



## **Government Girls' P.G. College Ghazipur**

### **Academic Year:2021-22**

List of Courses that include experiential Learning through project work /field work/dissertation:

1. Home Science
2. Zoology
3. Botany



YCV

## PERSONS WITH DISABILITIES

M.A./M.Sc. II (Paper V) Core

Marks : Theory – 50

Practical – 25

### OBJECTIVES

- To become aware of various impairments and the manner in which these affect the lives of individuals.
- To identify the physical and social barriers which create difficulties for people with disabilities.
- To understand that there is a wide variation between people with disabilities and they are not a single group.
- To realise that the experiences of individuals with disabilities are related to their age, gender and also shaped by the context.
- To become aware of experiences of persons with disabilities and recognize that having an impairment is only one aspect of their lives.
- To develop an understanding gained from the experiences of people with disabilities in planning service for them.

### CONTENTS :

1. Various approaches to defining and understanding disability  
Philanthropic, medical, administrative, legal and the social.
2. Different types of impairments, causes and effects on individuals
  - Physical
  - Intellectual
  - Emotional
  - Sensory

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3. The role of context in the meaning of normality and disability, attitudes of people towards disability.
4. The philosophy of inclusion.
5. Techniques of identification and assessment.
6. Physical and social barriers in the development of persons with disabilities. modification of physical and social environment, enabling participation of persons with disabilities as a contributing member of society.
7. Use of assistive devices.
8. The shared and varied experiences of those so affected.
9. The rights versus needs of persons with disabilities.
10. Examples of programmes and policies for persons with disabilities.
11. Issues in planning inclusive programmes for persons with disabilities.

### Practical

1. Review and critique of portrayal of persons with disabilities in the media.
2. Tools and approaches to assessment.
3. Case study of two persons with disability – a child and an adult.





### OBJECTIVES

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10. Examples of programmes and policies for persons with disabilities.
11. Issues inplanning inclusive programmes for persons with disabilities.

### Practical

1. Review and critique of portrayal of persons with disabilities in the media.
2. To and approaches to assessment.
3. Case study of two persons with disability – a child and an adult.
4. Case study of an organisation with particular reference to its physio social environment.

 SCIENTIFIC WRITING





## Botany – Semester 1& 2

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| CERTIFICATE COURSE IN MICROBIAL TECHNOLOGY & CLASSICAL BOTANY / B.Sc.-I  |   |                          |
|--|---|--------------------------|
| Programme: <i>Certificate Course In Microbial Technology &amp; Classical Botany</i>  | Year: I   | Semester: I/Paper-II     |
| Subject: <b>Botany</b>   |   |                          |
| Course Code: B040102P  | Course Title: <b>Techniques in Microbiology &amp; Plant Pathology</b> |                          |
| <b>Course outcomes:</b> After the completion of the course the students will be able:<br><ol style="list-style-type: none"><li>1. Understand the instruments, techniques ,lab etiquettes and good lab practices for working in a microbiology laboratory.</li><li>2. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes.</li><li>3. Practical skills in the field and laboratory experiments in Microbiology &amp; Pathology.</li><li>4. learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations.</li><li>5. Can initiate his own Plant &amp; Seed Diagnostic Clinic</li><li>6. Can start own enterprise on microbial products</li></ol> |   |                          |
| Credits:2  | <b>Core Compulsory</b>  |                          |
| Max. Marks: 25+75  | Min. Passing Marks:   |                          |
| Total No. of Lectures-Tutorials-Practical (in hours per week): 0-0-2   |   |                          |
| Unit   | Topic * (Minimum Any three from each unit depending on facilities)    | No. of Lectures (60 hrs) |

