SACRED HEART COLLEGE (AUTONOMOUS)

Department of Computer Science

BSC COMPUTER APPLICATIONS (Triple Main)

Course plan

Academic Year 2018-19

Semester 1

PROGRAMME OUTCOMES

PO1	**Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO2	**Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the word by connecting people, ideas, books, media and technology.
PO3	**Effective Citizenship:** Demonstrate empathetic social concern and equity centered national development, and the ability to act an informed awareness of issues and participate in civic life through volunteering.
PO 4	**Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
PO5	**Ethics**: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO6	**Global Perspective:** Understand the economic, social and ecological connections that link the world's nations and people.

PROGRAM SPECIFIC OUTCOMES

PSO1	Prepare graduates who will have a successful professional career in software industry, government, academia, research, and other areas where computer applications are deployed.
PSO2	Give an overview of the topics in Computer science like networking, web development, database queries, cyber security and software engineering.
PSO3	Develop programming skills, networking skills, learn applications, packages, programming languages and modern techniques of IT
PSO4	Apply theoretical concepts to design and develop programs and develop industry-focused skills to lead a successful career.
PSO5	Acquire good knowledge and understanding in advanced areas of mathematics and statistics.

COURSE STRUCTURE

Course Code	Title of The Course	No. Hrs./Week	Credits	Total Hrs./Sem
15U1CCENG1	Communication Skills	5	4	90
15U1CRCAP01	Fundamentals of Digital System	4	3	72
15U1CRCAP02	Programming in 'C'	4	3	72
15U1PRCAP1	Programming in 'C' (Lab)	4	2	72
15U1CRCMT1	Foundation of Mathematics	4	3	72
15U1CRCST1	Descriptive Statistics	4	3	72

COURSE PLAN (15U1CCENG1: COMMUNICATION SKILLS IN ENGLISH)

PROGRAMME	**BSC COMPUTER APPLICATIONS(TRIPLE MAIN)**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CCENG1: COMMUNICATION SKILLS IN ENGLISH**	**CREDIT**	**4**
HOURS/WEEK	**5**	**HOURS/SEM**	**90**
FACULTY NAME	**GREESHMA BALACHANDRAN**		

PROGRAMME OUTCOMES

PO1	Critical Thinking and Deep Domain Knowledge
PO2	Effective Communication

PO3	Contribute to Nation Building
PO4	Care for the Environment
PO5	Ethical Values
PO6	Global Perspective

PROGRAM SPECIFIC OUTCOMES	
PSO1	Demonstrate knowledge about the socio-historical and cultural context of literary works in English and demonstrate in-depth knowledge about select texts.
PSO2	Identify and describe the thematic and literary features of select works in English and align them with the socio-political and cultural milieu.
PSO3	Articulate knowledge through oral, written or performative means, using appropriate style and register
PSO4	Edit text, set the layout, create illustrations and publish articles, journals and books.
PSO5	Demonstrate an understanding of various critical theories and reading strategies and engage with texts - literary, performance, visual etc, – from the point of view of various critical approaches and draw from them the dynamics of the relationship between nature and culture.
PSO6	Conduct independent research in the area of literary and cultural studies and produce new and critical knowledge

	COURSE OUTCOMES
CO1	Understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions.
CO2	Make inferences about the implications of statements from stress and tone recognise the various registers of speech
CO3	Listen to formal presentations and prepare lecture notes using the appropriate format.

CO4	Use English language for a variety of speaking contexts including conversations, presentations, speeches, discussions and negotiations
CO5	Critically evaluate presentations, narrations, speeches and analyse and evaluate their content and respond to them appropriately
CO6	Creatively respond to one's surroundings in the form of dramatic works, poetry, narrations, and songs, and perform them before an audience.
CO7	Understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions

Sessions	**Topic**	**Method**	**COs**
1	Introduction to Communication Skills	Lecture	CO1
2	Phonetics: Introduction	PPT presentation	CO5, CO6
3	Unit 1 – Write as you speak	Audio presentation & Exercises	CO3, CO4
4	Unit 2 – Dip in Deep Sea	Audio presentation & Exercises	CO1, CO3
5	Unit 3 – Many Mad Men	Audio presentation & Exercises	CO3, CO4
6	Unit 4 – A Cot Caught in a Cart	Audio presentation & Exercises	CO1, CO3
7	Unit 5 – Look for Good Food	Audio presentation & Exercises	CO3, CO2
8	Unit 6 – Bad Luck, Early Worm and Unit	Audio presentation & Exercises	CO5, CO7
9	Unit 7 - Again and Again	Audio presentation & Exercises	CO2, CO4
10	Unit 8 – A China Clay Toy	Audio presentation & Exercises	CO1, CO3
11	Unit 9 – Holy Cow	Audio presentation & Exercises	CO6, CO7
12	Unit 10 – Here, There, Everywhere	Audio presentation & Exercises	CO6, CO7
13	**CIA I**		

14	Discussion on the test paper	Discussion	CO4, CO6
15	Unit 11 – Bzzing Bees & Hissing Snakes Unit 12 – Pleasure Ships on the sea	Audio presentation & Exercises	CO6, CO7
16	Unit 13 – A Fine Vine Unit 14 – Thanks Brother!	Audio presentation & Exercises	CO1, CO3
17	Unit 15 – Jane's Chain Unit 16 – A Smiling King	Audio presentation & Exercises	CO2, CO3
18	Unit 17 – Betty's Bitter Butter Unit 18 – Have Your Way	Audio presentation & Exercises	CO1, CO3
19	Unit 19 – Right Road, Light Road Revision	Audio presentation & Exercises Drill Exercises	CO1, CO3
20	Revision Exercises	Drill Exercises	CO5, CO7
21	Unit 20 - Pronunciation: Syllables	Lecture Session	CO2, CO6
22	Unit 21 - Word stress 1	Audio presentation & Exercises	CO2, CO6
23	Unit 22 - Word stress 2	Audio presentation & Exercises	CO6, CO7
24	Unit 22 - Stress and Parts of Speech	Audio presentation & Exercises	CO4, CO5
25	Unit 23 - Sentence Stress	Audio presentation & Exercises	CO5, CO7
26	Holiday – SreeNarayana guru samadhi		
27	Holiday - Bakrid		
28	**CIA II**		
29	Performance Analysis _ IAT 2	Discussion	CO5, CO7
30	Unit 24 – Weak forms & Strong Forms Unit 25 – Contracted forms	Audio presentation & Exercises	CO2, CO3

31	Unit 26 – Intonation	Audio presentation & Exercises	CO1, CO7
32	Unit 27 – Different accents	Lecture and Drill	CO2, CO3
33	Influence of Mother tongue	Lecture and Drill	CO2, CO4

ASSIGNMENTS

	Topic of Assignment & Nature of assignment (Individual/ Group – Written/ Presentation – Graded or Non-graded etc)	**Course Outcome**
1	Write a note on your bus trip the college & present it before the class.	CO6
2	Write a descriptive note on the sights and sounds of the college canteen + presentation before the class	CO5, CO6
3	Write an interesting conversation you listened to recently and present it before the class with your partner.	CO4, CO5
4	Identify a passage from any textbook or magazine, underline a pair of consonant sounds and read the same in the class giving special emphasis to the pair of sounds chosen	CO2
5	Write a description of the Lakeview ground	CO6
6	Describe the college auditorium	CO6
7	Describe the sights and sounds in the portico of the college on any given day	CO6, CO5
8	Describe the aquarium in the portico	CO7
9	Narrate your experiences of any day on the campus	CO5

REFERENCE

V.Sasikumar, P Kiranmai Dutt and Geetha Rajeevan, . Communication Skills in English. Cambridge University Press and Mahatma Gandhi University.

