KARNATAKA STATE OPEN UNIVERSITY

MUKTHA GANGOTRI, MYSURU-570006



Bachelor of Computer Applications (BCA)

PROGRAM GUIDE

DEPARTMENT OF STUDIES & RESEARCH IN COMPUTER SCIENCE

Website: www.ksoumysuru.ac.in

VICE-CHANCELLOR'S MESSAGE

Dear Learner,

The family of KSOU welcomes you to pursue the academic programmes you have chosen to achieve not only academic excellence but also to fulfill the desire of your career. The University, established by the Act of State Legislature has created wonderful academic ambiance. The programmes offered by the University have been recognized by University Grants Commission. Therefore, the degrees are valid for employment opportunities across the country. The 'core values' of the University are derived from its vision 'Higher Education to Everyone, Everywhere'. The ultimate touchstone of quality higher education is the motto of the University. Today, higher education stands at the crossroads of keeping pace with the emerging needs of the country.

The University has adopted a school concept in its functioning. The school of science headed by a Director offers academic programmes in basic and applied sciences. It combines an interdisciplinary and professional approach to pedagogy and research. The University believes that rigors of the contemporary world require competent quality human resources to create a knowledge-based society. The academic activities of the BCA programme is initiated through well-established department/s led by the Chairperson/s. Well-qualified teaching faculty with an equally dedicated non-academic team is an asset to the University, which is always, committed for the welfare of the learners.

The University functions in a 3-tier system of student support service, namely Headquarters, Regional Centres and Learners Support Centres spread all over Karnataka. The learners can undergo teaching-learning process in the notified Regional Centres/Learner Support Centres. The University has adopted a mechanism to deliver Self Learning Material by print, limited audiovisual and Counseling/Personal Contact Programme. As a learner, you will have a greater opportunity to gain knowledge and skill through those mechanisms. The academic counselors will play a strategic role and support you from the enrollment of the programme till you accomplish the goal. A proper blending of the knowledge and skill will be imparted so that you will be transformed as a good citizen to contribute to the development of society and the country.

The UGC in its Public Notice dated: 23.02.2018 stated that the Degree/Diploma/Certificate Programme awarded through distance mode are at par with the corresponding Degree/ Diploma/ Certificate Programme obtained through conventional universities. The degrees acquired through distance education are recognized for the purpose of employment in State/Central Government, MNCs, Private Sector etc., and also for pursuing higher education in other educational institutes. Therefore, you have a greater opportunity of pursuing Higher Education without any kind of fear about your career.

I am sure you will enjoy a good experience with services rendered by the university through its Regional centres and Learner Support Centres, besides Headquarters. I wish you all the best in your academic endeavors.

Best Wishes, Prof. Vidya Shankar. S. Vice-Chancellor

MESSAGE FROM DEAN (ACADEMIC)

Dear Learner,

As you know education imparts knowledge and skills which empower all to build a civilized society. Higher education policy which was once a priority sector is no longer maintaining the same, due to General Agreements and Trade in Services (GATS). The education policy of the government provides a greater opportunity to accelerate Gross Enrolment Ratio (GER).

Higher education is imparted both by the conventional system and the ODL system. The former education has inbuilt rigidity whereas ODL enjoys flexibility. Presently the GER in higher education around is 27.1%, thanks to the role played by the ODL system. The ODL system operates under access, flexibility and success.

The Karnataka State Open University, which came up in 1996, under the Act of state legislation 1992 plays a stupendous role in imparting quality education. As one of the premier university in the ODL system of the country, the university strives hard to empower various dis-advantaged sections of the society like, housewives, economically and culturally backward, tribal, senior citizens, working groups, differently-abled, professionals, technocrats, jail inmates, etc., The University cater to the needs of students ranging from the age of 18 years to 80 years.

The KSOU has students' support services that work in 3 tiers - head office; regional centres and study centres within the jurisdiction of the state. The admissions, counseling and examinations are conducted in different places; hence, education is at the doorsteps.

KSOU has dedicated teaching staff in various departments and state-of-the-art student support services create a conducive environment for teaching-learning. The university put in place all possible efforts to keep the learners happy from the stage of enrolment till they get employed. I am confident that, as a learner in the university, you will enjoy a good experience in the system.

I wish you all the best in your academic endeavors.

Truly yours **Dean (Academic)**

MESSAGE FROM CHAIRPERSON

Dear Learner,

It's a great privilege to welcome you to the BCA program. As part of the BCA, you will study all important subjects that are appropriate to the level of a Bachelor's degree and the needs of the IT industry. With the rapid growth of the IT industry in India, the demand for computer professionals is increasing day by day. This increasing growth of the IT industry has created a lot of opportunities for computer graduates. Given this, education in Computer Applications plays a vital role in reaching the current demands in industries. Though a number of engineering or BCA graduates are coming up every year, still there are a lot more requirements in most of the industries / academic institutions/research and development organizations, which, perhaps, can be addressed by Bachelor of Computer Applications. This program provides a lot of opportunities to students who are interested in the field of Computer Applications and wants to build a career in the IT sector.

The Karnataka State Open University (KSOU) has taken the initiative to start a Bachelor of Computer Applications Programme to meet the demand of IT industries and research organizations. After interacting with experts in the domain, and after a thorough discussion among the experts in the form of a workshop, the Board of Studies in Computer Science of KSOU has prepared a curriculum content to maintain the quality of the Bachelor of Computer Applications programme on par with that of other universities.

Bachelor in Computer Application (BCA) is one of the popular courses among the students who want to make their career in the IT (Information Technology) field. The duration of the course is three years and is divided into six semesters. The program has six semesters with a total of 140 credits.

The department has made a very sincere effort to give you exhaustive study material wherever required in order to augment to advise a certain suggested reading. I am confident that at the end of the three years you will feel that you are an asset in society, as you acquire the requisite skills, knowledge and attitude. I, wish and assure you, on behalf of the Department, that we will help you to pursue your objectives and assist you in the successful completion of the course.

ChairPerson DoS&R in Computer Science

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1 PRIMITIVE INFORMATION

1.1 BCA Programme

The Graduate course in Computer Applications will be called as the **Bachelor of Computer Applications.** The primary objective of the programme is to provide avenues to take admission for computing courses for students, who have carried out the 10+2 and are inquisitive about taking computing/IT as a career. After obtaining the Bachelor's Degree (BCA) from Karnataka State Open University, the learner may pursue higher education there's a similarly instructional possibility to move for an M.Sc. in Computer Science or M.Sc. in Information Technology at KSOU. Upon successful completion of the programme, a learner may be able to get an entry-level job in the field of Information Technology.

1.2 Duration of the Programme (Minimum - 3 Years, Maximum - 6 Years)

The BCA programme will be of three academic years duration and conducted in six semesters with each semester having an academic duration of 14 to16 weeks. In case the learner is unable to pass all the courses of the BCA within the prescribed maximum duration of 6 years, He/she can apply for an extension by seeking permission from Registrar, KSOU after getting permission, the learner can take Re-admission on remitting the fees of the left-over courses. Information related to the Re-admission Form, rules and regulations and fees, you may either contact the concerned Regional Centre/University.

1.3 General Entry Scheme For Bachelor of Computer Applications (BCA)

• Candidates who have successfully completed the qualifying examinations (10+2) or PU equivalent with Mathematics/Statistics/Accountancy as one of the subjects

OR

 Candidates who have successfully passed 3 years Diploma (CS/IT/EC/EE/IS) are eligible to admit for the BCA course.

1.4Faculty Details

Department of Studies in Computer Science						
Sl. No	Name	Designation	Qualification	Specialization	Experience	Mobile Number
1	Smt. Suneetha	Assistant Professor & Chairperson	M.Sc.	Pattern recognition & Image Processing	16	9480326709
2	Dr. Sumati Ramakrishna Gowda	Assistant Professor	M.Sc.IT, Mphil, Ph.D.	Mobile Adhoc Networks	21	9743363293
3	Dr. D.M. Mahesha	Assistant Professor	M.C.A., Ph.D.	Text Recognition	11	9901249102
4	Smt. D.N.Bhavya	Assistant Professor	M.Tech.	Bio Matrics	11	8722384750
5	Dr. Naveen Kumar C.G	Assistant Professor (Contract Basis)				

Sl.	Name of the Faculty	Designati	Qualification	Specialization	Expe-	Mobile	
No		on		_	rience in	Number	
					Years		
		Ι	Department of Ka	nnada			
1	Dr. A. Rangaswamy	Professor	M.A. Ph.D	Chandassu	29	9448166815	
2	Dr. D. Naganna	Professor	M.A. Ph.D	Sahitya	26	9738979269	
		&		Vimarshe			
		Chairman					
3	Dr. Kavitha Rai	Professor	M.A. Ph.D	Kavya Mimamse	15	9482206129	
4	Dr. T.M. Geethaniali	Associate	M.A. Ph.D	Taulinika	26	9739425639	
	J.	Professor		Sahitya	-		
5	Dr. N.R. Chandre	Assistant	M.A. Ph.D	Janapada mattu	24	9449668997	
	Gowda	Professor		Vimarshe			
6	Dr.P.Mani	Assistant	M.A. Ph.D	Basha Sahitya	20	94801970799	
		Professor		5			
7	Dr. Jyothishankar	Assistant	M.A. Ph.D	Pracheena	17	9448603159	
	-	Professor		Sahitya			
	Department of English						
8	Dr. Nataraju .G	Assistant	M.A. Ph.D	British	12	9741219820	
		Professor &		Literature			
		Chairman					

9	Dr. Srikanth .S	Assistant	M.A. M.Phil	European	16	9986019910
10	Dr AS Madhura	Accietant	MA M Dhil		12	0080000340
10	DI. A.S. Mauliula	Professor	Ph D	Literature	15	9900900349
11	Dr. John Peter S	Assistant	1 11.12.	Literature	_	
11		Professor				
		(Contract				
		(Contract Basis)				
12	Dr. Vinutha P	Assistant			_	
12	Kunderi	Professor			_	
	Kundell	(Contract				
		(Contract Basis)				
		Dusisy	Department of H	Iindi	<u> </u>	
13	Dr.Kamble Ashok	Professor	M.A. Ph.D	Grammar	33	9449638999
14	Dr. Prabhusena D	Assistant	M.A. Ph.D	Modern Hindi	08	9945653167
		Professor		Poetry,		
		&		Comparative		
		Chairman		Study, Poetic		
				Criticism		
15	Dr. Veena	Assistant			-	
		Professor				
		(Contract				
		Basis)				
16	Dr. Chandra Shekhar	Assistant			-	
	R	Professor				
		(Contract				
		Basis)				
]	Department of Sa	nskrit		
17	Dr. Shalva Pille	Coordinat	M.A. Ph.D	Ancient	13	9686215043
	Iyengar	or		History		
18	Sri Ananda Simhan	Assistant			-	
		Professor				
		(Guest				
		Faculty)				
	F	1	Department of U	Jrdu	I	
19	Dr. M. Ramanatham	Coordinat	M.A. Ph.D		26	9035363892
	Naidu	or				
20	Dr. Mohammed	Assistant			-	
	Nasrullakhan	Professor				
		(Contract				
		Basis)				
21	Dr. Syeda Ishrath	Assistant			-	
	Fathima	Professor				
		(Contract				
		Basis)		· · · · · · · · · · · · · · · · · · ·		
		1	Department of Te	elugu	1	
22	Dr. M. Ramanatham	Professor	M.A. Ph.D	Telugu	26	9035363892
	Naidu	&				

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		Chairman					
23	Dr. Bodi Nagaseshu	Assistant			_		
	210 20 al 1 (agas colla	Professor					
		(Contract					
		(Contract Basis)					
24	Dr. B. Chakravarthi	Assistant			_		
	Di Di Chuldu di thi	Professor					
		(Contract					
		(Contract Basis)					
25	Dr. Shalva Pille	Assistant	M A Ph D	Ancient	13	9686215043	
	Ivengar	Professor		History	10	y 000 2 10010	
	Tyongu	&		Thistory			
		Chairman					
26	Dr Anianamurthy	Assistant			_		
20	D1. Mijanamurtiry	Professor			_		
		(Contract					
		(Contract Basis)					
27	Dr. Payinragad S	Assistant					
21	DI. Kavipiasau S	Professor			-		
		(Contract					
		(Contract Regin)					
		Dasis)					
	Departme	ent of Studie	s and Research	in Environmental S	Science		
	Dr	Assistant	M Sc. M Phil				
28	IS Chandrashekar	Professor &	Ph D	Ecology	10	9663061978	
	J.J.Chundrushekur	Chairperson	T II.D.				
•		Assistant		Environmental		0.4.40.1.500.00	
29	Dr. T. S. Harsha	Professor	M.Sc. Ph.D.	Microbiology	14	9449178802	
		Assistant					
	Dr HR Meena	Professor					
30	Kumari	(Contract					
	Tumur	(Contract Basis)					
		Assistant					
	Dr. Privadarshini	Professor					
31	N R	(Contract					
	11.11	(Contract Basis)					
		<u>Assistant</u>					
		Professor					
32	Dr. Gireesha .J	(Contract					
		(Contract Basis)					
		Dusisy	partment of Politica	al Science			
33	Dr.	Associate	M.A. Ph D	Public	21	9449405353	
55	Shankaranaranappa	Professor		administration	<u>~1</u>		
34	Dr. N. Ananda Gowda	Assistant	M.A. Ph.D	Political	11	9916007312	
		Professor		Theory			
		&					
i i			-	-	· ·		

35	Smt. R. Ishwarya	Assistant Professor	M.A.	Western Political Thoughts	07	8971600238 / 8277473086
36	Dr. Krishnappa G Nimbakkanavar	Assistant Professor	M.A. Ph.D	International Relations	10	9738950068
37	Dr. S.S. Jahanavi	Assistant Professor	BSc LLM MPhil Ph.D	Law	20	9449806664

1.5 Medium of Instruction

The medium of instruction is only in English. The course material will also be in English.

1.6 Credit System for the Programmes

The University follows the 'Credit System' for all its Programmes. Each credit is of 30 hours of study comprising of all learning activities such as studying the self-learning material, participating in the counseling/contact classes, preparing an assignment, visiting the library/ industry/ institution, interacting through audio-visual related mode and preparing for exams. Thus, a four-credit course involves 120 study hours, a six-credit course involves 180 study hours and so on. This helps the students to understand the academic efforts she/ he will have to put in order to successfully complete the programme.

1.7 BCA Programme Structure

The programme has been divided into two semesters per year Consequently, there will be two examinations every year — one in the month of June for the January to June semester courses and the other in December for the July to December semester courses. It is the liberty of the learner to appear for any of the examinations schedule conducted by the University during the year subject to completing the minimum duration and other formalities prescribed for the programme. Learners may ensure that he/she paid the requisite fee as well as fulfill other requirements such as prescribed minimum attendance etc. before appearing in the term-end examinations. The result may be withheld or may be cancelled in case it is found that the student's registration to the course is invalid or did not register.

PROGRAMME STRUCTURE OF BCA

Semseter	Course Code	Course Title	Credits
	Lang-1.1	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	Lang-1.2	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
т	AECC-1.3	Constitution of India	2
1	BCADSC 1.4	Fundamentals of Computers and Programming in C	6
	BCADSC 1.5	Linear Algebra	6
	BCAGE-1	*Generic Elective-1	2
		Total Credits	20
	Lang-2.1	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	Lang-2.2	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	AECC-2.3	Environmental Science	2
п	BCADSC 2.4	Python Programming	6
	BCADSC2.5	Computer Networks	6
	BCAGE-2	*Generic Elective-2	2
		Total Credits	20
	BCA-3.1	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	BCA-3.2	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	BCADSC 3.3	Data Structure using C++	6
Ш	BCADSC 3.4	Computer organization	6
	BCA DSC3.5	Fundamentals of Data Science	6
	BCASEC 3.6	Fundamental of Accountancy	2
		Total Credits	24

	Lang-1.4	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	Lang-2.4	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu	2
	BCADSC-8	Programming in JAVA	6
1 V	BCADSC-9	Operating System	6
	BCADSC- 10	Image Processing and Pattern Recognition	6
	BCASEC-2	Financial Management	2
		Total Credits	24
	BCADSC- 11	Database Management System	6
V	BCADSC- 12	Big Data Analytics	6
	BCADSE-1	Machine Learning	6
	BCADSE-2	VISUAL Programming	
	BCADSE-3	Internet of things	6
	BCADSE-4	Cyber Security	
		Total Credits	24
	BCADSC- 13	Web Technology	6
	BCADSC- 14	Data Mining	6
VI	BCADSE-5	Multimedia System	6
	BCADSE-6	Resource Management Techniques	
	BCADSC-7	Project	10
		Total Credits	28

SL No	Denartment	Semester	Course Code	Course Title
51. 110	Department	First	BPGE-1	Physics in Daily Life
1	Physics	Second	BPGE-2	Energy Sources
2	Food Science and	First	BFSNGE- 1	Culinary Food Science
2	Nutrition	Second	BFSNGE- 2	Food and Society
3	Botany	First	BBOTGE- 1	Plant Tissue Culture and it's Biotechnological Application
		Second	BBOTGE- 2	Plant Microbe Interaction
	Miarabiology	First	BMBGE- 1	Microbiome and Human Health
4	Microbiology	Second	BMBGE- 2	Food Micro Biology
5	Library and Information	First	BLIGE-1	Personality Development and Soft Skills for Professionals
	Science	Second	BLIGE-2	Electronic Sources and E- Publishing
6	Public Administrations	First	BPA-1	Introduction to Public Administration
	Administrations	Second	BPA-2	Local Governments in India
_		First	BCO-1	Fundamentals of Accountancy
1	Commerce	Second	BCO-2	Fundamental of Marketing
0	Computer	First	BCA-1	Android Programming
0	Science	Second	BCA-2	Cyber Security
0	Mathematica	First	BMM-1	Objective Mathematics -1
9	wathematics	Second	BMM-2	Objective Mathematics -2
10	Management	First	BMG-1	Office Management
10	wianagement	Second	BMG-2	Management Skills
	Information	First	BIT-1	Fundamentals of IT
11	Technology	Second	BIT-2	Basic Programming Skills using C

Open Elective Courses Offered

Note :

- a. Languages, Compulsory paper and I and II Semester open elective syllabus are attached in Annexure I to Annexure V respectively.
- b. The Students may contact respective department chairperson in case of any queries regarding open elective course. The contact details available in the university website.

1.8 Student Support Services

In order to provide individualized support to its learners, the University has created a number of Study Centres throughout the country for this Programme. These are administratively coordinated by the Regional Centres. The Study Centres are the contact points for the learners on all major aspects of the Programme. These include counseling sessions, practicals, reference library facilities, disseminating information and advice, facilities for audio-visual training aids, online classes and teleconferencing. The University may not always be able to communicate to all the students individually. All the important communications are sent to the Regional Directors who in turn will intimate them to the Study Centre Coordinators. The coordinators display such circulars/notifications on their notice boards or WhatsApp groups for the benefit of the learners. You are, therefore, advised to be in touch with your Study Centre Coordinator on a more regular basis so as to get the latest information about assignments, submission schedules (assignments and examination forms), declaration of results, etc. You are also advised to visit the KSOU website so that you will be updated about the latest developments in BCA.

2. INSTRUCTIONAL SYSTEM

The methodology of instruction in this university is different from that of traditional system. The Open University system is more learner-oriented, and the learner has to be an active participant in the teaching-learning process. Most of the instruction is imparted through a distance with only a small component of face-to-face communication. The University follows a multi-channel approach for instruction. It comprises a suitable mix of self-learning printed material and a personal contact programme at study centre/university and reference library at study centre/university.

3. DETAILED SYLLABUS BCADSC 1.4 -Fundamentals of computer and programming in C

Block 1

Unit 1: Introduction, Classification of Computers (Based on all Criteria), Functional units, Evolutional of Computer Languages. Basic Computer Organization - Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices. Concepts of Hardware and Software, Secondary Storage Devices, language translator.

Unit 2: Introduction to number systems- Numeric and Non-numeric representation of data - Decimal, Binary (Addition, subtraction, Multiplication, division, 1"s and 2"s complement methods), Octal and hexadecimal number systems. Conversion from one number system to another number system. Excess-3-code and gray code. Conversion between gray and binary codes.

Unit 3: Boolean Algebra- Laws, De-Morgan's Theorem, Simplification of Expressions using K Map (Upto 4 Variables)

Unit 4: Logic Gates- AND, OR, NOT, and Universal Gates. Combinational Logic Circuit- Half and Full Adder, Half and Full Sub tractors.

Block 2

Unit 5: Introduction to Principles of programming Introduction to Programming, Programming Domain: Scientific Application, Business Applications, Categories of Programming Languages: Machine Level Languages, Assembly Level Languages, High Level Languages Programming, Program Execution and Translation Process, Problem solving using Algorithms and Flowcharts, Performance Analysis and Measurements: Time and Space complexity

Unit 6: Introduction to C Programming: Features of C and its Basic Structure, Simple C programs, Constants, Integer Constants, Real Constants, Character Constants, String Constants, Backslash Character Constants, Concept of an Integer and Variable, Rules for naming Variables and assigning values to variables

Unit 7: Operators and Expressions: Arithmetic Operators, Unary Operators, Relational and Logical Operators, The Conditional Operator, Library Functions, Bitwise Operators, The Increment and Decrement Operators, The Size of Operator, Precedence of operators.

Unit 8: Data Types and Input/output Operators: Floating-point Numbers, Converting Integers to Floating-point and vice-versa, Mixed-mode Expressions, The type cast Operator, The type char, Keywords, Character Input and Output, Formatted input and output, The gets () and puts () functions, Interactive Programming.

Block 3

Unit 9: Control Statements and Decision Making: The goto statement, The if statement, The if-else statement, Nesting of if statements, The conditional expression, The switch statement, The while loop, The do...while loop, The for loop, The nesting of for loops, The break statement and continue statement.

