ features such as composition of objects, operator overloads, dynamic memory allocation,inheritance and polymorphism, file I/O, exception handling, etc.
- Be able to build C++ classes using appropriate encapsulation and designprinciples.
- Improve your problem solving skills

UNIT–I 15

Principles of Object-Oriented Programming: Software evolution – Procedure - oriented programming– Object-oriented programming paradigm – Basic concepts of OOPS – Benefits of OOPS – OOPS languages - Application of OOPS.

Beginning with C++: What is C++ - Application of C++- Structure of C++ program–Datatypes– Declaration of variables– dynamic initialization of variables – Reference variables–Operators – Scope resolution operator – Operator Precedence – Control Structures.

Functions in C++: The main () function - Function prototype – Call by Reference – Return by reference - Inline functions - Default arguments – Function overloading

Practical Lab Exercises:

Develop C++ programs for

- Simple array
- Inline Functions
- Function Overloading

UNIT–II 15

Classes and Objects: Specifying Class – Defining member functions – Private member functions–Array with class-Static data members – Static member functions - Array of objects – Objects as function arguments – Returning objects- Constant member functions – Friend functions.

Constructors and Destructors: Constructors - Types of constructors – Multiple constructors in a class Dynamic constructor –Destructors.

Practical Lab Exercises:

Develop C++ programs for

- Objects and Classes
- Array of Objects
- Constructors and Destructors

UNIT–III 15

Operator Overloading and Type Conversion : Defining operator overloading function –Overloading unary operators - Overloading binary operators - Overloading Binary operators with friend functions – Rules for overloadingoperators

Practical Lab Exercises:

Develop C++ programs for

- Overloading Unary Operators
- Overloading Binary Operators Using Friend functions

UNIT–IV 15

Inheritance: Defining derived classes – Types of inheritance – Virtual base classes – Abstract classes– Constructors in derived classes - Nesting of classes.

Pointers, Virtual functions and polymorphism: Pointers to objects – this pointer – pointers to derived classes – virtual functions – pure virtual functions

Practical Lab Exercises:
Develop C++ programs for
- Multilevel Inheritance
- Multiple Inheritance
- Virtual Functions

UNIT–V **15**

Managing Console I/O Operators: C++ streams – Stream classes – Unformatted I/O operations– Formatted console I/O operations, Managing Output with Manipulators
Working with Files: Classes for file stream operations – Opening and Closing a file – Detecting end-of-File– File open modes – File pointers and their manipulators
Templates: class templates and function templates.

Practical Lab Exercises:
Develop C++ programs for
- Console I/O Operations
- File Operations

COURSE OUTCOME

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

CO 1: Distinguish between Structured and Object Oriented problem solving approaches and apply them based on the problem given.
CO 2: Identify classes and objects from the given problem description and able to create classes and objects using C++.
CO 3: Improve secured data processing by applying Abstraction, Encapsulation and Information hiding
CO 4: Achieve code reusability and extensibility by means of Inheritance and Polymorphism.
CO 5: Apply the concepts of files and streamclasses

Total Periods : Theory **45Hrs**
Practical **30 Hrs**

Text Book:

1. BalagurusamyE,Object Oriented Programming with C++, McGraw Hill Education (India) Private Limited, New DelhiSixth Edition-2013.
   UNIT I – Chapter 1 (Except 1.1), Chapter 2 (Only 2.1,2.2, 2,6), Chapter 3 (3.5 – 3.7, 3.10 – 3.14, 3.23, 3.24) Chapter 4 (4.1 -4.7, 4.9)
   UNIT II – Chapter 5 (5.3, 5.4, 5.8, 5.9, 5.11-5.17) Chapter 6 (Except 6.6, 6.9, 6.10)
   UNIT III –Chapter 7(Except 7.6, 7.8)
   UNIT IV –Chapter 8, Chapter 9
   UNIT V – Chapter 10, Chapter 11 (11.1 – 11.6), Chapter 12(12.2, 12.4)

Reference Books:

1. Herbert Schildt, C++ - The Complete Reference, Tata McGraw Hill, 1998.
2. Paul Deitel, Harvey Deitel, C++ How to Program, PHI, 9th edition, 2014.
3. Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++,PearsonEducation, 2006.
4. PoornachandraSarang, Object-Oriented Programming With C++, PHI, 2nd Edition,2009.
5. Alok Kumar Jagadev, Amiya Kumar RathandSatchidanandaDehuriObject-Oriented Programming Using C++, PHI, New Delhi, 2007.

*Evaluation pattern of this course is CIA – 50 and CE – 50. Distribution of CIA for 50 marks is 5 set of experiments, each one carries 10 marks.

Course Coordinator

BOS - Chairman

18CSC03 JAVA PROGRAMMING

(Common to Computer Science / Information Technology / Computer Application)

Semester	III
Credit	4
Paper Type	Core IX
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES:

The students should be able to

- Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.
- Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.
- Understand the principles of inheritance, packages and interfaces.
- Inculculate the knowledge of threading, Japplet and Swing.

UNIT – I 11

Java Evolution: Java history - Java features – How Java differs from C and C++ - Java environment – **Overview of Java Language:** Simple Java Program - Java Program Structure – Java Tokens – Java Virtual Machine – **Constants, Variables and Data Types:** Constants – Variables - Data Types – Scope of Variables – Type Casting – **Operators and Expressions:** Type Conversions in Expressions - Operator Precedence and Associativity. **Decision Making and Branching:** Decision Making with If Statement - **Decision Making and Looping:** while statement - do statement - for statement - Jumps in Loops - Labeled Loops. Arrays – Strings. **Using Java's Documentation Comments:** The javadoc Tags - The General Form of a Documentation Comment - What javadoc Outputs - An Example that Uses Documentation Comments.

UNIT – II 11

Fundamentals of Object Oriented Programming: Basic Concepts of Object Oriented Programming – **Classes, Objects And Methods:** Defining a Class - Fields Declaration - Methods Declaration - Creating Objects - Accessing Class Members – Constructors - Method Overloading - Static Members - Nesting of Methods - Inheritance: Extending a Class - Overriding Methods - Final Variables and Methods - Final Classes - Finalizer Methods - Abstract Methods and Classes - visibility control. **Interfaces:** Defining Interfaces - Extending Interfaces - Implementing Interfaces - Accessing Interface Variables.

UNIT – III 11

Packages: Java API Packages - Using System Packages - Creating Packages - Accessing a Package - Using a Package - Adding a Class to a Package - Hiding Classes - Static Import. **Managing Errors and Exceptions:** Types of Errors - Exceptions - Syntax of Exception Handling Code - Multiple Catch Statements - Using Finally Statement - Throwing our Own Exceptions. **Java Collections**: Overview of Interfaces: The Collection Interface - Overview of Classes: The AbstractCollection Class - The AbstractList Class.

UNIT – IV 11

Multithread programming: Introduction - Creating Threads - Extending the Thread Class-Stopping and Blocking a thread-Life cycle of a Thread - Using thread methods - Thread Exceptions - Thread Priority - Synchronization - Implementing the runnable Interface. **IO Stream:** Stream Classes - Byte Stream Classes - Character Stream Classes.

UNIT – V 11

The Applet Class: Basics – Building applet code – Applet life cycle– Creating an executable applet – Running the applet. **Introducing Swing:** The Origins of Swing - Two Key Swing Features - Components and Containers - The Swing Packages - A Simple Swing Application - Create a Swing Applet - Painting in Swing. **Exploring Swing:** JLabel and ImageIcon - JTextField - The Swing Buttons - JButton - JToggleButton - Check Boxes - Radio Buttons - JTabbedPane - JScrollPane - JList - JComboBox - Trees - JTable.

COURSE OUTCOMES **Total Periods : 55 Hours**

Upon successful completion the students will be able to

- Acquire the knowledge in basic features of Java Programming. L1
- Identify classes and methods for real time problems and apply Java specific concepts of code reusability. L2
- Design a well structured application by applying Packages, Exception Handling and Collection Class. L3
- Apply the concepts of threading and Stream Classes. L2
- Design a web application by using Japplet and Swing. L3

TEXT BOOK

1. E. Balagurusamy, Programming with Java: A Primer, 5th Edition, Tata McGraw Hill Pub.Ltd., New Delhi,2017.
   Unit-1: Chapters 2-7, 9 Unit-2 : 1,8,10 Unit 3: 11,13,17 Unit 4: 12,16 Unit 5: 14,15
2. Herbert Schildt, "Java: The Complete Reference",11th Edition, McGraw Hill Education, 2019.
   Unit 1: Appendix A, Unit 5: Chapter 31,32.

Verified by
Dr.P.Manikandaprabhu

Approved by
Dr.G.Maria Priscilla

18CSC04 JAVA PROGRAMMING LAB

(Common to Computer Science, Information Technology and Computer Application)

Semester	**III**
Credit	**3**
Paper Type	**Core X**
Max. Marks	**CIA:30 + CE :70**

COURSE OBJECTIVES:

The students should be able to

- Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
- Use the Java SDK environment to create, debug and run simple Java programs.
- Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- Convert specific problems to Java Programming.

1. Implement String handling functions.
2. Implement Class mechanism.
3. Implement Method Overriding Concept.
4. Implement the concept of Method Overloading and Constructor Overloading.
5. Implement various forms of Inheritance.
6. Implement the Interface Concept.
7. Implement the Collection Class.
8. Implement the following Exceptions.

   (a) Null Pointer Exception (b) Arithmetic exception (c) I/O exception (d) ArrayIndexOutofBounds exception.
9. Implement the Multithreading concept.
10. Design a web application using JApplet and Swing.

CASE STUDY

- Design and Implement a Payroll System for an Organization/Institution.

COURSE OUTCOMES

Total periods: **33 Hours**

Upon successful completion the students will be able to

- Write Java program in the aspects of designing, coding and implementation. **L2**
- Analyze and design a computer program to solve real world problems based on object-oriented principles. **L3**
- Analyze various concepts and apply them based on the nature of given problem. **L3**
- Design web application using JApplet and Swing. **L3**

Verified by
Dr.P.Manikandaprabhu

Approved by
Dr.G.Maria Priscilla

18ITC03- COMPUTER NETWORKS

(Common to all branches Computer Science/Information Technology/BCA)

Semester	IV
Credit	4
Paper Type	Core
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To understand the Reference model and its layers.
- To know the Data link Layer with the issues arising in Channel Allocation.
- To be aware of the various routing algorithm for transferring data.
- To know about the services of the transport layer.
- To secure data from the opponent while the data is transferred.

UNIT–I **11**

Introduction: Uses of Computer networks - Network hardware - Reference models The Physical Layer: Guided transmission media-Communication satellites – Wireless Transmission-The Mobile Telephone System.

UNIT – II **11**

The Data link layer: Data link layer design issues-Error detection and correction. The medium access Control sub layer: The channel allocation problem- Multiple Access Protocols: Carrier Sense Multiple Access Protocols, Collision free Limited Contention Protocols- Broadband Wireless.

