PROGRAMME GUIDE

FOR

BACHELOR OF COMPUTER APPLICATION (BCA)
(OPEN AND DISTANCE MODE)

Directorate of Open and Distance Learning
JAMIA HAMDARD
(Deemed University)
HamdardNagar,NewDelhi-110062

Jamia Hamdard

Hakeem Abdul Hameed, the founder of Jamia Hamdard, had a vision to develop Jamia Hamdard into an institution of excellence imparting modern professional education with special emphasis on Unani medicine and Islamic studies. Today, it has evolved into an excellent centre of higher learning, fulfilling the objective of the *wakf*, which has been funding the University ever since its inception.

As a mark of tribute and thanks to the Almighty Allah for bestowing his guiding spirit to its founder and his associates, Jamia Hamdard adopted a seal inscribed with the following

"He (the Prophet, peace be upon him)
Instructs them in the Book and Wisdom"

Ever since the inception of Jamia Hamdard, this holy verse (*ayat*) has been a source of inspiration and guidance for all those associated with its management and administration. As an Islamic charity, *wakf* has played the vital financial role in the making of Jamia Hamdard. He (PBUH) preached his followers that

"Wisdom is (like) the lost animal of a believer
Wherever he finds it, catches hold of it"

Inspired by the Holy Qur'an and exhorted by the Prophet (PBUH), Muslims became the torch-bearers of knowledge and civilization in the medieval period, but are lagging behind in present times. Late Hakeem Abdul Hameed Sahib wisely chose education and pursuit of knowledge as his prime objective when he decided to convert *Hamdard Dawakhana* into a *wakf*, a charity dedicated to fulfilling educational and health care needs of Indian Muslims. Hamdard (*wakf*) continues to provide generous grant to the University for building, equipments and salaries of staff and other development activities.

Jamia Hamdard was inaugurated by late Shri Rajiv Gandhi, the then Prime Minister of India, on August 01, 1989. In his impressive speech, the Prime Minister applauded the efforts of Hakeem Abdul Hameed Sahib in setting up institutions of higher learning, which were emerging in the form of a "Deemed to be University." He said, "This will enable (the Muslim) minority to go forward and thus help India to march forward."

The University offers professional courses, which equip the students to get placements in the highly competitive job market. On the basis of the record of performance of the University and quality of infrastructure including staff, the University has been accredited by NAAC in category 'A' of Indian Universities, which is the testimony of healthy practices of the University.

Department of Computer Science

During the last few years the Department of Computer Science has established itself as a well-known entity in the field of IT Education, Research and Consultancy. The training facilities at the department are comparable with the best in the country and provide an ideal environment for running MCA, M.Sc. (Comp. Sc.), BCA, B.Sc. (IT) and Ph.D. programs offered by the department. The right kind of ambience coupled with excellent faculty, lab and other support systems has attracted students from best colleges in Delhi and other states of the country and also a big number from the foreign countries. Many national and multinational IT industries visit the department every year for campus placements.

The department is establishing CISCO Networking Local Academy for the benefit of our students who can be trained on CISCO equipments for the award of CISCO Certificates like CCNA, CCNP etc.

Bachelor of Computer Application through Open and Distance Mode (Course Code 401)

Apart from the full time regular courses, the department has decided to offer these BCA programme through open and distance mode for those students who are not able to afford the expenses of education or who have not been able to make it to the courses offered by the universities and colleges in traditional mode. However, our endeavor is to provide best quality education, keeping with the traditions of Jamia Hamdard, through the selected study centres spread over the various parts of the country and abroad.

Objective

To prepare highly skilled professionals with a strong conceptual and theoretical background in the field of Computer Science and Applications

The Course

Highlights of the course are described in the following table:

a.	Name of the Course	Bachelor of Computer Applications (B.C.A.)
b.	Nature	Open and Distance Mode
c.	Duration	Minimum: Three Years (6 Semesters of six months each) Maximum: Six Years
d.	Medium of Instruction and Examinations	English
e.	**Eligibility Criteria**	
	Educational Requirements	S.S.C., Intermediate or Equivalent (recognized by Jamia Hamdard) under 10+2 system of education, with **mathematics** compulsorily as one of the subjects

f.	Commencement of the course	July/ August of every year
g.	**Special Feature**	After completing the course the student has the scope to either pursue MCA, M.Sc. (Computer Science/ IT) programmes or take up a job in the IT industry.
h.	Mode of Admission	As per the norms prescribed by Jamia Hamdard from time to time.
i.	Period of Completion (Span Period)	Not more than 06 years
J.	Fees	Rs. 12,000/- per year (US $ 1500 for students attached to study centres abroad)