Unit 10: Arrays and Strings: One Dimensional Arrays, Passing Arrays to Functions, Multidimensional Arrays, Strings

Unit 11: Pointers – I: Basics of Pointers, Pointers and One-dimensional Arrays, Pointer Arithmetic, Pointer Subtraction and Comparison, Similarities between Pointers and One-dimensional Arrays.

Unit 12: Structures and Unions: Basics of Structures, Arrays of Structures, Pointers to Structures, Self-referential Structures, Unions.

Block 4

Unit 13: Functions: Function Philosophy, Function Basics, Function Prototypes, and Passing Parameters: Passing Parameter by value and Passing Parameter by reference, passing string to function, Passing array to function, Structures and Functions Recursion

Unit 14: Storage Classes: Storage Classes and Visibility, Automatic or local variables, Global variables, Static variables, External variables

Unit 15: The Preprocessor and file management: File Inclusion, Macro Definition and Substitution, Macros with Arguments, Nesting of Macros, Conditional Compilation. Defining and Opening a file, Closing Files, Input/output Operations on Files, Predefined Streams, Error Handling during I/O Operations, Random Access to Files, Command Line Arguments.

Unit 16: Dynamic Memory Allocation and Linked List:Dynamic Memory Allocation, Allocating Memory with malloc, Allocating Memory with calloc, Freeing Memory, Reallocating Memory Blocks, Pointer Safety, The Concept of linked list, Inserting a node by using Recursive Programs, Sorting and Reversing a Linked List, Deleting the Specified Node in a Singly Linked List.

Block-5- 6 C Programming Lab (Practical-1)

- 1. Program to pick out the biggest and smallest number among three given numbers.
- 2. Program to find sum of even and odd numbers separately in the given list.
- 3. Program to find largest and smallest of N numbers
- 4. Program to find the roots of the quadratic equation using nested if.
- 5. Given two numbers, program to perform arithmetic operations using switch statement.
- 6. Program to generate Fibonacci series up to N numbers using do while loop.

7. Program to find the reverse of the given number. Also sum and count the number of digits and check whether the given number is palindrome or not using while –do loop.

- 8. Program to generate prime numbers using for loop.
- 9. Program to search an element using linear search technique.
- 10. Program to check whether the given number is factorial of a number or not.

Part B

- 11. Program to insert a sub-string into a given string.
- 12. Program to add and subtract two M x N matrices.
- 13. Program to multiply two M x N matrices.
- 14. Program to find trace and norm of a square matrix and print its principle diagonal elements.
- 15. Program to exchange principle and secondary diagonal elements of a square matrix.
- 16. Program to find the factorial of a number using recursion.
- 17. Program to swap two number using functions.
- 18. Program to read and write information of an employee using structure.
- 19. Program to create simple marks card assuming appropriate conditions.
- 20. Program to read and write information of an employee using a file

Recommended Texts:

- 1. M.M. Mano, Digital Logic and Computer Design, Pearson Education.
- 2. V. Rajaraman, 2002, Fundamentals of Computers, Third Edition,
- 3. E.Balaguruswamy, 1995, Programming in ANSI C, TMH

Reference Books:

- 1.T.C. Bartee, 1991, Computer Architecture and logical Design, McGraw Hill.
- 2.H. Scheldt, 2004, The Complete Reference, 4th Edition, TMH
- 3.Gottfried, B.S, 1996, Programming with C, Second Edition, TMH Pub. Co. Ltd
- 4.Kanetkar Y,1999, Let us C, BPB Publications., New Delhi.

5.Kamthane,2002, Programming with ANSI & Turbo C, First Edition,

BCADSC 1.5 Linear Algebra

Block – 1:
Unit-1: Group, Subgroups, Ring
Unit-2: Integral Domain, Field and Introduction of Boolean Algebra.
Unit-3: Spaces and Subspaces, Basic and Dimension of Vector Spaces
Unit-4: Linear Transformation, Their Nullity and Rank.

Block-2:

Unit –5: Linear systems, Matrices-Definition, Types of Matrices, Addition, Subtraction Scalar Multiplication and Multiplication of Matrices

Unit-6: Elementary Transformation, transpose of a matrix, Symmetric and skew-symmetric matrices and their properties, Adjoint, Inverse of a Matrix by Row Operation, Rank **Unit-7**: Solution of a System of Linear Simultaneous Equation by Matrix Methods, Gauss elimination method.

Unit –8: Permutation and Combinations, Binomial theorem.

Block – 3:

Unit – 9: Eigenvalues, Eigenvectors and Diagonalization, quadratic forms.

Unit-10: Rectangular, Spherical, Polar and Cylindrical Coordinates

Unit-11: Direction Cosines, Planes, Straight Lines

Unit-12: Shortest Distance Between Two Skew Lines, Sphere.

Block-4:

Unit-13: Determinants: Definition, Minors, Cofactors, Properties of Determinants

Unit-14: Adjoint, Inverse, Cramers Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof).

Unit-15: Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions

Unit-16 Continuity at a Point, Continuity Over an Interval, Intermediate

Value Theorem, Type of Discontinuities

Block-5:

Unit-17: Derivative, Derivatives of Sum, Differences, Product & Quotients, Chain Rule, Derivatives of Composite Functions, Logarithmic Differentiation

Unit-18: Rolle's Theorem, Mean Value Theorem, Expansion of Functions (Maclaurin's & Taylor's), Indeterminate Forms

Unit 19: L' Hospitals Rule, Maxima & Minima, Curve Tracing, Successive Differentiation & Liebnitz Theorem.

Unit-20: Functions of several variables, Limit and Continuity, Partial derivatives, Total differential, Euler's theorem on homogeneous functions of two variables. Tangents and normal

Block-6:

Unit-21: Integral as Limit of Sum, Fundamental Theorem of Calculus (without proof.), Definite integrals and their elementary properties, Indefinite Integrals

Unit-22: Methods of Integration Substitution, By Parts, Partial Fractions, Reduction Formulae for Trigonometric Functions, Gamma and Beta Functions(definition).

Unit-23: Vector spaces over R with examples, Subspaces. Linear independence, dependence, Basis and Dimension. Quotient spaces, Homomorphism and Isomorphism of Vector spaces.

Unit-24: Inner Product space, Orthogonality, Orthogonal Basis, Gram Schmidt process, Orthogonal complements, Projection on subspace.

Reference books:

- 1. Gilbert Strang, Linear Algebra and its Applications, Cengage Learning India, 4th edition, 2005.
- 2. Kenneth Hoffmann and Ray Kunze, Linear Algebra, PearsonIN, Second Edition, 2018.
- 3. S. Kumaresan, Linear Algebra A Geometric Approach, Prentice Hall India Learning Private Limited, 2000.
- 4. Prakash Om, Linear Algebra, Golden Maths Series, Laxmi Publications (P) Ltd, New Delhi, 2020.
- 5. B.S. Grewal, "Elementary Engineering Mathematics", 34th Ed., 1998.
- 6. Shanti Narayan, "Integral Calculus", S. Chand & Company, 1999
- 7. H.K. Dass, "Advanced Engineering Mathematics", S. Chand & Comp
- 8. J.P. Chauhan "BCA Mathematics Volume -1", Krishna Publications.

Suggested books:

- 1. Higher Algebra, S. K. Mapa, Levant Books.
- 2. Advanced Higher Algebra, Chakravorty and Ghosh, U N Dhar Pvt. Ltd.
- 3. Co-ordinate Geometry, S. L. Loney
- 4. Integral Calculus, Das and Mukherjee, U N Dhar Pvt. Ltd.
- 5. Differential Calculus, Das and Mukherjee, U N Dhar Pvt. Ltd.
- 6. Advanced Engineering Mathematics, E Kreyszig, Wiley

BCADSC 2.4 Python Programming

Block 1:

Unit-1 Introduction to Python - structure of python program, Python Interpreter, Using Python as calculator,

Unit-2: Python shell, Indentation, the concept of data types; variables, assignments; immutable variables; **Unit-3**: Numerical types; arithmetic operators and expressions; comments in the program; understanding error messages.

Unit-4: Input and Output Statements, Control statements Looping- while Loop, for Loop , Loop Control,

Block 2:

Unit-5: Conditional Statement- if...else, Difference between break, continue and pass, short-circuit (lazy) evaluation.

Unit-6 Manipulating files and directories, os and sys modules; text files: reading/writing text and numbers from/to a file;

Unit-7: creating and reading a formatted file (csv or tab-separated). String manipulations: subscript operator,

Unit-8: indexing, slicing a string; strings and number system: converting strings to numbers and vice versa.

Block 3:

Unit-9: Binary, octal, hexadecimal numbers: Basic list operators, replacing, inserting, removing an element;

Unit-10: searching and sorting lists; dictionary literals, adding and removing keys,

Unit-11: accessing and replacing values; traversing dictionaries.

Unit-12: redundancy, complexity; arguments and return values;

Block 4:

Unit-13: formal vs actual arguments, named arguments. Program structure and design. Recursive functions.

Unit-14: Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes, data modelling; persistent storage of objects, inheritance,

Unit-15: polymorphism, operator overloading (_eq_, _str_, etc); abstract classes; exception handling, try block. Graphical user interfaces; event-driven programming paradigm;

Unit-16: tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames.

Block-5-6 Python Programming Lab:

1.Write a Python code to display system information using pywhois.

- 2. Check whether a number is prime or not
- 3. Make a Simple Calculator
- 4 Find the Factorial of a Number
- 5. Python Program to Generate a Random Number
- 6. Python Program to Check Whether a String is Palindrome or Not
- 7. Python Program to Sort Words in Alphabetic Order
- 8. Program to illustrate looping constructs.
- 9. Program to illustrate conditional statements.

10. WAP to plot a graph of people with pulse rate p vs. height h. The values of p and h are to be entered by the user.

- 11. Program to illustrate class and object.
- 12. Python Program for Inheritance.
- 13. Python Program for Operator overloading.
- 14. Python Program for Exception Handling.
- 15. Write a menu-driven program to create mathematical 3D objects

TEXTBOOK

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning, ISBN: 978-1111822705

Reference Books:

1. P. K. Sinha & Priti Sinha, "Computer Fundamentals", BPB Publications, 2007.

2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.

3. T. Budd, Exploring Python, TMH, 1st Ed, 2011

4. Python Tutorial/Documentation www.python.or 2010

5. Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist : learning with

Python, Freely available online.2012

- 6. http://docs.python.org/3/tutorial/index.html
- 7. http://interactivepython.org/courselib/static/pythonds

8. http://www.ibiblio.org/g2swap/byteofpython/read/

BCADSC2.5 Computer Networks

Block 1:

Unit-1: Data Communication, Component and Basic Concepts – Introduction, Characteristics – delivery, Accuracy, Timeliness and Jitter, Components –

Unit-2: Message, Sender, Receiver, Transmission medium and protocol. Topology – Mesh, Star, Tree, Bus, Ring and Hybrid Topologies.

Unit-3: Transmission modes – Simplex, Half Duplex, Full Duplex Categories of networks – LAN, MAN, WAN. DNS, IP address, MAC address,

Unit-4: Web browser, ISP, URL, WWW,Broadband Transmissions. Guided Media – Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable.

Block 2:

Unit-5: Unguided Media – Radio Wave Transmission Systems, Microwave Transmission Systems, Infrared Transmission Systems and Satellite Communication System.

Unit-6: The OSI Model – Functions of all the Seven Layers. Networking Devices – Functions and Applications of Hub, Switches, Bridges, Repeaters

Unit-7: Internetworking Devices – Functions and Applications of Routers and Gateways.IP Addressing – Dynamic IP Addressing, Static IP Addressing,

Unit-8: Types of IP Addresses. Protocols – Overview only- TCP, UDP, IP, IPV4, IPV6,

Block 3:

Unit-9 TCP/IP Suite, SMTP, POP3, SNMP, HTTP, FTP, DNS, ICMP

Unit-10: IGMP, ARP, RARP, OSPF, BGP, ALOHA

Unit-11: Packet Switching Networks – Network Services and Internal Network Operations, **Unit-12:** Packet Network Topology, Datagrams and Virtual Circuits, Connectionless Packet Switching,

Block 4:

Unit-13: Virtual Circuit Packet Switching. Routing Concepts – Routing Tables,

Unit-14: Dijkstar's Shortest Path Routing Algorithm, Congestion Control Algorithms-Leaky Bucket Algorithm.

Unit-15: Data Link Issues –Single bit error and Burst Error, concepts of Redundancy, Checksum, **Unit-16:** Single Bit Error correction and Hamming Code correction method.

Reference Books

- 1. Introduction to Data Communications and Networking by Behrouz Forouzan.
- 2. Computer Networks by Andrew S Tanenbaum.
- 3. Networking Essentials Third Edition Jeffrey S. Beasley, Piyasat Nilkaew

Block-5-6 Computer Networking Lab:

BASICS OF NS2

- 1. Introduction to NS2
- 2. XGraph
- 3. Awk and advanced 10 P

Part – A

- **1.**Three node point to point network
- 2. Transmission of Ping messages
- 3. Ethernet Lan using n-nodes with multiple traffic
- 4.Simple ESS with wireless Lan
- 5. Performance of GSM using MAC layer
- 6. Performance of CDMA

Part-B

- 1. CRC-CCITT
- 2. Bellman-Ford Algorithm
- 3. Client server using TCP/IP sockets
- 4. Client-Server Communication
- 5. RSA Algorithm to Encrypt and Decrypt the Data
- 6. Congestion Control Using Leaky Bucket Algorithm

BCADSC 3.3 Data Structure using C++

Block 1:

Unit-1: C++ Fundamentals: C++ data types, operators, expressions. Control structures: Branching and looping statements-break and continue statements.

Unit-2: User defined functions - Inline functions. Defining classes, defining member functions, creating objects.

Unit-3: Passing and returning objects to and from functions- Friend functions-Constructors: default constructors, parameterized constructors,

Unit-4: constructors with default arguments, copy constructors- destructors. Nested member functions. Array of objects.

Block 2:

Unit-5: Overloading and polymorphism: Operator overloading, function overloading, constructor overloading.

Unit-6: Inheritance: Single, multiple, multi-level, hierarchical and hybrid inheritance

Unit-7: Concept and terminology for non-primitive Data structures, Storage structures for arrays, Various operations on Arrays-Traversal, Insertion,

Unit-8: Deletion, Sorting and Searching. Stacks, Definitions and Concepts,

Block 3:

Unit-9: Operations on stacks, Applications of stacks-Recursion, Infix to postfix, Evaluating postfix expressions,

Unit-10: Queues-Linear and circular Queue. Pointers and Linked Allocation, linked linear lists,

Unit-11: Operations on Linear lists using singly linked storage Structures-Insertion and Deletion operations circularly linked linear lists-

Unit-12: memory representation, doubly linked linear lists- memory representation.

Block 4:

Unit-13: Trees - Introduction as non-linear data structure, Concepts of node, Terminal node,

Unit-14: Depth, General Tree, Definition for Binary Tree, Left Skewed Tree,

Unit-15: Right Skewed Tree, memory representation using Arrays and Linked List, Tree Traversal

Unit-16: Algorithms- Pre-order , In-order, Post-order and Implementation of Tree Traversal Algorithm

Block-5-6 Data Structures Lab using C++ (Practical -2)

Part - A

- 1. Program to illustrate class and object .
- 2. Program to demonstrate friend function and inline function.
- 3. Program to demonstrate operator overloading .
- 4. Program to demonstrate function overloading.
- 5. program to demonstrate single inheritance, multiple inheritance.
- 6. program to illustrate array of objects, nesting of member functions.
- 7. Program to illustrate types of constructors.

Part – B

8. Write an interactive program to implement the following operations on stack

using arrays

a. PUSH

b. POP

9. Program to implement Tower of Hanoi problem.

10. Write an interactive program to perform insertion and deletion operations inLinear Queue using arrays.

11. Write an interactive program to perform insertion and deletion operations inCircular Queue using arrays.

12. Write an interactive program to insert a node in a linked list at the front, delete anode from the rear and display.

13. Write an interactive program to implement preorder, post order and in ordertraversal of a binary tree using linked list.

Reference Books:

1. Data Structures, Algorithms And Applications In C++, vaidyanathan, CBS; 1st edition (2013)

2. Data structures, Algorithms and Applications in C++, S.Sahni, University Press (India) Pvt.Ltd, 2nd edition, Universities Press, Pvt. Ltd.

3. Data structures and Algorithm Analysis in C++, Mark Allen Weiss, Pearson Education. Ltd., Second Edition.

4. Data structures and Algorithms in C++, Michael T.Goodrich, R.Tamassia and .Mount, Wiley student edition, John Wiley and Sons.

- 5. Problem-solving with C++, The OOP, Fourth edition, W.Savitch, Pearson education.
- 6. Data structures and algorithms in C++, 3rd Edition, Adam Drozdek, Thomson
- 7. A Data structures using C and C++, Langsam, Augenstein and Tanenbaum, PHI.

BCADSC 3.4 Computer organization

Block-1:

Unit-1: Organization and architecture, structure and function, computer components.

- **Unit-2:** Computer function, interconnection structures, bus interconnection, memory locations, addressing and encoding of information.
- **Unit-3:** Main memory operations, instructions and instruction sequencing, instruction execution and straight-line sequencing, condition codes.
- Unit-4: Addressing modes, assembly language, stacks and queues, number representation and operations.

Block-2: Basic Processing Unit

- **Unit-5:** Some fundamental concepts: Register gating and timing of data transfers, Register Transfers, Performing arithmetic or logic operation,
- **Unit-6:** Fetching word from memory. Storing a word in memory, Execution of a complete instruction, Branch instruction.
- **Unit-7:** Performance Considerations: Multiple bus organization, Overlapping fetch and execution operations, usage of cache memory.
- **Unit-8:** Hardwired Control: Organization of the hardwired control unit, separation of the decoding and encoding functions and generating control signals for the processor.

Block-3:

Unit-9: Microprogrammed Control: Organization of the Microprogrammed control unit, Control word,

- **Unit-10:** Microinstruction, Microroutine, Control store, Microinstruction formats, Microprogram sequencing, Branch address modification,
- Unit-11: Bit-ORing, Wide Branch addressing, Microinstruction with next-address field.
- **Unit-12:** Introduction, Accessing I/O devices: Memory mapped I/O and I/O mapped I/O. I/O interface for an input device, mechanisms for interfacing I/O devices.

Block-4:

- Unit-13: Interrupts: Interrupt I/O, enabling and disabling interrupts, handling multiple devices,
- Unit-14: vectored interrupts, interrupts nesting and priority structures, Controlling device requests.

- **Unit-15:** Exceptions, Direct Memory Access, DMA operation, Registers in a DMA interface, use of DMA controllers in a computer system.
- Unit-16: I/O hardware, details of I/O interface, functions of I/O interface, standard I/O interfaces.

Block-5:

- Unit-17: Basic concepts: Memory addressing, CPU-Main memory connection, memory access type,
- Unit-18 memory access cycle, Random Access Memory, cache memory, memory interleaving, virtual memory.
- Unit-19: Internal organization of semiconductor memory chips, semiconductor
- Unit-20: RAMs, static memories, dynamic memories, read only memories, memory hierarchy.

Block-6:

Unit-21: Cache memory concept, cache memory design parameters,

Unit-22: mapping functions, replacement algorithms, performance considerations.

Unit-23: Virtual memory concept, memory management by paging,

Unit-24: memory management by segmentation, virtual memory address translation.

Reference Books:

- 1. Computer Organization: V. Carl Hmacher, Zvonko G. Vranesic and Safwat G. Zaky, NcGeaw-Hill International Editions, Fourth Edition.
- 2. Computer Organization and Architecture: William Stallings, PHI, Seventh Edition.

BCA DSC3.5 Fundamentals of Data Science

Block-I:

Unit-1: Introduction to Data Science - Evolution of Data Science -

Unit-2: Data Science Roles – Stages in a Data Science Project. Applications of Data Science in various fields.

Unit-3: Data Security Issues. Data Collection and Data Pre-Processing

Unit-4: Data Collection Strategies. Data Pre-Processing Overview – Data Cleaning

Block-2

Unit-5: – Data Integration and Transformation Data Reduction

Unit-6: Data Discretization. Exploratory Data Analytics Descriptive Statistics

Unit-7: Mean, Standard Deviation, Skewness and Kurtosis - Box Plots -

Unit-8: Pivot Table - Heat Map - Correlation Statistics

Block – 3:

Unit-9: ANOVA. Model Development Simple and Multiple Regression

Unit-10: Model Evaluation using Visualization – Residual Plot –

Unit-11: Distribution Plot, Polynomial Regression and Pipelines

Unit-12: – Measures for In-sample Evaluation – Prediction and Decision Making.

Block – 4:

Unit-13: Model Evaluation Generalization Error, Out-of-Sample Evaluation Metrics –
Unit-14: Cross Validation – Overfitting –
Unit-15: Under Fitting and Model Selection – Prediction by using Ridge Regression –

Unit-16: Testing Multiple Parameters by using Grid Search.

Block-5-6 Data Science practical's

Block– 5: Introduction to R – Help Functions in R – Vectors – Vectorized Operations – Functions in R – Packages in R Matrices, Arrays and Lists Matrix Operations – Adding and Deleting Rows and Columns – Higher Dimensional Arrays – Lists – General List Operations – Accessing List Components and Values – Applying functions to Lists. Data Frames Creating Data Frames – Matrix-like Operations on a Data Frame – Merging Data Frames – Applying functions to Data Frames – Factors and Tables – Common Functions used with Factors – Working with Tables.

Block-6: OOP S3 Classes – S4 Classes – Managing the Objects – Input/output – Accessing Keyboard and Monitor – Reading and Writing Files – accessing the Internet – String Manipulation. Data Visualization Introduction to GGPlot2 – Factors – Aesthetics – Plotting with Layers – Overriding Aesthetics – Mapping vs Setting – Histograms – Density Charts – Statistical Transformation – Facets – Coordinates – Themes.

