

DON BOSCO ARTS & SCIENCE COLLEGE
(Affiliated to Kannur University)
ANGADIKADAVU, IRITTY, KANNUR



COURSE PLAN

BCA

SEMESTER - 1

ACADEMIC YEAR 2015 - 16

SL No.	Name of Subjects	Name of the Teacher	Duty Hours per week	
I Sem BCA (2015 - 18)				
1.	1A01 ENG - Communicative English I	Anju Mary	5	
2.	1A02 ENG - Language Through Literature I	Shijina K.V.	4	
3.	1A07 - 2MAL - Shithyavum Vivarthanavum	Baby P J	5	
4.	1A07 - 2 HIN - Aadhunik Sahitya	Jainy N.George	5	
5.	1A11 BCA - Informatics for Computer Application	Nimisha V.O.	3	
6.	1B01 BCA - Programming in C	Soniya Jose	4	
7.	1C01MAT - Mathematics for BCA - I	Alan Mathew	4	

TIME TABLE

Day	9.50am - 10.45am	10.45am - 11.40am	11.55am - 12.50am	1.40am - 2.35am	2.35am - 3.30am
1	1B01 BCA - Programming in C	1A07 - 2MAL - Shithyavum Vivarthanavum 1A07 - 2 HIN - Aadhunik Sahitya	1A01 ENG - Communicative English I	1C01MAT - Mathematics for BCA - I	1A02 ENG - Language Through Literature I
2	1A01 ENG - Communicative English I	1A11 BCA - Informatics for Computer Application	1A02 ENG - Language Through Literature I	1C01MAT - Mathematics for BCA - I	1A07 - 2MAL - Shithyavum Vivarthanavum 1A07 - 2 HIN - Aadhunik Sahitya
3	1B01 BCA - Programming in C	1A07 - 2MAL - Shithyavum Vivarthanavum 1A07 - 2 HIN - Aadhunik Sahitya	1A11 BCA - Informatics for Computer Application	1A01 ENG - Communicative English I	1A11 BCA - Informatics for Computer Application
4	1B01 BCA - Programming in C	1C01MAT - Mathematics for BCA - I	1A01 ENG - Communicative English I	1A02 ENG - Language Through Literature I	1A07 - 2MAL - Shithyavum Vivarthanavum 1A07 - 2 HIN - Aadhunik Sahitya
5	1C01MAT - Mathematics for BCA - I	1B01 BCA - Programming in C	1A02 ENG - Language Through Literature I	1A07 - 2MAL - Shithyavum Vivarthanavum 1A07 - 2 HIN - Aadhunik Sahitya	1A01 ENG - Communicative English I

1A01 ENG : COMMUNICATIVE ENGLISH I

No. of Credits: 4

No. of Contact hours: 5 Hrs per week / 90 Hrs

Course Objectives:

- The modules of the course have been planned and selected in such a way as to help the students to develop an overall knowledge and understanding of English Grammar and Phonetics and communicate ideas and information effectively.
- The student will learn to ask relevant questions when necessary, make appropriate and meaningful comments, and insightful observations.
- The student will select and use appropriate listening strategies according to the intended purpose, such as solving problems, interpreting and evaluating techniques and intent of a presentation, and taking action in career-related situations.
- The students will be familiarized with the basics of oral communication and thus develop their ability to use English for performing some of the most vital communicative functions in academic, social and professional situations.
- The student will develop global intelligibility.
- The student will follow the writing conventions correctly without making any serious lapses in grammar or word choices.

Module 1: Phonetics (2 Hours/Week)

1. Received Pronunciation
2. Vowel Sounds
3. Diphthongs
4. Consonants
5. Transcription of Words
6. Syllables and Word Stress
7. Weak Forms
8. Intonation

Module 2: Language (1 Hour/Week)

1. Word Classes 1
2. Word Classes 2
3. Modals
4. Articles

Module 3: Language (1 Hour/Week)

1. Sentence Types
2. Question tags
3. Tenses
4. Subject-Verb concord

Module 4: Composition (1 Hour/Week)

