

M.Sc. Botany, Choice Based Credit System

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Course Structure and Scheme of Examination

SEMESTER I

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 101	Bacteriology, Virology & General Microbiology	Core	3	0	3	
BOT 102	Biology and Diversity of Fungi and Plant Pathology	Core	3	0	3	
BOT 103	Biology and Diversity of Algae, Bryophytes and Lichens	Core	3	0	3	
BOT 104	Biology and Diversity of Pteridophytes and Gymnosperms	Core	3	0	3	
BOT 105	Practical Course Based on Theory Course 101 & 102	Core	0	3	3	
BOT 106	Practical Course Based on Theory Course 103 & 104	Core	0	3	3	
BOT-107	Assignment/Personality development	Core			1	
BOT-108	Seminar-I	Core			1	
BOT-109	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Value: #24

SEMESTER II

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 201	Ecology-I Climatology, Soil Science and Autecology	Core	3	0	3	
BOT 202	Angiosperm Anatomy, Embryology and Palynology	Core	3	0	3	
BOT 203	Water Relations, Growth and Development	Core	3	0	3	
BOT 204	Plant Biochemistry and Metabolism	Core	3	0	3	
BOT 205	Practical Course Based on Theory Course 201 & 202	Core	0	3	3	
BOT 206	Practical Course Based on Theory Course 203 & 204	Core	0	3	3	
BOT-207	Assignment/Personality development	Core			1	
BOT-208	Seminar-II	Core			1	
BOT-209	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Values: #24



SEMESTER III

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 301	Angiosperm Morphology & Taxonomy	Core	3	0	3	
BOT 302	Ecology-II Synecology, Ecosystematology & Phytogeography	Core	3	0	3	
BOT 303	Major Elective I	1. Ethnobotany	3	0	3	
		2. Agroecology				
BOT 304	Major Elective II	1. Plant Biotechnology: In Vitro Culture, Genetic Engineering and IPR Issue	3	0	3	
		2. Pollution Ecology				
BOT 305	Practical - I	Core	3	0	3	
BOT 306	Practical - II	Core	3	0	3	
BOT-307	Assignment/Personality development	Core			1	
BOT-308	Seminar-II	Core			1	
BOT-309	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Values: #24

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***SEMESTER IV**

Code	Course	C/E/S	L	P	Credit	Remarks
BOT 401	Genetics, Plant Breeding and Evolution	Core	3	0	3	
BOT 402	Cytology and Molecular Biology of Plants	Core	3	0	3	
BOT 403	Major Elective I	1. Industrial Microbiology	3	0	3	
		2. Stress Physiology				
BOT 404	Major Elective II	1. Bioinstrumentation	3	0	3	
		2. Plant Pathology				
BOT 405	Practical - I	Core	3	0	3	
BOT 406	Practical - II	Core	3	0	3	
BOT-407	Assignment/Personality development	Core			1	
BOT-408	Seminar-II	Core			1	
BOT-409	Comprehensive viva-voce exam	Virtual credit			4	

Total Credit Values: (Total credits = 24)

NOTE: Lecture (L): 1 hr = 1 Credit

Tutorial (T): 2 hr = 1 Credit

Practical (P): 2 hr = 1 Credit

Total Core Course:

Total Elective:

Total Soft Course:

SESSION

JULY 2017

**JIWAJI UNIVERSITY
GWALIOR (M.P.)**

BOT (01) BACTERIOLOGY

BACTERIOLOGY

UNIT I:

- 1. Historical introduction
- 2. Identification of bacteria
- 3. General characteristics of *Escherichia coli* and *Chlamydia*
- 4. Diseases caused by *Escherichia coli* and *Chlamydia*
- 5. Mode of multiplication: bacteria, autotrophy, heterotrophy, symbiosis

UNIT II:

- 1. General aspects of sterilization culture media and culture techniques
- 2. A general view about bacterial types
- 3. Bacterial diseases caused by *Escherichia coli* and *Chlamydia*

SYLLABUS

UNIT III:

- 1. General properties and classification of viruses
- 2. Cultivation of virus and virus assay
- 3. Transmission of plant viruses and control measures
- 4. Oncogenic viruses and onco-oncogenes
- 5. Viral diseases: measles, Hepatitis, AIDS and Rabies

FOR

UNIT IV:

- 1. Role of microorganisms in biotechnology, food, medicine, agriculture, environmental science, pollution, etc.
- 2. Microbial control: sterilization of pharmaceuticals and food products
- 3. Microplasma: general, zoonotic and infectious diseases caused by them

M.Sc. (BOTANY)

UNIT V:

- 1. Microbial conversion of waste products with particular reference to alcohol and biogas
- 2. General aspects of bioreactors, properties of substrates and inhibitors
- 3. Allergens and food allergens
- 4. Mycotoxic and drug harmful

SEMESTER SYSTEM

PRACTICALS:

1. Preparation of culture media
2. Isolation of *Bacillus* and *Phenol* on agar from soil and nodules
3. Various methods of bacterial staining to study cell wall, endospore, capsule and flagella
4. Identification of micro-organisms by using biochemical tests: *Escherichia coli*, *Staphylococcus*, *Bacillus*, *Pseudomonas*, *Alcaligenes*, *Streptococcus*
5. Construction of bacteriophage
6. Quantitative estimation of bacteria in a sample
7. Isolation of micro-organisms - resistant strains of *Staphylococcus*
8. Culture on agar of bacterial strains of different antibiotics
9. Preparation of CdV and study of chemical reactions involved in the synthesis of CdV
10. Virus cultivation: identification by using electron microscope and electron probe
11. Study of common vectors of plant virus: *Myndus*, *Aphis* and *Trialeurodes*
12. Bacteriophage culture
13. Isolation and identification of bacteria: *Escherichia coli* and *Staphylococcus aureus* and their using different techniques
14. Use of selected media for isolation of bacteria: *Staphylococcus aureus*
15. Identification of bacteria: *Staphylococcus aureus* and *Escherichia coli*

SESSION

2015 - 2017



