

SACRED HEART COLLEGE(AUTONOMOUS), THEVARA  
DEPARTMENT OF COMPUTER SCIENCE  
COURSE PLAN  
ACADEMIC YEAR 2017 - 18

<b>PROGRAMME</b>	BACHELOR OF COMPUTER APPLICATIONS [MOBILE APPLICATIONS AND CLOUD TECHNOLOGY]		<b>SEMESTER</b>	1		
<b>COURSE CODE AND TITLE</b>	U1CPCMT1 Foundation of Mathematics		<b>CREDIT</b>	4		
<b>HOURS/WEEK</b>	4		<b>HOURS/SEM</b>	60		
<b>FACULTY NAME</b>	Neethu A S					
<b>COURSE OBJECTIVES:</b>						
1	Understand the concepts and prove statements about sets and functions					
2	Understand relations, its properties, representation, equivalence relations and partial ordering					
3	Understand and apply concepts of Propositional logic, Predicates and Quantifiers					
4	Familiarize mathematical Symbols and standard methods of proofs.					
5	Understand the basic concepts of Number theory					
<b>CUM. HOURS</b>	<b>DATE</b>	<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>NO. OF HOURS</b>	<b>VALUE ADDITIONS</b>	<b>COURSE OUTCOME</b>
<b>MODULE I</b>						
1		Set Theory Introduction	Lecture	1		CO1
2		Basic Operations on Sets	Lecture	1		CO1
4		Set Identities	Lecture	2		CO1
5		Computer Representation of sets	Lecture	1		CO1
6		Functions	Lecture	1		CO1
7		Algebraic operations on real Functions	Lecture	1		CO1
8		Composition of Functions	Lecture	1		CO1
9		Bijjective Functions	Lecture	1		CO1
10		Inverse Functions	Lecture	1		CO1
12		Graphs of functions	Lecture	2		CO1
14		Increasing and Decreasing functions	Lecture	2		CO1
15		Sequences	Lecture	1		CO1
16		Summations	Lecture	1		CO1
17		Cardinality	Lecture	1		CO1
<b>MODULE II</b>						
18		Relations Introduction	Lecture	1		CO2
21		Types of Relations on a Set	Lecture	3		CO2
22		Combinations of Relations	Lecture	1		CO2
23		Representation of relations on Finite Sets	Lecture	1		CO2
24		Representating relations using Digraphs	Lecture	1		CO2
25		n-ary relations and their applications	Lecture	1		CO2
26		operations on n-ary relations	Lecture	1		CO2
27		Equivalence Relations	Lecture	1		CO2
28		Partitions	Lecture	1		CO2
30		Partial Oderings	Lecture	2		CO2
32		Hasse Diagrams	Lecture	2		CO2

33		Covering Relation	Lecture	1		CO2
34		Maximal and Minimal elements	Lecture	1		CO2
35		Lattices	Lecture	1		CO2
36		Topological Sorting	Lecture	1		CO2
37		Revision	Lecture	1		CO2
<b>TEST I</b>						
<b>MODULE III</b>						
38		Mathematical Logic Introduction	Lecture	1		CO3
39		Propositions -simple and compound	Lecture	1		CO3
41		Logical operators	Lecture	2		CO3
43		Conditional Statements	Lecture	2		CO3
44		Biconditional Statements	Lecture	1		CO3
45		Precedence of Logical Operators	Lecture	1		CO3
46		Logic and Bit operations	Lecture	1		CO3
47		Tautologies and contradictions	Lecture	1		CO3
49		Logical Equivalences - Laws of logic	Lecture	2		CO3
50		Predicates	Lecture	1		CO3
53		Quantifiers - Universal Quantifiers	Lecture	3		CO3
54		Quantifiers - Existential Quantifiers	Lecture	1		CO3
55		Binding Variables	Lecture	1		CO3
56		Logical Equivalence involving quantifiers	Lecture	1		CO3
57		Negation of quantified expressions	Lecture	1		CO3
58		Nested Quantifiers	Lecture	1		CO3
59		Arguments	Lecture	1		CO3
60		Rules of Inference for propositions	Lecture	1		CO3
61		Rules of Inference for quantified statements	Lecture	1		CO3
64		Methods of proving theorems	Lecture	3		CO4
<b>MODULE IV</b>						
65		Theory of Numbers - Divisibility	Lecture	1		CO5
66		Prime and Composite Numbers	Lecture	1		CO5
67		GCD	Lecture	1		CO5
68		Theorems on division	Lecture	1		CO5
69		Divisors of a given number	Lecture	1		CO5
70		Euler's Function	Lecture	1		CO5
71		Congruences -Theorems	Lecture	1		CO5
72		Fermat's theorem	Lecture	1		CO5
73		Wilson's theorem	Lecture	1		CO5
74		Lagrange's theorem	Lecture	1		CO5
<b>TEST II</b>						

