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**UNIVERSITY OF MUMBAI**

**CIRCULAR:-**

No.UG/ 412 of 2005

MUMBAI-400 032

3<sup>rd</sup> October, 2005

Professor-cum-Director,  
Institute of Distance Education,  
Dr. Shankar Dayal Sharma Bhavan  
University of Mumbai,  
Vidyanagari, Santacruz (East),  
MUMBAI-400 098.

Sir,

I am to invite your attention to this office Circular No.UG/378 of 2005, dated 15<sup>th</sup> September, 2005, relating to the B.Sc. (Computer Science), B. Sc. (Information Technology), M.Sc. (Information Technology), M.Sc. (Computer Science) and Master of Computer Application (M.C.A.) which have been introduced under Distance Learning Programme for starting through your Institute from the academic year 2005-2006. The syllabi of these courses are forwarded herewith for your information and record.

Yours faithfully,

*[Signature]*  
for REGISTRAR

A.C.4.26/02.04.05

No.UG/ 412-A of 2005, MUMBAI-400 032

3<sup>rd</sup> October, 2005

Copy forwarded with compliments to the Dean, Faculty of Science for Information.

*[Signature]*  
for REGISTRAR

Copy to :-

The Director, Board of College and University Development, the Deputy Registrar (Eligibility and Migration Section), the Director of Students Welfare, the Personal Assistants to the Vice-Chancellor, the Pro-Vice-Chancellor, the Registrar and the Assistant Registrar, Administrative sub-center, Ratnagiri for information.

The Officer on Special Duty-cum-Controller of Examinations (10 copies), the Finance and Accounts Officer (2 copies), Record Section (5 copies), Publications Section (5 copies), the Deputy Registrar, Enrolment, Eligibility and Migration Section (3 copies), the Deputy Registrar, Statistical Unit (2 copies), the Deputy Registrar (Accounts Section), Vidyanagari (2 copies), the Deputy Registrar, Affiliation Section (2 copies), the Director, Institute of Distance Education, (10 copies) the Director, University Computer Center (IDE Building), Vidyanagari, (2 copies) the Deputy Registrar (Special Cell), the Deputy Registrar, (TPO), the Assistant Registrar, Academic Authorities Unit (2 copies) and the Assistant Registrar, Executive Authorities Unit (2 copies).

# UNIVERSITY OF MUMBAI



## Distance Learning Programs of the following Courses

1. B.Sc. (Computer Science),
2. B.Sc. (Information Technology),
3. M.Sc. (Computer Science),
4. M.Sc. (Information Technology),
5. Master of Computer Applications (MCA)

(with effect from the academic year 2005-2006)



# PROPOSAL FOR DISTANCE EDUCATION UG & PG PROGRAMS IN COMPUTER SCIENCE & IT

## **Preamble**

A proposal for distance learning educational programs to be offered by the University of Mumbai is being presented here. These have been engineered from the ground up, to provide the students with a new and better educational experience. Learning by doing instead of by lectures. Collaboration instead of competition. one-on-one mentoring.

These programs consist of a set of carefully designed courses. The most critical skills and knowledge from each course are embedded into a series of realistic projects based on the real-world issues and challenges graduates will face on the job. Students work in teams with fellow students doing analyses, solving problems, and creating real project deliverables. A rich set of information resources is available to support learning in each project, including faculty lectures and course websites. Expert mentors provide guidance and feedback every step of the way.

## **Delivery Methods**

The program accommodates the needs of both full-time and part-time students as well as online learners by using a variety of delivery modes including in-person on-site sessions like the latest synchronous and asynchronous online learning technology, and a possible future video conferencing.

Students can participate in the educational programs even if they do not live near the University campus. Each program can be taken entirely online.

## **Study Centres:**

University will decide on the available study centres for personal contact programs. (Could be located all over the country. However the overall responsibility and monitoring will be with the University of Mumbai. The study material will be the sole property of the University of Mumbai.

## **PROPOSED PROGRAMMES**

| S. No. | Program                               | Duration       |
|--------|---------------------------------------|----------------|
| 1      | Master of Computer Applications (MCA) | Six Semesters  |
| 2      | M.Sc. (Information Technology)        | Four Semesters |
| 3      | M.Sc. (Computer Science)              | Four Semesters |
| 4      | B.Sc. (Computer Science)              | Three Years    |
| 5      | B.Sc. (Information Technology)        | Three Years    |

The program details, duration, eligibility, proposed syllabus details, personal contact programs, examinations, admission procedure and proposed fee structure are detailed below.

