डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

परिपत्रक क्रमांक/एस.यु./विज्ञान/अभ्यासक्रम/७४/२०१४

या परिपत्रकाद्वारे सर्व संबंधीतांना सुचित करण्यात येते की, विज्ञान विद्याशाखेने शिफारस केल्यानुसार बी. एस्सी. / एम. एस्सी. प्रथम व द्वितीय वर्षाच्या सुधारित अभ्यासक्रमास आणि बी. एस्सी. प्रथम वर्षाच्या अभ्यासक्रमात किरकोळ बदल करण्यास विद्यापरिषदेच्या वतीने मा. कुलगुरु यांनी, त्यांना प्राप्त असलेल्या विशेष अधिकार महाराष्ट्र विद्यापीठ अधिनियम-१९९४ कलम १४(७) अन्वये मान्यता दिलेली आहे. त्या अनुषंगाने सुधारीत तयार केलेल्या अभ्यासक्रमाची प्रत या परिपत्रकासोबत आपल्या पुढील कार्यवाहीसाठी पाठविण्यात येत आहे.

[1]	B.Sc. Physics	Semester-III & IV,
[2]	B.Sc. Chemistry	Semester-III & IV,
[3]	B.Sc. Botany	Semester-III & IV,
[4]	B.Sc. Zoology with minor changes	Semester-I & II,
[5]	B.Sc. Zoology	Semester-III & IV,
[6]	B.Sc. Fisheries	Semester-III & IV,
[7]	B.Sc. Electronics (Opt.)	Semester-III & IV,
[8]	B.A./B.Sc. Mathematics	Semester-III & IV,
[9]	B.Sc. Computer Science	Semester-I & II,
[10]	B.Sc. Information Technology	Semester-I & II,
[11]	B.C.A.	Semester-I & II,
[12]	B.Sc. Computer Science(Opt.)	Semester-I & II,
[13]	B.Sc. Information Technology(Opt.)	Semester-I & II,
[14]	B.Sc. Computer Application(Opt.)	Semester-I & II,
[15]	B.Sc. Computer Maintenance(Opt.)	Semester-I & II,
[16]	B.Sc. Biotechnology (Progressively)	Semester-I to VI,
[17]	B.Sc. Biotechnology (Opt.) (Progressively)	Semester-I to IV,
[18]	B.Sc. Sericulture Technology	Semester-I & II,
[19]	B.Sc. Networking Multimedia	Semester-III & IV,
[20]	B.Sc. Bioinformatics	Semester-I & II,
[21]	B.Sc. Hardware & Networking	Semester-I & II,
[22]	B.Sc. Animation	Semester-I & II,
[23]	B.Sc. Dairy Science & Technology	Semester-III & IV,
[24]	B.Sc. Biochemistry	Semester-III & IV,
[25]	B.Sc. Analytical Chemistry	Semester-III & IV,
[26]	B.Sc. Textile & Int. Decoration with minor changes	Semester-I & II,
[27]	B.Sc. Textile & Int. Decoration	Semester-III & IV,
[28]	B.Sc. Home Science with minor changes	Semester-I & II,
[29]	B.Sc. Home Science	Semester-III & IV,
[30]	B.Sc. Agro.Chem. & Fertilizers	Semester-III & IV,

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[31]	B.Sc. Geology	Semester-III & IV,
[32]	B.A. Statistics with minor changes	Semester-I & II,
[33]	B.A. Statistics	Semester-III & IV,
[34]	B.Sc. Statistics with minor changes	Semester-I & II,
[35]	B.Sc. Statistics	Semester-III & IV,
[36]	B.Sc. Industrial Chemistry	Semester-III & IV,
[37]	B.Sc. Horticultural	Semester-I & II,
[38]	B.Sc. Dry land Agriculture	Semester-I & II,
[39]	B.Sc. Microbiology	Semester-III & IV,
[40]	M.Sc. Computer Science	Semester-I to IV,
[41]	M.Sc. Information Technology	Semester-I to IV.

हा सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाचा आराखडा शैक्षणिक वर्ष २०१४-१५ करिता मर्यादित असेल व विद्यापरिषदेच्या अंतिम मान्यतेनंतर हे परिपत्रक नियमित ठेवण्याबाबत या कार्यालयाद्वारे नवीन परिपत्रक पारीत करण्यात येईल. तसेच सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध आहे.

करिता, या परिपत्रकाची सर्व संबंधितांनी नोंद घ्यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१ ००४.
संदर्भ क्र.एस.यु./सा.शा./सबवि /२०१३-१४/
६५९९-७०२
दिनांक :- २७-०५-२०१४.

संचालक,
महाविद्यालये व विद्यापीठ
विकास मंडळ.