REFERENCES:

1. Jojo Moolayil, "Smarter Decisions : The Intersection of IoT and Data Science", PACKT, 2016.

2. Cathy O'Neil and Rachel Schutt, "Doing Data Science", O'Reilly, 2015.

3. David Dietrich, Barry Heller, Beibei Yang, "Data Science and Big data Analytics", EMC 2013

4. Raj, Pethuru, "Handbook of Research on Cloud Infrastructures for Big Data Analytics", IGI Global.

5. Norman Matloff, "The Art of R Programming: A Tour of Statistical Software Design", No Starch Press, 2011.

6. Jared P. Lander, "R for Everyone: Advanced Analytics and Graphics", Addison-Wesley Data & Analytics Series, 2013.

7. Mark Gardener, "Beginning R – The Statistical Programming Language", Wiley, 2013

8. Robert Knell, "Introductory R: A Beginner's Guide to Data Visualisation, Statistical Analysis and Programming in R", Amazon Digital South Asia Services Inc, 2013.

BCASEC 3.6 Fundamental of Accountancy

Block - I

Unit-1: Introduction: History and Development of Accounting –Meaning Objectives and functions of Accounting-

Unit-2: Book–keeping V/s Accounting –Users of accounting data – systems of book-keeping and accounting – branches of accounting –

Unit-3: advantages and limitations of accounting. Accounting Concepts and conventions: Meaning need and classification,

Unit-4: Accounting standards –meaning, need and classification of Indian accounting standards. Accounting principles V/s Accounting standards.

Block -2 Accounting Package like Tally

Text Book

1. S.Ramesh, B.S.Chandrashekar, a Text Book of Accountancy.

References

- 1. V.A.Patil and J.S.Korihalli, Book-Keeping and Accounting, (R. Chand and Co. Delhi).
- 2. R.S.Singhal, Principles of Accountancy, Nageen Prakash pvt.Ltd, Meerut.
- 3. B.S.Raman, Accountancy, (United Publishers, Mangalore)

BCADSC-8 Programming in JAVA

Block I:

Unit-1: History and Overview of Java, Object Oriented Programming, identifiers, Literals, comments, separators,

Unit-2: Java Key words, Data types - Integers, Floating point, characters, Boolean,

Unit-3: A closer look at Literals, Variables, Type conversion and casting.

Unit-4: Operators - Arithmetic operators, Bit wise operators, Relational Operators,

Boolean Logical operators, Assignment Operator, Operator Precedence.

Block 2:

Unit-5: Control Statements – Selection Statements - if, Switch, Iteration Statements - While, Do-while, for Nested loops, Jump statements. Arrays.

Unit-6: Class Fundamentals, Declaring objects, Access specifiers, Methods -

Unit-7: constructors, "this" keyword, finalize () method A stack class, Overloading methods. **Unit-8:** Using objects as parameters, Argument passing, Returning objects. Recursion,

Block 3:

Unit-9: Access control, introducing final, understanding static. Introducing Nested and Inner classes.

Unit-10: Using command line arguments. Basics, using super, method overriding,

Unit-11: Dynamic method Dispatch, Using abstract classes and final with Inheritance.

Unit-12: Definition. Access protection importing packages. Interfaces: Definition and implementation.

Block 4:

Unit-13: Exception Handling – Fundamentals, types, Using try and catch and Multiple catch clauses, Nested try Statements, throw, throws, finally.

Unit-14: Java's built-in exception, using Exceptions. Java thread model – main thread, creating single and multiple thread. isalive() and join(). Thread – Priorities,

Unit-15: Synchronization, inter thread communication, suspending, resuming and stopping threads, using multi-threading. I / O basics – Reading control input, writing control output, Reading and Writing files.

Unit-16: AWT package, AWT Event handling concepts, The transient and volatile modifiers. Using instance of using assert.

Block-5-6 PROGRAMMING IN JAVA – LAB

Part A

1. Write a program to check whether two strings are equal or not.

- 2. Write a program to display reverse string.
- 3. Write a program to find the sum of digits of a given number.
- 4. Write a program to display a multiplication table.
- 5. Write a program to display all prime numbers between 1 to 100.
- 6. Write a program to insert element in existing array.
- 7. Write a program to sort an array.
- 8. Write a program to check all math class functions.
- 9. Write a program to execute any Windows 95 application (Like notepad, calculator etc)

10. Write a program to find out total memory, free memory and free memory after executing garbage Collector (gc).

Part B

11. Program to illustrate class and object.

- 12. Program to illustrate inheritance.
- 13. Program to illustrate multithreading.

14. Write a program to copy a file to another file using Java to package classes. Get the file names at run time and if the target file is existed then ask confirmation to overwrite and take necessary actions.

- 15. Write a program to get file name at runtime and display number of lines and words in that file.
- 16. Program to demonstrate applet.
- 17. Program to illustrate polymorphism.

18. Program to illustrate exception handling.

Text Books:

1. A.Balaguruswamy, "Programming with JAVA", A Primer, TMH, 1999.

Reference Books:

1. Thomas Boutel, "CGI programming in C and Perl", Addison – Wesley, 1996.

- 2. Jefry Dwight et al, Using CGI, Second Edition, Prentice Hall, India, 1997.
- 3. Patrick Naughton & Herbert Schildt, JAVA 2: The Complete Reference, THM, 1999.

4. Schildt, "JAVA The Complete Reference", 7th Edition.

BCADSC-9 Operating System

Block - I

Unit-1: Definition, Computer system components, User view, system view and system goals, **Unit-2:** Batch Systems, Multi programmed Systems, Time-Sharing Systems, Real-Time Systems,

Unit-3: System Components, Operating system services, System calls and system programs. **Unit-4:** Process Concept, process state diagram process Control block, Process Scheduling-

Block - 2

Unit-5: Scheduling queues, scheduler, cooperating process, Interposes Communication,

Unit-6: Threads- meaning, user threads, Kernel Threads, Multithreading Models, Threading Issues,

Unit-7: CPU Scheduling Basic concepts, Preemptive and Non-preemptive Scheduling, Scheduling Criteria,

Unit-8: Scheduling algorithmsFCFS, Shortest job first Priority scheduling, Round Robin Scheduling.

Block – 3

Unit-9: Process Synchronization the Critical section problem, Solution Approach critical section problem,

Unit-10: Bakery Algorithm, Semaphores Meaning, Types of Semaphores,

Unit-11: Synchronization problems- Bounded Buffer Problem, Readers-Writers problem and Dining Philosophers problem.

Unit-12: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock

Block – 4

Unit-13: Memory Management Introduction, Logical versus physical address space, Dynamic Loading, Dynamic Linking, Swapping, Contiguous Allocation, Partitioned Memory Allocation, Paging, Segmentation, Segmentation with Paging.

Unit-14: Virtual Memory Concept, Advantages of Virtual Memory, Implementation of Virtual Memory, Demand Paging, Demand segmentation, Advantages of Demand paging, Page Replacement, Page-Replacement Algorithms- FIFO Algorithm,

Unit-15 Optimal Page Replacement Algorithm, and Least Recently used Algorithm, (LRU) Allocation of Frames, Thrashing.File System File concepts, File Attributes, File Operations,

Unit-16: File Types, File Structure, Access Methods, Directory Structure, File-System Structure, Allocation Methods- Contiguous Allocation, Linked Allocation and Indexed Allocation, Free-Space Management.

Block-5-6 Operating System LAB

1. Write C programs to simulate the following CPU Scheduling algorithms a) FCFS b) SJF c) Round Robin d) priority

2. Write programs using the I/O system calls of UNIX/LINUX operating system (open, read, write, close, fcntl, seek, stat, opendir, readdir)

3. Write a C program to simulate Bankers Algorithm for Deadlock Avoidance and Prevention.

4. Write a C program to implement the Producer – Consumer problem using semaphores using UNIX/LINUX system calls.

5. Write C programs to illustrate the following IPC mechanisms a) Pipes b) FIFOs c) Message Queues d) Shared Memory

6. Write C programs to simulate the following memory management techniques a) Paging b) Segmentation

TEXT BOOKS:

1. Operating System Principles- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7th Edition, John Wiley.

2. Advanced programming in the Unix environment, W. R. Stevens, Pearson education

Reference Books:

1. Operating System Concepts – 5th edition by Abraham Silberschartz and Peter Galvin, McGraw Hill, 2000

- 2. Modern Operating Systems Andrew S Tanenbaum, Prentice Hall
- 3. Operating Systems : Internals and Design Principles, William Stallings, Prentice Hall

BCADSC-10 Image processing and pattern recognition

Block - I:

Unit-1: Introduction image processing Motivation and perspective, Applications,

Unit-2: A simple Image Formation Model. Fundamental steps in digital image processing system,

Unit-3: components of an image processing system Elements of visual perception,

Unit-4: Image sensing and acquisition, Image sampling and quantization.

Block – II:

Unit-5: Basic relationship between pixels – Neighbors of a pixel, Adjacency,

Unit-6: Connectivity, Regions and Boundaries, Distance Measures,

Unit-7: Image Operations on a Pixel Basis, Introduction, Basic gray level transformations,

Unit-8: Histogram processing, Arithmetic/Logical operations, Smoothing spatial filters,

Block – III

Unit-9: sharpening spatial filters, Fourier Transform and the Frequency Domain,

Unit-10: Filtering in the Frequency Domain, Smoothing Frequency Domain Filters,

Unit-11: Sharpening Frequency Domain Filters, Image Enhancement Holomorphic Filtering,

Unit-12: The Convolution and Correlation Theorems, Image degradation / restoration process, noise models,

Block – IV

Unit-13: Restoration in the Presence of Noise Only Spatial Filtering, Estimating the Degradation Function, **Unit-14:** Inverse filtering, minimum mean square error filtering, geometric mean filter Geometric transformations.

Unit-15: Smoothing and Sharpening, Color Segmentation Dilation and erosion, opening and closing, **Unit-16:** Hit-or-Miss transformations, basic morphological algorithms Color Fundamentals,

Block – V

Unit-17: Color Models, Pseudo color Image Processing,

Unit-18: Basics of full Color Image Processing, Color Transformations.

Unit-19: Detection of discontinues Edge linking and boundary detection, thresh holding,

Unit-20: Region –based segmentation, Color Image Processing

Block – VI:

Unit-21: Spatial feature extraction, transform features

Unit-22: Edge detection, boundary extraction,

Unit-23: boundary and region representation, Shape features, texture,

Unit-24: classification techniques, Image understanding.

Text Book:

1. Rafael. C. Gonzalez. Richard. E. Woods., "Digital Image Processing", Pearson Education, 2002.

Reference:

- 1. Anil K Jain., Fundamental of Digital Image Processing, Prentice Hall of India, 2004
- 2. B.Chanda. Dutta. Majumder., "Digital Image Processing and Analysis", Prentice hall India 2000

BCASEC-2 Financial Management

Block - 1

Financial Accounting Process: Classification of accounting transaction and accounts, rules of debit and credit as per Double Entry System. Journalisation and Ledger Position Preparation of different subsidiary books: Purchase Day Book Sales Day Book, Purchase Returns Day Books, Sales Returns Day Book, Cash Book. Bank Reconciliation Statement: Meaning, Need, Definition, preparation of BRS. Accounting for bill of exchange:

Block - 2

Meaning, Need, Definition, Partice to Bill of Exchange, Types of Bills. Accounts Procedure: Honour of the Bill, Dishonour of the Bill, Endorsement, Discounting, Renewal, Bills for collection, Retirement of the Bill, Accommodation Bills, Bill Receivable Book and Payable Book. Preparation of Trial Balance: Rectification of errors and journal Proper. Preparation of Final accounts: Meaning, need and classification, Preparation of Manufacturing, Trading, Profit and loss account and Balance-Sheet of sale –traders and partnership firms.

Texts & Reference Books:

- 1. Gupta R.L, Advanced Accountancy, S.Chand, Delhi.
- 2. Agarwala A.N, Higher Science of Accountancy, KitabMahal, Allahabad.
- 3. S.P. Jain and K.L. Narang, Financial Accounting
- 4. M.C.Shukla and T.S.Grawel, Adavnced Accounts(Vol. I)
- 5. Gillespie Accounting system, Procedure & methods, Prentice Hall India Ltd, New Delhi.

BCADSC-11 Data Base Management System

Block - 1

Unit-1: Introduction: Database and Database Users, Characteristics of the Database Approach, Different people behind DBMS, Implications of Database Approach, Advantages of using DBMS,

Unit-2: When not to use a DBMS. Database System Concepts and architecture: Data Models, Schemas, and Instances. DBMS Architecture and Data Independence.,

Unit-3: Database languages and interfaces. The database system Environment, Classification of DBMS.Data Modelling Using the Entity-Relationship Model:

Unit-4: High level conceptual Data Models for Database Design with and example., Entity types, Entity sets, attributes, and Keys, ER Model Concepts,

Block- 2

Unit-5: Notation for ER Diagrams, Proper naming of Schema Constructs, Relationship types of degree higher than two.Record Storage and Primary File Organization:

Unit-6: Secondary Storage Devices. Buffering of Blocks. Placing file Records on Disk. Operations on Files, File of unordered Records (Heap files),

Unit-7: Files of Ordered Records (Sorted files), Hashing Techniques, and Other Primary file Organization. Functional Dependencies and Normalization for Relational Database:

Unit-8: Informal Design Guidelines for Relational schemas, Functional Dependencies, Normal Forms Based on Primary Keys., General Definitions of Second and Third Normal Forms Based on Primary Keys.,

Block- 3

Unit-9: General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form. Relational Data Model and Relational Algebra:

Unit-10: Relational Model Concepts., relational Model Constraints and relational Database Schema, defining Relations, Update Operations on Relations.,

Unit-11: Basic Relational Algebra Operations, Additional Relational Operations., Examples of queries in the Relational Algebra.,

Unit-12: Relational Database Design Using ER-to-Relational Mapping.V Relational Database Language: Data definition in SQL,

Block- 4

Unit-13: Queries in SQL, Insert, Delete and Update Statements in SQL, Views in SQL, Specifying General Constraints as Assertions, specifying indexes,

Unit-14: Embedded SQL. PL /SQL: Introduction. Transaction Processing Concepts: Introduction, Transaction and System Concepts,

Unit-15: Desirable properties of transaction, Schedules and Recoverability, Serializability of Schedules, **Unit-16:** Transaction Support in SQL, Locking Techniques for Concurrency Control, Concurrency Control based on time stamp ordering.

Block-5-6 Data Base Management System LAB

1. The STUDENT detail databases has a table with the following attributes.

The primary keys are underlined. STUDENT (regno: int, name: string, dob: date, marks: int) i) Create the above table.

ii) Remove the existing attributes from the table.

iii) Change the date type of regno from integer to string.

iv) Add a new attribute phoneno to the existing table.

v) Enter five tuples into the table. vi) Display all the tuples in student table

2. A LIBRARY database has a table with the following attributes.

LIBRARY (bookid:int, title:string, author:string, publication:string, yearpub:int, price:real)

i) Create the above table.

- ii) Enter the five tuples into the table
- iii) Display all the tuples in student table.
- iv) Display the different publishers from the list.
- v) Arrange the tuples in the alphabetical order of the book titles.

vi) List the details of all the books whose price ranges between Rs. 100 and Rs. 300

3. The SALARY database of an organization has a table with the following attributes. EMPSALARY

(empcod:int, empnamee:string, dob:date, department:string, salary:real)

- i) Create the above table.
- ii) Enter the five tuples into the table
- iii) Display all the number of employees working in each dapartment.
- iv) Find the sum of the salaries of all employees.
- v) Find the sum and average of the salaries of employees of a particular department.
- vi) Find the least and highest salaries that an employee draws

4.Consider the insurance database given below. The primary keys are underlined and the data types are specified.

PERSON (driver-id-no: string, name: string, address:strong)

CAR (regno: string, model: string, year: int)

ACCIDENT (report-no: int, date: date, location: String)

OWNS (driver-id-no: string, regno: string)

PARTICIPATED (driver-id-no: string, regno: string, report-no: int, damage-amount: int)

i) Create the above tables by properly specifying the primary keys and the foreign keys

ii) Enter atleast five tuples for each relation.

iii) Demonstrate how you a) Update the damage amount for the car with a specific regno in the accident with report no 12 to 25000. b) Add a new accident to the database.

iv) Find total number of people who owned cars that were involved in accidents in 2002

v) Find the number of accidents in which cars belonging to a specific model were involved.

5. Consider the following database of student's enrollment in courses and books adopted for each course.

STUDENT (regno: string, name: string, major: strong, bdate: date)

COURSE (course-no: int cname: string, dept: string)

ENROLL (reg-no: string, course-no: int, sem: int, marks: int)

BOOK-ADOPTION (course-no: int, sem: int, book-isbn: int)

TEXT (book-isbn: int, book-title: string, publisher: string, author: string)

- i) Create the above tables by properly specifying the primary keys and the foreign keys
- ii) Enter atleast five tuples for each relation.
- iii) Demonstrate how you add a new text book to the database and make this book be adopted by some department.
- iv) Produce a list of text books (include Course-no, book-isbn, book-title) in the alphabetical order for courses offered by the 'Compute Science' department that use more than two books.
- v) List any department that has all its adopted books published by a specific publisher.

6. The following tables are maintained by a book dealer

AUTHOR (author-id: int, name: string, city: string, country: string) PUBLISHER (publisher-id: int name: string, city: string, country: string) CATLOG (book-id: int, title: string, author-id: int, publisher-id: int, category: int, year: int, price: int)

CATEGORY (category-id: int, description: string)

ORDER-DETAILS (order-no: int, book-id: int, quantity: int)

- i) Create above tables by properly specifying the primary keys and the foreign keys.
- ii) Enter atleast five tuples for each relation.
- iii) Give the details of the authors who have 2 or more books in the catalog and the price of the books is greater than the average price of the books in the catalog and the year of publication is after 2010.
- iv) Find the author of the book which has maximum sales.
- v) Demonstrate how to increase price of books published by specific publisher by 10%

7. Consider the following database for BANK.

BRANCH (branch-name: string, branch-city: string, assets: real)

ACCOUNT (accno: int, banch-name: string, balance: real)

DEPOSITOR (customer-name: string, accno: int)

CUSTOMER (customer-name: string, customer-street: string, customer-city: string) LOAN (loan-

no: int, branch-name: string, amount: real)

BORROWER (customer-name: string, loan-no: int)

- i) Create the above tables by properly specifying the primary keys and foreign keys.
- ii) Enter atleast five tuples for each relation.
- iii) Find all the customers who have atleast two accounts at the main branch.
- iv) Find all customer who have an account at all the branches located in a specific city.
- v) Demonstrate how t0 delete all account tuples at every branch located in specific city.

8. Consider the following database for ORDER PROCEESING.

CUSTOMER (cust-no: int, cname: string, city: string)

ORDER (orderno: int, odate: date, ord-amt: real)

ORDER_ITEM (orderno: int, itemno:int, qty: int)

ITEM (itemno: int, unitprice: real)

SHIPMENT (orderno: int, warehouseno: int, ship-date: date) WAREHOUSE(warehouseno: int, city: string)

- i) Create the above tables by properly specifying the primary keys and the foreign keys
- ii) Enter atleast five tuples for each relation.
- iii) List the order number and ship date for all orders shipped from particular warehouse
- iv) Produce a listing: customer name, no of orders, average order amount
- v) List the orders that were not shipped within 30 days of ordering

9.During practical examination the External and Internal examiners may prepare exam question paper related to theory syllabus apart from Part-A. (A minimum of 8 Programs has to be prepared). Note:

a) The candidate has to write two the programs One from Part-A and other from Part-B and execute one program as of External examiner choice.

b) A minimum of 8 Programs has to be done in Part-B and has to be maintained in the Practical Record. c) Scheme of Evaluation is as follows:

Writing two programs - 10 Marks

Execution of one program - 10 Marks

Formatting the Output - 05 Marks

Viva - 05 Marks

Record - 05 Marks

Total - 35 Marks

Text book:

1. Remez Elmasri and Shamkant B. Navathe, "Fundamentals of Database Systems", 5 th Edition, Pearson Education, 2007

References:

1. Abrahamsi. Silberschatz, Henry. F. Korth, S. Sudarshan, "Database System Concepts" 6th Edition, McGraw Hill, 2012.

2.C.J. Date, "Introduction to database systems", Eight Edition, Addison Wesley, 2003.

BCADSC-12 Big Data Analytics

Block-1

Unit-1: Overview of Big Data: What is Big Data?Evolution of Big Data, Structuring Big Data, Unit-2: Elements of Big Data, Big Data Analytics. Exploring the Use of Big Data in Business Context:Unit-3: Use of Big Data in Social Networking, Use of Big Data in Preventing Fraudulent Activities,Unit-4: Use of Big Data in Detecting Fraudulent Activities in Insurance Sector, Use of Big Data in Retail Industry.

Block-2

Unit-5: Introducing Technologies for Handling Big Data: Distributed and Parallel Computing for Big Data,

Unit-6: Introducing Hadoop. Understanding Hadoop Ecosystem: Hadoop Ecosystem,

Unit-7: HDFS, MapReduce, Hadoop YARN, HBase,

Unit-8: Hive, Pig and Pig Latin, Sqoop, ZooKeeper,

Block-3

Unit-9: Flume, Oozie. Understanding MapReduce Fundamentals and HBase:

Unit-10: The MapReduce Framework, Techniques.

Unit-11: Understanding Hadoop YARN Architecture: Introduction YARN, Advantages of YARN,

Unit-12: YARN Architecture, Working of YARN. Exploring Hive: Introducing Hive, Getting Started with Hive,

Block-4

Unit-13: Hive Services, Data Types in Hive, Built-In Functions in Hive,

Unit-14: Hive DDL, Data Manipulation in Hive, Data Retrieval Queries, Using JOINS in Hive.