## **Program I: Master of Computer Applications (MCA)**

**Objectives** This program is designed to impart knowledge and training in the recent advancements and modern trends in the field of computer applications.

**Duration:** Six Semesters

The candidate shall complete the program within a period of seven years from the year of admission.

**Eligibility:** A pass in any degree or an equivalent examination

### **Personal Contact Programs (PCP)**

Personal Contact programs will be conducted for a total duration of 20 days in each semester arranged in different sessions except in VI Semester. All the Personal Contact programs are Compulsory. The candidate will be permitted to appear for the examination only if he / she has attended at-least 80% in the theory subjects and 90% in the practical classes during the Personal Contact programs. Attendance certificate will be issued to the student at the end of each program. If students take with them the recommended textbooks and the printed lessons received from the University, they will find the PCP immensely useful. Advance intimation of the dates of the contact programs will be given to the students.

If a Personal Contact Programs is not arranged in a particular zone for want of adequate cluster, the students will be called to the nearest zone. Students should make their own arrangements for their boarding and lodging at the centres where PCPs are held. A circular of details of date, venue and time for the Personal Contact Programs for the whole academic year will be sent to all the students.

### **First Semester**

- \* Mathematical Foundation of Computer Science
- \* Numerical Methods
- \* Accounting and Financial Management
- \* Business Data Processing- Microprocessor and Personal Comput.
- \* Programming Lab - I(Microsoft Administrative Tools)
- \* Programming Lab - II(SQL Programming)

### **SECOND SEMESTER**

- \* Principles of Computer Programming and Problem Solving
- \* Digital Logic and Computer Organization
- \* Data Structures and Algorithms
- \* Operating System
- \* C++ & Unix
- \* Programming Lab - III(C ++ & Unix)
- \* Programming Lab - IV(Data Structures)

### **THIRD SEMESTER**

- \* Software Engineering
- \* Computer Architecture and Microprocessors
- \* 'C#' Programming and Dot Net Frame Work
- \* System Software

#### **Elective - I**

- \* Programming Lab - V(C# Programming)

#### **Elective - II**

- \* Programming Lab - VI



#### **FOURTH SEMESTER**

- \* Computer Graphics and Image Processing
- \* Elective – III
- \* Web Development Tools
- \* Graphical User Interface Using Visual Basic 6.0
- \* E-Commerce
- \* Programming Lab – VII(Web Design Lab)
- \* Programming Lab – VIII(Visual Basic 6.0)

#### **FIFTH SEMESTER**

- \* Computer Networks
- \* Advanced Java
- \* Computer Animation
- \* Elective – IV
- \* Elective – V
- \* Programming Lab – IX (Java Programming)
- \* Programming Lab – X Multimedia Programming Using Macromedia Flash, Director Lab)

#### **SIXTH SEMESTER**

Project and Viva Voce

##### **List of Courses for Elective – I**

- \* Oracle 8i
- \* SQL Server 7.0

##### **List of Courses for Elective – II**

- \* Oracle 8i Lab
- \* SQL Server 7.0 Lab

##### **List of Courses for Elective – III**

- \* Oracle DBA
- \* SQL DBA

##### **List of Courses for Elective – IV**

- \* WAP
- \* Multimedia

##### **List of Courses for Elective – V**

- \* Modelling and Simulation
- \* Artificial Intelligence

**Scheme of Examination** A candidate for the MCA Degree Examination shall take the courses prescribed in the schedule. Each course shall be of three hours' duration.

The students have to do any computer oriented project work under a qualified guide in any computer related industry. The approval of the University of Mumbai for the project work and project guide has to be obtained before starting the project. The project report should be submitted on or before the last date prescribed by the University of Mumbai. The project work viva-voce will be conducted after submission of Project work.

## **Program II: M.Sc. (Information Technology) (Semester System)**

**Objectives** This program is designed to impart knowledge and training in the recent advancements and modern trends in the field of IT

**Duration:** Four Semesters

The candidate shall complete the program within a period five years from the year of admission.

