

ST. JOSEPH'S COLLEGE (AUTONOMOUS)

BENGALURU-27



Re-accredited with 'A++' **GRADE** with 3.79/4 CGPA by NAAC

Recognized by UGC as College of Excellence

DEPARTMENT OF MICROBIOLOGY

SYLLABUS FOR I and II semester UNDERGRADUATE

PROGRAMME

For Batch 2021-2024

NATIONAL EDUCATION POLICY 2020

OPEN ELECTIVE SYLLABUS

SEMESTER – I

Course 2 : Theory: OE 1T

MBL 301: Microbial Technology for Human Welfare

Course 2 : OE 1T, MBL 301: Microbial Technology for Human Welfare	42Hrs
Unit – 1: Food and Fermentation Microbial Technology	14Hrs
Fermented Foods – Types, Nutritional Values, Advantages and Health Benefits Prebiotics, Probiotics, Synbiotics and Nutraceutical Foods Fermented Products – Alcoholic and nonalcoholic beverages, fermented dairy products, Fruit fermented drinks,	
Unit – 2: Agriculture Microbial Technology	14Hrs
Microbial Fertilizers, Microbial Pesticides, Mushroom Cultivation, Biogas Production	
Unit – 3: Pharmaceutical Microbial Technology	14Hrs
Microbial Drugs – Types and Development of Drug Resistance Antibiotics – Types, Functions and Antibiotic Therapy Vaccines – Types, Properties, Functions and Schedules	

SEMESTER - II

Course 2: Theory: OE- 2T

MBL 302: Environmental and Sanitary Microbiology

Course 2 : Theory: OE- 2T, MBL 302: Environmental and Sanitary Microbiology	42 Hrs
Unit – 1: Soil and Air Microbiology	14 Hrs
Soil and Air as a major component of environment. Types, properties and uses of soil and air. Distribution of microorganisms in soil and air. Major types of beneficial microorganisms in soil. Major types of harmful microorganisms in soil	
Unit – 2: Water Microbiology	14 Hrs
Water as a major component of environment. Types, properties and uses of water. Microorganisms of different water bodies. Standard qualities of drinking water	

Unit – 3: Sanitary Microbiology	14 Hrs
Public health hygiene and communicable diseases. Survey and surveillance of microbial infections. Airborne microbial infections, waterborne microbial infections, Food borne microbial infections. Epidemiology of microbial infections, their detection and control.	

Text Books / References

1. Prescott, Harley, Klein's Microbiology, J.M. Willey, L.M. Sherwood, C.J. Woolverton, 7th International, edition 2008, McGraw Hill.
2. Foundations in Microbiology, K. P. Talaro, 7th International edition 2009, McGraw Hill.
3. A Textbook of Microbiology, R. C. Dubey and D. K. Maheshwari, 1st edition, 1999, S. Chand & Company Ltd.
4. Brock Biology of Microorganisms, M.T.Madigan, J.M.Martinko, P. V. Dunlap, D. P. Clark-12th edition, Pearson International edition 2009, Pearson Benjamin Cummings.
5. Microbiology – An Introduction, G. J.Tortora, B. R.Funke, C. L. Case, 10th ed. 2008,Pearson Education.
6. General Microbiology, Stanier, Ingraham et al, 4th and 5th edition 1987, Macmillan education limited.
7. Microbiology- Concepts and Applications, Pelczar Jr,Chan, Krieg, International ed, McGraw Hill.
8. Alexopoulos, C.J., Mims, C.W., and Blackwell, M. 2002. Introductory Mycology. John Wiley and Sons (Asia) Pvt. Ltd. Singapore. 869 pp.
9. Atlas, R.M. 1984. Basic and practical microbiology. Mac Millan Publishers, USA. 987pp.
10. Black, J.G. 2008. Microbiology principles and explorations. 7edn. John Wiley and Sons Inc., New Jersey 846 pp.
11. Pommerville, J.C. Alcamo's Fundamentals of Microbiology. Jones and Bartlett Pub..Sudbury, 835 pp.
12. Schlegel, H.G. 1995.General Microbiology. Cambridge University Press, Cambridge, 655 pp.
13. Toratora, G.J., Funke, B.R. and Case, C.L. 2007. Microbiology 9th ed. Pearson Education Pte. Ltd., San Francisco. 958pp.

Pedagogy :

The general pedagogy to be followed for theory and practicals are as under.

Lecturing, Tutorials, Group/Individual Discussions, Seminars, Assignments, Counseling, Remedial Coaching. Field/Institution/Industrial visits, Hands on training, Case observations, Models/charts preparations, Problem solving mechanism, Demonstrations, Project presentations, Experiential documentation and Innovative methods.

Formative Assessment : 30%	
Assessment Occasion/ type	Weightage in Marks
IA (2 Tests)	10% : 10 Marks
Assignments / Visits	10% : 10 Marks
Seminars / Group Discussion	10% : 10 Marks
Total	30% : 30 Marks

Date
14.09.2021

Course Co-ordinator
Special Officer, KSHCE
(Dr. Prasannakumar)

Subject Committee Chairperson
Vice Chancellor, Gulbarga University
(Prof. Dayanand Agsar)

