(Applicable to the batch of students admitted in the academic year 2025-26 onwards)

B.Sc. Crop Production (CBCS) FACULTY OF SCIENCE, SU

B.Sc. (CROP PRODUCTION)
Syllabus (CBCS)
(w.e.f. 2025-2026)

FACULTY OF SCIENCE
SATAVAHANA UNIVERSITY
KARIMNAGAR – 505002

2025

TELANGANA STATE COUNCIL OF HIGHER EDUCATION
PROPOSED CBCS COMMON CORE SCHEME FOR B.Sc. COURSE
Crop Production

CODE	PAPER TITLE	Course Type	HPW	Credits
	FIRST YEAR - Semester - I			
CP 104	DSC-1A: Fundamentals of Agronomy	DSC-1A	4T + 2P = 6	4+1=5
	FIRST YEAR - Semester - II			
CP 204	DSC-1B: Soil & Water Management	DSC-1B	4T + 2P = 6	4+1=5
	SECOND YEAR - Semester - III			
CP 304	DSC-1C: Plant Protection (Entomology & Plant Pathology)	DSC-1C	4T + 2P = 6	4+1=5
	SECOND YEAR - Semester - IV			
CP 404	Paper IV: Horticulture & Landscape Gardening	DSC-1D	4T + 2P = 6	4+1=5
	THIRD YEAR - Semester - V			
CP 501	SEC – 1: Agronomy of Cereal Crops	SEC - 1	2	2
CP 502	SEC – 2: Agronomy of Pulse & Oil Seed Crops (Kharif and Rabi)	SEC - 2	2	2
CP 503	VAC -1	VAC - 1	3	3
CP 504	Multi-Disciplinary Course (MDC)	MDC	4T	4
CP 505	DSE -1A: Biopesticides & Biofertilizers DSE - 1B: Weed Management DSE - 1C	DSE - 1A/ DSE - 1B/ DSE - 1C	4T + 2P = 6	4+1=5
	THIRD YEAR - Semester – VI			
CP 601	SEC – 3: Agronomy of Fodder and Forage Crops	SEC - 3	2	2
CP 602	SEC – 4: Organic Farming	SEC - 4	2	2
CP 603	VAC - 2	VAC -2	3	3
CP 604	DSE - 2A: Agricultural Finance and Business Management DSE - 2B: Extension Education and Rural Development DSE – 2C	DSE - 2A / DSE - 2B/ DSE – 2C	4T + 2P = 6	4+1=5
	Project	PROJECT	4	4

Chairman, Board of Studies,
Crop Production, Telangana University

B.Sc. (CBCS) Crop Production - I year
Semester-I Theory syllabus
Paper – I: Fundamentals of Agronomy

UNIT-I

1. Agronomy Definition meaning and scope
2. Agroclimatic zones of India and Telangana land use pattern, major sources of irrigation and ground water potential
3. Tillage & Tilth: Definition, Objectives, characteristics of a good seedbed, Effect of tillage on soil properties- pore space, structure bulk density, particle density and colour of the soil.
4. Types of tillage – Primary tillage, secondary tillage & intercultural operations. Preparatory tillage- factors effecting preparatory cultivation, after cultivation, puddling

UNIT -II

5. Sowing - methods of sowing- time and depth of sowing for major agricultural crops- Cereals, Pulses and Oil seeds, Crop Stand establishment, Factors effecting optimum stand establishment.
6. Crop density – Planting geometry, Competition, Types of competition, intra and inter plant competition, plant population, effect of plant population on growth and yield, Optimum plant density and planting pattern.
7. Soil fertility- soil fertility and soil productivity – fertility losses- maintenance of soil fertility, soil organic matter- uses of organic matter.
8. Weed Control - Definition of weed, Weeds- importance, classification, crop weed competition, concepts of weed management-principles and methods, herbicides- classification, selectivity and resistance, allelopathy

UNIT- III

9. Irrigation management – importance of irrigation- Objectives of irrigation-methods of irrigation- drainage and its advantage.
10. Crop nutrition - Essential elements – Importance of major, secondary and micro nutrients.
11. Manures and fertilizers- Classification – Nutrient content- Nutrient use efficiency – Factors effecting nutrient use efficiency.
12. Growth and development of crops- factors effecting growth and development.

UNIT -IV

13. Plant ideotypes- Characteristics of ideal ideotypes of crops – adaptation and distribution, Definition and principles of crop rotation- cropping systems- mixed, inter, relay, ratoon, sequence and multi stored cropping – sole cropping.
14. Crop management technologies in problematic areas.
15. Harvest maturity symptoms – Harvesting and threshing of major agricultural crops.
16. Plant protection-(ITK)
17. Agriculture and telugu literature.

References:

Yellamanda Reddy.T & Sankara Reddi.G.H.2010, Principles of Agronomy, Kalyani Publishers, Ludhiana.
S. R. Reddy, 2000, Principles of Agronomy, