



"Education through self-help is our motto" - **KARMAVEER**

Rayat Shikshan Sanstha's
DAHIWADI COLLEGE, DAHIWADI

Tal. Man, Dist. Satara : 415 508

[Arts, Science, Commerce, BCA, B.Voc.Agri.,
Bank Management, Defence Studies & Vocational Education]

Founder : Padmabhushan Dr. Karmaveer Bhaurao Patil D.Litt.

[NAAC Third Cycle Reaccredited 'A' Grade (with CGPA 3.25)]

Estd : 1965

Jr.College No. J-21.06.001

M.C.V.C. No. J-21.06.901

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Bachelor of Vocational (B.Voc.)

(Agricultural)

Programme Outcomes (PO's)

After Completing B.Voc.. programme the student will be able to:

- PO1:** Develop communication methods, resources utilization, cultivation of crops, management of crops
- PO2:** Understand all related methods in agriculture to increase the profit from crop fields and live stocks.
- PO3:** Learn to make optimum decision at various levels that enhances the success as an agriculture enterprise.
- PO4:** Gain detailed knowledge of Agriculture and its allied branches.
- PO5:** Know about value addition of agricultural commodities.
- PO6:** Study various branches of agriculture like forestry, livestock, horticulture, plant protection, agriculture extension, economics and other allied branches required to raise the income of farmers.
- PO7:** Acquire detailed knowledge of agriculture in India and Indian farmers and their income generating enterprises.
- PO8:** Disseminate knowledge regarding various technique of farming and farming system in India.
- PO9:** Study market and marketing of agricultural produce.
- PO10:** Harmonize the relation with agriculture research institutions, state agriculture universities, Krishi vigyan Kendra etc.

Programme Specific Outcomes(PSO's)

Upon completion of this programme the student will be able to

- PSO 1:** Develop the knowledge based resources and technologies for the enhancement of decision making ability in students for selection of higher studies in agriculture

- PSO 2:** Understand the impact of the professional agricultural solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PSO 3:** To demonstrate research based knowledge of the legal and ethical environment impacting agriculture organizations and exhibit an understanding and appreciation of the ethical implications of decisions.
- PSO 4:** To demonstrate an understanding of and appreciation for the importance of the impact of globalization and diversity in modern agriculture organizations. Understanding of globalization, and NGO working.
- PSO 5:** Establish a self-motivated system of agriculture education to attend the local and global demands of agriculture, professionals in agriculture and allied sectors
- PSO 6:** To demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems. Ability to work effectively with others. To develop analytical ability and team work spirit
- PSO 7:** To understand and analyze the current events and issues that are occurring in agriculture and how they affect futuristic agriculture
- PSO 8:** Enable to recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions. To understand mechanics of agripreneurship.
- PSO 9:** Understand how all aspects of agriculture combine and are used by scientists, marketers, producers and understand how employer characteristics and decision-making at various levels enhance the success of an agricultural enterprise. To understand components of agri business and economics of market.
- PSO 10:** Able to demonstrate critical thinking and problem solving skills as they apply to a variety of animal and or plant production systems .To understand problem solving skills in crop production and animal husbandry.
- PSO 11:** Knowledge of Weather codes and Symbols, Reading and Recording of weather and climatic data. To get trained for climatologically records, Soil data, and Plant nutrition.
- PSO 12:** To develop critical and self-critical opinion and approach aiming at solving the most important practical problems in the field of plant protection by applying gained competencies and in accordance with high standards of academic integrity (ethics and moral) both in the profession and in society as a whole. To develop competence to work in Government, public and private sectors.
- PSO 13:** Demonstrate knowledge and understanding in the horticulture section: The breadth and depth of the profession of horticulture. Basic horticulture biology: taxonomy, anatomy, morphology, and physiology. The characteristics of the environment and their influence on plant growth and development. Current applications of horticultural principles and practices: propagation, pest management, production, maintenance, and business practices. Comprehensive knowledge of horticultural production.
- PSO 14:** Develop operational resources for the efficient and cost effective implementation of agriculture education

PSO 15: This programme will also help students to enhance their employability for jobs in different sectors.

Course Outcomes (CO's)

F. Y. B.Voc in Agriculture Semester I

Paper-I Business Communication -I(63001)

Unit-I Use of English Business Environment Topic

CO1: Make simple sentence, compound sentence and complex sentence

CO2: Improve their business vocabulary

CO3: Know the different element of sentence

Unit-II Writing letter of Application CV/Resume

CO4: Know the essentials of CV or resume

CO5: Prepare their resume or letter of application for various posts

Unit-III Presenting Information /Data

CO6: Present the data by using pie chart, tree diagram, graphs, flow chart, Bar diagram, tables etc.

