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.

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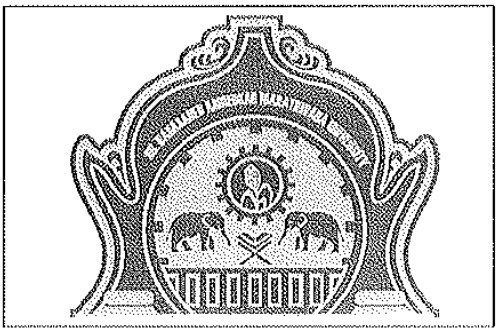
DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURAIMGABAD



SYLLABUS

B.Sc. SEMESTER SYSYEM

[Computer Maintenance (OPTIONAL)]

III & IV

{Effective from June - 2014 onwards}

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B.Sc. Computer Maintenance (Optional) Course Structure in Semester System

B.Sc.First Year

Semester	Course Code	Paper Number	Title of Paper	Marks
I	CM-101	Paper-I	Digital Electronics	50
	CM- 102	*Paper-11*	Computer Organisation	50
	CM- 103	Paper-III	Practicals on Paper -I	50
	CM- 104	Paper-IV	Practicals on Paper —II	50
II	CM-201	Paper-V	Microprocessor 8086	50
	CM-202	Paper-VI	Data communication and Networking- 1	50
	CM-203	Paper-VII	Practicals on Paper -V	50
	CM-204	Paper-VIII	Practicals on Paper -VI	50

B.Sc. Second Year

Semester	Course Code	Paper Number	Title of Paper	Marks
III	CM-301	Paper-IX	Peripheral and Interfacing of 8086	50
	CM-302	Paper-X	Data communication and Networking- II	50
	CM-303	Paper-XI	Practicals on Paper -IX	50
	CM-304	Paper-XII	Practicals on Paper -X	50
IV	CM-401	Paper- XIII	PC Hardware	50
	CM-402	Paper-XIV	Micro Controller 805 1	50
	CM-403	Paper-XV	Practicals on Paper - XIII	50
	CM-404	Paper-XVI	Practicals on Paper - XIV	50

B-Sc/Third Year

Semester	Course Code	Paper Number	Title of Paper	Marks
V	CM-501	Paper-XVII	PC Trouble Shooting	50
	CM-502	Paper-XVIII	Network Security -I	50
	CM-503	Paper- XIX	Practicals on Paper - XVII	50
	CM-504	Paper-XX	Practicals on Paper - XVIII	50
VI	CM-601	Paper-XXI	Installation of Softwares	50
	CM-602	Paper-XXII	Network Security -II	50
	CM-603	Paper-XXIII	Practicals on Paper - XXI	50
	CM-604	Paper-XXIV	Practicals on Paper - XXII	50

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B. Sc. Third Semester

Subject: Computer Maintenance

Course: CM-301 Paper-IX

(Effective from June15)

2014) Peripheral and

Interfacing of 8086

1. **8086 System Connections Timing and Troubleshooting**
A Basic 8086 Microcomputer System,Using a Logic Analyzer to Observe Microprocesso Bus Signals,An Example Minimum-mode System, The SDK-86,Troubleshooting a Simple 8086-based Microcomputer
2. **8086 Interrupts and Interrupt Application**
8086 Interrupts and Interrupt Responses,Hardware Interrupt Application,8254 Software-ProgrammableTimer/Counter,8259A Priority Interrupt Controller,Software Interrupt Applications.
3. **Digital Interfacing**
Programmable parallel Ports and handshake Input/Output , Interfacing of Microprocessor to Keyboards, Interfacing to Alphanumeric Displays,8279 Circuit Connections and Operation Overview,Interfacing to 18-segment and Dot-Matrix Led Displays,Interfacing a Microcomputer to Nunmultiplexed LCD Displays,Interfacing microcomputer Ports to high-power Devices,Optical Motor Shaft Encoders
4. Analog Interfacing and Industrial Control

Review of Operational -amplifier Characteristics, D/A Converter Operation, Interfacing, and Applications,A/D -based Industrial Process-control System.

5. **Dma, Drams,Cache memories, Coprocessors,: Introduction,The 8086 maximum mode, Direct Memory Access(DMA) data transfer, Interfacing and Refreshing Dynamic RAMs.**

Core Reference:

1. **Microprocessor and Interfacing by Douglus Hall.**
2. **The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III and Pentium IV, Architecture, Programming, and interfacing by Barry B Brey**

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B. Sc. Third Semester

Subject: Computer Maintenance Course: CM-302 Paper-x

(Effective from June 2015)

Data Communication & Networking - II

1. **Transmissions of Digital Data:**
   Digital Data Transmision,DTE-DCE interface, other interface standard, modems, and cable modems.

2. **Transmissions Media:**
   Guided,unguided,Transmision, impairment, Performance, wavelength Shannon capacity, media compression.

3. **Multiplexing:**
   Many to one /one to many Multiplexing,Frequency division Multiplexing(FDM),Wave Division Multiplexing(WDM), Time Division Multiplexing(TDM),

4. **Error Detection and Correction:**
   Type of Error,Detection, Vertical redundancy Check(VRC),Longitudinal redundancy Check(LRC),Cyclic Redundancy Check(CRC),Checksum,Error correction.

