S-30th May, 2015 AC after Circulars from Circular No.1 & onwards   - 6 -

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.ACAD/SU/Sci./B.Sc. & M.Sc. Syll./5/2015

It is hereby notified for information to all the concerned that, on the recommendation of the Faculty of Science the Academic Council at its meeting held on 30-05-2015 has accepted the **revised semester-wise syllabi as mentioned against their names in the Faculty of Science as under** :-

Sr. No.	Name of the Subject	Semester
[1]	B.Sc. Computer Science Degree Course	III & IV
[2]	B.Sc. Information Technology Degree Course	III & IV
[3]	B.C.A. Science Degree Course	III & IV
[4]	B.Sc. Animation Degree Course	III & IV
[5]	B.Sc. Bioinformatics Degree Course	III & IV
[6]	B.Sc. Computer Science [Optional]	III & IV
[7]	B.Sc. Information Technology [Optional]	III & IV
[8]	B.Sc. Computer Applications [Optional]	III & IV
[9]	B.Sc. Computer Maintenance [Optional]	III & IV
[10]	B.Sc. Environmental Science [Optional]	V & VI
[11]	B.Sc. Bio-Chemistry [Optional]	V & VI
[12]	B.Sc. Forensic Science Degree Course	V & VI
[13]	B.Sc. Industrial Chemistry [Optional]	V & VI
[14]	B.Sc. Electronics [Optional]	V & VI
[15]	B.Sc. Zoology [Optional]	V & VI
[16]	B.Sc. Microbiology [Optional]	V & VI
[17]	B.Sc. Instrumentation Practice [Optional]	V & VI
[18]	B.Sc. Statistics [Optional]	V & VI
[19]	B.A. Statistics [Optional]	V & VI
[20]	B.A. / B.Sc. Mathematics [Optional]	V & VI
[21]	B.Sc. Home Science Degree Course	V & VI
[22]	B.Sc. Textile Interior Decoration Degree Course	V & VI
[23]	B.Sc. Fishery Science [Optional]	V & VI
[24]	B.Sc. Dairy Science & Technology [Optional]	V & VI
[25]	B.Sc. Botany [Optional]	V & VI
[26]	B.Sc. Physics [Optional]	V & VI
[27]	M.Sc. Computer Science	III & IV
[28]	M.Sc. I.T.	III & IV

This is effective from the Academic Year 2015-16 & onwards as appended herewith.

All concerned are requested to note the contents of the circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.ACAD/SU/SCI./
      2015/3761-4160
Date:- 16-06-2015.

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Director,
Board of College and
University Development.

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Copy forwarded with compliments to:-

1] The Principals, affiliated concerned colleges,
   Dr. Babasaheb Ambedkar Marathwada University

Copy to :-

1] The Controller of Examinations,
2] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
   Dr. Babasaheb Ambedkar Marathwada University,
3] The Superintendent, [B.Sc. Unit],
4] The Superintendent, [M.Sc. Unit],
5] The Programmer [Computer Unit-1] Examinations,
6] The Programmer [Computer Unit-2] Examinations,
7] The Record Keeper.

S*/-160615/-

NAAC Re-accredited with Grade 'A'

Dr.Babasaheb Ambedkar Marathwada University
Aurangabad-431004

SYLLABUS
B.Sc.(Information Technology)(Optional)
Second Year

(effective from 2015 - (6)

Dr.Babasaheb Ambedkar Marathwada University, Aurangabad

Curriculum Structure and Scheme of Evaluation: B.Sc. (Information Technology) (Optional)

Semester III									
1	ITO7	Operating System	3		3	50	-	2	50
2	ITO8	IT Tools	3		3	50	-	2	50
3	ITO9	Operating System	-	3	3	-	50	3	50
4	ITO10	IT Tools	-	3	3	-	50	3	50
Total of Semester – III			6	3	9	100	100		200
Semester IV									
1	ITO11	DBMS Using SQL	3		3	50	-	2	50
2	ITO12	Programming in CPP	3		3	50	-	2	50
3	ITO13	DBMS Using SQL	-	3	3	-	50	3	50
4	ITO14	Programming in CPP	-	3	3	-	50	3	50
Total of Semester – IV			6	3	9	100	100		200

B.Sc. (Information Technology) (Optional)
Semester III

Paper No.:ITO7   **B.Sc.(C.S.) (Opt.) Semester : III**
Paper title:Operating System

