Syllabus and Course Scheme

Academic year 2014-15

Bachelor of Computer Science (BCA)

UNIVERSITY OF KOTA

MBS Marg, Swami Vivekanand Nagar,
Kota - 324 005, Rajasthan, India

Website: uok.ac.in

UNIVERSITY OF KOTA, KOTA
BACHELOR OF COMPUTER APPLICATION (BCA) Exam.- 2015

1. Scheme of Instruction:
Each year shall be of ten months (150 working days) duration. Details of lecture hours per week shall be as follows: **Theory:** Three hours/week for each Paper
Practical: Students are required to work in the Laboratory for 4 hours per week for each practical under faculty guidance.

2. Examination Scheme:
1. University shall conduct examinations only after completion of 150 working days of instruction in a year.
2. Each theory paper shall be of 100 marks (75 marks for written examination of 3 hrs duration and 25 marks for internal assessment).
3. Each practical paper shall be of 100 marks.
4. The internal marks will be awarded by committee consisting of Head of the Department & the faculty concerned.
5. The student have to pass internal and external exam separately theory as well as practical papers.

Theory:
1. **Assignments:** 40% of the internal assessment marks for each theory paper will be awarded on the basis of performance in the assignments regularly given to the students, and its records.
2. **Internal Examination:** 40% of the total Internal Assessment marks for each theory paper will be awarded on the basis of performance in written examination conducted by the faculty, one at the end of fourth month and another at the end of eighth month.
3. **Seminar/Oral examination:** 10% of the total internal assessment marks for each paper will be awarded on the basis of performance either in a seminar or internal viva-voce.
4. **Overall performance:** 10% of the total internal assessment marks will be awarded for each paper on the basis of performance and conduct in the classroom.

Practical :
1. **Project**: 80% of the total Internal Assessment Marks for each practical paper during I & II year will be awarded on the basis of project, its presentation and project report submitted by the students. This activity can be held in the team of maximum two students. There should be a project co-ordinator (faculty member of computer science department).
2. **Internal examination:** 10 % of the total Internal Assessment marks for each practical paper during I & II year will be awarded on the basis of performance in practical examination conducted by the faculty, once during the session. In III year it will be 80%.
3. **Overall performance:** 10 % of the total internal assessment marks will be awarded during I & II year for each practical paper on the basis of performance and conduct of the student in the practical lab. In III year it will be 20%.

Note: Detailed breakup of Internal Marks awarded as per above guidelines must be submitted to the university in a tabular format for each paper. Department/College must preserve answer books of internal examination for a period one year from the date of examination and must be presented to the university as and when required.

(a) **I division with distinction:** 75% or more marks in the aggregate provided the candidate has passed all the papers and examinations in the first attempt.
(b) **I division :** 60% or more marks but fails to satisfy the criteria for being classified as first division with distinction laid in (a).
(c) **II division :** All other than those included in (a) and (b) above i.e. < 60% and ≥ 45%.
(d) Passing criteria is as per university ordinance. A candidate must pass the examinations within five years of the initial admission to the first year of the course.

BACHELOR OF COMPUTER APPLICATION (BCA)
I Year Exam. – 2015

Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks		TOTAL
				University Exam.	Internal Assessment	
Paper-I (BCA-101)	Introduction to Information Technology	3	3	75	25	100
Paper-II (BCA-102)	Basic Mathematics	3	3	75	25	100
Paper-III (BCA-103)	Problem Solving through C Programming	3	3	75	25	100
Paper-IV (BCA-104)	Business Communication	3	3	75	25	100
Paper-V (BCA-105)	PC Software Packages	3	3	75	25	100
	Practical					
*Practical-I (BCA-106)	PC Software Lab	4(2+2)	3	75	25	100
*Practical-II(BCA-107)	Programming Lab	4(2+2)	3	75	25	100
	Total			**525**	**175**	**700**

*for each practical paper students have to submit the project.

BACHELOR OF COMPUTER APPLICATION (BCA)
II Year Exam.- 2015

1. Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks		TOTAL
				University Exam.	Internal Assessment	
Paper-I (BCA-201)	Digital Electronics & Computer Architecture	3	3	75	25	100
Paper-II (BCA-202)	Database Management System	3	3	75	25	100
Paper-III (BCA-203)	Fundamentals of Operating Systems	3	3	75	25	100
Paper-IV (BCA-204)	Data Structure	3	3	75	25	100
Paper-V (BCA-205)	Business Organization and Management	3	3	75	25	100
	Practical					
*Practical-I (BCA-206)	Database Management Lab	4(2+2)	3	75	25	100
*Practical-II(BCA-207)	Data Structure Lab	4(2+2)	3	75	25	100
	Total			**525**	**175**	**700**

*For each practical paper students have to submit the project.