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| I.  | <b>INSTRUMENTS &amp; TECHNIQUES</b><br>1. Laboratory safety and good laboratory practices<br>2. Principles and application of Laboratory instruments-microscope, incubator, autoclave, centrifuge, LAF, filtration unit, shaker, pH meter.<br>3. Buffer preparation & titration<br>3. Cleaning and Sterilization of glasswares<br>4. Preparation of media- Nutrient Agar and Broth<br>5. Inoculation and culturing of bacteria in Nutrient agar and nutrient broth<br>6. Preparation of agar slant, stab, agar plate<br>7. Phenol Coefficient method to test the efficacy of disinfectants | 7 |
| II  | <b>BACTERIAL IDENTIFICATION</b><br>1. Isolation of bacteria.<br>2. Identification of bacteria.<br>3. Staining techniques: Gram's, Negative, Endospore, Capsule and Cell Wall.<br>4. Cultural characteristics of bacteria on NA.<br>5. Pure culture techniques (Types of streaking).<br>6. Biochemical characterization :<br>IMViC, Carbohydrate fermentation test, Mannitol motility test, Gelatin liquefaction test, Urease test, Nitrate reduction test, Catalase test, Oxidase test, Starch hydrolysis, Casein hydrolysis.  | 8 |
| III | <b>MYCOLOGICAL STUDY:</b><br>1. Isolation of different fungi: Saprophytic, Coprophilous, Keratinophilic.<br>2. Identification of fungi by lactophenol cotton blue method. <i>Rhizopus</i> , <i>Saccharomyces</i> , <i>Penicillium</i> , <i>Peziza</i> , <i>Ustilago</i> , <i>Puccinia</i> ; <i>Fusarium</i> , <i>Curvularia</i> , <i>Alternaria</i> .<br>3. <i>Agaricus</i> : Specimens of button stage and full grown mushroom; Sectioning of gills of <i>Agaricus</i> .<br>4. Lichens: crustose, foliose and fruticose specimens.  | 8 |

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| IV  | <b>PHYCOLOGY:</b><br>1. Type study of algae and Cyanobacteria – <i>Spirulina</i> , <i>Nostoc</i> , Chlorophyceae - <i>Chlorella</i> , <i>Volvox</i> , <i>Oedogonium</i> , <i>Cladophora</i> , and <i>Chara</i> ; Xanthophyceae – <i>Vaucheria</i> ; Bacillariophyceae – <i>Pinnularia</i> Phaeophyceae – <i>Sargassum</i> Rhodophyceae - <i>Polysiphonia</i>   | 7 |
| V   | <b>EXPERIMENTAL PLANT PATHOLOGY</b><br>1. Preparation of fungal media (PDA) & Sterilization process.<br>2. Isolation of pathogen from diseased leaf.<br>Identification: Pathological specimens of Brown spot of rice, Bacterial blight of rice, Loose smut of wheat, Stem rot of mustard, Late blight of potato; Slides of uredial, telial, pycnial & aecial stages of Puccinia. Few viral and bacterial plant diseases.   | 8 |
| VI  | <b>PRACTICALS IN APPLIED MICROBIOLOGY-1</b><br>1. Isolation of nitrogen fixing bacteria from root nodules of legumes.<br>2. Enumeration of rhizosphere to non rhizosphere population of bacteria.<br>3. Isolation of antagonistic <i>Pseudomonas</i> from soil.<br>4. Microscopic observations of root colonization by VAM fungi.<br>5. Isolation of <i>Azospirillum</i> sp. from the roots of grasses.<br>6. Isolation of phyllosphere microflora.<br>7. Isolation of P solubilizing microorganisms.                                | 8 |
| VII | <b>PRACTICALS IN APPLIED MICROBIOLOGY-2</b><br>1. Wine production.<br>2. Isolation of lactic acid bacteria from curd.<br>3. Isolation of lipolytic organisms from butter or cheese.<br>4. Immobilized bacterial cells for production of hydrolytic enzymes.<br>5. Enzyme production and assay – cellulase, protease and amylase.<br>6. Immobilization of yeast.<br>7. Isolation of cellulolytic and anaerobic sulphate reducing bacteria.<br>8. Isolation and characterization of acidophilic, alkalophilic and halophilic bacteria. | 8 |

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VIII

|   |   |
|---|---|
| 1. Cultivation of Spirulina, & Chlorella in lab for biofuel                               | 6 |
| 2. Visit to NBAIM, Mau, Varanasi (Kashi) / IMT, Chandigarh for viewing Culture Repository |   |
| 3. Visit to biofertilizers and biopesticides unit to understand about the Unit operation  |   |

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|  |  |
|--|--|
| procedures                                   |  |
| 4. Mushroom cultivation for Protein          |  |
| 5. Alcohol production. from Sugarcane Juice. |  |

