

**DEPARTMENT OF BOTANY, UNIVERSITY OF LUCKNOW**  
**POST GRADUATE ELECTIVE COURSE**  
**BOTANY - Semester – I**  
**(w.e.f. July, 2018)**

**Paper – I : Plant Resources – I**

**3.00 Credits**

**Total: 30 Hours**

<b>Unit – I</b>	<b>Virus, Bacteria and Fungi (7.5 Hours) : 0.75 Credits</b>	<b>Hours</b>
	<ul style="list-style-type: none"> <li>▪ General Characteristics of Virus, Bacteria and Fungi</li> <li>▪ Microbial fermentation products</li> <li>▪ Antibiotics</li> <li>▪ Vaccines</li> <li>▪ Biofertilizers</li> <li>▪ Biological control of plant diseases</li> <li>▪ Uses of Lichens</li> </ul>	1.5 1 1 1 1 1.5 0.5
<b>Unit – II</b>	<b>Algae and Bryophytes (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ General characteristics and distribution of Algae</li> <li>▪ Utilization of Algal resources: as food, as biofertilizer, as medicine, as pollution indicator, as on monuments.</li> <li>▪ General characteristics and distribution of Bryophytes</li> <li>▪ Utilization of Bryophytes in : horticulture, household, medicine, Industrial, ecological indicators &amp; in pollution monitoring.</li> </ul>	1.5 2 1.5 2.5
<b>Unit – III</b>	<b>Pteridophytes and Gymnosperms (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ General characteristics and distribution of Pteridophytes</li> <li>▪ Significance of Pteridophytes: as food (starch, salt), as fiber, as weed, as horticultural plants &amp; ritual items, as biofertilizer, as medicine.</li> <li>▪ General characteristics and distribution of Gymnosperms</li> <li>▪ Significance of Gymnosperms as food, fibre and houseplants.</li> </ul>	1.5 2.5 1.5 2
<b>Unit – IV</b>	<b>Angiosperms (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ General characteristics of resources and their utilization: cereals &amp; their domestication, pulses, vegetables, fruits (common name, vernacular names &amp; plant part).</li> <li>▪ Timber, rubber, gums, resin &amp; dyes.</li> <li>▪ Fibers, paper making industry</li> <li>▪ Oils</li> <li>▪ Spices, Condiments, Fumaitories</li> <li>▪ Ornamentals</li> </ul>	2 1.5 1.5 1 0.5 1

**Note: Common name & Vernacular names of plants should be informed.**

**DEPARTMENT OF BOTANY, UNIVERSITY OF LUCKNOW**  
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**BOTANY - Semester – II**  
**(w.e.f. July, 2018)**

**Paper – II : Plant Resources – II**

**3.00 Credits**

**Total: 30 Hours**

<b>Unit – I</b>	<b>Medicinal Plant (7.5 Hours) : 0.75 Credits</b>	<b>Hours</b>
	<ul style="list-style-type: none"> <li>▪ Plants in Homeopathy (plant parts and uses)</li> <li>▪ Plants in Ayurveda (plant parts and uses)</li> <li>▪ Plants in Allopathy (plant parts and active principals, uses)</li> <li>▪ Ethnomedicine</li> </ul>	<p>2</p> <p>1.5</p> <p>2.5</p> <p>1.5</p>
<b>Unit – II</b>	<b>Ethnobotany (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ Emerging trends in Ethnobotany</li> <li>▪ Ethnic Tribes of India</li> <li>▪ Plant Resources of ethnic tribes</li> <li>▪ Sacred groves their distribution &amp; significance</li> </ul>	<p>1.5</p> <p>2</p> <p>2</p> <p>2</p>
<b>Unit – III</b>	<b>Floriculture (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ Commercial floriculture: scope &amp; importance in India.</li> <li>▪ Techniques of producing ornamental plants like Rose, Marigold, Chrysanthemum, Orchid, Gladiolus etc.</li> <li>▪ Post harvest technology of cut flowers, dehydration techniques for drying of flowers.</li> </ul>	<p>2.5</p> <p>2.5</p> <p>2.5</p>
<b>Unit – IV</b>	<b>Organic Farming (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ Introduction &amp; concept</li> <li>▪ Vermicomposting, green manuring</li> <li>▪ Recycling of organic residues</li> <li>▪ Biofertilizers and use of biocontrol agents</li> <li>▪ Biopesticides, pheromones</li> <li>▪ Organic food and human health</li> </ul>	<p>1</p> <p>1.5</p> <p>1.5</p> <p>1</p> <p>1</p> <p>1.5</p>