1. Letter Writing
2. CV and Cover letter
3. Essay Writing
4. Paraphrasing

TEACHING SCHEDULE

No of Weeks	Dates	Session	Topic
1	30-07-2015 To 31-07-2015	01	Need for phonetics
		02	Need for phonetics
		03	Need for phonetics
2	03-08-2015 To 07-08-2015	04	Phonetic Symbols
		05	Phonetic Symbols
		06	RP
		07	Monophthongs
3	10-08-2015 To 14-08-2015		Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
4	17-08-2015 To 21-08-2015	09	Consonants
		10	Transcription
		11	Transcription
		12	Transcription
		21 - Aug	Onam Celebration
5	24-08-2015 To 28-08-2015		Holiday
			Holiday
			Holiday
			Holiday
			Holiday
6	31-08-2015 To 04-09-2015	13	Class Test
		14	Seminar
		15	Syllables
		16	Word stress
		17	Word stress
7	07-09-2015 To 11-09-2015	18	Weak forms
		19	Intonation
		20	Intonation
		21	Word classes 1
		22	Noun
8	14-09-2015 To 19-09-2015	23	Pronoun
		24	Adjectives
		25	Adjectives
		17 - Sep	Annual Retreat
			Annual Retreat
9	21-09-2015 To		Sree Narayana Guru Samadhi - Holiday
		26	Degree of comparison, Word classes 2

No of Weeks	Dates	Session	Topic
	25-09-2015	27	Verbs
			Bakrid - Holiday
			COMET
10	28-09-2015 To 02-10-2015	28	Adverbs
		29	Preposition
		30	Conjunction
		31	Interjection
11	05-10-2015 To 09-10-2015	32	Modals
		33	Articles
		34	Essay writing
		35	Paraphrasing
12	12-10-2015 To 16-10-2015	36	Paraphrasing
		37	CV
		38	Cover letter
		39	Cover letter
13	19-10-2015 To 23-10-2015	40	Letter writing
		41	Resume
		42	Seminar
		43	Revision
14	26-10-2015 To 30-10-2015	44	Revision
			Mahanavami - Holiday
			Vijayadasami - Holiday
			First Internal for UG/PG
			First Internal for UG/PG
15	02-11-2015 To 06-11-2015		First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
16	09-11-2015 To 13-11-2015	45	Sentence types
		46	Sentence types
		47	Question tags
		48	Question tags
17	16-11-2015 To 20-11-2015	49	Subject - Verb Concord
			Deepavali - Holiday
		50	Subject - Verb Concord
		51	Tenses
18	23-11-2015	52	Tenses
		53	Tenses
		54	Revision
		55	Revision
		56	Revision
		57	Discussion of previous year question paper
			Study Leave

No of Weeks	Dates	Session	Topic
	To 27-11-2015		Study Leave
			Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG
19	30-11-2015 To 04-12-2015		Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG
			Study Leave
20	07-12-2015 To 11-12-2015		Study Leave
			Study Leave
		07 - Dec	I Sem UG University Exam Begins

1A01 ENG : LANGUAGE THROUGH LITERATURE - I

No. of Credits: 3

No. of Contact hours: 4 Hrs per week / 72 Hrs

Course Objectives:

- To highlight the reciprocity of the relationship between writing and reading.
- To develop critical insights and faculties.
- The lexical exercises have been devised to initiate problem-solving activities which facilitate learning.

Module 1 (2 Hours/Week)

1. Voluntary Poverty: M K Gandhi
2. Spoken and Broken English: G B Shaw
3. Thank You: Anonymous

Module 2 (1Hour/Week)

1. The Road Not Taken: Robert Frost
2. New Directions: Maya Angelou
3. To be of Use: Marge Piercy

Module 3(1Hour/Week)

1. My Financial Career: Stephen Leacock
2. There will Come Soft Rains: Sara Teasdale

Core Text: *Language Through Literature 1* (New Delhi: Cambridge University Press)

TEACHING SCHEDULE

No of Weeks	Dates	Session	Topic
1	30-07-2015 To 31-07-2015	01	Introduction and Word Games
		02	Word Games
		03	Word Games
2	03-08-2015 To 07-08-2015	04	The Road Not Taken
		05	The Road Not Taken
		06	Exercise
		07	Exercise
3	10-08-2015 To 14-08-2015		Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
4	17-08-2015 To 21-08-2015	08	Exercise
		09	Thank You
		10	Exercise
		11	Exercise
		21 - Aug	Onam Celebration
5	24-08-2015 To 28-08-2015		Holiday
			Holiday
			Holiday
			Holiday
			Holiday
6	31-08-2015 To 04-09-2015	12	New Directions
		13	New Directions
		14	New Directions
		15	Exercise
7	07-09-2015 To 11-09-2015	16	Exercise
		17	Spoken English and Broken English
		18	Spoken English and Broken English
		19	Spoken English and Broken English
8	14-09-2015 To 19-09-2015	20	Loan Words
		21	Exercise
		22	Exercise
		17 - Sep	Annual Retreat
			Annual Retreat
			Annual Retreat
9	21-09-2015 To 25-09-2015		Sree Narayana Guru Samadhi - Holiday
		23	Homophones
		24	Exercise
			Bakrid - Holiday
			COMET