The Curriculum

Highlights of the curriculum of BCA are described in the following table:

a.	Total number of Semesters and examinations	(06 Minimum) While the teaching/ counselling of the courses will be done on the Semester pattern, the examinations will be held only once a year for all the papers taken in the last two semesters along with any backlogs or improvement papers.
	Major Project	In the 6th Semester of the Program
b.	Total Theory Papers Total Lab Papers Major Project	20 Nos. (2000 marks) 05 Nos. (500 marks) 01 No. (500 marks), in 6th Semester
c.	Theory Papers / Semester	04 Nos. (400 marks), except in the 6th Semester
	Lab Papers / Semester	01 No. (100 marks) except in the 6th Semester
d.	Counselling Hours for theory papers	30 Hours per theory paper of 4 credits each
e.	Practical Sessions	10 sessions of 3 hours each for a laboratory course of 4 credits each.

Modes of curriculum transaction include teaching/ counselling at the Study Centres, assignments, tests, presentations, participation in relevant events and regularity.

Course Structure

Course structure that guides the teaching, practical and associated assessment, of BCA programme is described semester-wise in the following tables:

Semesterwise Distribution of courses in BCA

First Year

BCA 1st Semester

S.No.	Course Code	Name of the Paper	Credits	Total
1.	BCAD 101	Computer Fundamentals	4	100
2.	BCAD 102	PC Software	4	100
3.	BCAD 103	Computer Mathematics	4	100
4.	BCAD 104	Principles of Management	4	100
5.	BCAD 105	Lab-I (PC Software)	4	100

BCA 2nd Semester

1.	BCAD 201	Programming Fundamentals	4	100
2.	BCAD 202	Operating Systems	4	100
3.	BCAD 203	Programming in 'C'	4	100
4.	BCAD 204	Business Systems	4	100
5.	BCAD 205	Lab-II (Programming in 'C')	4	100

Second Year

BCA 3rd Semester

S.No.	Course Code	Name of the Paper	Credits	Total
1.	BCAD 301	Computer system architecture	4	100
2.	BCAD 302	Object oriented programming in c++	4	100
3.	BCAD 303	System analysis and design	4	100
4.	BCAD 304	database application in MS access	4	100
5.	BCAD 305	Lab-I: c++ application development	4	100

BCA 4th Semester

6.	BCAD 401	Numerical and Statistical analysis	4	100
7.	BCAD 402	Data Structures in C	4	100
8.	BCAD 403	Computer Networks	4	100
9.	BCAD 404	Web technologies	4	100
10.	BCAD 405	Lab-II: Implementing data structures in C	4	100

Third Year

BCA 5th Semester				
S.No.	**Course Code**	**Name of the Paper**	**Credits**	**Total**
1.	**BCAD 501**	**Software Engineering**	**4**	**100**
2.	**BCAD 502**	**Java Programming**	**4**	**100**
3.	**BCAD 503**	**Operating system administration with windows 2000**	**4**	**100**
4.	**BCAD 504**	**Advanced web development**	**4**	**100**
5.	**BCAD 505**	**Lab-1: Website development**	**4**	**100**
BCA 6th Semester				
6.	**BCAD 601**	**Project Work**	**20**	**500**

Duration of the Programme
(Minimum-3 Years, Maximum-6 Years)

To fulfill the degree requirements for acquiring the BCA, a student may clear all the papers in three years. If a student fails to clear all the requirement of papers in three years he/ she may be permitted to stretch it over a period of another 3 years. Students will have to clear all the papers in a maximum period of six years after admission

Counseling and Annual Examinations

For the purpose of teaching and counselling, each academic year shall consist of **two Academic Semesters**, the first referred to as ODD Semester (July -December) and the second as EVEN semester (January-June). Examinations of papers of both the semesters will be held at the end of every EVEN semester.

Format for conducting examinations of Theory and Lab papers, after the conclusion of two semesters (Odd and Even), are presented in the following table:

a.	Mode	(Theory Papers) (Lab Papers)	**Written only** Programming and viva-voce
b.	Duration	(Theory Paper) (Lab Paper)	03 Hours 03 Hours
c.	Examiners	(Theory Paper) (Lab Papers)	Paper setters and evaluators to be decided by the University for each paper from time to time. The University will appoint External examiners for each lab paper for every Study Centre.