**MODULE IV****TEXT BOOKS & REFERNCES**

1 K.H. Rosen: Discrete Mathematics and its Applications (Sixth edition), Tata McGraw Hill Publishing Company, New Delhi.

2 S. Bernard and J.M Child: Higher Algebra, AITBS Publishers, India,2009

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	<b>DATE</b>	<b>TOPIC &amp; NATURE OF ASSIGNMENT (INDIVIDUAL/GROUP – WRITTEN/PRESENTATION)</b>	<b>DATE OF SUBMISSION</b>	<b>MARKS</b>	<b>CO</b>
1					
2					
3					
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ACADEMIC SESSION PLAN																		
Name of the Faculty/Mem. Charge: _____																		
Course: COMPUTER FUNDAMENTALS AND ORGANISATION																		
Semester: BCA ISE yr I sem																		
Period: From June 2017 To NOV 2017																		
Module	Module Name	Chp	Section	Learning Objectives	Learning Outcomes	Session No.	Hours	Topic	Mode of Delivery	Methodology	Guest Faculty Assistance	Pre-class readings	Post-class tasks	Ref Books	Web Resources	Activities	Topic Coverage (Actual) includes activities	Remarks
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.1	A 4 B	Explain the features of computers	Describe the characteristics of computers	1	1	General features of a computer	using power point slide and black board			Introduction to Computers	Revision	Sihla, Computer Fundamentals 8PB Pub.	<a href="http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.1	A 4 B	Outline various types of computers	Differentiate among various types of computers	2	1	Generation of computers Part 1	using power point slide and black board				Revision					
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.1	A 4 B	Describe the working of computer architecture	Demonstrate the working of each component in computer architecture	3	1	Generation of computers Part 2	using power point slide and black board			Classification of computers	Assignment given based on the topic taught on that day.					
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B	Describe the functions of various devices of computer	Discuss the working of various devices of computer	4	1	Classification of computers - Personal computer, workstation.	using power point slide and black board						<a href="http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B	Explain the basic operations of computer system	Discuss the improvement of technology in different generation of computer	5	1	mainframe computer and super computers.	using power point slide and black board			Computer Applications	Revision				class Quiz	
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B	Describe the evolution of computers	Describe flow computers are helpful in various fields	6	1	Computer applications - data processing	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B	Compare among the different generations of computer	Discuss the limitations of computer	7	1	Classification of computers - information processing, commercial, office automation	using power point slide and black board				Assignment given based on the topic taught on that day.		<a href="http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B	Explain the importance of computers in various fields	Identify the impact of computer on business and society	8	1	Classification of computers - industry and engineering, healthcare	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B		Compare different generations of computers	9	1	Classification of computers - education, graphics and multimedia.	using power point slide and black board			Comparison of different generations	Assignment given based on the topic taught on that day.					
MODULE 1	GENERAL FEATURES OF A COMPUTER	1.2	A 4 B			10	1	Comparison of different generations of computers	using power point slide and black board				Assignment given based on the topic taught on that day.				Activities given in TOC	
MODULE 2	COMPUTER ORGANIZATION	2.1	A 4 B	Describe the components in computer organization	List the basic components of computer organization	1	1	Computer organization	using power point slide and black board			Computer Organization	Revision	Sihla, Computer Fundamentals 8PB Pub.				
MODULE 2	COMPUTER ORGANIZATION	2.1	A 4 B	Elaborate the working of Central Processing Unit	Describe the features of each component CPU	2	1	Central processing unit	using power point slide and black board			Computer Memory	Assignment given based on the topic taught on that day.		<a href="http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 2	COMPUTER ORGANIZATION	2.1	A 4 B	Explain memory unit	Interpret the structure of Memory unit	3	1	Computer memory - Primary memory	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.1	A 4 B	Describe the types of memory	Elaborate on various types of memory	4	1	Computer memory - Secondary memory	using power point slide and black board			Secondary storage devices	Assignment given based on the topic taught on that day.		<a href="http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Justify the requirement of cache memory in computer	List out the commonly found registers in the CPU and explain their functions	5	1	Secondary storage devices - Magnetic and optical media Part 1	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Explain the role of secondary memory in storage	Compare volatile and non-volatile memory	6	1	Secondary storage devices - Magnetic and optical media Part 2	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Explain the working of disk storage	Define disk storage	7	1	Secondary storage devices - Magnetic and optical media Part 3	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Explain various types of Input-Output devices used in computer	Identify the various types of secondary storage	8	1	Secondary storage devices - Magnetic and optical media Part 4	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Explain various types of Input-Output devices used in computer	Describe the functioning of various input-output devices	9	1	Secondary storage devices - Magnetic and optical media Part 5	using power point slide and black board			Input Devices	Assignment given based on the topic taught on that day.					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B	Elaborate the importance of OMR, MICR and OCR	Familiarize on OMR, MICR and OCR	10	1	Input Devices Part 1	using power point slide and black board				Revision		<a href="http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B		Differentiate magnetic disk and magnetic tape	11	1	Input Devices Part 2	using power point slide and black board			Output Devices	Revision					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B			12	1	Output Devices Part 1	using power point slide and black board				Revision					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B			13	1	Output Devices Part 2	using power point slide and black board				Revision					
MODULE 2	COMPUTER ORGANIZATION	2.2	A 4 B			14	1	Output Devices Part 3	using power point slide and black board				Revision				Activities given in TOC	
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B	Elaborate the features of hardware and software resources	List the various hardware and software resources	1	1	Computer hardware and software: Machine language and high level language Part 1	using power point slide and black board			Computer Hardware and software	Revision	Sihla, Computer Fundamentals 8PB Pub.	<a href="http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.powerpoint.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B	Explain the various types of computer languages and their translators	Distinguish between machine level, assembly level and high level languages	2	1	Computer hardware and software: Machine language and high level language Part 2	using power point slide and black board			Application Software	Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B	Elaborate on security issues in computers	Differentiate system software and application software	3	1	Application software, computer program	using power point slide and black board			Operating System	Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B	Describe operating systems used in computer	Identify what are the security threats	4	1	Operating system	using power point slide and black board			Computer virus, antivirus and security	Revision		<a href="http://www.dffm.com/difference-between-virus-and-antivirus-302628a">http://www.dffm.com/difference-between-virus-and-antivirus-302628a</a>			
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B	Identify the need of translator program in computer	Differentiate between Disk operating system and Windows operating system	5	1	Computer virus, antivirus and computer security: Elements of MS DOS and Windows OS	using power point slide and black board			Computer Arithmetic	Revision					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Give some advantages of Windows over DOS system.	6	1	Computer arithmetic Part 1	using power point slide and black board				Assignment given based on the topic taught on that day.		<a href="http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Differentiate between non-positional and positional number system.	7	1	Computer arithmetic Part 2	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Demonstrate conversion of the number system from one form to another	8	1	Computer arithmetic Part 3	using power point slide and black board			Binary, Octal and Hexadecimal number systems.	Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Develop an algorithm/Flowchart for a specific problem	9	1	Binary, octal and hexadecimal number systems Part 1	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Outline the elements and applications of a database	10	1	Binary, octal and hexadecimal number systems Part 2	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Elaborate logic gates and Boolean expression	11	1	Binary, octal and hexadecimal number systems Part 3	using power point slide and black board			Basic Gates	Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Design a flow diagram using logic gates	12	1	Basic Gates/DeMorgan theorems, duality theorems, NOR, NAND, XOR, XNOR gates), Boolean expressions and logic diagrams, Types of Boolean expressions Part 1	using power point slide and black board				Assignment given based on the topic taught on that day.		<a href="http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html">http://www.fundamentals.com/fundamentals/revision-to-computer-fundamentals-8pb-publication.html</a>			
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Draw up a flowchart to accept any two numbers and display their product	13	1	Basic Gates/DeMorgan theorems, duality theorems, NOR, NAND, XOR, XNOR gates), Boolean expressions and logic diagrams, Types of Boolean expressions Part 2	using power point slide and black board				Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		Draw the circuit diagram that implements the expression using gates having no more than three inputs	14	1	Basic Gates/DeMorgan theorems, duality theorems, NOR, NAND, XOR, XNOR gates), Boolean expressions and logic diagrams, Types of Boolean expressions Part 3	using power point slide and black board			Algorithms and Flowcharts	Assignment given based on the topic taught on that day.					
MODULE 3	COMPUTER HARDWARE AND SOFTWARE	3.1	A 4 B		X=ABC(A+B)	15	1	Algorithms and Flowcharts	using power point slide and black board				Revision				Activities given in TOC	



