

B.Sc Academic Year 2025-2028



Bhavan's Vivekananda College of Science, Humanities and Commerce, Sainikpuri, Secunderabad

Autonomous College (Affiliated to Osmania University)

(Reaccredited with "A" Grade by NAAC)

Department of Microbiology

Template for B Sc Microbiology under CBCS

(With effect from academic year 2025-28)

Semester 1

Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	Environmental Studies	AECC-1	2		2	2		2
	English	CC-1A	4		4	4		4
	Second Language	CC-2A	4		4	4		4
MB131 / MB 131P	Optional 1 General Microbiology	DSC-1A	4	2	6	4	1	5
	Optional 2	DSC-2A	4	2	6	4	1	5
	Optional 3	DSC-3A	4	2	6	4	1	5
					28			25

Semester 2

Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	Computer Skills	AECC-2	2		2	2		2
	English	CC-1B	4		4	4		4
	Second Language	CC-2B	4		4	4		4
MB231/ MB231 P	Optional 1 Microbial Diversity	DSC-1B	4	2	6	4	1	5
	Optional 2	DSC-2B	4	2	6	4	1	5
	Optional 3	DSC-3B	4	2	6	4	1	5
					28			25

Semester 3

Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	English	CC-1C	3		3	3		3
	Second Language	CC-2C	3		3	3		3
331 / MB331 P	Optional 1 Food and Environmental Microbiology	DSC-1C	4	2	6	4	1	5
	Optional 2	DSC-2C	4	2	6	4	1	5
	Optional 3	DSC-3C	4	2	6	4	1	5
	Skill Enhancement Course-1 Communication Skills	SEC-1	2		2	2		2
SE331A/ SE331B	Skill Enhancement Course-2 Mushroom Cultivation/Microbial products-Biofertilizers and Biopesticides	SEC-2	2		2	2		2
					28			25

Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hvd-07

CHAIRPERSON
BOS in Microbiology
Bhavan's Vivekananda College
Sainikpuri

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094

Semester 4								
Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	English	CC-1D	3		3	3		3
	Second Language	CC-2D	3		3	3		3
MB431 / MB431 P	Optional 1 - Immunology & Medical Microbiology	DSC-1D	4	2	6	4	1	5
	Optional 2	DSC-2D	4	2	6	4	1	5
	Optional 3	DSC-3D	4	2	6	4	1	5
	Skill Enhancement Course-3 Universal Human Values	SEC-3	2		2	2		2
SE431A / SE431B	Skill Enhancement Course-4 Clinical Microbiology/Interactions with Entrepreneurs in Microbial Technology and start-ups	SEC-4	2		2	2		2
					28			25
Semester 5								
Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	English	CC-1E	3		3	3		3
	Second Language	CC-2E	3		3	3		3
MB 531 / MB531P MB531A / MB531 A P	Optional 1- A/B A. Molecular Biology & Microbial Genetics (or) B. Microbial Omics	DSE-1E	4	2	6	4	1	5
	Optional 2	DSE-2E	4	2	6	4	1	5
	Optional 3	DSE-3E	4	2	6	4	1	5
GE531	Generic Elective -Microbiology and Human Health	GE-1	4		4	4		4
					28			25
Semester 6								
Course Code	Course title	Course Type	Hours/week			Credits		
			Theory	Practical	Total	Theory	Practical	Total
	English	CC-1F	3		3	3		3
	Second Language	CC-2F	3		3	3		3
MB631 / MB631 P MB631A / MB631A P	Optional 1- A/B A. Industrial Microbiology (or) B. Pharmaceutical Microbiology	DSE-1F	4	2	6	4	1	5
	Optional 2	DSE-2F	4	2	6	4	1	5
	Optional 3	DSE-3F	4	2	6	4	1	5
MB631_O/MB631_P	Optional paper/Project Applied Microbiology and Artificial Intelligence		4	-	4	4	-	4
					28			25
	Total Credits = 150							

Dr. Hameeda Bee

Associate Professor
Department of Microbiology

CHAIRPERSON
BOS in Microbiology

Sharan's Vivekananda College
Sainikpuri

Head of Department
Department of Microbiology
Sharan's Vivekananda College
Sainikpuri, Secunderabad - 500 094

SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc MICROBIOLOGY
B. Sc II YEAR SYLLABUS (2025 onwards)
SUBJECT-MICROBIOLOGY
III SEMESTER (4 HPW-4Credits)
MB331 Paper III Food and Environmental Microbiology

OVERALL COURSE OBJECTIVE:

Explain role of microbes in food industry, bioremediation and Sewage treatment methods.