Unit –I	
Process Management • **Concept of Process:** Process State, Operation on Processes, thread. • **CPU Scheduling** : Types of Schedulers, Criteria for scheduling, Scheduling Algorithms. • **Process Synchronization:** Need for synchronization, Critical Section, Hardware Synchronization, Semaphores, Monitors, Problem of synchronization. • **Deadlocks:** Concept of Deadlock, Deadlock Modeling, Methods for Handling Deadlock	
Unit –II	
Storage Management • **Memory Management:** Address Binding, Logical Vs. Physical Address space, Memory Allocation, Paging, Segmentation, Segmentation and paging of Intel Pentium. • **Virtual Memory:** Demand Paging, Page replacement Algorithms (FIFO, Optimal, LRU), Virtual Memory in windowsXp. • **File System Interface:** Files, File Access, Directory Structure, Protection. • **Implementation of File System:** Allocation Methods, Free space Management	
Unit –III	
Device Management • **Introduction** : Dedicated Devices, Shared Device & Virtual Device • **Device Characteristics:** Input and Output devices , Storage devices , Device allocations • **Concept of I/O Traffic Controller:** I/O Scheduler, introduction to Virtual Devices. Information Management • Concept of File system • Symbolic file system • Access control verification • Logical and physical file system	

Books:

1) "Operating System", By S.R.Sathe & Anil S.Mokhade , MacMillan Publication.
2) "Operating System", By Stuart E.Madnick, John J.Donovan.
3) Operating System Concepts- A. Silberzchaz & P.B. Galvin, Addison – Wesley Publishing Company

Paper No.:ITO8   **B.Sc.(IT) (Opt.) Semester : III**
Paper title:IT Tools

Unit –I	
Introducing HTML5 • Understanding HTML, XHTML, and HTML5, Introducing semantic markup, Syntax, Attributes, Working with elements, Creating an HTML document • Embedding content, Embedding HTML by using inline frames, Working with hyperlinks, Adding images to your HTML document, Embedding plug-in content **Advances of HTML5** • HTML5 Layout container • Format using \<div\> element • Working with Tables: creating regular and irregular tables, heading, columns and rows, captions, header, footer.	
Unit –II	
Introducing JavaScript • Basic of JavaScript • JavaScript Variables, Operators & Its Precedence, Special Values, • Predefined Built-Infunctions, Functions Declaration & Call • String Functions • Conditions and looping structure, • Inline JavaScript & External JavaScript **Advances in JavaScript** • Object in JavaScript, Concept of array, how to use it in JavaScript, types of an array, array methods • DOM Concept in JavaScript, DOM Objects, DOM Search Methods • Event handling in JavaScript: Capturing & Bubbling, Subscribing, Unsubscribing and Cancelling Event, Windows Event, Keyboard and Mouse Events.	
Unit –III	
Cascading Style Sheet • Introduction to CSS3 • Defining and Applying a Style, Inline, Embedded and External Style Sheet. • Selectors: element, id and class selector, grouping selector, attribute, • Specificity and cascading • CSS properties: Color, box Model, border, padding, margin, float, clear	

Books:

1) Programming in HTML5 with Javascript and CSS3 , Glenn Johnson
   (http://www.daoudisamir.com/references/vs_ebooks/html5_css3.pdf)

2) Beginning HTML5 andCSS3ByRichard Clark, OliStudholme,Christopher Murphy and
   DivyaManian.(http://www.alvinisd.net/cms/lib03/TX01001897/Centricity/Domain/1077/
   beginning_html5_and_css3.pdf)
3) A Definitive Guide to HTML5 , By Adam Freemans

Course: B.Sc.(IT)   **Semester : III**
Paper title:Practical Based on Operating System   **Paper No.: ITO9**

Minimum 12 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.Sc.(IT)   **Semester : III**
Paper title:Practical Based on IT Tools   **Paper No.: ITO10**

Exercise 1. Create a simple website by using Visual Studio Express

Exercise 2. Create additional pages

Exercise 3. Embedding Content

Exercise 4. Create a webpage using <table> and <div> elements

Exercise 5. Create a webpages using conditional and looping statements.

Exercise 6. Create a calculator webpage

Exercise 7. Create a Webpage to introduce National Bird/Animal/Emblem/Flower

Exercise 8. Learn more about positioning by adding more <div> elements to the webpage to define a header and footer for the page. Use CSS style rules to set the position.

Exercise 9. Learn more about CSS selectors by adding more elements to the page and try setting the format by selecting the elements without using an id.

