Pool of MDC, VAC, SEC and VOC Courses for scheme A, B, C & D in the subject of Botany to be offered to the University Pool

Course Type Total Credits	SEM	Course Code	Nomenclature of the Course	Credits	Contact hours per week	Internal Assessment Marks	End term Examination Marks	Total Marks	Examination Hrs.
MDC-1 03 Credits	I	24UN-BOT-MDC101	Fundamentals of Botany	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
MDC-2 03 Credits	II	24UN-BOT-MDC201	Economic Botany	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
MDC-3 03 Credits	III	24UN-BOT-MDC301	Ornamental Plants and Propagation	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
VAC-1	I/II	24UN-BOT-VAC101	Environmental Studies	02	02	15	35	50	03
VAC-3	III	24UN-BOT-VAC301/401	Medicinal Plants in Everyday Life	02	02	15	35	50	03
	IV								
VAC-4	IV	24UN-BOT-VAC402	Indian Biodiversity	02	02	15	35	50	03
SEC-2	II	24UN-BOT-SEC201	Organic Farming	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
SEC-3	III	24UN-BOT-SEC301	Herbal Technology	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
SEC-4	VI	24UN-BOT-SEC601	Floriculture	02	02	15	35	50	03
			Practical	01	02	05	15	20	03
CC-M3 (V)	III	24UN-BOT-VOC301/501	Biofertilizers	02	02	15	35	50	03
CC-M5 (V)	V		Practical	02	04	15	35	50	04
CC-M4 (V)	IV	24UN-BOT-VOC401	Nursery and Gardening	02	02	15	35	50	03
			Practical	02	04	15	35	50	04
CC-M5 (V)	VI	24UN-BOT-VOC601	Mushroom Cultivation	02	02	15	35	50	03
CC-M6 (V)									
CC-M7 (V)			Practical	02	04	15	35	50	04

VAC-VALUE ADDED COURSE

Course Type	Course Code	Name of the Course	Credit	Contact Hours/ Week	Internal Assessment marks	End Term Marks	Max. Marks	Exam Duratio
VAC-4	24UN-BOT-VAC402	Indian Biodiversity	2	2	15	35	50	3 hrs.

Level of the course: NA

Pre-requisite for the course (if any): NA

Course Learning Outcomes (CLO):

1. Know about an overview of Indian Biodiversity
2. Understand various strategies of biodiversity conservation
3. Improve their knowledge about Important Protected areas
4. To identify the local biodiversity

Instructions for Paper-Setter

Nine questions will be set in all. All questions will carry equal marks.

Question No. 1. which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attempt question No. 1 and four more questions selecting one question from each unit.

UNIT	TOPICS	CONTACT HOURS
I	An overview of Indian Biodiversity; Faunal and Floral Indian biodiversity, Definition and concept of Biodiversity; Important Biodiversity area of India, Biodiversity: levels, values and threats and conservation	8
II	Popular Biosphere Reserves and their biodiversity, Popular Tourist spots of Rich Biodiversity, In-situ and Ex-situ conservation of biodiversity	8
III	Protected Areas and their roles in biodiversity conservation, Important National Park and Wildlife sanctuaries, IUCN categories, Threatened categories	7
IV	Terrestrial Biodiversity, Aquatic and Coastal biodiversity, Biodiversity hotspots, their characteristic flora and fauna, Biodiversity resources of north-east India.	7

Suggested Evaluation Methods

Internal Assessment:

- Theory
  - Class Participation: 4
  - Seminar/presentation/assignment/quiz/class test etc.: 4
  - Mid-Term Exam: 7

End Term Examination:

- Theory
  - Written Examination: 35

Learning Resources

1. Thammineni Pullaiah and Sandhya Rani (2016) " Biodiversity in India" Volume: Regency Publications
2. Shukla Mahanty and Anjali Srivastava (2016). "Biodiversity And It's Conservation" Disha International Publishing House
3. Ramakrishanan, N "Biodiversity in Indian Scenarios" Daya Publishing House, New Delhi
4. Erach Bharucha (2002) "The Biodiversity of India" Mapin Pub.
5. Asad R. Rahmani and Dhritiman Mukherjee (2016) "Magical Biodiversity Of India" Oxford University Press

VOC-VOCATIONAL COURSE								
Course Type	Course Code	Name of the Course	Credit	Contact Hours/ Week	Internal Assessment marks	End Term Marks	Max. Marks	Exam Duration
VOC-2	24UN-BOT-VOC401	Nursery and Gardening	2	2	15	35	50	3 hrs.
		Practical	2	4	15	35	50	4 hrs.

