DEPARTMENT OF AGRICULTURE

SRK UNIVERSITY, BHOPAL

Diploma Agriculture

List of Subjects

IV Semester			
S.NO.	**SUB. CODE**	**SUBJECT TITLE**	**CREDIT**
1	AG-401	Crop Production Technology-II (Rabi crops)	2(1+1)
2	AG-402	Production Technology for Ornamental Crops, MAPs and Landscaping	2(1+1)
3	AG-403	Renewable Energy and Green Technology	2(1+1)
4	AG-405	Production Technology for Fruit and Plantation Crops	2(1+1)
5	AG-406	Principles of Seed Technology	3(2+1)
6	AG-409	Introductory Agro-meteorology & Climate Change	2(1+1)
Total Credit			**13(07+06)**

Department of Agriculture
SRK University, Bhopal
Syllabus
Diploma (Ag.) IV SEMESTER

Crop Production Technology-II (Rabi crops) 2(1+1)

Theory

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of *Rabi* crops-

Unit I:- cereals –wheat and barley **(15%)**

Unit II:- pulses-chickpea, lentil, peas, (**15%)**

Unit II:- oilseeds-rapeseed, mustard and sunflower**.(20%)**

Unit IV:- sugar crops-sugarcane, Forage crops-berseem, lucerne and oat. **(25%)**

Unit V:- medicinal and aromatic crops-mentha, lemon grass and citronella**.(25%)**

Practical-

1. Sowing methods of wheat and sugarcane,
2. Identification of weeds in *rabi* season crops,
3. Study of morphological characteristics of *rabi* crops,
4. Study of yield contributing characters of *rabi* season crops,
5. Yield and juice quality analysis of sugarcane,
6. Study of important agronomic experiments of *rabi* crops at experimental farms.
7. Study of *rabi* forage experiments, oil extraction of medicinal crops,
8. visit to research stations of related crops.

Reference-

Field crop – Chhidda Singh
शस्य विज्ञान के सिध्दांत – ओमप्रकाश अहलावद

Production Technology for Ornamental Crops, MAPs and Landscaping 2 (1+1)

Theory

Unit I: - Importance and scope of ornamental crops, medicinal and aromatic plants and landscaping. Principles of landscaping. Landscape uses of trees, shrubs and climbers.(**20%)**

Unit II: - Production technology of important cut flowers like rose, gerbera, carnation, lilium and orchids under protected conditions and gladiolus, tuberose, chrysanthemum under open conditions**. (25%)**

Unit III: - Package of practices for loose flowers like marigold and jasmine under open conditions. **. (15%)**

Unit IV:- Production technology of important medicinal plants like ashwagandha, asparagus, aloe, costus, Cinnamomum, periwinkle, isabgol and aromatic plants like mint, lemongrass, citronella, palmarosa, ocimum, rose, geranium, vetiver. **. (25%)**

Unit V: - Processing and value addition in ornamental crops and MAPs produce. **. (15%)**

Practical

1. Identification of Ornamental plants, Medicinal and Aromatic Plants.
2. Nursery bed preparation and seed sowing.
3. Training and pruning of Ornamental plants.
4. Planning and layout of garden.
5. Bed preparation and planting of MAP.
6. Intercultural operations in flowers and MAP.
7. Harvesting and post harvest handling of cut and loose flowers.
8. Visit to commercial flower/MAP unit.

Reference-

M. S. Randhawa

K. V. Peter

Basic Horticulture – Jitendra Singh

Renewable Energy and Green Technology 2(1+1)

Theory

Unit I: - Classification of energy sources, contribution of these of sources in agricultural sector, familiarization with biomass utilization for biofuel production and their application. **(25%)**

Unit II: - Familiarization with types of biogas plants and gasifiers, biogas, bioalcohol, biodiesel and biooil production and their utilization as bioenergy resource. **. (25%)**

Unit III: - Introduction of solar energy, collection and their application, Familiarization with solar energy gadgets: solar cooker, solar water heater. **. (20%)**

Unit IV: - Application of solar energy: solar drying, solar pond, solar distillation, solar photovoltaic system and their application. **. (20%)**

Unit V: - Introduction of wind energy and their application. **. (10%)**

Practical

1. To study biogas plants.
2. To study gasifier,
3. To study the production process of biodiesel,
4. To study the production process of bio-fuels.
5. To study solar cooker,
6. To study solar drying system.

To study solar distillation and solar pond.

Production Technology for Fruit and Plantation Crops 2(1+1)

Theory

Unit-I: - Importance and scope of fruit and plantation crop industry in India. **. (20%)**

Unit-II: - Importance of rootstocks; Production technologies for the cultivation of major fruits-mango, banana, citrus, grape, guava, litchi, papaya, **. (25%)**

Unit-III: - Sapota, apple, pear, peach, walnut, almond **. (20%)**

Unit-IV: - Minor fruits- date, ber, pineapple, pomegranate, jackfruit, strawberry, **. (20%)**

Unit-V: - Plantation crops-coconut, areca nut, cashew, tea, coffee & rubber. **. (15%)**

Practical

1. Seed propagation.
2. Scarification and stratification of seeds.
3. Propagation methods for fruit and plantation crops.
4. Description and identification of fruit.
5. Preparation of plant bio regulators and their uses,
6. Important pests, diseases and physiological disorders of above fruit and plantation crops,
7. Visit to commercial orchards.