Further Reading

Sl.No	**Title**	**Author**	**Publisher & Year**
1	A Course in Listening and Speaking I & II	Sasikumar V.,Kiranmai Dutt and Geetha Rajeevan	New Delhi: CUP, 2007

2	Study Listening: A Course in Listening to Lectures and Note-taking	Tony Lynch	New Delhi: CUP, 2008
3	Study Speaking: A Course in Spoken English for Academic Purposes	Anderson, Kenneth, Joan Maclean and Tony Lynch	New Delhi: CUP, 2008
4	Study Reading: A Course in Reading Skills for Academic Purposes	Glendinning, Eric H. and Beverly Holmstrom	New Delhi: CUP, 2008
5	Communication Studies	Sky Massan	Palgrave Macmillan
6	Effective Communication for Arts and Humanities Students	Joan Van Emden and Lucinda Becker	Palgrave Macmillan

COURSE PLAN (15U1CRCAP01: FUNDAMENTALS OF DIGITAL SYSTEM)

PROGRAMME	**BSC COMPUTER APPLICATIONS (TRIPLE MAIN)**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CRCAP01: FUNDAMENTALS OF DIGITAL SYSTEM**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**JISHA SOMAN**		

	COURSE OUTCOMES	**PO/ PSO**	**CL**
CO1	Discuss about fundamentals of computer, internet and operating system	PO1, PO2, PSO2	U
CO2	Understand number system and perform arithmetic operations	PO1, SO1, PSO4,	U
CO3	Design and implement logic gates	PO1, PO2, PSO1, PSO2, PSO4	A

CO4	Implementing Boolean expression using Boolean algebra	PO1, PO2, PSO1, PSO4	A
CO5	Analyze and design combinational and sequential circuit	PO1, PO2, PSO1, PSO3	A

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Introduction to Computer	PPT	video	CO 1
2	History	PPT/Lecture		CO 1
3	Generation of computers	PPT/Lecture		CO 1
4	functional units	PPT/Lecture		CO 1
5	Hardware: CPU, Primary and Secondary storage	PPT/Lecture	e-resource	CO 1
6	Input devices	PPT/Lecture	e-resource	CO 1
7	Output devices	PPT/Lecture	e-resource	CO1
8	Software: System and Application	PPT/Lecture	Q & Ans Session	CO 1
9	Programming Languages: Machine Language, Assembly Language, High Level Language	Lecture	Q & Ans Session	CO 1
10	A Brief Introduction to the Internet: The World Wide Web, Web Browsers	Lecture	quiz	CO 1
11	Web Servers, Uniform Resource Locators	Lecture	quiz	CO1
12	protocols: Multipurpose Internet Mail Extensions, The Hypertext Transfer Protocol	Lecture		CO 1
13	Introduction to Operating System: definition	Lecture		CO 1
14	Functions of OS	PPT/Lecture		CO 1

15	CUI and GUI	PPT/Lecture		CO 1
16	Types of OS, Multiprogramming	PPT/Lecture		CO1
17	Multiprocessing with its adv and disadvantage	PPT/Lecture		CO 1
18	Timesharing and Distributed OS	PPT/Lecture		CO 1
19	Real time and Online	PPT/Lecture		CO 1
20	Revision			
MODULE II				
21	**Number Systems:** Base of a number system, Positional number system, Popular number systems	Lecture		CO 2
22	Conversion-Decimal to Binary, Binary to Decimal	Lecture		CO 2
23	Decimal to Octal, Octal to decimal and binary	Lecture		CO 2
24	Decimal to hexadecimal, Hexadecimal to decimal, Binary and octal,	Lecture		CO 2
25	Concept of binary addition	Lecture		CO 2
26	Binary subtraction			CO 2
CIA -I				
27	Complements in binary number systems,1^s Complement, 2^s Complement and their applications,	Lecture		CO 2
28	Subtraction using 1's compliment	Lecture		CO 2
29	Subtraction using 2's compliment	Lecture		CO 2
30	BCD numbers- concept and addition	PPT/Lecture		CO 2
31	Concept of parity bit	Lecture		CO3
32	revision			
MODULE III				