UNIT WISE COURSE OBJECTIVES:

- COb1.** Discuss the significance of fermented foods and microbes as food
COb2. Elucidate the importance of food quality control.
COb3. Describe the role of microbes in the area of environmental pollution.
COb4. Explain the role of PGPR (Plant Growth promoting Microorganisms) and Bioremediation.

UNIT-1 Fermented Foods & Microbes as food **15hrs**

Introduction to fermented foods	1hr
Health benefits of fermented foods	1hr
Concept of probiotics and prebiotics	2hr
Cereal based fermented foods- Idly & Bread	2hr
Fermented vegetables- processing and fermentation of Sauerkraut and Pickles	2hr
Microbes in milk and their significance	1hr
Fermented milk products- Yoghurt, Bulgarian milk, Kefir and Cheese	4hr
Microorganisms as food- Single cell protein, Edible mushrooms	2hr

UNIT-2 Microbial Food Spoilage and Quality Control **15 hrs**

Microbial spoilage of milk, meat, fruits and canned foods	3hr
Microbial food Poisoning, risks & hazards	2hr
Mycotoxins and their toxicity	1hr
Food preservation methods and food safety issues	4hr
Food quality- importance and functions of quality control	2hr
Microbiological analysis of food-Screening, enumeration and detection of pathogens.	3hr

UNIT-3 Air and Water Microbiology **15 hrs**

Microorganisms in air and their importance- A brief account	3hr
Microorganisms in water pollution- waterborne pathogenic microorganisms and their transmission	3hr
Sanitary quality of water- Coliform test, MPN	3hr
Water pollution due to degradation of organic matter- Aerobic and Anaerobic sewage treatment.	6hr



Dr. Hameeda Bee
 Associate Professor
 Department of Microbiology
 Osmania University, Hyd-07


 Head of the Department
 Department of Microbiology
 Bharatiya Vidya Bhavan's Vivekananda College
 Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
 BOS in Microbiology
 Bhavan's Vivekananda College
 Sainikpuri

UNIT - 4 Soil Microbiology

15 hrs

Soil properties - Physical, chemical and biological	2hr
Soil microorganisms- methods of enumeration and activity of microbes in soil	3hr
Microbes and plant interactions- Rhizosphere, Phyllosphere, Mycorrhizae	3hr
Introduction to microbial bioremediation- microbial degradation of organic pollutants	3hr
Biogeochemical cycles- Carbon cycle, Nitrogen cycle	4hr

TEXT AND REFERENCE BOOKS

1. Casida, L. E. Industrial Microbiology (1999). 10th edition. New Age International Publication, New Delhi.
2. Stanbury, P.F., Whitaker, A. and Hall, S.J. (1997). Principles of Fermentation Technology, Aditya Books (P) Ltd. New Delhi.
3. Doyle, M.P., Beuchat, L.R. and Montville, T.J. (1997). Food Microbiology: Fundamentals and Frontiers. ASM Press, Washington D.C., USA.
4. Frazier, W.C. and Westhoff, D.C. (1988). Food Microbiology, McGraw-Hill, New York.
5. Jay, J.M. (1996). Modern Food Microbiology, Chapman and Hall, New York.
6. Ray, B. (1996). Fundamentals of Food Microbiology, CRC Press, USA.
7. Adams, M.R. and Moss, M.O. (1996). Food Microbiology, New Age International (P) Ltd, New Delhi.
8. Paul, E.A. and Clark, F.E. (1989). Soil Microbiology and Biochemistry, Academic Press, USA.
9. Lynch, J.M. and Poole, N.J. (1979). Microbial Ecology - A Conceptual Approach, Blackwell Scientific Publications, USA
10. Alexander Martin. Soil Microbiology (2001).
11. Reddy, M.N., Uma Maheshwara Rao., Naga Padma, P., Raghuram, M, Charitha Devi, M. (2012) Applied Microbiology, Telugu Academy.

Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

III SEMESTER PRACTICALS (2 HPW-1Credit)
MB331 P Paper III Food and Environmental Microbiology

1. Isolation and identification of probiotic bacteria and yeast
2. Determination of microbiological quality of milk by MBRT method
3. Preparation of fermented foods: Yoghurt, Sauerkraut
4. Microbiological analysis of food- Isolation, Enumeration & Detection of pathogens
5. Extraction of mycotoxins from contaminated grains/ food
6. Detection of Mycotoxins
7. Isolation of microorganisms from air by impingement method
8. Microbiological examination of water by Coliform test
9. Determination of biological oxygen demand
10. Isolation & Enumeration of microbes from Rhizosphere and Phyllosphere

References

1. Gopal Reddy, M., Reddy, M.N., Saigopal, DVR and Mallaiah, K.V. (2007). Laboratory Experiments in Microbiology, 2nd edition. Himalaya Publishing House, Mumbai.
2. Reddy, S.M. and Reddy, S.R. (1998). Microbiology- Practical Manual, 3rd Edition, Sri Padmavathi Publications, Hyderabad
3. Dubey, R.C. and Maheswari, D.K. (2002). Practical Microbiology, S. Chand & Co., New Delhi.
4. Gupte, S. (1995). Practical Microbiology. Jaypee Brothers Medical Publishers Pvt. Ltd.

