DAYANANDA SAGAR UNIVERSITY
SCHOOL OF COMPUTER APPLICATIONS
SCHEME OF TEACHING AND EXAMINATION 2016 – 2017

SEMESTER I **BRANCH: BCA**

Sl. No.	Course Code	Course	CR/ AU	No. of hours of Teaching				Scheme of Evaluation	
								Continuous	Examination
				Lecture	Tutorial	Lab/Practice	No. of Credits		
1	16CA101	Mathematics-1	CR	03	02	--	04	40	60
2	16CA102	Fundamentals of Programming	CR	04	--	--	04	40	60
3	16CA103	Computer Organization - 1	CR	03	--	--	03	40	60
4	16CA104	Web Programming	CR	03	--	02	04	40	60
5	16CA105	Accounting and Financial Management	CR	03	--	02	04	40	60
6	15EN101	English in Practice	CR	02	--	02	03	40	60
7	16CA171	Programming Lab	CR	-	-	04	02	40	60
8	16CA172	Computer Organization Lab	CR	-	-	02	01	20	30
GRAND Total:750				**18**	**02**	**12**	**25**	**300**	**450**
9	16CA191	Constitution of India and Professional Ethics	AU	02	--	--	02	25	50

Continuous evaluation: 2 IA Tests =20 marks, Assignment = 10 marks, Self-study presentation / survey reports / quiz / programming exercises / presentation in seminar and workshops = 10 marks

Syllabus - 1st Semester Courses

Course code: **16CA101**	**MATHS I**	L	T	P	C
		3	02	--	4
Course Objectives	The Curriculum supports the prerequisites to enhance their Mathematical knowledge towards their understanding mathematical Concepts and help them to persuade research work in concerned fields with the help of Mathematical approach.				
Course outcomes	At the end of the course student will be able to 1. understand and use counting principle, use Propositional calculus in Theorem proving 2. use suitable algebraic structures to model the given scenario/system 3. use constructions used in proofs as algorithms				

Module 1	**MATRICES** Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Eigen values and Eigen Vectors of a Matrix, Caley-Hamilton Theorem (Statement only) Rank of a matrix, Row reduced echelon form and normal form Solution of homogeneous and nonhomogeneous system of equations. Practical's: Solving problems under matrices using FOSS TOOLS SCILAB/Maxima DETERMINANTS: Definition, Minors, Cofactors, Properties of Determinants Cramer's rule	09 hrs
Module 2	**SETS AND RELATIONS** SETS: Sets, Subsets, Types of Sets, Operation on Sets, Applications. RELATIONS AND FUNCTIONS: Definition, Types of functions, Types of relations with illustrations and graphs	09 hrs
Module 3	**DIFFERENTIAL CALCULUS** Limit , Continuity, Differentiation , Product rule Quotient rule Successive differentiation, Leibnitz theorem for finding nth derivative of product of functions(only statement) Partial derivatives, homogeneous functions Euler's theorem (only statement) maxima and minima, Taylor's series and Maclaurin's Series (without proof). Practical's: Solutions Using FOSS TOOLS SCILAB/MAXIMA	09 hrs
Module 4	**DIFFERENTIAL EQUATIONS** Different types of differential equations, solving different equations	08 hrs
Module 5	**ALGEBRAIC STRUCTURES** Introduction, operations, semi-groups, groups, subgroups, normal subgroups, isomorphism and homomorphism, rings, integral domains and fields, Polynomials over a field.	10 hrs

Textbooks	1. Discrete Mathematics by Guru Raja Chaar, Latest Edition. 2. Discrete Mathematics by Ranganath, Latest Edition.
Reference Books	1. Dr. P .R .Vittal : MATHEMATICAL FOUNDATION 2. Shanti Narayan, "Differential Calculus", S Chand & Company. 3. Shanthi Narayan , "Matrices and determinant" , S. Chand and company LTD 4. B.S. Grewal, "Elementary Engineering Mathematics", 34th Ed. Delhi Khanna Publishers. 5. Das BC and Mukherjee, Differential Calculus, Calcutta, U.N. Dhar Publishers.

Course code: **16CA102**	**FUNDAMENTALS OF PROGRAMMING**	L	T	P	C
		3	01	04	6
Course Objectives	The objective of the subject is to teach the student the basics of Programming starting with simple problem solving techniques implemented using Python language				
Course outcomes	At the end the course the students will 1. understand Programming concepts, building blocks of a program, different constructs file i/o operations 2. Be able to design using advanced concepts such as functions, modules and regular expressions in designing programs.				

