

S-01 & 02 June, 2016 AC after Circulars from Circular No.100 & onwards+ - 39 -
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

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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**DR. BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY,
AURANGABAD.**



M.Sc. Microbiology

Service Course

[Academic Year 2016-17 & onwards]

Paper No. – MICC-OE

Service course

(Open Elective)

Applied Agricultural Microbiology

Credit – 04

Max. Marks -100

UNIT-I

(0.8 Credit)

Introduction to biofertilizers, Biofertilization processes - Decomposition of organic matter and soil fertility and vermicomposting. Mechanism of phosphate solubilization and phosphate mobilization. Nitrogen fixation - Free living and symbiotic nitrogen fixation. Ecto and endomycorrhizae and their importance in agriculture. Biotechnological application in nitrogen fixation.

UNIT-II

(0.8 Credit)

Microorganisms as biofertilizers: Biofertilizers and symbiotic associations; Rhizobium -taxonomy, physiology, host-Rhizobium interaction, mass cultivation; Associative and non symbiotic association- *Azospirillum*, *Azotobacter*, Cyanobacteria (Nostoc and Anabaena) Mycorrhiza and actinorrhiza in plant nutrition and stress tolerance; Interaction of mycorrhiza with *Rhizobium* and *Pseudomonas*; Commercial production of biofertilizers, formulations and BIS specifications; their applications and limitations for Indian agriculture.

UNIT-III

(0.8 Credit)

Nitrogenous Biofertilizers - Isolation and purification of *Azospirillum* and *Azotobacter*, mass multiplication of *Azospirillum* and *Azotobacter*, formulation of inoculum of *Azospirillum* and *Azotobacter*, application of inoculants of *Azospirillum* and *Azotobacter*. Isolation and purification of *Rhizobium*, mass multiplication and inoculum production of *Rhizobium*, Methods of application of *Rhizobium* inoculants.

UNIT-IV

(0.8 Credit)

Microorganisms as biopesticides: Microbiology of plant surfaces; Principles and mechanism of biological control; biocontrol agents for insect pest and weed control. Commercial production of biopesticides with reference to *Bacillus thuringiensis*; integrated pest management; Their applications and limitations for Indian agriculture

UNIT-V

(0.8 Credit)

Plant Pathology

Mode of entry of pathogens, disease symptoms, Brief account of algal disease, fungal disease, bacterial disease, viral disease, diseases caused by mycoplasmas and nematode Specially - brown spot of rice, black stem rust of wheat, stem rot of jute, rice disease by Tungo virus, grey blight of tea, red rot of sugarcane, TMV, Blast of rice, leaf blight of potato, Powdery mildew of cucurbit)- dissemination and control measurement.

Reference Books :

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- Purohit, S.S., P.R. Kothari and S.K. Mathur, 1993. Basic and Agricultural Biotechnology, Agro Botanical Pub. India.
- Subba Rao, N. S. 1988. Biological nitrogen fixation: recent developments, Mohan Pramlani for Oxford and IBH Pub. Co. (P) Ltd., India.
- Subba Rao, N.S., G.S. Venkataraman and S. Kannaiyan 1993. Biological nitrogen fixation, ICAR Pub., New Delhi.
- Somani, L.L., S.C. Bhandari, K.K. Vyas and S.N. Saxena. 1990. Biofertilizers, Scientific Publishers - Jodhpur.
- Tilak, K.V.B. 1991. Bacterial Biofertilizers, ICAR Pub., New Delhi.
- Agrios G. N. 1997. Plant Pathology. Academic Press, San Diego.
- Cook R. J. & Baker K. F. 1983. The Nature and practice of Biological Control of Plant Pathogens.
Amerca Phytopathological Society Press, St. Paul, MN.
- Forster C. F. & John DA 2000. Environmental Biotechnology. Ellis Horwood Ltd. Publication.
- Christon J. H. 2001. A Manual of Environmental Microbiology. ASM Publications.
- Rao, N.S.S. 1999. Soil Microbiology. Oxford & IBH Publishing Co., New Delhi.
- The nature and properties of soil. Authors- Harry buckman and Nyle C. brady.
- Introduction to soil Microbiology Internationals. Authors- Martin Alexander.