



A.S.D. Government Degree College for Women **An Autonomous Institution**

Jagannaickpur, Kakinada, Andhra Pradesh-533002
Affiliated to Adikavi Nannaya University, Rajamahendravaram



INTERNAL QUALITY ASSURANCE CELL

2.6.1. The institution has stated learning outcomes (programme and course outcome)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents and the attainment of the same are evaluated by the institution.

MICROBIOLOGY

COURSE OUTCOMES

(2018-23)

DEPARTMENT OF MICROBIOLOGY

COURSE OUTCOMES: 2018-19

SEMESTER I: Introduction to Microbiology & Microbial Diversity

- Explain relationship and apply appropriate terminology relating to the structure, genetics, metabolism and ecology of prokaryotic microorganisms, algae, viruses and fungi.
- Students will get basics and importance of Microbiology
- Demonstrate appropriate laboratory skills and techniques related to isolation, staining, identification and control of microorganisms.

SEMESTER II: Microbial Biochemistry and Metabolism

- Explain working principle and application of colorimetry, chromatograph, spectrophotometry and Gel Electrophoresis.
- Knowledge on microbial Nutrition, Bacterial growth, metabolism and Respiration.
- The students will get first-hand experience on separation methods.

SEMESTER III: Microbial Genetics & Molecular Biology

- Develop Knowledge on microbial genetics and molecular biology and instrumentation.
- To develop knowledge and skill related to Genetic engineering
- To be able expertise in cloning techniques

SEMESTER IV: Immunology and Medical Biology

- Explains non-specific body defenses and the immune response.
- Develop knowledge on disease transmission and control
- Demonstrate on collection and handling of laboratory specimens
- Develop information making personal health decision in regard to infectious diseases.

SEMESTER V: Environmental & Agricultural Microbiology

- The students will have fundamental concepts in soil microbiology, soil microbial diversity,
- Basic concepts of nitrogen fixation. And plant growth promotion.

- Understanding the role of microorganisms in treatment of solid and liquid waste.
- The students will acquire knowledge on application of microorganism in agro-environment fields.
- Knowledge on plant disease control.

SEMESTER V: Food and Industrial Microbiology

- The course aim to improve general principles and food microbiology.
- It is assume that students will have got basic information on spoilage, principle of food preservation and single cell proteins.

SEMESTER VI: Microbial Biotechnology (Elective)

- Student should be able to demonstrate with the wide diversity of microbes and their potential for use in microbial biotechnology.
- It is assume that students will get outlines of intellectual property rights



Signature of Lecturer IN-Charge

M. Suvarchale
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AUTONOMOUS
KAKINADA



DEPARTMENT OF MICROBIOLOGY

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SEMESTER VI: Microbial Diagnosis in Health Clinics (Clust-I)

1. Develop knowledge on disease transmission and control.
2. Demonstrate on collection ,handling and diagnosis of laboratory specimens .
3. Develop information making personal health decision in regard infectious diseases

SEMESTER VI: Microbial Quality Control in Food and Pharma Industries

1. Develop knowledge and skill on microbiological laboratory safety- General rules and regulations
2. Develop skills on disinfections of instruments and equipments in laboratory and hospital

SEMESTER VI: Biofertilizers and Biopesticides (Clust-III)

1. Develop knowledge and skills on mass multiplication and field application of biofertilizers and biopesticides.
2. Production of Bacterial Biofertilisers
3. Field application techniques of Biofertilisers



Signature of Lecturer In-charge

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DEPARTMENT OF MICROBIOLOGY

COURSE OUTCOMES: 2020-21

SEMESTER I: Introduction to Microbiology & Microbial Diversity

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- Understanding the role of microorganisms in treatment of solid and liquid waste.
- The students will acquire knowledge on application of microorganism in agro-environment
- Fields.
- Knowledge on plant disease control.