**Suggested Readings:**

**Course Books published in Hindi may be prescribed by the Universities.**

1. प्रयोगात्मक वनस्पति विज्ञान भाग 1 लेखक अशोक वेद्रे तथा अशोक कुमार प्रकाशन रस्तोगी प्रकाशन मेरठ
2. प्रायोगिक वनस्पति विज्ञान-I Dhankar - Sharma - Trivedi ISBN Code: 978-81-8142-697-0 65, RBD Publishing House Shivaji Nagar Civil Lines, Jaipur - 302006 ( Rajasthan )
3. प्रायोगिक वनस्पति विज्ञान वी, एम.सी.-1 एस वी अग्रवाल प्रकाशक : शिवलाल अग्रवाल एण्ड कम्पनी प्रकाशित वर्ष : 2018
4. Practical Botany (Part I) ISBN #:81-301-0008-8 Sunil D Purohit, Gotam K Kukda & Anamika Singhvi Edition: 2012 Anamika Singhvi, Prakashan, Jaipur, Rajasthan ( India )

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**This course can be opted as an elective by the students of following subjects: Open to all but special for B.Sc. Biotech, B.Sc. Microbiology, B.Sc. Agriculture, B.A. (Curators), B.A. Archaeology, B.A. Geology, BAMS.**

**Suggested Continuous Evaluation Methods:**  
Continuous Internal Evaluation shall be based on allotted Assignment and Class Tests. The marks shall be as follows:

| Internal Assessment  | Marks |
|--|-------|
| Class Interaction  | 5     |
| Quiz   | 5     |
| Seminar  | 7     |
| Minor field work/excursion/lab visit/technology dissemination etc. | 8     |

**Course prerequisites:**  
**Qualification:** To study this course, a student must have qualified 10+2 with Biology/ NSQF level 3 from Sector Skill Councils / Diploma holder from ITI in (Biology/ Agriculture/ Biotech/ Microbiology/ biomedical Science).  
**Facilities: Smart and Interactive Class**

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Suresh Kumar, Amar Singh Kashyap Manual of Practical Algae.. Campus Books Internet, New Delhi. Santra, S.C. 2005. College Botany Practical Vol. II. New Central Book Agency (P) Ltd.

**This course can be opted as an elective by the students of following subjects:**  
**Open to all but special for** B.Sc. Biotech, B.Sc. Forestry, B.Sc. Agriculture, B. Pharma, B.A.  
**Suggested Continuous Evaluation Methods:** Continuous Internal Evaluation shall be based on allotted Assignment and Class Tests. The marks shall be as follows:

| Internal Assessment   | Marks |
|---|-------|
| Class Interaction   | 6     |
| Field work /Virtual/E-learning /Participation in group discussions                          | 7     |
| <b>Industrial or Central laboratory training of two weeks in summer/winter (Compulsory)</b> | 12    |
|   | 25    |

**Course prerequisites:**  
**Qualification:** To study this course, a student must have qualified 10+2 with Biology/ NSQF level 3 from Sector Skill Councils / Diploma holder from ITI in (Biology/ Agriculture/ Forestry).  
**Facilities:** Smart and Interactive Class

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## Zoology – B.Sc. Sem- 1 & 2

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| Programme/Class: Certificate  | Year: First   | Semester: First |
|---|---|-----------------|
| <b>Subject:</b> ZOOLOGY   |   |                 |
| <b>Course Code:</b> B050101T  | <b>Course Title:</b> Cytology, Genetics and Infectious Diseases |                 |
| <b>Course outcomes:</b><br>The student at the completion of the course will be able to: <ul style="list-style-type: none"><li>Understand the structure and function of all the cell organelles.</li><li>Know about the chromatin structure and its location.</li><li>To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms.</li><li>How one cell communicates with its neighboring cells?</li><li>Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another.</li><li>Understand the Mendel's laws and the deviations from conventional patterns of inheritance.</li><li>Comprehend how environment plays an important role by interacting with genetic factors.</li><li>How to detect chromosomal aberrations in humans and study the pattern of inheritance by pedigree analysis in families.</li></ul> |   |                 |
| <b>Credits:</b> 4   | <b>Core:</b> Compulsory   |                 |
| <b>Max. Marks:</b> 25+75  | <b>Min. Passing Marks:</b> as per rules                         |                 |
| <b>Total No. of Lectures-Tutorials-Practical (in hours per week):</b> L-T-P:4-0-0   |   |                 |
| Unit  | Topics  | Total No. of    |