Level of the course: NA

Pre-requisite for the course (if any): NA

Course Learning Outcomes (CLO):

1.Students will be able to understand the infrastructure of nursery, seed production technology

2: Students will develop a conceptual understanding the gardening procedure and management of pest and diseases.

3: Students will gain knowledge about the vegetative propagation methods.

4: Students will learn about cultivation of different vegetables and flowers.

Instructions for Paper-Setter

1. Nine questions will be set in all. All questions will carry equal marks.
2. Question No. 1, which will be short answer type covering the entire syllabus, will be compulsory. The remaining eight questions will be set unit wise selecting two questions from each Unit I to IV. The candidate will be required to attemptquestion N and four more questions selecting one question from each unit.

UNIT	TOPICS	CONTACT HOURS
I	Nursery: Definition, objectives and scope and building up of infrastructure for nursery, planning and seasonal activities – planting, direct seeding and transplants. Seed: Structure and types -Seed dormancy; causes and methods of breaking dormancy Seed storage: Seed banks, factors affecting seed viability, genetic erosion. Seed production technology: Seed testing and certification.	8
II	Gardening: definition, objectives and scope - different types of gardening - landscape and home gardening - parks and its components - plant materials and design. Gardening operations: Soil laying, manuring, watering, management of pests and diseases and harvesting, sowing/raising of seeds and seedlings, transplanting of seedlings. Computer applications in landscaping.	8
III	Vegetative propagation: air-layering, cutting, selection of cutting, collecting season, treatment of cutting, rooting medium and planting of cuttings. Hardening of plants - greenhouse - mist chamber, shed root, shade house and glass house.	7
IV	Cultivation of different vegetables: Cabbage, Brinjal, Lady's finger, Onion, Tomatoes and carrots Cultivation of different flowers: Marigold, Lilium, Rose, Gerbera, Gladiolus, Chrysanthemum and Carnation. Storage and marketing procedures	7
V Practical	Practical 1. Study of seed dormancy breakage by scarification and stratification. 2. Investigating the effect of different environmental conditions on seed germination. 3. Study of different tools used in gardening. 4. Bed preparation for growth of seedlings. 5. Raising of seedlings and transplantation. 6. Comparing the effects of different pruning methods, such as topping, thinning, or pinching, on plant growth, branching patterns, and flower production. 7. Study of different methods of vegetative propagation.	60

Suggested Evaluation Methods

Internal Assessment:

- Theory
  - Class Participation: 4
  - Seminar/presentation/assignment/quiz/class test etc.: 4
  - Mid-Term Exam: 7
- Practicum
  - Class Participation: 5
  - Seminar/Demonstration/Viva-voce/Lab records etc.: 10
  - Mid-Term Exam: NA

End Term Examination:

- Theory
  - Written Examination: 35
- Practicum
  - Practical Examination: 35

Learning Resources

1. Singh. A.K. & Kumar A. Plant Propagation and Nursery management. S.K. Kataria and sons.
2. Ray, P.K. Essentials of Plant nursery management. Scientific publishers, India. 2nd edition.
3. Taiz, L., Zeiger, E., Moller, I.M. and Murphy, A. Plant Physiology and Development. Sinauer Associates Inc. USA. 6th edition.
4. Ray, P.K. Plant nursery management: how to start and operate a plant nursery. Scientific publishers, India.
5. Sinha, N.K., Hui, Y.H. Handbook of vegetables & vegetable processing. WileyBlac, A John Wiley & Sons, Ltd.
6. Jain, S.M. & Ochatt, S.J. Protocols for in vitro propagation of ornamental plants: 598 (Methods in Molecular Biology). Humana Press.
7. Hopkins. W.G. and Huner, A. Introduction to Plant Physiology. John Wiley and Sons.U.S.A. 4th edition.

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