BACHELOR OF COMPUTER APPLICATION (BCA)
III Year 2015

Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks		TOTAL
				University Exam.	Internal Assessment	
Paper-I (BCA-301)	Software Engineering	3	3	75	25	100
Paper-II (BCA-302)	Visual Programming	3	3	75	25	100
Paper-III (BCA-303)	Internet & E- Commerce	3	3	75	25	100
Paper-IV (BCA-304)	Web Technology	3	3	75	25	100
Practical-I (BCA-305)	Visual Programming Lab	3	3	75	25	100
Practical-II (BCA-306)	Web Technology Lab	3	3	75	25	100
Practical-III(BCA-307)	Project	3	3	75	25	100
	Total			**525**	**175**	**700**

*For each practical paper students have to submit the project.

B.C.A. (Second Year) Exam. – 2015

BCA 201: Digital Electronics

Time : 3 Hrs.   Max. Marks: 75

Unit –I

Overview of electronics: Electronic components-Resistor, capacitor and Inductors, Semiconductor devices: Diodes, transistors (BJT and FET). Integrated circuits, Popular IC packages, Analog vs digital electronics, Transistor as a switch.

Boolean algebra: Representation of values and complements, D' Morgans theorem-simplifying expressions.

Unit –II

Logic gates: Truth tables of AND, OR, NOT, XOR, XNOR, NAND, NOR gates, Combining logic circuits for expressions using NAND and NOR gates, Logic circuit families and characteristics, SSI, MSI, LSI and VLSI circuits.

Combination and sequential circuits: (Simple block diagrams , truth tables and IC packages only required). Adders, decoders, multiplexers, encoder circuits , Flip-flops: RS, clocked RS, JK, D and T flip flops, Master slave flip flops, edge and level triggering, Multivibrators - Astable, Bistable, Monostable, counters-ripple and decade. Registers, latches and Tristate buffers.

Unit –III

Building blocks of a computer system: Basic building blocks-I/O, memory, ALU, Control and their interconnections, Control unit and its functions- Instruction-word, Instruction execution cycle, organizational sequence of operation of control registers; controlling of arithmetic operations; branch, skip, jump and shift instructions, ALU-its components.

Unit –IV

Addressing techniques and registers: Addressing techniques-Direct, immediate addressing; paging, relative, Indirect and indexed addressing. Memory buffer register; accumulators; Registers-Indexed, General purpose, Special purpose; overflow, carry, shift, scratch registers; stack pointers; floating point; status information and buffer registers

Memory: Main, RAM, static and Dynamic, ROM, EPROM, EAROM, EEPROM, Cache and Virtual memory.

Interconnecting System components: Buses, Interfacing buses, Bus formats-address, data and control, Interfacing keyboard, display, auxiliary storage devices, and printers. I/O cards in personal computers.

Text / Reference Books

1. A.S.Tannenbaum : Structured Computer Organization
2. Thomas C. Bartee : Digital Computer Fundamentals
3. Duglus V Hall : Microprocessors and Interfacing: programming and Hardware
4. Introduction to Computer Architecture, Stone S.Galgotia Publicatons 1996.
6. Microprocessor Architecture Programming & Applications, R. Gaonkar, Wiley Eastern-1987.
7. Computer Architecture and Organization by N.P. Carter, 4th Edition, McGraw-Hill, 2014.

BCA 202: Database Management System

Time : 3 Hrs.   **Max. Marks: 75**

Unit –I

Introduction : Purpose of the data base system, data abstraction, data model, data independence, data definition language, data manipulation language, data base administrator, data base users, overall structure.

Unit –II

ER Model : entities, mapping constrains, keys, E-R diagram, reducing E-R diagrams to tables, generation, aggregation, design of an E-R database scheme.

Unit –III

Relational Model : The catalog, base tables and views. Relational Data Objects **-** Domains and Relations: Domains, relations, kinds of relations, relations and predicates, relational databases.
Relational Data Integrity - Candidate keys and related matters: Candidate keys. Primary and alternate keys. Foreign keys, foreign key rules, nulls. Candidate keys and nulls, foreign key and nulls.

Unit –IV

The SQL Language: Data definition, retrieval and update operations. Table expressions, conditional expressions, embedded SQL.
Views: Introduction, what are views for, data definition, data manipulation, SQL support.

Unit –V

File and system structure : overall system structure, file organisation, logical and physical file organization, sequential and random, hierarchical, inverted, multi list, indexing and hashing, B-tree index files.