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|---|--|-----------------------------------|
| <b>Programme/Class:</b> Certificate   | <b>Year:</b> First   | <b>Semester:</b> First            |
| <b>Subject:</b> ZOOLOGY   |  |                                   |
| <b>Course Code:</b> B050102P  | <b>Course Title:</b> Cell Biology & Cytogenetics Lab   |                                   |
| <b>Course outcomes:</b><br>At the completion of the course students will learn Hands-on:  |  |                                   |
| <ol style="list-style-type: none"> <li>To use simple and compound microscopes.</li> <li>To prepare slides and stain them to see the cell organelles.</li> <li>To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms.</li> <li>The chromosomal aberrations by preparing karyotypes.</li> <li>How chromosomal aberrations are inherited in humans by pedigree analysis in families.</li> <li>The antigen-antibody reaction.</li> </ol> |  |                                   |
| <b>Credits:</b> 2   | <b>Core:</b> Compulsory  |                                   |
| <b>Max. Marks:</b> 25+75  | <b>Min. Passing Marks:</b> as per rules  |                                   |
| Total No. of Lectures-Tutorials-Practical (in hours per week): L-T-P:0-0-4  |  |                                   |
| <b>Unit</b>   | <b>Topics</b>  | <b>Total No. of Lectures (60)</b> |
| I   | <ol style="list-style-type: none"> <li>To study different cell types such as buccal epithelial cells, neurons, striated muscle cells using Methylene blue.</li> <li>To study the different stages of Mitosis in root tip of onion.</li> <li>To study the different stages of Meiosis in grasshopper testis.</li> </ol> | 15                                |

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Freeman (2007).

6. Kesar, Saroj and Vashishta N. (2007). Experimental Physiology: Comprehensive Manual. Heritage Publishers, New Delhi

**Course Books published in Hindi may be prescribed by the Universities and Colleges**

**Course prerequisites:** To study this course, a student must have had the subject biology in class/12<sup>th</sup>  
The eligibility for this paper is 10+2 from Arts/ Commerce/ Science

**Suggested Continuous Evaluation Methods:**

**Total Marks: 25**

**House Examination/Test: 10 Marks**

**Written Assignment/Presentation/Project / Term Papers/Seminar: 10 Marks**

**Class performance/Participation: 5 Marks**

**Further Suggestions: None**

At the End of the whole syllabus any remarks/suggestions: University must ensure incorporation of all 04 units including virtual labs in practical evaluation.

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7. Kesar, Saroj and Vashishta N. (2007). Experimental Physiology: Comprehensive Manual. Heritage Publishers, New Delhi

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**Course prerequisites:** To study this course, a student must have had the subject biology in class/12<sup>th</sup>. The eligibility for this paper is 10+2 from Arts/ Commerce/ Science

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**Total Marks: 25**

**House Examination/Test: 10 Marks**

**Written Assignment/Presentation/Project / Term Papers/Seminar: 10 Marks**

**Class performance/Participation: 5 Marks**

**Further Suggestions: None**

At the End of the whole syllabus any remarks/ suggestions: University must ensure incorporation of all 04 units including virtual labs in practical evaluation.

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| <b>Programme/Class:</b> Certificate  | <b>Year:</b> First   | <b>Semester:</b> Second           |
| <b>Subject:</b> ZOOLOGY  |  |                                   |
| <b>Course Code:</b> B050202P/R   | <b>Course Title:</b> Physiological, Biochemical & Hematology Lab   |                                   |
| <b>Course outcomes:</b><br>The student at the completion of the course will be able to: <ul style="list-style-type: none"><li>Understand the structure of biomolecules like proteins, lipids and carbohydrates</li><li>Perform basic hematological laboratory testing,</li><li>Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases.</li></ul> |  |                                   |
| <b>Credits:</b> 2  | <b>Core:</b> Compulsory  |                                   |
| <b>Max. Marks:</b> 25+75   | <b>Min. Passing Marks:</b> as per rules  |                                   |
| <b>Total No. of Lectures-Tutorials-Practical (in hours per week):</b> L-T-P:0-0-4  |  |                                   |
| <b>Unit</b>  | <b>Topics</b>  | <b>Total No. of Lectures (60)</b> |
| I  | <ol style="list-style-type: none"><li>1. Estimation of haemoglobin using Sahli's haemoglobinometer</li><li>2. Preparation of haemin and haemochromogen crystals</li><li>3. Counting of RBCs and WBCs using Haemocytometer</li><li>4. To study different mammalian blood cell types using Leishman stain.</li><li>5. Recording of blood pressure using a sphygmomanometer</li><li>6. Recording of blood glucose level by using glucometer</li></ol> | 20                                |

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