

SACRED HEART COLLEGE (AUTONOMOUS)

Department of Computer Science

BSC COMPUTER APPLICATIONS (Triple Main)

Course plan

Academic Year 2014 – 15

Semester 1

COURSE PLAN

COMMUNICATION SKILLS IN ENGLISH

PROGRAMME	BSC COMPUTER APPLICATIONS(TRIPLE MAIN)	SEMESTER	1
COURSE TITLE	COMMUNICATION SKILLS IN ENGLISH	CREDIT	4
HOURS/WEEK	5	HOURS/SEM	90

COURSE OBJECTIVES

To understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions.
Make inferences about the implications of statements from stress and tone recognise the various registers of speech
Listen to formal presentations and prepare lecture notes using the appropriate format.
Use English language for a variety of speaking contexts including conversations, presentations, speeches, discussions and negotiations
Critically evaluate presentations, narrations, speeches and analyse and evaluate their content and respond to them appropriately
Creatively respond to one's surroundings in the form of dramatic works, poetry, narrations, and songs, and perform them before an audience.
To understand the mechanics of English language and comprehend the plain meaning of simple narrations, announcements and instructions

Sessions	Topic	Method	Remarks
1 – 3	Introduction to Communication Skills	Lecture	
4 – 6	Phonetics: Introduction	PPT presentation	
7 – 9	Unit 1 – Write as you speak	Audio presentation & Exercises	
10 – 12	Unit 2 – Dip in Deep Sea	Audio presentation & Exercises	
13 – 15	Unit 3 – Many Mad Men	Audio presentation & Exercises	
16 – 18	Unit 4 – A Cot Caught in a Cart	Audio presentation & Exercises	
19 – 21	Unit 5 – Look for Good Food	Audio presentation & Exercises	
22 – 24	Unit 6 – Bad Luck, Early Worm and Unit	Audio presentation & Exercises	
25 – 27	Unit 7 - Again and Again	Audio presentation & Exercises	
28 – 30	Unit 8 – A China Clay Toy	Audio presentation & Exercises	
31 – 33	Unit 9 – Holy Cow	Audio presentation & Exercises	
34 – 36	Unit 10 – Here, There, Everywhere	Audio presentation & Exercises	
	CIA I		
37- 39	Discussion on the test paper	Discussion	
40 – 42	Unit 11 – Bzzing Bees & Hissing Snakes Unit 12 – Pleasure Ships on the sea	Audio presentation & Exercises	
43 – 45	Unit 13 – A Fine Vine Unit 14 – Thanks Brother!	Audio presentation & Exercises	

46 – 48	Unit 15 – Jane’s Chain Unit 16 – A Smiling King	Audio presentation & Exercises	
49 – 51	Unit 17 – Betty’s Bitter Butter Unit 18 – Have Your Way	Audio presentation & Exercises	
52 - 54	Unit 19 – Right Road, Light Road Revision	Audio presentation & Exercises Drill Exercises	
55 – 57	Revision Exercises	Drill Exercises	
58 – 60	Unit 20 - Pronunciation: Syllables	Lecture Session	
61 – 63	Unit 21 - Word stress 1	Audio presentation & Exercises	
64 – 66	Unit 22 - Word stress 2	Audio presentation & Exercises	
67 – 69	Unit 22 - Stress and Parts of Speech	Audio presentation & Exercises	
70 – 72	Unit 23 - Sentence Stress	Audio presentation & Exercises	
73 – 75	Holiday – SreeNarayana guru samadhi		
76 – 78	Holiday - Bakrid		
	CIA II		
79 - 81	Performance Analysis _ IAT 2	Discussion	
82 – 84	Unit 24 – Weak forms & Strong Forms Unit 25 – Contracted forms	Audio presentation & Exercises	
86 – 88	Unit 26 – Intonation	Audio presentation & Exercises	
89	Unit 27 – Different accents	Lecture and Drill	
90	Influence of Mother tongue	Lecture and Drill	

COURSE PLAN

Fundamentals of Digital System

Course Description:

This subject deals with the basic concepts of functioning of a computer. The subject starts with an introduction to number systems and its applications in computers. The subject exposes the students to basic concepts of flip-flops, logic gates and design of different types of flip flops and counters. The discussion about working of devices like encoders and decoders, multiplexers and de multiplexers are dealt here. The design of half adders and full adders are also included as part of this subject. Classification of memory, registers and flags are also dealt with.

Course Objectives

- Familiarize the working of functional units of computer
- Learn the Concepts of Boolean logic and digital logic circuit
- Analyze and design combinational and sequential digital systems.

Basic Reference

- M.M.Mano-Digital Logic and Computer design
- P K Sinha- Computer Fundamentals
- Thomas C Bartee- Digital computer Fundamentals
- Floyd- Digital Electronics -
- Malvino & Leach- Digital Principles and Applications

Sessions	Topic	Method	Remarks
1	Introductory Session	Lecturing using ppt	
2	Introduction to Computer	Lecturing using ppt	
3	History and generation	Lecturing using ppt	
4	functional units	Lecturing using ppt	
5	Hardware: CPU, Primary and Secondary storage	Lecturing using ppt	
6	I/O devices	Lecturing using ppt	
7	Software: System and Application	Lecturing using ppt	
8	Programming Languages: Machine Language, Assembly Language, High Level Language	Lecturing using ppt	
9	A Brief Introduction to the Internet: The World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators	Lecturing using ppt	
10	protocols: Multipurpose Internet Mail Extensions, The Hypertext Transfer Protocol	Lecturing using ppt	

11	Introduction to Operating System: definition, functions, CUI and GUI	Lecturing using ppt	
12	different types of OS	Lecturing using ppt	
13	Number Systems: Base of a number system, Positional number system, Popular number systems	Lecturing	
14	Conversion-Decimal to Binary, Binary to Decimal	Lecturing	
15	Decimal to Octal, Octal to decimal and binary	Lecturing	
16	Decimal to hexadecimal, Hexadecimal to decimal, Binary and octal,	Lecturing	
17	Concept of binary addition and subtraction	Lecturing	
18	Complements in binary number systems,1 ^s Complement, 2 ^s Complement and their applications,	Lecturing	
19	BCD numbers- concept and addition	Lecturing	
20	Concept of parity bit	Lecturing	
21	Revision		
22	Logic gates- AND, OR, NOT, NAND and NOR – Truth tables and graphical representation	Lecturing	
23	Basic laws of Boolean Algebra,	Lecturing	
24	Simplification of Expressions,	Lecturing	
25	De Morgan's theorems, Dual expressions	Lecturing	
	CIA – I	2 hr	
	CIA – I	2 hr	
26	Canonical expressions, Min terms and Max terms, SOP and POS expressions	Lecturing	
27	Simplification of expression using K-MAP	Lecturing	
28	Representation of simplified expressions using NAND/NOR Gates	Lecturing	
29	XOR and its applications	Lecturing	
30	Don't care conditions	Lecturing	
31	parity generator and checker	Lecturing	
32	Flip flops- Latch, Clocked	Lecturing	
	Seminar	Lecturing	
33	RS, JK flip flop	Lecturing	
34	T, D and Master slave	Lecturing	
35	Triggering of flip flops	Lecturing	
36	Counters - Synchronous and asynchronous	Lecturing	
37	BCD, Ripple counters	Lecturing	
38	Half adder	Lecturing	
39	Full adder(circuit diagram)	Lecturing	
40	Subtractors	Lecturing	

41	Encoders	Lecturing	
42	Decoders	Lecturing	
43	Multiplexers	Lecturing	
44	De-multiplexers	Lecturing	
45	Analog to digital and digital to analog converters	Lecturing	
	CIA II	2 HOURS	
	Discussion on the CIA		
46	Concept of Registers	Lecturing	
47	Shift Registers	Lecturing	
48	Flip-flops as building blocks of memory	Lecturing	
49	RAM, ROM and Cache Memory	Lecturing	
50 - 60	Seminars		
61 - 72	REVISION		

COURSE PLAN PROGRAMMING IN C

Course Description:

C is a widely used language in systems programming. It's a language with lot of capabilities. This subject gives an introduction to programming and basic elements of programming like algorithm, flow chart and Pseudo code. The subject starts with the features of C language and basic elements of the language. Programming constructs like if, for, while and do while are dealt with its syntax and applications. Advanced features like functions, arrays, pointers, structures and unions are also dealt here. Pointer being an important concept is dealt with respect to arrays, structures and functions. The concept of files and preprocessors are also introduced. In general, the subject concentrates in all the areas of C programming which is very much helpful for a beginner in Computer Programming.