**Eligibility:** A pass in any degree or an equivalent examination.

### **FIRST SEMESTER**

- Data Structure and Algorithms
- Relational Data Base Management Systems
- Computer Architecture and Microprocessors
- Object Oriented Programming
- Programming Lab – I (C++, Data Structures & MS-Office)
- Programming Lab – II (Oracle Si)

### **SECOND SEMESTER**

- Computer Networks
- System Software and Operating Systems
- Internet Programming
- Information Coding Technique
- Programming Lab – III ( Java)
- Programming Lab – IV (System Software & Operating Systems)

### **THIRD SEMESTER**

- Web Design
- Visual Basic and VB Script
- Elective - I
- Elective - II
- Programming Lab – V (Web Design)
- Programming Lab – VI (Visual Basic)

### **FOURTH SEMESTER**

- Network Security and Management
- Computer Graphics and Data Compression
- Elective – III
- Elective - IV
- Project and Viva voce

### **LIST OF ELECTIVES**

- Wireless Application Protocol
- E-Commerce
- EJB
- JSP
- C// Programming and Dot Net Frame Work
- Multimedia

### **Project work**

The Students are expected to do a project work, in an assigned topic under the supervision of an approved guide individually during the final semester.



### **Program III: M.Sc. (Computer Science) (Semester system)**

**Objectives:** This program is to impart knowledge and training in the recent advancements and modern trends in the field of Computer Science.

**Duration:** Four Semesters.

The candidate shall complete the program within a period five years from the year of admission.

**Eligibility:** A pass in any degree or an equivalent Examination. First Semester

#### **FIRST SEMESTER**

- Advanced Scientific Computing
- Object Oriented Analysis and Design
- Digital Electronics
- Unix, C & C++
- Elective – I (any one)
  1. Web Development Tools
  2. Multimedia
- Programming Lab – I
- Unix, C, C++
- Programming Lab – II
- HTML, DHTML, VB Script, Java Script & ASP

#### **SECOND SEMESTER**

- Distributed OS
- Java Programming
- RDBMS
- Computer Architecture and Microprocessors
- Elective – II (any one)
  1. Artificial Intelligence and Neural Networks
  2. Modelling & Simulation
- Programming Lab - III
- Java & Advanced Java
- Programming Lab – IV
- RDBMS & D2K

#### **THIRD SEMESTER**

- Software Engineering
- Computer Networks
- Windows Programming (VC++)
- System Programming
- Elective – III (any one)
  1. E-Commerce
  2. Network Security
  3. Software Project Management
- Programming Lab – V
- VC++
- Programming Lab – VI
- Mini Project (System Programming)

#### **Project work**

The Students are expected to do a project work, in an assigned topic under the supervision of an approved guide individually during the final semester.

## Program IV: B.Sc. (Computer Science)

**Objectives:** The aim of this program is to develop working knowledge about computers and impart skills to use the computers effectively in developing commercial and scientific applications.

**Duration:** Three years

The candidate shall complete the program within a period of seven years from the year of admission.

**Eligibility:** Applicants for admission to the B.Sc. Computer Science Program must have passed the higher secondary examination. Those who have passed the three / four year technical diploma examination are also eligible for admission to the B.Sc. (Computer Science) Program.

### FIRST YEAR

- Language (French/Japanese/German/Russian/Italian)
- English
- Basics of Information Technology
- Scientific Computing
- Data Structures and Algorithms
- Unix and C
- Programming Lab – I (MS-Office, Unix and C)
- Programming Lab – II (Data Structures)

### SECOND YEAR

- Computer Architecture and Microprocessors
- System Software and Operating Systems
- Object Oriented Programming Using C++
- Relational Database Management Systems
- Elective – I
- Elective – II
- Programming Lab – III (Oracle 8i and Web Development Tools)
- Programming Lab – IV (Java)

### THIRD YEAR

- Visual Programming
- Computer Graphics
- Computer Networks
- Elective - III
- Elective -IV
- Project and Viva Voce
- Programming Lab – V (Visual Basic)
- Programming Lab – VI (Networks and Graphics)

### LIST OF ELECTIVES

- Web Development Tools
- Internet and Java Programming
- Electronic Commerce
- Network Security and Management
- C# Programming and Dot Net Framework
- Software Engineering

**Project work** The Students are expected to do a project work, in an assigned topic under the supervision of an approved guide individually during the final year.



