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#### (Abstract)

BCA Programme under Choice Based Course Credit and Grading conducted by SDE- Scheme, Syllabus and
 Model Question Papers (1<sup>st</sup> year only) of Common and Core Courses -Implemented with effect from 2011 admission-Orders Issued.

# ACADAMIC BRANCH No.Acad/C2/2865/2011 Dated,K.U.Campus.PO 17-01-2012

Read:- 1) Minutes of the meeting of the Board of Studies in Computer Science(UG) held on 4-8-2011

2) UO No. Acad/C2/11772/2011 dated 15-10-2011

3) Letter dated 30-09-2011 from the chairman, BOS in Computer Science (UG)

#### <u>ORDER</u>

- As per the paper read (1) above, BOS in Computer Science (UG) held on 4-8-2011 has finalized the Scheme, Syllabus and Model Question Papers for 1<sup>st</sup> year BCA programme under CCSS for implementation with effect from 2011 admission
- 2. As per the paper read (2) above, the Regulations for UG programme under Choice Based Course Credit System and Grading conducted by the School of Distance Education were implemented with the effect from 2011 admission
- 3. The Chairman BOS in Computer Science (UG) vide paper read (3) forwarded the finalized copy of the Scheme (full), Syllabus and Model Question Papers (1<sup>st</sup> year) for BCA programme under Choice Based Course Credit System and Grading for implementation with effect from 2011 admission.
- 4. The vice chancellor, after considering the matter in detail, and in exercise of the powers of the Academic Council conferred under section 11(1) of Kannur University Act 1996 and all other enabling provisions read together with, has accorded sanction to implement the Scheme(full) Syllabus and Model Question Papers (1<sup>st</sup> year only) Common & Core Courses of BCA programme under Choice Based Course Credit System & Grading conducted by the SDE, with effect of 2011 admission subject to report to the Academic council.
- 5. Orders are issued accordingly.
- 6. The Scheme, Syllabus and Model Question Papers are appended.

Sd/-DEPUTY REGISTRAR(Academic)

For REGISTRAR

#### To:

- 1. The director, School of Distance Education
- 2. The Examination Branch(through PA to CE)

#### Copy to:

- 1. The Chairman, BOS in Computer Sciences
- 2. PS to VC/PA to PVC/PA to Re
- 3. DR/AR1 Academic
- Central Library
- SF/DF/FC

Forwarded/ By Order

Section Officer

#### COMMON COURSE I: SDE1A01ENG - CRITICAL REASONING AND COMMUNICATION SKILLS

AIM OF THE COURSE

- To develop analytical and critical thinking skills in students in order to prepare them to logically analyze and critically evaluate a variety of texts and to speak and write and make presentations effectively
- General improvement of the student's ability in vocal and written modes of expression and reading.

OBJECTIVES OF THE COURSE: On completion of this course, student will be able:

- To differentiate between facts and opinions and to identify fallacies in arguments
- To appreciate the value of looking at an issue from various points of view and to develop the habit of questioning one's own views and possible biases
- To successfully manage academic writing and presentation.
- To communicate better vocally as well in writing in formal, semi-formal and informal situations.
- To speak, listen and read better

COURSE OUTLINE

#### PART A

#### CRITICAL REASONING AND PRESENTATION SKILLS

#### $MODULE \ \ I \ - \ INTRODUCTION \ TO \ CRITICAL \ THINKING$

- A. Introduction to Critical Thinking: Benefits of Critical Thinking Barriers to Critical Thinking
- B. Arguments: What is and what is not of argument Recognizing Argument Evaluation of Arguments Deductive and Inductive argument -
- C. What are fallacies: Fallacies of relevance appeal to emotion the appeal to pity the appeal to force the argument against the person irrelevant conclusion
- D. Critical thinking and evaluation of sources social influence and critical thinking Persuasion, conformity and Critical Thinking Critical thinking and Prejudices.

#### $MODULE \, II \text{-} THINKING \, \text{and} \, Writing \, Critically$

Characteristics of Critical and Analytical Thinking – language of critical thinking – strategies and steps for critical thinking – Sense of audience – Precision and Clarity, Selection of Relevance – Sequencing of arguments - Sign posting, Conventions in Critical Thinking - Evaluating Critical Writing Note: Lectures should be complemented by appropriate activities mentioned in the core text.

#### **MODULE III -** THE PROCESS OF WRITING:

Researching Resources for writing: collection of Data – Print resources - Library, Net sources, Individuals

- A. Reading for writing: Strategies for active writing Dictionary use Annotate
- B. Mechanics of Writing: Develop a plan from title Evaluating a text note-making and Note taking, paraphrasing, summary-writing – Planning a text: organizing paragraphs, main body, introduction, conclusion, rewriting, proof reading – Elements of writing: cause and effect, cohesion, comparison, definition, discussion, examples, generalization, statistical data, references, quotations, style-synonyms, visual information: Charts, tables etc
- C. Accuracy in writing: Abbreviation, Articles: singular and Plural, determiners and nouns, Irregular plurals propositions phrasal verbs Modal verbs Conveying ability, necessity, advisability, possibility, probability etc Tenses Voice adverbs and adjectives, conjunctions, formality in verbs, nationality-language, time words nouns and adjectives, prefixes, suffixes.

