KSKV Kachchh University
Program: BCA
Semester: II
Syllabus with effect from June 2016

Course Type	Course Code	Name of the Course	T/P	Credit	Exam Duration In Hrs	Components Of Marks		
						Internal	External	Total
Core Courses	CCCS-206	Advanced C Programming and Introduction to Data Structures	T	4	2:15	40	60	100
	CCCS-207	Web Application Development – II	T	4	2:15	40	60	100
	CCCS-208	Database Management System – I	T	4	2:15	40	60	100
	CCCS-209	Practical based on CCCS-206 and CECS-203*	P	4	2:15	40	60	100
	CCCS-210	Practical based on CCCS-207 and CCCS-208	P	4	2:15	40	60	100
Foundation Courses	FCCS-202	Mathematical Foundation of Computer Science – I	T	4	2:15	40	60	100
	FCCS-203	Foundation Course of BAOU	T	8	2:15	-	100	100
Elective Courses (Any One)	CECS-203	Introduction to Python Programming	T	2	2:15	40	60	100
	CECS-204	Management Information System	T	2	2:15	40	60	100
Total				**34**		**280**	**420**	**800**

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Paper Code: CCCS-206	Total Credit : 2
Title of Paper: Advanced C Programming and Introduction to Data Structures	**Total Marks :** 60 **Time :** 2:15 Hrs

Unit	Description	Weighting
I	**Usage of Pointers** Introduction and usage of pointers Declaration, initialization and dereferencing of pointer variables Pointers and addresses. Pointers and function arguments Returning multiple values through pointers, Dynamic memory allocation, Pointers and arrays, Pointer arithmetic	25%
II	**Structures, Unions and File Handling** Basics of structures, Structures and functions, Structures and arrays, Pointers to structures, Nested structures Unions , Typedefs, Introduction to File Handling and Usage Operations on files, File access modes, Handling text files	25%
III	**Introduction to Data Structures** Introduction to data structures, their usage, applications and advantages. Primitive and non-primitive data structures and operations on them. Linear and non-linear data structures Introduction to stacks, operations on stacks Applications of stacks	25%
IV	**Queues and Linked Lists** Queues and their uses Types of queues: Simple queues, Circular queues, Double ended queues. Introduction to linked lists Types of linked lists: Singly linked lists, Doubly linked lists, Circular linked lists. Applications of linked lists	25%

Basic Text & Reference Books :-	
1.	Kernighan B., Ritchie D. : The C Programming Language, Prentice Hall, 1988
2.	Cooper H. & Mullish H : The Sprit of C, Jaico Publication House, New Delhi.
3.	Balaguruswami : Programming in ANSI C., Tata McGraw Hill Publication.

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Paper Code:CCCS-206	Total Credit : 4
Title of Paper: Advanced C Programming and Introduction to Data Structures	**Total Marks :** 60 **Time :** 2:15 Hrs

Unit	Description		Total Marks
I,II,III,IV	Q.1(A) Multiple Choice Questions (MCQ)	07	15
	Q.1 (B) Short Questions (Definitions, Blanks, Full Forms, True/False, Match the Following)	08	
I,II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III,IV	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
I,II,III,IV	Q.4 Programs based on C (Any Two)	15	15

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Paper Code: CCCS-207	Total Credit : 4
Title of Paper: Web Application Development – II	**Total Marks :** 60
	Time : 2:15 Hrs

Unit	Description	Weighting
I	**Introduction to DHTML & Cascading Style Sheets** What is DHTML? Applications of DHTML Components of DHTML Scripting : introduction, client-side v/s server-side Introduction to Cascading Style Sheets (CSS) Ways of specifying style – inline, internal, external	25%
II	**Advanced CSS & Basics of JavaScript** Font, color, background, text, border, margin and list related attributes. Use of classes, spans, divs. Working with layers Introduction to JavaScript. Applications and advantages of JavaScript. Using JavaScript on a webpage	25%
III	**Advanced JavaScript** JavaScript basics – syntax, data types and literals, type casting, variables, operators, arrays. Flow control statements. Built-in functions Working with strings, numbers, dates & times, etc. User interaction through dialog boxes. User-defined functions	25%
IV	**Document Object Model & HTML Forms** Introduction to DOM. Understanding objects in HTML DOM hierarchy. Manipulating objects. Working with HTML forms. Basic form elements. Event handling	25%