No of Weeks	Dates	Session	Topic
10	28-09-2015 To 02-10-2015	25	Summarizing and paraphrasing
		26	To Be Of Use
		27	To Be Of Use
		28	Figurative Language
11	05-10-2015 To 09-10-2015	29	Exercise
		30	Exercise
		31	Seminar
		32	Seminar
12	12-10-2015 To 16-10-2015	33	My Financial Career
		34	My Financial Career
		35	Exercise
		36	Exercise
13	19-10-2015 To 23-10-2015	37	American and British Spelling
		38	Common Spelling errors
		39	Concord
			Mahanavami - Holiday
14	26-10-2015 To 30-10-2015		Vijayadasami - Holiday
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
15	02-11-2015 To 06-11-2015	40	There Will Come Soft Rains
		41	There Will Come Soft Rains
		42	There Will Come Soft Rains
		43	Exercise
16	09-11-2015 To 13-11-2015	44	Exercise
			Deepavali - Holiday
		45	Exercise
		46	Voluntary Poverty
17	16-11-2015 To 20-11-2015	47	Voluntary Poverty
		48	Exercise
		49	Exercise
		50	Revision
18	23-11-2015 To 27-11-2015	51	Revision
			Study Leave
			Study Leave
			Second Internal for UG/PG
19	30-11-2015 To		Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG

No of Weeks	Dates	Session	Topic
	04-12-2015		Second Internal for UG/PG
			Study Leave
			Study Leave
20	07-12-2015 To 11-12-2015		Study Leave
			Study Leave
		07 - Dec	I Sem UG University Exam Begins

1A11 BCA: INFORMATICS FOR COMPUTER APPLICATION

No of Credits: 4

No of contact hours: 3

Objectives: -

1. To review the basic concepts & functional knowledge in the field of informatics.
2. To review functional knowledge in a standard office package and popular utilities
3. To create awareness about nature of the emerging digital knowledge society
4. To create awareness about social issues and concerns in the use of digital technology
5. To impart skills to enable students to use digital knowledge resources in learning.

SYLLABUS

Module 1

Computer basics; Evolution, generation and classification of computers. Computer Organization and Architecture : CPU; Communication among various units; Instruction format; Instruction cycle; Instruction set; Data representation; coding schemes. Computer memory and Storage: Memory hierarchy; RAM; ROM; secondary storages-magnetic, optical and magneto-optical storage devices. Mass storage devices.

Module II

Input output devices -Types of I/O devices. Software: definition; categories; software terminologies. Operating system: introduction, definition, evolution; types; functions.

Module III

Computer Programming and languages (Introduction only) : Algorithm; Flow chart; Pseudo code; Program control structures; Programming paradigm; Programming languages; Generation of programming languages.

Module IV- KNOWLEDGE SKILLS FOR HIGHER EDUCATION

Data, information and knowledge, knowledge management- Internet access methods – Dial-up, DSL, Cable, ISDN, Wi-Fi - Internet as a knowledge repository, academic search techniques, open access initiatives, open access publishing models. Basic concepts of IPR, plagiarism, introduction to use of IT in teaching and learning.

Module V- SOCIAL INFORMATICS

IT & Society- issues and concerns- digital divide, IT & development, the free software movement , cyber ethics, cyber crime, cyber threats, cyber security, privacy issues, cyber laws, cyber addictions, guide lines for proper usage of computers, internet and mobile phones.

Essential Reading

1. Introduction to information Technology, ITL Education solutions, Pearson Education
2. V. Rajaraman, Introduction to Information Technology, Prentice Hall
3. Technology in Action, Pearson
4. Alexis Leon & Mathews Leon, Computers Today, Leon Vikas,
5. Peter Norton, Introduction to Computers,6e,(Indian Adapted Edition).