**MODULE IV -** Writing models: formal letters, Curriculum Vitae, Job application, Reports - Designing and Reporting Surveys, Seminar Reports - Project reports, Documentation

#### MODULE V - Presentation Skills

A. Soft Skills for Academic Presentations: Theory - The audience - primary and secondary and their knowledge and expectations - the objective of the presentation choosing the appropriate medium for presentation - techniques of effective presentation - Structuring the presentation - visual presentation aids, handouts, Power point presentation, L.C.D - Clarity and persuasion - Non verbal communication -Opening and Closing – Time Management.

**READING LIST:** 

A. CORE READING: *CRITICAL REASONING & Academic Presentation Skills* by Marilyn Anderson, Pramod K Nayar et al. Pearson Longman, 2009.

#### **B.** REFERENCE TEXTS

Sl.No	Title	Author	Publisher & Year
1	Critical Reasoning & Academic Presentation Skills (CORE TEXT)	Marilyn Anderson, Pramod K Nayar et al.	Pearson Longman, 2009
2	Critical Thinking: A Student's Introduction, 2 <sup>nd</sup> Edition	Gregory Bassham, William Irwin, Henry Nardone, James M.Wallace	McGraw-Hill, 2006
3	Critical Thinking Skills	Stella Cottrell	Palgrave Macmillan, 2005
4	Critical Thinking: Learn the Tools the Best Thinkers Use	Richard Paul and Linda Elder	Pearson Education, 2006
5	Thinking Skills	John Butterworth & Geoff Thwaites	Cambridge University Press, 2006
6	Keys to Successful Writing	Marilyn Anderson	Pearson Longman
7	Guide to Presentations	Mary and Russell Lynn.	Pearson education Ltd., London, 2007)
8	Study Writing: A Course in Writing Skills for Academic Purposes	Liz-Hamp-Lyons & Ben Heasly	Cambridge University Press, 2007
9	Presentation Skills for Students	Joan Van Emden & Lucinda Becker	Palgrave Macmillan, 2004
10	Academic Writing	Stephen Bailey	Routledge, London, 2004.

WEB RESOURCES

- <u>www.criticalthinking.org</u>
- http://www.ou.edu/ouphil/faculty/chris/crmscreen.pdf
- <u>www.thinkersway.com</u>
- <u>http://en.wikipedia.org/wiki/Critical\_thinking</u>
- http://www.lc.unsw.edu.au/olib.html
- http://www.utoronto.ca/writing/advise.html
- http://en.wikipedia.org/wiki/Academic\_writing
- http://www.uni-magdeburg.de/sprz/migalk/academic\_writing.htm

#### PART B COMMUNICATION SKILLS

**MODULE I** - Pronunciation and Naturalization of Language: Phonemic Notations: Vowels, Diphthongs, Triphthongs – Consonants - Stress: Syllables – Word Stress: in Monosyllables, Polysyllables, Stress in words used as both nouns and verbs - Stress in compound words – Sentence Stress - Strong, Weak and Contracted forms - Intonation: Falling and Rising Intonation – Different accents – influence of Mother Tongue .

**MODULE II** - Listening Skills: Barriers to Listening: Listening and hearing, active listening, barriers – Academic Listening: Listening and note-taking – Listening to announcements – Listening to News on the Radio and Television: Listening for specific information, overall information.

**MODULE III -** Speaking Skills: Theory and Practice: Recall the foundational phonetic insights provided Module 1.1 – Rules of word stress, stress and rhythm, pauses and sense groups – falling and rising tones – fluency and pace of delivery – Small talk – Conversations – Formal speech – Descriptions – Group Discussions – Telephone Communication – Appointments.

**MODULE IV -** Reading Skills: Reading with a purpose – Scanning – Surveying a text with index – Making predictions in reading – Text Structure – Inferences – Reading Graphics – Reading Critically - Reading for Research.

Note: Speaking and listening skill to be promoted using the CD provided with the text CORE TEXT: *COMMUNICATION SKILLS IN ENGLISH*, Sasikumar V.,Kiranmai Dutt and Geetha Rajeevan, Cambridge University Press. New Delhi. 2009.