Reference-

Production and Protection of Horticulture crops – K V Peter

Fruit Production Technology – Amar Singh & Anand Kumar

Principles of Seed Technology 3(1+2)

Theory

Unit-I: - Seed and seed technology: introduction, definition and importance. Deterioration causes of crop varieties and their control; Maintenance of genetic purity during seed production, seed quality; **(20%)**

Unit-II: - Definition, Characters of good quality seed, different classes of seed. Foundation and certified seed production of important **cereals, pulses, oilseeds, fodder and vegetables**. Seed certification, phases of certification, procedure for seed certification, field inspection. **. (20%)**

Unit-III: - Seed Act and Seed Act enforcement. Duty and powers of seed inspector, offences and penalties. Seeds Control Order 1983, Varietal Identification through Grow Out Test and Electrophoresis, Molecular and Biochemical test. **. (20%)**

Unit-IV: - Detection of genetically modified crops, Transgene contamination in non-GM crops, GM crops and organic seed production. Seed drying, processing and their steps, seed testing for quality assessment, seed treatment, its importance, method of application and seed packing. **. (20%)**

Unit-V: - Seed storage; general principles, stages and factors affecting seed longevity during storage. Measures for pest and disease control during storage. Seed marketing: structure and organization, sales generation activities. Factors affecting seed marketing, Private and public sectors and their production and marketing strategies. **. (20%)**

Practical

1. Seed production in major cereals: Wheat, Rice, Maize, Sorghum, Bajra.
2. Seed production in major pulses: Urd, Mung, Pigeonpea, Lentil, Gram, , pea.
3. Seed production in major oilseeds: Soybean, Sunflower, Rapeseed, Groundnut and Mustard.
4. Seed production in important vegetable crops.
5. Seed sampling and testing: Physical purity, germination, viability, etc.
6. Seed and seedling vigour test.
7. Genetic purity test: Grow out test and electrophoresis.
8. Seed certification: Procedure, Field inspection, Preparation of field inspection report.
9. Visit to seed production farms, seed testing laboratories and seed processing plant.

Reference- Seed Science and Technology – P. S. Shukla

Introductory Agro-meteorology & Climate Change 2(1+1)

Theory

Unit-I:- Meaning and scope of agricultural meteorology; Earth atmosphere- its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height; Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze; **. (20%)**

Unit-II:- Nature and properties of solar radiation, solar constant, depletion of solar radiation, short wave, longwave and thermal radiation, net radiation, albedo; Atmospheric temperature, temperature inversion, lapse rate, daily and seasonal variations of temperature, vertical profile of temperature, Energy balance of earth; **. (20%)**

Unit-III:- Atmospheric humidity, concept of saturation, vapor pressure, process of condensation, formation of dew, fog, mist, frost, cloud; Precipitation, process of precipitation, types of precipitation such as rain, snow, sleet, and hail, cloud formation and classification; Artificial rainmaking. Monsoon- mechanism and importance in Indian agriculture, **. (20%)**

Unit-IV: - Weather hazards - drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold-wave. Agriculture and weather relations; Modifications of crop microclimate, climatic normals for crop and livestock production. **. (20%)**

Unit-V: - Weather forecasting- types of weather forecast and their uses. Climate change, climatic variability, global warming, causes of climate change and its impact on regional and national Agriculture**.. (20%)**

Practical-

1. Visit of Agro-meteorological Observatory, site selection of observatory, exposure of instruments and weather data recording.
2. Measurement of total, shortwave and long wave radiation, and its estimation using Planck's intensity law.
3. Measurement of albedo and sunshine duration, computation of Radiation Intensity using BSS.
4. Measurement of maximum and minimum air temperatures, its tabulation, trend and variation analysis.
5. Measurement of soil temperature and computation of soil heat flux.
6. Determination of vapor pressure and relative humidity.
7. Determination of dew point temperature.

DEPARMENT OF AGRICULTURE
SRK UNIVERSITY, BHOPAL (M.P)
PROGRAMME STRUCTURE
ACADMIC SESSION: 2019-20

Diploma Agriculture Fourth Semester
Subject Wise Distribution

Semester -IV

S.N.	Course Code	Credit of the course	Name of the course	Internal Assessment		Assign ment		End Semester exams		Practical exams		Total marks
				Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	
1	DAG-401	2(1+1)	Crop Production Technology-II (Rabi crops)	30	15	-	-	50	25	20	10	100
2	DAG-402	2(1+1)	Production Technology of Ornamental Crops, MAPs and Landscaping	30	15	-	-	50	25	20	10	100
3	DAG-403	2(1+1)	Renewable Energy and Green Technology	30	15	-	-	50	25	20	10	100
4	DAG-404	2(1+1)	Production Technology for Fruit and Plantation Crops	30	15	-	-	50	25	20	10	100
5	DAG-405	3(2+1)	Principles of Seed Technology	30	15	-	-	50	25	20	10	100
6	DAG-406	2(1+1)	Introductory Agro-meteorology & Climate Change	30	15	-	5	50	25	20	10	100
			Minimum Marks	**-**	**90**	**-**	**-**	**-**	**150**	**-**	**60**	**300**
Total		**13 (07+06)**	**Maximum Marks**	**180**	**-**	**-**	**-**	**300**	**-**	**120**	**-**	**600**