**BSc. 3rd Year**

**DSE (IA) Economic Botany and Biotechnology (BOTA 301)**

**&**

**DSE (IB) Cell and Molecular Biology (BOTA 303)**

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| **Month** | **Weeks** | **Book/ Unit/Topic** | **Teaching Method / Resources** |  **Student Activities** |
| **July** |  | **UNIT (BOTA 301 TH)** | Lecture |  |
|  | 1st | **Cultivated Plants**: Introduction, Research centres, centres of origin, Vavilov’s work |  | Assignments |
|  | 2nd | **Cereals** : Wheat, Rice |  |  |
|  | 3rd | **Pulses & Vegetables**: Gram , soybean and Potato |  |  |
|  | 4th | **Spices**: clove, black pepper, cinnamon, Ginger, Turmeric |  | Class Test |
|  |  |  |  |  |
| **August** |  |  | Lecture |  |
|  | 1st | **Beverages:**  Tea and Coffee:  **Oils and Sugar** |  |  |
|  | 2nd | **Fibre Yielding Plants** |  | Assignments |
|  | 3rd | **Medicinal Plants**:  *Ocimum, Tinospora, Aloe, Rauvolfia, Emblica* and *Cathranthus* |  |  |
|  | 4th | **Biotechnology, Tissue culture:**  Micropropagation, haploid production |  | Discussion |
| **September** |  |  | Lecture | Quiz |
|  | 1st | **Embryo & endosperm culture**, Applications |  |  |
|  | 2nd | **Biotechnological Techniques**: r-DNA, Gene transfer, Agarose electrophoresis,  |  | Assignments |
|  | 3rd | Blotting techniques, DNA Fingerprinting; Molecular DNA markers, DNA sequencing |  |  |
|  | 4th | PCR, ELISA, Hybridoma, Monoclonal antibodies, Molecular diagnosis of human disease, Human gene Therapy. |  | Students presentations |
| **0ctober** |  | **UNIT (BOTA 303 TH)** | Lecture |  |
|  | 1st | **Techniques** in Biology, Principles and type of microscopy |  | Assignments |
|  | 2nd | **Cell Theory**, Cell Organelles |  |  |
|  | 3rd | **Cell Organelles** |  | Class discussion |
|  | 4th | Cell Organelles |  |  |
| **November** | 1st | Cell Membrane | Lecture |  |
|  | 2nd | Cell Wall, Class Test |  |  |
|  | 3rd | **Cell Cycle** |  | Assignment |
|  | 4th | **DNA, RNA** |  |  |
| **December** | 1st | Genetic material experiments | Lecture | Quiz |
|  | 2nd | Mid –Term Exams  |  |  |
| **February** | 2nd | Replication | Lecture | Students presentation |
|  | 3rd | Transcription |  |  |
|  | 4th | Regulation of gene expression |  | Class Test |
| **March** | Ist |  |  | Class Test |