Basic Text & Reference Books :-

1. Ivan Bayross, "Web Enabled Commercial Applications Development using HTML, DHTML, Javascript, Perl CGI", BPB, 2004
2. Wilton P. : Beginning JavaScript, 2nd Edition, Wiley DreamTech, 2004
3. Danny Goodman, Machael Morrison , "JavaScript Bible", 3rd edition

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Paper Code: CCCS-207	**Total Credit :** 4
Title of Paper: Web Application Development – II	**Total Marks :** 60
	Time : 2:15 Hrs

Unit	Description		Total Marks
I,II,III,IV	Q.1(A) Multiple Choice Questions (MCQ)	07	15
	Q.1 (B) Short Questions (Definitions, Blanks, Full Forms, True/False, Match the Following)	08	
I,II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III,IV	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
I,II,III,IV	Q.4 Web designing practical of DHTML (Any Two) *(Practical based on CSS, Java Script)*	15	15

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Paper Code: CCCS-208	**Total Credit :** 4
Title of Paper: Database Management System - I	**Total Marks :** 60
	Time : 2:15 Hrs

Unit	Description	Weighting
I	**Database Management System** Introduction Definition of DBMS File processing system Vs DBMS - Limitation of file processing system - Comparison of File processing system and DBMS Advantages and Disadvantages of DBMS Users of DBMS - Database Designers, Application programmer - Sophisticated Users, End Users Capabilities of good DBMS Overall System structure	25%
II	**Data Models** Introduction Object Based Logical Model Record Base Logical Model - Relational Model, Network Model, Hierarchical Model Entity Relationship Model - Entity Set, Attribute, Relationship Set Entity Relationship Diagram (ERD) Extended features of ERD	25%
III	**Relational Databases** Introduction Terms - Relation, Tuple, Attribute, Cardinality, Degree, Domain Keys - Super Key, Candidate Key, Primary Key, Foreign Key Relational Algebra Operations - Select, Project, Union, Difference, Intersection, Cartesian, Product, Natural Join	25%
IV	**Relational Database Design** Introduction, Anomalies of un normalized database Normalization, Normal Forms: 1 NF, 2 NF, 3 NF, 4 NF, BCNF, DKNF, Overview of MS-ACCESS and its Forms and Reporting features	25%

Basic Text & Reference Books :-
1. Database System Concepts By Henry Korth and A. Silberschatz
2. An Introduction to Database System by Bipin Desai

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Paper Code: CCCS-209	**Total Credit :** 4
Title of Paper: Practical based on CCCS-206 and CECS-203	**Total Marks :** 60 **Time :** 2:15 Hrs

Paper Code: CCCS-209	**Total Credit :** 4
Title of Paper: Practical Based on **CCCS-206 and CECS-203**	**Total Marks :** 60 **Time :** 3 Hrs

1. Understanding of Structure and Union
2. Understanding of pointer with structure
3. Understanding of nested structure
4. Understanding of various file handling operation
5. Understanding of Push and Pop Operation of Stack
6. Understanding of Insert, Update and Delete operation of Queue
7. Understanding of Insert and delete operation of linked list
8. Understanding IDLE: Installing, Running Programs, Saving and Loading Files
9. Understanding Python Operators.
10. Understanding Branching.
11. Understanding Looping.
12. Understanding Functions and Parameters.
13. Understanding Tuples, Lists, Dictionaries.
14. Understanding Mutability of various objects.
15. Understanding Recursion.