Additional References

- Greg Perry, SAMS Teach Yourself Open Office.org, SAMS,
- Alexis & Mathews Leon, Fundamentals of Information Technology, Leon Vikas
- George Beekman, Eugene Rathswohl, Computer Confluence, Pearson Education,
- Barbara Wilson, Information Technology: The Basics, Thomson Learning
- John Ray, 10 Minute Guide to Linux, PHI, ISBN 81-203-1549-9
- Ramesh Bangia, Learning Computer Fundamentals, Khanna Book Publishers

TEACHING SCHEDULE

No of Weeks	Dates	Session	Topic
1	30-07-2015 To 31-07-2015	01	Computer basics; Evolution, generation and classification of computers
		02	Computer Organization and Architecture - CPU
		03	Communication among various units
2	03-08-2015 To 07-08-2015	04	Instruction format, Instruction cycle, Instruction set
		05	Data representation, coding schemes
		06	Computer memory and Storage : Memory hierarchy, RAM,ROM
3	10-08-2015 To 14-08-2015		Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
4	17-08-2015 To 21-08-2015	07	Secondary storages-magnetic
		08	Optical and magneto-optical storage devices
		09	Mass storage devices, Input output devices -Types of I/O devices
		21 - Aug	Onam Celebration
5	24-08-2015 To 28-08-2015		Holiday
			Holiday
			Holiday
			Holiday
			Holiday
6	31-08-2015 To 04-09-2015	10	Software: definition, categories, software terminologies
		11	Operating system : introduction, definition
		12	Operating system : evolution, types, functions
7	07-09-2015 To 11-09-2015	13	Computer Programming and languages :Algorithm, Flow chart
		14	Pseudo code, Program control structures
		15	Programming paradigm, Programming languages
8	14-09-2015 To 19-09-2015	16	Generation of programming languages
		17	Data, information and knowledge
		18	Knowledge management
		17 - Sep	Annual Retreat
			Annual Retreat
9	21-09-2015 To 25-09-2015		Sree Narayana Guru Samadhi - Holiday
		19	Internet access methods – Dial-up, DSL, Cable, ISDN, Wi-Fi
		20	Internet as a knowledge repository, academic search

No of Weeks	Dates	Session	Topic
			techniques
			Bakrid - Holiday
			COMET
10	28-09-2015 To 02-10-2015	21	Open access initiatives, open access publishing models
		22	Basic concepts of IPR, plagiarism
		23	Introduction to use of IT in teaching and learning
11	05-10-2015 To 09-10-2015	24	IT & Society- issues and concerns
		25	Digital divide, IT & development, the free software movement
		26	Cyber ethics
12	12-10-2015 To 16-10-2015	27	Cyber crime
		28	Cyber threats
		29	Cyber security
13	19-10-2015 To 23-10-2015	30	Privacy issues
		31	Cyber laws
		32	Seminar
			Mahanavami - Holiday
			Vijayadasami - Holiday
14	26-10-2015 To 30-10-2015		First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
15	02-11-2015 To 06-11-2015	33	Cyber addictions
		34	Guide lines for proper usage of computers
		35	Seminar
16	09-11-2015 To 13-11-2015	36	Internet and mobile phones
			Deepavali - Holiday
		37	Seminar
		38	Revision
17	16-11-2015 To 20-11-2015	39	Revision
		40	Class Test
		41	Previous year question paper discussion
18	23-11-2015 To 27-11-2015		Study Leave
			Study Leave
			Second Internal for UG/PG
			Second Internal for UG/PG
19	30-11-2015 To 04-12-2015		Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG

No of Weeks	Dates	Session	Topic
			Study Leave
			Study Leave
20	07-12-2015 To 11-12-2015		Study Leave
			Study Leave
		07 - Dec	I Sem UG University Exam Begins

1B01 BCA - PROGRAMMING IN C

No. of Credits: 2

No. of Contact hours: Theory - 2 Hrs per week

Practical - 2 Hrs per week

Course Objective:

1. To learn basic concepts in programming.
2. Familiarize the basic syntax and semantics of c language.
3. To develop c programs.
4. To design algorithm for solving a programming problem.
5. Develop skill in programming.
6. Familiarize with advanced features of c.