MODULE 4	MS OFFICE	4.1	A & B	Explain benefits of using MS office	Identify the benefits of MS office	1	1	read direct: An overview of MSWORD	using power point slide and black board		Word and Spreadsheet	Assignment given based on the topic taught on that day.	Saba, Computer Fundamentals BFB Pub.	<a href="http://www.microsoft.com/office/using/05-04-05/05">http://www.microsoft.com/office/using/05-04-05/05</a>			
MODULE 4	MS OFFICE	4.1	A & B	Elaborate the features of MS Office	List the features of MS Office	2	1	Introduction of MS WORD Part 1	using power point slide and black board		MS Word	Assignment given based on the topic taught on that day.					
MODULE 4	MS OFFICE	4.1	A & B	Illustrate help and security in MS office	Demonstrate help and security in MS office	3	1	Introduction of MSWORD Part 2	using power point slide and black board			Assignment given based on the topic taught on that day.					
MODULE 4	MS OFFICE	4.1	A & B	Explain the features of MS word	Use MS word for various documentation tasks	4	1	Introduction of MSExcel Part 1	using power point slide and black board		MS Excel	Assignment given based on the topic taught on that day.		<a href="http://www.excel.easy.com/">http://www.excel.easy.com/</a>			
MODULE 4	MS OFFICE	4.1	A & B	Explain merge printing in MS word	Explain the use of AutoFormat feature of Word	5	1	Introduction of MSExcel Part 2	using power point slide and black board			Assignment given based on the topic taught on that day.					
MODULE 4	MS OFFICE	4.2	A & B	Explain the function of worksheet in MS Excel	Distinguish between worksheet and work sheet	6	1	Introduction of MSExcel Part 3	using power point slide and black board		MS Power Point	Assignment given based on the topic taught on that day.					
MODULE 4	MS OFFICE	4.2	A & B	Illustrate to work with formulae	Perform calculations in an Excel sheet	7	1	Introduction of MSPowerPoint Part 1	using power point slide and black board			Assignment given based on the topic taught on that day.		<a href="http://www.presentationpoint.com/PowerPoint.htm">http://www.presentationpoint.com/PowerPoint.htm</a>			
MODULE 4	MS OFFICE	4.2	A & B	Demonstrate how to create power point presentation	Design a power point presentation with transitions and animations	8	1	Introduction of MSPowerPoint Part 2	using power point slide and black board			Assignment given based on the topic taught on that day.					Activities given in TOC
MODULE 4	MS OFFICE	4.2	A & B	Explain the basic operations performed in PowerPoint	Using a template, create a PPT and do the necessary formatting												
MODULE 4	MS OFFICE	4.2	A & B	Explain the use of Excel's Function Wizard	Explain the use of Excel's Function Wizard												
MODULE 4	MS OFFICE	4.2	A & B		List the conversion of text to shapes in PowerPoint												
MODULE 5	INTRODUCTION TO NETWORKS	5.1	A & B	Explain the importance of computer networks	Identify the uses of computer networks in real world	1	1	Network of computers	using power point slide and black board		Network of Computers	Revision	Saba, Computer Fundamentals BFB Pub.	<a href="http://www.infomart.com/Articles/Articles.aspx?cid=251301">http://www.infomart.com/Articles/Articles.aspx?cid=251301</a>			
MODULE 5	INTRODUCTION TO NETWORKS	5.1	A & B	Elaborate on transmission technology	Explain how transmission technology is useful in computer networks	2	1	Types of networks LAN	using power point slide and black board		LAN, MAN	Revision					
MODULE 5	INTRODUCTION TO NETWORKS	5.1	A & B	Differentiate among the types of networks	Identify the differences among the various types of networks available	3	1	Types of networks MAN	using power point slide and black board		WAN	Revision					
MODULE 5	INTRODUCTION TO NETWORKS	5.1	A & B	List some applications of computer networks	Compare intranet, Internet and extranet	4	1	Types of networks WAN	using power point slide and black board		Intranet and Internet	Revision		<a href="http://heather.cs.ucdavis.edu/~mreiff/11/networks/lan/wan/intranet.html">http://heather.cs.ucdavis.edu/~mreiff/11/networks/lan/wan/intranet.html</a>			
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Elaborate the different types of networks with example		5	1	Intranet and Internet	using power point slide and black board		Internet Applications	Revision					
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Describe the basic terminologies of internet	Describe how domain name systems work	6	1	Internet applications	using power point slide and black board		www	Assignment given based on the topic taught on that day.					
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Illustrate Domain name system and world wide web	Discuss how browsers and search engines help in real world	7	1	World wide web	using power point slide and black board		Email, browsing, searching	Assignment given based on the topic taught on that day.					
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Elaborate steps to create an account in Gmail and its features	List the multimedia applications of internet	8	1	E-mail, browsing and searching	using power point slide and black board		Search Engines	Assignment given based on the topic taught on that day.					
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Differentiate between browsers and search engines	Explain the purpose of URL in WWW	9	1	search engines	using power point slide and black board		Multimedia Applications	Assignment given based on the topic taught on that day.					
MODULE 5	INTRODUCTION TO NETWORKS	5.2	A & B	Explain multimedia applications	Create your account in yahoo mail	10	1	multimedia applications	using power point slide and black board			Assignment given based on the topic taught on that day.					Activities given in TOC

**SACRED HEART COLLEGE(AUTONOMOUS), THEVARA**

**DEPARTMENT OF COMPUTER SCIENCE**

**COURSE PLAN**

**ACADEMIC YEAR 2017-2018**

<b>PROGRAMME</b>	BCA( MOBILE APPLICATIONS AND CLOUD TECHNOLOGY)	<b>SEMESTER</b>	1
<b>COURSE CODE AND TITLE</b>	U1CRBCA2 : Programming in 'C'	<b>CREDIT</b>	3
<b>HOURS/WEEK</b>	4	<b>HOURS/SEM</b>	72
<b>FACULTY NAME</b>	Shailesh S		

**COURSE OBJECTIVES:**

CO 1	Identify real life problems and convert it to computaional problems
CO 2	Solve problems and Produce algorithms, pseudocodes and flowcharts for it.
CO 3	Discuss and memorize different C programming constructs
CO 4	Apply programming concepts to develop programs for problems
CO 5	Analyze and Compare approches to model efficient and standard programs
CO 6	Evaluuate, compile, run and debug programs

<b>CUM. HOURS</b>	<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>NO. OF HOURS</b>	<b>VALUE ADDITIONS</b>
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**MODULE I**

3	Introduction to computer based problem solving	ppt/board	3	
4	Program design and implementation issues	ppt/board	1	
8	Flowcharts & Algorithms,	ppt/board	4	improved logical thinking
9	Top down design & stepwise refinement,	ppt/board	1	improved logical thinking
10	Programming environment	ppt/board	1	
11	Machine language, assembly language	ppt/board	1	
12	high level languages, Assemblers,	ppt/board	1	
13	Compilers, Interpreters	ppt/board	1	
14	Hands on Session	Lab	1	critical thinking
15	Hands on Session	Lab	1	critical thinking
16	Hands on Session	Lab	1	critical thinking