33	**Logic gates**-Introduction	PPT/Lecture		CO3
34	AND, OR, NOT, NAND and NOR	PPT/Lecture		CO 3
35	Truth tables and graphical representation	PPT/Lecture		CO 3
36	Basic laws of Boolean Algebra,	PPT/Lecture		CO 3
37	Simplification of Expressions,	PPT/Lecture		CO 4
38	De Morgan's theorems, Dual expressions	Lecture		CO 4
39	Simplify using Demorgan's theorm	Lecture		CO 4
40	Universal gates	Lecture		CO 3
41	Canonical expressions, Min terms and Max terms, SOP and POS expressions	PPT/Lecture		CO 4
42	Conversion of SOP and POS to standard form	Lecture		CO 4
43	Simplification of expression using K-MAP	PPT/Lecture		CO 4
44	Representation of simplified expressions using NAND/NOR Gates	PPT/Lecture		CO 3
45	XOR and its applications	Lecture		CO 3
46	Don't care conditions	PPT/Lecture		CO 4
47	Odd parity bit generator and checker	Lecture		CO 3
48	Even parity bit generator and checker	Lecture		CO 3
49	revision			
MODULE IV				
50	**Flip flops**- Latch, Clocked	PPT/Lecture		CO 5
51	RS, JK flip flop	PPT/Lecture		CO 5
52	T, D and Master slave	PPT/Lecture		CO 5
53	Triggering of flip flops	PPT/Lecture	Video	CO 5
54	Counters - Synchronous and asynchronous	PPT/Lecture		CO 5

55	BCD, Ripple counters	PPT/Lecture		CO 5
56	Half adder	Lecture		CO 5
57	Full adder(circuit diagram)	Lecture		CO 5
58	Subtractors	Lecture		CO 5
59	Encoders	PPT/Lecture		CO 5
60	Decoders	PPT/Lecture		CO 5
61	Multiplexers	PPT/Lecture		CO 5
62	De-multiplexers	PPT/Lecture		CO 5
63	Analog to digital and digital to analog converters	PPT/Lecture		CO 5
CIA - II				
MODULE V				
64	Concept of Registers	Lecture		CO 5
65	Shift Registers	Lecture		CO 5
66	Flip-flops as building blocks of memory	Lecture		CO 5
67	RAM, ROM and Cache Memory	PPT/Lecture	Group discussion	CO 5
68	Revision			
69	Revision			
70	Revision			
71	Revision			
72	Evaluation of the course			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)	Couse Outcome

1	6/12/2018	Subtraction using 1's and 2's Compliment (Written)	CO 2
2	10/1/2019	Simplification using K-Map (Written)	CO 4

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	Topic of Assignment & Nature of assignment (Individual/ Group – Written/Presentation – Graded or Non-graded etc)	Couse Outcome
1	12/2/2019	Flipflops and registers (Group Discussion)	CO 5

REFERENCES:

1. Mano M.M-2016-Digital Logic and Computer design/Computer Architecture 1ST Edition-Pearson

2. Thomas C Bartee- 1991-Digital computer Fundamentals Sixth Edition- Tata McGraw-Hill Education

3. Floyd-2006- Digital Electronics- Pearson/Prentice Hall

Web resource references:

https://www.javatpoint.com/conversion-of-number-system-in-digital-electronics

https://www.tutorialspoint.com/computer_logical_organization/combinational_circuits.htm

COURSE PLAN (15U1CRCAP02: PROGRAMMING IN C)

PROGRAMME	**BSC COMPUTER APPLICATIONS (TRIPLE MAIN)**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CRCAP02: PROGRAMMING IN C**	**CREDITS**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**ACHAMMA CHERIAN**		

	COURSE OUTCOMES	PO/ PSO	CL
CO 1	Solve problems and Produce algorithms, pseudocodes and flowcharts for it.	PO1/PSO1	A
CO 2	Understand the basic concepts of c program and different types of data.	PO1/PSO3	U
CO 3	Apply different Decision Making statements and loops	PO1.PSO1	A
CO 4	Implement functions	PO1/PSO3, PSO4	A