Unit-15: Analyzing Data with Pig: Introducing Pig, Running Pig, Getting Started with Pig Latin,

Unit-16: working with Operators in Pig, Working with Functions in Pig, Debugging Pig, Error Handling in Pig. Text DT Editorial Services, Big Data – Black Book (dreamtech

Block-5-6 Big-Data Analytics

- 1. Perform setting up and installing Hadoop in its three operating modes: stand alone, Pseudo distributed.
- 2. Perform some tasks by using web based tools of Hadoop system.

3. Implement the following file management tasks in Hadoop: f Adding file and directories f Creating file, retrieving file and deleting files

- 4. Write a Map Reduce program for basic word count.
- 5. Write a Map Reduce program for sorting text data.

6. Write a Map Reduce program for analyzing student report. 7. Write a Map Reduce program for mining weather data.

- 7. Installing and running Hive, practice some Hive commands.
- 8. Using Hive; create, insert, update, alter, delete, and drop the tables
- 9. Using Hive; query the data from the data base tables.
- 10. Using Hive; create views, use functions, create indexes for the data base tables.
- 11. Installing and running Pig, practice some Pig commands.
- 12. Write Pig Latin scripts using eval functions to analyze your data.
- 13. Write Pig Latin scripts using math functions to analyze your data.
- 14. Write Pig Latin scripts using string functions to analyze your data.

References

- 1. Radha S, M. Vijayalakshmi, Big Data Analytics
- 2. Arshdeep B and Vijay M, Big Data Science & Analytics A Hands-On Approach.
- 3. Frank Ohlhorst, Big Data Fundamentals Concepts, Drivers, Techniques
- 4. Tom White, Hadoop: The Definitive Guide
- 5. Shiva Achari, Hadoop Essentials
- 6. Alex Holmes, Hadoop in Practice

BCADSE-1 Machine Learning

Block-1

Unit-1: Overview and Introduction to Bayes Decision Theory: Machine intelligence and applications, pattern recognition concepts classification,

Unit-2: regression, feature selection,: supervised learning class conditional probability distributions, Examples of classifiers bayes optimal classifier and error,

Unit-3: learning classification approaches. Linear machines: General and linear discriminants, decision regions, single layer neural network,

Unit-4: linear separability, general gradient descent, perceptron learning algorithm, mean square criterion and widrow-Hoff learning algorithm; multi-Layer perceptrons: two-layers universal approximators,

Block-2

Unit-5: backpropagation learning, on-line, off-line error surface, important parameters.

Unit-6: Learning decision trees: Inference model, general domains, symbolic decision trees, consistency,

Unit-7: learning trees from training examples entropy, mutual information, ID3 algorithm criterion,

Unit-8: C4.5 algorithm continuous test nodes, confidence, pruning, learning with incomplete data.

Block-3

Unit-9: Instance-based Learning Nearest neighbor classification, k-nearest neighbor, nearest neighbor error probability.

Unit-10: Machine learning concepts and limitations: Learning theory, formal model of the learnable,

Unit-11:sample complexity, learning in zerobayes and realizable case, VC-dimension, fundamental algorithm independent concepts,

Unit-12: hypothesis class, target class, inductive bias, occam's razor, empirical risk,

Block-4

Unit-13: limitations of inference machines, approximation and estimation errors, Tradeoff.

Unit-14: Machine learning assessment and Improvement: Statistical model selection, structural risk minimization,

Unit-15: bootstrapping, bagging, boosting. Support Vector Machines: Margin of a classifier, dual perceptron algorithm,

Unit-16: learning nonlinear hypotheses with perceptron kernel functions, implicit non-linear feature space, theory, zero-Bayes, realizable infinite hypothesis class, finite covering, margin-based bounds on risk, maximal margin classifier.

Block- 5-6 Machine Learning Lab

1. Implement and demonstrate the FIND-Salgorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file.

2. For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples.

3. Write a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample. 4. Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.

5. Write a program to implement the naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.

6. Assuming a set of documents that need to be classified, use the naïve Bayesian Classifier model to perform this task. Built-in Java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.

7. Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data Set. You can use Java/Python ML library classes/API.

8. Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering
using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.

9. Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set. Print both correct and wrong predictions. Java/Python ML library classes can be used for this problem.

10. Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs.

Readings:

1. E. Alpaydin, Introduction to Machine Learning, Prentice Hall of India, 2006.

2. T. M. Mitchell, Machine Learning, McGraw-Hill, 1997

3. C. M. Bishop, Pattern Recognition and Machine Learning, Springer, 2006.

4. R. O. Duda, P. E. Hart, and D.G. Stork, Pattern Classification, John Wiley and Sons, 2001.

5. Vladimir N. Vapnik, Statistical Learning Theory, John Wiley and Sons, 1998.

6. J. Shawe-Taylor and N. Cristianini, Cambridge, Introduction to Support Vector Machines, University Press, 2000

BCADSE-2 VISUAL Programming

Block- I

Unit-1: Introduction to Visual Programming: The integrated Development Environment – menu bar, tool bar, from designer, project explorer, properties window, from layout window, **Unit-2:** The Visual Programing editor. The form object: Properties, events and methods pf forms; Properties – Name, Captain, Backcolor, Borderstyle, controlbox, maxbutton, minbutton,

Unit-3: moveable, startup position , height, width , left, top, scalemode, window, state ; Events –load , unload , Clerk, Activate , Deactivate , Resize, methods – Show , hide , cls , Unload ,print , Controls

Unit-4: Properties and events of different controls such as command buttons, labels, textboxes image controls, timer, horizontal and vertical scroll bars,

Block- 2

Unit-5: option buttons , check boxes , frames lists and combo boxes. Predefined Dialog Boxes – MsgBox and InputBO

Unit-6: Programming: Data types, variables; declaration and scope arithmetic operations, Study of form and code modules, private and public procedures ,

Unit-7: Main o procedure, Suba and Functions. Mathematical and string Functions; Branching and Looping Statement;

Unit-8: If - Then , if -Then -Else and Nested If Statements; Select Case -different forms; For - Next , While - Wend and Do - Loops statements ;

Block- 3

Unit-9: Arrays- declaration . Static and dynamic arrays. Array and Function,

Unit-10: menus and toolbars-Creating menus and toolbars, Working with the menu editor,

Unit-11: Designing Multiple Document interface forms. Microsoft common controls.OOP methods and properties of an object,

Block- 4

Unit-12: class Modules , Encapsultation and Inheritance characteristics Dynamic Link Libraries (DLLs) and Windows API ;

Unit-13: Designing Help files ; File handling – Sequential ,Random access and Binary files,

Unit-14: Database connectivity – DAO and ADO Tables and Queries, ActiveX Data objects.Visual C++ Programming: Objects-Classes-VC++Components – Resources-Event Handling – Menus – Dialog Boxes **Unit-15:** Importing VBX Controls –Files – MFC File Handling – Document View Architecture – Serialization.Interfacing Other Applications –

Unit-16: Multiple Document Interface (MDI) – Splitter Windows – Exception Handling – Debugging – Object Linking and Embedding (OLE) – Database Application – DLL- ODBC.

Block-5-6 VISUAL Programming LAB

1. Write a VB program to find addition, subtraction, multiplication and division using _Option Button'. 2. Consider two _List Boxes', where items are displayed in list1 and selected items of list1 are transferred to list2.

3. Using _Select Case' change the background color of the form depending upon the value entered by the user.

4. Write a program to find the Numbers of Characters, Words and Vowels by using string functions.

5. Write a VB program to concatenate two strings.

6. Create the user interface to create _Student Details' such as Name of student, Subject, Marks obtained for the subject, depending on the marks obtained for that subject, declare the

Results as

>= 75 Distinction >=60 &&< 75, First class >=45 && <60, second class >=35 && <45, pass <35, Student Fails.

7. Create _MDI Forms' to accept order, purchase and sale of products (by using Menu Editor).

8. Write a VB program to find Factorial of a given number using Recursive functions.

9. Write a VB program to Swap two numbers using functions.

10. Create user interface and events to select a particular file from a directory in a drive using _Rich Text box'.

11. Create an application in text file and display its record in a textbox by using a sequential method. 12. Write a program to achieve color palette.

13. To draw circle, line and text using picture box.

14. Project - Online super market.

15. Project - Hotel management

Text Books: 1. Gurumit Singh, "Visual Basic 6", First Edition, Firewall Media, 2007.

Reference Books:

1. Charles Petzold, "Windows Programming", 5th Edition, Microsoft Press, 1999.

2.Steve Holzner, "Visual C++ Programming", Second Edition, PHI, 1994.

3.Go ttfried, "Programming with Visual Basic 6", PHI, 2000.

BCADSE-3 Internet of things

BLOCK-I

Uni-1: Introduction to Internet of Things: Introduction, Physical Design of IoT, Logical Design of IoT,
Uni-2: IoT Enabling Technologies, IoT Levels & Deployment Templates, Domain Specific IoTs::
Uni-3: Home Automation, Cities, Environment, Energy, Retail, Agriculture,
Uni-4: Health & Lifestyle. IoT and M2M: Introduction to M2M,

BLOCK-II

Uni-5: Difference between IoT and M2M, SDN and NFV for IoT.: IoT System

Uni-6: Management with NETCONF-YANG: Need for IoT Systems Management,

Uni-7: SNMP, Network Operator requirements, NETCONF, YANG,

Uni-8: IoT Systems Management with NETCONF-YANG.IoT Platforms Design Methodology:

BLOCK-III

Uni-9: Introduction, IoT Design Methodology, Case Study on IoT system for weather Monitoring.Uni-10: Motivation for Using Python. Python Packages for IoT. IoT Physical Devices & Endpoints:Uni-11: What is an IoT Device, Exemplary Device: Raspberry Pi,Uni-12: About the Board, Linux on Raspberry Pi, Raspberry Pi Interfaces,

BLOCK-IV

Uni-13: programming Raspberry Pi with Python, Other IoT Devices.

Uni-14: IoT Physical Servers & Cloud Offerings: Introduction to Cloud Storage Models & Communication APIs,

Uni-15: WAMPAutoBahn for IoT, Xively Cloud for IoT, Python Web Application **Uni-16:** Framework-Django, Designing a RESTful Web API,

BLOCK-V

Uni-17: Amazon Web Services for IoT, SkyNet IoT

Uni-18: Messaging Platform. Case Studies of IoT Design:

Uni-19: Home Automation, Cities, Environment,

Uni-20: Agriculture, Productivity Applications. Introduction to Data

BLOCK-VI

Uni-21: Analytics for IoT, Apache Hadoop, YARN,

Uni-22: Oozie, Spark, Storm, Health Monitoring Case study.

Uni-23: An IoT Tool: chef, Chef Case Studies. Text Arshdeep Bahga,

Uni-24: Vijay Madisetti, Internet of Things – A Hands on Approach.

References

1. Graham Meikle, Mercedes Bunz, The Internet of Things

2. Rajkumar Buyya, Amir Vahid Dastjerdi, Internet of Things

3. Adrian McEwen, Hakim Cassimally, Designing the Internet of Things

4. Olivier H, David B, Omar E, The Internet of Things: Key Applications and Protocols

5. Jean Philippe V, Adam Dunkel, Interconnecting Smart Objects with IP: The Next Internet

6. Daniel Minoli John, Building the Internet of Things with IPv6 and MIPv6 – The Evolving World of M2M Comminications

7. Ovidiu Vermesan, Peter Friess, Internet of Thinks Converging Technologies for Smart Environments and Integrated Ecosystem.

BCADSE-4 Cyber Security

Block-1

Unit-1: Overview of cyber security, Internet governance- challenges and constraints,

Unit-2: cyber threats, cyber warfare, cybercrime, cyberterrorism, cyber Espionage.

Unit-3: Need for a Comprehensive cyber security policy, need for a Nodal Authority, Need for an International Convention on Cyberspace.

Unit-4: Cyber security vulnerabilities- Overview, vulnerabilities in software, system administration,

Block-2

Unit-5: complex Network Architectures, Open access to Organizational Data, weak Authentication,

Unit-6: Unprotected Broadband Communications, Poor cyber security awareness. Cyber security safeguards Overview,

Unit-7: Access control, Audit, Authentication, Biometrics, Cryptography, Deception,

Unit-8: Denial of service Filters, ethical Hacking, Firewalls, Intrusion detection systems,

Block-3

Unit-9: Response, scanning Security policy, Threat Management.

Unit-10: Introduction to security web application, basic security for HTTP application and services,

Unit-11 basic security for SOAP services, Identity management and web services, Authorization patterns,

Unit-12: Security Considerations, Challenges. Intrusion Physical Theft, abuse of privileges,

Block-4

Unit-13: unauthorized Access by Outsider, Malware infection, Intrusion detection and Prevention Techniques,

Unit-14 Anti-Malware software, Network based intrusion detection systems, Network based intrusion prevention systems,

Unit-15: Host based Intrusion prevention systems, Security information management, Network session Analysis, system Integrity Validation

Unit-16: Introduction to Cryptography, Symmetric Key Cryptography, Asymmetric Key Cryptography,

Block-5

Unit-17: Message Authentication, Digital Signatures, applications of Cryptography,

Unit-18: overview of Firewalls, Types of firewalls User management, VPN Security protocols,

Unit-19: security at the application layer- PGP and S/MIME Security at Transport Layer-SSL and TLS, Security at Network Layer-IPSec.

Unit-20 Introduction to Cyber Space, Cyber security regulations, roles of international Law,

Block-6

Unit-21: The state and Private sector in cyber Space, Cyber Security Standards. The INDIAN cyber space, **Unit-22:** National Cyber Security policy 2013. Introduction to Cyber Forensics, handling Preliminary Investigations,

Unit-23: controlling an Investigation, conducting disk based analysis, Investigating Information hiding, **Unit-24**: Scrutinizing E-mail, Validating E-mail header information, tracing memory in real –time.

Text Books:

- 1. John R Vacca, "Computer and Information Security Handbook", 3rd Edition Elsevier, 2013, ISBN:
- 2. Albert Marcella, Jr., Doug Menendez, "CYBER FORENSICS: A Field Manual for Collecting, Examining, and Preserving Evidence of Computer Crimes", Second Edition, CRC Group, Taylor & Francis.
- 3. William Stallings, "Cryptography and Network Security", Pearson.

Reference Books:

- 1. George K Kostopoulus, "Cyber space and cyber Security", second Edition, CRC Group, Taylor and Francis,
- 2. Behrouz A Frouzan "Cryptography and Network Security", Tata McGraw Hill

BCADSC-13 Web Technology

Block 1:

Unit-1: What Is Web 2.0? Introduction to Web 2.0 terms: Search, Content Networks, Blogging, Social Networking, Social Media, Rich Internet Applications (RIAs), Web Services,

Unit-2: Introduction to VBScript - Adding VBScript Code to an HTML Page - VB Script

Basics - VBScript Data Types - VBScript Variables - VBScript Constants.

Unit-3: VBScript Operators – mathematical- comparison-logical - Using Conditional Statements - Looping Through Code

Unit-4: VBScript Procedures – type casting variables - math functions –date functions – string functions – other functions - VBScript Coding Conventions - Dictionary Object in VBScript - Err Object

Block-2:

Unit-5: Introduction to JavaScript – Advantages of JavaScript – JavaScript syntax - **Unit-6:** Data type–Variable - Array – Operator & Expression – Looping – control structures –

Unit-7: Constructor Function – user defined function Dialog Box, JavaScript document object model **Unit-8:** Introduction – Object in HTML – Event Handling – Window object – Document object – Browser object – Form object – Navigator object – Screen object – Build in object – User defined object – Cookies.

Block-3

Unit-9: ASP.NET Language Structure – Page Structure – Page event, Properties & Compiler Directives.

Unit-10: HTML server controls – Anchor, Tables, Forms, Files.

Unit-11: Basic Web Server Controls – Label, Text box, Button, Image Links, Check & radio Button,

Unit-12: Hyperlink, Data List Web Server Controls – Check box list. Radio button list, Drop down list, List box, Datagrid, Repeater.

Block-4:

Unit-13: Request and Response Objects, Cookies, Working with Data -

Unit-14: OLEDB connection class, command class, transaction class, data adaptor class, **Unit-15:** data set class. Advanced issues – email, Application issues, working with IIS and page Directives, error handling.

Unit-16: Security – Authentication, IP Address, Secure by SSL & Client Certificates.

Block-5-6 Web Technology LAB

1. Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.

2. Write a JavaScript that calculates the squares and cubes of the numbers from 0 to 10 and outputs HTML text that displays the resulting values in an HTML table format.

3. Write a JavaScript code that displays text "TEXT-GROWING" with increasing font size in the interval of 100ms in RED COLOR, when the font size reaches 50pt it displays "TEXT-SHRINKING" in BLUE color. Then the font size decreases to 5pt.

4. Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems: a. Parameter: A string b. Output: The position in the string of the left-most vowel c. Parameter: A number d. Output: The number with its digits in the reverse order

5. Design an XML document to store information about a student in an engineering college affiliated to VTU. The information must include USN, Name, and Name of the College, Branch, Year of Joining, and email id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.6. Write a PHP program to keep track of the number of visitors visiting the web page and to display this count of visitors, with proper headings.

7. Write a PHP program to display a digital clock which displays the current time of the server.

8. Write the PHP programs to do the following: a. Implement simple calculator operations. b. Find the transpose of a matrix. c. Multiplication of two matrices. d. Addition of two matrices.

9. Write a PHP program named states.py that declares a variable states with value "Mississippi Alabama Texas Massachusetts Kansas". write a PHP program that does the following: a. Search for a word in variable states that ends in xas. Store this word in element 0 of a list named states List. b. Search for a word in states that begins with k and ends in s. Perform a case insensitive comparison. [Note: Passing re.Ias a second parameter to method compile performs a case-insensitive comparison.] Store this word in element1 of statesList. c. Search for a word in states that begins with M and ends in s. Store this word in element 2 of the list. d. Search for a word in states that ends in a. Store this word in element 3 of the list.

10. Write a PHP program to sort the student records which are stored in the database using selection sort.

Recommended Texts:

- I.) I.Bayross, 2000, Web Enable Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI, BPB Publications.
- ii.) A.Russell Jones, Mastering Active Server Pages 3, BPB Publications.

Reference Books:

- i.) HathleenKalata, Internet Programming with VBScript and JavaScript, Thomson Learning
- ii.) Mike McGrath, XML Harness the Power of XML in easy steps, Dreamtech Publications
- iii) T.A. Powell, 2002, Complete Reference HTML, TMH.
- iv) J.Jaworski, 1999, Mastering JavaScript, BPB Publications.
- v) Powell, Thomas; Schneider, Fritz, JavaScript: The Complete Reference, 2nd edition2004, TMH

BCADSC-14 Data Mining

Block-1

Unit - I: Introduction to Data mining: Role Data in Data Mining, Data Mining functionalities, Unit - 2: patterns in data mining, Type of patterns, Classification of Data Mining Systems, **Unit -3**: Major issues in Data Mining; Mining Association Rules in Large Databases:

Unit – **4:** Association Rule Mining, Mining Single Dimensional Boolean Association Rules from Transactional Databases,

Block-2

Unit -5: Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses,

Unit - 6: From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

Unit -7: Classification and Prediction: Issues Regarding Classification and Prediction,

Unit - 8: Classification by Decision Tree Induction, Bayesian Classification, Classification by Backpropagation, Classification Based on Concepts from Association Rule Mining,

Block-3

Unit -9: Other Classification Methods, Prediction, and Classifier Accuracy. Cluster Analysis Introduction: Types of Data in Cluster Analysis,

Unit -10: A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical methods, Density Based Methods, Grid-Based Methods,

Unit -11: Model-Based Clustering Methods, Outlier Analysis. Introduction to WWW, Information Retrieval and Web Search: Basic Concepts, IR models, Relevance Feedback, **Unit -12:** Evaluation Measures, Text and Web Page Pre-Processing, Link Analysis: Graph Mining, Social Network Analysis, Co-Citation and Bibliographic Coupling, Page Rank, HITS, Community Discovery.

Block-4

Unit – **I3**: Web Crawling, Basic and Universal Crawlers, Structured Data Extraction: Wrapper Generation: Wrapper Induction, Automatic Wrapper Generation: Problems, String Matching **Unit** – **I4**: and Tree Matching, Information Integration, Pre-Processing for Schema Matching, Domain and Instance-Level Matching. Opinion Mining: Sentiment Classification, Feature- **Unit** -15: Based Opinion Mining and Summarization, Opinion Search, Opinion Spam, Web Usage Mining: Data Collection and Pre-Processing,

Unit – **I6**: Data Modeling for Web Usage Mining, Discovery and Analysis of Web Usage Patterns, Privacy Preserving Data Mining: Issues and Solutions.

