ANDHRA MAHILA SABHA
ARTS & SCIENCE COLLEGE FOR WOMEN
Autonomous - NAAC Re-Accredited, O.U.Campus, Hyderabad – 500 007
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Scheme of Instruction, Evaluation and Syllabus of

B.Sc (BtZC)

With effect from Academic Year 2025–2026

DEPARTMENT OF BIOTECHNOLOGY

ANDHRA MAHILA SABHA
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PROGRAMME EDUCATIONAL OBJECTIVES

B.Sc. (BtZC) – Biotechnology, Zoology, Chemistry

1. PEO 1 – Foundational Knowledge and Laboratory Skills:

To provide students with comprehensive foundational knowledge and practical skills in Biotechnology, Zoology, and Chemistry, enabling them to understand, analyze, and apply biological and chemical concepts in research, industry, and higher education.

2. PEO 2 – Research Orientation and Analytical Skills:

To develop students' ability for scientific investigation, critical thinking, and problem-solving, preparing them to address real-world challenges in plant and animal sciences, chemical analysis, and biotechnological applications through research-based approaches.

3. PEO 3 – Professional Readiness and Employability:

To equip students for diverse career paths in pharmaceuticals, agriculture, healthcare, environmental management, research laboratories, education, and quality control industries, while fostering professional ethics, adaptability, and a responsible work attitude.

4. PEO 4 – Ethical, Environmental, and Social Responsibility:

To cultivate ethical values, environmental awareness, biodiversity conservation, and social responsibility, encouraging students to apply their scientific knowledge for sustainable development, ecological balance, and community welfare.

5. PEO 5 – Lifelong Learning and Higher Education:

To inspire students to pursue higher education, including postgraduate studies and professional courses, and embrace lifelong learning for continual academic and professional development.

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Programme Outcomes (POs)

B.Sc. (BtZC) – Biotechnology, Zoology, Chemistry

1. Scientific and Core Knowledge:

Gain strong foundational knowledge in Biotechnology, Zoology, and Chemistry, enabling understanding and application of scientific concepts to solve biological and chemical science problems.

2. Laboratory and Analytical Skills:

Develop proficiency in laboratory techniques, equipment handling, and analytical skills essential for experiments and scientific investigations.

3. Research and Problem-Solving Ability:

Cultivate scientific reasoning, critical thinking, and research aptitude for identifying and solving real-world challenges in life sciences and chemical sciences.

4. Environmental and Ethical Responsibility:

Demonstrate awareness of biodiversity conservation, sustainable development, and ethical responsibilities towards society and the environment.

5. Communication and Teamwork:

Communicate scientific information effectively and work efficiently both independently and within teams, exhibiting leadership where needed.

6. Technological and Digital Proficiency:

Use modern tools, technologies, and ICT resources for data analysis, documentation, and scientific reporting.

7. Lifelong Learning and Professional Development:

Pursue higher studies, professional advancement, and continuous learning for personal and career growth.

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Programme Specific Outcomes (PSOs)

B.Sc. (BtZC) – Biotechnology, Zoology, Chemistry

1. PSO 1 – Subject-Specific Knowledge:

Apply specialized knowledge of Biotechnology, Zoology, and Chemistry to understand the structure, function, and interaction of biological systems, and chemical processes relevant to life sciences.

2. PSO 2 – Experimental Competence:

Perform subject-specific laboratory techniques, including plant and animal dissection, microbial handling, biotechnological protocols and chemical analysis, ensuring accuracy, safety, and ethical compliance.

3. PSO 3 – Problem Solving in Applied Sciences:

Use theoretical and practical understanding to analyze and solve problems in plant sciences, animal biology, biotechnology, environmental science, and chemical industries.

4. PSO 4 – Research and Innovation:

Develop small-scale research projects and contribute to scientific innovation by applying techniques of molecular biology, analytical chemistry, bioinformatics, and ecological assessment.

5. PSO 5 – Industry and Career Readiness:

Prepare for employment in pharmaceutical companies, food industries, clinical labs, agriculture, healthcare, chemical industries, and educational institutions, or for higher academic pursuits.

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SEMESTER-I

CORE THEORY-I

CELL BIOLOGY, GENETICS AND BIOSTATISTICS

Course Objectives

A. To understand intracellular organization of prokaryotic & eukaryotic cells & its morphology.
B. To comprehend the molecular process of cell cycle, cell division and cell death.
C. To understand the mechanism of inheritance and variation
D. To comprehend the basic concepts of biostatistics and significance

Course Outcomes

A. Knowledge on cytological architectural of prokaryotic & eukaryotic cell
B. Attain Knowledge on the basic mechanism underlying in cell cycle, cell division and cell death
C. Acquire the knowledge of traits inheritance from one generation to another
D. Gain knowledge of sampling and measures of central tendency, probability and Hypothesis
Testing

SEMESTER-II

CORE THEORY-II

MICROBIOLOGY & IMMUNOLOGY

1. Course Objectives :

A. To learn the general characteristics of microorganisms
B. To gain knowledge of the sterilization methods and bacterial growth
C. To understand an overview of different types of immunity, cells & organs involved in the immune system.
D. To comprehend the immunoglobulins and autoimmune disorders

2. Course Outcomes :

A. Understanding the basics of microbiology and microbial classification
B. To culture different bacteria and know how to preserve them
C. Remember, interpret, and use the basic concepts to have a comprehensive understanding of antigen-antibody interactions and their relevance in immunology
D. Define, summarize, use, and analyse the knowledge, skills, and competencies to understand immunoassays effectively in various scientific and biomedical sciences