**MODULE II**

17	Overview of C, Data Types, Constants & Variables	ppt/board	1	
18	Operators & Expressions	ppt/board	1	
20	Branching and Looping	ppt/board	2	
23	Arrays- single dimensional	ppt/board	3	
26	Multidimensional arrays and matrix operations	ppt/board	3	
27	Functions-fundamentals – general form, function arguments, return value,	ppt/board	1	
28	Basic I/O-formatted and Unformatted I/O.	ppt/board	1	
29	Tutorial Session	Lab	1	structured coding
30	Tutorial Session	Lab	1	structured coding

CUM. HOURS	TOPIC	LEARNING RESOURCES	NO. OF HOURS	VALUE ADDITIONS
31	Tutorial Session	Lab	1	structured coding
<b>TEST I</b>				
<b>MODULE III</b>				
32	Scope rules- Local & global variables	ppt/board	1	
33	scope rules of functions, Functions-parameter passing	ppt/board	1	
34	call by value and call by reference	ppt/board	1	
35	calling functions with arrays, argc and argv	ppt/board	1	
37	recursion- basic concepts, ex-towers of Hanoi	ppt/board	2	
38	Tutorial Session	Lab	1	program designing
39	Tutorial Session	Lab	1	program designing
40	Tutorial Session	Lab	1	program designing
<b>MODULE IV</b>				
41	Pointers- The & and * operator, pointer expression, assignments, arithmetic, comparison,	ppt/board	1	
43	malloc vs calloc, arrays of pointers, pointers to pointers,	ppt/board	2	
45	initializing pointers, pointers to functions, function returning pointers,	ppt/board	2	
47	Structures- Basics, declaring, referencing structure elements,	ppt/board	2	
49	array of structures, passing structures to functions,	ppt/board	2	
53	structure pointers, arrays and structures within structures,	ppt/board	4	
54	Unions – Declaration, uses, enumerated data-types, typedef	ppt/board	1	
55	Tutorial Session	Lab	1	hands on skills
56	Tutorial Session	Lab	1	hands on skills
57	Tutorial Session	Lab	1	hands on skills
<b>TEST II</b>				
<b>MODULE V</b>				
59	File Handling – The file pointer, file accessing functions, fopen, fclose, puc, getc, fprintf,	ppt/board	2	
61	C Preprocessor- #define, #include, #undef, Conditional compilation directives	ppt/board	2	
63	C standard library and header files: Header files, string functions,	ppt/board	2	
64	mathematical functions, Date and Time functions	ppt/board	1	
65	Tutorial Session	Lab	1	modeling projects
66	Tutorial Session	Lab	1	modeling projects
67	Tutorial Session	Lab	1	modeling projects
72	Revision	ppt/board	5	
<b>TEXT BOOKS &amp; REFERNCES</b>				
1	Let us C by Yashwant Kanetka, 6th Edition, PBP Publication			