CO7: Know the use of various graphics like graphs or tables

CO8: To prepare the data by using the information in graphical form

Unit-IV Interview Technique

CO9: Know the Dos and Don'ts of an interview

CO10: Appear for an interview

CO11: Present the document in an interview

Paper-II Soil Science-I (63002)

Unit-I Rocks and Minerals

CO12: Student will able to Identify Rocks

CO13: Student will Able to Identify various Minerals

CO14: Students will able to know the process of formation of minerals

Unit-II Weathering

CO15: Know the process of weathering

CO16: Get acquaint with Process and factors of soil Formation

CO17: Identify soil profile and its various horizon

CO18: Identify various components of soil

Unit-III Properties of soil

CO19: Identify soil structure, soil texture and porosity

CO20: Identify Soil colour

CO21: Know the process of Soil pH

CO22: Know the soil organic matter and its properties

CO23: Know the humic substance and its properties

Unit-IV Soil Organisms

CO24: Know the macro and micro organism

CO25: Know the Beneficial and harmful effect of soil micro-Organism

Paper no- III Fundamentals of Agronomy (63003)

Unit-I Introduction of Agronomy

CO26: Know the scope of Agronomy

CO27: Know the importance of Agronomy

Unit-II Seed and Tillage

CO28: Identify good quality seed

CO29: Get acquainted with various tillage implement and there use

CO30: Performs various tillage operation in field

Unit-III Plant nutrition and fertilizer

CO31: Know different type of manure and fertilizer and their nutrient content

CO32: Will get knowledge of various method of fertilizer application

CO33: Identify various type of fertilizer

Unit-IV Irrigation and Drainage

CO34: Know different method of irrigation used in different crop

CO35: Decide irrigation schedule according to crop type and soil moisture

Paper No- IV Weed management (63004)

Unit-I General Information of weed

CO36: Identify the different species of weed

CO37: Know the classification of weed

CO38: Know the importance and damage caused by weed

Unit-II Weed Management

CO39: Know the concept of weed management and methods

CO40: Know the classification of herbicides

Unit-III Crop Management

CO41: Know the crop management technologies and problematic area

CO42: Know the crop rotation and its principle

Unit-IV Harvesting

CO43: Know how to harvest crops

Paper no- V Fundamentals of Horticulture (63005)

Unit-I Scope and Importance

CO44: Know the branches of horticulture

CO44: Know the Scope and importance of horticulture

CO45: Know the zone of Maharashtra

Unit-II Orchard Management

CO46: Know the various types of orchard and weed management

CO47: Know the different steps in planning and layout of orchard

Unit-III Importance of Horticultural Practices

CO48: Know the horticultural practices Training, pruning, bending, notching , ringing, Flower bud differentiation , Pollination, Pollinizers, Fertilizer and parthenocarpy

Unit-IV Medicinal and Aromatic plant

CO49: Identify medicinal and Aromatic plant

CO50: Know the importance plant growth regulator in horticulture

Paper No-VI –Lab work fundamentals of Agronomy(63006)

CO51: Identify the crop seed, fertilizer, Pesticide and tillage implements

CO52: Know the Agro climatic zone

CO53: Identify the various weed species

CO54: Know the method of herbicide and fertilizer application

CO55: Know the yield contributing character and yield estimation

CO56: Know the seed germination and viability test

CO57: Calculate the problem fertilizer requirement

CO58: Calculate the problem plant population

Paper No-VII –Laboratory work Weed management (63007)

CO59: Know the various herbicide and water requirement

CO60: Know the use of various tillage implement

CO61: Know the soil moisture measuring devices

CO61: Know the measurement of irrigation water

CO62: Know the precaution taken herbicide application

CO63: Know the collection of weed species

Paper No VIII Lab work Fundamentals of Horticulture (63008)

CO64: Identify garden tools and various horticulture crop

CO65: Know the how to prepare seedbed/ Nursery bed

CO66: Know the different propagation method to horticulture crop

CO67: Know the different irrigation methods to horticulture crop

CO68: Know the how to opening and filling pit

CO69: Know the how to prepare layout and planting of orchard

CO70: Know the how to apply fertilizer in different crop

CO71: Know the how to prepare Gibberlic acid

Paper No-IX –Project (63009)

CO72: Identify various seeds of cereals, pulses, oil seeds etc.

