Maharaja Surajmal Brij University

Bharatpur (Rajasthan)

Syllabus

Multidisciplinary Course

Subject: Botany

Semester- III, IV&V

Session (2024-25)

डॉ. अरूण कुमार पाण्डेय
उपकुलसचिव
प्रभारी अकादमिक प्रथम

Multidisciplinary Courses Botany

Examination Scheme for EoSE for Semester III

CA – Continuous Assessment **EoSE – End of Semester Examination**

Regular Students – MDC-BOT-20T-1001 / 20P-1002

Type of Examination	Course Code and Nomenclature	Duration of Examination		Maximum Marks		Minimum Marks	
Theory	Introduction of Botany	CA	01 Hr	CA	10 Marks	CA	04 Marks
		EoSE	02 Hrs	EoSE	40 Marks	EoSE	16 Marks
Practical	Introduction of Botany – Practical	CA	1 Hr	CA	10 Marks	CA	04 Marks
		EoSE	04 Hrs	EoSE	40 Marks	EoSE	16 Marks

The theory question paper will have two parts A and B.
Part-A: will have 12 short answer/objective-type questions of one mark each.
Part-B: Part B of the question paper will be divided into four units including question number 2-5. From each unit there will be a question with internal choice. Each question will be of 7 marks.

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Syllabus

Multidisciplinary Courses - Botany
Introduction of Botany

Semester	Code of the Course	Title of the Course/Paper				NHEQF Level	Credits
III		**Introduction of Botany**				6	4
Level of Course	Type of the Course	Credit Distribution			Offered to NC Student	Course Delivery Method	
		Theory	Practical	Total			
Introductory	MDM	2	2	4	Yes	30 lectures with diagrammatic and informative assessments during lecture hours	
List of Programme Codes in which Offered as Minor Discipline							
Prerequisites		Senior Secondary level					
Objectives of the Course:		➢ To understand the diversity of plants. ➢ To differentiate between higher and lower plants. ➢ To gain understanding of importance of plants for human welfare. ➢ To be able to identify different plants.					

Course Outcomes-

1. To make the students familiar with economic importance of diverse plants that offer resources to human life.
2. To make the students known about the plants used as-food, medicinal value and also plant source of different economic value.
3. To generate interest amongst the students on plants importance in day today life, conservation, ecosystem and sustainability.

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MDC-BOT-20T-1001

Introduction of Botany

Detailed syllabus

Unit-I

Concept to understand plants; origin and evolution of plants; history of plant classification; general characteristics of major plant groups-bacteria, algae, fungi, bryophyte, pteridophyta, gymnosperms and angiosperms, general life cycle of an angiospermic plant.

8 lectures

Unit-II

Classification of plants on the basis of habit, habitat and longevity with examples; Morphology, function and types of roots, stem and leaves (brief overview); flower structure; basic fruit and seed structure.

7 lectures

Unit-III

Economic importance of plants: Common name, Scientific name, distribution, cultivation practices, part used and uses of- plants used as food (Wheat, Rice, Gram, Arhar); as fruits (Banana, Mango, Watermelon, Papaya, Apple); as oilseed (Mustard, Groundnut)

8 lectures

Unit-IV

Economic importance of plants: Common name, Scientific name, distribution, cultivation practices, part used and uses of- plants used as spices (Cumin, Coriander, Chili, Laung, Asfoetida); as wood (Sal, deodar, Sheesham); as medicine (Tulsi, Neem, *Aloe vera*, Giloy).

7 lectures

Books Recommended

1. NCERT class 11 and 12, Biology
2. A text book of Botany- Singh, Pandey and Jain, Rastogi Publication
2. Pandey, B.P. (1999). Economic Botany. S. Chand, New Delhi.

MDC-BOT-20P-1002

Introduction of Botany

Practical Syllabus

1. Study of representative members of plant group- *Volvox* (algae); Mushroom (fungi); Bryophytes (*Marchantia*); Pteridophytes (*Selaginella*); Gymnosperms (*Pinus*); Angiosperm (Gram).
2. Study of basic structure and parts of a typical stem, root, leaf, flower, fruit, seed.
3. Study of economically important plants : Wheat, Gram, Soybean, Black pepper, Clove Tea, Cotton, Groundnut through specimens.

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4. Any other exercise based on theory syllabus.

Scheme of Practical Examination and Distribution of marks

MDC - BOT - 20P - 1002

MDM **Duration- 4 hrs**

Max. Marks: 10*+40 **Min. Marks: 4*+16**

S.No.	Exercise	Regular	Ex./N.C. Students
1.	Major Exercise-	10	15
2.	Minor Exercise-1	5	8
3.	Minor Exercise-2	5	7
4.	Spotting (1-5)	10	15
5.	Viva	5	5
6.	Record	5	-

***Internal marks for regular students only**

Regular Candidates must keep a record of all work done in the practical classes and submit the same for inspection at the time of practical examination.

