ST. JOSEPH’S COLLEGE FOR WOMEN (AUTONOMOUS) VISAKHAPATNAM

III SEMESTER **AGRICULTURE AND RURAL DEVELOPMENT** Time:3hrs/week

AGRO202 (2) **CROP PRODUCTION TECHNOLOGY–II** Marks:60

**(OIL SEEDS, FIBER, SUGAR, TOBACCO AND FODDER CROPS)**

w.e.f AJ 2022-2023 **SYLLABUS**

**Objectives**

* To study about Land preparation and layout of plots
* To study about Different types of sowing methods
* To Identify plant characteristics of oil seeds, fiber, sugar crops and fodder crops
* To collect post-harvest data on the crop.

**Course Outcomes**

At the end of the course, students will be able to

**CO1:** Explain the cultivation of oil seed crops and their importance in Indian economy.

**CO2:** Outline the cultivation of fibre crops and their importance in Indian economy.

**CO3:** Summarize agronomical practices for sugar and tuber crops and their contribution to the Indian economy.

**CO4:** Discuss farming practices for tobacco crops and their significance in the Indian economy.

**CO5:** Explain the cultivation of forage crops and their importance.

**Theory**

**UNIT -1 (6 Hours)**

1. Importance of oilseed crops- edible and non – edible oils – nutritional value importance in Indian economy- constraints in oilseed production.

2. Need for improvement of productivity and production of oilseeds -climate resilient technologies- Groundnut – Origin - geographical distribution -area, production and productivity in India and Andhra Pradesh- economic importance

3. Soil and climatic requirements - types - growth stages - land Preparation -seeds and sowing- seed treatment-seed rate-spacing-season-time and method of sowing varieties

4. Water management -weed management- yield attributes –yield- harvesting, postharvest operations- quality considerations -cropping systems – value addition in groundnut.

5. Soybean-Origin - geographical distribution and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing-seed viability - seed treatment-seed rate spacing-season-time and method of sowing- varieties -nutrient management- water management

6. Sunflower – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing-seed treatment-seed rate-spacing-season-time and method of sowing- varieties -nutrient management-water management-weed management - yield attributes –yield- harvesting– post harvest operations- quality considerations – seed production-seed setting problems and measures-cropping systems.

**UNIT –II (6 Hours)**

1. Sesame – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing- seed treatment-seed rate-spacing-season-time and method of sowing- varieties - nutrient management- water management- weed management yield attributes –yield- Harvesting – post harvest operations- Quality considerations – cropping systems.

2. Rapeseed and mustard – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements-Land preparation - seeds and sowing- seed treatment-seed rate spacing-season-time and method of sowing- varieties.

3. Nutrient management- water management- weed management yield attributes – yield- Harvesting – post harvest operations- quality considerations – cropping systems.

4. Safflower – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing- seed treatment-seed rate-spacing-season time and method of sowing- varieties - nutrient management- water management weed management - yield attributes –yield- harvesting – post harvest operations quality considerations – cropping systems.

5. Castor – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing- seed treatment-seed rate-spacing-season time and method of sowing- varieties –nipping- nutrient management- water management- weed management - yield attributes –yield- harvesting – post harvest operations- quality considerations – cropping systems.

6. Linseed– Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing- seed treatment-seed rate-spacing-season pyra /utera, time and method of sowing- varieties – nutrient management- water management- weed management - yield attributes –yield- harvesting – post harvest operations- quality considerations – cropping systems.

7.Niger - Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- soil and climatic requirements Land preparation - seeds and sowing- seed treatment-seed rate-spacing-season time and method of sowing- varieties - nutrient management- water management weed management - yield attributes –yield- harvesting – post harvest operations quality considerations – cropping systems. Fibre crops: Cotton, Jute and Mesta

**UNIT- III (6 Hours)**

1. Cotton- Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- classification- soil - climatic requirements- land preparation - seeds and sowing- seed treatment-seedrate spacing-season-time and method of sowing.

2. Varieties/ Bt cotton - growth stages – branching- nutrient management - water management- weed Management- topping- bud and boll shedding

3. Yield attributes –yield- harvesting-defoliants-mechanized harvesting - quality considerations -cropping systems- climate resilient technologies

4. Jute- Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- - soil - climatic requirements- types of jute- - land preparation - seeds and sowing- seed treatment-seed rate-spacing season-time and method of sowing- varieties - nutrient management - water management- weed management-yield attributes - yield- harvesting – processing of jute- quality considerations- cropping systems.

5. Mesta – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance- - soil - climatic requirements types of mesta - land preparation - seeds and sowing- seed treatment-seed rate spacing-season-time and method of sowing- varieties - nutrient management - water management- weed management-yield attributes –yield- harvesting –processing of mesta- quality considerations- cropping systems. Sugar crops- Sugarcane and Sugarbeet

6. Sugarcane – Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance - soil - climatic requirements– Influence of rainfall, temperature, light- land preparation –planting time in Coastal and Rayalseema regions of AP

**UNIT -IV (6 Hours)**

1. Planting material – setts – short crop – nursery crop – different methods of planting – growth stages

2. Nutrient Management – crop logging- trash mulching – wrapping and propping water management- weed management- criteria for judging maturity- climate resilient technologies

3. Ratoon cane management – factors affecting quality of sugarcane – arrowing– jaggery making – clarification.

4. Sugar beet – Origin - geographical distribution - area, production and productivity in India - economic importance- soil - climatic requirements - Land preparation seeds and sowing- seed treatment-seed rate-spacing-season-time and - nutrient management - water management- weed management- yield attributes –yield harvesting - quality considerations- cropping systems

5. Tobacco –Origin - geographical distribution - area, production and productivity in India and Andhra Pradesh - economic importance - soil - climatic requirements– types of tobacco-Land preparation

6. Nursery management-seeds and sowing for different types- seed treatment-seed rate-spacing-season-time and method of sowing

**UNIT – V(6 Hours)**

1. Varieties - nutrient management – topping and desuckering-water management weed management- yield attributes –yield- harvesting –priming-curing

2. Quality characters-nicotine content, burning quality, aroma and sugar content methods of curing -flue curing of Virginia tobacco - cropping systems

3. Forage crops- Importance- terminology in forage production-classification of fodders-sorghum and maize importance-seeds and sowing - nutrient requirement irrigation- weed management- harvesting –yield- quality of fodder.

4. Cowpea, cluster bean - napier grass - importance- seeds and sowing -nutrient requirement- irrigation- weed management- harvesting –yield- quality of fodder.

5. Lucerne, berseem, oat – importance- seeds and sowing -nutrient requirement irrigation- weed management- harvesting –yield quality of fodder.

6. Forage crops- Quality considerations- preservation of fodder – hay and silage making Other crops: Potato

7. Potato - Origin - geographical distribution - area, production and productivity in India - economic importance- - soil - climatic requirements – varieties – soil - climatic requirements - land preparation - seeds and sowing- seed treatment-seed rate spacing-season-time and - nutrient management - water management- weed management- yield attributes –yield- harvesting - quality considerations- cropping systems

**References text books:**

1. Reddy, S.R. and ReddiRamu. 5th edition, 2016. Agronomy of field crops. Kalyani publishers, Ludhiana.
2. Chidda Singh, Singh, P and Singh, R. 2003. Modern techniques of raising field crops. Oxford & IBH Publishing house, New Delhi.
3. Rajendra Prasad. 2004. Text book of field crops production. Commercial crops, volume-II ,Technical Editor, ICAR, New Delhi.
4. Panda S.C.2014. Agronomy of fodder and forage crops, Kalyani publishers, Ludhian