Sl .N o	Title	Author	Publication details
1	Communication skills in English	Sasikumar V.,Kiranmai Dutt and Geetha Rajeevan	Cambridge University Press. New Delhi. 2009
2	Study Listening: A Course in	Tony Lynch	Cambridge University

B) TEXTS FOR CORE READING AND REFERENCE:

	Listening to Lectures and Note-		Press (2008)
	taking		
3	Study Speaking: A Course in	Anderson, Kenneth,	Cambridge University
	Spoken English for Academic	Joan Maclean and	Press, 2008
	Purposes	Tony Lynch	
	Study Reading: A Course in	Glendinning, Eric H.	Cambridge University
4	Reading Skills for Academic	and Beverly	Press. 2008
	Purposes	Holmstrom	
5	Spoken English Part I & II: A	Kamlesh Sadanand,	Orient Longman Pvt Ltd
	Foundation Course for Speakers	& Susheela Punitha	(2008)
	of Malayalam		
6	Oxford Guide to Effective	John Sealy	OUP, New Delhi, 2007
	Writing and Speaking		
7	Communication Studies	Sky Massan	Palgrave, Macmillan
0	Effective Communication for	Joan Van Emden	Delgrove Meamillen
0	Arts & Humanities Students	and Lucinda Becker	raigiave, macilillan

5. Web Resources: A significant number of sites can be accessed on search with keywords like: Reading Skill, Writing Skill, speaking Skill and Communication Skill.

#### COMMON COURSE 2 SDE1A02ENG - LITERATURE AND VITAL ISSUES

AIM OF THE COURSE

- To inspire in students a secular, democratic and environment- friendly attitude
- to give the students a general awareness of vital and contemporary issues of human right violations
- to enable the student to reach out to reality through literature, to develop in the students a concern for the happenings in the immediate and faraway world and to provide them an insight into social dynamics.

#### **OBJECTIVES OF THE COURSE**

On successful completion, students will acquire

- The spirit and essentials of the secular Indian constitution, a commendable awareness of the plural traditions of India and a healthy sense of nationalism
- A deep commitment to life forms, existence, environment and the universe
- An awareness of reality that is mediated through literary discourses and the process of subject formation
- The ability to reconnect cultural and literary artifacts to the real
- The ability to respond to political, cultural and literary manifestations and formations

#### COURSE OUTLINE

Common course 2 has focus on constitution, secularism, sustainable environment, globalization and human rights. The selections are prompted by the guidelines of Kerala State Higher Education Council. Court directives on spreading awareness about Constitution, Secularism, Human rights and Environment among undergraduate students also worked as a decisive factor in the selection of different write-ups in the text.

#### PART A

#### **MODULE I** – INDIAN CONSTITUTION:

General introduction: Context of its drafting: Anti-colonial struggles in the world and in India: Concepts of Liberty, Equality and Fraternity - detailed discussion of Fundamental Rights: Right to Equality, Right to Particular freedom, Cultural and Educational Rights, Right to Freedom of Religion, Right against Exploitation and Right to Constitutional Remedies

Racial Encounters:

- 1. Wole Soyinka: Telephone Conversation (Poem)
- 2. Kamala Das: The Humiliation of a Brown Child in a European School (From My Story)

Caste Issue:

- 3. RAJU SOLANKI: A MONOLOGUE (POEM)
- 4. KUMUD PAWDE: THE STORY OF MY SANSKRIT (AUTOBIOGRAPHY)

Class conflicts:

- 5. Basavanna: The Rich will Make Temples for Siva (From Vachanas)
- 6. Meena Alexander: The Orange Sellers' Protest (from Nampally Road)

Gender question:

- 7. Rabindranath Tagore: The Exercise Book (Story)
- 8. Marge Piercy: Barbie Doll (Poem)

**MODULE II** – FEDERALISM: Federal character of Indian Polity: Union and State Governments-Centre State Relations- Executive-Legislature-Judiciary.

- 9. Nani A. Palkhivala: Centre-State Relations: Union Government, not Central Government (From *We, The People*)
- 10. Sitakant Mahapatra: The Election (Poem)

#### $Module \, III-S {\rm ecularism}$

Secularism: Concept and Practice: Meaning and definition-Secular State and Society-Challenges to secularism: Casteism and Communalism.

11. Kottarathil Sankunni (Translated by T.C.Narayanan): A Hindu Princess and Her Islamic Dynasty (*Aithihyamala/Lore & Legends of Kerala*)

 $Module \, IV-S \\ ustainable \, Environment:$ 

Environmental Issues: Deforestation, Pollution, wreckless exploitation of nature, consequences: Green House effect, Tsunami, famine, earhtquakes and other disasters.

- 12. Medha Patkar : Interview by Dilip D'Souza.
- 13. Krishna Kumar : Green Schools in a Greying World (Essay)
- 14. A.K.Ramanujan : Ecology (Poem)

4. Core Text: *Readings on Indian Constitution, Secularism & Environment*, Ed. Dr.K.C.Muraleedharan, Ane Books India Ltd, Delhi

5. Reference:

*The Constituent Assembly Debates* (Proceedings) 9th December 1946 to 24th January 1950, Lok Sabha Secretariat, New Delhi(Extracts of speeches made by Munshi K.M. & Dr. B.R. Ambedkar)

Jha, Shefali, *Rights versus Representation: Defending Minority Interests in the Constituent Assembly*, Economic and Political Weekly, vol.38, No.16, Apr 19-25, 2003, pp.1579-1583.