Course learning outcomes:

By the end of this course, the student will be able to:

1. Describe plants of different groups
2. Understand plants found in different habitats.
3. Will recognize the plants of economic importance.
4. Recognize that plants, which can be utilized in various forms.

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Examination Scheme for EoSE for Semester IV

CA – Continuous Assessment **EoSE – End of Semester Examination**

Regular Students – MDC-BOT-20T-2001/20P-2002

Type of Examination	Course Code and Nomenclature	Duration of Examination		Maximum Marks		Minimum Marks	
Theory	Plants and Human Health	CA	01 Hr	CA	10 Marks	CA	04 Marks
		EoSE	02 Hrs	EoSE	40 Marks	EoSE	16 Marks
Practical	Plants and Human Health - Practical	CA	1 Hr	CA	10 Marks	CA	04 Marks
		EoSE	04 Hrs	EoSE	40 Marks	EoSE	16 Marks

The theory question paper will have two parts A and B.
Part-A: will have 12 objective-type questions of one mark each.
Part-B: Part B of the question paper will be divided into four units including question number 2-5. From each unit there will be a question with internal choice. Each question will be of 7 marks.

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Syllabus

Multidisciplinary Courses - Botany
Plants and Human Health

Semester	Code of the Course	Title of the Course/Paper				NHEQF Level	Credits
IV		**Plants and Human Health**				6	4
Level of Course	Type of the Course	Credit Distribution			Offered to NC Student	Course Delivery Method	
		Theory	Practical	Total			
Introductory	MDM	2	2	4	Yes	30 lectures with diagrammatic and informative assessments during lecture hours	
List of Programme Codes in which Offered as Minor Discipline							
Prerequisites		Senior Secondary level					
Objectives of the Course:		➢ To understand the medical uses of plants. ➢ To differentiate use of plants in different natural medical systems. ➢ To gain understanding of importance of plants for human welfare. ➢ To be able to active ingredients of medicinal plants.					

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MDC-BOT-20T-2001

Plants and Human Health

Detailed Syllabus

Unit I

History, Scope and Importance of Medicinal Plants: Indigenous Medicinal Sciences; Definition and Scope-Ayurveda: plants used in ayurvedic treatments, medicinal plants used in Siddha, plants used in Unani. **8 Lectures**

Unit II

Herbal medicines: history and scope - definition of medical terms, cultivation - harvesting - processing - storage - marketing and utilization of medicinal plants, polyherbal formulations

7 Lectures

Unit III

Pharmacognosy – Active compounds and medicinal uses of the following herbs in curing various ailments- Tulsi, Ginger, Fenugreek, Indian Goose berry, Ashoka, Neem, Babool, Karanj, Ashwagandha, Sarpgandha, Isabgol, Senna, Guggal. **8 Lectures**

Unit IV

Ethnic communities of Rajasthan, Application of natural products to certain diseases- Jaundice, Pain, Fever, infertility, diabetics, Blood pressure and skin diseases. Brief overview of plants can be used as nutritional supplements- Millets, Bajra, Ragi, Rajgiri, Jawar. **7 Lectures**

Suggested Readings:

1. Chaudhry, B.(2019). A Handbook of Common Medicinal Plants Used in Ayurveda. New Delhi, Delhi: Kojo Press.
2. Purohit and Vyas (2008). Medicinal Plant Cultivation: A Scientific Approach, 2nd edition. Jodhpur, Rajasthan: Agrobios.
3. Shrivastava,R, Singh, S, Barwant, MM, Singh, B. 2023. Handbook of Medicinal Plants in Health and Diseases, Bluerose Publishers Pvt. Ltd.

MDC-BOT-20P-2002

Plants and Human Health

Practical Syllabus

1. Examples of herbal medicine.
2. Preparation of basic herbal formulation used in Ayurveda.
3. Preparation of decoction of Tulsi, Ginger, Neem, Babool, Karanj etc.
4. Part used and release of active ingredients of medicinal herbs.
5. List of natural products used for certain diseases.
6. Any other exercise based on theory syllabus.

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MDC-BOT-20P-2002

Scheme of Practical Examination and Distribution of marks

MDM
Max. Marks: 10*+40

Duration- 4 hrs
Min. Marks: 4*+16

S.No.	Exercise	Regular	Ex./N.C. Students
7.	Major Exercise-	10	15
8.	Minor Exercise-1	5	8
9.	Minor Exercise-2	5	7
10.	Spotting (1-5)	10	15
11.	Viva	5	5
12.	Record	5	-
*Internal marks for regular students only			
Regular Candidates must keep a record of all work done in the practical classes and submit the same for inspection at the time of practical examination.			

Course learning outcomes:

By the end of this course, the student will be able to:

1. Describe how plants are used to improve human health and nutrition.
2. An appreciation of the contribution of medicinal plants to traditional and modern medicine and the importance of holistic mode of treatment.
3. understanding of the constraints in promotion and marketing of medicinal plants.
4. Developing entrepreneurship skills to establish value addition products, botanical extracts and isolation of bioactive compounds.