UNIT – III **11**

The Network layer: Network layer design issues – Routing algorithms: The optimality Principle – Shortest path algorithm - Flooding - Distance vector routing – Link State Routing – Hierarchical Routing – Broadcast Routing - Routing for mobile hosts - Congestion Control Algorithm - Approaches – Traffic Aware – Admission Control.

UNIT – IV **11**

The Transport Layer: The Transport Service: Service provided to the upper layer-transport service primitives, Berkeley Sockets-Elements of transport protocols The Internet Transport Protocol UDP - Remote Procedure call.

UNIT – V **11**

The application layer: DNS- the Domain Name System. Network Security: Cryptography – Symmetric key algorithms- Public key Algorithm – RSA – Digital Signatures.

COURSE OUTCOMES

Upon the successful completion of the course the students will be able to

- Identify the services of the layers of the reference model. (L1)
- Deal with the issues when data transferred through channels. (L3)
- Choose the right routing technique. (L2)
- Identify the Protocols that are used from the time of Data transferred till it reaches the destination. (L1)
- Implement various cryptographic algorithms to secure data. (L3)

Total Periods: 55

TEXTBOOK

1. Andrew S TanenBaum&David.J.Wetherall, "Computer Networks", 5th Edition, Pearson Edition Publications 2, 2015

UNIT I - CHAPTERS 1, 2 UNIT II- CHAPTERS 3,4 UNIT III - CHAPTER 5
UNIT IV CHAPTER 6 UNIT V - CHAPTERS 7,8

REFERENCEBOOKS

1. Miller " Data and Communication", Vikas Publication, 2015
2. William A Shay, "Understanding Data Communication and Network" 2nd Edition, Vikas Publication, 2017

Prepared by
Mr .A. SUNIL SAMSON

Approved by
Dr.N. SUMATHI

18ITC04 Practical -VI: RDBMS Lab
(Common to Computer Science / Information Technology / Computer Applications)

Semester	**III**
Credit	**2**
Paper Type	**Core Practical**
Max. Marks	**CIA:15 + CE :35**

COURSE OBJECTIVES

- To give a good formal foundation on the relational model of data
- To apply the various constraints in RDBMS
- To create reports.

SQL

1. Implement Data Definition language commands & perform various Constraints operations
2. Implement DML & TCL commands
3. Perform Queries using various operators and built in functions
4. Implement Nested Queries, Join Queries
5. Construct Selection, projection and Set operations

PL/SQL

6. Demonstrate PL/SQL block using various control statements.
7. Construct a program for implementation of Cursors

TRIGGERS

8. a. Create a Trigger to perform DML operations

   b. Program to indicate invalid condition using trigger.

FUNCTIONS

9. a. Implement the concept of recursive function.

   b. Write a PL/SQL function to search an address from the given database

REPORTS

10. Creation of report for a database.

*** The above programs can be implemented using database management toolsets like TOAD (Tool for Oracle Application Developers), RazorSQL etc**

Total Periods: 30

COURSE OUTCOME

Upon the successful completion of the course the students will be able to:

- Design and implement a database schema for a given problem domain.(L3)
- Analyze the use of Structured Query Language (SQL) and its syntax.(L3)
- Populate and query a database using SQL DML/DDL commands.(L2)
- Implement PL/SQL programming including stored procedures, functions and Triggers.(L2)

Prepared By,
(B.Vidhya)

Approved By,
(Dr.N.Sumathi)

18CSI01 - OPEN ELECTIVE I - FUNDAMENTALS AND CURRENT TRENDS IN INFORMATION TECHNOLOGY

Semester	**III**
Credit	**3**
Paper Type	**Open Elective I**
Max. Marks	**CIA -30 CE -70 TOT -100**

COURSE OBJECTIVES

- Identify the function of computer basic components
- Identify the various memory units and input/output devices
- Identify how operating system work to perform computing tasks
- Identify different types of computer languages, general concepts relating to software categories
- Identify the different types of communication and what is computer networks is and how it works,

UNIT-I **9**

Introduction to Computers: Introduction – Types of Computers - Characteristics of Computers - Five Generations of Modern Computers - Classification of Digital Computer Systems – Anatomy of a Digital Computer

UNIT-II **9**

Memory Units: Introduction – RAM – ROM – PROM – EPROM – EEPROM – Flash Memory.
Auxiliary Storage Devices: Introduction – Magnetic Tape – Winchester Disk – Hard Disk – Floppy Disk – Zip Disk – Jaz Disk – Super Disk – Optical Disk – CD-ROM.
Input Devices: Introduction – Keyboard – Mouse – Scanners – Digital Camera – MICR – OCR – OMR – Bar Code Reader – Touch Screen – Light Pen.
Output Devices: Introduction – Monitor – Classification of Monitors (Based on Color and Signals) – VGA – SVGA - XGA – Printer – Plotters – Sound Card & Speakers.

UNIT-III **9**

Operating Systems: Introduction – Functions of an Operating System – Classification of Operating Systems.
Programming Languages: Introduction – Machine Languages – Assembly Languages – High-Level Languages – Compilers and Interpreters – The Compilation Process.

UNIT-IV **9**

Computer Networks: Introduction – Overview of a Network – Communication Processors – Communication Media – Types of Networks – Network Topologies – Network Protocols.
Introduction to Computer Security – Cryptography - Computer Viruses, Bombs and Worms.

UNIT-V **8**

Internet and World Wide Web: Introduction – Internet Access – Internet Protocols – Internet Addressing – The World Wide Web – Web Pages and HTML – Web Browsers – Searching the Web.
Electronic Mail: Introduction – Why use E-Mail – How Private is E-Mail – How E-Mail Works – E-Mail Names & Addresses – Mailing Basics – E-Mail – Advantages & Disadvantages.
Introduction to intranets - Introduction to Multimedia – Multimedia Tools – Mobile Computing

COURSE OUTCOMES

Total Periods: 44 hours

Upon successful completion the students will be able to

- Acquire the knowledge in computer basics, data representation and computer memory. **L1**
- Differentiate the computer generations and their classifications. **L2**
- Adequate basic knowledge on the operating system and computer languages. **L1**
- Classify various networks for networking and their security issues. **L2**
- Categorize various tools and language for World Wide Web and internet. **L2**

TEXT BOOK

1."Alexis Leon, Mathews Leon", Introduction to Computers, published by Leon TECH World 2010.

REFERENCE BOOK

1.V.Rajaraman "Fundamentals of Information Technology" 4th Edition PHI Publishers 2010.

Verified By
N Mahendiran

Approved By
Dr G Maria Priscilla

Semester	III
Credit	4
Paper Type	Allied
Max. Marks	CIA -30 CE -70 TOT =100

18MATC05 – OPERATIONS RESEARCH

(Common to B.Sc. Computer Science, BCA & B.Sc. Information Technology)

COURSE OBJECTIVE

- To enable the students to understand the operational research concepts.

UNIT I :LINEAR PROGRAMMING (11)

Introduction – Mathematical Formulation of the Problem – Graphical Solution –Standard forms of the LPP – Simplex Method of $\leq$ constraints only.

Chapter – 2 &3 (2.1 -2.3) (3.1, 3.2, 3.4, 3.5, 3.6)

UNIT II TRANSPORATION AND ASSIGNMENT PROBLEM (11)

The Transportation Problem : Mathematical Formulation – Initial Basic Feasible Solution [North – West Corner Rule method, Least Cost method, VAM] - Unbalanced Transportation problem – Optimal solution [MODI Method] (Non-degeneracy problems only).**Assignment Problem :** Mathematical Formulation – Hungarian Assignment method – Unbalanced Assignment problem .

Chapter – 10 &11 (10.1 -10.3, 10.8 – 10.13) (11.1- 11.4)

UNIT III GAME THEORY AND INVENTORY CONTROL (11)

Game Theory : Concept of Pure and Mixed Strategies – Solving 2x2 matrix with and without saddle point- Graphical method of solving 2xm and nx2 games – Dominance property.

Inventory Control : Introduction – Various costs involved in the Inventory - EOQ models with and without shortages.

Chapter – 17 &19 (17.1 - 17. 7) (19.1 – 19.11)

UNIT IV REPLACEMENT PROBLEMS AND WAITING LINE THEORY (11)

Elementary replacement models – Individual and Group Replacement.

Definition of waiting line models – Problems from single server infinite population models .

Chapter –18 &21 (18.1 - 18.3) (21.1- 21.4, 21.7 – 21.9 model I only)

UNIT V CPM AND PERT (11)

Network representation – forward and backward pass computation - Critical path - Total, free and independent floats

PERT Calculations –Time scale analysis – Critical path –Probability factor.

Chapter – 25 (25.1 -25.8) (except 25.5)

*** No Derivations. Only applications**

COURSE OUTCOMES

After the completion of the course the student will be able

- to solve linear programming problems, (L 3)
- to solve transportation and assignment problems; (L 3)
- to acquire knowledge about game theory and construct inventory models (L 3)
- to acquire knowledge about replacement in real life and solve waiting line problems. (L3)
- to construct network models. (L 3)

Total Periods : 55

*** Note : The Question paper consists 20% Theory and 80% Problems**

TEXT BOOK

1.KantiSwarup, P.K.GuptaandMan Mohan "Operations Research" – Sultan Chand and Sons,13th Edition Reprint 2017, New Delhi.

REFERENCE BOOKS

1. P.K. Gupta, D.S. Hira "Introduction to Operations Research"– S.Chand Publication ,New Delhi, 2012.
2.Sundaresan, Ganesan&Ganapathy Subramanian "Resource Management Techniques"– A.R.Publications,9th Edition, Chennai, 2015.

Mr.E.VIVEK
(COURSE COORDINATOR)

Dr.N.UMA
(BOS CHAIRMAN)

18ITC05 Skill based Subject 1:RDBMS

(Common to Computer Science / Information Technology / Computer Applications)

Semester	**III**
Credit	**3**
Paper Type	**Skill Based**
Max. Marks	**CIA:30 + CE :70**

COURSE OBJECTIVES

- Enable the students to understand the concept of relational database system
- Perform the principles of data modeling using Entity Relationship and develop good database design.
- Impart the use of Structured Query Language (SQL) and its syntax.
- Knowledge on Normalization techniques to database.
- Emphasize the need of Database processing and learn techniques for database failures and Recovery.

UNIT–I **8**

Database and Database users: Introduction-Characteristics of the database approach- Actors of the scene- Workers behind the scene-Advantages of using the DBMS approach-A brief history of database applications – when not to use a DBMS.

Database System Concepts and Architecture: Data models, schema & instances-Three schema architecture and data independence-database languages and interfaces - The database system environment-Centralized and Client/Server architecture of DBMS – classification of database management system

UNIT–II **9**

Data modeling using the ER-Model: Entity types, Entity sets, Attributes and keys- Relationship types, relationship sets roles & structural constraints- weak entity types-ER Diagrams, naming conventions and design issues

Relational Model: Relational model concepts - Relational model constraints &Relational database schemas – Update operation and dealing with constraint violations.