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Paper Code: CCCS-208	**Total Credit :** 4
Title of Paper: Database Management System - I	**Total Marks :** 60
	Time : 2:15 Hrs

Unit	Description		Total Marks
I	Q.1(A) Multiple Choice Questions (MCQ)	07	15
	Q.1 (B) Short Questions (Definitions, Blanks, Full Forms, True/False, Match the Following)	08	
II	Q.2(A) Medium Questions (Any One) *(Question of E-R Diagram)*	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07	15
	Q.4(B) Medium Questions / Long Questions (Any One) *(Question of Normalization Example)*	08	

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Paper Code: CCCS-210	Total Credit : 4
Title of Paper: Practical based on CCCS-207 and CECS-208	**Total Marks :** 60 **Time :** 2:15 Hrs

Paper Code: CCCS-210	Total Credit : 4
Title of Paper: Practical Based on **CCCS-207 and CECS-208**	**Total Marks :** 60 **Time :** 3 Hrs

1. Understanding of CSS and its various features
2. Understanding of Basic Java Script
3. Understanding of looping and branching
4. Understanding of Functions of Java Script
5. To create ER diagrams using MS Access and at least one other such tool e.g. MS Visio.
6. To create a database from given ER diagram.
7. To understand Primary Key constraint.
   (Given an ERD, the students shall identify suitable primary keys for each table.)
8. To create forms and reports in MS Access: student should be able to create a tiny self sufficient application in MS Access.
9. To normalize given database (or spreadsheet) up to given normal form.
10. To understand the differences between various normal forms.

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Paper Code: FCCS-203		Total Credit : 4
Title of Paper: Mathematical Foundation of Computer Science-I		Total Marks : 60 Time : 2:15 Hrs
Unit	**Description**	**Weighting**
I	**Set Theory and Functions** Introduction of Set, Types of Sets Operations on Sets, Venn Diagram Laws related to set theory Numerical based on operations on sets and Venn diagram Application and Importance of Set Theory in Computing Science Introduction to Functions Domain and Range Types of Functions Numerical based on functions	**25%**
II	**Matrices** Introduction of Matrix Types of Matrices Operations on Matrices Cramer's Rule Adjoin, Minor and Inverse of a Matrix Solving equation using matrices Determinant of Matrix Application and Importance of Matrices in Computing Science	**25%**
III	**Graph Theory** Introduction of Graph Multi-graph, Degree of vertex Paths , connectivity, sub-graph Connected components, cut points, bridges Special Graphs: complete, regular and bipartite graphs Matrices and Graphs Application and Importance of Graph Theory in Computing Science	**25%**
IV	**Elementary Data Analysis** Discrete and continuous frequency distribution, Cumulative Frequency, Distribution, Graphical Representation, Measures of central tendency: Mean, Median, Mode.	**25%**
Basic Text & Reference Books :-		
1.	S.Lipschutz and Marc Lars Lipson : Discrete Mathematics, Schaum's series (Interational edition,1992).	
2.	Vinay Kumar: Discrete Mathematics (BPB Publication, First edition-2002)	
3.	S. C. Gupta, Fundamentals of Statistics, Himalaya Publishing House, 2004.	

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Paper Code: FCCS-203	**Total Credit :** 4 **Total Marks :** 60 **Time :** 2:15 Hrs
Title of Paper: Mathematical Foundation of Computer Science-I	

Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	15
	Q.1 (B) Medium / Long Questions. (With Internal Option)	09	
II	Q.2 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	15
	Q.2 (B) Medium / Long Questions. (With Internal Option)	09	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	15
	Q.3 (B) Medium / Long Questions based on Table Designing. (With Internal Option)	09	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	15
	Q.4 (B) Medium / Long Questions. (With Internal Option)	09	