Chiriyankandeth, James, *Creating a secular state in a religious country: The debate in the Indian Constituent Assembly*, Commonwealth and Comparative Politics, vol.38,

Issue 2, July 2000, pp.1-24

Narang, A S, *Indian Government and Politics*, Geethanjali Publishing House, New Delhi, 2000, pp.99-238 S R Bommai Vs Union of India, AIR 1994, SC 1918

Nandy, Ashis, "The Politics of Secularism and the Recovery of Religious Tolerance", in Veena Das (ed) *Mirrors of Violence: Communities, Riots and Survivors in South Asia*, Oxford University Press, Delhi, 1990

Thapar, Romila, "Secularism, History and Contemporary Politics in India", in Anuradha Needham and Rajeswari Sunder Rajan (eds), *The Crisis of Secularism in India*, Duke University Press, 2007

Basu, Durga Das, *Introduction to the Constitution of India*, Prentice Hall of India, New Delhi. Sharma, K.L., *Social Stratification in India: Issues and Themes*, Sage Publications, New Delhi, 1997.

Bhargava, Rajeev, Secularism and its Critiques, Oxford University Press, New Delhi 2001. Khan Rasheeduddin Federal India: A Design for change Vikas New Delhi 1992 Smith

Khan, Rasheeduddin, Federal India: A Design for change, Vikas, New Delhi, 1992 Smith, Donald

Eugene, India as a Secular State, Princeton University Press, Princeton, 1963.

Fisher, William F(ed.), Towards Sustainable Development? Struggling Over India's Narmada River, M.E.Sharp,NewYork,1995

Sufrin, Sydney C, Bhopal: Its Setting, Responsibility and Challenge, Ajanta Publishers, NewDelhi, 1985

#### PART B

This section highlights both Globalization and Human Rights. A collection of seven essays dealing with the issues of globalization and human rights titled as 'Literature and Contemporary Issues' published by Foundation Books, Cambridge University Press is prescribed for study.

MODULE I - 'GLOBALIZATION' AND ITS CONSEQUENCES

1. Villages for Sale in Vidharbha	: Dionne Bunsha	
2. Decade of Discontent	: P.Sainath (From The Hindu):	
3. Future of Our Past	: Satchidanandan.K	
4. Agriculture: The Missing Dimension	: Devinder Sharma from Practising	
5. Journalism: Values, Constraints, Implications: Editor: Nalini Rajan		

#### $MODULE \, II - \text{Human Rights}$

- 5. The End of Imagination: Arundathi Roy
- 6. Aruna: Behind Closed Doors: Rinki Bhattacharya
- 7. Children's Perspectives on Domestic Violence: An excerpt from the book Domestic Violence by Audrey Mullender, Gill Hague, Umme Imam, Liz Kelly, Ellen Malos, Linda Rega, SAGE Publications

#### SDE1AL4BCA: METHODOLOGY FOR COMPUTER APPLICATIONS

**Module I:** Data structures: Definition and Classification. Analysis of Algorithms: Apriority Analysis; Asymptotic notation; Time complexity using 0 notation; Average, Best and Worst complexities. Arrays: - Operations; Number of elements; Array representation in memory. Polynomial-Representation with arrays; Polynomial addition. Sparse Polynomial: representation. Sparse matrix: Efficient representation with arrays; Addition of sparse matrices. Recursive algorithms: examples - factorial and Tower of Hanoi problem. Search: Linear and Binary search; Time complexity; comparison. Sort: Insertion, bubble, selection, quick and merge sort: Comparison of Sort algorithms.

**Module II:** Stack: Operations on stack; array representation. Application of stack- i. Postfix expression evaluation. ii. Conversion of infix to postfix expression. Queues: Operation on queue. Array Implementation; Limitations; Circular queue; Dequeue, and priority queue. Application of queue: Job scheduling. Linked list - Comparison with arrays; representation of linked list in memory. Singly linked list- structure and implementation; Operations- traversing/printing; Add new node; Delete node; Reverse a list; Search and merge two singly linked lists. Stack with singly linked list. Circular linked list - advantage. Queue as Circular linked list. Head nodes in Linked list - Singly linked list with head node - Add *I* delete nodes; Traversal *I* print. Doubly linked list- structure; Operations- Add/delete nodes; Print/traverse. Advantages.

**Module III:** Tree and Binary tree: Basic terminologies and properties; Linked representation of Binary tree; Complete and full binary trees; Binary tree representation with array. Tree traversal: Recursive inorder, preorder and postorder traversals. Binary search tree - Definition and operations (Create a BST, Search, Time complexity of search). Application of binary tree: Huffman algorithm.

