## Semester Lecture Plan (Theory)

**Name of the college:** Government College of Arts, Science & Commerce, Sanquelim

**Name of Faculty:** Dr Jyosna Gawas | **Subject:** Botany

**Paper code:** BOT-200 | **Program/Course:** S.Y.B.Sc. | **Division:** A

**Academic year: 2024-2025** | **Semester:** III | **Total Lectures:** 30

**Course Objectives: This course aims to:**

1. Familiarize students with diverse groups of microbes and non-flowering plants.
2. Provide the ability to identify and classify microbes and non-flowering plant groups.
3. Impart knowledge of the morphology, life cycle, reproduction and economic importance of various microbes and non-flowering plants.

**Course Learning Outcome: On completion of this course, students will be able to:**

1. Identify and classify microbes and non-flowering plants based on their characteristic features.
2. Compare and contrast the morphological features within and between the groups for a comprehensive understanding of the basis of their classification.
3. Examine the life cycle and methods of reproduction of microbes and non-flowering plant groups.
4. Appraise the economic importance of microbes and non-flowering plants.

| Month | Lectures | | No. of lectures allotted | Topic, subtopic to be covered | Exercise/ Assignment | ICT tools | Reference books |
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| | From | To | | | | | |
| July | 1st | 6th | 2 | General introduction: Viruses: General structure, characteristics, origin and evolution; | - | Powerpoint presentation | Botany for Degree Students: Fungi by B. R. Vashishta<br><br>College Botany by S. N. Pandey, P. S. |
| | 8th | 13th | 2 | major groups (DNA viruses, RNA viruses and retroviruses); general account of replication | | | |
| | 15th | 20th | 2 | characteristics of virus-like particles (viroids, virusoids and prions). | | | |
| | 22nd | 27 | 2 | Bacteria: General characteristics of eubacteria and archaebacteria; shapes and | | | |

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| | | | | arrangement of bacteria; ultrastructure of bacterial cell | | | Trivedi & S. P. Mishra<br><br>Fungi, Viruses, Bacteria and Mycoplasma by A. K. Kushwaha |
| July/August | 27th | 3rd | 2 | ISA-1; cell structure and morphology of cyanobacteria | | | |
| August | 5th | 10th | 2 | Binary fission; genetic recombination (conjugation, transformation and transduction); economic importance. | | | |
| | 12th | 17th | 2 | General characteristics; Ainsworth's classification; morphological features of *Mucor*, *Aspergillus*, *Agaricus* and *Saccharomyces*; | | | |
| | 19th | 24th | 2 | Reproduction (asexual, sexual and parasexual); ecological and economic importance of fungi | | | |
| | 26th | 31st | 2 | ISA-2, General characteristics, types and significance of symbiotic fungal associations (lichens and mycorrhizae). | | | |
| September | 2nd | 7th | 2 | Pteridophytes: General characteristics; Smith's classification; alternation of generations; morphology of early land plants (*Cooksonia* and *Rhynia*); | Collect *Selaginella* specimen | | |
| | 16th | 21st | 2 | Morphological features and reproductive structures of *Psilotum*, *Selaginella* | | | |
| | 23rd | 28th | 2 | Morphological features and reproductive structures of *Equisetum* and *Pteris* | | | |
| Sept/Oct | 30th | 5th | 2 | Heterospory and seed habit; stelar evolution; ecological and economic importance. | | | |
| October | 7th | 12th | 2 | Gymnosperms: General characteristics and life cycle; Coulter and Chamberlain's classification | Observe the types of leaves in *Cyacas* plant in the campus | | |
| | 14th | 19th | 2 | Morphological features and reproductive structures of *Cycas* and *Pinus* | | | |
| | 21st | 22nd | 2 | Morphological features and reproductive structures of *Gnetum*; ecological and economic importance. Revision. | | | |

* Assessment Rubrics

| Component | Max Marks |
|---|---|
| ISA 1 | 7.5 |
| ISA 2 | 7.5 |
| ISA 3 | NA |
| Practical | NA |
| Project | NA |
| Semester End Exam | 60 |