Module-I

Algorithms and Flow charts: Definitions, Symbols used. Program: structure, top-down design, source code, object code, executable file, file extensions. Importance of C; Basic structure of C, Programming style, executing a c program. Character set, C tokens, Keywords, identifiers, Constants, data types, declaration of variables, arithmetic operators , logical operators, Relational operators, Assignment operators, Increment and decrement operators, conditional operators, Bitwise operators. Precedence and order of evaluation. type conversion in expression. common programming errors, program testing and debugging, program efficiency.

Module-II

Managing Input output operation: reading a character, writing a character, formatted input output. Branching statements-if, if..else, nested if..else, else..if ladder, switch statement, go to statement. Looping statements- while, do...while, for loop. Break and continue statements.

Module III

Arrays: One dimensional arrays, two dimensional arrays, Initializing array elements, Multidimensional arrays. Strings: declaration and initializing, reading and writing. Arithmetic operations on character. String handling functions. Functions: Library and user defined, defining a function, calling a function. Parameter passing techniques, Scope and life time of variables in function, recursive functions, arrays and functions.

Module-IV

Structure and union: definition, giving values to members, initialization. Array of structures, array with in structure, structure with in structure, union. Pointers: accessing the address of a variable, declaration and initializing pointers, accessing a variable through its pointers, pointer arithmetic, pointers and arrays (pointer to array and array of pointers) , pointers and character string , pointer and functions. Dynamic memory allocation: malloc (), calloc (), free(), realloc ().

Module V

File Management: Text and binary files, Defining and opening a file, closing a file, input and output operations on file, error handling, random access file Command line arguments.

Text Book:

1. ANSI C, E. Balagurusamy, 3rd edition McGraw-Hill Publication

Reference books:

1. Computer Basics and c Programming, V. Rajaraman, PHI, 2008
2. Programming with ANSI and Turbo C, Ashok N. Kamthane, 1st edn, Pearson Education.
3. Let us C, YeshvanthKanethkar, 3rd Edn, BPB,
4. Programming with C in Linux, NIIT, PHI.
5. C by Example, Noel Kalicharan, Cambridge University press.

Web Resources:

1. www.cprogramming.com
2. www.programmersheaven.com

TEACHING SCHEDULE

No of Weeks	Dates	Session	Topic
1	30-07-2015 To 31-07-2015	01	Algorithms and Flow charts: Introduction
		02	Definitions, Symbols used
		03	Program: structure, top-down design, source code, object code, executable file, file extensions
2	03-08-2015 To 07-08-2015	04	Importance of C; Basic structure of C, Programming style, executing a c program
		05	Character set, C tokens, Keywords, identifiers, Constants
		06	Data types, declaration of variables
		07	Arithmetic operators, logical operators, Relational operators, Assignment operators, Increment and decrement operators, conditional operators, Bitwise operators.
3	10-08-2015 To 14-08-2015		Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
4	17-08-2015 To 21-08-2015	08	Precedence and order of evaluation.
		09	Type conversion in expression.
		10	Common programming errors, program testing and debugging, program efficiency.
		11	Lab
		21 - Aug	Onam Celebration
5	24-08-2015 To 28-08-2015		Holiday
			Holiday
			Holiday
			Holiday
			Holiday
6	31-08-2015 To 04-09-2015	12	Managing Input output operation: reading a character, writing a character
		13	formatted input output
		14	Branching statements-if, if..else, nested if...else, else...if ladder
		15	Switch statement, go to statement.
7	07-09-2015 To 11-09-2015	16	Looping statements- while, do...while, for loop.
		17	Break and continue statements.
		18	Lab
		19	Class Test
8	14-09-2015 To 19-09-2015	20	Arrays: One dimensional arrays, two dimensional arrays
		21	Initializing array elements, Multidimensional arrays.
		22	Strings: declaration and initializing, reading and writing. Arithmetic operations on character. String

