

UNIVERSITY OF MUMBAI



Revised Syllabus

Sem. III & Sem. IV

Program: B.A.

Course : APPLIED COMPONENT

Computer Programming

(Credit Based Semester and Grading System with
effect from the academic year 2013–2014)

Syllabus for III and IV Semester
APPLIED COMPONENT
Computer Programming
Based on Credit Based and Grading System

Name of the Programme: S.Y.B.A.

Course Code: UACP301, & UACP401

Course Title: Computer Programming (Applied Component)

Semester wise Course Contents: Enclosed the copy of syllabus

References: Enclosed in the Syllabus

Credit Structure: No. of Credits per Semester - 03

No. of lectures per Unit for Theory: 15

No. of lectures for Practicals: 3

Work load: No. of lectures per week- 3

No. of practicals per week- 1 practical of 3 lecture periods

Scheme of Examination: 4 Questions of 15 marks

Special notes, if any: No

Eligibility, if any: No

Fee Structure: As per University Structure

Special Ordinances / Resolutions if any: No

SEMESTER III		
Course code UACP301	Title Computer Programming	Credits Three
Unit I	<p>Introduction to Computer Systems</p> <p>(a) Computer Fundamentals: Types of Computers: Super, mainframe, mini and micro computers. Types of micro computers: Desktop, laptop, tablet PC, PDA (Personal Digital Assistant). Terms: Hardware and Software. Physical parts of a C.S: Input Device, Output Device, System Unit: Hardware components like motherboard, I.C s, bus lines, clock, micro processor chip, memory chips, ports, power supply. Functional units of system unit: C.P.U., A.L.U., C.U. Primary Memory: Types Permanent, Temporary. RAM, ROM, CACHE, CMOS. Units of measurement of computer memory: BITS, BYTES, WORD, KB,MB, GB, TB.</p> <p>(b) Hardware Devices: CPU, Input-Output Devices, wireless: Keyboard, Mouse, Touch screen, touchpad, trackball, joystick, light pen. Scanner, card reader, barcode reader, MICR, OCR, Digital cameras, Audio input-microphones. Output Devices: Monitor (CRT) , Printers : Inkjet, Laser, Thermal, DMP, Plotter. Audio: Speakers, Headphones. Secondary/ Auxiliary Storage Devices: Floppy Disks, Hard Disks, External Hard Disks, CD, Pen drive.</p> <p>(c) Software: Types -- System software, Operating System, Functions, types, examples like Dos, Unix, Linux, Windows- Different versions with comparison. Application Software: Word processors, Spreadsheets, Presentation Software, Different Browsers. Assembly, and Higher Level Languages, Stored program Concept.</p>	15 L
Unit II	<p>Windows Operating Environment</p> <p>(a) MS – Windows: Features, Control Panel, Taskbar, Desktop, Windows Application, Icons, Creation of files and folders, moving files, copying files, finding files and folders, Recycle Bin, Windows Explorer. Windows Accessories: Notepad, Paintbrush.</p> <p>(b) Editors and Word Processors: Creating and saving a document. Inserting a table, clip art, hyperlink, equations and header-footer, formatting and Printing it. Mail merge. Various menus and submenus, Task bar. Status bar.</p> <p>(c) Power point: Creating a presentation, adding pictures, graphs, animations.</p>	15 L
Unit III	<p>Spread Sheet Package (Microsoft Excel)</p> <p>(a) Concept of Workbook, Worksheet, Cell</p> <p>(b) Types of data, Entering, Editing, Deleting data into cell. Fill command, Series command, Custom list, Cell command</p> <p>(c) Range: 2D Range 3D range</p> <p>(d) Selecting, Inserting, Deleting cells, Rows, Columns, Ranges, Cell formatting</p> <p>(e) Relative reference Absolute reference.</p> <p>(f) Formulas, Operators, Precedence of operators, Circular reference</p> <p>(g) Library Functions:-</p> <p>(i) Financial Functions:- FV (), PMT (), PV ()</p> <p>(ii) Statistical Functions:- ABS(), AVERAGE (), MEDIAN (), MODE (), STDEV (), VAR ()</p> <p>(iii) String Functions:- LEN (), RIGHT (), LEFT (), MID (), PROPER (), UPPER (), LOWER ()</p> <p>(iv) Logical Functions:- AND (), OR (), NOT (), IF ()</p> <p>(h) Hiding/ un hiding Rows, Columns, Sheet, Background of sheet.</p> <p>(i) Data Analysis, sorting, filter with customized condition, subtotal.</p> <p>(j) Chart Wizard: Bar, Pie, Line, Scatter plot.</p>	15 L