CO73: Identify weed species and study their morphological characters

CO74: Understand how to preserve weed species

CO75: Able to prepare seed album and weed album

F. Y. B.Voc in Agriculture Semester II

Paper No-X Business Communication-II (63010)

Unit-I Group Discussion

CO76: Initiate group discussion by their opinion

CO77: Express their views, agreements and disagreements

CO78: Make suggestion, accept or decline suggestion and summing up

Unit-II Business correspondence

CO79: Write memo's, e-mails, complaints and inquiries

CO80: Invite quotations for placing orders or tenders

Unit-III English for Negotiation

CO81: Understand business negotiations and agenda for it

CO82: Know stages of negotiation

Unit-IV English for Marketing

CO83: Explain product or services promotion

CO84: Deal or bargain with customers

CO85: Understand use of pamphlets, hoardings, advertisement, public functions or festivals

Paper No-XI Soil Science-II (63011)

Unit-I Manures

CO86: Know the procedure of bulky organic manure and concentrated organic manure

CO87: Know the green manuring crop

CO88: Know the integrated nutrient management practices

Unit-II Fertilizer

CO89: Know the Classification of fertilizer

CO90: Know the Nano fertilizer

CO91: Know the fertilizer storage

CO92: Know the fertilizer control order

Unit-III Soil Fertility and Productivity

CO93: Know the soil fertility and productivity

CO94: Know the difference between soil fertility and productivity

Unit-IV Plant Nutrient

CO95: Know the essential plant nutrient

CO96: Know the Role of the each nutrient

CO97: Know the toxicity and deficiency symptoms of each essential nutrient

Paper No-XII Agricultural Meteorology (63012)

Unit-I Meaning of meteorology

CO98: Know the scope of agricultural meteorology

CO99: Know the composition of atmosphere

CO100: Know the importance of agricultural meteorology

Unit-II Components of weather

CO101: Know various weather elements and their effect on crop growth

CO102: To record weather data daily

CO103: To maintain meteorological records in daily, weekly and monthly diary

Unit-III Weather forecast

CO104: Know various types of weather forecasting and their uses

CO105: Understand impact of climate change on national agriculture

CO106: know will effects of global warming on crops and their growth

Unit-IV Impact of weather element on crop

CO107: Get acquainted with effect of climatic factors on growth of crop

CO108: Know the impact of various weather phenomenon on pest and diseases of crop

CO109: Prepare weather calendar according to crop

Paper No-XIII Pomology (63013)

Unit-I Scope and importance of fruits

CO110: Know the importance and scope of fruit and plantation crop industry in India **CO111:** Know the importance of rootstocks.

Unit-II Cultivation of Major Fruit crops

CO112: Know the production technologies of Mango, Banana, Citrus crops.

CO113: Know the production technologies of Grape, Guava, Papaya.

CO114: Know the production technologies of Sapota, Custard apple and Aonla.

Unit-III Study of minor fruits

CO115: Know the production technologies for Ber, Pomogranate, Jackfruit, Strawberry, Tamarind.

CO116: Know the production technologies of plantation crops : Coconut, Cashew

Unit-IV Propagation

CO117: Know the plant propagation methods and propagating structures

CO118: Know the cultivation of teak and shevari.

CO119: Know the nursery it's importance and propagation methods

Paper No-XIV Entomology and Pathology (63014)

Unit-I Fundamentals of Entomology

CO120: Know the various parts of insect body.

CO121: Know the various types of larvae and pupae.

Unit-II IPM

CO122: Know the IPM.

CO123: Classification of insecticide.

CO124: Recent methods of pest control.

Unit-III Fundamental of Plant Pathology

CO125: Identify the various plant diseases.

CO126: Know the objective of plant pathology.

CO127: Know the classification of plant diseases

Unit-IV Causes of diseases

CO128: Know the various pathogenic organism i.e, fungi, bacteria, phytoplasmas, spiroplasms, viruses, virioids, algae, parasite, Nematodes etc.

CO129: Be aware about diseases caused by pathogenic organism.

CO130: Know the symptoms and nature of damage caused by bacteria, viruses, fungus.

Paper No-XV Laboratory work Agricultural meteorology (63015)

CO130: Handle instruments used in weather data recording

CO131: Measure temperature of air and soil

CO132: Determine wind direction and wind speed and to prepare wind rose

CO133: Measure humidity by using hygrometer

CO134: Convert temperature from OC to OF and OK

CO135: Record weather data daily, weekly and monthly

CO136: Maintain weather records in weather diary

Paper No-XVI Laboratory work Pomology (63016)

CO137: Know the seed propagation

CO138: Know the propagation methods for fruits and plantation crops

CO139: Know the identification of fruits

CO140: Visit to commercial nurseries

CO141: Know the details of cutting

CO142: Know about stone grafting in mango

CO143: Know the air layering

CO145: Know the tongue layering

CO146: Know the approach grafting

CO147: Know the budding methods

Paper No-XVII Laboratory work Entomology and pathology(63017)

CO148: Learn methods of collection of insect

CO149: Know the methods of preservation of insect

CO150: Learn methods of collection of disease specimen

CO151: Know the various types of insect larvae and pupae

CO152: Dissect insects like grasshopper, cockroach, earthworm etc.