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE 1				
1.	Introduction			
2.	Syllabus Discussion			
3.	Problem Definition, Problem Solving	Lecture		CO1
4.	Logic developments tools - Algorithm	Lecture		CO1
5.	Flowcharts	Lecture		CO1
6.	pseudo code	Lecture		CO1
7.	Modular programming	Lecture		CO1
8.	Structured and object oriented	Lecture		CO1
9.	Top down and bottom up approaches	Lecture		CO1
10.	features of a good computer program	Lecture		CO1
MODULE 2				
11.	**C language basics:** C character set,	Lecture		CO2

12.	Identifiers and keywords	Lecture		CO2
13.	Enumeration type, constants	Lecture		CO2
14.	variables, declarations	Lecture		CO2
15.	qualifiers – long, short and unsigned declarations, expressions, symbolic constants	Library		CO2
16.	input/output functions	Lecture		CO2
17.	compound statements	Lecture		CO2
18.	arithmetic operators, unary operators, relational and logical operators,	Lecture		CO2
19.	assignment operators, increment and decrement operators	Lecture		CO2
20.	Precedence and order of evaluation, conditional operators	Lecture		CO2
21.	bit operators, type casting	Lecture		CO2
22.	using library functions in math.h			CO2
MODULE 3				
23.	**Control flow:** If statements	Lecture		CO3
24.	Different forms of if and its syntax	PPT/Lecture		CO3
25.	Uses of if statement	Programs		CO3
26.	REVISION	Seminar		
27.	Doubt clearens	Discussion		
28.	**CIA – I**			
29.	Answer Discussion	Discussion		
30.	switch statements	PPT/Lecture		CO3
31.	looping – for loop statement	PPT/Lecture		CO3

32.	while loop statement	PPT/Lecture		CO3
33.	do … while statements	PPT/Lecture		CO3
34.	nested loop structure	PPT/Lecture		CO3
35.	Break statement	PPT/Lecture		CO3
36.	continue statement	PPT/Lecture		CO3
37.	go to statement			CO3
38.	**Arrays & Strings:** Single dimensional arrays	Lecture		CO3
39.	multidimensional arrays	Lecture		CO3
40.	initializing array using static declaration	Lecture		CO3
41.	Searching & Sorting of Arrays	Lecture	Demo video	CO3
42.	Array of Characters, Character arrays and strings	Lecture		CO3
43.	String manipulation programs	Lecture		CO3
44.	String handling Functions.	Lecture		CO3
MODULE 4				
45.	**User Defined Functions:** Function declaration, definition & scope	Lecture		CO4
46.	Recursion	Lecture		CO4
47.	Arrays and functions	Lecture		CO4
48.	call by value, call by reference	Lecture		CO4
49.	Revision	Seminar		
50.	Revision	Seminar		

51.	Storage Classes: automatic, external (global), static & registers	Lecture		CO4
52.	Storage Classes: Examples	Lecture		CO2
53.	**Structures:** Definition of Structures, declaration	Lecture		CO2
54.	structure passing to functions, array of structures	Lecture		CO4
55.	arrays with in structures	Lecture		CO4
56.	Revision	Seminar		
57.	Revision	Seminar		
58.	Doubt Clearens	Discussion		
59.	CIA – II			
60.	Answer Discussion	Discussion		
61.	Unions	Lecture		CO2
62.	typedef statements.	Lecture		
	MODULE 5			
63.	**Pointers:** Pointer Definition, pointer arithmetic	Lecture		CO2
64.	array & pointer relationship	Lecture		CO2
65.	pointer to array, pointer to structure	Lecture		CO2
66.	**Files:**Types of C preprocessor directives	Lecture		CO5
67.	Introduction to files, fopen(), fscanf(), fprintf(),getc(), putc(), fclose(),	Lecture		CO5
68.	Simple file handling programs	Lecture		CO5
69.	Previous Question Paper Discussion	Discussion		
70.	Previous Question Paper Discussion	Discussion		
71.	Doubt clearens	Discussion		
72.	Evaluation about the course	Discussion		

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)**	Couse Outcome
1	6/7/18	Program Techniques & Looping Concepts	CO3
2	10/8/18	Functions & its Categories	CO4
3	10/9/19	Programs using file	CO 5