The Relational Algebra: Unary Relational operations-Relational algebra operation from set theory – Binary Relational operation- Additional relational operation

UNIT–III **9**

SQL: SQL Data definition & data types – Basic constraints in SQL – Schema change statements in SQL- Basic queries in SQL –More complex queries in SQL –Insert, Delete & Update in SQL – Additional features in SQL. More SQL: Assertions Views – Database Programming issues & techniques – Embedded SQL.

UNIT–IV **9**

Functional dependencies and Normalization for relational databases: Functional dependencies – Normal forms based on primary keys- General Definition for second and third normal forms- Boyce Codd normal form –Multi - valued dependencies & fourth normal form – Join dependencies & Fifth normal form.

UNIT–V **9**

Introduction to transaction processing concepts: Introduction – Transaction and system concepts – Desirable properties of transaction- characterize schedules based on recoverability and serializability - Transaction Support in SQL

Database recovery techniques: Concepts- Recovery techniques based on deferred update and immediate update, shadow paging, the ARIES recovery algorithm – Recovery in multidatabase systems

Total periods:44

Course Outcome

Upon the successful completion of the course the students will be able to:

- Differentiate Database Systems from File Systems and define various terminology in Database Systems. (L1)
- Interpret, Implement an E-R Model and design a data model and schemas in RDBMS. (L3)
- Create /Modify the Structure and write optimized SQL Queries to extract and modify Information from Tables or Views. (L3)
- Apply proper Techniques such as Normalization and analyze the applicability of a Specific Normal form in designing a Database. (L2)
- Identify the issues involved in the operation of a DBMS including transactions, perform database recovery. (L1)

Textbook

1.Ramez Elmasri ,Shamkant B.Navathe, Fundamentals of Database Systems, Addition Wesley Publications, Fifth Edition, 2013.

Unit I - Chapter 1,2 **Unit II**-Chapter3,5,6 **Unit III**- Chapter 8,9 **Unit IV** – Chapter 10,11 **Unit V** - Chapter 17,19

Reference Books

1. Abraham silberschatz , Henry F Korth , S. Sudarshan, Database SystemConcepts , McGraw Hill International, Sixth Edition, 2011

2. Raghu Ramakrishnan, Johannes Gehrke Database Management Systems, McGraw Hill International, Third Edition,2014.

Prepared By,
(B.Vidhya)

Approved By,
(Dr.N.Sumathi)

PERSONALITY APTITUDE AND CAREER ENHANCEMENT (PACE-III)

Subject Code: 18CPE03

Common to all the UG streams admitted from AY 2018-19 Onwards

Semester	III
Credit	1
Paper type	Skill based
Max. Marks	Total=100 (Online:50+Verbal Oral: 50)

Instruction Hours per Semester: 40

Aim:

To educate and enrich the students on quantitative ability, reasoning ability, and verbal ability. Equip the students on group behavior and team building skills.

Course Objectives

To enable students to,

- Improve their quantitative ability.
- Improve the ability of arithmetic reasoning
- Enhance their verbal ability through vocabulary building and grammar
- Enhance their linguistic ability.
- Manage emotions through intelligence

Unit I

Quantitative Ability – I

Sequence and Series, Profit And Loss, Time, Speed, Distance, Averages, Percentages, Problems on HCF and LCM, Problems on Ages, Simple Interest & Compound Interest,

Unit II

Reasoning Ability – I

Syllogism, Blood Relations, Puzzles, Analogies, Logical Order, Seating Arrangements, Statement and Conclusions, Most Logical Choice, Inferred Meaning, Data Arrangements,

Unit III

Verbal Ability – I

Vocabulary – Etymology, Root words, Verbal Analogy. Workshop on Reading – Sub-skills of Reading, Techniques of Reading, Jumbled Paragraphs and Jumbled Essays. Application of Grammar concepts – Sentence Construction

Unit IV

Linguistic Ability

Writing & Speaking Skills – Parts of Speech, Modal Verbs, Tenses, Active and Passive Voice, Degrees, Articles, Contextual usage of words – Conversational English

Unit V

Emotional Intelligence

Time Management – Conflict Resolution – Stress & Anger Management – Online presence & researching online – Mind maps – Negotiation & Persuasion – Level 1 & 2 Interview Questions

Course Outcomes

On the successful completion of the course, the student would be able to-

- Enhance their ability to deal with quantities
- Understand and improve arithmetic reasoning.
- Build better vocabulary and grammar
- Speak and write better language.
- Resolve Conflicts, Manage emotions like anger and stress.

References

1. Quantitative Aptitude for Competitive Exams by R. S. Agarwal
2. Quantum CAT by Sarvesh Verma
3. A Modern Approach to Logical Reasoning by R. S. Agarwal
4. Verbal Ability and Reading Comprehension by Arun sharma
5. Word Power Made Easy by Norman Lewis
6. High School English Grammar by Wren and Martin
7. English Conversation Practice by Grant Taylor
8. Group Discussion and Interviews by Anand Ganguly
9. Art of Social Media by Guy Kawasaki

Verified by
Course Coordinator

18CAC03 - CLOUD COMPUTING
(Common to Computer Applications, Computer Science and Information Technology)

Semester	IV
Credit	4
Paper Types	Core/ Elective-I
Max. Marks	CIA -30 + CE -70

COURSE OBJECTIVES
The students should be able to
- Gain knowledge about various basic concepts related to cloud computing technologies
- Develop the skills on underlying principle of cloud virtualization, cloud storage, data management and data visualization
- Impart different cloud programming platforms and tools

UNIT I 11
Introduction to Cloud Computing - Internet and the Cloud -Working Of Cloud Computing-Pros and Cons-Benefits and using of cloud computing-Architecture of cloud-Developing Cloud Computing Services-Discovering Cloud Services and Tools.

UNIT II 11
Clients – Security – Network – Services – Platforms - Cloud Computing for Everyone -Centralizing Email Communications, Cloud Computing -Web Applications – Web API – Web Browsers.

UNIT III 11
Types of Cloud Services:Software as a service-Platform as a service-Infrastructure as a service- Service providers-Collaborating On Calendars- Schedules And Task Management- Exploring On Line Scheduling And Planning- Collaborating on Event Management-Collaborating on Contact management- Collaborating on Project management.

UNIT IV 11
Collaborating On Word Processing - Spreadsheets-Databases - Collaborating on Presentation - Storing and Sharing files and other online content-Sharing digital photographs-Web based desktop.

UNIT V 11
Collaborating via Web based communication tools- Collaborating via Social network and Groupware-Collaborating via Blogs and Wikis.

Total Periods: 55 hours

COURSE OUTCOMES
Upon the successful completion of the course, the student will be able to:
- Analyze the components of cloud computing
- Use and Examine different cloud computing services
- Illustrate the tools in cloud computing
- Demonstrate the concept of web based desktop
- Differentiate the web based communication tools.

TEXT BOOK
1. Michael Miller, "Cloud Computing" Pearson Education, New Delhi, 2012
   Unit I:Chapters:1 &2 Unit II:3&4 Unit III:4,5,6,7,8,9,10 Unit IV: 11,12,13,14,15,16,17 Unit V:18,19,20

REFERENCE BOOKS
1. Anthony T Velte, "Cloud Computing: A practical Approach" Tata McGraw Hill, 2010.
2. Barrie Sosinsky, "Cloud Computing Bible" Wiley Publishing, Inc,.2011.
3. Rajkumar Buyya, Christian Vecchiola and Thamarai Selvi S, "Mastering in Cloud Computing"McGraw Hill Education (India), Private Limited, 2013.

Prepared by Prof.R.Punitha Course Co-ordinator	Verified by Dr.Anna Saro Vijendran Dean- School of Computing	Approved by Dr.D.Hari Prasad BOS Chairman

18CACO4- SOFTWARE TESTING LAB

(Common to Computer Applications and Computer Science)

Semester	IV
Credit	3
Paper Type	CORE XV Practical – VIII
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To apply various testing techniques and to detect the errors in the software.
- To generate and apply the test cases using the automated testing tool.
- To learn the functionality of automated testing tools to apply in the specialized environment

Experiments:

1. Take any system (e.g. ATM system) and study its system specifications and report the various bugs.
2. Write the test cases for any known application (e.g. Banking application)
3. Write programs in C language to demonstrate the working of the following constructs
   a) for b) Do..While c).While... do d).If...Else e).Switch
4. A program written in C language for Matrix Multiplication fails introspect the causes for its failure and write down the possible reasons for its failure.
5. Create a test plan document for any application (e.g. Library Management System)
6. Study of any testing tool (e.g. Win runner/ Selenium)
7. Install Selenium server and demonstrate it using script in Java/PHP.
8. Perform test suite containing minimum 4 test cases.
9. Write and test a program to get the number of list items in a list / combo box
10. Write and test a program to count number of check boxes on the page checked and unchecked count.

Total Periods : 33

Note : The Above Experiments Covers (Manual Testing, Automation Testing, Requirement / Specification Testing, White Box Testing, Black Box Testing, , Test Planning, Tool Based Testing)

COURSE OUTCOMES

Upon the successful completion of the course students will be able to

CO1: Test the software by applying various testing techniques.
CO2: Debug the project and to test the entire computer based systems at all levels.
CO3: Test the applications in the specialized environment using various automation tools.
CO4: Evaluate the web applications using bug tracking tools.
CO5: Apply quality and reliability metrics to ensure the performance of the software

Prepared by	Verified by	Approved by
Prof.S.VibinChandar	Dr.Anna Saro Vijendran	Dr.D.Hari Prasad
Course Co-ordinator	Dean- School of Computing	BOS Chairman

18ITC07– WEB TECHNOLOGY LAB

(Common to Information Technology and Computer Science)

Semester	IV
Credit	2
Paper Type	Core
Max. Marks	CIA-15+ CE -35

COURSE OBJECTIVES

- To create HTML programs with all basic tags
- To know the usage of Cascading Style Sheet
- To be aware of basic Java Script Programming concepts.
- To gain knowledge of the usage of functions, arrays, objects and events
- To know the basics of Bootstrap

1. Develop a web page with table and apply the following condition.
   (i) Merge two rows and two columns.
   (ii) Padding the cells and widening the cell spacing.
   (iii) Aligning your data horizontally and vertically.
   (iv) Create a table caption and set colors for individual rows.
   (v) Aligning text and table and use images in the table.
2. Design a Web Page with Internal and external Linking.
3. Design a College Web Site using HTML5 by applying Style Sheet.
4. Design a web page to link audio and video files in HTML5.
5. Implement HTML5 canvas.
6. Create a Web Page for Positioning Elements Dynamically.
7. Write Java Script Program to validate login form.
8. Write a Java Script Program to implement methods of string, date and numerical functions (each five).
9. Write a Java Script Program to Implement Events.
10. Design a table with Bootstrap styles.