COURSE OUTCOMES:

The Student will be able to

MB331.CO1. Understand the process fermented food production

MB331.CO2. Analyze the microbiological quality of food samples

MB331.CO3. Evaluate the sanitary quality of air and water.

MB331.CO4. Summarize the role of microbes in plant growth and bioremediation



Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07



Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc MICROBIOLOGY
B.SC II YEAR SYLLABUS (2025 onwards)
SUBJECT-MICROBIOLOGY
III SEMESTER (2 HPW-2Credits)

SE331 A: MUSHROOM CULTIVATION

OVERALL COURSE OBJECTIVE:

To provide theoretical and practical details of mushroom cultivation.

COURSE OBJECTIVES:

- COb1.** Explain mushroom cultivation method
COb2. Outline methods of mushrooms preservation

Unit-1

15 hrs

Introduction to mushroom cultivation. Importance and history of mushroom cultivation in India.
Global status of mushroom production.
Food value of mushroom.

Unit-2

15 hrs

Steps in mushroom cultivation

- Selection of site and types of mushroom
- Mushroom farm structure, design layout
- Principle and techniques of compost and composting
- Principle of spawn production
- Casing and crop production
- Harvesting and marketing
- Pest and pathogens of mushrooms
- Post-harvest handling and preservation of mushrooms

REFERENCES:

1. Mushroom cultivation in India by B.C. Suman and V.P. Sharma. Published by Daya Publishing House, New Delhi.
2. Mushrooms Cultivation, Marketing and Consumption by Manjit Singh Bhuvnesh Vijay Shwet Kamal G.C. Wakchaure Directorate of Mushroom Research (Indian Council of Agricultural Research) Chambaghat, Solan -173213 (HP)

COURSE OUTCOMES:

- SE 331A. CO1.** Summarize mushroom cultivation in methods.
SE 331A. CO2. Tabulate the nutritional value of mushrooms

Dr. Hameeda Bee

Associate Professor
Department of Microbiology
Osmania University, Hyd-07

[Signature]
Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

III SEMESTER (2 HPW-2Credits)

SE331 B: MICROBIAL PRODUCTS - BIO-FERTILIZER & BIO-PESTICIDES

(2025 onwards)

OVERALL COURSE OBJECTIVE:

To provide theoretical and practical details of various Biofertilizers and Biopesticides.

COURSE OBJECTIVES:

COB1. Explain about various Biofertilizers

COB2. Outline methods of production of Biofertilizers and Biopesticides

UNIT-1

15 hrs

Biofertilizers: General account of the microbes used as biofertilizers for various crop plants and their advantages over chemical fertilizers.

Symbiotic N₂ fixers: Rhizobium - Isolation, characteristics, inoculum production and field application.

Cyanobacteria as bio-fertilizers- Isolation, characterization, mass multiplication, mass inoculums production and field application

A brief account on Phosphate Solubilizers and Mycorrhizal Bio-fertilizers

UNIT-2

15 hrs

Bioinsecticides: General account of microbes used as bioinsecticides and their advantages over synthetic pesticides, Bacillus thuringiensis, production, Field applications, Viruses - cultivation and field applications.

REFERENCES

1. Eldor A. Paul. Soil Microbiology. Ecology and Biochemistry. VI Edition: Academic Press, (2007).
2. Eugene L. Madsen. Environmental Microbiology: From Genomes to Biogeochemistry. Edition, Wiley Blackwell Publishing. (2008).
3. Agrios, G. N. Plant pathology. Harcourt Asia Pvt. Ltd. (2000).
4. Shalini Suri. Biofertilizer and Biopesticide Aph Publishing Corporation (2011)

COURSE OUTCOMES

SE 331B. CO1. Students will develop a very good understanding of practical aspects of production of Biofertilizers.

SE 331B. CO2. Students will develop a very good understanding of practical aspects of the production of Biopesticides/bioinsecticides

Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS in Microbiology
Phavan's Vivekananda College
Sainikpuri

SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc MICROBIOLOGY

B. Sc II YEAR SYLLABUS (2025 onwards)

SUBJECT-MICROBIOLOGY

IV SEMESTER (4 HPW-4Credits)

MB 431 Paper IV Immunology and Medical Microbiology

Overall Course Objective:

Describe various infectious diseases in humans and study of immune responses against infections.