CO153: Prepare various formulations of insecticides

CO154: Prepare various formulations of fungicides

CO155: Identify various diseases of plants caused by bacteria or fungus

CO156: Identify symptoms of diseases of agronomic crops

CO157: Identify damage caused by various insects

Paper No-XVIII Study tour (63018)

CO158: Collaborate with various agricultural institutions, research stations and agricultural universities

CO159: Develop various life skills such as team building, time management, leadership etc.

CO160: Know historical achievements in agriculture

S. Y. B. Voc Agri Semester III

Paper No-XIX Fundamentals of financial accounting - I (74613)

Unit-I Introduction to accounting

CO161: Know about nature and Advantages of accounting

CO162: Know about types of accounts

CO163: Know about various sources of documents like cash voucher, petty cash voucher, cash memo, receipts, cheque, credit and debit note, withdrawals etc.

Unit-II Journal and ledger

CO164: Prepare journal entries and ledger account

CO165: Know about subsidiary book, purchase return book, bill book, cash book, sales return book etc.

Unit-III Depreciation

CO166: Know about meaning of depreciation

CO167: Know methods to calculate depreciation (straight line, reducing balance, change in depreciation method)

Unit-IV Final accounts

CO168: Prepare trial balance

CO169: Prepare final accounts of sole traders and partnership firms

Paper No-XX Animal science and dairy technology (74614)

Unit-I Care and management of livestock

CO170: Know about housing of cattle, calf, bull, bullock, sheep, goat and buffalo.

CO171: Take care of pregnant and lactating animals.

CO172: Know different types of housing systems used for cattle.

Unit-II Study of livestock's

CO173: Identify the different breeds of cow and buffalo.

CO174: Know various characters of breeds of cattle.

Unit-III meaning and importance

CO175: Know the meaning, scope and importance dairy technology.

CO176: Know the composition of milk, Physiochemical properties of milk constituents and homogenization of milk.

CO177: Able to identify various adulterants in milk.

CO178: Get acquainted with various processes performed in dairy industry.

Unit-IV Dairy product

CO179: Prepare concentrated whole milk products- Basundi, khoa, Mava, Rabri.

CO180: Prepare coagulated milk products –curd, Shrikhand, panner, Flavoured milk.

CO181: Prepare the ghee and lassi.

Paper No-XXI Crop production technology I (74615)

Unit-I Cultivation practices of cereal crops

CO182: Know the cultivation practices of rice and maize.

CO183: Know the cultivation practices of sorghum and Bajara.

Unit-II cultivation practices of pulse crops

CO184: Know the cultivation practices of Tur.

CO185: Know the cultivation practices of Green gram.

Unit-III Cultivation practices of oilseeds crops

CO186: Know the cultivation practices of groundnut.

CO187: Know the cultivation practices of soyabean.

Unit-IV cultivation practices of cash crops

CO188: Know the cultivation practices of cotton

CO189: Know the cultivation practices of sugarcane.

Paper No-XXII Olericulture (74616)

Unit-I Importance of vegetables

CO190 :Know the economic importance of vegetables.

CO191 :Know the nutritional importance of vegetable.

CO192 :Know the importance of vegetable in human diet.

Unit-II Kitchen Gardening

CO193 :Understand the meaning, benefits and maintenance of kitchen gardening.

CO194 :Know the cultivation practices of leafy vegetablesPalak, fenugreek and coriander.

Unit-III Study of fruit vegetables

CO195: Know the cultivation, soil and climate, seeds and sowing, irrigation and water management, major pest and diseases, harvesting of tomato, brinjal.

CO196: Know the cultivation, soil and climate, seeds and sowing, irrigation and water management, major pest and diseases, harvesting of chilli and okra.

Unit-IV Study of important cole crops, bulb and root crops

CO197: Know the cultivation, soil and climate, seeds and sowing, irrigation and water management, major pest and diseases, harvesting of cabbage.

CO198: Know the cultivation, soil and climate, seeds and sowing, irrigation and water management, major pest and diseases, harvesting of onion.

CO199: Know the cultivation, soil and climate, seeds and sowing, irrigation and water

management, major pest and diseases, harvesting of carrot.

Paper No-XXIII Plant protection I(74617)

Unit-I Study of insect pests of cereal crops

CO200: Know the introduction, nature of damage, symptoms and control measures of pests in jowar and wheat

CO201: Know the introduction, nature of damage, symptoms and control measures of pests in maize and Bajara.

Unit-II Pest of pulse and cash crops.

CO202: Know the introduction, nature of damage, symptoms and control measures of pests in cotton and sugarcane.

CO203: Know the introduction, nature of damage, symptoms and control measures of pests in Gram and Tur

Unit-III diseases of cereal crops

CO204: Know the introduction, nature of damage, symptoms and control measures of diseases in paddy and jowar.

CO205: Know the introduction, nature of damage, symptoms and control measures of diseases in Bajara and maize.