Suggested Topics for Practical

1. Creating a word document and inserting a table, clip art, hyperlink, header, footer, equations, saving and printing it.
2. Creating a document and merging it with several data labels.
3. Creating a simple power point presentation with animation.
4. Inserting graphs, pictures, media clip, table, videos etc in a power point presentation.
5. Creating an excel sheet using set of rules and demonstrate bar graph, pie chart etc.
6. Demonstrate financial and statistical functions in a spreadsheet.
7. Demonstrate string and logical functions in a spreadsheet.
8. Demonstrate data analysis , sorting, filter with customized condition, subtotal

References:

- (a) Computer Fundamental by Rajaraman, PHI, 4th Ed.
- (b) Computer Fundamentals by P.K. Sinha, BPB Publications,4th Ed.
- (c) Computer Fundamental by Ram B, new Age International Publication, 4th Ed.
- (d) Computer Concepts by June Jamrich Parsons, Thomson Learning, New Delhi.
- (e) Basic Electronics and Computer Applications by Rajiv Khanna, New Age International Publishers.
- (f) Fundamentals of Information Technology by Deepak Bharihoke, Excel Books 3rd edition.
- (g) Introduction to Computers by Peter Nortan, Tata McGrawHill.

SEMESTER IV		
Course code	Title	Credits
UACP401	Computer Programming	Three
Unit I	Computer Communication Systems	15 L
	<p>(a) Internet Concepts: Definition, Types of connection, Access, Providers. Services on net – www, IP Address, URL, Domain name, Email, Instant messaging, logs, Social networking. Search engines, Meta search engines. Security: Antivirus, spam guard, firewall.</p> <p>(b) Communication Networks: Definition, Types (LAN, MAN, WAN). Advantages. Network Structures: Server based, Client server, Peer to peer. Topologies—Star, Bus, Ring, Mesh. Network media—Wired, Wireless. Network Hardware – Hubs, Bridges, Switches, routers. Network Protocols – TCP/IP, OSI Model.</p> <p>(c) Communication and Information Systems: E-mail, online services, video-conferencing, digital telephone facilities, information retrieval and database systems ,e-commerce(online banking, credit card purchases),wireless technology, broadband versus dial-up modems.</p>	
Unit II	C Language Basics	15 L
	<p>(a) Elements of C: Character set, identifiers, keywords, constants, escape sequences</p> <p>(b) Data types: int, float, char (signed and unsigned)</p> <p>(c) Simple input-output operations- printf(), scanf(), getchar(), getch()</p> <p>(d) Operators: Assignment, compound assignment, arithmetic, relational, logical.</p> <p>(e) Program Structure, Header and body, use of <i>comments</i>, construction of simple programs</p> <p>(f) Loops and Controls: Control statements for decision making (simple if else), looping (for loop).</p>	

- (a) **Database and its Objects:** Introduction Access Database and its Objects including Table, Query, Form and Reports. Creating Database, Working with data including inserting, modifying and deleting records. Navigation Database including records, find and replace. Access data types, Object naming rules.
- (b) **Tables:** Creating tables through wizard and design view, datasheet view. Understanding field properties: field size, input mask, format, indexed, required, allow zero length, validation rule, validation text, caption, default value. Working with primary keys, foreign key, composite key and candidate key. Defining relationship and setting up the referential integrity (Cascade update and Cascade delete) Importing Exporting and Linking objects with another application.
- (c) **Queries:** Understanding and creating different queries including select, action (append, delete, update, make-table) using wizard (cross-tab query, find duplicate query). Parameter query. Understanding and implementing calculations and functions in queries.
- (d) **Forms:** Understanding forms and its properties. Creating forms through different ways including wizard and design view. Understanding and implementing necessary controls and their properties available in access. Creating multiple-table and linked forms (subform). Adding calculated controls into form. Validating data restricting data access. Creating switch board. Creating charts and pivot tables reports. Free-standing chart.
- (e) **Reports:** Understanding reports basics, Creating reports through wizard and design view. Sorting and grouping the reports. Adding calculated controls into report.