Module 1	**INTRODUCTION TO PROGRAMMING** Introduction to problem solving, algorithms, flowcharts, art of Programming language, programming environments, overview of compilations. Data types, constants and variables, Arithmetic expressions, operators. Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity	09 hrs
Module 2	**BUILDING BLOCKS** Branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement. break, continue statement	09 hrs
Module 3	Iterative statements: For, while, and do-while loop, jumps in loops.	08 hrs
Module 4	**SEQUENCES , FILES AND DICTIONARIES** Sequences, FILE I/O Operations, dictionaries and sets	09 hrs
Module 5	**ADVANCE PROGRAMMING CONCEPTS** Functions , modules and regular expressions	10 hrs
Text Books	1. Programming in Python 3 (Second Edition) A Complete Introduction to the Python Language by Mark Summerfield 2. Head First Python – Paul Barry 3. Gottfried, Byron S., Programming with C, Tata McGraw Hill	

Reference Books	1. Python Essential Reference (4th Edition) David M. Beazley 2. Problem Solving With C: Jones and Harrow, WILEY INDIA PVT LTD. 3. An Introduction to Programming and Problem Solving With Pascal, G. Michael Schneider Steven W. Weingart David M. Perlman, WILEY INDIA PVT LTD. 4. Python Programming For Absolute Beginner – MICHAEL DAWSON – THOMPSON
SOFTWARES	C/PYTHON

Course code: **16CA 103**	**COMPUTER ORGANIZATION - 1**	L	T	P	C
		03	--	--	03
Course Objectives	This course aims at providing an overview of basic digital design techniques, basic structure of a digital computer and its organization.				
Course outcomes	At the end of the course student will be able 1. to demonstrate knowledge of binary number theory, Boolean algebra and binary codes. 2. to analyse and design combinational systems using 3. standard gates and minimization methods (such as Karnaugh maps, 4. Quine-McCluskey Algorithm). To analyse and design combinational systems composed of Standard combinational modules, such as multiplexers and decoders. 5. to analyse the given problems and design sequential Circuits				
Module 1	**INTRODUCTION TO DIGITAL COMPUTER** Concept of Digital Computer, Types of Software – System software / Application software / Utility Software. Compilers, Interpreters, Assemblers, Linker, Loader. System Bus structure				06 hrs
Module 2	**NUMBER SYSTEM AND LOGIC DESIGN MINIMIZATION TECHNIQUES** Introduction to number system, Signed Binary Representation, Logic gates and Boolean Algebra.				06 hrs
Module 3	**COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS** Minimization Techniques and circuit design, Codes and Arithmetic operation, Combinational Circuits Design				06 hrs
Module 4	**COMBINATIONAL AND SEQUENTIAL LOGIC CIRCUITS(CONTD)** Multiplexers, De-multiplexers, decoders, Sequential circuit Design Counter and registers				06 hrs
Module 5	**INPUT/ OUTPUT AND MEMORY ORGANIZATION OF COMPUTER** I/O Devices, Memory Systems, Interrupts and instruction cycle, Addressing modes				06 hrs

Text Book:	1. M. Morris Mano, "Digital Logic and Computer Design", 10th Edition, Pearson Education, 2004. 2. Malvino. D. Leach, "Digital Principles and Applications", 5th Edition, Tata McGraw Hill. 3. Floyd, "Digital Principles", Pearson Education, 2002	
Reference Books	1. Carl Hamacher, Z Varnesic and S. Zaky: Computer Organization, 5th Edition, McGraw Hill, 2002. 2. Carpinelli, "Computer Organization & Architecture", Pearson 3. W. Stalling, "Computer Organization and Architecture", 8th Edition, Pearson Education India, 2010. 4. Hennessey J. L., Patterson D., "Computer Organization And Design: The Hardware/Software Interface", Morgan Kaufmann, 2008	

Course code: **16CA104**	**WEB PROGRAMMING**	L	T	P	C
		02	02	02	04
Course Objectives	This subject aims at providing an overview of Fundamentals of Web & Web Designing				
Course outcomes	At the end of the course student will be able i) understand WWW, web servers, Markup languages, i) design web pages for the given applications				

Module 1	Internet, History of Internet, Internet Protocols, Client-Server technology, World Wide Web (WWW), Evolution of web	06 hrs
Module 2	Web Server, Web Browsers, Search Engines, Architecture of web site, Hypertext Transfer Protocol (HTTP), HTTPS, Security.	06 hrs
Module 3	Introduction to Hypertext Documents, Static and Dynamic web pages, Markup Language – Overview, HTML: Introduction, structure of HTML, Basic HTML tags	06 hrs
Module 4	HTML structure Tags, Content/ Media Tags, Working with Forms.	06 hrs
Module 5	Designing web pages for different applications.	06 hrs
Text Book	1. Fundamentals of Web Development by Randy Connolly, Richardo Hoa, Pearson Education Limited 2. Internet & World Wide Web: How to Program, Deitel and Deitel, Prentice Hall 3. Programming HTML Applications, Published by Oreilly	
Reference Books	1. Internet and Introduction-CI Stems, TMH 2. Web Design, The Complete Reference, Thomas Powell, Tata MC Graw Hill 3. World Wide Web, The Complete Reference, Thomas Powell, Tata MC Graw Hill 4. HTML The complete Reference, Thomas Powell, Tata MC Graw Hill 5. World Wide Web, Robert W. Sebesta, Pearson Education Limited	