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1. Develop knowledge and skills on mass multiplication and field application of biofertilizers and biopesticides.
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Signature of Lecturer IN-Charge

M. Sivarachala

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Department of Microbiology
Course Outcomes

BSc	MICROBIOLOGY (Semester: I)	Credits: 4
MBT: I	INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY	Hrs/Wk: 4

Course outcomes

Up on completion of the course students able to

1. Explain relationship and apply appropriate terminology relating to the structure, Genetics, metabolism and ecology of prokaryotic microorganisms, Algae, viruses and Fungi.
2. Students will get basics and importance of Microbiology.
3. Demonstrate appropriate laboratory skill and techniques related to isolation, staining, identification and control of microorganisms.

BSc	MICROBIOLOGY (Semester: II)	Credits: 4
MBT: II	MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY	Hrs/Wk: 4

Course outcomes

Up on completion of the course students able to

1. This Course provides Understanding of biomolecular synthesis
2. Explain working principle and applications of Colorimetry, Chromatography, Spectrophotometry, Centrifugation and Gel Electrophoresis.
3. Knowledge on Microbial nutrition, bacterial growth, metabolism and Respiration.
4. The student will get first-hand experience on separation methods

BSc	MICROBIOLOGY (Semester: III)	Credits: 4
MBT: III	MOLECULAR BIOLOGY AND MICROBIAL GENETICS	Hrs/Wk: 4

Course outcomes

Up on completion of this course students should able to:

1. Develop Knowledge on microbial genetics and molecular biology and instrumentation.
2. To develop knowledge and skill related to Genetic engineering
3. To be able expertise in cloning techniques

BSc	MICROBIOLOGY (Semester: IV)	Credits: 4
MBT: IV	IMMUNOLOGY AND MEDICAL MICROBIOLOGY	Hrs/Wk: 4

Course outcomes

Up on completion of the course students able to

1. Explain Non-specific body defence and the immune response
2. Develop knowledge on disease transmission and control
3. Demonstrate on collection and handling of laboratory specimens
4. Develop an information making personal health decision in regard to infectious diseases.
5. Student can safeguard himself & society and can work diagnostics and hospitals.

BSc	MICROBIOLOGY (Semester: IV)	Credits: 4
MBT: V	MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY	Hrs/Wk: 4

Course outcomes

Up on completion of the course students able to

1. Understand fundamental concept in soil microbial diversity, basic concept of biogeochemical cycles and plant growth promotion and plant diseases
2. Understands the role of microorganisms in treatment of solid and liquid waste.
3. Acquire knowledge on application of microorganisms in agro – environmental fields.
4. Get basic information design of fermenter, fermentation processes and Single cell proteins.
5. Self-reliance in the industrial application of Microbiology in life and industry.
6. Entrepreneurship can be established with the gained knowledge.

THIRD YEAR – SEMESTER- V

Paper 5: ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY

Course Outcomes:

1. The student will have fundamental concepts in soil microbiology, soil microbial diversity, basic concept of nitrogen fixation and plant growth promotion.
2. Understands the role of microorganisms in treatment of solid and liquid waste.
3. The student will acquire knowledge on application of microorganisms in agro – environmental fields.
4. Knowledge on plant disease control.

Paper 6: FOOD AND INDUSTRIAL MICROBIOLOGY

Course Outcomes:

1. The course aim to provide general principles of food microbiology
2. It is assumed that students will have get basic information on spoilage, principle of food preservation and Single cell proteins.

THIRD YEAR – SEMESTER- VI

Elective Paper

MICROBIAL BIOTECHNOLOGY

Course Outcomes:

1. Student should be able to demonstrate with the wide diversity of microbes and their potential for use in microbial biotechnology
2. It is assumed that students will have get outlines of intellectual property rights.

THIRD YEAR – CLUSTER PAPERS :SEMESTER- VI

8A1: MICROBIAL DIAGNOSIS IN HEALTH CLINICS

Course Outcomes:

1. Develop knowledge on disease transmission and control
2. Demonstrate on collection, handling and diagnosis of laboratory specimens
3. Develop a information making personal health decision in regard to infectious diseases.