Total Periods: 30 Hrs.

COURSE OUTCOME

Upon successful completion of the course, the students will be able to

- Design web page with all HTML features like tables, frames, images, links etc.
- Implement Style Sheets and Link it with the HTML program
- Design an Interactive Web page using Java Script by implementing Functions, Arrays, Objects and Events
- Apply the basic Bootstrap concepts in web design

Prepared by

(Dr Sumathi N)
Course Co-ordinator

Verified by

(Dr Anna Saro Vijendran)
Dean, School of Computing

Approved by

(Dr Sumathi N)
BoS Chairman

18COC01 BUSINESS ACCOUNTING

(Common Paper for BSc CS & BSc IT 2018 Admitted Students)

Semester	IV
Credit	4
Paper Type	Allied
Max. Marks	CIA -30 CE -70 TOT =100

COURSE OBJECTIVES

- To familiarize the basic concepts of accounting and its Features
- To develop conceptual understanding of fundamentals of financial accounting, cost accounting and management accounting.

UNIT –I INTRODUCTION TO ACCOUNTING 14

Introduction - Accounting Principles - Accounting Concepts and Conventions - Accounting rules –Journal –Ledger Subsidiary book including Cash Book –Bank Reconciliation Statement – Rectification of errors –Trial balance.

UNIT –II FINAL ACCOUNTS - PREPARATION 10

Preparation of Final Accounts –Trading Account-Profit and Loss Account –Balance Sheet (simple adjustments).

UNIT –III COST ACCOUNTING AND STORES LEDGER 10

Cost accounting –meaning, objectives –Elements - Cost Sheet Preparation –Stores ledger –LIFO - FIFO– Average Stock- Weighted Average Stock.

UNIT-IV MANAGEMENT ACCOUNTING AND FINANCIAL STATEMENT ANALYSIS 11

Management Accounting –Meaning –Merits & Demerits –Financial Statements Analysis – Ratio Analysis- Merits-Demerits-Types (Solvency & Profitability ratios only).

UNTI-V BUDGETING AND ITS CLASSIFICATION

10

Budgeting –Meaning –Advantages - Classification of budgets - Preparation of Production budget, Sales budget, Cash budget, and Flexible budget.

Total Hours: 55

TEXT BOOKS

1. T.S Reddy and A. Murthy -"Advanced Accountancy" Margham Publiations-Volume I 2nd Revised Edition, Reprint 2017. (Unit I and II)
2. Jain.S.P and Narang.K.L., -"Cost Accounting"- 8th Revised Edition Reprint 2018, Kalyani Publishers.(Unit III)
3. R.K.Sharma & Shashi K. Gupta , Gupta Neeti, "Management Accounting"- Kalyani Publishers, 14th Edition-2017.(Unit IV and V)

REFERENCE BOOKS

1. S.P-. Jain and K.L Narang ", Advanced Accountancy " Volume I , Kalyani Publications-20th Revised Edition-2018. (Unit I and II)
2. Ts. Reddy, Hari Prasad Reddy Y,, Cost Accounting, Margham Publiations-. 4th Edition, Reprint 2017 (Unit III)
3. Khan & Jain- "Management Accounting"- Tata McGraw Hill Publishing Company Limited 7th Edition - 2018. (Unit IV and V)

COURSE OUTCOMES

On Successful Completion of the Course, the students can

COURSE OUTCOMES	DESCRIPTION	UNIT	LEVEL
CO1	Identify the Concepts of Financial Accounting and preparation of journal, ledger and Trial Balance.	I	L2
CO2	Ascertain Profit / Loss and preparation of balance sheet to analysis the financial position of the business.	II	L2
CO3	Construct Cost Sheet and Stores Ledger.	III	L3
CO4	Assess the financial Performance of the company by applying Ratio Analysis.	IV	L2
CO5	Prepare various budgets for managerial decision making and policy framing.	V	L3

Verified by	Approved by	Approved by
N. Selvakumar		
Dr Selvakumar N Course Coordinator	Dr Nirmala Devi V Chairperson - BOS	Dr Senthilkumar G Member Secretary Academic Council

18ITC08–WEB TECHNOLOGY

(Common to Information Technology and Computer Science)

Semester	IV
Credit	3
Paper Type	Skill based
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- Get to know the HTML5 tags and its usage
- Knowledge about Cascading Style sheet to Design the web page
- Able to write a dynamic HTML program with the Programming concepts of Java Script
- Basic knowledge on Bootstrap programming

UNIT – 1 9

Introduction to HTML: Headers – Linking – Images - Unordered List - Nested and Ordered Lists- **Tables:** Tables and Formatting – Forms - Internal Linking
HTML5: **Creating User-Friendly Web Forms**:. Describing Data with New Input Fields- Jumping to the First Field with Autofocus- Providing Hints with Placeholder Text- Validating User Input without JavaScript- In-Place Editing with content editable.
Drawing in the Browser: Drawing a Logo on the Canvas -Graphing Statistics with RGraph-Creating Vector Graphics with SVG
Embedding Audio and Video : Working with Audio - Embedding Video - Making Videos Accessible

UNIT – 2 8

Cascading Style Sheets: Inline Styles - Embedded Styles Sheets - Conflicting Styles Sheets -W3C CSS Validation Service - Positioning Element – Backgrounds - Element Dimension -Text Flow and Box Model

UNIT – 3 9

Java Script: Introduction – User Input & prompt Dialog Boxes - Memory Concepts –
Operators: Arithmetic operator - Operator Precedence - Relational Operators - Logical Operators
Control Structures: If, Else, While, Do - While, For, Break, Continue statements
Functions: Programmer Defined Functions - Scope rules - Global Function – Recursion

UNIT – 4 9

Arrays: Arrays - Passing Arrays to Function - Multidimensional Arrays
Java Script Object: Math Object - String Object - Date Object - Boolean and Number Objects - Document Object - Window Object

UNIT–5 9

DHTML Object Model and Collections: Object Referencing - Collections all and Children - Dynamic Styles - Dynamic Positioning - Frames Collection
DHTML Event Model: Onclick Event – Onload Event – Onerror Event– Onmousemove Event – Onmouseout Event – Onfocus Event – Onblur Event – Onsubmit Event – Onreset Event
Bootstrap: Understanding Normalize CSS and the Basics of Bootstrap CSS, Grids, Bootstrap Typography, Tables

Total Periods: 44

COURSE OUTCOMES

Upon successful completion of the course, the students will be able to

- Analyze and design a web page and identify its elements and attributes
- Create web pages using HTML5 and linking with external Cascading Style Sheets
- Build and deploy dynamic web pages using JavaScript and manipulate data using Java script objects
- Create interactive website with object collections and utilize event handling mechanism to respond to user data
- Design web pages using Bootstrap

TEXT BOOKS:

1. Brian P. Hogan, "HTML5 AND CSS3,The Pragmatic Programmers", LLC. 2nd Ed., 2013 (Chapters 3,6,7)
2. Thomas Powell, "HTML COMPLETE REFERENCE",TMH, 5th Ed., 2013
3. Deitel&Deitel, "Internet & World Wide Web – How to Program –Goldberg", Pearson Education, 3rd Ed.,2012.

REFERENCE BOOKS:

1. Thomas Powel & Fritz Schneider, "JAVA SCRIPT COMPLETE REFERENCE",TMH, 5th Ed., 2012
2. RiwantoMegosinarso, "Step By Step Bootstrap 3: A Quick Guide to Responsive Web Development Using Bootstrap 3", Create Space Independent Publishing Platform, 2014
3. Jennifer kyrnin ,"Sams Teach Yourself Bootstrap in 24 hours", Pearson Education, 3rd Ed., 2015
4. Kogent learning solutions Inc,"HTML5 Balck Book", Dreamtech Press, 2nd Ed., 2016

REFERENCE WEB SITES:

https://www.tutorialspoint.com/html5/index.htm
https://livebook.manning.com/book/html5-in-action

Prepared by	Verified by	Approved by
(Dr Sumathi N) Course Co-ordinator	(Dr Anna Saro Vijendran) Dean, School of Computing	(Dr Sumathi N) BoS Chairman

18ITC06 - SOFTWARE ENGINEERING

(Common to Computer Applications, Computer Science and Information Technology)

Semester	IV
Credit	4
Paper Type	Elective / Core
Max. Marks	CIA – 30+ CE - 70 TOT =100

COURSE OBJECTIVES:

- To outline various software engineering models.
- To gain knowledge on requirement analysis and validating requirements.
- To be aware of various software designing concepts.
- To be aware of various testing strategies and validation.
- To familiarize project scheduling, risk management and software quality verification.

UNIT–I 11

INTRODUCTION

Software and Software Engineering: Software Engineering –The software process –Software Engineering Practice
Process Models: A Generic process - Model Prescriptive Process Models – Specialized Process Models – The Unified Process
Agile Development: Agile Process – Extreme Programming - Other Agile Process Models

UNIT–II 11

REQUIREMENT ANALYSIS

Understanding Requirement: Requirements Engineering – Establishing the Groundwork - Eliciting Requirements-Developing Use Cases- Building the Requirement Model - Negotiating Requirements-Validating Requirements
Requirement Modeling: Requirement Analysis – Scenario based modeling - UML models – Data Modeling Concepts – Class based Modeling.

UNIT–III 11

SOFTWARE DESIGN

Design Concepts: The Design Process – Design Concepts – The Design Model
Architectural Design: Software architecture – Architectural Design
Component –Level Design: Component – Designing class-based components – Component based development
User Interface Design: User Interface analysis and design – Interface analysis – Interface design

AGILE METHODOLOGY

Method overview – Lifecycle – Work products, Roles and Practices values – Common mistakes and misunderstandings – Sample projects – Process mixtures – Adoption strategies – Fact versus fantasy – Strengths versus "Other" history. Agile – Motivation – Evidence – Scrum – Extreme Programming – Unified Process – Evo – Practice Tips.
Case study on sample project

UNIT–IV 11

SOFTWARE TESTING

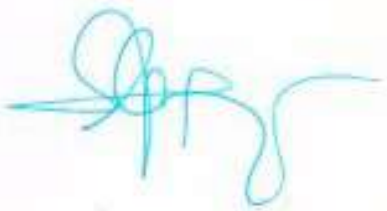
Software Testing: A strategic approach to software testing – strategic issues – Test Strategies for conventional software – Test strategies for object oriented software – Validation Testing - System Testing
Testing Conventional applications: Software Testing Fundamentals – White Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing – Model Based Testing – Patterns for Software Testing.

UNIT–V 11

SCM AND QUALITY ASSURANCE

Project Scheduling: Basic concepts - Project Scheduling – Defining a Task set for Software Project.
Risk Management: Software Risk – Risk Identification – Risk Projection
Maintenance and Reengineering: Software Maintenance – Software Supportability – Reengineering – Business Process Reengineering – Software Reengineering
Software process Improvement: What is SPI – CMMI
Software Quality Assurance: Elements of Software Quality Assurance – SQA Task, Goals, Metrics.