Block-5-6 Data Mining LAB

Note: Students are required to perform practical's in Oracle/MS SQL Server and STATISTICA Data Miner

- 1. Building a Database Design using ER Modeling and Normalization Techniques
- 2. Implementation of functions, Procedures, Triggers and Cursors
- 3. Load Data from heterogeneous sources including text files into a predefined warehouse schema.
- 4. Design a data mart for a bank to store the credit history of customers in a bank. Use this credit profiling to process future loan applications.
- 5. Feature Selection and Variable Filtering (for very large data sets)
- 6. Association Mining in large data sets
- 7. Interactive Drill-Down, Roll up, Slice and Dice operations
- 8. Generalized EM & k-Means Cluster Analysis
- 9. Generalized Additive Models (GAM)
- 10. General Classification and Regression Trees (GTrees)
- 11. General CHAID (Chi-square Automatic Interaction Detection) Models
- 12. Interactive Classification and Regression Trees
- 13. Goodness of Fit Computations

Text Books:

1. J. Han & M. Kamber, Data Mining: Concepts and Techniques, Morgan Kaufmann,

2 nd ed, 2006. (Module 1)

2. Bing Liu. Web Data Mining, Exploring Hyperlinks, Contents and Usage Data, Springer Publishers (Module 2 and Module 3)

References:

1. Margret H Dunham, Data Mining Introductory and advanced topics, Pearson Education, 6 th ed, 2009,

2. Shawkat Ali and Saleh Wasimi, Data Mining: Methods and Techniques, Cengage Learning, Indian Edition, 2009,

BCADSE-5 Multimedia System

Block-1:

Unit-1: What is Multimedia: Definitions - CD-ROM and the Multimedia Highway - Where to use Multimedia

Unit-2: Introduction to Making Multimedia: The stages of a Project - What You Need – Multimedia Skills and Training:

Unit-3: The team - Macintosh and Windows Production Platforms: Macintosh Versus PC **Unit-4:** The Macintosh Platform - The Windows Multimedia PC Platform –

Block-2:

Unit-5: Networking Macintosh and Windows Computers-Hardware Peripherals: Connection –

Unit-6: Memory and Storage Devices - Input Devices - Output Hardware - Communication Devices. **Unit-7:** Basic Tools: Text Editing and Word Processing Tools - OCR Software - Painting and Drawing Tools

Unit-8: 3-D Modeling and Animation Tools - Image-Editing Tools - Sound Editing Tools - Animation, Video and Digital Movie Tools - Helpful Accessories - Making Instant Multimedia:

Block-3:

Unit-9: Linking Multimedia Objects - Office Suites - Word Processors - Spreadsheets - **Unit-10:** Databases - Presentation Tools. Multimedia Authoring Tools: Types of Authoring Tools **Unit-11:** Card-and-Page-Based Authoring Tools - Icon-Based Authoring Tools –

Unit-12: Time-Based Authoring Tools - Object-Oriented Authoring Tools - Cross-Platform Authoring Notes.

Block-4:

Unit-13: Text: The Power of Meaning - About Fonts and Faces - Using Text in Multimedia -

Unit-14: Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext -

Unit-15: Sound: The Power of Sound - Multimedia System Sounds - MIDI Versus Digital Audio – Digital Audio - Making MIDI Audio - Audio File Formats –

Unit-16: Working with Sound on the Macintosh - Notation Interchange File Format (NIFF) - Adding Sound to Your Multimedia Project - Toward Professional Sound: The Red Book Standard - Production Tips

Block-5:

Unit-17: Images: Making Still Images -Color - Image File Formats. Animation:

Unit-18: The Power of Motion - Principles of Animation - Making Animations That Work -Video: **Unit-19:** Using Video - How Video works - Broadcast Video Standards –

Unit-20: Integrating Computers and Television - Shooting and Editing Video - Video Tips - Recording Formats - Digital Video.

Block-6:

Unit-21: Planning and Costing: Project Planning - Estimating - RFPs and Bid Proposals - **Unit-22:** Designing and Producing: Designing - Producing - Content and Talent: Acquiring Content - Using Content Created by Others –

Unit-23: Using Content Created for a Project - Using Talent - Delivering: Testing - Preparing for Delivery.

Unit-24: Delivering on CD-ROM - Compact Disc Technology - Wrapping It Up - Delivering on the World Wide Web.

Recommended Texts:

- 1. Tay Vaughan Multimedia: Making it Work. Fourth Edition Tata McGraw Hill Edition 1999.
- 2. Walterworth John A Multimedia Technologies and Application Ellis Horwood Ltd.

- London - 1991.

 John F Koegel Buford - Multimedia Systems - Addison Wesley - First Indian Reprint - 2000.

BCADSE-6 Resource Management Techniques

Block-1- LINEAR PROGRAMMING

Unit-1: Linear inequalities - Feasible solutions Unit-2: Equality principles – Simplex algorithm and its variants:
Unit-3: Artificial Variables Techniques, Duality in LPP-Primal – Dual relationship Unit-4: transportation and assignment Problems-Integer Programming: Gomory's cutting plane methods.

Block-2- INVENTORY

Unit-5: Functions of inventories - Costs associated with inventory
Unit-6: - Elementary inventory models - Price break model –
Unit-7: Economic order quantities –
Unit-8: Safety stocks.

Block-3- QUEUING THEORY AND SIMULATION

Unit-9: Poisson arrivals - Exponential service times – Unit-10: Basic equations - Single channel model: (M/M/1): (?/FCFS), Unit-11: (M/M/1) : (N/FCFS), Simulation: Monte – Unit-12: Carlo technique, use of random numbers.

Block-4- PERT/CPM

Unit-13: Critical Path Methods (CPM) – Unit-14: Program evaluation and review techniques (PERT) – Unit-15: Time - Cost analysis – Unit-16: Crashing

Block-5: DYNAMIC PROGRAMMING

Unit-17: Characteristic features, functions,
Unit-18: equations - Analysis –
Unit-19: Computational procedures for solution - Stage Coach problem,
Unit-20: Cargo loading problem, Resource allocation problem.

Block-6: REPLACEMENT MODELS

Unit-21: Individual replacement Policy:Unit-22: Basic concept Money Value,Unit-23: Present Worth Factor (PWF) and Discount Rate,Unit-24: Group replacement policy.

TEXT BOOK

1. Dharani Venkatakrishnan, "Operations Research -Principles and Problems", Keerthi Publication, First Edition, 2005.

REFERENCE BOOKS

1. Hamdy A.Taha, "Operations Research: An Introduction", Pearson Education, Ninth Edition 2011.

2. Operations Research - Kandiswarup, P. K. Gupta, Man Mohan, S. Chand & Sons Education Publications, New Delhi, Fifteenth Edition, 2010.

3. Sasieni, Yaspan and Friedman, "Operation Research - Methods and Problems", Literary Licensing, LLC, First Edition, 2013.

4. F.S. Hillier and G.J. Lieberman: Introduction to Operations Research- Concepts and Cases, Ninth Edition, Tata McGraw Hill, 2010

BCADSC-7-Project

TOPICS COVERED This is project work (Phase-I) to be done by the students in the sixth semester. The evaluation committee of the Department shall evaluate the project for **10 credits** assigned for the project. A report of the project work carried out during the semester shall be submitted at the end of the semester approved by the project guide and HOD

4 Academic Regulations for Bachelor of Computer Applications

4.1 General <u>Regulations</u>

- a) A student is permitted to register for the next higher semester after completion of a semester course, irrespective of the results in his previous semester papers.
- b) The candidate can continue to register for higher semesters in a similar way along with his/her registration in failed subjects of earlier semesters.
- c) A student has to complete the degree programme within twice the duration of the academic programme in 6 years.

4.2Academic Assessment Procedure

- A. The academic assessment in each subject is based on the Internal Assessment and Term-end examinations conducted by the University.
- B. The distribution of marks for evaluation in each subject will be as follows.

	INTERNAL	TERM END	TOTAL
	ASSESSMENT	EXAMINATION	
Core Courses	20	80	100
Open Elective / Compulsory Course	10	40	50
Practicals	10	40	50
Major Project	30	120	150

- C. The Internal Assessment Marks obtained by a candidate cannot be changed or improved unless he/she Re-registers for the same semester once again.
 - D. A candidate can register for Improvement Examination in his/her term-end University Examination for any subject, (theory or practical), of his/her earlier semesters. The better performance of his/her attempt will be taken into consideration.

4.3 Pattern of Examination/Evaluation

- a) The pattern of question paper for all theory examinations will consist of three parts. Part-A will be the compulsory type for 20 marks, Part-B will have the choice (3 out of 5 questions) for 30 marks and Part-C will have the choice (2 out of 4) for 30marks. The total will be 80 marks. The evaluation process shall be as per the norms of the UG examination of KSOU
- b) *Regarding practical examinations:* Practical examinations will be conducted by the University for each laboratory paper in each semester. During the practical examination, a candidate has to randomly pick any one laboratory assignment and design and develop a program to demonstrate within the stipulated time to the examiners. There will be a panel of 2 examiners, one of which shall be chosen from an outside institute that is not affiliated with KSOU

c) Major Project

The candidate is expected to take up an independent major project involving problem formulation, design, implementation, and testing phases that typically explore various software development phases. He/She is expected to utilize the knowledge gained through various subjects studied in this programme. Further, the candidate has to inculcate the ability in

integrating and releasing a prototype (working model) of the solution to the problem taken. A dissertation should be prepared and submitted for evaluation. An Internal Assessment and a synopsis carry 30 marks for evaluation purposes. For other 120 marks, the examiner shall be invited to conduct a viva voce examination

4.4 Minimum Marks for a pass in each Subject/Internal Assessment / Project

Based on the evaluation of each candidate in each paper, the candidate will be given a percentage of marks which shall later be used for grading the student in a specific paper as follows

%MARKS IN A PAPER/PRACTICAL	GRADE POINT (GP)
96-100	10
91-95	9.5

4.5 Grading System for BCA Programme

Ŀ					
A n fi	ggregate % of narks obtained rom all 4 semester	Quali Le	tative vel	Grade Awarded	Class Label
	75% or more	Exce	llent	А	Distinction
	60% to 74%	Very	Good	В	I Class
	50% to 59%	Go	od	С	II Class
	40% to 49%	Satisfa	actory	D	Pass
	Below 40%	Fai	led	Е	Fail
-					
Ī	86-90			9.0	
ŀ	86-90 81-85			9.0 8.5	
	86-90 81-85 76-80			9.0 8.5 8.0	
•	86-90 81-85 76-80 71-75			9.0 8.5 8.0 7.5	
	86-90 81-85 76-80 71-75 66-70			9.0 8.5 8.0 7.5 7.0	
	86-90 81-85 76-80 71-75 66-70 61-65			9.0 8.5 8.0 7.5 7.0 6.5	
	86-90 81-85 76-80 71-75 66-70 61-65 56-60			9.0 8.5 8.0 7.5 7.0 6.5 6.0	
•	86-90 81-85 76-80 71-75 66-70 61-65 56-60 51-55			9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5	
	86-90 81-85 76-80 71-75 66-70 61-65 56-60 51-55 46-50			9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0	
	86-90 81-85 76-80 71-75 66-70 61-65 56-60 51-55 46-50 41-45			9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5	
	$\begin{array}{r} 86-90 \\ 81-85 \\ 76-80 \\ 71-75 \\ 66-70 \\ 61-65 \\ 56-60 \\ 51-55 \\ 46-50 \\ 41-45 \\ 35-40 \\ \end{array}$			9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0	

SEMESTER /	SEMESTER	ALPHA-	RESULT /
PROGRAM	GPA /	SIGN /	CLASS
% OF MARKS	PROGRAM	LETTER	DESCRIPTION
	CGPA	GRADE	
90.0-100	9.00-10.00	0	Outstanding
		(Outstanding)	
80.0-<90.0	8.00-<9.00	A+ (Excellent)	First Class
			Exemplary
70.0-<80.0	7.00-<8.00	A (Very Good)	First Class
			Distinction
60.0-<70.0	6.00-<7.00	B + (Good)	First Class
50.0-<60.0	5.00-<6.00	B (Above	High Second Class
		Average)	-
40.0-<50.0	4.00-<5.00	C (Average)	Second Class
35.0-<40.0	3.50-<4.00	P (Pass)	Pass Class
Below 35	Below 3.50	F (Fail)	Fail/Reappear
Absent	0	Ab (Absent)	

5 SCHEME OF EXAMINATIONS FOR BACHELOR OF COMPUTER APPLICATIONS

Credits & Scheme of examination of BCA

G	Course Code	Course Title		The Ma	Theory Marks		Practical Marks		ш
Sem			Credits	Term end exam	Internal Assessment	Term end	Internal Assessment	Total Marks	Duration of Exa
	Lang-1.1	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	Lang-1.2	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	AECC-1.3	Constitution of India	2	-	-	-	-	-	-
I	BCADSC 1.4	Fundamentals of Computers and programming in C	6	80	20	40	10	150	3
	BCADSC 1.5	Liner Algebra	6	80	20	-	-	100	3
	BCAGE-1	*Generic Elective-1	2	40	10	-	-	50	11/2
		Total	20	360				500	

Sem	Course Code	Course Title		The Ma	eory arks	Pra Ma	actical arks		m
			Credits	Term end exam	Internal Assessment	Term end	Internal Assessment	Total Marks	Duration of Exa
	Lang-2.1	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	Lang-2.2	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	AECC-2.3	Envioronmental Science	2	-	-	-	-	-	-
	BCADSC 2.4	Python Programming	6	80	20	40	10	150	3
	BCADSC2.5	Computer Networks	6	80	20	-	-	100	3
	BCAGE-2	*Generic Elective-2	2	40	10	I	-	50	11/2
		Total	20	360				500	
G	C					n			
Sem	Course Code	Course Title		The Ma	ory rks	Pra Ma	actical arks		m
Sem	Course Code	Course Title	Credits	Term end exam	Internal sy of Assessment	Term end Term	Internal Assessment	Total Marks	Duration of Exam
Sem	Course Code BCA-3.1	Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	Credits 5	The max and the ma	50 Internal Seessment 50	Pra Ma Leun eu de Leun	Internal Assessment	Total Marks	ω Duration of Exam
Sem	Course Code BCA-3.1 BCA-3.2	Course Title Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	Credits	The Ma Ma exam	vrvs rks Puternal Assessment 20	Pra Ma	rtical rks Assessment -	Total Marks 001 001	ω Duration of Exam
Sem	Course Code BCA-3.1 BCA-3.2 BCADSC 3.3	Total Course Title Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Data Structure using C++	Credits	The Ma Ma 80 80 80	vrvs rks Internal 20 20 20 20	Pra Ma pue une - 40	rtical rks Internal Assessment - - 10	Lotal Marks 100 150	ωωDuration of Exam
Sem	Course Code BCA-3.1 BCA-3.2 BCADSC 3.3 BCADSC 3.4	Total Course Title Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Data Structure using C++ Computer organization Computer organization	2 2 6 6	The Ma Ma Lerm end 80 80 80 80	vrvs rks Internal 20 20 20 20	Pra Ma puo uno - - 40 40	rtical rks Internal - - - 10 10	Lotal Marks 100 150	c c Duration of Exam
Sem	Course Code BCA-3.1 BCA-3.2 BCADSC 3.3 BCADSC 3.4 BCA DSC3.5	Total Course Title Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Sanskrit/Urdu. Data Structure using C++ Computer organization Fundamentals of Data Science	2 2 6 6 6	The Ma Ma B0 80 80 80 80 80 80 80 80 80 80 80 80 80 80	vry rks Internal 20 20 20 20 20 20	Pra Ma pue unq - - 40 40 -	rks rks urks	Lotal Marks 100 150 100	C Duration of Exam
Sem	Course Code BCA-3.1 BCA-3.2 BCADSC 3.3 BCADSC 3.4 BCADSC 3.4 BCADSC 3.4	Course Title Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Kannada/Hindi/English/Telugu/ Sanskrit/Urdu. Data Structure using C++ Computer organization Fundamentals of Data Science Fundamental of Accountancy	2 2 6 6 2	The Ma Ma Box 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 40	vrvs rks Internal 20 20 20 20 20 20 10	Pra Ma Ma - - 40 - - - - - - - - - - - - - - - -	rtical rks Internal - - - - - - - - - - - - - - - - - - -	Lotal Marks 100 150 100 50	C Duration of Exam 3 3 3 3

Sem	Course Code	Course Title		Theory Marks		neory Practical Tarks Marks			ш
			Credits	Term end exam	Internal Assessment	Term end	Internal Assessment	Total Marks	Duration of Exa
	Lang-1.4	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	Lang-2.4	Kannada/Hindi/English/Telugu/ Sanskrit/Urdu.	2	80	20	-	-	100	3
	BCADSC-8	Programming in JAVA	6	80	20	40	10	150	3
IV	BCADSC-9	Operating System	6	80	20	40	10	150	3
	BCADSC- 10	Image processing and pattern recognisation	6	80	20	-	-	100	3
	BCASEC-2	Financial Management	2	40	10	_	-	50	11/2
		Total	24	440				650	

Sem	Course Code	Course Title		Ь	The Ma	eory Practic arks al Marks			am	
			Credits	Counseling/PC	Term end exam	Internal Assessment	Term end	Internal Assessment	Total Marks	Duration of Ex
	BCADSC-11	Data Base Management System	6		80	20	40	10	150	3
	BCADSC-12	Big Data Analitics	6		80	20	40	10	150	3
	BCADSE-1	Machine Learning	6		80	20	40	10	150	2
V	BCADSE-2	VISUAL Programming	0		80	20	40	10	130	3
	BCADSE-3	Internet of things	6		80	20	40	10	150	3
	BCADSE-4	Cyber Security	0		80	20	40	10	150	5
		Total	24		320				600	

Sem	Course Code	Course Title			Theory Pra Marks Ma			tical As		ш
			Credits	Counseling/PCP Unime	Term end exam	Internal Assessment	Term end exam	Internal Assessment	Total Marks	Duration of Exa
	BCADSC-13	Web Technology	6		80	20	40	10	150	3
	BCADSC-14	Data Mining	6		80	20	40	10	150	3
	BCADSE-5	Multimedia System								
VI	BCADSE-6	Resource Management Techniques	6		80	20	40	10	150	3
	BCADSC-7	Project	10		80	20	40	10	150	3
		Total	28		320				600	

Languages for Under Gradute Programmes

Students can opt any two of the following languages

- 1. Kannada
- 2. <u>English</u>
- 3. Hindi
- 4. Urdu
- 5. <u>Telugu</u>
- 6. Sanskrit

I Semester Languages ಕನ್ನಡ (ಭಾಷಿಕ)

<u>ಬ್ಲಾಕ್ –1</u>

- **ಘಟಕ ೧** ಹುತ್ತರಿಯ ಹಾಡು ಪಂಜೆ ಮಂಗೇಶರಾವ್ ದುಃಖಸೇತು – ಬಿ.ಎಂ.ಶ್ರೀ
 - ನೀ ಹೀಂಗ ನೋಡಬ್ಯಾಡ್ಗನನ್ನ ದ.ರಾ. ಬೇಂದ್ರೆ
- ಶ್ರೀ ಸಾಮಾನ್ಯರ ದೀಕ್ಷಾಗೀತೆ ಕುವೆಂಪು
- **ಘಟಕ ೨** ಕಣಿವೆಯ ಮುದುಕ ಪುತಿನ ತುಂಗಭದ್ರೆ – ಕೆ.ಎಸ್.ನರಸಿಂಹಸ್ವಾಮಿ ವರ್ಧಮಾನ – ಎಂ. ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ ; ದಾಸಿಮಯ್ಯ ಮತ್ತು ಬೆಕ್ಕು – ಸು.ರಂ. ಎಕ್ಕುಂಡಿ
- **ಘಟಕ ೩** ಪುರುಷ ಸೂಕ್ತ ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ ಕಾಲ ನಿಲ್ಲುವುದಿಲ್ಲ – ಚೆನ್ನವೀರ ಕಣವಿ ಗಂಗಾಮಾಯಿ – ಚಂದ್ರಶೇಖರ ಕಂಬಾರ ಬದಲಾದ ಇತಿಹಾಸ – ಡಾ. ರಾಮೇಗೌಡ
- **ಘಟಕ ೪** ನನ್ನ ಜನಗಳು ಡಾ. ಸಿದ್ದಲಿಂಗಯ್ಯ ಜಾಜಿ ಮಲ್ಲಿಗೆ – ಡಾ. ಸತ್ಯಾನಂದ ಪಾತ್ರೋಟ ರಂಗೋಲಿ ಮತ್ತು ಹುಡುಗ – ಡಾ. ನಿಸಾರ್ ಅಹಮದ್ ರಾಣಿ ತಿಮ್ಮಿಯ ಸಿಂಹಾಸನ – ವಿಜಯದಬ್ಗೆ

ಬ್ಲಾಕ್-2

- ಘಟಕ ೫ ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ
- ಘಟಕ ೬ ಪತ್ರ ವ್ಯವಹಾರ : ಸ್ವರೂಪ, ಲಕ್ಷಣ
- **ಘಟಕ ೭** ಅರ್ಜಿ ನಮೂನೆಗಳು, ಹುದ್ದೆಗಳ ಜಾಹೀರಾತು, ಅಭ್ಯರ್ಥನ ಪತ್ರ, ನೇಮಕಾದೇಶ ಮತ್ತು ಹಾಜರಾತಿ ವರದಿ, ಲೇಖನ ಚಿಹ್ನೆಗಳು
- ಘಟಕ ೮ ಕಂಪ್ಯೂಟರ್ ಮತ್ತು ಕನ್ನಡ ಲೋಕ

COURSE-I/II ENGLSIH BBAEC-101/102 POETRY, PROSE AND LANGUAGE COMPONENT

OBJECTIVES

- To familiarize students with artistic and moral imagination through poetry
- To instil in the students a sense of compassionate aesthetics that promotes social conscience through literature
- To have a general idea of the ways in which the forms of poetry evolved in the hands of great poets
- To define prose as a form of literature
- To provide expertise in language and communication skills through English Grammar

BLOCK- I: POETRY

William Shakespeare: Not Marble nor the Gilded Monuments

Let me not to the Marriage of True Minds

Thomas Gray: Selections from Gray's Elegy

William Wordsworth: The Daffodils. Upon Westminster Bridge

Alfred Tennyson: Ulysses

BLOCK –II: PROSE

Francis Bacon: Of Studies, Joseph Addison: Ladies' Head-Dress

O' Henry: Witches' Loaves, Guy de Maupassant: The Necklace

Nathaniel Hawthorne: Dr. Heidegger's Experiment

BLOCK- III: LANGUAGE COMPONENT

Expansion of an Idea; Antonyms and Synonyms; Comprehension; Use of Idioms

Suggested Reading:

- Boris Ford. Pelican Guide to English Literature. Penguin Books. 1956.
- George Samson. A Concise Cambridge History of English Literature. Cambridge University Press. 1970.
- Hugh Walker. The English Essays and Essayists. J.M. Dent & Sons, Limited,
- A.J. Thomson & A.V Martinet. A Practical English Grammar. Oxford University Press, 1986.
- F.T .Wood. A Remedial English Grammar for Foreign Students. Trinity Press. 2014
- Wren and Martin. English Grammar & Composition. Blackie. 2015.

