

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086**

**B.Sc. DEGREE: BRANCH V. A. PLANT BIOLOGY AND PLANT  
BIOTECHNOLOGY**

**Independent Elective Course offered to Students of  
B A. / B.Sc. / B.Com Degree Programmes**

**SYLLABUS**

(Effective from the academic year 2015 – 2016)

**AGRICULTURE**

**CODE: 15BT/UI/AR23**

**CREDITS: 3**

**OBJECTIVES**

- To enable students to learn about agricultural practices in India

**Unit 1**

**Introduction**

- 1.1 Development of Modern Agriculture
- 1.2 Classification of Soils in India: Mechanical Composition of Soil, Soil Temperature, Soil Moisture and Soil Erosion

**Unit 2**

**Fertilizers and its Uses**

- 2.1 Organic Fertilizers - Farm Yard Manure and Biofertilizers
- 2.2 Inorganic Fertilizers – Nitrogenous, Phosphatic, Potassic
- 2.3 Residual Effects of Fertilizers

**Unit 3**

**Weed and Pest Control**

- 3.1 Weed Control: Mechanical, Biological and Chemical
- 3.2 Pest Control: Chemicals and Organic
- 3.3 Transgenic Plants for Crop Improvement: Herbicide Resistance, Insect Resistance, Resistance against Viral, Bacterial and Fungal Pathogens

**Unit 4**

**Water Resources and Cropping Patterns**

- 4.1 Water resources of Tamilnadu (Rivers, Dams and Monsoons)
- 4.2 Cropping patterns of Tamilnadu: Multiple cropping, Relay cropping, Intercropping, Mixed Cropping and Multi-Tier Cropping

**Unit 5**

**Farm Crops: Economic Importance**

- 5.1 Cereals: Rice and Wheat
- 5.2 Pulses: Blackgram and Pigeon Pea
- 5.3 Oil seeds: Groundnut and Sunflower Seed

- 5.4 Sugar crops: Sugar Cane
- 5.5 Tuber: Potato
- 5.6 Spices: Pepper
- 5.7 Fibre: Cotton and Jute
- 5.8 Fruits: Mango and Citrus Fruits

## **TEXT BOOK**

Subbiah Mudaliar, V.T. - *Principles of Agronomy*. Bangalore: Bangalore, 1979.

## **BOOKS FOR REFERENCE**

Edmond, J.B; Senn, T.L., Andrews, F.S. and Halfacre, R.G. - *Fundamentals of Horticulture*. New Delhi: Tata McGraw Hill, 1977.

Kumar, L.L.S.S., Agarwala, A.C. and others – *Agriculture in India – Vol.I and II*. Asia, 2004.

Ochse, J.J., Soule, M.J.; Dijkman, M.J. and Welburg C. – *Tropical and Subtropical Agriculture*, Vol.II. New York: Macmillan, 1961.

Purohit, S.S. and S.K. Mathur. *Biotechnology- Fundamentals and Applications* (3<sup>rd</sup> Ed.) Jodhpur: Agrobios, 2000.

Shrivastava A.K. *Agriculture Science and Technology*, Agrotech., 2013.

Wrigley Gordon, *Tropical Agriculture – The Development and Production*. ELBS, 1998.

## **PATTERN OF EVALUATION**

### **End Semester Examination**

Total Marks: 100

Duration: 3 Hours

**Section A** – 10 X 3 = 30 marks (10 out of 13 questions to be answered in 50 words)

**Section B** – 5x 6 = 30 marks (5 out of 8 questions to be answered in 200 words each)

**Section C** – 2 x 20 = 40 marks (2 out of 4 questions to be answered in 1000 words each)

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**SYLLABUS**

(Effective from the academic year 2015 – 2016)

**FORESTRY**

**CODE: 15BT/UI/FR23**

**CREDITS: 3**

**OBJECTIVES**

- To understand the value of wealth of forests of India
- To develop and understanding of biodiversity, conservation and agroforestry

**Unit 1**

**Forest Types**

- 1.1 Major Forest types in India with special reference to Tamil Nadu
- 1.2 Occurrence and Distribution
- 1.3 Forests as Centers of Biodiversity
- 1.4 Biodiversity Hotspots

**Unit 2**

**Protection Forestry**

- 2.1 Conservation- *in situ* and *ex situ*
- 2.2 Natural Forest Policy, Forest Conservation Act
- 2.3 National Sanctuaries, National Parks and Biosphere Reserves
- 2.4 Role of People: Chipko Movement

**Unit 3**

**Commercial Forestry**

- 3.1 Forests as Sources of Timber
- 3.2 Nonwood Forest Products: Fodder, Food, Oil, Fiber, Paper and Medicine

**Unit 4**

**Social Forestry**

- 4.1 Agroforestry- Afforestation and Reforestation Programmes
- 4.2 Ecological Benefit
- 4.3 Deforestation: Causes and Consequences
- 4.5 Plantation Forestry

**Unit 5**

**Silviculture**

- 5.1 Artificial and Natural Regeneration of some important Forest Plants: Teak and Casuarina
- 5.2 Forest Education and Management

**BOOKS FOR REFERENCE:**

- Bruce Alan. *Forest products biotechnology*. Taylor & Francois. 2005
- Bridger Blackeney., *Handbook of Forestry*. Agrotech., 2013.
- Jha,L.K . *Forestry for the people*. New Delhi: Ashish, 1994.
- Powell, Baden B.H. *Manual of Forest Law*. New Delhi: Biotech, 2004.
- Puri,G S . *Forest Ecology*. New Delhi : Oxford & IBH, 1986.
- Raju, R.A. *Forest Wealth of India*. New Delhi: Today & Tomorrow, 1986.
- Sharma, P.D. *Ecology and Environment*, Meerut: Rastogi, 1997.
- Shukla, R.S. *Forestry for Tribal Development*. New Delhi:.Wheeler, 1997.
- Vyas, G P D. *Community Forestry*. Jodhpur: Agrobios, 2006.

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