It will be the responsibility of Students to fill up an examination form that will be made available at all the Study Centers and submit the same along with the prescribed examination fee to the coordinators of study centers within the given time so as to obtain admit card for appearing in the examination. The decision about the examination center will be prerogative of the University.

Provision for unsuccessful candidates

Candidates who fail in one or more subjects will have to reappear for the supplementary examination, which will be conducted along with the term end examination of the subsequent batch. A student will have to clear all the papers in maximum period of six years after admission. After the expiry of this period the learners will have to seek fresh admission.

Award of division to successful candidates

The students will be declared successful on securing 45% of the maximum marks obtained in all the subjects, as per the following criteria

Distinction	75% and above
1st Division	60% and above
2nd Division	Above 45% and below 60%
Fail	Less than 45%

Detailed Syllabus of Bachelor of Computer Application

Semester 1

BCAD 101

COMPUTER FUNDAMENTALS

Units	Topics
1.	Introduction to Computers
2.	Functional Units of Computers
3.	Number System and Data Representation
4.	Operating Systems
5.	Elements of Information Technology
6.	System Development Lifecycle

BCAD 102

PC SOFTWARE

Units	Topics
1.	Introduction to Computers
2.	Computer Architecture and Organization
3.	Software and Disk Management
4.	An Overview of MS-DOS
5.	File Management in DOS
6.	Disk Management in DOS
7.	Batch Files and Configuring DOS
8.	An Introduction to Windows 98
9.	Windows Accessories
10.	Miscellaneous Windows Features
11.	Web Features and Browsers
12.	Word 97-Basics
13.	Editing Documents
14.	Proofing Documents
15.	Document Enhancement
16.	Mail Merge
17.	Working with Wizards and Templates
18.	Working with Tables and Charts
19.	Creating Basic HTML Documents
20.	Excel 97-Basics
21.	Editing and Formatting Worksheets

22.	Working with Formulae and Cell Referencing
23.	Working with Names and Functions
24.	Working with Charts
25.	Database Management
26.	What-If Analysis
27.	Creating and Using Macros
28.	Web Publishing and Data Sharing
29.	An Overview of Computer Viruses

BCAD 103

COMPUTER MATHEMATICS

Units	Topics
1.	Set Theory, Relations & Functions
2.	Graph theory
3.	Introduction to recurrence relations
4.	Introduction to prepositional calculus
5.	Boolean algebra and its application

BCAD 104

PRINCIPLES OF MANAGEMENT

Units	Topics
1.	Conceptual Framework of Management
2.	Evolution and Foundations of Management Theories

3.	Management Planning Process
4.	Organization Meaning Importance, Principle and Types
5.	Types of an Organization
6.	Understanding Organization Structure and design
7.	Types of Authority
8.	Delegation of Authority
9.	Communication
10.	Motivation
11.	Staffing
12.	Co-ordination
13.	Decision-making
14.	Directing
15.	Management Control
16.	Management by Objective
17.	Group Dynamics
18.	Leadership
19.	Dimensions of Managerial Excellence

Semester 2

BCAD 201
PROGRAMMING FUNDAMENTALS

Units	**Topics**
1.	Introduction to Computer Based Problem Solving
2.	Algorithm development
3.	Programming languages
4.	Programming tools
5.	Development of efficient programmes

BCAD 202

OPERATING SYSTEMS

Units	Topics
1.	Operating Systems Overview
2.	Operating system Functions
3.	Memory Management
4.	Input/output and file system functions
5.	Windows
6.	UNIX

BCAD 203

PROGRAMMING IN C

Units	Topics
1.	Programming in C
2.	Features of C
3.	Branching and Looping
4.	Arrays and strings
5.	Functions
6.	Pointers
7.	Structures
8.	Unions
9.	Linked List
10.	File management
11.	C Preprocessor

BCAD 204

BUSINESS SYSTEMS

Units	Topics
1.	Data processing
2.	Programming methodologies and principles
3.	Input and output devices
4.	Physical storage devices
5.	Files
6.	Data processing using FoxPro
7.	Introduction to database design

Semester 3

BCAD 301

COMPUTER SYSTEM ARCHITECTURE

Units	Topics
1.	Overview
2.	Logic gates
3.	Digital circuit designing
4.	Sequential circuits
5.	Registers and micro-operations
6.	CPU Architecture
7.	Memory Architecture
8.	Input output architecture