Course code: **16CA105**	**ACCOUNTING & FINANCIAL MANAGEMENT FOR COMPUTER SCIENCE**	L	T	P	C
		02	02	02	04
Course Objectives	This paper provides conceptual knowledge of Financial accounting, familiarizes with methods of preparing Final Accounts of Sole Proprietorship concerns, provides understanding of the accounting procedure for different kinds of businesses and various ratios and abstracts of accounts which are required for the management to take strategic decisions.				
Course outcomes	At the end of the course student will be able 1.To understand the principles and methodology of Nature of Financial Accounting 2. To know Basics of accounting 3. To do Analysis of financial statement 4. To know Indian economy. Fund flow Cash flow.				

Module 1	Overview – Meaning and Nature of Financial Accounting, Scope of Financial Accounting, Financial Accounting and Management Accounting, Accounting concepts and conventions, Accounting standards.	06 Hour
Module 2	Basics of accounting – Capital & Revenue items, Introduction to Double Entry System, Introduction to preparation of Journal, Ledger, Procedure for Recording and Posting journal entries and ledgers, Introduction to Trail Balance, Preparation of Final Account, Profit & Loss Account and related concepts, Balance Sheet and related concept.	06 Hour
Module 3	Analysis of financial statement: Introduction to Ratio Analysis, Uses of Ratio analysis, Simple problems of Ratio analysis, Analysis of Balance Sheet, Break-even analysis: Uses of Break – even analysis, simple problem solving in break-even analysis.	09 Hour
Module 4	Fund flow and Cash Flow: Preparation of Fund Flow statement, Analysis of Fund Flow statement, Schedule of Changes in Working Capital,	08 Hour
Module 5	Preparation of Cash Flow Statement, Analysis of Fund Flow statement.	09 Hour
Text Books	1) BS Raman, “Financial Accounting”, united publishers. 2) Maheshwari S.N &Maheshwari S K, “An Introduction to Accountancy”, Vikas, 9th Edition.	
Reference Books	1) Narayanswami, “Financial Accounting: A Managerial Perspective”, PHI, 2nd Edition. 2) Mukherjee, “Financial Accounting for Management”, TMH, 1st Edition. 3) Ramchandran & Kakani, “Financial Accounting for Management”, TMH, 2nd Edition. 4) KarunakarPatra, JK Panda, “Accounting and Finance for Managers”, Sarup Book publishers. 5) Ashish K. Bhattacharya, “Essentials of Financial Accounting”, PHI, New Delhi.	

	6) Gupta Ambrish, "Financial Accounting for Management", Pearson Education, 2nd Edition. (7) Chowdhary, Anil, "Fundamentals of Accounting and Financial Analysis", Pearson Education, 1st Edition. 8) SpJain,KlNarang, "Financial Accounting", Kalyani Publishers **Software: Tally – Not an open source, Wings (Open Source) , Dynamics GP. (Not open source).**

Course Code: **16EN101**	**English in Practice**	L	T	P	C
		02	-	02	03
Course Objectives	1. To enable students improve their lexical, grammatical competence. 1. To enhance their communicative skills. 2. To equip students with oral and appropriate written communication skills. 3. To inculcate students with employability and job search skills.				
Course outcomes	1. Students achieve proficiency in English 1. Develop their professional communication skills 2. Acquire skills for placement				

Module 1	**Grammar and Vocabulary**: Tense and Concord, word formation, Homonyms and Homophones	06 hrs
Module 2	**Listening and Speaking:** Common errors in Pronunciation (Individual sounds); Process description (Describing the working of a machine, and the manufacturing process), use of vocabulary and rendering.	06 hrs
Module 3	**Group Discussion**	06 hrs
Module 4	**Writing:** Interpretation of data (Flow chart, Bar chart), Referencing Skills for Academic Report Writing	06 hrs
Module 5	**Reading:** Reading Comprehension, Answering questions, Appreciation of creative writing.	06 hrs
Text Books	1. Dhanavel.S.P. English and Communication Skills for Students of Science and Engineering**,** Orient Blackswan Ltd., 2009. 1. Meenakshi Raman and Sangeetha Sharma**.** Technical Communication- Principles and Practice, Oxford University Press, 2009	
Reference Books	1. Day.R A., Scientific English:A Guide for Scientists and Other Professional, 2nd ed. Hyderabad: Universities Press, 2000	