DEPARTMENT OF COMPUTER SCIENCE
FACULTY OF NATURAL SCIENCES
JAMIA MILLIA ISLAMIA

B.A.Curriculum
(Computer Science Core Papers Under CBCS)

Revised Curriculum
For Academic Session 2016-17 onwards

w.e.f. 2016

Approved and Recommended by BoS dated 16.05.2016

PROGRAMME STRUCTURE

Year : Semester	Course	Course Title	L-T-P	Credit	Max. Marks
II: Sem-III	BCA3.1	Computer Fundamentals	3-0-2	4	100
II: Sem IV	BCA4.1	Multimedia Applications	3-0-2	4	100
III: Sem-V	BCA5.1	Introduction to DBMS	3-0-2	4	100
III: Sem-VI	BCA6.1	Website Design and Management	3-0-2	4	100
			Total	16	400

Note: L-T-P stands for Lecture-Tutorial-Practical respectively and prescribes minimum contact periods /week for respective courses.

DETAILED SYLLABI

BCA 3.1: COMPUTER FUNDAMENTALS

OBJECTIVES :
- ➢ *To inculcate the basic understanding of computer organization and internal operations.*
- ➢ *To apprise of the information management scenario, scope and computer utility.*
- ➢ *To equip with necessary MS-Office skills for office management practices.*

UNIT I: Introduction to Computer; Generations of computers; System unit - CPU, Primary and Secondary storage devices; Bus structure; I/O devices, Keyboard, Pointing Devices, Display Devices, and Printers; Number systems - Decimal, Binary, Octal, and Hexadecimal number systems, Conversion of bases, Complement notations, Binary Arithmetic, Binary Codes, Alphanumeric, and ASCII.

UNIT II: Programming Languages - Machine Language, Assembly Language, High Level Language, Object Oriented Language; Problem Solving approaches - Algorithm, Flow charts, Decision tables & Pseudo codes.

UNIT III: System Software, Assemblers, Translators, Interpreters, Compilers, Operating Systems and their functions, Operating systems for desktop PCs, servers, handheld PCs; Application software, utility programs and their tasks. Introduction to MS-Word, MS-Excel, and MS-Powerpoint and their features.

- ↓ *Lab Skills: MS Office (MS-Word, MS-Excel, and MS-Powerpoint)*

*Text Resources
- Charles S. Parker (2013) , Understanding Computers: Today and Tomorrow, Comprehensive, Cengage Publication, India
- Rajaraman (2008), Fundamentals of Computers, Prentice Hall of India

BCA 4.1: MULTIMEDIA APPLICATIONS

OBJECTIVES
- ➢ *To inculcate the basic understanding of digital multimedia infrastructure and building blocks.*
- ➢ *To apprise of the various effective and usage-worthy multimedia representation techniques.*
- ➢ *To equip with necessary Macromedia Flash skills for developing multimedia applications.*

UNIT I: Introduction to Multimedia, Font and faces, Text in Multimedia, Multimedia and Hypermedia, Multimedia Software Tools, Multimedia Authoring and related tools, Overview of Virtual Reality Modeling Language (VRML).

UNIT II: Graphics/Image Data Representations; Graphics/Image Data Types: Bit Images, Bit Gray-Level Images, Image Data Types, Bit Color Images, Color Lookup Tables (LUTs); File Formats: GIF, JPEG, PNG, etc., Color Science - Light and Spectra, Human Vision, Image Formation, etc.

UNIT III: Video, Video Signals and their types, Analog Video, Digital Video, Digital Audio, Digitization of Sound, Musical Instrument Digital Interface (MIDI), Animation.

- ↓ **Lab Skills:** Macromedia Flash

Text Resources
- Vaughon (2011), Multimedia – Making it Work, Tata McGraw Hill
- Ze-Nian Li and Mark S. Drew (2011), Fundamentals of Multimedia, Indian edition, PHI

BCA 5.1: INTRODUCTION TO DBMS

OBJECTIVES
- ➢ To introduce the basic database concepts, types, dimensions and applications.
- ➢ To apprise of the RDBMS techniques, scope, design and applications.
- ➢ To equip with necessary MS-ACCESS skills for designing databases and utilities.

UNIT I: Data, Database, and Database Management System (DBMS); DBMS vs. Traditional File System; Three-Schema Architecture of DBMS and Data Independence; Classification of DBMS – Hierarchical, Network and Relational Database Systems; Database Languages and Interfaces; Database Users, Actors and Workers.

UNIT II: Database Models; Categories of Database Models; Entity Relationship (ER) Model: Basic Concepts and their representations – Entity, Entity Type and Entity Set; Attributes and their types, Keys, Relationships and their Types; Structural Constraints; Weak Entity; Naming Conventions & Design Issues in ER Model; ER Diagrams.

UNIT III: Relational Database Model, Structure of Relational Model; Domains, Attributes, Tuples, and Relations; Characteristics of Relations; Relational Constraints – Domain Constraints, Key Constraints, Entity Integrity, and Referential Integrity Constraints; Relational Database Schema and Views.

- ⊥ **Lab Skills:** MS-Access

Text Resources

- Elmasri & Navathe (2009), Fundamentals of Database Systems, Pearson Education

- Joyce Cox and Joan Lambert (2011), Microsoft Access 2010, Step by Step, Microsoft Press, PHI.

- Ivan Bayross (2006), SQL, Pl/SQL – The Programming Language of Oracle, 3rd Ed., BPB Pub.

BCA 6.1: WEBSITE DESIGN & MANAGEMENT

OBJECTIVES
- ➢ To introduce the website components, architecture, design issues/patterns & Management.
- ➢ To introduce website design tools.
- ➢ To equip with necessary skills for developing and managing small websites.

UNIT I: Web Basics and Overview; Networking; Introduction to Internet, Growth of Internet, Universal Resource Locator (URL), World Wide Web (WWW); Internet Applications/Services: e-mail, Telnet, FTP etc.; Domain Name System; Types of Web Content; Web Hosting; Domain Registration, Name Servers, Host Information; Web Development Process, Web Pages; HTTP and HTTPS.

UNIT II: Introduction to HTML/XHTML, History of HTML; Elements, Entities and Attributes of HTML/XHTML; Headings, Paragraphs, Whitespace, Line Wrapping and Inline Elements; Presentation Styles - Colors, Text Fonts; Lists and their Styles; Tables, Hyperlinks, Images and Maps.

UNIT III: Introduction to Forms; Form Processing - Text Input, radio buttons, check boxes, Submit Buttons, File Uploading, Other input Elements; Tabbing Order; Form Layout; CGI Overview.

- ⊥ **Lab Skills:** Development of Website using HTML/ XHTML.

Text Resources
- Paul S. Wang and Sanda Katila (2011), An introduction to web design and programming, Cengage Learning
- Steven Holzner (2009), HTML Black Book, DreamTech Press
- Web Resource: http://www.w3schools.com