No of Weeks	Dates	Session	Topic
			handling functions.
		17 - Sep	Annual Retreat
			Annual Retreat
			Sree Narayana Guru Samadhi - Holiday
9	21-09-2015 To 25-09-2015	23	Functions: Library and user defined
		24	Defining a function, calling a function.
			Bakrid - Holiday
			COMET
10	28-09-2015 To 02-10-2015	25	Parameter passing techniques
		26	Scope and life time of variables in function
		27	Recursive functions, arrays and functions.
		28	Lab
11	05-10-2015 To 09-10-2015	29	Structure and union: definition, giving values to members, initialization.
		30	Array of structures ,array with in structure
		31	Structure with in structure, union.
		32	Pointers: accessing the address of a variable, declaration and initializing pointers
12	12-10-2015 To 16-10-2015	33	Accessing a variable through its pointers, pointer arithmetic
		34	Pointers and arrays (pointer to array and array of pointers), pointers and character string, pointer and functions.
		35	Dynamic memory allocation: malloc (), calloc (), free (), realloc ().
		36	Revision
13	19-10-2015 To 23-10-2015	37	File Management: Text and binary files, Defining and opening a file, closing a file
		38	Input and output operations on file
		39	Error handling, random access file.
			Mahanavami - Holiday
			Vijayadasami - Holiday
14	26-10-2015 To 30-10-2015		First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
15	02-11-2015 To 06-11-2015	40	Lab
		41	Command line arguments
		42	Lab
		43	Lab
			Deepavali - Holiday
17	16-11-2015 To	44	Lab
		45	Revision

No of Weeks	Dates	Session	Topic
	20-11-2015	46	Lab
		47	Lab
18	23-11-2015 To 27-11-2015		Study Leave
			Study Leave
			Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG
19	30-11-2015 To 04-12-2015		Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG
			Study Leave
			Study Leave
20	07-12-2015 To 11-12-2015		Study Leave
			Study Leave
		07 - Dec	I Sem UG University Exam Begins

1C01 MAT - BCA: MATHEMATICS FOR BCA - I

Module I: Differential Calculus and its Applications I (20 hrs)

Hyperbolic Functions, Derivation of parametrically defined functions, Logarithmic Differentiation. (Sections 4.7, 4.8 and 4.9 of Text 1) Higher Order Derivatives-Calculation of the n th derivative – some standard results determination of n th derivative of rational functions - the n th derivatives of the products of the powers of sines and cosines - Leibniz's theorem on n th derivative of a product of two functions (without proof) [Sections 5.1 to 5.5 of Text 1]. Maclaurin's Theorem and Taylor's Theorem (without proofs). Applications related to Computer Science of this module for assignment/seminar only (See the Reference 1). (Sections 6.1 and 6.2 of Text 1)

Module II: Differential Calculus and its Applications II (20 hrs)

Rolle's theorem, Lagrange's mean value theorem, Meaning of the sign of derivative, Cauchy's mean value theorem, higher derivatives (all theorems without proofs) (Sections 8.1, 8.2, 8.3, 8.5 and 8.6. (excluding 8.4 and 8.7) of Text 1) Indeterminate forms, the indeterminate form $0/0$, the indeterminate form $0/0$, the indeterminate form 0 , the indeterminate form, the indeterminate forms 00 , 10 , 00 . Applications related to Computer Science of this module for assignment/seminar only (See the Reference 1) (Sections 10.1 to 10.6 of Text 1)

Module III: Differential Calculus and its Applications III (22 hrs)

Partial Differentiation: Introduction, Functions of two variables, Neighbourhood of a point (a,b) , continuity of a function of two variables, continuity at a point, limit of a function of two variables, homogeneous functions, Theorem on Total Differentials, Composite functions, Differentiation of Composite functions, Implicit Functions [Sections 11.1 to 11.10 of Text 1 (Proof of Theorem 11.10.1 omitted)] **Curvature and Evolutes:** Introduction, Definition of Curvature, Length of arc as a function derivative of arc, Radius of curvature (Cartesian Equations), Centre of Curvature, Chord of Curvature, Evolutes and Involutes, Properties of the Evolute. Applications related to Computer Science of this module for assignment/seminar only (See the Reference 1). (Sections 14.1, 14.2, 14.3, 14.5, 14.6 and 14.7 (excluding 14.4 and 14.8) of Text 1)

Module IV: Geometry (10 hrs)

Two Dimensional Geometry – Polar coordinates [Section 9.6 of Text 2]

Three Dimensional Geometry – Cylindrical and Spherical Coordinates (Section 10.7 of Text 2)

Texts:

1. S. Narayan and P. K. Mittal, *Differential Calculus*, S. Chand (Shyam Lal Charitable Trust), New Delhi.
2. Thomas and Finney: *Calculus and Analytic Geometry*, 9th Edition., Pearson Education.