REFERENCES:

- *Programming in ANSI C 4E , E. BalaGuruswamy, TMH*
- *Programming in C, Byron S Gottfried, Shum's Outline series. TMH*
- *Computer Fundamentals By P K Sinha&PritiSinha Fourth Edition.*
- *B. Kernighan and D. Ritchie, "The ANSI C Programming Language", PHI*

COURSE PLAN (15U1CRCMT01: FOUNDATION OF MATHEMATICS)

PROGRAMME	**BSc COMPUTER APPLICATIONS(TRIPLE MAIN)**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CRCMT01: FOUNDATION OF MATHEMATICS**	**CREDIT**	**3**
HOURS/WEEK	**4**	**HOURS/SEM**	**72**
FACULTY NAME	**ANEESHA S/RENSI K RANJITH**		

	COURSE OUTCOMES	**PO/ PSO**	**CL**
CO 1	Understand the concepts and prove statements about sets and functions	PO1, PSO5	U
CO 2	Understand relations, its properties, represention, equivalence relations and partial ordering	PO1, PSO5	U,A
CO 3	Understand and apply concepts of Prepositional logic, Predicates and Quantifiers	PO1 PSO5	U,A
CO 4	Familiarize mathematical Symbols and standard methods of proofs.	PO1, PSO5	An
CO 5	Understand the basic concepts of Number theory	PO1, PSO5	U

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
MODULE I				
1	Set Theory Introduction	Lecture		CO 1
2	Basic Operations on Sets	Lecture		CO 1
3	Set Identities	Lecture		CO 1
4	Computer Representation of sets	Lecture		CO 1
5	Functions	Lecture		CO 1
6	Algebraic operations on real Functions	Lecture		CO 1
7	Composition of Functions	Lecture		CO 1
8	Bijective Functionss	Lecture		CO 1
9	Inverse Functions	Lecture		CO 1
10	Graphs of functions	Lecture		CO 1
11	Increasing and Decreasing functions	Lecture		CO 1
12	Sequences	Lecture		CO 1
13	Summations	Lecture		CO 1
14	Cardinality	Lecture		CO 1
MODULE II				
15	Relations Introduction	Lecture		CO 2
16	Types of Relations on a Set	Lecture		CO 2
17	Combinations of Relations	Lecture		CO 2
18	Representation of relations on Finite Sets	Lecture		CO 2
19	Representating relations using Digraphs	Lecture		CO 2
20	n-ary relations and their applications	Lecture		CO 2
21	operations on n-ary relations	Lecture		CO 2
22	Equivalence Relations	Lecture		CO 2
23	Partitions	Lecture		CO 2
24	Partial Oderings	Lecture		CO 2
25	Hasse Diagrams	Lecture		CO 2
26	**CIA-1**			
27	Covering Relation	Lecture		CO 2
28	Maximal and Minimal elements	Lecture		CO 2
29	Lattices	Lecture		CO 2
30	Toplogical Sorting	Lecture		CO2
MODULE III				
31	Mathematical Logic Introduction	Lecture		CO 3
32	Propositions -simple and compound	Lecture		CO 3
33	Logical operators	Lecture		CO 3
34	Conditional, Biconditional Statements	Lecture		CO 3
35	Precedence of Logical Operators	Lecture		CO 3
36	Logic and Bit operations	Lecture		CO 3
37	Tautologies and contradictions	Lecture		CO 3
38	Logical Equivalences - Laws of logic	Lecture		CO 3

39	Predicates, Quantifiers	Lecture		CO 3
40	Universal Quantifiers, Existential Quantifiers,Binding Variables	Lecture		CO 3
41	Logical Equivalence involving quantifiers	Lecture		CO 3
42	Negation of quantified expressions	Lecture		CO 3
43	Nested Quantifiers	Lecture		CO 3
44	Arguments	Lecture		CO 3
45	Rules of Inference for propositions	Lecture		CO 3
46	Rules of Inference for quantified statements	Lecture		CO 3
47	Methods of proving theorems	Lecture		CO 4
	MODULE IV			
48	Theory of Numbers - Divisibility	Lecture		CO 5
49	Prime and Composite Numbers	Lecture		CO 5
50	GCD, Theorems on division	Lecture		CO 5
51	Divisors of a given number	Lecture		CO 5
52	Euler's Function	Lecture		CO 5
53	Congruences -Theorems	Lecture		CO 5
54	Fermat's theorem	Lecture		CO 5
	CIA - II			
55	Wilson's theorem	Lecture		CO 5
56	Lagrange's theorem	Lecture		CO 5
57	Revision			
58	Revision			
59	Revision			