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Examination Scheme for EoSE for Semester V

CA – Continuous Assessment **EoSE – End of Semester Examination**

Regular Students – MDC - BOT - 20T - 3001 / 20P - 3002

Type of Examination	Course Code and Nomenclature	Duration of Examination		Maximum Marks		Minimum Marks	
Theory	**Biodiversity Conservation and Ecotourism**	CA	01 Hr	CA	10 Marks	CA	04 Marks
		EoSE	02 Hrs	EoSE	40 Marks	EoSE	16 Marks
Practical	**Biodiversity Conservation and Ecotourism - Practical**	CA	1 Hr	CA	10 Marks	CA	04 Marks
		EoSE	04 Hrs	EoSE	40 Marks	EoSE	16 Marks

The theory question paper will have two parts A and B.
Part-A: will have 12 objective-type questions of one mark each.
Part-B: Part B of the question paper will be divided into four units including question number 2-5. From each unit there will be a question with internal choice. Each question will be of 7 marks.

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Syllabus

Multidisciplinary Courses - Botany
Biodiversity Conservation and Ecotourism

Semester	Code of the Course	Title of the Course/Paper			NHEQF Level	Credits
V		**Biodiversity Conservation and Ecotourism**			7	4
Level of Course	Type of the Course	Credit Distribution			Offered to NC Student	Course Delivery Method
		Theory	Practical	Total		
Introductory	MDM	2	2	4	Yes	30 lectures with diagrammatic and informative assessments during lecture hours
List of Programme Codes in which Offered as Minor Discipline						
Prerequisites		Senior Secondary level				
Objectives of the Course:		➢ Concept of biodiversity ➢ Factors affecting biodiversity ➢ Understanding the major conservation policies ➢ Getting knowledge on ecotourism with home-stay tourism approach				

Course Outcomes-

1. Understanding the fundamental concepts in biodiversity and environmental science.
2. Concept development in conservation, global ecological crisis, Sustainable development and pros and cons of human intervention.
3. Enable the student to appreciate bio diversity and the importance of various conservation strategies, laws and regulatory authorities and global issues related to climate change and sustainable development.

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MDC-BOT-20T-3001

Biodiversity Conservation and Ecotourism

Detailed Syllabus

Unit I

Biodiversity and its distribution: Definition & Concept of biodiversity, levels and types of biodiversity; Biodiversity in India and the world; Endemism, Biodiversity hotspots and importance of its conservation.

8 Lectures

Unit II

Threats to biodiversity: Types and causes of biodiversity loss - Land use and Land cover changes, commercial exploitation of species, invasive species, fire, disaster and climate change.

7 Lectures

Unit III

Conservation policies: Importance and major policies – *in situ* and *ex situ* conservation; Major protected areas; National and International institutions for biodiversity conservation; Role of traditional knowledge for conservation; Community-based conservation, concept of Zoo management.

8 Lectures

Unit IV

Eco-Tourism: Types of Tourism; Ecotourism – Concept, Growth and Developments; Impacts and management of ecotourism. Main tourist places of Rajasthan and ecological significance.

7 Lectures

Suggested Readings:

1. Mitra, A.P., Sharma, S., Bhattacharya, S., Garg, A., Devotta, S. &Sen, K. 2004. Climate Change and India. Universities Press, India. Philander, S.G. 2012.
2. Saha T.K. 2010. Ecology and Environmental Biology, Books and Allied (P) Ltd. Kolkata.
3. Sharma, P. D. 2012. Ecology and Environment, Rastogi Publication

MDC-BOT-20P-3002

Biodiversity Conservation and Ecotourism

Practical Syllabus

1. Prepare a list of conventions held on biodiversity conservation.
2. Prepare list of SDG goals by UN.
3. Case study of model Eco-tourism areas.
4. Map of biodiversity hot spots in India.

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5. Visit to any nearby protected area.
6. Any other exercise based on theory syllabus.

MDC - BOT - 20P - 3002

Scheme of Practical Examination and Distribution of marks

MDM
Max. Marks: 10*+40

Duration- 4 hrs
Min. Marks: 4*+16

S.No.	Exercise	Regular	Ex./N.C. Students
13.	Major Exercise-	10	15
14.	Minor Exercise-1	5	8
15.	Minor Exercise-2	5	7
16.	Spotting (1-5)	10	15
17.	Viva	5	5
18.	Record	5	-
***Internal marks for regular students only**			
Regular Candidates must keep a record of all work done in the practical classes and submit the same for inspection at the time of practical examination.			

Course learning outcomes:

By the end of this course, the student will be able to:

1. Understand the concepts of biodiversity and conservation
2. Understand the factors impacting biodiversity loss in India and the World
3. Major conservation strategies taken in India
4.
5. Ideas on ecotourism with special emphasis on

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