<b>CUM. HOURS</b>		<b>TOPIC</b>	<b>LEARNING RESOURCES</b>	<b>NO. OF HOURS</b>	<b>VALUE ADDITIONS</b>
2		The C programming Language by Richie and Kenninghan, 2004, BPB Publication			
3		Programming in ANSI C by Balaguruswamy, 3rd Edition, 2005, Tata McGraw Hill			
	<b>DATE</b>	<b>TOPIC &amp; NATURE OF ASSIGNMENT (INDIVIDUAL/GROUP – WRITTEN/PRESENTATION)</b>	<b>DATE OF SUBMISSION</b>	<b>MARKS</b>	
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ACADEMIC SESSION PLAN																			
Name of the Institute: <b>MCA-Careers Institute</b>																			
Course: <b>Introduction to Linux</b>																			
Semester: <b>I</b>																			
Period: From: <b>JUNE 2017</b> To: <b>NOV 2017</b>																			
Module	Module Name	Chp	Section	Learning Objectives	Learning Outcomes	Session No.	Hours	Topic	Mode of Delivery	Methodology	Guest Faculty Assistance	Pre-class readings	Post-class tasks	Ref Books	Web Resources	Activities	Topic Coverage (Actual)	Remarks	
1	Linux Introduction	1.1	AAB	• Explain the evolution of UNIX along with its versions	• Summarise the growth of UNIX over the years	1	1	Introduction to Multi user System	Lecture	ppt			Origin of LINUX	Operating System: Maurice J. Bach, Pearson Education, 2010	<a href="http://www.gnu.org/getting-started.html">http://www.gnu.org/getting-started.html</a>				
1	Linux Introduction	1.1	AAB	• Describe the features and benefits of UNIX	• List the features and benefits of UNIX	3	1	Features and Benefits of UNIX	Lecture	ppt		History of UNIX	List out the versions of UNIX		<a href="http://features.linux.com/docs/UNIX%20commands.pdf">http://features.linux.com/docs/UNIX%20commands.pdf</a>		Implement the features using UNIX commands		
1	Linux Introduction	1.1	AAB	• Explain UNIX system architecture	• Describe the three major components of UNIX system	4	1	UNIX System Architecture	Lecture	ppt		UNIX system architecture	Identify the components of UNIX system	Programmer's Guide, S. Prata, BPB Publications, and New Delhi, 2011	<a href="http://www.gnu.org/getting-started.html">http://www.gnu.org/getting-started.html</a>				
1	Linux Introduction	1.1	AAB	• Demonstrate how to login and logout UNIX machine in different terminals	• Perform login and logout in UNIX machine			Getting Started (Login/Logout)	Lecture	ppt		UNIX machine introduction	Login and logout UNIX machine		<a href="http://www.gnu.org/getting-started.html">http://www.gnu.org/getting-started.html</a>				
1	Linux Introduction	1.1	AAB	• Illustrate how to create and view files using cat command	• Demonstrate file creation and view files using cat command	5	1	Manipulating Files	Lecture	ppt			What is cat command	Create a file using cat command					
1	Linux Introduction	1.1	AAB	• Perform file comparison and view the required contents of a file	• Demonstrate the commands to check disk free space and disk used space	6	1		Lecture	ppt			What cmp command	Perform file comparison using cmp command					
1	Linux Introduction	1.1	AAB	• Describe various commands for checking disk free space and disk used space	• List the popular distributions of Linux	7	1	Disk Related commands	Lecture	ppt/Hands-on			What are disk related commands	Execute disk related commands					
1	Linux Introduction	1.2	AAB	• Outline the various flavors of Linux	• Introduction to various Linux flavors	8	1	Introduction to various Linux flavors	Lecture	ppt			List out various flavors of Linux	Features of each flavours					
1	Linux Introduction	1.2	AAB	• Explain Debian and RPM package	• Explain RPM file format	9	2	DEBIAN AND RPM PACKAGES	Lecture	ppt			What is debian and RPM packages	Examples of RPM and debian					
1	Linux Introduction	1.2	AAB	• Discuss DEBIAN and RPM distributions provided by the vendor	• Install Ubuntu	10	1	UBUNTU	Lecture	ppt			Introduction to Ubuntu	Install Ubuntu					
1	Linux Introduction	1.2	AAB	• Discuss the rise of Ubuntu and its versions	• Summarise the advantages and versions of Ubuntu	11	1	UBUNTU	Lecture	ppt			Introduction to Ubuntu	Install Ubuntu					
1	Linux Introduction	1.2	AAB	• Explain the prerequisites for installing Ubuntu	• Demonstrate Linux commands	12	2	Linux Versions Installation Features	Lecture	ppt									
1	Linux Introduction	1.2	AAB	• Demonstrate how to install Ubuntu		13	1		Lecture	ppt									
1	Linux Introduction	1.2	AAB	• Illustrate the Linux commands along with its options		14	1	Commonly used commands in LINUX (who, pwd, cd, mkdir, rm, cp, mv, ls, the, find, chmod, cp, grep, sed, awk, jr, yacc)	Lecture	ppt/Hands-on			Introduction to unix commands	Execute unix commands				Take a scenario and justify it by executing UNIX commands	
2	THE UNIX FILE SYSTEM	2.1	AAB	• Explain the different types of files in LINUX	• Identify the differences between various file types available in LINUX	1	1	Types of Files	Lecture	ppt			List out Unix files	Distinguish different unix files		<a href="http://redhat.com/linux/2.1/node16.html">http://redhat.com/linux/2.1/node16.html</a>			
2	THE UNIX FILE SYSTEM	2.1	AAB	• Describe the structure of a regular file	• Outline the features of a regular file	2	1	Structure of a regular file	Lecture	ppt			What is a regular file	Spot out the features of the regular file		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
2	THE UNIX FILE SYSTEM	2.1	AAB	• Explain the directory structure of the UNIX file system	• Illustrate how UNIX file system can be represented with hierarchical tree structure	3	1	Directory structure of a UNIX file system	Lecture	ppt/Hands-on			Introduction to unix file system	Justify the structure of unix file system with a demo.		<a href="http://www.linfo.org/node.html">http://www.linfo.org/node.html</a>			
2	THE UNIX FILE SYSTEM	2.1	AAB	• Explain the various disk allocation methods	• Describe how each block on a disk is assigned	4	1	Allocation of Disk Blocks	Lecture	ppt			What is a disk block	Function of a disk block		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
2	THE UNIX FILE SYSTEM	2.1	AAB	• Describe inodes along with its importance	• Prepare a list of various types of information stored in inodes			INODES	Lecture	ppt			What are inodes	Functions of an inode					
2	THE UNIX FILE SYSTEM	2.1	AAB	• Define superblock and the process of creating a superblock	• Discuss the purpose of super block	5	1	Superblock	Lecture	ppt			What is a superblock	Significance of superblock					
2	THE UNIX FILE SYSTEM	2.1	AAB	• Illustrate the steps to convert partitions to an inodes	• Write an algorithm to convert partitions to an inodes			CONVERSION OF A PARTITION TO AN INODE	Lecture	ppt									
2	THE UNIX FILE SYSTEM	2.1	AAB	• Discuss in detail how to assign inodes to a new file	• Identify the need of inode assignment	6	1		Lecture	ppt									
2	THE UNIX FILE SYSTEM	2.2	AAB	• Explain various UNIX system calls used to manage file system along with its syntax	• Summarise the functionality of UNIX system calls	7	1	UNIX system calls	Lecture	ppt			What are system calls	Functions of system calls		<a href="http://www.cs.cmu.edu/~2003S/lectures/2003syllabus/2003syllabus.html">http://www.cs.cmu.edu/~2003S/lectures/2003syllabus/2003syllabus.html</a>			
2	THE UNIX FILE SYSTEM	2.2	AAB	• Describe the various ways of creating files in UNIX	• Create a file using UNIX commands			File Creation	Lecture	ppt			Cat command	Various ways to create a file		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
2	THE UNIX FILE SYSTEM	2.2	AAB	• Explain how to create special files in UNIX	• Summarise the steps for creating special files in UNIX	8	1	Creation of special files	Lecture	ppt			What are special files	Steps to create special files					
2	THE UNIX FILE SYSTEM	2.2	AAB	• Illustrate how to change the directory and root	• Use of command to change present directory	9	1	Changing directory and root	Lecture	ppt/Hands-on			What is directory	Basic commands to move between to directory and access the files in the directory					
2	THE UNIX FILE SYSTEM	2.2	AAB	• Explain the various ways to change owner and mode of file	• Demonstrate the commands chown and chmod	10	1	Changing owner and mode	Lecture	ppt/Hands-on			purpose of chown and chmod commands	Execute chown and chmod commands					
2	THE UNIX FILE SYSTEM	2.2	AAB	• Demonstrate the use of stat, fsstat, pipes and dup	• Describe system calls: stat, fsstat, pipes and dup	11	1	Stat and fsstat, pipes and dup	Lecture	ppt/Hands-on			What are pipes	With the help of Unix commands illustrate pipes		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
2	THE UNIX FILE SYSTEM	2.2	AAB	• Illustrate how to mount and unmount device on a file system	• Describe how to mount and unmount files in UNIX file system	12	1	Mounting and unmounting file systems	Lecture	ppt/Hands-on			What is mounting and unmounting	Mount and unmount a file				Technical quiz	
2	THE UNIX FILE SYSTEM	2.2	AAB	• Describe how to link and unlink files in UNIX	• Perform link and unlink			Link and unlink	Lecture	ppt/Hands-on			In command	Perform linking using in command					
3	UNIX PROCESS MANAGEMENT	3.1	AAB	• Discuss process state model for the UNIX system and set of state transitions	• Explain process state transition diagram	1	1	Process States and Transitions	Lecture	ppt			List out the various process states	Explain the process transitions for process states					
3	UNIX PROCESS MANAGEMENT	3.1	AAB	• Describe the principles of memory management for processes and kernel	• Kernel's virtual address space and physical address space	2	1	Layout of System Memory	Lecture	ppt			Principles of memory management	Distinguish kernel virtual address and physical address space		<a href="http://www.linux.com/html/shell-script.html">http://www.linux.com/html/shell-script.html</a>			
3	UNIX PROCESS MANAGEMENT	3.1	AAB	• Explain the operation of system and hardware cooperate to do virtual memory translation	• Describe how the process state change from running to terminated				Lecture	ppt									
3	UNIX PROCESS MANAGEMENT	3.1	AAB	• Explain the components of the context of a process	• Illustrate the method of changing mode from user to kernel	3	1	Context of a Process	Lecture	ppt			What is a context of a process	Switch from user to kernel		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Explain the phases to create a new process in the UNIX OS	• List the components of a regular context	4	1	Process Creation	Lecture	ppt			Phases in creating a new process			<a href="http://www.cs.cmu.edu/~2003S/lectures/2003syllabus/2003syllabus.html">http://www.cs.cmu.edu/~2003S/lectures/2003syllabus/2003syllabus.html</a>		Prepare a presentation (15 slides) on Process state transition	
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Explain how to check and handle signals in the process state diagram	• Discuss how fork creates a new process	5	1	Signals	Lecture	ppt			What is fork	Create a process using fork		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Describe how to terminate a process	• Classify signals according to their applications	6	1	Process termination	Lecture	ppt			Process termination	Conditions in which process is terminated		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Define PID and PPID	• Demonstrate how to kill a process	7	1		Lecture	ppt/Hands-on									
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Discuss how UNIX invoke the programs through GUI or terminal	• Use PID to control a process	8	1	Invoking other programs	Lecture	ppt			PID and PPID	Kill a process		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Describe the types of a shell	• Describe how to invoke a file using exec system call	9	2		Lecture	ppt									
3	UNIX PROCESS MANAGEMENT	3.2	AAB	• Explain the process to execute the shell script	• Identify the responsibilities of a shell	10	1	Shell	Lecture	ppt/Hands-on			What is a shell	Significance of a shell		<a href="http://www.ibm.com/developerWorks/linux/understanding.html">http://www.ibm.com/developerWorks/linux/understanding.html</a>			