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या परिपत्रकाची एक प्रत :-

१) मा. परिक्षा नियंत्रक, परिक्षा विभाग,
२) मा. प्राचार्य, सर्व संलग्नीत महाविद्यालये,
३) संचालक, युनिक यांना विनंती करण्यात येते की, सदरील अभ्यासक्रम विद्यापीठाच्या संकेतस्थंळावर उपलब्ध करुण देण्यात यावेत.
४) संचालक, ई-सुविधा केंद्र, विद्यापीठ परिसर,
५) जनसंपर्क अधिकारी, मुख्य प्रशासकीय इमारत,
६) कक्ष अधिकारी, पात्रता विभाग, मुख्य प्रशासकीय इमारत,
७) कक्ष अधिकारी, बी.ए. / बी.एस्सी./ बी.सी.एस./एम.एस्सी. विभाग, परीक्षा भवन,
८) अभिलेख विभाग, मुख्य प्रशासकीय इमारती मागे,
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Revised Syllabus of

B.Sc. First Year

Computer Maintenance [OPTIONAL]

Semester-I & II

[Effective for 2014-15]

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B.Sc. Computer Maintenance (Optional) (50 Marks) Semester System

B.Sc. First Year

Semester	Course Code	Paper Number	Title of Paper	Marks
I	CM-101	Paper-I	Basic Electronics I	50
	CM-102	Paper-II	DIGITAL ELECTRONICS – I	50
	CM-103	Paper-III	Practicals on Paper –I	50
II	CM-201	Paper-IV	Basic Electronics II	50
	CM-202	Paper-V	DIGITAL ELECTRONICS – II	50
	CM-203	Paper-VI	Practicals on Paper –V	50

Note : Practical examination is yearly pattern combine for both semester.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B. Sc. First Semester
Subject: Computer Maintenance
Course: CM-101 Paper – I
(Effective from June 2014)

Title: Basic Electronics I

Marks: 50 **Periods: 45**

1. **Diodes :** **(10)**
   P-N junction Diode, Biasing a semiconductor diode, breakdown of PN junction, ideal diode, Diode approximations, Types of diodes (Zener Diode, Photo Diode, Light Emitting Diode [LED], Tunnel Diode)
2. **Power supplies:** **(15)**
   Half wave rectifier, efficiency of HWR, Full wave rectifier, Full wave Bridge rectifier, efficiency of FWR, ripple factor, types of filter circuits (Capacitor Filter, Pi [π] Filter), Zener diode voltage regulator, transistor series voltage regulator, fixed positive linear regulators, fixed negative linear voltage regulators
3. **Transistors:** **(10)**
   Transistor, transistor action, transistor symbols, characteristics of common base, common emitter, Junction field effect transistor (JFET), static characteristics of JFET, transfer characteristics of JFET, small signal JFET parameters, MOSFET
4. **Transistor biasing techniques :** **(10)**
   Location of Q-point for transistor, Variation of the bias current, Fixed bias, Emitter feedback bias, Voltage feedback bias, Bias for emitter follower, Bias for the FET

Books Recommended:

1. Semiconductor Electronics – A K Sharma, New age international 1996(Chap.1)
2. Principle of Electronics – V K Mehta, (S. Chand and Co. 2004) (Chap. 2& 3)
3. Electronics Fundamentals and Applications – J.D.Ryder , 5th ed. (Chp.4)

Dr. Babasaheb Ambedkar Marathwada University Aurangabad.

B. Sc. First Semester
Subject: Computer Maintenance
Course: CM-102 Paper II

(Effective from June 2014)

Title: DIGITAL ELECTRONICS -I
Marks: 50 **Periods: 45**

1. Number System: **(15)**
Number System: Decimal, Binary, Hexadecimal Number Systems and their inter conversions , Binary arithmetic (addition, subtraction, multiplication and division), 1's and 2's compliment method for binary subtraction, Hexadecimal addition and subtraction, 8421 (BCD) code, Gray code, Excess-3 code, BCD addition and subtraction

2. Logic gates: **(10)**
Logic Gates (NOT gate, AND gate, OR gate, NAND gate, NOR gate) using diodes & transistors, Gate propagation delay time, Power dissipation, Loading considerations

3. Boolean algebra: **(10)**
Boolean Operations, Rules and laws of Boolean algebra, DeMorgan's theorems, minterms, maxterms, SOP and POS form of Boolean expressions, Simplification of Boolean Expressions, Karnaugh map [K-map] (up to four variables only)

4. Combinational logic circuits: **(10)**
AND-OR logic, AND-OR-NOT logic, Ex-OR gate, Ex-NOR gate, NAND and NOR gate as universal building blocks, Half adder, Full adder, Half subtractor, full subtractor, 4 bit parallel adder and subtractor, 2's complement adder /subtractor, 3 bit binary decoder, decimal to BCD encoder, 8 to 1 multiplexer, 1 to 8 demultiplexer

Books Recommended:

1. Digital Fundamentals – Thomas L Floyd, Universal Book Stall New Delhi
2. Digital Electronics and Microcomputers – R.K.Gaur
3. Digital Analog Techniques – Navneth, Kale and Gokhale, Kitab Mahal
4. Digital Electronics with Practical Approach – G N Shinde, Shivani Publications Nanded
5. Digital Principles and Circuits – C B Agarwal, Himalaya Publishing House

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B. Sc. First Semester

Subject: Computer Maintenance

Course: CM-103 **Paper – III** (Practicals)

(Effective from June 2014)

Every candidate appearing for examination must produce journal showing that he/she has completed 08 experiments during the semester. The journal must be certified at the end of the semester by The Head of the Department.