## Program V: B.Sc. (Information Technology)

**Objectives:** This program is designed in such a way so as to impart training in the recent advancements and modern trends in the field of IT.

**Duration:** Three Years

The candidate shall complete the program within a period of seven years from the year of admission.

**Eligibility:** : Applicants for admission to the B.Sc Information technology Program must have passed the higher secondary examination. Those who have passed the three year technical diploma examination are also eligible for admission to the B.Sc.(Information Technology) Program.

### FIRST YEAR

Language (French/Japanese/German/Russian/Italian)

English

Scientific Computing

Basics of Information Technology

Fundamentals of Digital Computers

OOPS using C++

Programming Lab I (MS-Office and C++)

### SECOND YEAR

Data Structures and Algorithms

Relational Database Management System

Internet and Java Programming

Computer Architecture and Microprocessors

System Software

Programming Lab - II (Oracle)

Programming Lab - III (Java)

### THIRD YEAR

Visual Programming

Online Systems and Web Designing

Computer Networks

Computers in Media Design and Layout

Programming Lab - IV (Visual Basic)

Programming Lab - V Web Designing (HTML, DHTML, XML, Java Script, VB Script)

Project work and Viva Voce

## PROCEDURE FOR ADMISSION

### **UG & PG distance learning programs (Except M.C.A)**

(a) **Spot Selection** If you are living near any of our study centres noted in this schedule, step in for Spot Admission. Selection for direct admission to all the programs will be made at the Study Centres (except M.C.A.) subject to change.

*For Spot Selection, the candidates must bring the following documents in person:*

(i) Filled in application along with attested xerox copies of Certificates for minimum required eligibility qualification and age.

(ii) Certificates in Original for minimum required eligibility qualification and Transfer / Migration Certificate.

(iii) One stamp size Photograph for Identity Card.

(iv) A Demand Draft drawn in favour of Finance and accounts officer, University of Mumbai, for the prescribed fees as per the payment matrix for the mode of payment.

Original Certificates will be returned immediately after verification. The transfer certificate / migration certificate after affixing the seal will also be returned.

Such admissions will be confirmed, if eligible, by the authorities and will be cancelled if found not eligible.

### **(b) Admission through Post**

Send filled in application by Registered post or by Courier (along with a self-addressed envelope) to the Distance Education centre, University of Mumbai, Kalina, Mumbai within the due date.

### **On receipt of the admission slip**

(i) Paste one stamp size photo in the Identity Card and fill in the particulars.

(ii) Obtain a demand draft for the fees mentioned in the admission card drawn in favour Finance and Accounts Officer, University of Mumbai.

(iii) Enclose the following with the Demand Draft and send by Registered Post or by Courier or deliver in person to the Distance Education centre, University of Mumbai.

a. Admission slip.

b. Identity Card .

c. Original certificates in support of the educational qualification (for which Xerox copies have been enclosed in the application form).

d. A self-addressed and unstamped envelope for returning the original certificates by Registered post after verification.

The admission confirmation slip, the signed Identity Card and the original certificates will be sent to the students by registered post.

Admitted students will be required to attend the personal contact programs of the Information Technology shortly after admission.



## PROCEDURE FOR ADMISSION

### **MCA (Master of Computer Applications) (Semester System)**

**Spot Selection for Entrance Test** If you are living near any of our Study Centres noted in this prospectus, step in for spot selection. Provisional selection for the Entrance Test will be made through all the Study Centres and the IDE at Mumbai University if the application is submitted in person with the following documents.

- i) Entrance Test Fee of Rs 500/-
- ii) Two copies of stamp size photograph.
- iii) Original and xerox copy of the Degree / Provisional Certificate / Consolidated Mark Statement.
- iv) Xerox Copy of Transfer or Migration Certificate..

The original certificates submitted at the time of Spot Admission will be returned immediately after verification.

They must get their Hall Ticket-cum-Identity Card signed by the Liaison / Special / Administrative Officer of the Study Centre concerned. Model Question Paper for Entrance Test will also be issued.

If your place is not near any of the Study Centres, send the filled-in application by Registered Post or Courier along with a Demand Draft for Rs. 500/- towards entrance test fee and other enclosures as stated, along with a self-addressed and unstamped envelope to the Institute of Distance Education centre, University of Mumbai, Mumbai within the due date.