MODULE 6	TEMPLATES	4.1	A A B	templates	What is templates	1		Templates	using power point slide and black board			Assignment given based on the topic taught on that day.	E. Balagurusamy			
MODULE 6	TEMPLATES	4.1	A A B	introduction to templates, class templates, function templates, member function templates.	explain in detail about templates in c++	2	1	Templates	using power point slide and black board			Assignment given based on the topic taught on that day.		test		
MODULE 6	EXCEPTION HANDLING	4.1	A A B	exception handling	What are exceptions? How do we handle the exception in c++	3	1	exception handling	using power point slide and black board			Assignment given based on the topic taught on that day.				
MODULE 6	CONSOLE INPUT OUTPUT OPERATORS	4.2	A A B	console input output operator	c++ stream, stream classes	4	1	Console input/output operator	using power point slide and black board			Assignment given based on the topic taught on that day.				
MODULE 6	CONSOLE IO OPERATOR	4.2	A A B	unformatted i/o operators	explain about unformatted input output operators.	5	1	Console input/output operator	using power point slide and black board			Assignment given based on the topic taught on that day.		test		
MODULE 6	CONSOLE INPUT OUTPUT OPERATOR	4.2	A A B	formatted i/o operators	explain about formatted input output operators	6	1	Console input/output operator	using power point slide and black board			Assignment given based on the topic taught on that day.				
MODULE 6	MANIPULATORS	4.2	A A B	define manipulators	What is manipulator in c++	7	1	manipulators	using power point slide and black board			Assignment given based on the topic taught on that day.				



**COURSE PLAN**  
**COURSE : BASIC STATISTICS**

**Semester : III**

**Course Teacher : Reshmi A.N**

**Hours/Week: 04**

**COURSE OBJECTIVES**

Statistics plays a pivotal role in decision making. Collection, classification, analysis and presentation of data are some of the important functions of Statistics. This course is designed to enable the students to understand the basic functions of statistics

**Basic Reference**

- 1 S.C. Gupta and V. K.Kapur. Fundamentals of Mathematical Statistics, Sultan Chand and sons New Delhi
- 2 S.P. Gupta. Statistical Methods ,Sultan Chand & Sons Delhi
- 3 B.L. Agarwal. Basic Statistics, New Age International (p) Ltd.
- 4 S.C.Gupta and V.K.Kapoor. Fundamentals of Applied Statistics,Sultan Chand & Sons Delhi

**COURSE OUTCOMES**

**At the end of the course, the student will be able to**

- (i) to tabulate statistical information given in descriptive form.
- (ii) to use graphical techniques and interpret.
- (iii) to compute various measures of central tendency, dispersion.
- (iv) to compute correlation coefficient and Regression

(v) to do problems Based on probability

(vi) To do Time Series Analysis

Sessions	Topic	Method	Remarks/Reference
1.	Bridge course	PPT	
2.	Bridge course	PPT	
3.	Measures of central tendency	Lecturing	Module I
4.	Mean	Lecturing	
5.	median	Lecturing	
6.	Mode	Lecturing	
7.	Geometric mean and Harmonic mean, problems	Lecturing	
8.	Absolute and relative measures of dispersion	Lecturing	
9.	Range, Quartile Deviation	Lecturing	Module 2
10.	Mean Deviation	Lecturing	
11.	Standard Deviation	Lecturing	
12.	Standard Deviation	Lecturing	
13.	Properties, Problems	Lecturing	
14.	deciles, percentiles	Lecturing	
15.	deciles, percentiles	Lecturing	
16.	Coefficient of Variation	Lecturing	
17.	Problems graphical method	Lecturing	
18.	Box plots	Lecturing	
19.	Box plots	Lecturing	
20.	Correlation	Lecturing	
21.	Rank Correlation	Lecturing	
22.	Regression Equations	Lecturing	
23.	Revision		

	CIA – I	2 Hrs	
	Permutation and combination		Module 3
22	Probability concepts,Random Experiment	Lecturing	
23	Sample Space,Events,Probability Measure	Lecturing	
24	Classical definition of probability	Lecturing	
25	Statistical Definition of probability	Lecturing	
26	Axiomatic Definition Of probability	Lecturing	
27	Addition THEorem	Lecturing	
28	Conditional Probability	Lecturing	
29	Independence of events	Lecturing	
30	Multiplication Theorem	Lecturing	
31	Total probability Law	Lecturing	
32	Baye’s Theorem	Lecturing	
	Problems		
33	Index numbers	Lecturing	Module 4
34	Simple and Weighted index numbers	Lecturing	
35	Laspeyre’s	Lecturing	
36	Paasche’s	Lecturing	
37	Bowley’s	Lecturing	
38	Fisher’s index numbers	Lecturing	
39	Test for index numbers	Lecturing	
40	Test for index numbers	Lecturing	
41	Cost of living index numbers	Lecturing	
43	Constructions of Cost of living index numbers	Lecturing	
44	Time series- Components of a time series data	Lecturing	
45	Determination of trend- Moving average	Lecturing	
46	curve fitting methods	Lecturing	

47	Computation of and seasonal indices	Lecturing	
48	Method of simple averages	Lecturing	

### ASSIGNMENTS

	<b>Topic of Assignment &amp; Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)</b>
1	Solving Problems on Measures of central tendency,Dispersion in Excel
2	Solving Problems on correlation Regression in Excel
4	Solving Problems on Time Series in Excel





Item No.	Item Name	Unit	Quantity	Rate	Total	Remarks
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## SACRED HEART COLLEGE(AUTONOMOUS), THEVARA

DEPARTMENT OF COMPUTER SCIENCE

COURSE PLAN

ACADEMIC YEAR 2017-2018

PROGRAMME	<b>BCA [MOBILE APPLICATIONS AND CLOUD TECHNOLOGY]</b>	SEMESTER	3
COURSE CODE AND TITLE	<b>U3CRBCA10 COMPUTER NETWORKS</b>	CREDIT	3
HOURS/SEM	72		
FACULTY NAME	<b>Regitha M R</b>		

**PROGRAMME SPECIFIC OUTCOMES(PSOs)**

PSO 1	Apply the theoretical foundations of computer science in modelling and developing solutions to the complex and real world problems.
PSO 2	Comprehend, explore and build up computer programs, applications in the allied areas like Algorithms, Multimedia, Web Design and android applications for efficient design of computer-based systems that meet the needs of industry and society.
PSO 3	Develop skills in android and cloud technology development so as to enable the graduates to take up employment/self-employment in global technical market.
PSO 4	Apply knowledge of layered network models, protocols, technologies, topologies and security policies for building network and internet based applications.