Unit-IV Diseases of other crops

CO206: Know the introduction, nature of damage, symptoms and control measures of diseases in groundnut.

CO207: Know the introduction, nature of damage, symptoms and control measures of diseases in cotton and sugarcane

Paper No-XXIV Lab work Crop production technology I (74618)

CO208: Identify kharif season crop.

CO209: Know the different sowing methods of kharif crops.

CO210: Know the effect of sowing time, sowing depth on yield and germination of crop.

CO211: Identify the kharif season weed species.

CO212: Know the different methods of seed treatment.

CO213: Know the top dressing and foliar feeding of nutrient.

Paper No-XXV Laboratory work Olericulture (74619)

CO213: Identify the seed and plants of vegetable crops

CO214: Know the preparation of raised beds and raising of seedlings of vegetables

CO215: Understand the morphological characteristics of different vegetable crops

CO216: Know the harvesting and preparation of vegetables for market.

CO217: Give the seed treatment to vegetable seeds.

Paper No-XXVI Laboratory work Plant protection (74620)

- CO218: Identify the important pests on different crops.
- CO219: Understand the life cycle of various insect pests.
- CO220: Identify the diseases of field crops.
- CO221: Collect and preserve of plant diseased specimens.
- CO222: Know the care taken while application of pesticides and fungicides.

Paper No-XXVII Project (74621)

- CO223: Perform nursery management practices
- CO224: Prepare various milk product
- CO225: Develop marketing skill for agricultural commodities
- CO226: Know the importance of protected cultivation

Bachelor Vocational in (B.Voc) Agriculture

S. Y. B.Voc in Agri Semester IV

Paper No.-XXVIII Fundamentals of financ. accounting - II (74622)

Unit-I Computerized accounting system

- CO227: Know about components and features of computerized accounting system
- CO228: Use computerized accounting system

Unit-II Computer application through accounting package tally

- CO229: Know about creation of company, group, ledger account etc.
- CO230: Know about feeding of accounting data receipts, payments, purchase, sale, credit note and debit note
- CO231: Generate various accounting reports

Unit-III Accounts of professionals

- CO232: Prepare receipt and payment account, income – expenditure account
- CO233: Prepare balance sheet of non-profit organization

Unit-IV Single entry system

- CO234: Convert single entry system into double entry system

Paper No.-XXIX Soil Science-III (74623)

Unit-I Mechanism of soil Nutrient

- CO235: Know the how to transport nutrient to plant
- CO236: Know the which factor affect the nutrient availability
- CO237: Chemistry of N, P, K and Ca , Mg, Sulphur

Unit-II Soil fertility Evaluation

- CO238: Know the soil and plant analysis process
- CO239: Know the critical levels of nutrient
- CO240: Know the different methods of fertilizer recommendation

Unit-III Problematic soil

- CO241: Identify waste land and their categorization
- CO242: Know the testing of soil quality and health

Unit-IV Management

CO243: Know the reclamation and management practices of saline soil

CO244: Know the reclamation and management practices of sodic and acidic soil

Paper No.-XXX Crop production technology-II(74624)

Unit-I Cultivation practices of cereal crops

CO245: Know about soil and climate required for cultivation of wheat

CO246: Perform sowing of wheat by using drilling method

CO247: Identify various pests and disease of wheat and barley

CO248: Know the maturity indices and identify time of harvesting

Unit-II Cultivation practices of Pulse crops

CO249: Perform cultivation practices of gram, pea, lentil etc.

CO250: Know about economic importance and health benefit of pulse bcrops.

CO251: Identify pests of gram, pea, lentil

CO252: Identify disease of pulse crop and use various control measure of their control

Unit-III Cultivation practices of Oilseed crops

CO253: Know about uses of oilseed crops

CO254: Perform inter cultivation practices for oil seed crop

CO255: Do harvesting and threshing of sunflower, safflower, linseed etc.

CO256: Know about post-harvest practices like oil extraction

Unit-IV Cultivation practices of Medicinal and Aromatic Crop

CO257: Know the difference between medicinal and aromatic plant

CO258: Perform sowing and other cultivation practices in medicinal and aromatic crop

CO259: Identify major pest and diseases of medicinal and aromatic crops.

Paper No.-XXXI Floriculture (74625)

Unit-I Scope and importance

CO260: Know about introduction, and classification of ornamental, medicinal and aromatic plants.

CO261: Know the scope and importance of ornamental, medicinal and aromatic crop.

Unit-II Production techniques of important cut flowers.

CO262: Know about plantation techniques, pest and diseases and their management and production of rose and gerbera.

CO263: Know about plantation techniques, pest and diseases and their management and production of Marigold and carnation.

Unit-III Grading and packaging.

CO264: Know process of grading.

CO265: Know about the types of packaging and packaging material.

CO266: Know the commercial uses of loose flowers like marigold and jasmine.

