Syllabus and Course Scheme

Academic year 2014-15

B.Sc. – Computer Science

UNIVERSITY OF KOTA

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

Website: uok.ac.in

UNIVERSITY OF KOTA, KOTA

B.SC.COMPUTER SCIENCE 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 $\geq 45\%$.
(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.

B.Sc (Computer Science)

Pt-I Examination- 2015

Courses of Study and Examination :

Paper	Paper Name	Lecture	Duration of exam. (hours)	Max. Marks		Total
				University Exam.	Internal Assessment	
Paper-I (BCS-101)	Introduction to Information Technology	3	3	75	25	100
Paper-II (BCS-102)	Basic Mathematics	3	3	75	25	100
Paper-III (BCS-103)	Problem Solving through C Programming	3	3	75	25	100
Paper-IV (BCS-104)	Database Management System	3	3	75	25	100
Paper-V (BCS-105)	Digital Electronics	3	3	75	25	100
	Practical					
Practical-I (BCS-106)	DBMS Lab	4(2+2)	3	75	25	100
Practical-II (BCS-107)	Programming Lab in C	4(2+2)	3	75	25	100
	TOTAL			**525**	**175**	**700**

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

Pt-II Examination- 2015

1. **Courses of Study and Examination**

Paper	Paper Name	Lecture	Duration of exam. (hours)	Max. Marks		Total
				University Exam.	Internal Assessment	
Paper-I (BCS-201)	Computer Oriented Statistical Method	3	3	75	25	100
Paper-II (BCS-202)	Computer Organization	3	3	75	25	100
Paper-III (BCS-203)	Fundamentals of Operating Systems	3	3	75	25	100
Paper-IV (BCS-204)	Web Technology	3	3	75	25	100
Paper-V (BCS-205)	Data Structure	3	3	75	25	100
Practical-I (BCS-206)	Data Structure Lab	4(2+2)	3	75	25	100
Practical-II (BCS-207)	Web Technology Lab	4(2+2)	3	75	25	100
	TOTAL			525	175	700

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

Pt-III Examination- 2015

1. Courses of Study and Examination

Paper	Paper Name	Lecture	Duration of exam. (hours)	Max. Marks		Total
				University Exam.	Internal Assessment	
Paper-I (BCS-301)	Systems Software	3	3	75	25	100
Paper-II (BCS-302)	Visual Programming	3	3	75	25	100
Paper-III (BCS-303)	Unix Programming	3	3	75	25	100
Paper-IV (BCS-304)	Data Communication and Networking	3	3	75	25	100
Paper-V (BCS-305)	Software Engineering	3	3	75	25	100
Practical-I (BCS-306)	Visual Programming Lab	4(2+2)	3	75	25	100
Practical-II (BCS-307)	Unix Lab	4(2+2)	3	75	25	100
	TOTAL			525	175	700

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

B.Sc. Computer Science Pt-II Examination- 2015

BCS -201- Computer Oriented Statistical Method

Time: 3 Hrs Max.Marks: 75

Unit I

Introduction to Statistics: meaning, scope of statistics, collection and classification of data.

Unit II

Application based on and processing logic of measures of central tendency, dispersion, skewness and kurtosis.

Unit III

Bivariate Data: Correlation - Meaning types of correlation, Karl Pearson's Correlation and rank correlation, properties of correlation coefficients.

Unit IV

Linear Regression: Processing logic and numerical based of fitting of regression lines (using least square method).

Unit V

Various properties related to regression coefficients.

Text / Reference Books

1. Gupta S.C. Kapoor, V.K., "Elements of Mathematical Statistics", S. Chand & Sons.
2. S.C. Gupta, "Fundamentals of Mathematical statistics", PIII, 1991
3. Bala Guruswamy, "Computers oriented Statistical Methods", S.Chand, 1990
4. S.P. Gupta, "Fundamentals of Statistics", S.Chand 1993.
5. M.R. Speigel, "Statistics", Schaum Series, McGraw-Hill, 1981.

BCS- 202 Computer Organization

Time: 3 Hrs Max.Marks: 75

UNIT- I

Basic Computer Organization: Instruction codes, direct and indirect address, timing and control signal generation, instruction execution cycle, memory reference instructions, input output instructions.

Register Transfer and Micro Operations: Bus and memory transfers, three state bus buffers, binary adder, binary incrementer, arithmetic circuit, and logic and shift micro operations, ALU.

UNIT- II

Central Processing Unit: General register organization, memory stack, one address, two address instructions, data transfer, arithmetic, logical and shift instructions, software and hardware interrupts (only brief introduction), arithmetic and instruction pipelines.

UNIT- III

Computer Arithmetic: Addition and subtraction with signed magnitude data, multiplication algorithms, hardware algorithm and booth algorithm, division algorithm.

UNIT - IV

Input Output Organization: Asynchronous data transfer- handshaking, asynchronous serial transfer, interrupt initiated I/O, DMA transfer, interfacing, peripherals with CPU (introduction), keyboard, mouse, printer, scanner, network card.

UNIT- V

Memory Organization: ROM, RAM, hard disk, CD-ROM, Cache memory- direct mapping scheme, virtual memory concept.

Suggested Book

1. Mano M., Computer System Architecture, Pearson Education.

BCS 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.
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.

BCS 204: Web Technology

Time: 3 Hrs Max.Marks: 75

Unit – I

Introduction to Basics of Internet

Concepts of Internet : Domain, IP Addressing, Resolving Domain Names, Overview of TCP/IP and its Services, WWW.

Unit – II

Designing Pages with HTML

Introduction to HTML, Essential Tags, Deprecated Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Lists and their Types, Attributes of Image Tag,

Unit – III

Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, concept of navigation, Different Section of a Page and Graphics, Footnote and e-Mailing, Creating Table, Frame, Form and Style Sheet.

Unit – IV

DHTML

Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.

Unit – V

Web Designing Tools

Front Page Basics , Web Terminologies, Phases of Planning and Building Web Sites, The FTP, HTTP and WPP, Features, Front Page Views, Adding Pictures, Backgrounds, Links, Relating Front Page to DHTML.

Text / Reference Books

1. HTML Black Book – Steven Holzner – Dreamtech Press
2. HTML, Java Script, DHTML, PERL, CGI – Evan Bayross – BPB

BCS 205: 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