INDIVIDUAL ASSIGNMENTS/SEMINAR – Details & Guidelines

	Date of completion	**Topic of Assignment & Nature of assignment (Individual/ Group – Written/ Presentation – Graded or Non-graded etc)**	**Couse Outcome**
1	6/12/2018	Problems on set identities, bijective functions, inverse functions (Written)	CO 1
2	10/1/2019	Problems on Equivalence relations, partial orderings, Hasse diagram, Lattice (Written)	CO 2
3	28/1/2019	Problems on propositions, predicates, quantifiers, rule of inference, methods of proving theorems (Written)	CO3, CO4
4	15/2/2019	Problems on congruences, fermat theorem, wilson theorem, Lagrange's theorem (Written)	CO5

REFERENCES

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.*

COURSE PLAN (15U1CRCST1 : DESCRIPTIVE STATISTICS)

PROGRAMME	**BACHELOR OF COMPUTER APPLICATIONS**	**SEMESTER**	**1**
COURSE CODE AND TITLE	**15U1CRCST1 : DESCRIPTIVE STATISTICS**	**CREDIT**	**3**
HOURS/WEEK	**5**	**HOURS/SEM**	**60**
FACULTY NAME	**LAKSHMIPRIYA R**		

	COURSE OUTCOMES	**PO/ PSO**	**CL**
CO 1	Understand different measures of central tendency, their properties and different measures of positional averages.	PO1, PSO5	U/A
CO 2	Understand different measures of dispersions – absolute and realtive measures of dispersion.	PO1, PSO5	U/A
CO 3	Understand the concepts of Box plots and Lorenz curve	PO1, PSO5	U/A
CO 4	Understand the concepts moments – raw and central moments – inter relations	PO1, PSO5	U/A
CO 5	Understand the concepts of skewness and kurtosis, scatter diagram, curve fitting – method of least squares.	PO1, PSO5	U/A
CO6	Understand and apply the concepts of fitting of straight line, second degree curve, exponential curve, power curve.	PO1, PSO5	U/A
CO7	Understand different types of index numbers, tests to be satisfied by the index numbers, cost of living index numbers and their constructions.	PO1, PSO5	U/A

CO8	Understand the concepts of time series data, determination of trend, computation of seasonal indices.	PO1, PSO5	U/A

CL* Cognitive Level

SESSION	TOPIC	LEARNING RESOURCES	VALUE ADDITIONS	COURSE OUTCOME
1	Bridge course	PPT	video	CO 1
2	Bridge course	PPT/Lecture		CO 1
3	Measures of central tendency	PPT/Lecture		CO 1
4	Mean	PPT/Lecture	e-resource	CO 1
5	median	PPT/Lecture		CO 1
6	Mode	PPT/Lecture		CO 1
7	Geometric mean and Harmonic mean, problems	Lecture		CO 1
8	Absolute and relative measures of dispersion	Lecture		CO 1
9	Range, Quartile Deviation	Lecture		CO 1
10	Mean Deviation	Lecture		CO 1
11	Standard Deviation	PPT/Lecture		CO 1
12	Standard Deviation	PPT/Lecture		CO 1
13	Properties, Problems	PPT/Lecture		CO 1
14	deciles, percentiles			
15	deciles, percentiles	PPT/Lecture		CO 2
16	Coefficient of Variation	Lecture		CO 2
17	Problems graphical method	Lecture		CO 2
18	Box plots	Lecture		CO 3
19	Box plots	Lecture		CO 3
20	Quantiles –quintiles	PPT/Lecture		CO 3
21	Lorenz Curve	PPT/Lecture		CO 3
22	Revision			
23	**CIA – I**			
24	Index numbers	Lecture		CO 2
25	Simple and Weighted index numbers	Lecture		CO 2
26	Laspeyre’s			
27	Paasche’s	Lecture		CO 2
28	Bowley’s	Lecture		CO 2
29	Fisher’s index numbers	PPT/Lecture		CO7
30	Test for index numbers	PPT/Lecture		CO7
31	Test for index numbers	PPT/Lecture		CO7
32	Cost of living index numbers			CO7
	Constructions of Cost of living index numbers			
33	Time series- Components of a time series data	PPT/Lecture		CO 3
34	Determination of trend- Moving average	PPT/Lecture		CO 3