			Present	
SL.NO	Course	Tittle	SLM	Unit and Block
			Position	
01.	I semester	Snatak Kavya Sangrah1) Kavita ka vikas2) Kabirdas3) Soordas4) Meerabai5) Tulsidas6) Bihari7) Rahim8) Ram Naresh Tripati9) Ayodhya singh upadhya 'Harioudh'10) Maithili Sharan gupt11) Jayshankar Prasad12) Makhanlal Chaturvedi13) Balkrishna sharma 'Naveen'14) Subhadrakumari chouhan15) Harivamshrai Bachhan16) Sachhidanand Heeranand Vatsyayan Agney17) Naresh Mehta	I B.A/B.Com (L) Hindi	Block-I Unit: 1 to 4
02.	I semester	 anuvaad 1) Varnamala 2) Uchharan, Vargeekaran 3) Shabdh-bedh 4) Sangya, roopantar, Ling, Vachan, Karak 5) Sarvanam tatha uske bhed 6) Visheshan tatha uske bhed 7) Sandhi 8) Anuvaad 	I B.A/B.Com (L) Hindi	Block-II Unit: 5 to 8

HINDI

URDU

Poetry, Prose, Novel, & Grammar

Block 1 (Unit 1 to 4) Block 2 (Unit 5 to 8)

Part -- Poetry

Unit - 1

- a. Hamd
- b. Nath
- c. Munajath
- d. Nazmein

Unit - 2

- a. Allama Iqbal(Nazmien)
- b. Mirza Ghalib

Unit -3-Ghazliyath

- a. Meer Taqi Meer
- b. Mirza Ghalib

Unit 4-Ghazliyath

- c. Bahadur Shah Zafar
- d. Mohammed Ali Jowhar

Prose Part

Unit- 5

- a. Khaka Masood Marhoom Ki Zinda Dili Syed Aabid Hussain
- b. Khaka Yaldrum Ki Yaad Mein, Rasheed Ahmed Siddiqui

Unit -6

- a. Mazmoon
- b. Khaka

Unit-7

- a. Tanz-O-Mizah
- b. Afasana

Unit-8

a. Drama Naql-e-Makani

TELUGU

Block-I: Old Poetry

Unit - 1: Srimad Andhra Mahabharatham- Nannaya

- Unit- 2: Basava puranam palkuriki somana
- Unit- 3: Srimad Andhra Mahabharatham Thikkana
- Unit- 4: Srimad Andhra Maha bhagavatham Pothana

Block II : PROSE

Unit -1: Bharatham lo Karnudu

- Unit 2: Saaleenudu
- Unit 3: Andhrula sangikaacharalu
- Unit 4: Yakshagaanam.

SANSKRIT

Course code : SANDSC-1A Core

Credit – 04

Modern Poetry and Prose					
Block I Poetry					
Unit I. Subhashitaani					
Unit II. Dileepasya Rajyaabhaaravarnam					
Block II Prose					
Unit III. Snaatakopadeshaha					
Unit IV. Mahaaswethavruttanthaha					
Block III Modern Poetry					
Unit V. Veerotthejanam					
Unit VI. Shivadhanurbhangaha					
Block IV Grammer					
Unit VII. Akshara Prakaranam					

II Semester Languages ಕನ್ನಡ (ಭಾಷಿಕ)

- ಬ್ಲಾಕ್ -3 : ನಾಟಕ (ಸವಿಸ್ತರ ಪಠ್ಯ)
- ಘಟಕ ೧ : ಹರಿಜನ್ವಾರ : ಶ್ರೀರಂಗ : ಕರ್ತೃ ಪರಿಚಯ, ವಸ್ತು, ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಚಿತ್ರಣ ಹಾಗೂ ಭಾಷೆ ಮತ್ತು ತಂತ್ರ, ಸಾರಾಂಶ.
- ಘಟಕ ೨ : ತೆರೆಗಳು : ಪಿ. ಲಂಕೇಶ ; ಕರ್ತೃ ಪರಿಚಯ, ವಸ್ತು, ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಚಿತ್ರಣ ಹಾಗೂ ಭಾಷೆ ಮತ್ತು ತಂತ್ರ, ಸಾರಾಂಶ.
- ಘಟಕ ೩ : ಟಿಂಗರ ಬುಡ್ಡಣ್ಣ : ಚಂಪಾ : ಕರ್ತೃ ಪರಿಚಯ, ವಸ್ತು, ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಚಿತ್ರಣ ಹಾಗೂ ಭಾಷೆ ಮತ್ತು ತಂತ್ರ, ಸಾರಾಂಶ.
- ಘಟಕ ೪ : ಮನೆ : ಚಂದ್ರಕಾಂತ ಕುಸನೂರ : ಕರ್ತೃ ಪರಿಚಯ, ವಸ್ತು, ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಚಿತ್ರಣ ಹಾಗೂ ಭಾಷೆ ಮತ್ತು ತಂತ್ರ, ಸಾರಾಂಶ.
- ಬ್ಲಾಕ್-4 : ಪ್ರಬಂಧ (ಅವಿಸ್ತರ ಪಠ್ಯ)
 - ಘಟಕ ೧ : ಅ. ಮೈಸೂರ ರುಮಾಲು : ವಿ. ಸೀತಾರಾಮವಯ್ಯ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಆ. ದಿವಾನಖಾನೆಯ ಅಂದಚೆಂದ : ಎ.ಎನ್. ಮೂರ್ತಿರಾವ್ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಘಟಕ ೨ : ಅ. ನಿದ್ರಾಭ್ಯಾಸ : ರಾಕು : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಆ. ವಿರಾಟ್ಪರ್ವದ ಸ್ವಾರಸ್ಯ : ಎನ್. ಪ್ರಹ್ಲಾದರಾವ್ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಘಟಕ ೩ : ಅ. ನಮ್ಮ ಮನೆಯ ದೀಪ : ಹಾ.ಮಾ. ನಾಯಕ್ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಆ. ನನ್ನ ಟೋಪಿ : ಬಿ.ಜಿ.ಎಲ್. ಸ್ವಾಮಿ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.
 - ಘಟಕ ೪ : ಅ. ರುಚಿ : ಸುನಂದಾ ಬೆಳಗಾಂವ್ ಕರ್ರೈ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ
 - ಆ. ಸುಲಭದಲ್ಲಿ ಸಜ್ಜನಲಾಗಲಾರಿರಿ : ಭುವನೇಶ್ವರಿ ಹೆಗಡೆ : ಕರ್ತೃ ಪರಿಚಯ, ಪ್ರಬಂಧ ವಿಶ್ಲೇಷಣೆ, ಪಾತ್ರ ಪರಿಚಯ, ಭಾಷೆ, ಆಶಯ, ಸಾರಾಂಶ.

COURSE-I/II ENGLSIHBBAEC-201/202POETRY, NOVEL AND LANGUAGE COMPONENTOBJECTIVESOBJECTIVES

- To familiarize the students with representative texts of the period
- To have a general idea of the ways in which the forms of poetry evolved in the hands of great poets
- To comprehend the unique quality of the novel prescribed
- To evolve different ways of testing language proficiency through English Grammar

BLOCK- I: POETRY

W.B. Yeats: The Second Coming
Robert Frost: Mending Wall, Stopping by Woods on a Snowy Evening
W.H. Auden: The Unknown Citizen
Nissim Ezekiel: Night of the Scorpion
Ravichandra P.Chittampalli: Banalities
<u>BLOCK –II: NOVEL</u>
Jane Austen: Pride and Prejudice

BLOCK- III: LANGUAGE COMPONENT

Forms of the Verb, Prepositions, Active and Passive Voice, Precis writing

Suggested Reading:

- Allot, Mariam. The Complete Poems. Longman, 1975.
- Daiches, David. A Critical History of English Literature. Supernova. 2011.
- Rickett, A. Compton. A History of English Literature. Filiquarian Legacy.2012.
- K.R.Srinivas, Iyengar. Indian Writing in English. Macmillan, 1979.
- M.K.Naik. Critical Essays on Indian Writing in English. Sahitya Akademi. 1969.
- F.T .Wood. A Remedial English Grammar for Foreign Students. Trinity Press. 2014
- Wren and Martin. English Grammar & Composition. Blackie. 2015.

		Pratinidhi Kahaniyan		
		1) Poos ki raat-		
		Premchand		
		2) Shiksha aur apni		
		bhasha- Mahatma		
		Gandhi		
		3) Madhuva- Jayashankar		
		Prasad		
		4) Bittho- mahadevi		
		verma		
		5) Mahadan- Yashpal		
		6) Vasanth aagaya hai-		
0.0		Acharya hazariprasad	I B.A/B.Com (L) Hindi	Block-III Unit: 9 to 12
03.	II semester	dwiwedi		
		/) Mai nani marna chanta		
		noon- visnnu Drahhaltar		
		Plabliakal 9) Chieflei dervet		
		Bhooshm sahni		
		0) Tarch bochnowala		
		Harishankar parsai		
		10) Haar- Mannu		
		Bhandari		
		11) Samudragunt		
		narakramank-		
		Ramkumar verma		
		12)		

LANGUAGE: HINDI

		Hindi Gadva Bharathi		
04.	II semester	1) Shatranj ke Khiladi-	I B.A/B.Com (L) Hindi	Block-IV Unit: 13 to 16
		Munshi Premchand		
		2) Aakashdeep-		
		Jayashankar Prasad		
		3) Padhai-		
		Jainendrakumar		
		4) Aadmi ka bacha-		
		Schhidanand		
		Heeranand Vatsyayan '		
		agney'		
		5) Master sahib-		
		Chandragupt		
		Vidyalankar		
		6) Goonge- Ranghey		
		raghav		
		7) Genius- Mohan Rakesh		
		8) Bholaram ka jeev-		
		Harishankar parisai		
		9) Hindi Kahani ka		
		udbhav aur vikas		

Urdu Poetry, Prose, Novel, & Grammar

Unit -9

- a. Urdu Novel Ka Irteqa
- b. Urdu Novel ke Ajzaye Tarkeebi

Unit -10

Premchand Shakhsiath Aur fun

Unit -11

Prem Chand ke Novelun Mein Nirmala ka Muqam Novel Nirmala ka tanqeedi Jayeza .

Unit -12

Premchand ki Kirdar Nigari (Novel Nirmala ke Hawale se)

Book Urdu Qawaid (Grammar) Maulvi Abdul Huq

Unit 13

Urdu Qawaid (Grammar) Maulvi Abdul Huq

- a. Urdu Qawaid ek taaroof
- b. Ism ki tareef aur iske Aqsam

Unit -14 -Sifath ki Tareef Aur iske Aqsam

Unit-15 -Zameer ki Tareef aur iski Qismein

Unit- 16-

a. Fail ki tareef aur iski Qismein

b. Huroof ki Tareef Aur iski qismein

TELUGU

Block - I : SHORT STORIES

- Unit -1: Gaalivaana- paalagummi padma raju
- Unit 2: Jeevudi Istam Viswanatha satyanarayana
- Unit 3: Maamidi Chettu Racha konda viswantha sastry
- Unit 4: O puvvu pusindhi Gudipati venkata chalam

Block II LANGUAGE COMPONENT

- Unit -1: Vyakaranam
- Unit 2: Saahitya Pathrikalu
- Unit 3: Sri Krishna devarayala Sahitya seva
- Unit 4: Janapada saamethalu- Podupukathalu

SANSKRIT (B .Sc)

Course code : SANDSC-BA Core

Credit – 04

Annexure - 3

III SEMESTER ಕನ್ನಡ (ಭಾಷಿಕ) <u>ಮೂರನೇ ಸೆಮಿಸ್ಟರ್</u>

ಬ್ಲಾಕ್ – 5 : ಪ್ರಾಚೀನ ಕನ್ನಡ ಕಾವ್ಯ (ಸವಿಸ್ತರ ಪಠ್ಯ)

- ಘಟಕ 1 : (ಅ) ಕೃಷ್ಣ ಸಂಧಾನ (ವಿಕ್ರಮಾರ್ಜುನ ವಿಜಯಂ) –ಪಂಪ (ಆ) ದುರ್ಯೋಧನ ವಿಲಾಪ (ಸಾಹಸ ಭೀಮ ವಿಜಯಂ) –ರನ್ನ
- ಘಟಕ 2 : (ಅ) ಅಮೃತಮತಿ ಪ್ರಸಂಗ (ಯಶೋಧರ ಚರಿತೆ) –ಜನ್ನ (ಆ) ಸಾಮಾಜಿಕ ವಚನಗಳು – ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ
- ಘಟಕ 3 : (ಅ) ಅಭಿಮನ್ಯು ಪ್ರಸಂಗ (ಕರ್ನಾಟ ಭಾರತ ಕಥಾಮಂಜರಿ) –ಕುಮಾರವ್ಯಾಸ (ಆ) ಪ್ರಭುದೇವರ ರಗಳೆ –ಹರಿಹರ
- ಘಟಕ 4 : (ಅ) ಭರತ–ಬಾಹುಬಲಿ ಪ್ರಸಂಗ (ಭರತೇಶ ವೈಭವ) –ರತ್ನಾಕರವರ್ಣಿ (ಆ) ಧರೆಗೊಬ್ಬ ದಾನಶೂರ ಕರ್ಣನೆಂದಾದ ಪರ್ವ – (ಜನಪದ ಮಹಾಭಾರತ)

ಬ್ಲಾಕ್ – 6 : ಗದ್ಯ ಸಂಪದ (ಅವಿಸ್ತರ ಪಠ್ಯ) ಘಟಕ – 1 : ಅ) ಕರ್ನಾಟಕ ವೈಭವ ವರ್ಣನೆ : –ಆಲೂರು ವೆಂಕಟರಾವ್ ಆ) ಬಾಳ್ವೆ ಸ್ವೀಕಾರಕ್ಕಿದೆ, ನಿರಾಕರಣೆಗಲ್ಲ : –ಶಿವರಾಮ ಕಾರಂತ ಘಟಕ – 2 : ಅ) ಶ್ರೇಷ್ಠತೆಯ ವ್ಯಸನ : –ಕೆ. ವಿ. ಸುಬ್ಬಣ್ಣ ಆ) ವೈಚಾರಿಕ ಪ್ರಜ್ಞೆಗೆ ಅಡೆತಡೆಗಳು : –ಎಚ್. ನರಸಿಂಹಯ್ಯ ಘಟಕ – 3 : ಅ) ಗಿರಣಿಯ ವಿಸ್ತಾರ ನೋಡಯ್ಯಾ : –ಡಿ.ಆರ್.ನಾಗರಾಜ್ ಆ) ರಾಷ್ಟ್ರೀಯತೆ : ಒಂದು ಮರುಚಿಂತನೆ –ಕೆ.ವಿ. ತಿರುಮಲೇಶ್ ಘಟಕ – 4 : ಅ) ಮಹಿಳಾ ರಾಜಕೀಯ ಮೀಸಲಾತಿ : –ಡಾ. ಹೇಮಲತಾ ಮಹಿಷಿ ಆ) ಹಸಿವು ಮತ್ತು ಸಂತೃಪ್ತಿ : –ಡಾ. ಬಿ.ಎ. ವಿವೇಕ ರೈ

COURSE-I/II ENGLSIH BBAEC 301/302 ENGLISH FOR COMMERCIAL PURPOSES AND DRAMA

OBJECTIVES

- To gain the knowledge of principles of commercial correspondence and business letters
- To provide expertise in language and communication skills
- · To enhance the student's ability to understand the dynamics of social interaction

• To evolve different ways of testing language proficiency through English Grammar

BLOCK-I: ENGLISH FOR COMMERCIAL PURPOSES -I

Face to Face Interaction: Spoken English
Distance Communication: Written English
English for Commercial Correspondence (Form of a Business Letter, Purchase and Sales Letter
Letter of Complaints, Claims and Cancellations
<u>BLOCK-II: DRAMA</u>
William Shakespeare: Julius Caesar
<u>BLOCK-III: LANGUAGE COMPONENT</u>
Essay writing; Precis writing; Resume writing with letter of application for a job
<u>Suggested Reading:</u>

- Mccomas. Modern Business Correspondence. McGraw Hill Post. 1992.
- F.W.King &D.A.Cree. Modern English Business Letters. Longman, 1977.
- A.N.Kapoor. A Guide to Business Correspondence and Communication Skills.S.Chand.Ltd 2010.
- A.J. Thomson & A.V Martinet. A Practical English Grammar. Oxford University Press, 1986.
- F.T .Wood. A Remedial English Grammar for Foreign Students. Trinity Press.2014.
- Wren and Martin. English Grammar & Composition. Blackie.2015.

Wilson Knight. G. The Crown of Life. The Wheel of Life. Methuen& Co LTD, 1947

Urdu

Block 1 Units (1-4) Block 2 (5 to 8)

Book Hamare Pasandeeda Afsane, Ather Parveez Unit-1 1 –Urdu Afsana Nigari ka irteqa 2-Afsane ke ajzaye tarkeebi 3-Muktasar Afsane ki Kususiyath Unit-2 1-Afsana Amavas ki Raat, Premchand Unit -3 1-Afsana Melaghomni, Ali Abbas Hussaini

Unit-4 1-Afsana Aazmaish, Sudarshan Unit-5 Afsana Kanwal, Azam Karevi Unit-6-Afsana Naya Khanoon, Sadath Hassan Mantoo Unit-7 –Afsana Kalubhangi, Krishan Chandr Unit-8-Afsana Siya o Safed, Ghulam Abbas

SANSKRIT

Course code : SANDSC-1C Core

Credit - 0**4**

Modern Poetry and Prose			
Block I Drama			
Unit I. Introduction			
Unit II. Introduction to Pratimanaatakam			
Unit III. Pratimanaatakam Act I & II			
Unit IV. Pratimanaatakam Ac t III & IV			
Block II Champu			
Unit V. Ayodhyakandam			
Unit VI. Kaikeyi Varayachanam			
Block III Non-Detailed Text			
Unit VII. Story of Jimutavahana Part I			
Block IV Language Component			
Unit VIII. Active and Passive voice			

IV SEMESTER

ಕನ್ನಡ (ಭಾಷಿಕ)

COURSE I/II KANNADA <u>ನಾಲ್ರನೇ ಸೆಮಿಸ್ತರ್</u>

ಬ್ಲಾಕ್ -7: ಸಣ್ಣ ಕತೆಗಳು (ಸವಿಸ್ತರ ಪಠ್ಯ) ಘಟಕ - 5 : ಅ) ವೆಂಕಟಶಾಮಿಯ ಪ್ರಣಯ - ಮಾಸ್ತಿ ಆ) ಧನ್ವಂತರಿಯ ಚಿಕಿತ್ಸೆ - ಕುವೆಂಪು ಘಟಕ - 6 : ಅ) ಮನುವಿನ ರಾಣಿ - ಕೊಡಗಿನ ಗೌರಮ್ಮ ಆ) ಶವದ ಮನೆ - ಚದುರಂಗ ಘಟಕ - 7 : ಅ) ಗಾಂಧಿ - ಬೆಸಗರಳ್ಳಿ ರಾಮಣ್ಣ ಆ) ರೊಟ್ಟಿ - ಪಿ. ಲಂಕೇಶ್ ಘಟಕ - 8 : ಅ) ಮಾರಿಕೊಂಡವರು - ದೇವನೂರ ಮಹಾದೇವ ಆ) ಕೃಷ್ಣೇಗೌಡನ ಆನೆ - ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ ಬ್ಲಾಕ್ -8: ವಿಮರ್ಶೆ (ಅವಿಸ್ತರ ಪಠ್ಯ) ಘಟಕ - 13 : ಅ) ಕನ್ನಡದಲ್ಲಿ ಬೌದ್ಧರು ಗ್ರಂಥಗಳೂ ರಚಿಸಿದ್ದರೇ? -ಟಿ.ಎಸ್. ವೆಂಕಣ್ಣಯ್ಯ ಆ) ಜನ್ನನ ಕಾವ್ಯಗಳಲ್ಲಿ ಪ್ರಣಯ ನಿರೂಪಣೆ : -ತೀ.ನಂ. ಶ್ರೀಕಂಠಯ್ಯ

- ಘಟಕ 14 : ಅ) ಪರಂಪರೆ ಮತ್ತು ರಾಘವಾಂಕನ ಪ್ರತಿಭೆ : –ಜಿ.ಎಸ್. ಶಿವರುದ್ರಪ್ಪ ಆ) ಪ್ರಜ್ಞೆ ಮತ್ತು ಪರಿಸರ : –ಯು.ಆರ್. ಅನಂತಮೂರ್ತಿ
- ಘಟಕ 15 : ಅ) ಸಾಹಿತ್ಯ ಮತ್ತು ಬದ್ಧತೆ : –ಬರಗೂರು ರಾಮಚಂದ್ರಪ್ಪ ಆ) ಮಲೆಗಳಲ್ಲಿ ಮದುಮಗಳು : –ಎಚ್.ಎಂ. ಚನ್ನಯ್ಯ
- ಘಟಕ 16 : ಅ) ಕಾರಂತರ ಕಾದಂಬರಿಗಳಲ್ಲಿ ಜೀವನ ಶ್ರದ್ಧೆ ಮತ್ತು ಶೋಧನೆ : –ಜಿ.ಎಚ್. ನಾಯಕ ಆ) ಚಿಕ್ಕೋಳು ಹಿರಿದಿಮ್ಮವ್ವ' –ಒಂದು ಮನೋವೈಜ್ಞಾನಿಕ ವಿಶ್ಲೇಷಣೆ:–ಶಿವರಾಮ ಕಾಡನಕುಪ್ಪೆ

COURSE I/II ENGLISH

BBAEC 401/402 English for Commercial Purposes and Novel <u>OBJECTIVES</u>

- To acquire knowledge and comprehensive details of correspondence between a bank and its customers
- To appreciate the importance of banks as business institutions
- To provide expertise in language and communication skills
- To enhance the student's ability to understand the dynamics of social

interaction

• To evolve different ways of testing language proficiency through English Grammar

BLOCK- I: ENGLISH FOR COMMERCIAL PURPOSES -II

Bank Correspondence -I Bank Correspondence -II Employment Letters Business Circulars Reports

BLOCK –II: NOVEL

R.K Narayan: The Financial Expert **BLOCK-III: LANGUAGE COMPONENT**

Correction of sentences; Degree of comparison; Question Tags; Paragraph writing **Suggested Reading:**

- Mccomas. Modern Business Correspondence. McGraw Hill Post. 1992.
- F.W.King &D.A.Cree. Modern English Business Letters. Longman, 1977.
- A.N.Kapoor. A Guide to Business Correspondence and Communication Skills.S.Chand.Ltd 2010.
- A.J. Thomson & A.V Martinet. A Practical English Grammar. Oxford University Press, 1986.
- F.T .Wood. A Remedial English Grammar for Foreign Students. Trinity Press.2014.
- Wren and Martin. English Grammar & Composition. Blackie.2015.
- Wilson Knight. G. The Crown of Life. The Wheel of Life. Methuen& Co LTD, 1947.