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Paper Code: CECS-203		Total Credit : 2
Title of Paper: Introduction to Python Programming		Total Marks : 60 Time : 2:15 Hrs
Unit	**Description**	**Weighting**
I	**Strings:** Creating, initializing and accessing the elements; string operators: +, *, in, not in, range slice [n:m]; comparing strings using relational operators; String functions & methods: len, capitalize, find, isalnum, isalpha, isdigit, lower, islower, isupper, upper, lstrip, rstrip, isspace, istitile, partition, replace, join, split, count, decode, encode, swapcase, String constants, Regular Expressions and Pattern Matching	**25%**
II	**Lists:** Concept of mutable lists, creating, initializing and accessing the elements, traversing, appending, updating and deleting elements, composition, lists as arguments **List operations:** joining, slicing, + , * , in , not in **List functions and methods:** len( ), insert( ), append( ), extend( ), sort( ), remove( ), reverse( ), pop( ), list( ), count( ), extend( ), index( ), cmp( ), max( ), min( )	**25%**
III	**Dictionaries:** Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, traversing, appending updating and deleting elements **Dictionary Functions and methods:** cmp( ), len( ), clear( ), get( ), has_key( ), items( ), key( ), update( ), values( ), pop( ), fromkeys( ), dict( )	**25%**
IV	**Tuples:** Immutable concept, creating, initialising and accessing elements in a tuple, Tuple assignment, Tuple slices, Tuple indexing, **Tuple Functions:** cmp(), len(), max(), min(), tuple(), index(), count(), sum(), any(), all(), sorted(), reversed()	**25%**
Basic Text & Reference Books :-		
1.	Guttag, John. Introduction to Computation and Programming Using Python, MIT Press, 2013. ISBN: 9780262519632	

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Paper Code:CECS-203	**Total Credit :** 2
Title of Paper: Introduction to Python Programming	**Total Marks :** 60 **Time :** 2:15 Hrs

Unit	Description		Total Marks
I,II,III,IV	Q.1(A) Multiple Choice Questions (MCQ)	07	15
	Q.1 (B) Short Questions (Definitions, Blanks, Full Forms, True/False, Match the Following)	08	
I,II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III,IV	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
I,II,III,IV	Q.4 Programs based on Python (Any Two)	15	15

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Paper Code: CECS-204		Total Credit : 2
Title of Paper: Management Information System		Total Marks : 60 Time : 2:15 Hrs
Unit	**Description**	**Weighting**
I	**Information Systems – Introduction and Types** Introduction to information Systems – introduction and types Office automation systems Transaction processing systems Management information systems Decision support systems Executive information systems Expert systems	**25%**
II	**Management Information Systems** Management Information Systems (MIS) – Importance and Evolution Logical foundations of MIS, Typical MIS Information and managerial effectiveness Business information systems Business functions and information needs of business Pitfalls in MIS System	**25%**
III	**Information Systems Environment** Systems theory Classic view of organization Transitional views Modern organization theory Major organizational considerations Managerial roles Decision making models Role of information systems in decision The impact of computers on organizations and individuals	**25%**
IV	**Information Systems and Managerial Process** Managerial decision making Decision making environment Planning and Security for IT infrastructure Portfolio approach and identifying its proposals Evaluating IT investments and information systems	**25%**
Basic Text & Reference Books :-		
1.	Muneesh kumar: Business Information Systems - Vikas Publishing	
2.	E Turban: Management Information Systems and Decision Support Systems – Tata McGraw Hill	
3.	Sadagopan: Management Information Systems - Narosa Publications.	

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Paper Code:CECS-204	**Total Credit :** 2
Title of Paper: Management Information System	**Total Marks :** 60 **Time :** 2:15 Hrs

Unit	Description		Total Marks
I	Q.1(A) Medium Questions (Any Two)	07	15
	Q.1 (B) Q.2(B) Medium Questions / Long Questions (Any Three)	08	
II	Q.2(A) Medium Questions (Any Two)	06	15
	Q.2(B) Medium Questions / Long Questions (Any Three)	09	
III	Q.3(A) Medium Questions / Long Questions (Any Two)	06	15
	Q.3(B) Medium Questions / Long Questions (Any Two)	08	
IV	Q.4(A) Medium Questions / Long Questions (Any Two)	07	15
	Q.4(B) Medium Questions / Long Questions (Any Two)	08	