**Module IV :** Introduction to software engineering-Definition, program versus software, software process, software characteristics, brief introduction about product and process, software process and product matrices; Software life cycle models - Definition, waterfall model, increment process model, evolutionary process model, selection of the life cycle model. Software Requirement Analysis and Specification - Requirements engineering, types of requirements, feasibility studies, requirement elicitation, various steps of requirement analysis, requirement documentation, requirement validation. Software design - definition, various types, objectives and importance of design phase, modularity, strategy of design, function oriented design, IEEE recommended practice for software design descriptions.

**Module V:** Objected Oriented Design - Analysis, design concept, design notations and Specifications. design methodology. Software Testing- What is testing, why should we test, who should do testing? Test case and Test suit, verification and validation, alpha beta and acceptance

testing. functional testing , techniques to design test cases , Boundary value analysis, equivalence class testing, decision table based testing , cause effect graphing techniques ; structural testing , path testing , cyclomatic complexity , Graph matrices , Data flow testing, mutation testing , levels of testing ,unit testing , integration testing , system testing , validation testing , a brief introduction about debugging and various testing tools.

Text Book:

I. Data Structures and Algorithms: Concepts, Techniques and Applications; GA V Pai, Me Graw Hill, 2008

2. Software Engineering (Third Edition), K K Aggarwal, Yogesh singh, New age International Publication

3. An integrated approach to software Engineering (Second Edition ), Pankaj Jalote , Narosa Publishing House

Reference Books:

1. Fundamentals of Data structures in C++ , 2nd Edn, Horowitz Sahni, Anderson, Universities Press

2. Classic Data structures, Samanta, Second Edition, PHI

3. Software Engineering (Seventh edition), Ian Sommerville- Addison Wesley

4. Software Engineering A practitioners approach (Sixth Edition), RogerS Pressman- Me GrawHill.

5. Fundamentals of Software Engineering (Second Edition), Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli -Pearson Education

#### SDE1BO1BCA: PROGRAMMING IN C AND C++

#### **C Programming:**

**Module I:** Algorithms and Flow charts: Definitions, Symbols used, Examples. [High level and low level languages, Generations of Programming languages]\* for self study Compilers and interpreters. 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. 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 III:** 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(). 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. Bitwise operations; Preprocessor directives. #include, #define. Macros with arguments; Conditional compilation. Header file concept. Multiple file programming. Command line arguments.

#### **C++ Programming:**

**Module IV:** Principles of object oriented programming; OOP paradigm; Basic concepts of OOP; Benefits; applications. Introduction to C++, Structure of C++ program; how to create and execute a C++ program under Windows and Linux. Tokens, Keywords, identifiers and constants; Basic data types; user defined data types; Derived data types; symbolic constants; type compatibility; declaration and dynamic initialization of variables; reference variables. Operators;

Scope resolution; memory dereferencing and memory management operators; manipulators; type cast operators; Expressions and their types; Special assignment expressions; implicit conversions; operator overloading; operator precedence; Control structures.

**Module V:** Functions: main; prototyping; call by reference; inline function; default and const arguments: function overloading: friend and virtual functions: Math library functions. Structures; Specifying a class: Defining member functions; making an outside function inline; nesting of member functions: private member functions: arrays within a class; memory allocation for objects; static data members; static member functions; arrays of objects; objects as function arguments; friendly functions; returning objects; const member functions; pointer to members; Local classes.

**Module VI:** Constructors and destructors : - Constructors; Parameterized constructors; Multiple constructors in a class; constructors with default arguments; dynamic initialization of objects; copy constructor; Dynamic constructors; const objects; Destructors. Operator overloading- definition; overloading unary operators; overloading binary operators; using friends; manipulation of strings using operators; rules for overloading operators. Type conversions. Inheritance - defining derived classes; single inheritance: making a private member inheritance; multilevel inheritance; multiple inheritance; hierarchical inheritance; hybrid inheritance; virtual base classes; abstract classes; constructors in derived classes; Nesting of classes. Pointers; Pointers to objects; Pointers to derived classes; virtual functions; pure virtual functions. C++ streams; stream classes; unformatted I/O operations; Fom latted console I/0 operations; Managing output with manipulators. Files - classes for file stream operations; Opening and closing a file; file modes; file pointers and their manipulations; Sequential input and output operation.

TextBook:

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

2. Object Oriented Programmling with C++; E. Balagurusamy; 4th Edn; TMH 2006 Reference books:

I. 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. Yeshvanth Kanethkar, 3rd Edn, BPB,

4. Programming with C in Linux, NIIT, PHI.

5. C by Example, Noel Kalicharan, Cambridge University press.

6. Programming in C++, M.T. Somashekara, Prentice Hall ofIndia, New Delhi

7. Object Oriented Programming with ANSI & Turbo C++, Ashok N. Kamthane, Pearson Education

8. Let us C++, Yeshwanth Kanethkar, BPB

#### SDE1B02BCA: LAB - I (C & C++ PROGRAMMING)

#### **<u>C Programs</u>**

- 1. Write a program that will read a positive integer and determine and print its binary equivalent.
- 2. Develop a program to sort a list of n names in ascending order.
- 3. Given are two one-dimensional arrays A and B which are sorted in ascending order. Write a program to merge them into a single sorted array X that contains every item from arrays A and B, in ascending order.
- 4. Write a program which will read a string and rewrite it in the alphabetical order. For example, the word STRING should be written as GINRST.
- 5. Develop a program to read a text and count occurrences of a particular word.
- 6. Write a program that will generate and print the first n Fibonacci numbers using function.
- 7. Define a structure named census with the following the members :
  - (a) A character array city[] to store names.
  - (b) A long integer to store population of the city.
  - (c) A float member to store the literacy level.