Experiments **(Marks 50)**

1. Study of PN junction diode characteristics.
2. Study of zener diode characteristics, determination of V_Z, I_Z, Z_Z.
3. Study of JFET characteristics, determination of parameters.
4. Study of LED characteristics.
5. Study a half wave rectifier.
6. Study a Full wave rectifier.
7. Study a bridge rectifier.
8. Study a Pi filter.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B. Sc. Second Semester

Subject : Computer Maintenance

Course: CM-201 **Paper - IV**

(Effective from June 2014)

Title: Basic Electronics II

Marks: 50 **Periods: 45**

1. **Small signal Amplifiers:** **(10)**
   Two port network analysis, Control sources, h-parameter equivalent circuit, Equivalent circuit for BJT, Transconductance model, CE amplifier , CB amplifier, emitter follower circuit, equivalent circuit for JFET, CS amplifier, source follower amplifier
2. **Feedback Amplifier:** **(10)**
   An amplifier black box with feedback, stabilization of gain by negative feedback, reduction of nonlinear distortion by negative feedback, , effect of feedback on output resistance, effect of feedback on input resistance, voltage series feedback, voltage shunt feedback, current series feedback.
3. **Multistage transistor amplifier:** **(10)**
   Multistage transistor amplifier, important terms, RC coupled transistor amplifier, transformer coupled amplifier, direct coupled amplifier, Differential amplifier
4. **Power Amplifiers:** **(15)**
   Small Signal and Large Signal Amplifiers, Output Power of Amplifier, Performance Quantities of Power Amplifiers, Classification of Power Amplifiers, Maximum Collector Efficiency of Series-Fed Class A Amplifier, Maximum Collector Efficiency of Transformer Coupled Class A Power Amplifier, Thermal Runaway, Heat Sink, Mathematical Analysis, Stages of a Practical Power Amplifier, Driver Stage, Output Stage, Push-Pull Amplifier, Distortion, Maximum Efficiency of Class B Power Amplifier

Books Recommended:

1. Electronics Fundamentals and Applications – J D Ryder, 5th ed. (Chap.1& 2)
2. Principle of Electronics – V K Mehta, (S. Chand and Co. 2004) (Chap.3 & 4)
3. Electronic Principles – A P Malvino, Second Edition, Tata McGraw-Hill Publishing CO. LTD.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B. Sc. Second Semester

Subject: Computer Maintenance
Course: CM-202 Paper V

(Effective from June 2014)

Title: DIGITAL ELECTRONICS -II

Marks: 50 **Periods: 45**

1. Flip-Flops: (9)
SR flip flop (using gates), Edge triggered flip flops (SR, D, JK and T), Asynchronous inputs, Master slave JK flip flop, Operating characteristics

2. Counters: (9)
Asynchronous Counters (three and four bit), Synchronous Counters (three and four bit), decade Counter (asynchronous and synchronous), Up/Down Synchronous Counter (three bit only)

3. Shift Registers: (9)
Shift register functions, Serial In – Serial Out Shift Register, Serial In – Parallel Out Shift Register, Parallel In – Serial Out Shift Register, Parallel In – Parallel Out Shift Register, Bidirectional Shift Register, Ring Counter

4. Memories: (9)
Memory Concept, Read Only Memory (RAM), Programmable ROMs (PROMs & EPROMs), Random Access (Read / Write) Memories (RAMs)

5. D/A and A/D converters: (9)
R-2R Ladder type D/A converter, DAC Characteristics (Monotonicity, Resolution, Accuracy and Setting Time), Successive approximation A/D converter, Dual slope A/D converter, study of DAC0808 and ADC0801 chips

Books Recommended:

1. Digital Fundamentals – Thomas L Floyd, Universal Book Stall New Delhi
2. Digital Electronics and Microcomputers – R K Gaur
3. Digital Analog Techniques – Navneeth, Kale and Gokhale, Kitab Mahal
4. Digital Electronics with Practical Approach – G N Shinde, Shivani Publications Nanded
5. Digital Principles and Circuits – C B Agarwal, Himalaya Publishing House

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B. Sc. Second Semester
Subject: Computer Maintenance

Course: CM-203 **Paper – VI** (Practicals)

(Effective from June 2014)

Every candidate appearing for examination must produce journal showing that he/she has completed 05 experiments during the semester. The journal must be certified at the end of the semester by The Head of the Department.

1. Study NOT, OR, & AND gates using ICs 7404, 7432 and 7408
2. Study of Half adder & Half subtractor using gates.
3. Study of Full adder using gates.
4. Study of Full Subtractor using gates.
5. Study of JK, T and D- Flip-Flops using IC 7476.
6. Study of 4-bit binary parallel adder/subtractor using IC 7483.
7. Study of Asynchronous binary UP/ DOWN counter.
8. Study of Asynchronous binary decade UP/ DOWN counter.
9. Study of synchronous binary UP/ DOWN counter (MOD 08).