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**DEPARTMENT OF BOTANY, UNIVERSITY OF LUCKNOW**  
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**BOTANY - Semester – III**  
**(w.e.f. July, 2018)**

**Paper – III : Plant Resources – III**

**3.00 Credits**

**Total: 30 Hours**

**Unit – I Useful Plant Practices - I (7.5 Hours) : 0.75 Credits**

**Hours**

- Basic principles and practices 1.5
- Vegetative propagation, Gutti, layering, grafting 1.5
- Micropropagation & its Industry 2
- Seed propagation & its limitation quarantine 1.5
- Economic importance, nutritive value of horticultural crops 1

**Unit – II Useful Plant Practices - II (7.5 Hours) : 0.75 Credits**

- Mushroom cultivation 1
- Bonsai 1
- Indoor and house plants 1
- Plants in the Kitchen garden and plantation 1
- Agroforestry: definition, objectives, potential distinction between agro and social forestry 2.5
- Agroforestry system, tree crop species for agroforestry. 1

**Unit – III Gardening & Landscaping (7.5 Hours) : 0.75 Credits**

- Principles of landscape, landscape design for specific areas 2
- Plant material for landscaping, symbols and tools 2
- Special type of gardens (bog garden, sunken garden, rock garden & terrace garden) 2
- Orchards: importance, objectives, merits and demerits 1.5

**Unit – IV Plantation Crops (7.5 Hours) : 0.75 Credits**

- Scope and Importance 1
- Export, import potential, uses, industrial importance 1
- Planting systems and methods 1.5
- Post harvest handling & processing 1
- Packaging & marketing of some vegetable crops and cash crops (Coffee, Tea, Sugar, Banana) 2
- Pre and post harvesting factors affecting quality 1

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**POST GRADUATE ELECTIVE COURSE**  
**BOTANY - Semester – IV**  
**(w.e.f. July, 2018)**

**Paper – IV : Biotechnological and Environmental uses of Plants**

<b>3.00 Credits</b>		<b>Total: 30 Hours</b>
<b>Unit – I</b>	<b>Biotechnology - I (7.5 Hours) : 0.75 Credits</b>	<b>Hours</b>
	<ul style="list-style-type: none"> <li>▪ Genetically modified organisms (GMOs: Prokaryotic and Eukaryotic) 1</li> <li>▪ GMOs for abiotic stress tolerance. 1</li> <li>▪ GMOs for crop protection. 1</li> <li>▪ GMOs for improved crop yield and nutrition. 1</li> <li>▪ Genetically modified (GM) food: Pros and cons. 1</li> <li>▪ Micropropagation in improving food quality, protecting plants. 1.5</li> <li>▪ Micropropagation in maintenance of germplasm 1</li> </ul>	
<b>Unit – II</b>	<b>Biotechnology – II (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ Conservational biotechnology in everyday use (bread, cheese, curd etc.) 1.5</li> <li>▪ Biotechnological applications of microbes (fermentation, vaccines, antibiotics, interferon). 2</li> <li>▪ Bioremediation (microbial) 1</li> <li>▪ Bioethical considerations regarding GMOs. 1.5</li> <li>▪ Intellectual Property Rights and Plant Biotechnology. 1.5</li> </ul>	
<b>Unit – III</b>	<b>Environment - I (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ General aspects of Pollution 1</li> <li>▪ Environmental policy 1</li> <li>▪ Pollution implications of climate change and its monitoring 1</li> <li>▪ Non polluting energy system 1</li> <li>▪ Biogas and Power generation from solid waste 1</li> <li>▪ Microbes in metal extraction, mineral leaching, mining petroleum 1.5</li> <li>▪ Phytoremediation 1</li> </ul>	
<b>Unit – IV</b>	<b>Environment – II (7.5 Hours) : 0.75 Credits</b>	
	<ul style="list-style-type: none"> <li>▪ Biodiversity Conservation and its strategies 1.5</li> <li>▪ Microbes in Poultry, sea food and dairy products 1</li> <li>▪ Forest resource management &amp; Afforestation 1</li> <li>▪ Social and urban forestry 0.5</li> <li>▪ Conservation of rare and endangered Plants 1</li> <li>▪ Conservation of rare and endangered animal species 1</li> <li>▪ Botanical gardens 0.5</li> <li>▪ National Parks and wildlife sanctuaries. 1</li> </ul>	

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