

**DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY**

**CIRCULAR NO. SU/Service Course/30/2016**

It is hereby inform to all concerned that, the Choice Based Credit and Grading System have been implemented to the affiliated colleges from the academic year 2015-16 at Post Graduate level for the all Faculties. According to the guidelines of C.B.C. & G.S. it is essential to teach the Service Course to students. The authorities of the university has decided that the service courses run at University Campus and Sub-Center, Osmanabad be apply to the college level. The concerns are inform that to instruct to the students to Choice any one Service Course as per their willingness. Where only one post graduate course they can take the service course of the concerned subject. The syllabi of the service courses are uploaded with the circular on the University website [www.bamu.ac.in](http://www.bamu.ac.in)

The service courses be teach to the students with the **syllabus of IVth-Semester for this year only and hereafter** to tech with the syllabus of III-Semester as per their relevant courses.


This is effective from the academic year 2016-17.

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

University Campus,  
Aurangabad-431 004.  
REF.NO. SU/SERVICE COURSE /  
SYLLA./2016/5117-516  
Date:- 02-09-2016.

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Director,  
Board of College and  
University Development.

**Copy forwarded with compliments to:-**

**1] The Principals of concerned Colleges,  
Dr. Babasaheb Ambedkar Marathwada University.**

**Copy to :-**

- 1] The Controller of Examinations,
  - 6] The Section Officer, [ M.A. Unit ],
  - 7] The Section Officer, [ M.Sc. Unit ],
  - 8] The Section Officer, [ M.Com. Unit ],
  - 9] The Section Officer, [ Management Unit ],
  - 10] The Section Officer, [ Professional Unit ],
  - 11] The Section Officer, [ Engineering Unit ],
  - 3] The Programmer [Computer Unit-1] Examinations,
  - 4] The Programmer [Computer Unit-2] Examinations,
  - 5] The Public Relation Officer,
  - 6] The Co-ordinator, E-Suvidha Kendra, [Rajarshi Shahu Maharaj Pariksha Bhavan,
  - 7] The Record Keeper.
- Dr. Babasaheb Ambedkar Marathwada University,

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**D.R. BABASAHEB AMBEDKAR  
MARATHWADA UNIVERSITY,  
AURANGABAD.**



**M.Sc. Industrial Automation**

**Service Course**

*[ Academic Year 2016-17 & onwards ]*

Dr. Babasaheb Ambedkar Marathwada University,  
Aurangabad – 431001 (MS)

### Syllabus for Service course

**Subject: M.Sc. Industrial Automation**

**I.A.S-1: PLC fundamentals and Programming: 100 marks (45 Periods) (Credit 5)**

*Unit 1: Introduction to sensors, study of Sensors such as displacement, pressure, temperature, force, torque, flow, level. Conventional control systems, PLC based control panels, PLC verses Computers, PLC advantages and disadvantages, Types of PLC (micro PLC, modular PLC), PLC processor (function, operating systems, parts), Processor scanning,*

*Unit 2: PLC hardware components (Input modules and components, Output modules and components), PLC memory organization, PLC addressing methods and file types, PLC ladder logic, symbols used in ladder logic, basic instruction (relay, logical, program control), process scanning consideration, PLC operation faults,*

*Unit 3: Data control instructions (data comparison, computation, conversion, and transfer), PLC arithmetic instructions, File manipulation instructions, file transfer operation. Data Manipulation Instructions, Arithmetic Operations.*

*Unit 4: Types of Timers (ON, OFF, RETENTATIVE), Timer Instruction, Types of Counters (UP, DOWN), Counter Instruction, Sequencer Instruction (SQO, SQI, SQL), Shift Register (Synchronous, Asynchronous), Jump Commands*

*Unit 5: Applications of PLC programming using Simulators; door control, traffic light control, Silo operation, Four stage elevator. Conveyor belt control Water tank filling. dual compressor. Bottle filling plant*

#### Reference Books:

1. Introduction to programmable Logic Controller, Gary Dunning
2. Programmable Logic Controllers (principles and applications), John W. Webb and Ronald A. Reis.
3. Programmable Logic Control NIIT; Prentice Hall India
4. Industrial Electronics (Circuits, Instruments and Control Techniques)- Terry Bartelt, DELMAR, Cengage Learning India Pvt. Ltd. Delhi, 2009
5. Principles of Industrial Instrumentation- D Patranabis
6. Instrumentation Measurement and analysis- B C Nakara, K. K. Chaudhary
7. Instrumentation (devices and systems)- C S Rangan, G R Sarma, V S V Mani

  
(Dr. Deshmukh S.B.)  
Coordinator,  
UGC, Innovative course  
M.Sc. Industrial Automation  
Jalna Education Society's  
R.G Bagdia Arts, S. B. Lakhota Comm. &  
R. Bezorji Science College, Jalna (M.S.)

  
Principal  
R.G. BAGDIA ARTS, S.B. LAKHOTIA COMMERCE &  
R. BEZORJI SCIENCE COLLEGE, JALNA.