

**Programme:** B.A.

**Course Code:** UGNS 101

**Title of the Course:** Gardening,  
Horticulture and Nursery

**Number of Credits:** 4

**Effective from AY:** 2019-20

<b><u>Prerequisites for the course:</u></b>	Any student pursuing his/her undergraduate programme at Goa University is eligible to take the course as a core paper.	
<b><u>Objective:</u></b>	<p>The main objective of the course is to equip students with the basic skills required for gardening.</p> <p>This introductory course will help students understand the basics of horticulture, floriculture and nursery management and they will further put this knowledge into practice by adopting a patch of land on campus. In addition the students will also visit commercial nurseries and commercial tissue culture laboratory.</p> <p>Students will learn to</p> <ul style="list-style-type: none"><li>- work with various tools used in gardening and nurseries.</li><li>- propagate by seeds, cutting, air-layering and grafting.</li><li>- prepare portable trays, seeds treatment, sowing and seedling production.</li><li>- prepare land for lawn and planting.</li><li>- propagate bulbs, tubers and rhizomes.</li><li>- identify ornamentals and flowering crops and</li><li>- propagate practices in flower crops, medicinal and endemic plants.</li></ul>	
<b><u>Content:</u></b>	<p><b>Unit I: Introduction to Gardening:</b></p> <ol style="list-style-type: none"><li>1. Definition, Objectives, Scope and History.</li><li>2. Various types of Gardening: informal &amp; formal; botanic garden</li><li>3. Home Gardening.</li><li>4. Operations: Soil laying, manuring, watering.</li><li>5. Famous gardens of India.</li></ol> <p><b>Unit II: Propagation techniques:</b></p> <ol style="list-style-type: none"><li>1. Propagation of plants by seeds; seed selection and storage; seed treatment; raising and transplanting seedlings.</li><li>2. Air-layering, types of Cutting, Grafting; treatment and planting of cuttings; rooting medium; hardening of plants.</li><li>3. Propagation of plants by bulbs and bulbils, rhizomes and tubers.</li><li>4. Maintenance of plants: watering and irrigation techniques, manuring; types of fertilizers, application of fertilizers.</li></ol>	<p>8 hours</p> <p>14hours</p>

	<p>5. Green house: shed root, shade house and glass house, mist chambers.</p> <p><b>Unit III: Nursery techniques and its commercial aspect:</b></p> <p>1. Features of nursery: Selection of locality and sites; drainage; irrigation; green house; protection and safety; building up of infrastructure for nursery.</p> <p>2. Types of nursery beds: Raised beds, sunken beds, housing beds, transplanting beds.</p> <p>3. Maintenance of plants in nursery.</p> <p>4. Nursery Management and Routine Garden Operations.</p> <p>5. Disease management and harvesting techniques.</p> <p><b>Unit IV: Floriculture:</b></p> <p>1. Annual and Perennial flowering plants; shade loving plants.</p> <p>2. Ornamental bulbous, and foliage plants; Cacti and succulents.</p> <p>3. Indoor plants and their cultivation; Bonsai.</p> <p>4. Factors affecting flower production; Production and packaging of cut flowers; Flower arrangements; Methods to prolong vase life of flowers.</p> <p>5. Cultivation of Important cut flowers (Carnation, Aster, Dahlia, Gerbera, Anthuriums, Gladiolous, Marigold, Rose, Lilium).</p> <p>6. Management of pests, diseases and harvesting.</p> <p>7. Methods of harvesting.</p> <p><b>Unit V: Horticulture:</b></p> <p>1. Ornamental plants: Various horticultural varieties of plants.</p> <p>2. Study of cultivation of different vegetables using various techniques: brinjal, lady's finger, onion, tomatoes, chilly, carrots and spinach.</p> <p>3. Paste management and harvesting techniques.</p> <p>4. Storage and marketing procedures.</p> <p><b>Unit VI: Medicinal, Endemic, Wild and other useful plants</b></p> <p>1. Classification and identification of medicinal plants based on their uses: Vasaka, Tulsi, <i>Aloe vera</i>, etc.</p> <p>2. Various propagation methods use to cultivate medicinal plants; harvesting technique</p> <p>3. Identification of wild endemic plants; use of garden in conservation of endemic and endangered plants</p> <p>4. Cultivation techniques for other useful plants like, Cashew, Coconut, 'Neer phanas', etc.</p>	<p>10hours</p> <p>14hours</p> <p>8hours</p> <p>6hours</p>
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<b><u>Pedagogy:</u></b>	This skill based course includes lectures and demonstrations on various aspects in addition to practical sessions. Students are encouraged to observe the surrounding biodiversity and journal the same.	
<b><u>References/Readings</u></b>	<ol style="list-style-type: none"> <li>1. Adams C. R. 2004, Principles of Horticulture, 4th Edt. Elsevier Publication, 2004</li> <li>2. Agrawal, P.K. 1993, Hand Book of Seed Technology, Dept. of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi.</li> <li>3. Bose T.K. &amp; Mukherjee, D., 1972, Gardening in India, Oxford &amp; IBH Publishing Co., New Delhi.</li> <li>4. Bose, T. K., Yadav, L. P., Pal, P., Parthasarathy, V. A., &amp; Das, P., 2003, Commercial flowers, vol. II. <i>Naya Udyog, Kolkata, India.</i></li> <li>5. Edmond Musser &amp; Andres, Fundamentals of Horticulture, McGraw Hill Book Co., New Delhi.</li> <li>6. Indira, V., &amp; Sudheer, K. P., 2007, Post Harvest technology of horticultural crops <i>Horticulture science. New Delhi: New India Publishing Agency.</i></li> <li>7. Janick Jules. 1979. Horticultural Science. (3rd Ed.), W.H. Freeman and Co., San Francisco, USA.</li> <li>8. Kumar, N., 1997, Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.</li> <li>9. Patil, R. T. 2009. Postharvest Management of Horticultural Produce</li> <li>10. Prasad S. 1999, Greenhouse management for horticultural crop production</li> <li>11. Rao, Manibhushan Textbook of Horticulture.</li> <li>12. Sandhu, M.K., 1989, Plant Propagation, Wile Eastern Ltd., Bangalore, Madras.</li> <li>13. Sheela, V. L., 2008, Flowers for trade (Vol. 10). New India Publishing.</li> <li>14. Swarup, V., 1997, Ornamental horticulture. Macmillan India.</li> </ol>	
<b><u>Learning Outcomes</u></b>	<p>By the end of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>- use a variety of garden tools and implements,</li> <li>- cultivate plants using various propagation techniques</li> <li>- proficiently use layering and grafting techniques</li> <li>- raise healthy nurseries of flowering plants,</li> <li>- manage and maintain plants and vase life of cut flowers</li> <li>- understand harvesting techniques</li> <li>- understand commercial aspect of nursery and floriculture</li> <li>- use gardening to conserve plants</li> </ul>	