Urdu

Business Correspondence and Precise writing

Block 1 Units (9 to 12) Block 2 (12 to 16)

- Unit. 9- Afsana Kaliyan Aur Kante, Akhtar Urenvi
- Unit -10- Afsana Hamari Gali, Ahmad Ali
- Unit -11 Afsana Alhamdulillah, Ahmad Nadeem Qasmi

Book Karobari Khath o Kitabath, Mohammed Khaleel Ahmed Ibn Maqdoom

Unit -12-

1-Karobari Khath o Kitabath ke chand aham nukath

2-Khawayad zaban kutooth Aur Fun-e- Khatnavesi

Unit 13

- 1-Kutooth Tijarath ki Tashkeel-o-Tarkeeb
- 2-Murasalati Shobe ka intezam
- 3-Daryaftname
- 4-Narq Name Aur Razakarana Peshkash

Unit-14

- 1-Farmayish Aur Taameele Farmayish
- 2-Shikayath o Izala shikayath
- 3-Hisab ki Chuktayee
- 4-Bisaath Tijarath ki Jankari

Unit-15

- 1-Tarufi Kutooth Aur Sifarishi Naame
- 2-Khidmath-e-Talbi
- 3-Gashti Name
- 4-Kutooth Bankari

Unit-16

- 1-Beema
- 2-Kutooth Daramad o Baramad
- 3-Mazmoon nigari
- 4-Ikhtesariya(Precise Writing)

SANSKRIT

Course code : SANDSC-1D Core

Credit - 04

Modern Poetry and Prose			
Block I Drama			
Unit I. Pratimanaatakam Act V			
Unit II. Pratimanaatakam Act VI			
Unit III. Pratimanaatakam Act VII			
Unit IV. Pratimanaatakam Act VIII			
Block II Champu			
Unit V. Sri Ramasya Vanagamanam			
Unit VI. Paduka Pattabhishekaha			
Block III Non-Detailed Text			
UnitVII. Story of Jimutavahana Part II			
Block IV Language Component			
Unit VIII. Bhashantara Pathyam			

COURSE CODE: INDIAN CONSTITUTION AND HUMAN RIGHTS COURSE CODE: AECC - 1 CREDITS: 4

COURSE OBJECTIVES

The Objectives of this course are

- 1. To provide an oversight of Indian constitution to the students;
- 2. To Expose students to the fundamental duties and rights and
- 3. To make students aware of human rights.

COURSE OUTCOMES

After studying this course the students should be able to

- 1. Identify the salient features of Indian constitution;
- 2. Speak out about fundamental rights and duties and
- 3. Explain the special privileges provided to backward classes.

COURSE CONTENTS

BLOCK -1 INDIAN CONSTITUTION

- **UNIT-1** Constitution Meaning and Importance Historical development of the Indian Constitution Reorganisation of States and National Integration and Zonal Councils
- **UNIT -2** Framing of the Indian Constitution and Preamble, Salient features of Indian Constitution, Procedures of amending the Constitution and its limitations
- **UNIT-3** Fundamental Rights and Duties, Special Privileges for SC/Sts, Backward classes, Woman, Children and Religious and Linguistic Minorities
- **UNIT-4** Directive principles of State Policy, values and limitations, differences between Fundamental Rights and Directive Principles of State Policy.

BLOCK -2 HUMAN RIGHTS

- UNIT-5 Human Rights Meaning and Importance. Universal Declaration of Human Rights. Development of Human Rights and Fundamental Rights, International law and position in India.
- **UNIT-6** Social and Gender discrimination. Torture and Genocide's, two human Rights Covenants. European Charter to Human Rights-Amnesty International.
- UNIT-7 People's Union for Civil Liberty (PUCL) and People's Union for Democratic Rights (PUDR).
- **UNIT-8** Human Rights Commission and Minorities Commission Remedies against violation of Human Rights.

Reference:

- 1. Theory and Practice of Modern Governments- Herman Finer, Methuen and Ltd 1954
- 2. Modern Constitution, K.C. Wheare, Oxford University Press 1966
- 3. Indian Constitution J.C. Johari, Delhi Vishal 2001
- 4. Right to be Human, Chakkravarthy M, Lancer International, New Delhi 1987

COURSE NAME: ENVIRONMENTAL STUDIES ODE AECC - 2 CREDITS: 4

COURSE CODE AECC - 2

COURSE OBJECTIVES

The Objectives of this course are

- 1. To Create awareness about Environment;
- 2. To Develop concern about Environment and
- 3. To promote the culture of thinking about sustainable development.

COURSE OUTCOMES

After studying this course the students should be able to

- 1. Identify the factors affecting environment;
- 2. Critically evaluate the issues to nurture the environment and
- 3. To identify solutions to promote sustainable development.

COURSE CONTENTS

BLOCK -1 ENVIRONMENT STUDIES

- UNIT -1 Environmental Studies Meaning, Scope and Importance Components, Physical, Cultural, Natural and Man made
- UNIT -2 Concepts of Ecology, Structure and Functions of Ecosystem.
- UNIT-3 Biotic and Abiotic Factor, Environmental Interactions
- UNIT-4 Biological Resources Plants, Animals and Micro organism

BLOCK - 2 ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

- UNIT-1 Social Issues Human population and Environment, Environment & Sustainability.
- **UNI -2** Environmental Pollution Air, Water, Soil and Sound types and Control Measures, Conservation and Preservation of Environment.
- **UNIT-3** The Concept of Sustainable Development. The Definition of Sustainable Development as an Ambiguous Compromise, The Triple P, An Introduction to Economic Growth, Questions about Sustainable Development, Timeline for Sustainable Development.
- UNIT- 4 Climate Change, Energy and Sustainable Development Climate Change: A Threat to Sustainable Development Adaptation to Current and Future Climate Regimes The cause: The greenhouse effect The consequences: crop failure Solutions technology and lifestyle changes | Mitigating Climate Change Political & economic instruments

Reference:

- 1. Textbook for Environmental Studies Erach Bharucha, Institute of Environmental Education and Research 2004
- 2. Fundamental of Ecology- Odum E.P.- E.B. Saunders and Co 1971
- 3. Understanding Environment- Kiran B Chhokkar- 1995
- 4. Environmental Studies, Nandini Sapna Book House 2015

Open Elective: 1st semester

DEPARTMENT : PHYSICS Physics in Daily Life

Block-1

Unit-1: Motion: Concept of motion, concept of inertia and its types, examples, importance of seat belts in vehicles, relative motion, vector method of velocity addition, conservation laws (qualitative explanation of LCM and LCE with examples)

Unit-2: Oscillations And Waves: SHM, time periods of spring pendulum and simple pendulum, damped oscillations and resonance, waves and types, propagation of waves (mechanical and non-mechanical waves), velocity of sound wave- factors affecting velocity of sound wave

Block-2

Unit-3: Light: Qualitative explanation of theories of light, reflection, refraction, TIR and its applications, interference and diffraction (brief explanation), scattering of light, blue colour of sky, red colour of sun at dawn and dusk.

Unit-4: Heat: Heat and temperature , different measuring scales of temperature, newton's law of cooling and applications, thermodynamic processes and examples, specific heat capacity, phase transition, melting point and boiling point, latent heat of fusion and latent heat of vapourisation.

Block-3

Unit-5: Radiation: Electromagnetic spectra, uses of electromagnetic waves, sources of e.m. waves, Importance of ozone layer, hazards of UV radiation, IR thermometer, working of microwave oven

Unit-6: Radioactivity: Classification of radioactive rays, properties, types of radioactivity, radiation hazards, radiation level detection and radiation safety.

DEPARTMENT: FOOD AND NUTRITION

CULINARY FOOD SCIENCE

BLOCK I: Basic Culinary Science

Unit 1: Introduction to cookery, Culinary history, aims and objectives of cooking.

Unit 2: Food ingredients and their nutritional value - cereals, legumes, fruits
and vegetables, eggs, fish and marine foods, milk and milk products, fats and oils Unit 3: Introduction to Cookery: Aims and objectives of cooking food; Various textures; Techniques used in pre-preparation; Techniques used in preparation. Methods of heat transfer; Classification; Moist heat methods; Dry heat methods;

Unit 4: Medium of fat. Personal Hygiene; Environmental Hygiene; Food storage and causes of contamination; Food borne illnesses; Food poisoning; Garbage disposal

BLOCK II: Applications of Culinary Science

Unit 5: Origin of modern cookery; Continental cuisine: Indian cuisine; Various sections of kitchen: Levels of skills: Attitude and behavior in the kitchen: Uniform and protective clothing; Classification of equipment; Care and maintenance

- Unit 6: Dining services methods, techniques & styles: Table service: Silver service/ English service;
 American/ Plated; Family; Russian; Butler; Gueridon Bar Counter; Assisted Service:
 Carvery; Buffets Self Service: Cafeteria: Straight Line; Free-flow; Echelon; Supermarket
 Single point service: Take-away; Drive through; Fast food; Vending; Kiosk; Food court; Bar
 Specialized (in-situ): Tray; Trolley; Home delivery; Lounge; In Room; Drive in
- Unit 7: Introduction to Indian Cuisine: Introduction; Growth of Indian cuisine; Introduction to various styles of Indian cookery; Development of Indian cuisine; History of Indian Cuisine: History, Ancient, Medieval and modern history of Indian cuisine
- Unit 8: Indian Culture and Food: Festival food, Culture related to food, Importance of Indian herbs and spices, Influence of foreign food culture on Indian cuisine. Equipment and Fuels used in the Indian Kitchen: Classification of Indian equipments; drawings; Care and maintenance.

DEPARTMENT: BOTONY

Plant Tissue Culture and its Biotechnological Applications

Plant Tissue Culture: Historical perspective, Composition of media; Nutrient and hormone requirements (role of vitamins and hormones); Plasticity andTotipotency; Organogenesis; Embryogenesis (somatic and zygotic);

Protoplast isolation, culture and fusion; Tissue culture applications (micropropagation, androgenesis, virus elimination, secondary metabolite production, haploids, triploids and cybrids; Cryopreservation; Germplasm Conservation).

Recombinant DNA Technology: Restriction Endonucleases (History, Types I-IV, biological role and application); Restriction Mapping (Linear and Circular); Cloning Vectors: Prokaryotic (PUC 18 and pUJC19, pBR322. Ti plasmid, BAC); Lambda phage, MI 3 phagemid, Cosmid, Shuttle vector; Eukaryotic Vectors (YAC and briefly PAC,).

Gene Cloning (Recombinant DNA. Bacterial Transformation and selection of recombinant clones, PCR and RT-PCR mediated gene cloning); Gene Construct; construction of genomic and cDNA libraries,

screening DNA libraries to obtain gene of interest by genetic selection; complementation, colony hybridization; Probes-oligonucleotide, heterologous, PCR; Methods of gene transfer- Agrohacteriummediated, Direct gene transfer by Electroporation, Microinjection, Microprojectile bombardment: Selection of transgenics— selectable marker and reporter genes (Luciferase, GUS, GFP).DNA fingerprinting by RAPD and RFLP;

Applications of Biotechnology: Engineering plants to overcome abiotic (drought and salt stress) and biotic stress Pest resistant (Bt-cotton) and herbicide resistant plants (RoundUp Ready soybean); Transgenic crops with improved quality traits (FlavrSavr tomato. Golden rice); Improved horticultural varieties (Moondust carnations); Role of transgenics in bioremediation (Superbug)

Molecular farming(Plants as bioreactors)for edible vaccines, antibodies, polymers, biodegradable plastics(PHA), biomass utilization and industrial enzymes) (- amylase, phytase, lignocelluloses degrading enzymes); Biosatety concerns.

References

1. Bhojwani, S.S., Bhatnagar, S.P. (2011). The Embryology of Angiosperms, 5th edition. New Delhi, Delhi: Vikas Publication House Pvt. Ltd.

2. Bhojwani, S.S., Razdan, M.K., (1996). Plant Tissue Culture: Theory and Practice. Amsterdam, Netherlands: Elsevier Science.

2. Glick, B.R., Pasternak, J..J.(2010). Molecular Biotechnology: Principles and Applications. Washington, U.S.: ASM Press.

4. Snustad, D.P., Simmons, M.J. (2010). Principles of Genetics, 5th edition. Chichester, England: John Wiley and Sons.

5.. Stewart, C.N. Jr. (2008). Plant Biotechnology and Genetics: Principles, Techniques and Applications. New Jearsey, U.S.: John Wiley & Sons Inc.

DEPARTMENT : MICROBIOLOGY

Microbiome and Human Health

Microbiome – definition –History of microbiome perspective, environmental genomics-microbiomes of oceans, lakhs and terrestrial ecosystems, Microbiome ecology, the fungal and viral microbiomes, Microbiome evolution. Earth Microbiome project.

Human microbiome: biodiversity and major genera of human-microbiome, humanmicrobiome system as a "holobiont" or "superorganism", microbiome distributions in healthy individuals; composition of specific body sites' microbiome (nose, skin, oral, urogenital, etc.) - fecal transplants- designer probiotics, Symbiosis- Dysbiosis -Rebiosis,

Dynamics microbiome changes from birth to death; pregnancy and the microbiome; personnel microbiome concepts.

Microbiome and disease biology: gut-brain conversation, obesity and gut microbiome, infectious diseases and gut microbiome, non-infectious diseases and gut microbiome,

Phylogeography of epidemics, microbiome's role in diseases such as Inflammatory bowel disease (IBD), colitis, obesity, diabetes; effects of diet on microbiome; interactions with the immune system and resistance to pathogens;

Drug delivery using microbes engineered to secrete peptides, Microbes as neuromodulators, Microbes as cancer therapeutics, impacts of antibiotics on the development of resistomes.

References

- 1. Angela E. Douglas (2018). Fundamentals of Microbiome Science how microbes shape
- 2. animal biology, Princeton University Press, New Jersey, United States.
- 3. Rob DeSalle and Susan L. Perkins (2015). Welcome to the microbiome. getting to know the
- 4. trillions of bacteria and other microbes in, on, and around you. Yale University Press.
- 5. Suggested Readings
- 6. Rodney Dietert (2016). The Human Super organism: how the microbiome is revolutionizing
- 7. the pursuit of a healthy life. Dutton Books.
- 8. Justin Sonnenburg and Erica Sonnenburg (2014). The good gut: taking control of your
- 9. weight, your mood, and your long-term health. Penguin Press.
- 10. Emeran Mayer (2016). The Mind-Gut Connection: How the Astonishing Dialogue Taking
- 11. Place in Our Bodies Impacts Health, Weight, and Mood. eBook, Harper Wave Books.
- 12. Martin J. Blaser (2014). Missing Microbes: How the Overuse of Antibiotics Is Fuelling Our
- 13. Modern Plagues. Harper Collins Publishers. Toronto.
- 14. Diana Marco (2014). Metagenomics of the Microbial Nitrogen Cycle: Theory, Methods and
- 15. Applications Book: 978-1-908230-48-5. ebook: 978-1-908230-60-7, Caister Academic Press.
- Pilar Francino, M (2012). Horizontal Gene Transfer in Book: 978-1-908230-10-2. ebook:978-1-908230-72-0, Caister Academic Press.

DEPARTMENT: LIBRARY INFORMATION AND SCIENCE

PERSONALITY DEVELOPMENT AND SOFT SKILLS FOR PROFESSIONALS

BLOCK-1: Presentation and Interview Skills for Library and Information

Science Professionals

- **UNIT-1:** Professional Skills, Communication Skills, Administrative, Managerial, Interpersonal, Human Relation Skills, Soft Skills, Legal Skills, Decision Making Skills,
- UNIT-2: Analytical Skills, Team Building, Time Management Skills, Motivation Skills, Leadership Skills, Negotiation Skills, Problem Solving Skills, Information Technology Skills, Computer and Network Literacy, Stress Management, Innovative and Recreational Skills

- UNIT-3: Presentation, Preparing Curricular Vitae, Online Application, Job Portals for LIS, Interview Types, Preparation (Job based), Panel and Board, Group Discussion, Personal Interview, General Awareness
- UNIT-4: Extra-curricular activities, Personality Development, Positive Attitude, Body Language

BLOCK-2: Drafting Letters in LIS context and Writing Skills

- UNIT-5: Types of Letter: Formal, Informal, Drafting Rules, Agenda, Minutes, Recommendations
- **UNIT-6:** Confidential Reports of the Staff, Report Writing: Progress, Annual Reports, Budget, User Statistics, Drafting Project Proposals, Writing Research Papers
- UNIT-7: Files Records: Management and Maintenance, RTI Skills and Answering Queries

UNIT-8: E-learning Tools, Courseware, Software, Content Management Student Teacher Relations, Student

Performance, Feedback Mechanism, Curriculum Development, Innovative Assessment Method, Use of

Teaching Tools

DEPARTMENT: PUBLIC ADMINISTRATION

INTRODUCTION TO PUBLIC ADMINISTRATION

BLOCK – 1

UNIT - 1	Public Administration – Meaning, Definitions, Nature and Scope,
	Whether Public Administration is a Science or an Art.

- UNIT 2 Significance of Public Administration. Public Administration and Private Administration, Similarities and Dissimilarities.
- UNIT 3 Growth of Public Administration and its Relationship with other Social Sciences.
- UNIT 4 New Public Administration Meaning and Features Development Administration Meaning and Features.

BLOCK – 2

- UNIT 5 New Public Management Perspective and Public Choice Approach.
- UNIT 6 Comparative Public Administrations. Concept of Good Governance and its Application.
- UNIT 7 Public Financial Administration Meaning, Nature, Objectives, Principles, Scope and Importance.
- UNIT 8 Public and Private Finance Differences and Similarities Agencies involved in Financial Administration in India. The Principles of Maximum Social Advantage, Values and Limitations.

DEPARTMENT OF COMMERCE

ELBCO1: Fundamentals of Accountancy

Credits: 2

Objective: To make the students to acquaint with the fundamental concepts of Accountancy which assist them to develop proficiency in the field of Accounting.

Pedagogy: A Combination of Lectures, Group Discussion, Assignments.

Examination Duration: 2 and Maximum Marks: 50

(Internal Assessment Marks = 10 and Semester-end Examination = 40)

Block-I: Introduction to Financial Accounting:

Unit-1: Introduction to Accounting : Meaning & Definition – Need and Scope for Accounting; Importance and objectives of accounting. Differences between book keeping and accounting. Accounting systems-cash and mercantile.

Unit-2: Accounting concepts and conventions: Introduction, Accounting concepts, Accounting Conventions, Important Accounting Terms, Transaction, Goods, Capital and Drawings, Debtors and Creditors, Expenses and Income, Assets and Liabilities, Debt and Credit, Types of Accounts, Books of Accounts, Rules for Recording of Transaction.

Unit-3: Journal: Meaning and Definitions, Features of Journal, Need for Journal, Importance, Journalizing, Points to be noted while passing Journal Entries, Illustrations.

Unit-4: Ledger: Meaning and Definitions, Features, Need and Importance, Differences between Journal & Ledger, Format of Ledger, Ledger Posting, Balancing of Ledger Accounts, Procedure for Balancing of an Account, Illustrations.

Block-II: Accounting Process:

Unit-5: Subsidiary Books: Introduction, Meaning, Features, Advantages, Usual Subsidiary Books, Journal Proper.

Unit-6 Trial Balance: Introduction, Meaning and Definitions, Features, Objectives, Advantages, Methods of Preparing Trail Balance, Format of a Trial Balance, Steps in the Preparation of a Trial Balance, Specimen of a Trial Balance.

Unit-7: **Profit and Loss Account:** Introduction, Meaning, Format, and Explanation to format of Profit and Loss Account, Illustrations.

Unit-8: Balance Sheet: Introduction, Meaning, Preparation of Balance Sheet, Marshalling or Grouping of Assets and Liabilities, Table Showing Treatment of Certain Ledger Balances appearing in Trail Balance, Table Showing Treatment of Some Adjustment Items given in Trial Balance. Treatment of Adjustment Item given in the Problem, Illustration.

Books for References:

- Maheshwari S.N. Advanced Accountancy –Vikas Publishing House Pvt. Ltd. New Delhi 9th Edition – Vol.II – 2007.
- Jain S.P. and Narang K.L. Practical Problems in Advanced Accountancy Kalyani Publishers Ludhiyana – New Delhi.
- 3. Arulanandam M.A and Raman K.S. Advanced Accounting (Financial Accounting) HPH 2012.
- 4. Arulanandam M.A and Raman K.S. Advanced Accounting (Corporate Accounting) HPH 2012.
- 5. Mukherjee A and Hanif M Modern accountancy Tata McGraw Hill New Delhi Vol.II 2012

DEPARTMENT: MATHEMATICES

Objective mathematics-1

Block-I	Number Theory and Progressions	Page
		No
Unit-1	Number System, Types of Numbers, series (AP, GP and HP)	
Unit-2	Algebraic operations BODMAS	
Unit-3	Divisibility, LCM and HCF	
Unit-4	Fraction, Simplification.	