Develop a program to do the following:

- (d) To read details for 5 cities.
- (e) To sort the list of cities in alphabetic order.
- (f) To sort the list based on population.
- (g) To display the sorted lists.
- 8. Write a program to sort the elements of m x n matrices in ascending order.
- 9. Write a function using pointers to multiply two matrices and to return the resultant matrix to calling function.
- 10. Two files DATA1 and DATA2 contain sorted lists of integers. Develop a program to produce a third file DATA which holds a single sorted, merged list of these two lists. Use command line arguments to specify the file names.
- 11. Program to implement Stack operations (using array and linked list).
- 12. Program to implement Queue operations (using array and linked list).
- 13. Program to implement singly linked list operations: add, delete and print.
- 14. Program to implement singly linked list operations: search list, merge two lists.
- 15. Program to implement doubly linked list: add and delete nodes.

#### <u>C ++ Programs</u>

16. Define a class to represent a bank account. Include the following members :

Data members

- a) Name of the depositor
- b) Account number
- c) Type of account
- d) Balance amount in the account

#### Member functions

- a) To assign initial values
- b) To deposit an amount
- c) To withdraw an amount after checking the balance
- d) To display name and balance
- Write a main program for handling 10 customers.
- 17. Create a class MAT of size m x n. Define all possible matrix operations for MAT type objects.
- 18. Create a class time comprises hr, min and sec. as member data and add() and display() as member functions. Use constructor to initialize the object. Write a main function to add two time objects, store it in another time object and display the resultant time.
- 19. Create two classes DM and DB which store the values of distances. DM stores distance in meters and centimeters and DB in feet and inches. Write a program that read values for the class objects. Include steps to add an object of DB with an object of DM. Use a friend function to carry out the addition and print the results in any unit (meters and centimeters or feet and inches).
- 20. Define a class string. Use overloaded == operator to compare two strings. Do not use any built in functions.
- 21. Define a class Student with name, reg.no, date of birth and name of college as member data and functions to get and display these details. Design another class Test with subjects of study and grade for each subject as member data and corresponding input and output functions. Derive a class Result from both Student and Test classes and Print the Result of each student with relevant information.
- 22. Create a class person with personal details. Define two functions, set details and print details. Declare array of pointers to person class and write a main function to set and print the details of n persons using pointers.
- 23. Create a class FLOAT that contains one float data member. Overload all the four arithmetic operators so that they operate on the object of FLOAT.
- 24. Define a class String that could work as a user defined string type. Include constructors that will enable us to create an uninitialized string and also to initialize an object with a string constant at the time of creation. Include a function to add two strings to make a

third string. Write a complete program to test your class to see that it does the following tasks:

- a). Create initialized string objects.
- b). Create objects with string constants.
- c). Concatenate two string properly.
- d). Display the desire string objects.
- 25. Design a class SHAPE with dimensions d1 and d2 as member data and area() as member functions to find the area of a shape. Derive three classes RECT, TRIANG and CIRCL from the class SHAPE and override the function area () of base class to find the area of individual shape. Use virtual function.
- 26. Program to implement Tree traversal.
- 27. Program to implement Binary and linear search.
- 28. Program to implement Insertion sort and quick sort.
- 29. Program to convert infix expression to postfix expression.
- 30. Program to implement circular queue.

#### Mathematics Complementary Course for BCA - Paper 1

ALGEBRA, GEOMETRY, NUMERICAL ANALYSIS AND CALCULUS No of Credit - 6

UNIT - 1 ALGEBRA AND GEOMETRY

- Text 1: Fraleigh J. B., A first course in abstract algebra, 5th Edition
- Text 2: V. Krishnamurthy, V. P. Mainra, J. L. Arora, *An introduction to Linear Algebra* -Affiliated East West Press Pvt. Ltd., New Delhi.
- Text 3: Thomas and Finney, *Calculus*, 9th Edition, Pearson Education. Text 4: Grewal Higher Engineering Mathematics

**Module I** – Groups: Definition and Examples of Group and Field (finite and infinite). Text 1 Vector space: Definition and examples of vector spaces and subspaces, span of a set, linear dependence, independence, dimension and basis (proofs of theorems omitted) Chapter 3 of Text2

**Module II -** Linear Transformations: Definition and examples Section 1 Chapter 4 of Text 2 Matrix associated with a linear map Section 1 Chapter 5 of Text 2

**Module III** - Rank of a matrix, Determination of rank using normal and row echelon method, System of linear equations (both homogenous and non homogenous) and their solutions, using row echelon and method of cross multiplication, Matrix polynomials, Eigen values and Eigen vectors, Cayley Hamilton Theorem. - from Text 3

**Module IV -** Two Dimensional Geometry-Polar coordinates -Section 6 of Chapter 9 of Text 4 Three Dimensional Geometry - Cylindrical and Spherical Coordinates- Section 7 of Chapter 10 of Text 4.