Unit-IV Production technology of medicinal plants.

CO267: Know the introduction, plantation, harvesting and uses of ashwagandha and aloe.

CO268: Know the introduction, plantation, harvesting and uses of neem and turmeric.

Paper No.-XXXII Plant Protection II (74626)

Unit-I Study of insect pest of vegetable crops.

CO269: Know about introduction, nature of damage, symptoms, and control measure of pests in tomato, brinjal.

CO270: Know the introduction, nature of damage, symptoms, and control measure of pests in chilli and okra.

CO271: Know the introduction, nature of damage, symptoms, and control measure of pests in cucumber, cabbage.

Unit-II Study of insects, pests, of fruit crops

CO272: Know the introduction, nature of damage, symptoms, and control measures of pests in mango and pomogranate.

CO273: Know the introduction, nature of damage, symptoms, and control measures of pests in citrus crops.

CO274: Know the introduction, nature of damage, symptoms, and control measures of pests in Ber, grapes.

Unit-III Diseases of major fruit crops

CO275: Know the introduction, nature of damage, symptoms and control measures of disease in mango, pomegranate.

CO276: Know the introduction, nature of damage, symptoms and control measures of disease in citrus crops.

CO277: Know the introduction, nature of damage, symptoms and control measures of disease in ber, grapes.

Unit-IV Methods of disease control

CO278: Understand the management methods of diseases and chemical formulation.

CO279: Know the methods of application of fungicides.

Paper No-XXXIII Lab work

crop production technology-II(74627)

CO280: Identify the important *rabi* crops

CO281: Know the yield contributing characters of *rabi* season crops

CO282: Understand the morphological characteristics of *rabi* crops.

CO283: Know the process of oil extraction of medicinal crops.

CO284: Visit to research stations of rabi crops.

Paper No-XXXVI Laboratory work Floriculture (74628)

CO285: Identify the ornamental and aromatic plants.

CO286: Identify the medicinal plants.

CO287: Identify the different flowering plants.

CO288: Know the planning and layout of garden.

CO289: Know the harvesting and postharvest handling of cut and loose flowers.

CO290: Visit to commercial flower garden.

Paper No-XXXV Laboratory work

Plant protection II (74629)

CO291: Identify the different insect and pests of crop.

CO292: Know the nature of damage, control measure of vegetable crop pests.

CO293: Know the nature of damage, control measure of fruit crop pests.

CO294: Understand the symptoms and control measure of fruit crop diseases.

CO295: Prepare the Bordeaux mixture.

Paper No-XXXVI Study tour (74630)

CO296: Develop communication skill, leadership and time management

CO297: Understand the issues regarding agriculture product development

CO298: Know various research finding in recent era

T. Y. B. Voc in Agri Semester V

Paper No-XXXVII Genetics (79847)

Unit-I Pre and post mendelian concept of heredity

On completion of this course, the students will be able to:

CO299: Know the pre and post mendelian concept of heredity, mendelian principles of heredity.

CO300: Know the architecture of chromosome, chromonemata, chromosome matrix, chromomeres, centromeres, secondary construction and telomere.

Unit-II Cell cycle and cell division

CO301: Know the cell division, mitosis and meiosis.

CO302: Know the probability, chi square, dominance relationship.

CO303: Understand the DNA, its structure, RNA and its structure.

Unit-III Multiple alleles

CO304: Know the concept of multiple alleles, pleiotropism and pseudoalleles, sex determination and sex linkage.

CO305: Know the blood group genetics, linkage and its estimation, crossing over mechanism, chromosome mapping

Unit-IV Mutation

CO306: Know mutation, classification of mutation, methods of inducing mutation.

CO307: Know the CIB techniques, mutagenic agents and induction of mutation

Paper No-XXXVIII Seed Technology (79848)

Unit-I Seed and seed technology

CO308: Know the introduction, definition, importance of seed technology.

CO309: Losses of crop varieties and their control.

CO310: Know the characters of good quality seed, maintenance of genetic purity during seed production, and seed quality.

Unit-II Study of different classes of seeds

CO311: Understand the meaning of foundation seed, certified seed, nuclear seed, breeder seed.

CO312: Know the seed certification, phases of certification, procedure of seed certification, field inspection and seed act.

Unit-III Seed production of cereals, pulses, oil seeds, fodder and vegetables.

CO313: Know the cultivation practices of cereals and pulses.

CO314: Know the cultivation oilseeds and fodder crops.

CO315: Cultivation practices of vegetable.

Unit-IV Post harvest practices of seed production

CO316: Know the concept of seed drying, processing and testing for quality assessment.

CO317: Know the process of seed treatment, method of application, seed packing and seed storage.

CO318: Know the major pest and diseases during storage, seed marketing.