BCAD 302

OBJECT ORIENTED PROGRAMMING IN C++

Units	Topics
1.	Object Oriented Programming
2.	Classes and Objects
3.	Elements of C++ Programming
4.	C++ Functions
5.	Constructors and destructors
6.	Inheritance: Extending Classes
7.	Operators overloading
8.	Pointers and Virtual

BCAD 303

SYSTEM ANALYSIS AND DESIGN

Units	Topics
1.	System concepts
2.	System Developme nt Life Cycle
3.	System Analysis
4.	System design
5.	System Implementation
6.	Software project management
Appendix:	Case study: analysis design of an inventory control system

BCAD 304

DATABASE APPLICATION IN MS ACCESS

Units	Topics
1.	Database System
2.	Data models
3.	Relational data manipulation
4.	Relational database design
5.	Structured Query Language
6.	Implementing database application with MS-Access

Semester 4

BCAD 401

Numerical And Statistical Analysis

Units	Topics
1.	Introduction
2.	Numerical solutions of equation
3.	Solution of simultaneous linear equation
4.	Interpolation
5.	Numerical Differentiation And Integration
6.	Statistical techniques
7.	Data representation
8.	Measures of central tendency
9.	Measures of dispersion
9.	Moments, skewness and Kurtosis
10.	Correlation and regression
11.	Curve fitting

BCAD 402

DATA STRUCTURES IN C

Units	Topics
1.	Basic concepts
2.	Arrays
3.	Linked lists
4.	Stacks
5.	Queues
6.	Trees
7.	Graphs
8.	Searching and sorting techniques

BCAD 403

COMPUTER NETWORKS

Units	Topics
1.	Basic communication systems
2.	Modems
3.	Introduction to networks
4.	Transmission Media
5.	Computer Network

BCAD 404

WEB TECHNOLOGIES

Units	Topics
1.	Web technologies
2.	The Internet
3.	Internet programming using java

4.	Internet programming using perl
5.	Electronic commerce

Semester 5

BCAD 501

SOFTWARE ENGINEERING

Units	Topics
1.	Software process and Development Model
2.	Software project Management
3.	Software Project Planning
4.	Risk Analysis and Management
5.	Software Quality Insurance
6.	Requirements
7.	Software Design
8.	Software Testing

BCAD 502

JAVA PROGRAMMING

Units	Topics
1.	Fundamentals of Object Oriented Programming
2.	Evolution of Java
3.	Java Classes
4.	Interfaces and Packages
5.	Inheritance
6.	Managing Errors and Exceptions
7.	Multithreading
8.	Java Applets
9.	Java Swings
10.	Event Handling

11.	Java I/O Handling
12.	Socket Programming
13.	Java Database Connectivity
14.	Java Servlets

BCAD 503
OPERATING SYSTEM ADMINISTRATION WITH WINDOWS 2000

Units	Topics
1.	Introduction to HTML
2.	Installing and Upgrading to Windows 2000 Professional
3.	Exploring the Desktop
4.	Managing Files and Folders
5.	Customization of the Desktop
6.	Setting up Object properties in Windows 2000 Professional
7.	Printers and Printing
8.	Windows 2000 with ADS
9.	Creating and Managing User Account

BCAD 504
ADVANCED WEB DEVELOPMENT

Units	Topics
1.	Getting started with Active Server Pages
2.	Dissecting your First ASP Script
3.	Working with Variables
4.	Understa nding VB Script control Structures
5.	Using VB Script built-in Functions
6.	Working with Objects

7.	Using Response Objects
8.	Communicating with User
9.	Collecting the Form Information
10.	Working with Request Object
11.	Maintaining persistent Information on the Web
9.	Debugging ASP Scripts and Handling Errors

BCAD 505
LAB 1 – WEBSITE DEVELOPMENT

Semester 6

BCAD 601
PROJECT WORK

Students' Support Services

In order to provide individualized support to its students the University has identified a number of Study Centres throughout the country. These Study Centres will be administratively coordinated by Jamia Hamdard. As far as possible the University allot the Study Centre opted by the candidate. However, the University may change the Study Centre at its convenience without concurrence of the student at any time.

The Study Centres are the contact points for the students on all major aspects of the programme. These include counselling sessions, practicals, library facilities, disseminating information and advise and facilities for audiovisual training aids. The Study Centres are also equipped with some reference books on the subjects of this programme. These will be accessible to the students during their visits to the Study Centre.