UNIT-2 NUMERICAL ANALYSIS AND CALCULUS

Text 1. Kreyzig Advanced Engineering Mathematics 5th Edn. Text. 2 Shanti Narayanan and P.K Mittal. Differential Calculus S. Chand Publishers, Shyamlal charitable Trust – New Delhi Text 3 Nayarayanan S and Pillay T.K.M Differential and Integral calculus S Wiswanathan Printers and publishers, Chennai

**Module I** (Numerical Analysis 1) - Numerical Analysis – Solution equations by iteration, Finite differences – interpolation Numerical integration differentiation – Numerical Methods in Linear Algebra – systems of linear equation – Gauss elimination – Matrix inversion

**Module II** (Numerical Analysis II) - Numerical methods for differential equations – Numerical methods for first order equation – Taylor series method – picard's method – Euler's method – Runge Kutta methods for fourth order.

**Module III** (Differential calculus) - Quick review on differentiation – successive differentiation Leibnitz theorem on nth derivation of a product of two functions – exponential and logarithmic functions – hyperbolic functions and their derivatives Indeterminate form %.

**Module IV** (Integral calculus) - Quick review on integration – integration by successive reduction – multiple integral –Double integral – Triple integral

### COMMON COURESE SDE-1A04-2-MAL

# മലയാളസാഹിത്യ ഗണങ്ങൾ

ലക്ഷ്	്യം:- മലയാളഭാഷാ സാഹിത്യത്തിലെ നെക്കുന്നത്തിലെ	ല വൃത്യസ്തഗണങ്ങളെക്കുറിച്ചുള്ള
സാലം	വിവായന രൂപപ്പെടുത്തുക.	
ഭാഷശ	യിൽ ആശയവിനിമയസിദ്ധി രൂപപ്പെടുത്തു പ	മുക
വർത	തമാനകാല ജീവിതത്തിന്റെ വിവിധ	മേഖലകളിൽ വിവർത്തനത്തിന്റെ
പ്രാധ	ാന്യം ബോധ്യപ്പെടുത്തുക	
മാവ	ധ്യൂൾ 1: കവിത	
1.	ഓണപ്പാട്ടുകാർ	: വൈലോപ്പിള്ളി
2.	എലികൾ	: എൻ വി കൃഷ്ണവാര്യർ
3.	പ്രിയതമേ പ്രഭാതമേ	: അയ്യപ്പപണിക്കർ
4.	മുറ്റമടിക്കുമ്പോൾ	: അനിതാ തമ്പി
മാവ	ധ്യൂൾ 2: ലേഖനം	
1.	മലയാളിയുടെ രാത്രികൾ (ഡി. സി. ബുക്സ്)	: കെ. സി. നാരായണൻ
	(മലയാളിര	ഴുടെ രാത്രികൾ മാത്രം പഠിക്കുക)
2.	കൊളോണിയലിസവും കേരള നവോത്ഥാനവും	: കെ. എൻ. ഗണേശ്
		(കേരളസമൂഹപഠനങ്ങൾ -
		പ്രസക്തി ബുക്സ്)
മാവ	ധ്യൂൾ 3: അനുഭവ വിവരണം	
1.	സ്വിസ് സ്കെച്ചുകൾ	: രവീന്ദ്രൻ
		(മാതൃഭൂമി ബുക്സ്)
മാവ	ധ്യൂൾ 4: കഥ	
1.	മനുഷ പ്രുത്രി	: ലഒിതാംബിക അന്തർജ്ജനം
2.	മുരുകൻ എന്ന പാമ്പാട്ടി	: എം. പി. നാരയണപ്പിള്ള
3.	പാസ്തുഹാര	: സി. വി. ശ്രീരാമൻ
4.	നഷ്ടപ്പെട്ട് നീലാംബരി	: മാധവിക്കുട്ടി
മാവ	ს)კ	
	വസത്തനവും ആശയവനിലയവും	
	(വിവർത്തനം - പരോക്ഷ വിവർത്ത	തനം - പ്രധാന നിർവ്വചനങ്ങൾ -
	വിവർത്തനവും സംസ്കാരവും -	വിവർത്തനവും മാധ്യമങ്ങളും -
	വിവർത്തന രീതികൾ - വിശ്വസ്തതയു	ം സൗന്ദര്യവും - വിവർത്തനത്തിന്റെ
	പൊതു തത്വങ്ങൾ എന്നിവ പഠിച്ചാൽ മ	ו (חמנ