GOA UNIV  
ATTENDANC

[illegible]

NOTE: (a) The students shall put their signatures against their respective names at every lecture / class





**Goa University**  
Taleigao Plateau, Sub Post: Goa University, Goa 403206 India.  
**ISA MARKS INPUT FORM FOR UNDER GRADUATE( OC-66 ) EXAM TO BE HELD IN NOVEMBER 2019**  
**BACHELOR OF ARTS HONOURS IN FRENCH**

**Paper Code:** UGNS 101

**Paper Name:** Gardening, Horticulture and Nursery

**Credits Allotted:** 4

**Max Marks:**

20

**SEMESTER III - 2ND YEAR November 2019**

**College/Department : Department of French and Francophone Studies**

Seat Number	Student Name	ISA(20)
1802	JACOB JOYCE    201800398	20.00
1803	KASHMIRA GIRIPUNJE    201800399	16.00
1804	D'SOUZA MAGRIS VALANKA DOMINIQUE    201800395	17.00
1805	PAUL KAKOTY    201800400	14.00
1806	SHIVAM KUMAR    201800401	10.00
1807	SRIRAM M.    201800402	12.00
1808	TOI RIGIA    201810433	10.00
1809	LOBO VALLENY    201800397	17.00

Certified that all the sub components have been taken into account while finalising the above marks.

**NAME OF EXAMINER 1:**

**SIGNATURE OF EXAMINER 1:**

**NAME OF EXAMINER 2:**

**SIGNATURE OF EXAMINER 2:**

**Date:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

N.B.NOTE: Department may kindly confirm that the above details are correct with reference to paper title, paper code and number of credits.

<< Absentees should be marked as 'A'(without quotes) >>

<< Carry forward of marks should be indicated as 'CF' (without quotes) in marks column.>> for ISA

Certified that all the sub components have been taken into account while finalising the above marks.





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**BACHELOR OF ARTS HONOURS IN FRENCH**

**Paper Code:** UGNS 101

**Paper Name:** Gardening, Horticulture and Nursery

**Credits Allotted:** 4

**Max Marks:**

80

**SEMESTER III - 2ND YEAR November 2019**

**College/Department :** Department of French and Francophone Studies

Seat Number	SEE(80)
1802	75.00
1803	0.00
1804	47.00
1805	0.00
1806	48.00
1807	38.00
1808	0.00
1809	72.00

Certified that all the sub components have been taken into account while finalising the above marks.

**NAME OF EXAMINER 1:**

**SIGNATURE OF EXAMINER 1:**

**NAME OF EXAMINER 2:**

**SIGNATURE OF EXAMINER 2:**

**Date:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

N.B.NOTE: Department may kindly confirm that the above details are correct with reference to paper title, paper code and number of credits.

<< Absentees should be marked as 'A'(without quotes) >>

<< Carry forward of marks should be indicated as 'CF' (without quotes) in marks column.>> for ISA

Certified that all the sub components have been taken into account while finalising the above marks.