The University may not always be able to communicate to all the students individually. All the important communications will be sent to the Study Centres. The coordinators of the respective Study Centres would display a copy of such important circulars/ notifications on the notice board for the benefit of all the students. Therefore, it is important for all the students to keep in regular touch with the Study Centres so as to get advance information about assignments, submission schedule, examination forms, list of students admitted to particular examination, declaration of results, etc.

Supply of Study Material

One book per course will be supplied to the students as study material. However, the fast pace of computer industry necessitates that students must read some other reference materials. Studying the supplied printed material alone may not be sufficient for the knowledge of the subject. Therefore, it is strongly recommended that the students take the

help of other reference materials/ websites for the preparation of their assignments and other examinations.

Counselling Sessions

In distance education, face-to-face contact between the learners and their teachers/ counsellors is relatively less and, therefore, is an important activity. The purpose of such a contact is to answer some of the questions and clarify the doubts, which may not be possible through any other means of communication. It also intends to provide an opportunity to meet the fellow students. There are academic counsellors at the Study Centres to provide counselling and guidance to the students in the courses that they have chosen for study. Normally, these sessions will be held at the Study Centres during weekends **(Saturdays and Sundays)** or as decided with the mutual convenience of the students and the Study Centre.

It may be noted that the counselling sessions would be very different from the classroom teaching or lectures. Counsellors will not be delivering lectures as in conventional teaching. They will try to help the students to overcome difficulties, which they face while studying for the programme. In these sessions, they must try to resolve their subject-based difficulties and any other related problems.

Before the students go to attend the counselling sessions, they are expected to go through the course materials supplied to them and make a plan of the points to be discussed. Unless they have gone through the Units, they may not find much to be discussed with course counsellors.

Practicals

These practical sessions will be held in Computer Centres, which may or may not be co-located with the Study Centres. In these Computer Centres, the participants will have the facility to see the computer and software packages relevant to the syllabus.

A participant will not be eligible to appear in the Term-End practical examination if the percentage of attendance in practical session falls below 75% He/She can however appear for the theory papers.

The facilities for counselling and practicals are, however, not automatically extended after his/ her first semester of study in BCA. Facility for practical sessions in subsequent semesters is at the discretion of this University and is subject to payment of fees by the students.

Jamia Hamdard

(Deemed University)

The Ministry of Human Resource Development, Government of India, granted to Jamia Hamdard, the status of a 'Deemed to be a University', in 1989 under section 3 of University Grant Commission Act, 1956. Since its establishment, Jamia Hamdard has made commendable progress with regard to expansion of facilities for higher learning and diversification of teaching and research programmes in frontier areas of biological Sciences, Unani Tibb, Pharmaceutical Sciences, IT and Management. The University has a strong base of infrastructure for quality teaching and research. On the basis of the overall assessment of its performance in realizing the university mandate and contributions made by various departments and faculties to the growth of knowledge, National Assessment and Accreditation Council of UGC has accredited the University under category 'A' the Indian Universities. Jamia Hamdard is one of the universities selected by the UGC for promoting education abroad. The university attracts over 10 percent of the total students from over 30 countries. The international corporations and Foreign Governments employ a large number of the University graduates in various capacities, which is the testimony of international recognition of degrees/diplomas awarded by the University.

As a Muslim minority institution under Article 30 (1) of the Constitution of India, the University is committed *inter alia* to improve access and quality of education so as to enable the adult learners to effectively function in the knowledge based economy. In this context, a number of initiatives have been taken to provide high quality of professional education at Undergraduate and Post Graduate levels.

In order to provide opportunities to students for participating in ongoing educational revolution to upgrade the knowledge and skills of working population, entrepreneur and other aspirants of new knowledge, the university has taken initiative to utilize information and communication technologies to extend the reach of education and to enhance quality of education through the use of multi-media methods of teaching and learning. The Directorate of Open and Distance Learning has therefore been established to promote education through open and distance learning systems, which adopt flexible and innovative methods of education to ensure 'independent learning' to anyone, anytime and anywhere. The programmes of the study will be customized to meet the learning requirements of knowledge seekers as well as to ensure that they learn at their own pace and convenience. Towards this end in view, the university has recognized reputed institutes to act as Study Centres for conduct of various job-oriented and professional courses, which effectively meet the requirements of the world of work.