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BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY

(A Central University)

Vidya Vihar, Rae Bareilly Road, Lucknow-226025

पत्र सं०डी ई एम/बी बी ए यू/

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दिनांक. १८/११/२०२०

सूचना

सूक्ष्म जैविकी विज्ञान विभाग के समस्त प्रथम सेमेस्टर छात्रों एवं विश्वविद्यालय के समस्त प्रथम सेमेस्टर छात्रों को सूचित किया जाता है कि अन्य विभाग में CBCS पेपर के अंतर्गत चल रहे Open Elective Course के सलाहकार (Adviser) डॉ राम नरेश भार्गव जी हैं अतः सूक्ष्म जैविकी विज्ञान विभाग के छात्र अन्य विभाग के CBCS पेपर हेतु एवं विश्वविद्यालय के अन्य विभागों के छात्र सूक्ष्म जैविकी विज्ञान विभाग के CBCS पेपर चयन हेतु डॉ राम नरेश भार्गव से संपर्क करें ।

Paper Code	Title of Paper	Maximum Marks			Credits	
		End Sem.	Sessional			Assignment/ Practical
			I	II		
EM 106	Microbial World – Study and Applications	70	10	10	10	04
IM 106	Applications of Microbiology for Sustainable Environment	70	10	10	10	04
FMT 106	Introduction to Food Microbiology	70	10	10	10	04

विभागाध्यक्ष,
सूक्ष्म जैविकी विज्ञान विभाग

प्रतिलिपि :

1. डीन (अकादमिक), बीबीएयू, लखनऊ ।
2. समस्त संकायाध्यक्ष, बीबीएयू, लखनऊ ।
3. समस्त विभागाध्यक्ष, बीबीएयू, लखनऊ ।
4. डॉ राम नरेश भार्गव, सूक्ष्म जैविकी विज्ञान विभाग, बीबीएयू, लखनऊ ।
5. सूचना पट, सूक्ष्म जैविकी विज्ञान विभाग, बीबीएयू, लखनऊ ।
6. विश्वविद्यालय की वेबसाइट पर अपलोड करने हेतु प्रभारी विश्वविद्यालय वेबसाइट, बीबीएयू, लखनऊ ।

विभागाध्यक्ष,
सूक्ष्म जैविकी विज्ञान विभाग

M.Sc. Environmental Microbiology

I Semester

EM 106 Microbial World - Study & Applications (04 Credits) Optional Paper for CBCS

Unit 1 Microbial world- Monera (Eubacteria & archaeobacteria), Protista. Fungi and Viruses, Characteristic features. Application of Microbes for industrial uses, products for human consumption, products for agriculture, roles in environment.

Unit 2 Cultivation of microbes in laboratory (bacteria, fungi and viruses), techniques to study microbial cells, microscopy – light, electron, phase contrast

Unit 3 Control of microorganisms by physical and chemical methods, preservation of microbes, culture collection centres, biological information and database.

Unit 4 Hands on training on principles and working of common equipment of microbiology laboratory, isolation techniques (of microbes), cultivation in laboratory, staining techniques, growth studies.

M.Sc. Industrial microbiology

I Semester

IM 106 Application of Microbiology for Sustainable Environment (Optional Paper for CBCS) (04 Credits)

Unit I Microbes in environment – Role and diversity, technique to study them.

Unit II Solid and Liquid waste Treatment of sewage and industrial effluents, Secondary waste treatment – aerobic, anaerobic and Composting.

Unit III Role of Microbes in Agriculture – bioinoculants, biodegradation and bioremediation of xenobiotic compounds, technique of bioremediation using microbes.

Unit IV Bioleaching of Metals, Biofuels, Microbes as food, bioplastics, GEMs – Application and hazards.

M.Sc. (Food Microbiology and Toxicology)

I Semester

FMT 106: Introduction to Food Microbiology (4 credits)-Optional Paper under CBCS

Unit-I. History of Microbiology, Terminology used in Microbiology, Basic Classification system, Introduction to food microbiology, scope of food microbiology, common bacterial and fungal contaminants of food, preservation and spoilage of different kinds of food.

Food sanitation, control and inspections, microbiological criteria and food safety, Food safety objectives (FSO), food legislation: Enforcement and Govt. Regulatory practices and policies. FDA, EPA, HACCP, FSA act (Basic concept in brief).

Unit II. Ultra structure of microbial cell, Bacterial cell components (gram positive and gram negative bacterial membrane), cell wall, cytoplasmic membrane, spore, pili, flagella, prokaryotic cellular reserve material, structure of DNA and RNA, replication of DNA, different types of plasmids, transformation, transduction, conjugation, mutation, bacterial recombination, transposons.

Unit III Culture media: Components of media, natural and synthetic media, various media used for *E. coli* general techniques for bacterial isolation, purification and characterization, enumeration and preservation of bacteria (different methods in brief), different methods of sterilization in brief-physical and chemical, bacterial nutrition, bacterial growth curve.

Unit IV Microorganisms as food: Single cell protein, algae as food, and mycoprotein from fungi for use as food and feed, mushroom cultivation, concept of probiotics, prebiotics and synbiotics, different fermented foods (Sauerkraut, Sausages, Bread, Soysauce, Idli, Tempeh, Poi, Dairy products -basic concepts of all briefly). Different microbial enzymes in industry.