COURSE OBJECTIVES

1. Knowledge and understanding
 - Understand the fundamental programming constructs.
 - Understand and write searching and sorting techniques.
 - Understand a typical C-like program environment.
2. Cognitive skills (thinking and analysis).
 - Be able to understand and analysis any problem and derive its solution.
 - Be able to develop algorithms.
3. Communication skills (personal and academic).
 - Be able to work as a team
4. Practical and subject specific skills (Transferable Skills).
 - Be able to write C-like programs including searching and sorting techniques.

Basic Reference

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

Sessions	Topic	Method	Remarks
1.	Problem Solving Problem Definition, Problem Solving	Lecturing	
2.	Logic developments tools - Algorithm	Lecturing	
3.	Flowcharts	Lecturing	
4.	pseudo code	Lecturing	
5.	Modular programming	Lecturing	
6.	Structured and object oriented	Lecturing	

7.	top down and bottom up approaches	Lecturing	
8.	features of a good computer program	Lecturing	
9.	C language basics: C character set,	Lecturing	
10.	Identifiers and keywords	Lecturing	
11.	Enumeration type, constants	Lecturing	
12.	variables, declarations	Lecturing	
13.	qualifiers – long, short and unsigned declarations, expressions, symbolic constants	Library	
14.	input/output functions	Lecturing	
15.	compound statements	Lecturing	
16.	arithmetic operators, unary operators, relational and logical operators,	Lecturing	
17.	assignment operators, increment and decrement operators	Lecturing	
18.	Precedence and order of evaluation, conditional operators	Lecturing	
19.	bit operators, type casting	Lecturing	
20.	using library functions in math.h		
21.	Control flow: If statements	Lecturing	
22.	REVISION	Discussion	
23.	CIA – I	2 Hrs	
24.	Discussion on the CIA		
25.	switch statements	Lecturing	
26.	looping – for loop statement	Lecturing	
27.	while loop statement	Lecturing	
28.	do ... while statements	Lecturing	
29.	nested loop structure	Lecturing	
30.	Break statement	Lecturing	
31.	continue statement	Discussion	
32.	go to statement		
33.	Arrays & Strings: Single dimensional arrays	Lecturing	
34.	multidimensional arrays	Lecturing	
35.	initializing array using static declaration	Lecturing	
36.	Searching & Sorting of Arrays	Lecturing	
37.	Array of Characters, Character arrays and strings	Lecturing	
38.	String manipulation programs	Lecturing	
39.	String handling Functions.	Lecturing	
40.	User Defined Functions: Function declaration, definition & scope	Lecturing	
41.	Recursion	Lecturing	
42.	Arrays and functions	Lecturing	

43.	call by value, call by reference	Lecturing	
44.	REVISION	Discussion	
45.	CIA II	2 Hrs	
46.	Discussion on the CIA		
47.	Storage Classes: automatic, external (global), static & registers	Lecturing	
48.	Storage Classes: Examples	Lecturing	
49.	Structures: Definition of Structures, declaration	Lecturing	
50.	structure passing to functions, array of structures	Lecturing	
51.	arrays with in structures	Lecturing	
52.	Unions	Lecturing	
53.	typedef statements.	Lecturing	
54.	Pointers: Pointer Definition, pointer arithmetic	Lecturing	
55.	array & pointer relationship	Lecturing	
56.	pointer to array, pointer to structure	Lecturing	
57.	Files: Types of C preprocessor directives	Lecturing	
58.	Introduction to files, fopen(), fscanf(), fprintf(),getc(), putc(), fclose(),	Lecturing	
59.	Simple file handling programs	Lecturing	
60 - 72	REVISION & Evaluation of the Course		

COURSE PLAN
FOUNDATION OF MATHEMATICS

COURSE OBJECTIVES
To understand the concepts and prove statements about sets and functions
To understand relations, its properties, representation, equivalence relations and partial ordering
To understand and apply concepts of Propositional logic, Predicates and Quantifiers
Familiarize mathematical Symbols and standard methods of proofs.
To understand the basic concepts of Number theory

Text Books:

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.