Reference Books:

- 1. R.S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", Revised Edition, S. Chand and Co. Ltd, New Delhi, 2018.
- 2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.

3. Quantitative Aptitude : Numerical Ability (Fully Solved) Objective Questions, Kiran Prakashan, Pratogita prakasan, Kic X, Kiran Prakasan publishers.

4. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw hill publications.

Block-II	Number Theory and Progressions	Page
		No
Unit-1	Time and Distance	
Unit-2	Problems based on Trains	
Unit-3	Time, work and wages, Pipes and Cistern	
Unit-4	Problems on Clock, Problems on Calendar.	

Reference Books:

- 1. R.S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", Revised Edition, S. Chand and Co. Ltd, New Delhi, 2018.
- 2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.
- 3. Quantitative Aptitude : Numerical Ability (Fully Solved) Objective Questions, Kiran Prakashan,

Pratogitaprakasan, Kic X, Kiran Prakasan publishers.

4. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw hill Publications

DEPARTMENT : MANAGEMENT

COURSE NAME : OFFICE MANAGEMENT COURSE CODE: BMG-01

CREDITS: 2

Course Objectives The Objectives of this course are

- 1. To provide basic orientation about maintenance of front office
- 2. To develop skills require to manage a front office

Course Outcomes

After studying this course the students should be able to

- 1. Manage a front office of 4-5 people
- 2. Utilize the skills of managing a front office

Course Contents

BLOCK-I INTRODUCTION TO OFFICE MANAGEMENT

- Unit-1 Office Management, meaning and definition, nature, scope of office, Requisites of a good office, Office building, size, layout, safety and security measures, Management skills – Planning, organizing, staffing, motivating and controlling
- Unit-2 Reception Importance, shape and size, control, Arrangement and adjustment of Furniture, allotment of seats, chambers, cabins rooms etc. Handling of correspondence and market registers, filling forms and stationery, File management, Record maintenance
- Unit-3 Office Machines, manuals, charts and reports, Kind of office machines, Objectives and advantages of various machines, Objectives and advantages of various machines, stores management
- Unit-4 Personnel Management, Supervision, Control and coordination, companies Personnel Management, Supervision, Control and coordination, Personnel Management, Supervision, Control and coordination, Personnel Management, Supervision, Control and coordination, Managing difficult people, Office Politics Online Office Management

BLOCK-II SKILLS FOR OFFICE MANAGEMENT

- Unit-5 Secretary Definition, need and importance, appointment and dismissal, work, duties, rights and liabilities, memorandum of association and secretary, articles of association and secretary, prospectus and secretary. Banking skills
- Unit-6 Company- Definition, nature and kinds, Company formation and incorporation, promoter, capital subscription, company and association, memorandum and articles, prospectus and statements, meetings and Company Act.
- Unit-7 MS OFFICE- Word for letter correspondence, Excel for salary management, power point for business presentation, Email, Information systems and software, project management, tally
- Unit-8 Communication, verbal and non-verbal communication, telephone and email etiquette, body language,

Reference

- 1. Office Management, Dr. R.K. Chopra, Priyank Gauri, Himalaya Publications
- 2. Office Management, M. Thatheya, Charulatha Publications
- 3. Office Management, RSN Pillai, Bhagavathi. S. Chand Publications
- 4. Administrative Office Management, patte Gibson

DEPARTMENT : INFORMATION TECHNOLOGY

BITGE-1 Fundamentals of IT Block 1:Fundamentals of Computer

Unit 1 : Introduction to Computers : Introduction, Definition, Characteristics, Block Diagram of a Computer, Generations of Computers, Classification of Computers, Applications of Computers

Unit 2 : Input/Output Devices : Significance of I/O devices, Input Devices , Output devices

Unit 3 : Computer Memory : Memory and storage concept in Computer, Types of Primary Memory, Need and benefits of Secondary storage devices, Classification of secondary storage devices

Unit 4 : Software : Introduction, Classification of Software, Programming languages, Types of programming languages, Need for language translators, Types of language translators.

Block 2: Essentials of Information Technology

Unit 5: Operating System: History and Evolution of Operating System, Types of Operating System, Overview of Dos, Linux and Windows Operating Systems

Unit 6: Computer Networks and Internet: Basics of Data Communication, Computer Networks, Types of Networks, Topologies, Evolution of Internet, WWW, Browsers, Search Engines

Unit 7: **Computer and Network Security**: Need for Security, Threats and Vulnerabilities, Virus, Types of Virus, Preventive measures, Antivirus, Firewalls

Unit 8: Emerging Computing Environments: Existing computing scenario, Peer to peer computing, Grid computing, Cloud Computing

Open Elective: 2nd semester

DEPARTMENT : PHYSICS

Energy Resources

Block-1

Unit-1: Introduction to Non-renewable energy sources: Energy concept-sources in general, its significance & necessity. Classification of energy sources: Primary and Secondary energy, Commercial and Non-commercial energy, Renewable and Non- renewable energy, Conventional and Non-conventional energy, Based on Origin-Examples and limitations. Importance of Non-commercial energy resources.

Unit-2: Conventional energy sources: Fossil fuels & Nuclear energy- production & extraction, usage rate and limitations. Impact on environment and their issues& challenges. Overview of Indian & world energy scenario with latest statistics- consumption & necessity. Need of eco-friendly & green energy & their related technology.

Block-2

Unit-3: Introduction to Renewable energy sources: Need of renewable energy, nonconventional energy sources. An overview of developments in Offshore Wind Energy, Tidal Energy, Wave energy systems, Ocean Thermal Energy Conversion, solar energy, biomass, biochemical conversion, biogas generation, geothermal energy tidal energy, Hydroelectricity.

Unit-4: Solar energy: Solar Energy-Key features, its importance, Merits & demerits of solar energy, Applications of solar energy. Solar water heater, flat plate collector, solar distillation, solar cooker, solar green houses, solar cell -brief discussion of each. Need and characteristics of photovoltaic (PV) systems, PV models and equivalent circuits, and sun tracking systems.

Block-3

Unit-5: Wind and Tidal Energy harvesting: Fundamentals of Wind energy, Wind Turbines and different electrical machines in wind turbines, Power electronic interfaces, and grid interconnection topologies. Ocean Energy Potential against Wind and Solar, Wave Characteristics and Statistics, Wave Energy Devices. Tide characteristics and Statistics, Tide Energy Technologies, Ocean Thermal Energy.

Unit-6: Geothermal and hydro energy: Geothermal Resources, Geothermal Technologies. Hydropower resources, hydropower technologies, environmental impact of hydro power sources. Carbon captured technologies, cell, batteries, power consumption

DEPARTMENT OF FOOD AND NUTRITION

FOOD AND SOCIETY

BLOCK I: Role of Food in Society

Unit 1: Introduction to food and food ways
Unit 2: Food biographies and sociality
Unit 3: Food, culture & society in India.
Unit 4: Social stratification, food production, and culinary practices

BLOCK II: Applications of Food in Nutrition and Society

Unit 5: Food and Health

Unit 6: Nutritional guidelines for health and fitness

Unit 7: Nutritional Problem of Community

Unit 8: Mapping food waste

DEPARTMENT OF BOTANY

Plant-Microbe Interactions

Overview of plant microbes interactions,

Introduction, beneficial microbes, Rhizobium bacterium and nitrogen fixation, mycorrhizal fungi.

Plant pathogens, Agrobacterium tumefaciens and crown gall disease,

Mechanisms of plant disease mechanism, some bacterial plant diseases,

Plant viruses and mechanism of plant against viruses attacks.

Fungal pathogen- mechanism of plant disease,

Oomycete pathogens, Fungal mediated plant.

General concept of plant immunity,

PAMP-triggered immunity (PTI) and effectors-triggered immunity (ETI).

Transcription activator like effector and their role in virulence and disease resistance.

References

1. Lautenberg, B. (2015). Principles of Plant-Microbes Interactions: Microbes for sustainable Agriculture, Springer.

2. Stacey, G. and Keen, N. T. (1997). Plant-Microbes Interactions, Vol 4, . Springer.

3. Ramasamy, K, (2015). Plant Microbes Interactions, New India Publishing Agency.

4. Martin, F. and Kamoun, S. (2014). Effectors in Plant-Microbes Interactions 1st Edition, Wiley Blackwell

DEPARTMENT: MICROBIOLOGY Food Microbiology

- i. Intrinsic and extrinsic factors that affect growth and survival of microbes in foods, natural flora and source of contamination of foods in general.
- ii. Principles, Spoilage of vegetables, fruits, meat, eggs, milk and butter, bread, canned Foods.
- iii. Principles of food preservation: temperature, canning, drying, irradiation, microwave processing and aseptic packaging, chemical methods of food preservation: salt, sugar, organic acids, SO2, citrates, benzoates, nitrite and nitrates etc.

- i. Dairy starter cultures, fermented dairy products: yogurt, acidophilus milk, kumiss, kefir, dahi and cheese, other fermented foods: dosa, sauerkraut, soy sauce and tampeh,
- ii. Probiotics: Health benefits, types of microorganisms used, probiotic foods available in market. Utilization and disposal of dairy by-product – whey.
- i. Food borne diseases (causative agents, foods involved, symptoms and preventive measures)- Food intoxications: Staphylococcus aureus, Clostridium botulinum and mycotoxins;
- ii. Food infections: Bacillus cereus, Vibrio parahaemolyticus, Escherichia coli, Salmonellosis, Shigellosis, Yersinia enterocolitica, Listeria monocytogenes and Campylobacter jejuni
- i. Food sanitation and control; HACCP, Indices of food sanitary quality and sanitizers.
- ii. Cultural and rapid detection methods of food borne pathogens in foods and introduction to predictive microbiology.
- iii. Genetically modified foods, Nutraceuticals, Biosensors in food, Applications of microbial enzymes in dairy industry [Protease, Lipases].

References:

1. Stanbury, PF., Principles of Fermentation Technology. Whittaker, A and Hall, S.J 2nd Edition. Pergamon Press (1995).

2. Banwart, GJ. Basic Food Microbiology. CBS Publishers and Distributors, Delhi. (1989).

3. Hobbs BC and Roberts D. Food poisoning and Food Hygiene. Edward Arnold (A division of Hodder and Stoughton) London.

4. Joshi. Biotechnology: Food Fermentation Microbiology, Biochemistry and Technology. Volume 2.

5. John Garbult. Essentials of Food Microbiology. Arnold International.

6. John C. Ayres. J. Orwin Mundt. William E. Sandinee. Microbiology of Foods. W.H. Freeman and Co.

7. D. J. Bagyaraj and G. Rangaswami.AGRICULTURAL MICROBIOLOGY. Prentice Hall of India Pvt Ltd.2005

- 8. N S Subba Rao. Soil Microbiology. Oxford and IBH publishing Company 2009
- 9. Photis Papademas. Dairy Microbiology: A Practical Approach. CRC Press
- 10. Rao M.K. Food and Dairy Microbiology. Manglam Publishers
- 11. William Frazier. Food Microbiology. McGraw Hill Education

12.Jay, James M., Loessner, Martin J., Golden, David A. Modern Food Microbiology. Springer

DEPARTMENT OF LIBRARY SCIENCE

Electronic Sources And E-Publishing

Block-1: Electronic Sources

- **UNIT-1:** Electronic Information: Concept, structure, features, Information industry. Role of librarian in information industry.
- UNIT-2: Electronic information products: e-books, e-journals, e-zines, e-reference sources, ETDs.
- UNIT-3: Electronic sources: Internet Information resources, Databases (Bibliographic, Numeric and Full text). E-books, Open Access Resources. List servers, Subject gateways. Mini Project: Study of the features and functionality of any one source (E.g. Dictionary. com, Encyclopedia Britannica, Wikipedia, ACM digital Library, IEEE / IEE Electronic Library Online (IEL), Emerald, EBSCO, PsycINFO, Elsevier Science, PubMed Central, J-Gate , J-Store, Web of Science, SCOPUS, SciFinder Scholar, PLOS, DOAJ, RePEc, etc.)

UNIT-4: Plagiarism: Social, legal issues and usability issues. Plagiarism detection software, online plagiarism checkers

BLOCK-2: ELECTRONIC PUBLISHING

- **UNIT-5:** Electronic Publishing: Concept, categories commercial, open access, self e-publishing, scholarly communication
- UNIT-6: E-Publishing Process: peer reviewing, editing, proofreading, designing, typesetting, and printing.
- **UNIT-7:** E-publishing software: features and use. Study of select e-publishing software: MS Publisher and OJS.
- UNIT-8: IPR and Copyright issues in e-publishing

DEPARTMENT : PUBLIC ADMINISTRATION

LOCAL GOVERNMENTS OF INDIA

- BLOCK 1
- UNIT 1 Local Government Meaning, Nature, Importance, Values and Limitations. Distinction between Central and Local Government.
- UNIT 2 Evolution of Local Governments in India. Balawantroy Mehta, Ashok Mehta, G.V.K. Rao and L.M. Singhvi Committees.
- UNIT 3 Panchayatraj Institutions and 73rd Constitutional Amendment Act of 1992.
- UNIT 4 Grama Panchayat Composition, Organisation, Powers and Functions.

BLOCK – 2

- UNIT 5 Taluk Panchayats and Zilla Panchayats Composition, Organisation, Powers and Functions.
- UNIT 6 Urban Local Governments in India and 74th Constitutional Amendment Act of 1992.
- UNIT 7 Municipal Corporation Composition, Organisation, Powers and Functions,
- UNIT 8 Municipal Council Composition, Organisation, and Functions,

DEPARTMENT OF COMMERCE

ELBCO2: Fundamentals of Marketing

- **Objective:** To facilitate understanding of the conceptual framework of Marketing and its applications in decision making under various environmental situations.
- Pedagogy: A Combination of Lectures, Group Discussion, Assignments.

• **Credits:** 2 ; Examination Duration: 2 and Maximum Marks: 50 (Internal Assessment Marks = 10 and Semester-end Examination =40)

Course Inputs

Block I

- Unit -1: Introduction: Definitions of Marketing Various Concepts of Marketing Marketing as

 Concept
 Components of Marketing Concept
 Implementation of Marketing Concept
 Marketing as a Process
 Marketing as a Managerial Function- Benefits of Marketing Concept
- Unit -2: Marketing Environment: Introduction Definitions of Environment Approach to Environment Analysis -Meaning of Marketing Environment - Types of Marketing Environment -Controllable and Uncontrollable Environment- Benefits of Market Scanning.
- Unit -3: Marketing Mix: Introduction Definitions of Marketing Mix Concept of Marketing Mix Components of Marketing Mix Classification of Products -Product Concept Dimension Product Mix -Price -Promotion Place Sub-components of four P's Market Segmentation Bases of Market Segmentation Benefits of Market segments Market Segmentation Strategies.
- Unit-4: Consumer Behaviour: Introduction Definition of Consumer Behaviour Scope of Consumer Behaviour - Buying Motives - Need to Study Consumer Behaviour - Factors Influencing Consumer Behaviour.

Block II

- Unit -5: Product Mix: Introduction Meaning of Product- Product is something more than a Physical Commodity - Total Product Personality - Managing the Product - Product Policy – Branding Decision - Decision on Packaging.
- Unit -6: New Product Development: Introduction Need for New Product Classification of New Product - Stages in New Product Development - Definitions of Product Life Cycle - Stages of Product Life Cycle - Factors affecting Product Life Cycle.
- Unit -7: Branding and Packaging: Introduction Meaning and Definitions of Brand Features or Characteristics of Brand - Merits or Utility of Branding - Classification of Brands. Meaning and Definition of Packaging - Objectives of Packaging - Policies and Strategies of Packaging -Branding Vs Packaging - Labelling
- Unit -8: Promotion Mix: Introduction Meaning and Scope of Promotion- Components of Promotion- Marketing Communications- Promotional Tool & Consumer Response- Determining the Promotional Mix.

Books for Reference

- 01. S.A. Sherlekar and R Krishnamoorthy., Marketing Management Concepts and Cases, Himalaya Publishing House, Mumbai.
- 02. V. S. Ramaswamy and S Namakumari, Marketing Management, Macmillan Publishers.
- 03. David Jobber, John Fahy, Foundations of Marketing, TMH.
- 04. William D Perreault, E Jerome Mc Carthy, Basic Marketing A Global Managerial Approach, McGraw-Hill Publishers.
- 05. Anitha, "Marketing Management," Current Publications, Agra.

DEPARTMENT: MATHEMATICES

Objective Mathematices-2

Block-I	Sets and Relations	Page
		No
Unit-1	Set theory	
Unit-2	simple applications of Venn Diagram	
Unit-3	Relations	
Unit-4	Functions	

Reference Books:

- 1. Basic Mathematics, Allel R.G.A, Macmillan, New Delhi.
- 2. Mathematics for Economics, Dowling, E.T., Schaum's Series, McGraw Hill,

Block-II	Indices and Logarithms	Page
		No
Unit-1	Surds, indices,.	
Unit-2	Logarithms	
Unit-3	Permutations and combinations	
Unit-4	Examples on commercial mathematics	

Reference Books:

- 1. Basic Mathematics, Allel R.G.A, Macmillan, New Delhi.
- 2. Mathematics for Economics, Dowling, E.T. Schaum's Series, McGraw Hill

DEPARTMENT: MANAGEMENT

COURSE NAME : MANAGEMENT SKILLS

COURSE CODE: BMG-02

CREDITS: 2

Course Objectives

- 1. To orient students towards various functions of Management.
- 2. To develop basic management skills

Course Outcomes

- 1. Assist various functions of Management in an organization.
- 2. Utilize the basic management skills

Course Contents

BLOCK-I INTRODUCTION TO MANAGEMENT

- UNIT-9 Management-meaning, nature and scope-characteristics of management Functions of Management Levels of Management.
- UNIT-10 Contributions of select management thinkers F.W.Taylor Henry Fayol Elton Mayo.
- UNIT-11 Planning meaning, nature and importance of planning; forms of planning; types of plans; steps in planning; limitations of planning
- **UNIT-12** Decision making meaning types of decisions, steps in rational decision making common difficulties in decision making

BLOCK-II STAFFING AND DIRECTING

- UNIT-13 Organization meaning process of organizing principles of organizing, steps in organizing; types of organizing; organization structure Staffing-meaning; process; delegation of authority and responsibility
- **UNIT-14** Direction-Meaning, features of direction, principles of direction, requirements of effective direction, supervision-concept of supervision, functions of supervisor-qualities of a good supervisor.
- **UNIT-15** Leadership-meaning-significance; styles of leadership-qualities of a good leader, motivation-meaning and importance a brief study of Maslow's and Mc.Gregor
- **UNIT-16** Controlling- Nature, Definition; Need for control, Steps in control process, types of controls, Essentials of effective control system;

Reference:

- 1. Business Organization and Management Y.K.Bhushan.
- 2. Modern Business Organization and Management S.A.Sherlekar
- 3. Principles and Practice of Management T.N.Chhabra.
- 4. Organization and Management C.R.Babu
- 5. Principles of Management P.C. Tripathi, P.N. Reddy.
- 6. Principles of Management L.M.Prasad.

DEPARTMENT: INFORMATION TECHNOLOGY

BITGE-2 Basic Programming Skills using C

Block 1:Introduction to Problem Solving

Unit 1- Problem Solving concepts using C:Introduction to C language, C language standards features of C, Program Concept, Characteristics of Programming, Structure of C program, Introduction to C compilers, Creating and compiling C Programs, IDE features of Turbo C compiler, Command line options to compile C program in TC

Unit 2- Fundamentals of C:Keywords, Identifiers, Variables, constants, Scope and life of variables - local and global variable. Data types and sizes, C tokens, keywords and identifiers, Constants, Variables, Data types, Declaration of variables, Assigning values to variables, Defining symbolic constants

Unit 3- Input/Output statements:Basic input/output library functions: Single character input/output i.e.getch(), getchar(), putchar(). Formatted input/output i.e. printf() and scanf(),Library functions - concepts mathematical and character functions

Unit 4–Operators and Expressions: Introduction to Operators, Arithmetic operators, Relational operators, Logical operators, Assignment operators, Increment and decrement operators, Conditional operators, Bitwise operators, Special operators, Arithmetic expressions, Evaluation of expressions. Precedence of arithmetic operators, some computational problems, Type conversions in expressions, Operator precedence and Associativity, Mathematical functions.

Block 2: Control Flow statement, Functions and Arrays

Unit 5 –Control Statements: Introduction to control flow, Statements and Block, If-Else, Else-If, Nesting of If -Else Statement, Else If Ladder, The ?: Operator Switch Statement, Compound Statement, Loop Controls – For, While, Do-While Loops, Break Continue, Exit, Goto Statement and Labels

Unit 6- Storage Classes:Scope of variable, Global and Local variables, Automatic, external, register and static variables

Unit 7- Functions in C:Introduction to functions, The Need of a Function, User Defined and Library Function, Prototype of a Function, Calling of a function, Function Argument, Passing arguments to function, Return Values, Nesting of Function, main(),Command Line Argument, Recursion. Storage Class specifier – Auto, Extern, Static, Register

Unit 8- Arrays and its types:Basis of Arrays, One-dimensional arrays, Two-dimensional arrays, initializing two-dimensional arrays, Multidimensional arrays, Array as function arguments

References

- 1. Balagurusamy E. programming in ANSI C. Tata McGraw-Hill Education; 2002..
- 2. Rajaraman V, ADABALA N. Fundamentals of computers. PHI Learning Pvt. Ltd.; 2014 Dec 15.
- 3. Wang PS. Standard C++: with Object-Oriented Programming. Brooks/Cole Publishing Co.; 2001 Jan 1.
- Ritchie DM, Kernighan BW, Lesk ME. The C programming language. Englewood Cliffs: Prentice Hall; 1988.