Paper No-XXXIX

Organic Farming & Sustainable Agriculture (79849)

Unit-I Principle and scope of organic farming

CO319: Know the advantages and disadvantages of organic farming

CO320: Know the different NGO's

Unit-II Components and methods of organic farming

CO321: Prepare organic manures like FYM, vermin compost, green

manure etc.

CO322: Know the certification process and standards of organic farming

Unit-III Principles, scope and introduction of sustainable agriculture

CO323: Know the advantages and disadvantages of sustainable

CO324: Know the difference between modern and sustainable agriculture

CO325: Identify problems of modern agriculture

Unit-IV Sustainable agriculture- problems and its indicators

CO326: Know the conservation agriculture strategies in agriculture

CO327: Know the HEIA, LEIA and LEISA and its techniques for sustainability

Paper No-XXXX

PHM&Value addition of fruits &Vegetable(79850)

Unit-I PHM and value addition of fruits and vegetables.

CO328: Understand the history of post management harvest

CO329: Know the pre harvest factors- cultural operations, pre harvest treatment and maturity indices.

CO330: Know the post-harvest factors- curing, degreening, precooling, disinfection, waxing, ripening, packaging, transportation, storage and irradiation.

Unit-II Post harvest management of horticultural crops.

CO331: Know the post harvesting management of potato, tuber crops, cassava.

CO332: Know the post harvesting management of sweet potato, cut flowers, coconut.

CO333: Know the post harvesting management of leafy vegetables, spices and other horticultural crops.

Unit-III Introduction and concept of value addition

CO334: Know the introduction, scope and concept of value addition

CO335: Understand principles and methods of preservation

Unit-IV Processing of fruits and vegetables

CO336: Know the process of preparation of jam, jelly, marmalade

CO337: Know the process of preparation of preserve and candy

Paper No-XXXXXI Crop Physiology (79851)

Unit-I Plant water relations

CO338: Know importance of Crop physiology in agriculture

CO339: Know role of water in plant growth

CO340: Understand significance of diffusion, osmosis, absorption

CO341: Know factors affecting on translocation, transpiration and guttation

Unit-II Photosynthesis and respiration

CO342: Know process of photosynthesis in plants

CO343: Understand mechanism of photosynthesis (Cyclic and Non cyclic photophosphorylation)

CO344: Know about photosynthetic pathways like C₃, C₄ and CAM

CO345: Know process of respiration (glycolysis, TCA, Pentose phosphate pathway etc.)

Unit-III Nutrio Physiology

CO346: Know criteria of essentiality

CO347: Classify essential elements as basic, macro and micro elements

CO348: Know about system of hydroponics

CO349: Understand physiological role of nutrients

Unit-IV Growth physiology

CO350: Know about phases of growth and growth curve

CO351: Know functions of growth regulators and their use

CO352: Apply various types of growth regulators

Paper No-XXXXII Lab work

organic farming & sustainable agriculture (79852)

CO353: Identify various components of organic farming and their utilization

CO354: Know the preparation methods of compost and vermin compost

CO355: Know the bio fertilizer and green manuring crop

CO356: Identify the problems of sustainable agriculture and its impact

Paper No-XXXXIII Laboratory work

PHM and value addition of fruits and vegetables (79853)

CO357: Know the applications and use of different types of packaging material

CO358: Identify different grades of fruits and vegetables

CO359: Prepare RTS, squash, nectar and cordial

CO360: Prepare jam and jelly of different fruits

CO361: Prepare marmalade of oranges and fruit candy

CO362: Prepare tomato sauce and ketch up

Paper No-XXXXIV Laboratory work

Crop physiology (79854)

CO363: Understand anatomical structure of plant body

CO364: Identify physiological disorders in plants

CO365: Measure leaf area by different methods

CO366: Measure transpiration rate of plant by the study of structure of stomata

CO367: Analyse growth of plant

CO368: Apply various growth regulators to the plant

Paper No-XXXXV Project (79855)

CO369: Know the cultivation practices of cereals, pulses and oil seeds

CO370: Know the cultivation practices vegetables and fruit crops

T. Y. B.Voc in Agri Semester VI

Paper No-XXXXVI Plant breeding (79856)

Unit-I Concept, nature and role of plant breeding

CO371: Know historical development in plant breeding

CO372: Know major achievements and future prospects of plant breeding

CO373: Know various modes of reproduction and apomixes

Unit-II Breeding methods in self-pollinated crops

CO374: Know breeding methods in self-pollinated crops (mass selection and pure line selection)

CO375: Know about various hybridization techniques in plant breeding

CO376: Know methods of handling segregating populations

Unit-III Breeding methods in cross- pollinated crops

CO377: Know breeding methods in cross-pollinated crops

CO378: Know about heterosis and inbreeding depression

Unit-IV Breeding methods in asexually propagated crops

CO379: Know the breeding methods in asexually propagated crops (clonal selection and hybridization)

CO380: Collect data and maintain breeding record

Paper No- XXXXVII

Agricultural economics and extension(79857)

Unit-I Fundamentals of agril. economics and extension

CO381: Know the difference between micro and macro economics.