Total Periods: 55 Hrs



COURSE OUTCOMES

Upon the successful completion of the course the student will be able to:

- Identify the basic concepts of various software engineering models.
- Perform the requirement analysis to build software components.
- Design a model for software component using agile method.
- Perform software testing using testing techniques.
- Analyze software quality standards and assurance.

TEXTBOOKS:

1. Roger Pressman S, "Software Engineering: A Practitioner's Approach", 7th Edition, McGraw –Hill, Reprint 2016.
   UNIT I – Chapters 1 (1.3, 1.4, 1.5) 2 (2.1 – 2.5), 3 (3.1 – 3.5)
   UNIT II – Chapters 5 (5.1 – 5.7), 6 (6.1 – 6.5)
   UNIT III – Chapters 8 (8.2 – 8.4), 9 (9.1, 9.4) 10 (10.1, 10.2, 10.6) 11(11.2, 11.3)
   UNIT IV – Chapters 17(17.1 – 17.7) 18 (18.1 – 18.7, 18.9)
   UNIT V – Chapters 27(27.1 -27.3) 28(28.2 – 28.4) 29(29.1 – 29.6) 16(16.1 – 16.3)
2. Craig Larman "Agile and Iterative Development – A Manager's Guide", Pearson Education , 2004.
   UNIT III – Chapter 3

REFERENCEBOOKS:

1. Sommerville," Software Engineering" , Addison Wesley, 10th Ed., 2016.
2. Ronald J. Leach, "Introduction to Software Engineering", CRC Press, Taylor & Francis Group, 2nd Ed., 2016
3. Rajib Mall, "Fundamentals of Software Engineering", PHI Learning Pvt. Ltd., 4th Ed., 2014.

REFERENCE WEB SITES:

https://www.tutorialspoint.com/software_engineering/index.html
https://www.geeksforgeeks.org/software-engineering/
https://tutorialspoint.dev/computer-science/software-engineering

Prepared by	Verified by	Approved by
(Dr Deepa C) Course Co-ordinator	(Dr Anna Saro Vijendran) Dean, School of Computing	(Dr Sumathi N) BoS Chairman

18CSE01 - NETWORK SECURITY

Semester	IV
Credit	4
Paper Types	Elective
Max. Marks	CIA -30 + CE - 70

COURSE OBJECTIVES:

The Students should be able to

- Learn about the threats of network security.
- Understand the architecture of network security.
- Narrate and evaluate the design principles of conventional encryption and decryption techniques.
- Analyse the concepts of public key encryption and public key algorithm.

UNIT– I **11**

Concepts of Security: Introduction - The Need for Security - Security Approaches - Principal of Security - Types of Attacks. **Cryptographic Techniques:** Introduction - Plain Text and Cipher Text - Substitution Techniques - Transposition Techniques - Encryption and decryption - Symmetric and Asymmetric Key Cryptography – Steganography - Possible Types of Attacks.

UNIT –II **11**

Computer-based Symmetric Key Cryptographic Algorithms: Introduction - Algorithm Types and Modes - An Overview of Symmetric Key Cryptography - Data Encryption Standard(DES) - International Data Encryption Algorithm(IDEA) - RC4 - RC5 - Advanced Encryption Standard(AES).

UNIT– III **11**

Computer-based Asymmetric Key Cryptographic Algorithms: Introduction - Brief History of Asymmetric Key Cryptography - An Overview of Asymmetric Key Cryptography - The RSA Algorithm - Symmetric and Asymmetric Key Cryptography Together - Digital Signatures - Knapsack Algorithm.

UNIT –IV **11**

Public Key Infrastructure (PKI): Introduction - Digital Certificates - Private Key Management - The PKIX Model - Public Key Cryptography standard(PKCS) – XML - PKI and Security.

UNIT –V **11**

Internet Security Protocols : Basic Concepts, Security Socket Layer(SSL), Secure Hyper Text Transfer Protocol(SHTTP), 3-D Secure Protocol, Electronic Money , Email Security, Wireless Application Protocol(WAP) Security, Security in GSM.

Network Security: Brief Introduction to TCP/IP, Firewalls, IP Security, Virtual Private Networks (VPN)

TOTAL PERIODS: 55

COURSE OUTCOMES:

Upon successful completion the students will be able to

- Acquire and determine the security requirements and appropriate solutions. Choose and Protect system from different types of threats, malicious software's vulnerabilities and attacks.
- Describe symmetric and public key encryption algorithms like DES, AES, RSA etc.
- Identify ethical, professional responsibilities, risks and liabilities in computer and network environment, and best practices to write security policy.
- Distinguish and analyse available network and protocols such as SSL, IPSes, etc.
- Implement various cryptographic algorithms to secure data.

TEXT BOOK:

1. AtulKahate – Cryptography and Network Security, 4th Edition, McGraw Hill Publication, Chennai-2019. Unit I – Chapter I, II ; Unit II – Chapter III; UNIT III -Chapter IV; Unit IV – Chapter V; Unit V – Chapter VI, IX

REFERENCE BOOK:

1. Behrouz A. Forouzan and D. Mukhopadhyay- Cryptography & Network Security, 2nd Edition - 1st reprint 2015, McGraw Hill, New Delhi.
2. Wade Trapple, Lawrence C. Washington- Introduction to Cryptography with coding Theory, 2nd Edition pearson Education

Prepared By	Verified By	Approved By
Dr.B.Mukunthan	Dean / School of Computing	BOS Chariman

18CSE02- ARTIFICIAL INTELLIGENCE

Semester	IV
Credit	4
Paper type	Elective
Max. Marks	CIA - 30 + CE - 70 TOTAL =100

COURSE OBJECTIVES:

The student will be able to

- Study the concepts of Artificial Intelligence.
- Learn the methods of solving problems using Artificial Intelligence.
- Understands the various knowledge representing techniques.
- Gains the knowledge about the concepts of Expert Systems.

UNIT I: INTRODUCTION TO AI 11

What is AI? - The foundation of AI- The History of AI- Why AI is booming now? - Applications of AI-Intelligent Agents and Environments-Structure of Intelligent Agents.

UNIT II: SOLVING PROBLEMS BY SEARCHING 11

Problem solving agents- Example problems –searching for solutions- Uniformed search strategies: Breadth-first search – Uniform-cost search- Depth-first search- Iterative-deepening depth-first search- bidirectional search.

UNIT III: KNOWLEDGE REPRESENTATION 11

Knowledge based agent- The wumpus world environment- representation, reasoning and logic- Propositional logic- An agent for the wumpus world- Building a knowledge base: properties of good and bad knowledge bases- knowledge engineering.

UNIT IV EXPERT SYSTEMS 11

Expert System Introduction – Difference between expert system and conventional programs- Components of Expert System- Representing and using Domain Knowledge- Expert system Shells – Knowledge Acquisition – Perception and Action- Speech Recognition.

UNIT V REAL WORLD APPLICATION 11

AI in Healthcare, AI in Automotive-AI in finance and Economics- AI in Government, - AI in video games-AI in Military.

AI Tools: Amazon Alexa for integrating chat boat into web and mobile applications, Google tensor flow for tutorials and online resources, DiffBlue for software testing.

TOTAL PERIODS: 55

COURSE OUTCOMES:

Upon completion the students will be able to

- Defines the concepts of Artificial Intelligence including agents and environments
- Identify problems that are amenable to solution by AI methods.
- Identify appropriate AI methods to solve a given problem.
- Acquire the knowledge about Expert Systems.
- Categorize various AI tools for the real world applications

TEXT BOOK:

1. Stuart J. Russell and Peter Norvig," Artificial Intelligence- A Modern Approach", Third Edition, Pearson Education, reprint 2018.

REFERENCE:

1. Kevin Night and Elaine Rich, Nair B., "Artificial Intelligence (SIE)", McGraw Hill- Third Edition, 2014.

REFERENCE WEBSITES:

1. https://en.wikipedia.org/wiki/Applications_of_artificial_intelligence
2. https://www.tensorflow.org/
3. https://docs.aws.amazon.com/lex/latest/dg/example2.html
4. https://www.diffblue.com/

Prepared By	Verified By	Approved By
Ms.R.Arthi	Dean / School of Computing	BOS Chariman

PERSONALITY APTITUDE AND CAREER ENHANCEMENT (PACE-IV)

Subject Code: 18CPE04

Common to all the UG streams admitted from AY 2018-19 Onwards

Semester	IV
Credit	2
Paper type	Skill based
Max. Marks	Total=100 (Online:50+Verbal Oral: 50)

Instruction Hours per Semester: 40

Aim

To educate and enrich the students on quantitative ability, reasoning ability and verbal ability. Equip the students on group discussion and interview skills.

Course Objectives

To enable students to,

- Improve their quantitative ability.
- Improve their reasoning ability.
- Enhance their verbal ability through vocabulary building and grammar
- Equip with creative thinking, problem solving and leadership skills
- Build resumes, speak in public, and attend interviews better.

Unit - 1

Quantitative Ability – II

Ratios & Proportions, Clocks & Calendars, Partnerships, Pipes and Cisterns, Surds & Indices, Problems on Trains, Height and Distance, Races and Games

Unit – 2

Reasoning Ability – II

Mathematical Operations, Cubes & Cuboids, Passage and Inference, Venn Diagrams, Flowchart & Logical Gates

Unit-3

Verbal Ability – II

26/4/19

Synonyms, Sentence Completion, Antonyms, Selecting Words, Spotting Errors, Sentence Correction, Reading Comprehension, Jumbled Sentences, Theme Detection, Sentence Selection

Unit 4

Group Discussion Skills

Creative Thinking – Problem Solving – Dealing with criticism – Leadership skills – Team Playing skills – Presentation skills – Spontaneity – Empathy – Perseverance – Decision Making

Unit – 5

Interview Skills

Resume Writing Techniques – Types of Resume – Understanding Key Words – JD Mapping. Interview Techniques – Reiteration of SWOT and Goal Setting – Level 3 Interview Questions – Importance of Grooming and Non-verbal Communication

Course Outcomes

On the successful completion of the course, the student would be able to-

- Enhance their ability to deal with quantities
- Understand and improve arithmetic reasoning.
- Build better vocabulary and grammar
- Enhance their creative thinking, problem solving and leadership skills
- Prepare resumes, speak in public and attend interviews better.

References

1. Quantitative Aptitude for Competitive Exams by R. S. Agarwal
2. Quantum CAT by Sarvesh Verma
3. A Modern Approach to Logical Reasoning by R. S. Agarwal
4. Verbal Ability and Reading Comprehension by Arun sharma
5. Word Power Made Easy by Norman Lewis
6. High School English Grammar by Wren and Martin
7. English Conversation Practice by Grant Taylor
8. Group Discussion and Interviews by Anand Ganguly
9. Art of Social Media by Guy Kawasaki

22/4/19

Verified by
Course Coordinator

18CAC05 -OPERATING SYSTEM

(Common to all branches of Computer Science, Information Technology and Computer Application)

Semester	V
Credit	4
Paper Type	Core
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To impart the students the basic concepts of Operating Systems, its functions and services.
- To familiarize the students with various views and management policies adopted by Operating Systems.
- To brief the students about resource management of Operating Systems.
- To provide the students the knowledge of Operating System synchronization, behavior and related issues.