Exercise 10. Learn more about colors by changing the color scheme, using RGB values.

B.Sc. (Information Technology) (Optional)
Semester IV

Paper No.:ITO11   **B.Sc.(IT) (Opt.) Semester : IV**
Paper title:DBMS Using SQL

Unit –I

Basic Concept

Data Definition, Types of Data, Record and File, File based System & Processing
Database System Application, Purpose of Database SystemAbstraction & Data
IntegrationThree level Architecture proposal for a DBMS.Component of a DBMS:
Users, Facilities &Structure. Advantageous & Disadvantageous of DBMS.

Data Modeling & Design

Data Association – Entities , Attributes & Association, Relationship among Entities,
Representation of Association & Relationships
Data Model: Importance of Data Model, Types of Data Model: Relational, E-R,
Semi-structured, Object-Oriented, Network & Hierarchical Data Model.
Advantageous & Disadvantageous of above model.

Unit –II

Entity-Relationship Data Model

Entity , Entity Set, Types of Entities, Strong & Weak Entity, Representation
Attribute, Types of Attributes , Representation Relationship : Binary & Ternary ,
RepresentationMapping Cardinality, Entity-Relationship Design Issues

Relational Data Model

Basic Structure of Relational Data Model, Database SchemaConstraints : Integrity
Rule 1 & 2
Normal Form: Anomalies, Functional Dependency, Dependency Diagram, First
Normal Form, Second Normal Form, Third Normal Form, Conversion from
Universal to 1 NF, 1NF to 2 NF and 2NF to 3NF.

Unit –III

Relational Algebra

Basic Operation – Union , Intersection, Difference and Cartesian Product Advance
Operation- Projection, Selection, Join (Inner and Outer) & DivisionExamples based
on above Operation.Relation Algebraic Queries.

Introduction to Oracle

Oracle Software : Versions of Oracles, Products of Oracle, Tools of Oracle
SQL: Logging to SQL/ iSQL, SQL plus worksheet.

Books:

1) Database System Concepts (Sixth Edition) AviSilberschatz, Henry F. Korth,S.
   Sudarshan
2) An Introduction to Database Systems byBipin C. Desai
3) Easy Oracle SQL: Get Started Fast Writing SQL Reports with SQL*Plus By John
   Garmany.
4) Mastering Oracle SQL By Sanjay Mishra, Alan Beaulieu

Paper No.:ITO12   **B.Sc.(IT) (Opt.) Semester : IV**
Paper title:Programming in C++

Unit –I

Introduction of OOPs

Procedural Vs Object Oriented Programming, Basic concepts of Object Oriented Programming, Class, Object, Data Abstraction, Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing. Benefits and applications of OOP, History and overview of C++, C++ program structure. Reference variables, Scope resolution operator, Member de-referencing operators, new and delete, cin and cout, The endl and setw manipulator.

Functions in C++:

Function prototype, Call by reference (using reference variable), Return by reference, Inline function, Default arguments, Const arguments.

Unit –II

Function overloading:

Different numbers and different kinds of arguments

Objects and Classes:

Specifying a class, private and public, Defining member functions, Nesting of member function, Object as data types, Memory allocation for objects, static data members and member functions. Array of objects, Objects as function argument, returning objects, Friend function and its characteristics.

Unit –III

Constructors and Destructors:

Introduction, default and parameterized constructors, Multiple constructors in a class, Copy Constructor, Destructors

Operator Overloading:

Overloading unary operators, Rules for operator overloading, Overloading without

friend function and using friend function, Overloading binary operators such as

arithmetic and relational operators, Concatenating

Strings, Comparison operators.

Books:

1. Object Oriented Programming with C++ E. Balagurusamy, Tata McGraw-Hill Publishing

2. Object Oriented Programming In C + + Robert Lafore, Galgotia

3. Let us C++ YeshwantKanetkar; bpb publication

Course: B.Sc.(IT) (Opt.)   **Semester : IV**
Paper title:Practical Based on Database Management System   **Paper No.: CSO13**

1) Design five schemas for any organization like: College, school, hospital, travel agency, company, bank etc.
2) Normalize the above five selected schemas as per 1NF,2NF and 3NF
3) Draw E-R Diagram for the same.
4) Solve atleast ten Relational Algebraic Queries

Course: B.Sc.(IT)   **Semester : IV**
Paper title:Practical Based on Programming in C++   **Paper No.: ITO14**

Minimum 12 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.