Do not enclose original certificates with the filled-in application.

Applications will be scrutinized by the authorities and Hall Ticket-cum-Identity card for Entrance Test will be sent to the candidates if they are eligible for writing Entrance Test.

If the Hall Ticket-cum-Identity Card is lost after its receipt a duplicate card will be issued on payment of Rs. 100/-. The Entrance test will be conducted in all the Study Centers.

The Date of Entrance test will be intimated later.

Applicants should mention in the Application Form, the centre code of the centre wherein they would like to write the Entrance Test.

Candidates should bring the Hall Ticket-cum-Identity Card for writing the Entrance Test.

### PROPOSED FEES STRUCTURE

| PROGRAMS                                                | Fees         |                |                  |               |              |          |                 | Study Materials | Total |       |
|---------------------------------------------------------|--------------|----------------|------------------|---------------|--------------|----------|-----------------|-----------------|-------|-------|
|                                                         | Tuition Fees | Admission Fees | Development Fees | Computer Fees | Library Fees | Lab Fees | Caution Deposit |                 |       | Total |
| Master of Computer Applications<br>1 <sup>st</sup> Year | 5000         | 200            | 250              | 500           | 250          | 1000     | 500             | 8000            | 4500  | 12500 |

|                                                         |                 |     |     |     |     |      |     |      |      |       |
|---------------------------------------------------------|-----------------|-----|-----|-----|-----|------|-----|------|------|-------|
| Master of Computer Applications<br>2 <sup>nd</sup> Year | 5000            | -   | 250 | 500 | 250 | 1000 | -   | 7000 | 5500 | 12500 |
| Master of Computer Applications<br>3 <sup>rd</sup> Year | 5000            | -   | 250 | 500 | 250 | 1000 | -   | 7000 | 4500 | 12500 |
|                                                         |                 |     |     |     |     |      |     |      |      |       |
| M.Sc Information Technology<br>1 <sup>st</sup> Year     | 6000            | 200 | 250 | 500 | 250 | 1000 | 500 | 8700 | 5300 | 14000 |
| M.Sc Information Technology<br>2 <sup>nd</sup> Year     | 6000            | -   | 250 | 500 | 250 | 1000 | -   | 8000 | 6000 | 14000 |
|                                                         |                 |     |     |     |     |      |     |      |      |       |
| M.Sc. Computer Science<br>1 <sup>st</sup> Year          | 6000            | 200 | 250 | 500 | 250 | 1000 | 500 | 8700 | 5300 | 14000 |
| M.Sc. Computer Science<br>2 <sup>nd</sup> Year          | 6000            | -   | 250 | 500 | 250 | 1000 | -   | 8000 | 6000 | 14000 |
|                                                         |                 |     |     |     |     |      |     |      |      |       |
| Examination fees                                        | Rs. 350 / paper |     |     |     |     |      |     |      |      |       |

| PROGRAMS                                                | Fees            |                |                  |               |              |          |                 |       | Study Materials | Total |
|---------------------------------------------------------|-----------------|----------------|------------------|---------------|--------------|----------|-----------------|-------|-----------------|-------|
|                                                         | Tuition Fees    | Admission Fees | Development Fees | Computer Fees | Library Fees | Lab Fees | Caution Deposit | Total |                 |       |
| B. Sc. (Information Technology)<br>1 <sup>st</sup> Year | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
| B. Sc. (Information Technology)<br>2 <sup>nd</sup> Year | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
| B. Sc. (Information Technology)<br>3 <sup>rd</sup> Year | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
|                                                         |                 |                |                  |               |              |          |                 |       |                 |       |
| B.Sc. (Computer Science)<br>1 <sup>st</sup> Year        | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
| B.Sc. (Computer Science)<br>2 <sup>nd</sup> Year        | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
| B.Sc. (Computer Science)<br>3 <sup>rd</sup> Year        | 5000            | 200            | 250              | 500           | 250          | 1000     | 300             | 7500  | 2500            | 10000 |
|                                                         |                 |                |                  |               |              |          |                 |       |                 |       |
| Examination fees                                        | Rs. 300 / paper |                |                  |               |              |          |                 |       |                 |       |