PREREQUISITE

- Basic courses on Computer Organization, Data Structures and Computer Programming

UNIT–I 11

Introduction: What is an Operating System? – Simple batch systems – Multi programmed Batch System – Time Sharing systems - Parallel systems – Distributed systems – Real time systems.
Operating system structures: System components – Operating system services – system calls – system programs – system structure..

UNIT–II 11

Process Management: process concept – process scheduling – operation on processes – cooperating processes, Inter process Communication.
CPU Scheduling: Basic concepts – scheduling criteria – scheduling Algorithms
Deadlocks: Definition – Deadlock characterization – Deadlock prevention – Deadlock Avoidance – Deadlock detection – Recovery.

UNIT–III 11

Memory Management: Background – swapping – contiguous memory allocation – paging – Segmentation.
Virtual Memory: Background – Demand Paging, Page replacement – page replacement Algorithms, Thrashing

UNIT–IV 11

File systems: File concept – Access methods – Directory structure – protection – File system - structure – Allocation methods – Free space management Secondary Storage Structure: Disk structure, Disk scheduling – Disk management.

UNIT–V 11

Case study: Linux - Design principles – Kernel Modules – Memory management – File systems – Input & output – security.

COURSE OUTCOMES

Upon the completion of Operating Systems theory course, the student will be able to:

- Discuss the role of Operating System as system software.
- Compare and contrast various algorithms used for management of memory, CPU scheduling, file handling and I/O operations.
- Illustrate the various Operating System concepts for resource allocation and deadlock management.
- Demonstrate the role of process synchronization.
- Analyze Linux system architecture.

Total Periods: 55

TEXTBOOKS

1. Abraham Silberschatz, Greg Gagne, Peter. B. Galvin, , "OPERATING SYSTEM CONCEPTS", Tenth Edition , Wiley 2018.

REFERENCE BOOKS

1. Andrew S. Tanenbaum, Albert S. Woodhull "OPERATING SYSTEMS: DESIGN & IMPLEMENTATION", PHI, 3nd Edition 2007.
2. William Stallings, "OPERATING SYSTEMS", PHI, Fourth Edition, 2009
3. H.M Dietal, Paul J. Deitel, David R. Choffnes, "OPERATING SYSTEMS", Pearson Education Asia, Third Edition, 2012

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18CAC06-OPERATING SYSTEM LAB

(Common to all branches of Computer Science, Information Technology, and Computer Application)

Semester	V
Credit	3
Paper Type	**Practical**
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To demonstrate operating systems concepts by writing Linux shell scripts
- To gain practical experience on implementing and various algorithms in MS Windows.

PREREQUISITE

- Basic knowledge on Principles of Computer operating system

LIST OF EXPERIMENTS

1. Basic LINUX commands.
2. Write a shell script to do the following
   a. Fibonacci series.
   b. Factorial of given number.
   c. To convert the decimal number to binary number.
3. Write a shell script to do the following
   a. To check whether the given string is palindrome or not.
   b. To count number of words, lines in a given file
4. Write a shell script for the following
   a. To find whether the given input is file/directory.
   b. To delete a particular pattern in file.
   c. To find the user login.
   d. To set the attributes of a file
   e. To compare two files
5. Write a shell script for student evaluation.
6. Write a shell script for employee details using files.
7. Implementation of CPU scheduling algorithms.
8. Implementation of memory allocation methods.
9. Implementation of page replacement algorithms.
10. Implementation of disk scheduling algorithms.

COURSE OUTCOMES

Upon the completion of Operating Systems practical course, the student will be able to:

- Run various LINUX commands in Linux Ubuntu.
- Code shell script in LINUX Operating System.
- Implement CPU scheduling, memory allocation, page replacement and disk scheduling algorithms.

Total Periods: 44

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18CSC05 PYTHON PROGRAMMING
(Common to Computer Science, Information Technology & Computer Application)

Semester	V
Credit	3
Paper Type	Skill based
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

The students should be able to

- Introduce Python concepts and to develop programming skills in Python Programming.
- Know the principles and data structures of python.
- Provide knowledge on advanced features like strings and statistics for python.

UNIT I **8**

Introduction to python – History of python – Features of python – writing and Executing first python program – variable and identifiers – data types – other data types – input operation – Reserved words -operators and Expressions – Type conversion.

UNIT II **10**

Introduction to Decision Control statements – Selection/ Conditional branching statements: if Statement – if – else statement – Nested if Statement – if – elif – else statement – Basic Loop Structures/ iterative Statements: While loop – for loop – Nested loops – break statement – continue statement – pass statement – else statement used with loops – functions and modules: Function definition – function call – variable Scope and Lifetime – More on Defining functions – Recursive functions.

UNIT III **11**

List: accessing values in list- updating values in list – nested lists – cloning list- basic list operations- list methods- using list as stack- using list as queue – Functional programming – Tuple: creating Tuple-utility of tuples- accessing values in tuples- updating tuples- deleting elements in tuples- basic tuples operations- nested tuples –creating sets – Dictionaries: creating – accessing values – adding and modifying an item in dictionary – modifying an entry – deleting items – sorting items in dictionary- looping over a dictionary – nested dictionary.

UNIT IV **8**

Strings: Concatenating , Appending and Multiplying Strings – String Formatting operator – Built-in String methods and functions – slice operation – ord() and chr() functions – comparing strings – iterating string – Regular Expressions.

UNIT V **8**

Pandas – Series and Data frames – Data Frames and Data wrangling – Visualization – Plotting – Histograms – Grouping Data – Time series and Statistics - Visualization in Python- I Python – NumPy Basics: Arrays - Vectorized Computation.

COURSE OUTCOMES

Upon successful completion the students will be able to

CO1: Analyze fundamental python concepts in real world application.
CO2: Solve real world software problems based on python functions.
CO3: Examine different data structure concepts for python to validate different social issues.
CO4: Analyze the formatting strings in python.
CO5: Identify various quantitative analysis techniques using pandas.

Total Periods : 45

TEXT BOOKS

1. Reema Thareja, "Python Programming using Problem solving Approach", 3rd Edition, Oxford University press, 2017 (UNIT 1 – UNIT 4)
2. Mark Pilgrim, "Dive into Python3", 5th Edition Revised, Publisher Apress, year 2015. (UNIT 5)

REFERENCE BOOKS

1. Allen Downey,"Think Python", revised edition, Green Tea Press Needham, Massachusetts, 2015
2. Phuong Vo. T. H., Martin Czygan , "Getting started with Python Data Analysis", Revised edition, Packet Publishing, 2011 (UNIT 4)

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18CSC06 PYTHON PROGRAMMING LAB
(Common to Computer Science, Information Technology & Computer Application)

Semester	V
Credit	2
Paper Type	Core
Max. Marks	CIA:15 + CE :35

COURSE OBJECTIVES
The students should be able to

- Familiar with the main features of the python language.
- Introduce Python concepts and to develop real time application in Python Programming
- Demonstrate functional programs to solve a well specified problem.

Perform all programs

1. Implement the arrays concept.
2. Implement the concept of strings.
3. Demonstrate plot bar charts.
4. Create the statistical models.
5. Implement the access of web pages.
6. Implement the data analysis with pandas.
7. Illustrate the plot histograms.
8. Demonstrate the merge mails.
9. Implement the concept of hash files.
10. Implement the concept of data structures.

Case Study
Implements statistical analysis of weather prediction.

COURSE OUTCOMES
Upon successful completion the students will be able to

CO1: Demonstrate a simple Python programs.
CO2: Implement Python programs with conditionals and loops.
CO3: Develop Python programs step-wise by defining functions and calling them.
CO4: Use Python data structure for representing compound data.
CO5: Create pandas based statistical models.

Total Periods: 30

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18CSI02 OPEN ELECTIVES II –INTERNET OF THINGS

Semester	V
Credit	3
Paper Type	OPEN ELECTIVE-II
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

The students should be able to

- Understand the communication technologies in IoT
- Know the IoT protocols and web of things
- Know the various applications of IoT

UNIT I 9

Introduction to Internet of Things: Definition & Characteristics of IoT –Physical design of IoT- Logical design of IoT- IoT Levels- Four Pillars of IoT

UNIT II 9

IoT Architecture: IoT Reference Architecture – OGC Architecture – IoT Reference model – Domain model – information model – function model

UNIT III 9

Protocols: Data link Protocol – Network layer Routing Protocols – Network layer Encapsulation Protocols – Session Layer Protocols – Transport Layer Protocols.

UNIT IV 9

Web of Things: web of Things versus Internet of Things – Two pillars of the web – Architecture standardization for WoT – Platform Middleware for WoT – Unified Multitier WoT Architecture.

UNIT V 9

Applications: Home Automation – Cities – Environment – Energy – Retail – Agriculture – Industry – Health and Life style.

COURSE OUTCOMES

Upon successful completion the students will be able to

CO1: Acquire the knowledge of IoT and various characteristics.
CO2: Identify the functionality of various architectures of IoT.
CO3: Analyze various Protocols Standards and providers.
CO4: Identify the importance of Web of Things.
CO5: Evaluate various Applications of IoT.

Total Periods : 45

TEXT BOOKS

1. Arshdeep Bahga, Vijay Madisetti, "Internet of Things – A hands-on approach", Universities Press, 2015

REFERENCE BOOKS

1. David Easley and Jon Kleinberg , "Networks, Crowds, and Markets: Reasoning About a Highly Connected World" , Cambridge University Press - 2010.
2. Olivier Hersent, David Boswarthick, Omar Elloumi , "The Internet of Things – Key applications and Protocols", Wiley, 2012.
3. Honbo Zhou, "The Internet of Things in the Cloud: A Middleware Perspective", CRC Press 2012.
4. Dieter Uckelmann; Mark Harrison, "Architecting the Internet of Things" Springer – 2011.

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18CS501 CORE XIX: PROJECT WORK & VIVA VOCE

GUIDELINES TO BSc Computer Science PROJECT REPORT PREPARATION

The students should strictly adhere to the following points while preparing their final project report.

- Students are expected to undergo project work individually and submit individual project report.
- Project reports should be typed / printed in double space using A4 size bond sheets with a left margin at column 10 and a right margin at column 75.
- A page should not contain more than 25 lines.
- The source code should be loaded and made readily available in the system during Viva – Voce examination for verification by the examiners.
- Table of contents should be in the specified format. [as in Annexure IV]
- The students are asked to report to the concerned guides regularly during their project period to present their progress of work.
- The students should submit the project report (rough draft) in the First week of October, 2019.