UNIT WISE COURSE OBJECTIVES:

COB1. List components of immune systems and types of immunity.

COB2. Explain immunological disorder and antigen-antibody reactions

COB3. Discuss the role of microbiota in human health and disease

COB4. Outline transmission and pathogenesis of various viral and parasitic diseases

Unit-1 Introduction to Immunology

15 hrs

Concept of haematopoiesis

1hr

Cells of immune system

2hr

Organs of immune system- primary and secondary lymphoid organs,

Structure and classification of antigens, Factors affecting antigenicity

3hr

Antibodies- Basic structure, types, properties and functions of immunoglobulin

2hr

Types of immunity- innate and acquired, humoral and cell mediated immune responses.

3hr

Vaccines and its types

3hr

Major Histocompatibility complex- Class I and II

1hr

Unit-2 Immunological Disorders and Ag-Ab reactions

15 hrs

Types of hypersensitivity- immediate and delayed

3hr

Systemic and localized autoimmune disorders

3hr

Complement pathways- classical and alternate

2hr

Types of Antigen- Antibody reactions- Agglutination, precipitation, neutralization, complement fixation tests. Labelled antibody based techniques-

ELISA, RIA and Immunofluorescence

4hr

Polyclonal and monoclonal antibodies production and application

3hr

Unit-3 Medical Bacteriology

15hrs

Microbiota of human body

1hr

Infection; Properties of pathogenic microorganisms

2hr

Airborne diseases- Tuberculosis

3hr

Food and waterborne diseases- Cholera, Typhoid

2hr

Contact diseases- Syphilis, Gonorrhoea

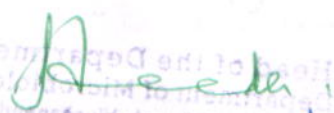
3hr

General account on Nosocomial infections- *Staphylococcus aureus*; MRSA & *Pseudomonas*

3hr

Antimicrobial Resistance

1hr


Dr. Hameeda Bee

Associate Professor

Department of Microbiology

Osmania University, Hyd-07


Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College

Unit-4 Medical Virology and Parasitology

15 hr

Water borne diseases- Poliomyelitis
Insect borne diseases- Malaria, Dengue, Filariasis
Zoonotic diseases- Rabies, Toxoplasmosis
Contact Diseases- Hepatitis B, HIV
Air borne diseases- Influenza, SARS-CoV 2 (COVID-19)

2hr
5 hr
2hr
3hr
3hr

REFERENCES:

1. Jawetz. Medical Microbiology and Immunology (2000), 6th Edition. Mc Graw Hill, New York.
2. Greenwood, David. Medical Microbiology (1997). 15th Edition. Churchill Livingstone, New Delhi.
3. Chakraborty, B. (1998). A Text Book of Microbiology, New Central Book Agency (P) Ltd, Calcutta, India.
4. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
5. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
6. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical
7. Zaman, Hand book of Medical Parasitology 2nd Edition, K.C.publishers, Singapore.
8. Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
9. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.
10. Franklin, DJ. and Snow GA. Biochemistry of antimicrobial action. Pub: Chapman & Hall.
11. Garrod, L.P., Lambert, HP. And C'Grady, F. (eds). Antibiotics and Chemotherapy. Publ:Churchill Livingstone.
12. Williams, RAD., Lambart, PA. & Singleton, P. Antimicrobial Drug action. Pub:Bios Sci

Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University.

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS In Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

IV SEMESTER PRACTICALS (2 HPW-1Credit)
MB431 P Paper IV Immunology and Medical Microbiology - Practicals

1. Determination of Blood grouping and Rh typing
2. Total count of RBC and WBC
3. Differential count of Blood leucocytes
4. WIDAL test for typhoid(slide test) by Ag-Ab reactions
5. VDRL test for typhoid(slide test) by Ag-Ab reactions
6. Ouchterlony double diffusion test
7. Separation of serum and plasma
8. IMVIC test- Indole test, methyl red test, VogesProskauer test, Citrate utilization test
9. Oxidase test
10. Catalase test
11. Antibiotic sensitivity test- disc diffusion method
12. Observation of Malaria Parasite

REFERENCES:

1. Gopal Reddy, M., Reddy, M.N., Saigopal, DVR and Mallaiah, K.V. (2007). Laboratory Experiments in Microbiology, 2nd edition. Himalaya Publishing House, Mumbai.
2. Dubey, R.C. and Maheswari, D.K. (2002). Practical Microbiology, S. Chand & Co., New Delhi.
3. Samuel, K.M. (Ed.) (1989). Notes on Clinical Lab Techniques, M.K.G. Iyyer & Son Publishers, Chennai.
4. Wadher, B.J. and Reddy, G.L.B. (1995). Manual of Diagnostic Microbiology, Himalaya Publishing House, Mumbai
5. Mukherjee, K.L. (1996). Medical Laboratory Technology. Vol II. Tata Mc Graw Hill Publishing Co. Ltd., New Delhi.
6. Cappuccino (2000), Microbiology Lab manual, Oxford University Press

COURSE OUTCOMES:

The student will be able to

MB 431. CO1. Evaluate the antimicrobial activity of antibiotics experimentally.

MB 431. CO2. Summarize methods of serological diagnosis.

MB 431. CO3. Summarize on various infectious diseases

MB 431. CO4. Interpret the disease based on symptoms and predict the diagnosis


Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07


Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

B. Sc MICROBIOLOGY (CBCS STRUCTURE)
SE 431A: CLINICAL MICROBIOLOGY
(2025 onwards)
IV SEMESTER (2 HPW-2Credits)

OVERALL COURSE OBJECTIVE:

Discuss the techniques and procedures in diagnosis of an infectious disease

UNIT WISE COURSE OBJECTIVES

This paper provides

COB1. Introduction to infectious diseases, specimen collection and media used to culture bacterial pathogens

COB2. Conceptual study of Kit based serological detection and Molecular methods of various human pathogens

Unit-1:

15Hrs

Overview of infectious diseases-bacterial, viral, fungal, parasitic

Diagnostic Microbiology: Collection of clinical specimens and their processing -blood sample,

Separation of blood components. Sputum, CSF, Stool, Urine, Swabs, Biopsy

Examination of sample by staining - Gram stain, Ziehl-Neelson staining for tuberculosis, Giemsa stained thin blood film for malaria

Preparation and use of culture media - Blood agar, Chocolate agar, Lowenstein-Jensen medium, MacConkey agar, Sabarouds Medium Distinct colony properties of various bacterial pathogens.

Unit-2

15Hrs

Kit based serological detection of Pathogens - Typhoid, Dengue, HIV, Swine flu, Syphilis.

Molecular methods of Diagnosis - PCR, Western blotting

Testing for Antibiotic sensitivity in Bacteria

Monitoring of Sanitation in Community – Biohazard Disposal.



Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07



Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

REFERENCES:

1. Jawetz. Medical Microbiology and Immunology (2000), 6th Edition. Mc Graw Hill, New York.
2. Greenwood, David. Medical Microbiology (1997). 15th Edition. Churchill Livingstone, New Delhi.
3. Chakraborty, B. (1998). A Text Book of Microbiology, New Central Book Agency (P) Ltd, Calcutta, India.
4. Samuel, K.M. (Ed.) (1989). Notes on Clinical Lab Techniques, M.K.G. Iyyer & Son Publishers, Chennai.
5. Wadher, B.J. and Reddy, G.L.B. (1995). Manual of Diagnostic Microbiology, Himalaya Publishing House, Mumbai

COURSE OUTCOMES

SE 431A. CO1. Acquaint knowledge on methods of clinical specimen collection, processing and culturing.

SE 431A. CO2. Understand various serological and molecular techniques to detect pathogenic Infections.

Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094,

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094,

CHAIRPERSON
BOS in Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri

B. Sc MICROBIOLOGY (CBCS STRUCTURE)
IV SEMESTER (2 HPW-2Credits) (2025 onwards)
SE431 B: INTERACTIONS WITH ENTREPRENEURS IN MICROBIAL
TECHNOLOGY AND STARTUPS

Overall Course Objective:

Facilitate students to develop entrepreneurial skills in the field of microbial biotechnology

Submission of a project report by students after interaction with industry experts/enterprises/ Start-up companies in the field of Microbial Technology. The report must include novel ideas, innovations in production, development and commercialization of microbial products.

COURSE OUTCOMES:

By the conclusion of this course, the students

SE 431B. CO1. Understand the potential for commercialization in the field of Microbial Technology.

SE 431B. CO2. Design strategies for initiating microbial product based startup and development of commercial enterprise.



Dr. Hameeda Bee
Associate Professor
Department of Microbiology
Osmania University, Hyd-07



Head of the Department
Department of Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri, Secunderabad - 500 094.

CHAIRPERSON
BOS In Microbiology
Bharatiya Vidya Bhavan's Vivekananda College
Sainikpuri