35	curve fitting methods	PPT/Lecture		CO 4
36	Computation of and seasonal indices	Lecture	Quiz	CO 4
37	Method of simple averages	Lecture	Q & Ans Session	CO 4
38	Moments – Raw moments	PPT/Lecture		CO 5
39	Central moments	PPT/Lecture		CO 5
40	Absolute moments- Inter Relations	PPT/Lecture		CO 5
41	Skewness	PPT/Lecture		CO 5
42	Pearson, Bowley and Moment measure	Lecture		CO 5
43	Revision			
44	**CIA II**			
45	Kurtosis – Moment measure of kurtosis	PPT/Lecture		CO 5
46	Kurtosis – Moment measure of kurtosis	PPT/Lecture		CO 5
47	Scatter diagram	PPT/Lecture		CO 5
48	Curve fitting	PPT/Lecture		CO 6
49	Method of least squares	PPT/Lecture		CO 6
50	fitting of a straight line	PPT/Lecture		CO 6
51	second degree curve	PPT/Lecture		CO 6
52	exponential curve	PPT/Lecture	Video	CO 6
53	power curve	PPT/Lecture		CO 6
54	exponential curve	PPT/Lecture		CO 6
55	power curve	PPT/Lecture		CO 6
56	Time series- Components of a time series data	PPT/Lecture		CO 8
57	Determination of trend- Moving average & Curve fitting methods	PPT/Lecture		CO8
58	Seasonal indices	PPT/Lecture		CO8
59	Revision	PPT/Lecture		
60	Question paper detecting	PPT/Lecture		

ASSIGNMENTS

	Date of Completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)**	**Couse Outcome**
1	18/12/18	Introduction, Application of statistics in different fields – In Economics, Medical Field, Industries, In Business … (Written)	CO1
2	10/1/19	Practical Sheet -1- Measures of Central tendency and Measures of Dispersion (Written)	CO2
3	30/1/19	Practical Sheet -2- Skewness and Kurtosis (Written)	CO4
4	16/2/19	Practical Sheet -3 – Using Excel Sheet (Written)	CO4

GROUP ASSIGNMENTS/ACTIVITES – Details & Guidelines

	Date of completion	**Topic of Assignment & Nature of assignment (Individual/Group – Written/Presentation – Graded or Non-graded etc)**	**Couse Outcome**
1	2/1/2019	Collection of data from medias such as Newspaper.	CO1
2	24/2/19	Preparation of PowerPoint presentation on various topics by the students	CO1, CO2, CO3, CO4, CO5, CO6

REFERENCES :

- *S.C. Gupta and V. K.Kapur.(2002) Fundamentals of Mathematical Statistics, 11th edition, Sultan Chand and sons New Delhi*

- *S.P. Gupta. Statistical Methods ,Sultan Chand & Sons Delhi*
- *Agarwal. Basic Statistics, New Age International (p) Ltd.*
- *S.C.Gupta and V.K.Kapoor.(2007) Fundamentals of Applied Statistics, Sultan Chand & Sons DelhiR.S.N. Pillai, Bagavathi(2010). STATISTICS- Theory and Practice, S.Chand publications.*
- *Miller, I. and Miller, M.(2014). Mathematical Statistics, 8th edition, Pearson Education Inc.*