CO382: Know about goods and services, desire, want, demand, utility, cost and price, wealth, capital, income and welfare.

CO383: Know about four R and three C of credit.

CO384: Know about higher financial institutions like RBI, NABARD, IMF, RRB etc.

Unit-II production function and marketing of commodities

CO385: Know concept of production function and its types.

CO386: Know factor-product, factor-factor, product-product relationship.

CO387: Know about law of equi-marginal return, law of comparative advantage, least cost combination etc.

Unit-III Fundamentals of agri extension education

CO388: Know principles of extension education

CO389: Know various agri. Developed programmes launched by ICAR and government of India.

Unit-IV Rural development

CO390: Know about concept of rural development.

CO391: Know about various rural development programmes launched by government of India.

CO392: Know about concept of community development and its principles.

Paper No-XXXXIX

Spices, condiments, aromatic and medicinal plants (79859)

Unit-I scope and importance

On completion of this course, the students will be able to:

CO407: Know the introduction, importance and scope of spices and condiments.

CO408: Know classification of spices and condiments.

Unit-II Plantation practices of spices and condiments

CO409: Know the uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of black pepper, small cardamom, ginger.

CO410: Know the uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of turmeric, clove, nutmeg, cinnamon

CO411: Know the uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of fenugreek, coriander, cumin, chilli.

Unit-III scope and importance of medicinal and aromatic plants.

CO412: Know the introduction, importance and scope of medicinal and aromatic crops.

CO413: Understand the classification of medicinal and aromatic plants.

Unit-IV Plantation practices of medicinal and aromatic plants.

CO414: Know about uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of aloe, belladonna, senna, ashwagandha.

CO415: Know about uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of Sarpagandha, safedmusli, Neem, periwinkle.

CO416: Know about uses, botanical distribution, plantation practices, soil and climate,

varieties, harvesting of Davana, lemon grass, rose.

CO417: Know about uses, botanical distribution, plantation practices, soil and climate, varieties, harvesting of geranium, Japanese mint, java citronella.

Paper No-XXXXX Agriculture Engineering (79860)

Unit-I Study of soil and water conservation

CO418: Know the causes of soil, water and wind erosion.

CO419: Know the control measures of soil, water and wind erosion.

Unit-II Study of green house technology

CO420: Know the types of green house

CO421: Identify design of green house

CO422: Know the equipment and materials for construction of traditional and low cost green house.

CO423: Know the various irrigation system of green house

Unit-III farm power and machineries

CO424: Identify different part of tractor engine.

CO425: Know the working and principle of IC engine.

CO426: Know the difference between two stroke and four stroke engine.

CO427: Know the fuel supply and hydraulic control system of tractor engine.

Unit-IV tools and tillage implements.

CO428: Identify the primary and secondary tillage implement.

CO429: Identify sowing and planting equipment.

CO430: Know the plant protection equipment and harvesting and threshing equipment.

Paper No-XXXXXI Laboratory work

Farming system and watershed management (79861)

CO431: Prepare different cropping scheme for irrigated situation and dry land situation

CO432: Know existing farming system in nearby villages

CO433: Prepare integrated farming system model for wet land, irrigated land and dry land

CO434: Know about soil and moisture conservation measures

CO435: Know about structure of water harvesting models

Paper No-XXXXXII Laboratory work

spices, condiments, aromatic and medicinal plants (79862)

CO436: Identify spice crops and their seeds

CO437: Identify aromatic crops and their seeds

- CO438:** Identify medicinal crops and their seeds
- CO439:** Know about morphological characters of spice crops and aromatic and medicinal crops
- CO440:** Apply different fertilizers to spices and condiments crops according to their need
- CO441:** Apply various fertilizers to aromatic and medicinal crops according to their need

Paper No-XXXXXIII Lab work

Agriculture engineering (79863)

- CO442:** Identify problems regarding soil, water and wind erosion
- CO443:** Suggest control measures for soil, water and wind erosion
- CO444:** Know about equipment used in green house
- CO445:** Identify different components of IC engine
- CO446:** Know about air cleaning and cooling system in engine
- CO447:** Know about structure and use of various instruments used for tillage, intercultivation, harvesting and threshing
- CO448:** Know about seed-cum-fertilizer drill, their seed metering mechanism and calibration

Paper No-XXXXXIV

Rawe and study tour (79864)

- CO449:** Give demonstration on agricultural practices like seed treatment, fertilizer application, propagation methods etc.
- CO450:** Prepare and demonstrate processed products of fruits and vegetables
- CO451:** Acquire knowledge regarding traditional method of cultivation
- CO452:** Know about agricultural finance