Sessions	Topic	Method	Remarks
1	Introductory Session	Lecture Method	
2	Sets	Lecture Method	
3	Problems	Interaction	
4	Set operations	Lecture Method	
5	Problems	Interaction	
6	Problems	Interaction	
7	Functions	Lecture Method	
8	Problems	Interaction	
9	Problems	Interaction	
10	Sequences and Summations	Lecture Method	
11	Problems	Interaction	
12	Problems	Interaction	
13	Relations and their properties	Lecture Method	
14	Problems	Interaction	
15	Problems	Interaction	
16	n-ary relations and their applications	Lecture Method	
17	Problems	Interaction	
18	Representing relations	Lecture Method	
19	Problems	Interaction	
20	Problems	Interaction	
21	CIA – I	1 hr; descriptive answers only	
22	Equivalence relations	Lecture Method	
23	Problems	Interaction	

24	Problems	Interaction	
25	Problems	Interaction	
26	Partial orderings	Lecture Method	
27	Problems	Interaction	
28	Problems	Interaction	
29	Problems	Interaction	
30	Propositional logic	Lecture Method	
31	Problems	Interaction	
32	Propositional equivalences	Lecture Method	
33	Problems	Interaction	
34	Predicates and quantifiers nested quantifiers	Lecture Method	
35	Problems	Interaction	
36	Problems	Interaction	
37	Rules of inference	Lecture Method	
38	Problems	Interaction	
39	Problems	Interaction	
40	Introduction to proofs	Lecture Method	
41	Problems	Interaction	
42	Problems	Interaction	
43	Proof methods and strategy	Lecture Method	
44	Problems	Interaction	
45	Problems	Interaction	
46	Divisibility theory in the integers, the greatest common divisor	Lecture Method	
47	The Euclidean algorithm (division algorithm), Primes	Lecture Method	
48	The theory of congruence. Basic properties of congruence	Interaction	
49	Fermat's little theorem	Lecture Method	
50	CIA II	2 HOURS	
51	Wilson's theorem	Lecture Method	
52	Problems	Interaction	
53	Euler's phi-function	Lecture Method	
54	Problems	Interaction	
55	Euler's generalization of Fermat's theorem	Lecture Method	
56	Problems	Interaction	
57	Problems	Interaction	
58	Problems	Interaction	
59	Discussion on the CIA & REVISION	Interaction	
60 - 72	REVISION & Evaluation of the Course	Interaction	

COURSE PLAN
DESCRIPTIVE STATISTICS

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

Sessions	Topic	Method	Remarks
2	Introduction to Statistics, Population and Sample	Lecturing	
2	Collection of Data, Various methods of data collection,	Lecturing. Discussion	
2	Census and Sampling	Lecturing. Discussion	
2	Methods of Sampling	Lecturing	
2	Types of data	Lecturing	
2	Diagrammatic representation	Lecturing	
2	Graphical representation	Lecturing	
2	Graphical representation	Lecturing	
2	stem and leaf chart	Lecturing	
2	Measures of central tendency	Lecturing, Discussion	
2	Mean	Lecturing, Problem solving	
2	median	Lecturing, Problem solving	
2	Mode	Lecturing	
2	Geometric mean and Harmonic mean, problems	Lecturing, Problem solving	
2	Absolute and relative measures of dispersion	Lecturing. Discussion	

2	Range, Quartile Deviation	Lecturing, Problem solving	
2	Mean Deviation	Lecturing	
2	Standard Deviation	Lecturing	
2	Standard Deviation	Lecturing	
2	Properties, Problems	Lecturing	
2	Coefficient of Variation	Lecturing	
2	Problems graphical method	Lecturing	
2	Box plots	Lecturing	
2	Lorenz Curve	Lecturing	
2	Idea of Permutations and Combinations	Lecturing	
2	Probability Concepts Random Experiment,	Lecturing	
2	Sample Space, Events, Probability Measure	Lecturing	
2	Approaches to Probability, Classical, Statistical and Axiomatic	Lecturing	
2	properties	Lecturing	
2	Bayes Theorem and its applications	Lecturing, problem solving	
1	Revision		
1	CIA – I	2 Hrs	
1	Index numbers	Lecturing	
1	Simple and Weighted index numbers	Lecturing	
1	Laspeyre's	Lecturing, Problem solving	
1	Paasche's	Lecturing, Problem solving	
1	Bowley's	Lecturing, Problem solving	
1	Fisher's index numbers	Lecturing, Problem solving	
1	Test for index numbers	Lecturing, Problem solving	
1	Test for index numbers	Lecturing, Problem solving	
1	Cost of living index numbers	Lecturing	
1	Constructions of Cost of living index numbers	Lecturing	