**COURSE OUTCOMES (COs)**

CO 1	Independently understand basic computer network technology
CO 2	Identify the different types of network topologies and protocols
CO 3	Enumerate the layers of TCP/IP and explain the functions of each layer
CO 4	Identify the different types of network devices and their functions within a network
CO 5	Network Troubleshooting









UNIVERSITY OF CALicut	
SCHOOL OF DISTANCE EDUCATION	
B.A. POLITICAL SCIENCE	
SEMESTER - I	
APRIL 2023	
Course Name	Mobile Web and Application Development
Course Code	18MCA04
L.P.T. Branch	B.Sc.
Course Level	B
Course Instructor	Dr. J. S. S. S.

  

Course Objective	<p>1. To understand the architecture and development of mobile applications.</p> <p>2. To understand the requirements and development of mobile applications.</p> <p>3. To understand the requirements and development of mobile applications.</p>
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Course Outcome	<p>1. Identify requirements and implement mobile interface.</p> <p>2. Develop mobile interface using various communication and protocols with.</p> <p>3. Develop and deploy web services that access different devices and data.</p> <p>4. Develop and deploy web services that access different devices and data.</p> <p>5. Develop and deploy web services that access different devices and data.</p>
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Module	Module Name	Cip	Session	Learning Objectives	Learning Outcomes	Session No.	Hours	Topic	Mode of Delivery	Methodology	Self-Paced Learning	Industry Exposure	Pre-class readings		Post-class readings		Ref Books	Web Resources	Activities		Weightage	Evaluation	Topic Coverage (Based on Learning Objectives)		Assess		
													F.Y	L.M	F.Y	L.M			F.Y	L.M			F.Y	L.M			
1	Mobile Application Principles	1.1	Mobile Application Development Paradigm	• Explain mobile application development paradigm	• Identify the new paradigm for mobile application development	1	1	Mobile Application Development Paradigm	PPT	Lecture	NO	NO	Learn and be aware of Mobile Application Development	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	-	-	-	-	-	-	-	
1	Mobile Application Principles	1.1	Mobile Application Development Paradigm	• Explain the architecture of mobile application	• Identify the architecture of mobile application	2	1	What is Application	PPT	Lecture	NO	NO	Research and review on history of Mobile Application Development	View the Video on " Mobile Application Development Paradigm"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Study SLM and resolve SAE's	-	-	-	-	-	-
1	Mobile Application Principles	1.1	Mobile Application Development Paradigm	• Explain various mobile application	• Compare various mobile application	3	2	Mobile Application	PPT	Lecture & Group Discussion	NO	NO	-	View the Video on " Mobile Application development platforms"	Get clear the Types of Mobile Application development platforms	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Study SLM and resolve SAE's	-	-	-	-	-
1	Mobile Application Principles	1.1	Mobile Application Development Paradigm	• Explain various mobile application	• Explain various mobile application	4	2	Programming Rules and Challenges	PPT	Lecture	NO	NO	-	-	-	-	-	-	Professional Mobile Application Development by Jeff McWhorter, Scott Greenl, 2012	-	Study SLM and resolve SAE's	-	-	-	-	-	
1	Mobile Application Principles	1.1	Mobile Application Development Paradigm	• Explain various mobile application	• Identify the need of mobile application	5	2	Mobile Programming Task	PPT	Lecture	NO	NO	-	View the Video on " Mobile Programming Task"	-	-	-	-	Professional Mobile Application Development by Jeff McWhorter, Scott Greenl, 2012	-	Study SLM and resolve SAE's	-	-	-	-	-	
1	Mobile Application Principles	1.2	Evolution and Future of mobile app	• Identify the history and evolution to how to identify change of mobile application	• Explain the evolution of mobile application	6	2	Mobile Application Evolution	PPT	Lecture	NO	NO	-	View the Video on " Mobile Application Evolution"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Study SLM and resolve SAE's	-	-	-	-	-	
1	Mobile Application Principles	1.2	Evolution and Future of mobile app	• Explain the evolution of mobile application	• Identify various features of mobile application	7	2	This Client and Fat Client	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Prepare a table to compare the features of this client and fat client	-	-	-	-	-	
1	Mobile Application Principles	1.2	Evolution and Future of mobile app	• Explain the evolution of mobile application	• Identify the trends that define the future of mobile app development	8	2	Future of Mobile App Development	PPT	Lecture & Group Discussion	NO	NO	-	View the Video on " Future of Mobile App Development"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	-	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.1	Mobile App Programming in Java	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	9	2	Mobile App Programming in Java	PPT	Lecture	NO	NO	-	View the Video on " Mobile App Programming in Java"	-	-	-	-	Learn the various features of mobile app programming in Java	-	-	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.1	Mobile App Programming in Java	• Explain the mobile app programming in Java	• Identify the need of Java to develop mobile application	10	2	Introduction to Java and its working mechanism	PPT	Lecture	NO	NO	-	Identify the need of Java to develop mobile app	Get clear the types of mobile app programming in Java	-	-	-	-	Professional Mobile Application Development by Jeff McWhorter, Scott Greenl, 2012	-	Prepare a presentation on the technology underlying the app, the language they use and the data structure	-	-	-	-	-
2	Mobile Programming Language and Practice	2.1	Mobile App Programming in Java	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	11	2	Programming Methodology	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Prepare a table showing comparison between working mechanism of Java and other programming languages	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.1	Mobile App Programming in Java	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	12	2	Programming Methodology	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	-	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.2	Programming Methodologies in C++ and Java Practice	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	13	2	Mobile App Programming in C++	PPT	Lecture	YES	NO	-	View the Video on " C++ to develop a mobile app"	-	-	-	-	Professional Mobile Application Development by Jeff McWhorter, Scott Greenl, 2012	-	Prepare a Mobile App using C++	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.2	Programming Methodologies in C++ and Java Practice	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	14	2	Introduction to C++ and VC++	PPT	Lecture	NO	YES	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	-	-	-	-	-	-	
2	Mobile Programming Language and Practice	2.2	Programming Methodologies in C++ and Java Practice	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	15	2	System C++	PPT	Lecture	NO	NO	-	View the Video on " System C++"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	List out the importance of System C++ while developing a mobile app	-	-	-	-	-	
2	Mobile Application Principles	2.3	Programming Methodologies in C++ and Java Practice	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	16	2	Mobile Programming Best Practices	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Discuss the best practices to develop mobile app	-	-	-	-	-	
2	Mobile Application Principles	2.2	Programming Methodologies in C++ and Java Practice	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	17	2	User & Organizational analysis	PPT	Lecture	NO	YES	-	Video on "User & Organizational analysis"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Design a user interface and organizational analysis based on various factors	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.1	Mobile App Platform	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	18	2	Mobile App Testing Environment	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Understand the need and setting of mobile application testing	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.1	Mobile App Platform	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	19	2	OTA App Provisioning	PPT	Lecture	NO	NO	-	Video on "OTA App Provisioning"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Discuss on various aspects of OTA app provisioning	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.1	Mobile App Platform	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	20	2	Mobile and web Applications	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Group Discussion on mobile applications and web Applications to understand the various types of applications used in mobile	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.1	Mobile App Platform	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	21	2	Control of Mobile Applications and its Types and uses	PPT	Lecture	NO	NO	-	View the Video on "Control of Mobile Applications"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Characterize the pros and cons of mobile web application development process	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.2	SM based Mobile App Development and UI	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	22	2	SM based Mobile App Development	PPT	Lecture	NO	NO	-	Understand SM based Mobile App Development	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Outline SM based mobile app development to build application for GSM	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.2	SM based Mobile App Development and UI	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	23	2	SM & Platform and a service differentiator	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Group Discussion on SM based mobile app development to build application for GSM	-	-	-	-	-	
3	Mobile Platform and NW Environment	3.2	SM based Mobile App Development and UI	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	24	2	UI Principle and its development	PPT	Lecture	NO	NO	-	View the Video on "UI Principle and its development"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Discuss on UI principle and its development	-	-	-	-	-	
4	Architecture	4.1	Web Application and Technology	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	25	1	Identify Web- Application and its Architecture	PPT	Lecture & Group Discussion	NO	NO	-	Identify the various types of Web- Application and its Architecture	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Make a list of various types of web services based on usability, efficiency and utility of space.	-	-	-	-	-	
4	Architecture	4.1	Web Application and Technology	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	26	2	Web Server and its Features	PPT	Lecture	NO	NO	-	Identify Features of web server	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	List out all the features of web server in web hosting	-	-	-	-	-	
4	Architecture	4.1	Web Application and Technology	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	27	1	Web Application Server	PPT	Lecture	YES	NO	-	View the Video on "Web Application Server"	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	Prepare a web application and run it on the cloud using web application server	-	-	-	-	-	
4	Architecture	4.1	Web Application and Technology	• Explain the mobile app programming in Java	• Explain the mobile app programming in Java	28	2	Web Technologies and Standards	PPT	Lecture	NO	NO	-	-	-	-	-	-	<a href="#">https://www.youtube.com/watch?v=...</a>	-	-	-	-	-	-	-	