#### COMMON COURSE - HINDI SDE1A041HIN - LITERATURE FOR COMMUNICATIVE SKILL – HINDI

#### Poetry:

- 1. Fazal Sarveswar Dayal Saxena
- 2. Vakth Keerthi Choudhari
- 3. Naye Ilake Maim Arun Kamal

#### Short stories

- 1. Poos ki Raath Premchand
- 2. Kaala Baap Gora Baap Maheep Singh

#### Prose

- 1. Bathcheeth se Shistachar Kamatha Prasad Gupta
- 2. Sahithya aur Samaaj Jainendra Kumar
- 3. Raajneethi ka Bandwara Harisankar Parsai

#### COMMUNICATION SKILLS

Communicative Hindi – conversation – starting from simple sentences – proper use of grammar – group of sentence – paragraph – ability to speak and express – writing emphasis to common words and phrases used in day to day conversations.

Conversation - Situation handling - simulate situations / sceneries - various situation – at homewith a guest- with vegetable vendor- bookshop – at college – at post office-

 like bank account opening procedures- complaint to consumer protection council – travelling in train – attending interview – facing interview board – self introduction – answering questions etc. – Interview with eminent persons -

Translation - Translation of words and paragraphs - from Hindi to English and vice versa.

Letter writing -Letter writing - standard forms of letters - personal - business - complaints - requests - circular - notice - advertisement

Reference Books:-

- 1. Poetry Collection KAVYA SARGAM by Santhosh Kumar Chathurvedi, Lokbharati
- 2. Short Story Collection KATHA KUSUM by Santhosh Kumar Chathurvedi, Lokbharati
- 3. Prose Collection HINDI GADYA MANJUSHA by Dr. Bharath Bhooshan, Radhakrishna Prakasan
- 4. Hindi ka Anuprayukth Swaroop by Dr. Ramprakash & Dr. Dinesh Kumar Gupta. Radhakrishna Prakasan.
- 5. Bolchal ki Hindi by Dr. P.M. Thomas, Jawahar Pustakaalay, Mathura
- 6. Bolchal ki Hindi by Dr. Susheela Gupta, Lokbharathi Prakasan

#### **COMMON COURSE -KANNADA**

#### SDE 1 A04-1 KAN - POETRY AND FUNCTIONAL KANNADA

#### Credit: 6

#### AIM OF THE COURSE

This course intends to introduce main streams of Kannada Poetry. Poetry of deferent ages and deferent movements are to be introduced. This course also introduces the methods and practice of translation and letter writing. Writing skill is also practiced by writing general essay.

#### **OBJECTIVES OF THE COURSE**

- 1. To cultivate an ardent desire for learning Kannada Poetry.
- 2. To know the development of Kannada Poetry.
- 3. To develop communication skill.
- 4. To know the methodology of Translation, Essay writing and letter writing
- 5. To study the basic grammar.

#### **COURSE OUTLINE**

- Module 1 Introduction to special features of Kannada poetry.
- Module 2 Textual study of Kannada Poetry
- Module 3 Study to write official letters and general essay in Kannada
- Module 4 To study the methodology of translation.

#### PRESCRIBED TEXTS

- 1. PoetryPracheena Kavya DarshanaPrasaranga, Mangalore University.Sl. No. 1 and 2
- 2. Kadala Siri Prasaranga, Mangalore University. SL. No. 2, 4, 6, 8, 25, 27, 28, 30, 36, 42, 43.
- 3. Grammar : Sandhi, Samasa, Tatsama, Tadbhava.<br/>Ref : VyavaharikaP.N. Moodithaya and Radhakrishna Belluru

## Common Course And Language Reduced Pattern Programmes

LITERATURE AND BUSINESS COMMUNICATIONS IN ARABIC

Year	Course Code	Credit
First	SDE1A04ARB	6

#### Unit. 1 Literature

#### Course Outline:

The following selected Prose lessons for study from the first part of the Book (Zumurrud) edited by Dr.P.Abdul Rasheed and Ismail Olayikkara - Published by Makthabathul Huda kozhikkode:

- انيسد نبإ 2-
- قيماعدا و يحصفدا -3
- ريغصداً نيفداً -4
- متادن مركا -5
- كتايد عنصا -6
- ظحاجاً -8

# Unit: 2 Business Communications in Arabic Course Outline:

The following selected lessons for study from the second part of the Book " درمز" (Zumurrud) edited by Dr.P.Abdul Rasheed and Ismail Olayikkara - Published by Makthabathul Huda kozhikkode:

- لماسرلا ءازجا -1
- ة عامتج إ أن اسر l -2
- لَه يراجتُلا لئاسرًا -3
- 4- البيانات المنابية
- تاداهشدا -5
- ةيراجتلا تاحلطصما -6