References:

1. E. Kreyszig, *Advanced Engineering Mathematics*, 9th Edition, John Wiley & Sons.
2. Anton, Bivens, Davis, *Calculus*, 7th edition, Wiley-India.
3. N. P. Bali, M. Goyal, *Engineering Mathematics*, 8th Edition, Laxmi Publication.
4. Dr. B. S. Grewal, *Higher Engineering Mathematics*, 40th Edition, Khanna Publishers.

TEACHING SCHEDULE

No of Weeks	Dates	Session	Topic
1	30-07-2015 To 31-07-2015	01	Introduction to the topics
		02	Previous facts on differentiation
		03	Previous facts on differentiation
2	03-08-2015 To 07-08-2015	04	Hyperbolic functions and its derivatives
		05	Parametric functions and its derivatives
		06	Parametric differentiation
		07	Logarithmic differentiation
3	10-08-2015 To 14-08-2015		Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
			Spoken English Course
4	17-08-2015 To 21-08-2015	08	Logarithmic differentiation
		09	Higher order differentiation
		10	n^{th} derivative of rational functions
		11	n^{th} derivative of rational functions
		21 - Aug	Onam Celebration
5	24-08-2015 To 28-08-2015		Holiday
			Holiday
			Holiday
			Holiday
			Holiday
6	31-08-2015 To 04-09-2015	12	n^{th} derivative of trigonometric functions
		13	n^{th} derivative using Leibniz's theorem
		14	n^{th} derivative using Leibniz's theorem
		15	Maclaurin's theorem and its applications
7	07-09-2015 To 11-09-2015	16	Maclaurin's theorem and its applications
		17	Taylor's theorem and its applications
		18	Taylor's theorem and its applications
		19	Rolle's theorem and Lagrange's mean value theorem
8	14-09-2015 To 19-09-2015	20	Sign of derivative and increasing(or decreasing) functions
		21	Meaning of sign of derivatives
		22	Cauchy's mean value theorem
		17 - Sep	Annual Retreat
			Annual Retreat
9	21-09-2015 To 25-09-2015		Sree Narayana Guru Samadhi - Holiday
		23	Cauchy's mean value theorem
		24	Cauchy's mean value theorem
			Bakrid - Holiday

No of Weeks	Dates	Session	Topic
			COMET
10	28-09-2015 To 02-10-2015	25	$\frac{0}{0}$ Indeterminate form and L Hospital rule
		26	$\frac{\infty}{\infty}$ Indeterminate form and L Hospital rule
		27	$0^{\infty}, \infty^0, 0^0$ Indeterminate form and L Hospital rule
11	05-10-2015 To 09-10-2015	28	Functions of several variables , limit and continuity of several variable functions
		29	Homogeneous functions
		30	Partial derivative
		31	Partial differentiation of homogeneous functions
12	12-10-2015 To 16-10-2015	32	Partial differentiation of implicit functions
		33	Partial differentiation using chain rule
		34	Partial differentiation using chain rule
		35	Differentials of a function
13	19-10-2015 To 23-10-2015	36	Curvature and radius of curvature
		37	Cartesian form of curvature
		38	Parametric form of curvature
			Mahanavami - Holiday
14	26-10-2015 To 30-10-2015		Vijayadasami - Holiday
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
			First Internal for UG/PG
15	02-11-2015 To 06-11-2015	39	Parametric form of curvature
		40	Involutes and evolutes
		41	Centre of curvature and evolutes
16	09-11-2015 To 13-11-2015	42	Evolutes
			Deepavali - Holiday
		43	Evolutes
		44	Cartesian co-ordinate system and polar co-ordinate system in 2-dimensional geometry
17	16-11-2015 To 20-11-2015	45	Three dimensional geometry
		46	Polar co-ordinates
		47	Cylindrical co-ordinates
		48	Relations among cartesian, polar, and cylindrical co-ordinates
		49	Previous year question paper discussion
18	23-11-2015 To 27-11-2015		Study Leave
			Study Leave
			Second Internal for UG/PG
			Second Internal for UG/PG

No of Weeks	Dates	Session	Topic
			Second Internal for UG/PG
19	30-11-2015 To 04-12-2015		Second Internal for UG/PG
			Second Internal for UG/PG
			Second Internal for UG/PG
			Study Leave
			Study Leave
20	07-12-2015 To 11-12-2015		Study Leave
			Study Leave
		07 - Dec	I Sem UG University Exam Begins