5. **Local Area Network:**
   Ethernet, Other Ethernet Network,TokenBus,Tokenring,FDDI,Compression. Metropolitans Area Network: IEEE 802.6(DQDB)

Core Reference:

1. **Data Communication and Networking**
   BehrozA.Forouzan
2. Computer Networks ByAndrew Tanenbaum

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B. Sc. Third Semester

Subject: Computer Maintenance

Course:CM-303 Paper-XI(Practical's on paper-IX)

(Effective from June 2015)

Every candidate appearing for examination must produce journal showing that he/she has completed 15 experiments during the semester. The journal must be certified at the end of the semester-by The Head df the Department.

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B. Sc. Third Semester

Subject: Computer Maintenance

Course: CM-304 **Paper**-XII(Practical's on paper -X)

(Effective from June 2015)

Every candidate appearing for examination must produce journal showing that he/she has completed 15 experiments during the semester. The journal must be certified at the end of the semester by The Head of the Department.

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B. Sc. Fourth Semester

Subject: Computer Maintenance

Course: CM-401 Paper-XIII

(Effective from June 2015)

PC Hardware

Sr. No	Topic	No. of Lect.
1.	**Understanding and Working with Personal Computers**	15
	Understanding How PCs Work., The Four Main Functions of Computing. PC Hardware Components. How PCs Work. Working with PCs PC Workspaces and Tools , Preventive Maintenance Environmental and Safety Concerns, Electricity and the PC	
2.	**Motherboards & Central Processing Units**	15
	Identifying Motherboards Types of Motherboards Motherboard Form Factors Mother Board Components:Central Processing Unit (CPU) and Processor Socket or Slot, Motherboard Buses, Chipsets, Expansion Slots, Memory Slots, Connectors, BIOS Chip, CMOS Battery, Jumpers and DIP Switches, Firmware, Cache Memory	
3.	**Understanding System Resources**	15
	Mother Board Components.Input/Output (I/O) Addresses. Interrupt Requests.DMA Channels.Memory Addresses. Working with Expansion Cards.Portable Systems.Examining Laptop Components. Power Sources, Displays, Keyboards and Pointing Devices, Internal Components, Upgrading Laptop Components.	

Core Reference:

1. Wiley Pathways PC Hardware Essentials Project Manual by Groth, David;
2. PC Architecture by Michael Karbo

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B. Sc. Fourth Semester

Subject: Computer Maintenance

Course: CM-402 Paper-XIV

(Effective from June 2015)

Micro Controller 8051

Sr. No	Topic	No. of Lect.

I Microcontrollers and Embedded Processors, overview of the 8051 family, Inside the 8051, Introduction to 8051 assembly programming, Assembling and running an 8051 program, the program counter and ROM space in the 8051, data types and directives, 8051 Flag bits and the PSW Register, 8051 Register Banks and stack. 9

IILoop and Jump instructions, call instructions, time delay generation and calculation, pin description of 8051, I/O programming, Bit Manipulation, Immediate and register addressing modes, accessing memory using various addressing modes, Unsigned Addition and Subtraction, Unsigned Multiplication and division, signed number concepts and arithmetic operations. 9

IIILogic and compare instructions, rotate and swap instructions BCD and ASCII application programs, single-Bit Instruction programming, Single bit operations with CY, reading input pins vs. Port Latch, programming 8051 Timers, counter programming, Basics of serial, 8051 connection to RS232, 8051 Serial Communication programming. 9

IV Difference between RISC and CISC Architectures, PIC Controller (Study Example Microchip: PIC 16F877) , Memory organization - I/O ports, Indirect Addressing, INDF and FSR Registers 9

V Introduction to ARM & Thumb Processor,ARM Controller (Study Example AT91M42800A), Architectural Overview, Memory Map, Peripherals, System Peripherals, User Peripherals, Operating Modes. 9

References:

1. 8051 Microcontroller &Embedded systems By Muhammad AN Mazidi

2. Embedded Systems by Raj Kamal.

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B. Sc. Fourth Semester

Subject: Computer Maintenance

Course: CM-403 Paper-xv (Practical's on Paper - XIII)

(Effective from June 2015)

XV -: Experiments **(Marks 50)**

PC Hardware Practical

Every candidate appearing for examination must produce journal showing that he/she has completed 15 experiments during the semester. The journal must be certified at the end of the semester by The Head of the Department.

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B. Sc. Fourth Semester

Subject: **Computer Maintenance**

Course: CM-404 Paper-XVI (Practicals on Paper-XIV)

(Effective from June-2015)

XVI -: Experiments **(Marks 50)**

1. Simple assembly language program: Realization of Boolean expression using port.

2. Simple assembly language program: Running LEDs

3. Using Timer Counter for frequency measurement, by counting the number of pulses in fixed amount of time (e.g. 1 second)(Assembly Language Programs).

4. Using Timer/Counter for frequency measurement, by measuring the time period between two consecutive pulses (Assembly Language Program).

5. Write serial communication program in C. This program should:

a. Send a ASCII message to serial port (verify receipt of this message on a computer)
b. Then onwards, echo any character received (send characters from computer and verify receipt of echo).

6.. Study of minimum system based on ARM family micro-controller (e.g. LPC2104) and writing an Assembly Language Program for running LEDs.

7. Study of large system based on ARM family riiicro-controiier, and writing C program to display a message on LCD.