Tentative Dates regarding Project

I Review : Meet concern faculty guide to title confirmation on or before 03-08-2020 (tentative date).

II Review : Meet concern faculty guide report about your table design and coding on or before 04-09-2020 (tentative date).

III Review : To run your project on or before 28-09-2020 (tentative date).

Rough Documentation of the Project, Submitted to the respective guides, get corrected and modifications any should be done. Final submission of the bounded project as per specifications - last week of October, 2020.

** Exact dates will be intimated later

Note: For each Meeting internal marks will be awarded based on their punctuality, performance and quality of work.

Allocation of Marks

CIA @ Reviews 80 Marks
CE Viva Voce 20 Marks
Total 100 Marks

@ Reviews	Marks
Review I	10
Review II	25
Review III	25
Project Documentation	20
Total	80

- The format of the report is as follows :

1. Wrapper (Annexure I)
2. Copy of the Wrapper
3. Certificate from the department (Annexure II)
4. Completion certificate from the company
5. Declaration by the student (Annexure III)
6. Acknowledgement
7. Table of contents (Annexure IV)
8. Chapters.

Note : (In all the meetings, students should meet the class in charge to sign in the attendance, Marks will be awarded for attendance)

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PERSONALITY APTITUDE AND CAREER ENHANCEMENT (PACE- V)

Subject Code: 18CPE05

Common to all the UG streams admitted from AY 2019-20 Onwards

Semester	V
Credit	2
Paper type	Skill based
Max. Marks	Total=100 (Online:50+Verbal Oral: 50)

Instruction Hours per Semester: 40

Aim

To educate and enrich the students on quantitative ability, reasoning ability and verbal ability. Enhance the students on shaping attitudes, grooming and etiquettes and achieve professionalism.

Course Objectives

To enable students to,

- Enhance their quantitativeability.
- Enhance their reasoningability
- Enhance their verbalability.
- Build final resumes and shape attitudes.
- Create an impression through grooming, etiquettes andprofessionalism.

Unit I

Quantitative Ability – III

Numbers, Permutations & Combinations, Geometry, Mensuration, Algebra, Probability, Time and Work.

Unit II

Reasoning Ability – III

Logical Deductions, Odd Man Out, Image Based Problems, Direction Sense, Coding and Decoding, Data Sufficiency, Data Interpretation

Unit III

Verbal Ability – III

Verbal Analogies, Sentence Improvement, Sentence Formation, Choosing the Correct Word, Idioms and Phrases, Odd Words, Paragraph Formation

Unit IV

College to Corporate – I

Final Resume Preparation; Mock Group Discussion, Mock Interview Sessions, Body Language, Power Dressing; Attitude Shaping & Building; Influencing Skills and Persuasion;

Unit V

College to Corporate – II

Personal Grooming & Etiquette Social Graces, Etiquette and Body language; Making a Great First Impression: How to present yourself to people; Developing Your Professional and Personal Image; Build self-confidence and self-esteem; Rapport building; Interpersonal Communication; Displaying Courteousness and Thoughtfulness at the Workplace; Email and Telephone Etiquette; Professionalism - Accountability, Responsibility, Ownership, Integrity, Self-motivation and being self-driven.

Course Outcomes

On the successful completion of the course, the student would be able to-

- Enhance their ability to deal withquantities
- Enhance their reasoningability.
- Enhance their verbalability.
- Build final Resumes and Shape Attitudes.
- Create an impression through grooming, etiquettes and professionalism.

References

1. Quantitative Aptitude for Competitive Exams by R. S.Agarwal
2. Quantum CAT by SarveshVerma
3. A Modern Approach to Logical Reasoning by R. S.Agarwal
4. Verbal Ability and Reading Comprehension by ArunSharma
5. Word Power Made Easy by NormanLewis
6. High School English Grammar by Wren andMartin
7. English Conversation Practice by GrantTaylor
8. Group Discussion and Interviews by AnandGanguly
9. Art of Social Media by GuyKawasaki

Verified & Approved by
Course Coordinator

18CAC07–PHP PROGRAMMING

(Common to all Computer Science and Computer Applications)

Semester	VI
Credit	4
Paper Type	Core
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To make the students understand setting up web-development environment using PHP.
- To impart the students PHP concepts, working principles and integrating HTML features.
- To learn validating user data, database management and website features in PHP.

UNIT–I 9

Essential PHP: Getting PHP - Creating - Running - Mixing HTML and PHP - Printing - Command Line PHP - Adding Comments - Working with Variables - Creating Constants - Understanding PHP's internal data types. **Operators and Flow Control**: Math - String - Execution - Comparison - Ternary - Precedence - if else statement - switch statement - Loops.

UNIT–II 10

Strings and Arrays: String Functions - Converting to and from strings - Formatting text strings - Building Arrays - Modifying and Deleting Arrays - Handling Arrays with loops - Array Functions – Converting between strings and arrays-Extracting data - Sorting Arrays - Array Operators - Comparing Arrays - Multidimensional Arrays - Moving through arrays - Splitting and Merging Arrays.

UNIT–III 12

Creating Functions: Creating - Passing Function - Passing Arrays, Passing by Reference - Default Arguments - Passing Variable Numbers of Arguments - Returning-Data, Arrays, Lists and References - Conditional and Variable Functions - Nesting Functions.

Reading Data in Web Pages: Setting Up web Pages to communicate with PHP - Handling Text Field, Text Areas, Checkboxes, Radio Buttons and List Boxes – Handling - Controls, Image maps, File Uploads and Buttons.

UNIT–IV 12

Working with Databases: Creating MySQL Database - Creating New Table - Putting Data - Accessing the Database - Updating Databases - Inserting new Data items – Deleting - Sorting Data.

UNIT–V 12

File Handling: Opening files - Looping over a file's contents - Reading Text - Closing a file - Reading from a File Character by Character - Reading a Whole file – Reading a File into Array - Checking file exist - Getting file Size - Reading with fread - Parsing with fscanf - Setting File pointer's location - Copying Files - Deleting Files - Reading and Writing Binary files - Appending - Writing with file_put_contents - Locking files.

Session, Cookies and FTP: Setting Cookie - Reading Cookie - Deleting Cookie - Working with FTP - Downloading and Uploading files - Deleting Files - Creating and Removing Directories - Sending Email - Adding Attachments - Storing Data in Session - Writing a Hit Counter using Sessions.

COURSE OUTCOMES

Upon the completion of PHP Programming theory course, the student will be able to

CO1: Know the essentials of PHP, Operators and Flow control
CO2: Use of Strings, Arrays and their functions in PHP
CO3: Demonstrate creating functions and reading data in web pages using PHP
CO4: Execute various database management functions
CO5: Discuss session, cookie, FTP and file operations

Total Periods: 55

TEXTBOOK

1. Steven Holzner, "The Complete Reference PHP", Twentieth Edition, McGraw Hill Education(India) Private Limited, 2016.
   UNIT I (Chapter 1,2) UNIT II (Chapter 3) UNIT III (Chapter 4,5)
   UNIT IV (Chapter 9) UNIT V (Chapter 10,11)

REFERENCE BOOKS

1. Robin Nixon "Learning PHP, MySQL & Javascript: With jQuery, CSS & HTML5", Fifth Edition, O'Reilly Media, 2018.
2. Mike Murach "PHP and MySQL", Third Edition, Mike Murach & Associate Inc., 2017.

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18CAC08 - PHP PROGRAMMING LAB

(Common to Computer Science and Computer Applications)

Semester	VI
Credit	3
Paper Type	Practical
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- To gain practical knowledge on PHP operators, loop statements and various functions for web development.
- To practically understand handling forms, files, database, sessions, cookies and FTP operations in PHP for web development.

LIST OF EXPERIMENTS

Write a PHP program for the following:

1. Illustrate various operators.
2. Demonstrate various loop statements.
3. Illustrate various string and array functions.
4. Illustrate function operations.
5. To accept and validate form data.
6. To exhibit various file handling operations.
7. Illustrate database management.
8. To create and destroy sessions.
9. To create and delete cookies.
10. Demonstrate various FTP functions.

COURSE OUTCOMES

Upon the completion of PHP practical course, the students will be able to

CO1: Compose programs in PHP using operators and loop statements

CO2: Develop web using PHP strings, arrays and functions

CO3: Construct programs for handling forms, files and database management in PHP

CO4: Organize sessions, cookies and FTP operations in PHP for web development

Total Periods: 33

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18ITC09-MOBILE APPLICATION DEVELOPMENT LAB
(Common to BSc Computer Science, BCA and BSc IT)

Semester	VI
Credit	2
Paper Type	Core Practical
Max. Marks	CIA:15 CE : 35 Total:50

COURSE OBJECTIVE

- Know the components and structure of mobile application development frameworks for mobiles devices
- Learn the basic and important design concepts and issues of development of mobile applications.
- Understand the capabilities and limitations of mobile devices.

LIST OF EXPERIMENTS

1. Develop an application to display your personal details as a message
2. Design a Login Screen with validation
3. Develop an application that uses GUI component font size and color
4. Develop an application that makes use of different background color
5. Develop an application that uses layout managers and event listeners.
6. Design a native calculator application
7. Create an application that draws basic graphical primitives on the screen.
8. Implement an application that implements Multi threading
9. Develop a native application that uses GPS location information
10. Develop an app and deploy it in Google Play store

COURSE OUTCOMES:

Upon the successful completion of the course the student will be able to:

CO1: Apply fundamental mobile application concepts.
CO2: Solve real world software problems in mobile devices.
CO3: Analyze mobile application for various mobile devices.

Total Hours: 33

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Dr D Jayasheela
(Academic Council Member Secretary)

18CSE03CLIENT /SERVER TECHNOLOGY

Semester	VI
Credit	4
Paper Type	Elective II
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- Inculcate the knowledge about client server technologies to develop Client Server applications.
- Know how to apply services in web servers.
- Ability to design and conduct experiments as well as to analyze and interpret data.

UNIT I

11

Client Server Computing - What is Client/Server - File servers, Database servers, Transaction servers, Group ware servers, Object servers, Web servers - FAT servers or client/server - Client/server Building blocks.

UNIT II

11

Client/Servers and operating systems - the Anatomy of a server program - Needs of Client/server from an OS - server scalability - Client Anatomy - Client and server OS trends – client OS and Server OS. NOS: Creating the single system image -Remote procedure calls (RPC) – Messaging and Queuing: The MOM Middleware.

UNIT III

11

SQL Database Servers: What does SQL do? – The ISO standards- What does a database server do? – Stored procedures, Triggers and rules. Data warehouses - OLTP (On-line Transaction Processing) - Decision Support systems (DSS) - Executive Information System (EIS) - comparing Decision Support and OLTP Systems - Production Vs Information Databases - The Data ware house

UNIT IV

11

Client/Server Transaction Processing - the ACID properties - Transaction Models - TP monitors - Client/server groupware - Importance of groupware - What is Groupware- The components of Groupware. Distributed Objects, CORBA style - Object management Architecture-compound documents - The compound document frame work.