Suggested Topics for Practical

1. Demonstrating simple programs to illustrate the use of C operators and input-output functions.
2. Demonstrating simple programs to illustrate the use of if-else conditions and for() loops.
3. Demonstrate the following (i) use database wizard to create database structure, (ii) use table wizard to create tables, (iii) displaying the data, change the size of window, the ability to apply a Smart tag, use of Format, Input Mask and Validation rule properties.(iv) Manipulate table columns and rows.
4. Demonstrate the following (i) creating form using a wizard, (ii) refine form properties, refine form layout, (iii) add controls to a form using design wizard, using tool box button and properties to adjust the format and load graphic/ files. (iv) add sub forms to a form.
5. Demonstrate specific information: (i) to sort field in ascending or descending order, (ii) to filter information in a table, (iii) to create a select query in Design View,
6. Demonstrate specific information: (i) to create a query with a wizard, (ii) to perform calculations in a query.
7. Demonstrate to restrict data using (i) data type setting, (ii) field size properties, (iii) input masks, (iv) validation rules, (v) Lookup lists, (vi) update and delete information from a table.
8. Demonstrate the following: (i) creating a report using a Wizard, (ii) modifying report using a Wizard, (iii) creating a main report by hand in Design View that serves as a shell for one or more sub reports. (iv) adding sub reports to reports, (v) previewing and printing reports.

References:

- (1) Programming in ANSI C (Third Edition) : E Balagurusamy, TMH
- (2) Mastering Algorithms with C, Kyle Loudon, Shroff Publishers.
- (3) Algorithms in C (Third Edition): Robert Sedgewick , Pearson Education Asia. Let us C by Yashwant Kanetkar, BPB.
- (4) Programming in ANSI C by Ram Kumar, Rakesh Agrawal, TMH.
- (5) Microsoft Office Access 2007: Comprehensive Concepts and Techniques By Shelly, Cashman ISBN: Bundle #: 1428328904, Publisher: CENGAGE
- (6) Microsoft Office Access 2003: Step by Step, Microsoft Press, ISBN- 13: 978-0-7356-15175.
- (7) MS- Office 2000(For Windows) – By Steve Sagman

Internal Assessment of Theory Core Courses Per Semester Per Course (Total 40 marks)

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|---|-----------------|
| (a) One Assignment: | 10 Marks. |
| (b) Semester end Practical Test: |20 Marks. |
| (c) Active participation in class instructional deliveries |05 Marks. |
| (d) Overall conduct as a responsible student, mannerism etc : |05 Marks. |

Semester End Practical Test (Total 20 marks)

Semester III and IV: Total evaluation is of 20 marks-

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|---|------------|
| (a) Two programs on computer based on topics from semester III and IV | - 15 Marks |
| (b) Journal | - 5 Marks. |

1. There shall be TWO compulsory questions with internal options. Question 1 is of 8 marks and Question 2 is of 7 marks for each semester end practical examination on computer.
2. The questions to be asked in the practical examination shall be from the list of practical experiments mentioned in the practical topics. A few simple modifications may be expected during the examination.
3. The semester end practical examination on the machine will be of ONE hour.
4. Students should carry a certified journal with minimum of 06 practicals (mentioned in the practical topics) at the time of examination.
5. Number of students per batch for the regular practical should not exceed 20. Not more than two students are allowed to do practical experiment on one computer at a time.

Semester End Theory Examination (Total 60 marks)

Theory: At the end of the semester, examination of two hours duration and 60 marks based on three units shall be held for each course.

Pattern of **Theory question** paper at the end of the semester for **each course**:

There shall be Four compulsory Questions of 15 marks each with internal option.

Question 1 is based on all three Units , Question 2 is based on Unit I, Question 3 is based on Unit II, Question 4 is based on Unit III.

Workload

Theory : 3 lectures per week.

Practicals: 1 practical of 3 lecture periods per week per batch. Three lecture periods of the practicals shall be conducted in succession together on a single day.