THIRD YEAR – SEMESTER- VI

8A2: MICROBIAL QUALITY CONTROL IN FOOD AND PHARMACEUTICAL INDUSTRIES

Course Outcomes:

1. Develop knowledge and skills on microbiological laboratory safety- General rules and regulations.
2. Develop skills on disinfection of instruments and equipments in laboratory and Hospitals

THIRD YEAR – SEMESTER- VI

8A3: BIOFERTILIZERS AND BIOPESTICIDES

Course Outcomes:

1. Develop knowledge and skills on mass multiplication and field application of biofertilizers and biopesticides.



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BSc MICROBIOLOGY (Semester: I)

Introduction to Microbiology And Microbial Diversity

Course outcomes

Up on completion of the course students able to

1. Explain relationship and apply appropriate terminology relating to the structure, Genetics, metabolism and ecology of prokaryotic microorganisms, Algae, viruses and Fungi.
2. Students will get basics and importance of Microbiology.
3. Demonstrate appropriate laboratory skill and techniques related to isolation, staining, identification and control of microorganisms.

(Semester: II)

Microbial Physiology and Biochemistry

Course outcomes

Up on completion of this course students should able to:

1. Explain working principle and applications of Colorimetry, Chromatography, Spectrophotometry, Centrifugation and Gel Electrophoresis.
2. Knowledge on Microbial nutrition, bacterial growth, metabolism and Respiration.
3. The student will get first-hand experience on separation methods

(Semester: III)

Molecular Biology and Microbial Genetics

Course outcomes

Up on completion of this course students should able to:

1. Understand the nature of genetic material, process of DNA replication and the role of DNA and RNA.
2. Understand gene structure, genetic code and the process of transcription, translation and regulation of gene expression in bacteria.
3. Define and classify mutations, understand their molecular basis.
4. Familiarize with genetic recombination in bacteria, and Genetic engineering technology

(Semester: IV)

Paper4: Immunology and Medical Microbiology

Course outcomes

Up on completion of the course students able to

1. Explain Non-specific body defence and the immune response
2. Develop knowledge on disease transmission and control
3. Demonstrate on collection and handling of laboratory specimens
4. Develop information making personal health decision in regard to infectious diseases.
5. Student can safeguard himself & society and can work diagnostics and hospitals

(Semester: IV)

Paper5: Microbial Ecology and Industrial Microbiology

Course outcomes

Up on completion of the course students able to

1. Understand fundamental concept in soil microbial diversity, basic concept of biogeochemical cycles and plant growth promotion and plant diseases
2. Understands the role of microorganisms in treatment of solid and liquid waste.
3. Acquire knowledge on application of microorganisms in agro – environmental fields.
4. Get basic information design of fermenter, fermentation processes and Single cell proteins.
5. Self-reliance in the industrial application of Microbiology in life and industry.
6. Entrepreneurship can be established with the gained knowledge.

III BSc: Semester: V

A1: Food, Agriculture and Environmental Microbiology

Course outcomes

Up on completion of the course students able to

1. **CO1:** Demonstrate with the wide diversity of microbes and their spoilage food, food intoxication and food born infections
2. **CO2:** Able to understand principles of food preservation, fermented foods and microbes as food.
3. **CO3:** The student will acquire knowledge on application of microorganisms in agro – environmental fields
4. **CO4:** Get fundamental concepts in principles of plant disease control an industrial application of Microbiology
5. **CO5:** The student will have fundamental concepts in soil microbiology and soil water and aero microbial diversity and microbial interactions Basic concepts in treatment of drinking water.
6. **CO6:** Understands the role of microorganisms in treatment of solid and liquid waste.

III BSc: Semester: V

A2: Management of Human Microbial Diseases and Diagnosis

Course outcomes

Up on completion of the course students able to

CO1: Develop knowledge and skills on microbiological laboratory skills for identification of pathogens

CO2: Students will demonstrate the collection of clinical samples

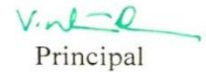
CO3: Students will get knowledge on staining techniques

CO4: Students able to perform diagnostic techniques

CO5: To understand drug resistance



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