4	Cloud Security Overview	1.1	1.1	<ul style="list-style-type: none"> <li>Discuss data privacy and data security as an essential element of Cloud Computing</li> <li>Outline the importance of data privacy and data security</li> </ul>	11	7	Data Privacy & Data Security	PPF	NO	NO	NO	NO	Understand the importance of data privacy and data security in Cloud by knowing the various risks and their mitigation	-	Discuss on Measures that can be taken as Cloud for Data Privacy and Security	-	Cloud Computing Principles And Paradigms - High-level topics, Issues, Benefits, and Challenges - 10/1/2019	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination				
4	Cloud Security Overview	1.1	1.2	<ul style="list-style-type: none"> <li>Describe the key processes for Cloud Computing contracts</li> </ul>	11	1	Cloud Contracting Models	PPF	NO	NO	NO	NO	View the Video on "Best Practices for Cloud Computing"	-	Study the video and resolve SAG's	-	SDSD Book - Enterprise Risk Management for Cloud Computing. Cover: Hewlett L.P., Wiley SDSD Book - Cloud Governance, The SDSD Book - Cloud Administration Guide by Managing Risk in the New IT Landscape - Ian Mitchell, John Rouse - Taylor & Francis Ltd	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination				
4	Cloud Security Overview	1.1	1.3	<ul style="list-style-type: none"> <li>Discuss about the potential risks raised by virtualization and data location</li> </ul>	11	1	Virtualization Issues raised by Virtualization and Data Location	PPF	NO	NO	NO	NO	Explore and list potential risks of legal issues when adopting "Cloud" Platforms	-	Study the video and resolve SAG's	-	SDSD Book - Cloud Administration Guide by Managing Risk in the New IT Landscape - Ian Mitchell, John Rouse - Taylor & Francis Ltd	<ul style="list-style-type: none"> <li>Consider virtualization when you want to develop an IT governance based, open and multi-tenant cloud. It is important to be a member of the governance board and identify the impact of the cloud's architecture.</li> </ul>	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination			
4	Cloud Security Overview	1.1	1.4	<ul style="list-style-type: none"> <li>To know about the legal considerations of cloud computing</li> </ul>	11	1	Legal Issues in Commercial and Business Considerations	PPF	NO	NO	NO	NO	View the Video on "Cyber Cases"	Discuss on all the legal aspects that need to be considered in Cloud environment	Learn from "Legal Issues in Cloud Computing" PPT to make a list of topics in Chapter 2	-	SDSD Book - Cloud Administration Guide by Managing Risk in the New IT Landscape - Ian Mitchell, John Rouse - Taylor & Francis Ltd	<ul style="list-style-type: none"> <li>Identify the legal issues in Cloud Computing, Practice Case</li> </ul>	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination			
5	Cloud Security Overview	1.1	1.5	<ul style="list-style-type: none"> <li>Discuss all the possible risk practices that need to be considered while migrating to cloud</li> </ul>	11	5	Practices to follow before migrating to cloud	PPF	NO	NO	NO	NO	View the Video on "Legal Issues in Cloud Computing"	-	View the Video on "Applications of Cloud Computing in various sectors"	-	SDSD Book - Cloud Administration Guide by Managing Risk in the New IT Landscape - Ian Mitchell, John Rouse - Taylor & Francis Ltd	<ul style="list-style-type: none"> <li>Identify the Cloud Practice, Practice Case</li> </ul>	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination			
5	Cloud Security Overview	1.1	1.6	<ul style="list-style-type: none"> <li>Establish the best practice to avoid migration to Cloud Computing</li> </ul>	11	6	Practices to be avoided during migration to cloud	PPF	NO	NO	NO	NO	View the Video on "Future of Cloud Computing"	-	View the video on "Future of Cloud Computing"	-	SDSD Book - Cloud Administration Guide by Managing Risk in the New IT Landscape - Ian Mitchell, John Rouse - Taylor & Francis Ltd	<ul style="list-style-type: none"> <li>View the Video on "Future of Cloud Computing"</li></ul>	-	-	Mobile Assessment - 4% University Semester - 12%	Mobile Assessment 4 (Covering all the topics in Chapter 4.1 and 4.2) & University Semester Examination			