UNIT V

11

Web client/server - What is URL? - Shortest HTML tutorial - HTTP – 3 tier client/server, web style - HTML Web based forms - CGI: The server slide of the Web - Web security - The Internet and the Intranets - Compound Documents and the object Web - The DCOM/OLE - Object Web - The CO-RBA object web.

Total Periods: 55

COURSE OUTCOME

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

- Analyze client server computing.
- Familiar with parallel Client server architecture.
- Acquire the knowledge of DSS and EIS systems.
- Apply the knowledge about database server.

- Analyze the use of URL.

TEXT BOOK

1. Robert Orfali, Dan harkey& Jeri Edwards "The Essential Client/Server Survival Guide", Second Edition, Galgotia publications private Limited, 2012.

REFERNCE BOOK

1. Paul E. Renaud "Introduction to Client/Server Systems: A Practical Guide for Systems Professionals" 2nd Edition, 2014.

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18CSE04DATA MINING & WAREHOUSING

Semester	VI
Credit	4
Paper Type	Elective II
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

- Impart knowledge on data mining functionalities and its techniques.
- Expose various association rules mining and classification.
- Impart knowledge on various clustering techniques.
- Impart knowledge on data warehousing and business analytic tools.

UNIT I

11

Introduction to KDD Process–Knowledge Discovery from Database - Why Data Mining – What kinds of data can be mined - Data mining functionalities - Technologies used - Applications - Issues - Knowing Data: Data objects and attributes - Statistical description of data - Data visualization - Data preprocessing: Data cleaning - Data integration and transformation - Data reduction.

UNIT II

11

Association Rule Mining and Classification : Introduction - Association rule mining -Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Rule Based Classification – Classification by Back propagation.

UNIT III

11

Clustering and advanced data mining:Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods – Outlier Analysis – Data Mining Applications.

UNIT IV

11

Introduction to Data Warehousing:Need for Data warehousing - Operational database systems versus Data warehouses - Data warehouse architecture – Data warehousing components –Building a Data warehouse –- Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support.

UNIT V

11

Data Warehousing and Business Analysis : Data Extraction, Cleanup, and Transformation Tools –Metadata.– Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multi relational OLAP – Categories of Tools – OLAP Tools and the Internet.

Total Periods : 55

COURSE OUTCOMES

Upon successful completion the students will be able to

- Implement data preprocessing for mining applications.

- Apply the association rules for mining the data.
- Deploy appropriate classification and clustering techniques.
- Identify the components of data warehousing architecture.
- Use Online Analytical Processing and categories of Tools.

TEXT BOOKS

1) Jiawei Han and MichelineKamber, "Data Mining Concepts and Techniques", Third Edition, Elsevier, 2012.
   Unit I: Chapters: 1,2,3. Unit II: Chapter : 6,7,8,9. Unit III: Chapter : 10,11,12.
2) Alex Berson and Stephen J.Smith, "Data Warehousing, Data Mining and OLAP", Tata McGraw – Hill Edition,21st Reprint 2011. Unit IV: Chapter: 1, 6. Unit V: Chapter :10, 13.

REFERENCE BOOKS

1) DunhamM "Data mining: Introductory andAdvancedTopics",Prentice Hall, New Delhi,2002.
2) Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Pearson Education, 2007.
3) K.P. Soman, ShyamDiwakar and V. Aja, "Insight into Data Mining Theory and Practice", Eastern Economy Edition, Prentice Hall of India, 2006.

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18CSE05 CYBER SECURITY AND ROBOTICS

Semester	VI
Credit	4
Paper Type	Elective
Max. Marks	CIA:30 + CE :70

COURSE OBJECTIVES

The students should be able

- To have a good understanding of privacy and security issues on all main social media platforms.
- To understand the fundamentals of cyber security, learn various categories of cybercrime, cyber-attacks on mobile, tools and techniques used in cybercrime, and computer forensics.
- To introduce the functional elements of Robotics, the manipulator differential motion and control, the dynamics and control of manipulators
- To impart knowledge on the direct and inverse kinematics,
- To educate on various path planning techniques

UNIT I 11

Social Media Privacy Issues: Fundamental of Social media privacy, General account settings, Basic and advanced privacy settings, Privacy protection guidelines, Trust, credibility and reputations in social systems.**Security**: Basics security of Social media, Cybercrime and Social media, Account hacking and impersonation, Stalking and harassment, Phishing & Identifying fraudulent entities in online social networks, Passwords and login, Advanced Security options.

UNIT II 11

Introduction to Cybercrime: Basics of cybercrime, Cybercrime Trend, Cybercrime and Information Security, Cybercriminals, Classifications of cybercrime, Cyber defamation , Cyber offenses and Cybercrime on mobile Categories of Cybercrime, Active Attacks, Passive Attacks, Social Engineering, Cyber stalking, Cyber-attacks on mobile , Security measurements on portable device. **Cybercrime in action**: Tools and Methods used in cybercrime, Phishing and identity theft.

UNIT III 11

Computer Forensics : Digital Forensic Science, The need of Computer forensics, Types of Digital Forensics, Cyber forensic and digital evidence, Digital forensic life cycle, Steganography, Forensics and Social Networking sites, Computer forensic challenges.**Cybercrime and Cyber security** with legal perspective Cybercrime and the legal landscape, Cybercrime scenario in India, The Indian IT Act, Amendments to the Indian IT act, Cybercrime and Punishment, Cybercrime: Mini cases.

UNIT IV 11

Robotics: Types of Robot–Technology-Robot classifications and specifications-Design and control issues- Various manipulators – Sensors - work cell - Programming languages.**Direct and inverse kinematics**: Mathematical representation of Robots - Position and orientation – Homogeneous transformation-Various joints- Representation using the DenavitHattenberg parameters -Degrees of freedom-Direct kinematics-Inverse kinematics- SCARA robots-Solvability – Solution methods-Closed form solution. **Manipulator differential motion and statics:** Linear and angular velocities-Manipulator Jacobian-Prismatic and rotary joints–Inverse -Wrist and arm singularity - Static analysis - Force and moment Balance.

UNIT V **11**

Path planning: Definition-Joint space technique-Use of p-degree polynomial-Cubic polynomial-Cartesian space technique - Parametric descriptions - Straight line and circular paths - Position and orientation planning. **Dynamics and control**: Lagrangian mechanics-2DOF Manipulator-Lagrange Euler formulation-Dynamic model – Manipulator control problem-Linear control schemes-PID control scheme-Force control of robotic manipulator.

Total Periods: 55

COURSE OUTCOMES

Upon successful completion the students will be able to

- Identify and classify cybercrime, understand different attacks on mobile devices and apply various security measurement on it
- Differentiate various types of cybercrimes and identify the cyber-attack and its methods, understand the need of computer forensics and phases involved in it.
- Understand key terms and concepts in cyber law.
- Ability to understand basic concept of robotics.
- Analyze Instrumentation systems and their applications.
- Know about the differential motion add statics in robotics, the various path planning techniques, the dynamics and control in robotics industries.

TEXT BOOKS

1. Complete Guide to Internet Privacy, 2nd edition by Anonymity & Security Kindle Edition, Reprint 2018.
2. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives By NinaGodbole, SunitBelapur , Wiley.2017.
3. R.K.Mittal and I.J.Nagrath, Robotics and Control, Tata McGraw Hill, New Delhi,4th Reprint, 2017.

REFERENCE BOOKS

1. Social Media Security: Leveraging Social Networking While Mitigating Risk : 2nd edition by Michael cross., 2017.
2. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives By Nina Godbole, SunitBelapur , Wiley,2019.
3. JohnJ.Craig, Introduction to Robotics Mechanics and Control, Third edition, Pearson Education, 3. 2016.
4. M.P.Groover, M.Weiss, R.N. Nageland N. G.Odrej, Industrial Robotics, McGraw-Hill Singapore, Reprint 2018.
5. B.K.Ghosh, Control in Robotics and Automation: Sensor Based Integration, Allied Publishers,Chennai, 2018.

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18ITC10-MOBILE APPLICATION DEVELOPMENT
(Common to BSc Computer Science, BCA and BSc IT)

Semester	VI
Credit	3
Paper Type	Skill Based Subject
Max. Marks	CIA :30 CE :70 Total: 100

COURSE OBJECTIVES

- Understand mobile applications , its importance and to solve and analyze real world problems
- To learn the requirements of the software and efficient product designs for mobile application
- Prepare the students for a successful mobile application developer
-

UNIT I: **8**

INTRODUCTION: Preliminary Considerations - Cost of Development - Importance of Mobile Strategies in Business World - Mobile Web Presence - Mobile Applications - Marketing - Web Services for Mobile Devices –Web Services Languages

UNIT II: **9**

MOBILE USER INTERFACE DESIGN: Effective Use of Screen Real Estate - Understanding Mobile Application Users - Understanding Mobile Information Design - Understanding Mobile Platform - Using the Tools of Mobile Interface Design - Choosing A Mobile Web Option – Adaptive Mobile Web Sites – Dedicated Mobile Web Sites – Mobile Web App With HTML 5

UNIT III: **9**

ANDROID APPLICATION DEVELOPMENT: Introduction to Android Operating System – Configuration of Android Environment – Operating System –JDK,SDK,ADT,AVD,Emulator,DVM – Steps To Install And Configure Eclipse and SDK – Create The First Android Application- Directory structure - Android User Interface - Understanding The Components Of A Screen

UNIT IV: **9**

DESIGNING USER INTERFACE: Designing User Interface With View – Activity - Intent and Intent_filter – Activity And Broadcast Life Cycle- Service – SQLite Database in Android - SQLite Database – Creation And Connection Of The Database- Extracting Value From A Cursor - Transactions

UNIT V: **9**

IOS AND WINDOWS PHONE 7 FOR ANDROID: Getting started with iOS - Getting the Tools - iOS Project - Debugging iOS Apps - Objective C Basics – Building App in iOS and Other Useful Thing - Windows Phone 7 Project – Building App in Windows Phone 7 - Distribution and Other Useful Windows Phone Things

Total Periods: 44

COURSE OUTCOMES:

Upon the successful completion of the course the student will be able to:

CO1: Examine mobile application market and web services for various mobile devices.
CO2: Design patterns for mobile platform.
CO3: Apply foundational android mobile application concepts.
CO4: Design and Explore operations on various GUI objects.
CO5: Implementing development setup of iOS and Windows Phone 7.

TEXT BOOKS:

1. Jeff McWherter and Scott Gowell, Professional Mobile Application Development, Wrox 2012 Ed.
2. Prasanna Kumar Dixit, Android, Vikas Publishing House Pvt. Ltd. 2014.

REFERENCE BOOKS:

1. Wei – Meng Lee, Beginning Android Application Development, Wiley 2011 Ed.
2. Charlie Collins, Michael Galpin and Matthias Kappler, Android in Practice, Dream Tech. 2012 Ed.

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