Text / Reference Books

1. Date C.J., Database Systems, Addision Wesley.
2. Korth, Database Systems Concepts, McGraw Hill.
3. Database Management System, Ramakrishna, Gehkre, McGraw – Hill
6. Database management systems, Leon alexis, leon Mathews, "Vikash publication
7. Database system, Rob, coronel, 7th edition, Congage Learning.

BCA 203: Fundamentals of Operating Systems

Time : 3 Hrs.   Max. Marks: 75

Unit I

Introduction: Definition of an operating system, Mainframe, desktop, single user & multi user OS distributed, real-time and handheld OS.

Unit II

Operating System Structures: System components, operating system services, system calls, systems programs, system structure, virtual machines.

Unit – III

Process Management: criteria, scheduling algorithms, algorithm evaluation.
Process Synchronization: The critical section problem, semaphores, classical problems of synchronization.

Unit IV

Memory Management: Swapping, contiguous memory allocation, paging, segmentation, segmentation with paging.

Unit V

Virtual Memory: Demand paging, page replacement, allocation of frames, thrashing.

Text / Reference Books

1. Silberschatz G.G., Operating System Concepts, John Wiley & Sons Inc.
2. Modern Operating Systems, Andrew S. Tanenbum, Pearson Edition, 2nd edition, 2004.
3. Operating Systems, Gary Nutt, Pearson Education, 3rd Edition, 2004.
4. Operating Systems, Harvey M. Dietal, Pearson Education, 3rd edition, 2004.
5. Fundamentals of Operating Systems, A.M. (1979).

BCA 204: Data Structure

Time: 3 Hrs   Max.Marks: 75

Unit I

Introduction: structure and problem solving, algorithmic notation, Data Structure, Algorithms and sub algorithms, introduction to algorithm analysis for time and space

Unit II

Primitive and non primitive data structure concept, representation and manipulation of strings, concept and terminology for non primitive data structure, concept of arrays, stacks, queues. Basic operations on arrays, stacks & queues.

Unit III

Linear data structures and their linked storage representation: pointers and linked allocation, linked linear list, singly linked list, application of linked linear lists.

Unit IV

Non Linear data structure: Trees, types of trees, Graphs and their representations, applications of graph.

Unit V

Sorting and searching: concept of sorting and searching , selection sort, bubble sort, merge sort, binary search

Text / Reference Books

1. An Introduction to Data Structures with Applications, Tremblay & Sorensons, Tata Mcgraw hills publications.
2. Data structure and algorithms, Aho., Alfred V., Pearson Education.
3. Fundamentals of Data structure in C, Horowitz, Ellis, Galgotia publication.
4. Introduction to Data Structure and algorithms with C++ , Rowe, Glenn W., Prentice , Hall
5. Data structures using C and C++ , Langsun , Augenstein , Tenenbaum Aaron M, Prentice Hall

BCA 205: Business Organization and Management

Time : 3 Hrs.   Max. Marks: 75

Unit –I

Business –Meaning and Contents, Business as a system , Legal and Economic Environment, Forms of Business Organization (meaning, merits & demerits).
Management- Management Principles, Henry fayol's principles of management, Taylor's Scientific Management, Management Process, Basic Functions (in short),Meaning, Nature and Process, Role of Manager

Unit –II

Organizational Behaviour- Need of Understanding human behaviour in organizations, Challenges and opportunities for OB, Contributing disciplines to the field of OB, Conceptual Models of OB

Unit –III

Managing Personnel- HRM- Meaning and Functions, Man Power Planning, Job Analysis and Design, Training, Career Planning & Development, Motivation, Compensation Management **Managing Finance-**Concept of fixed and Working Capital, Main Sources of Finance ,Accounting, Meaning, Users, Budgeting- Meaning ,Type of Budgets

Unit –IV

Managing Production- Basic Concepts ,Objectives, Elements of Productions, Planning, and Control.

Unit –V

Managing Sales and Marketing- Basic Concepts of marketing, Sales Promotions (including Salesmanship)

Text / Reference Books

1. B.P. Singh & T.N. Chabbra, Business Organisation and Management Functions, Dhanpat Rai & Co. 2000.
2. Philip Kotler, Marketing Management –(9th Ed.) Prentice Hall of India.
3. Dr. S.N. Maheshwari, Financial Management – Principles and Practice (6th revised Ed.) S. Chand & Sons.
4. Stephen P. Robbins, Organisational Behaviour (8th Ed.) Prentice Hall of India.

BCA 206: Practical I: Database Management Lab.

Experiments based on the paper BCA 202 and project development for Internal Assessment.

BCA 207: Practical II: Web Technology Lab.

Experiments based on the paper BCA 204 and project development for Internal Assessment.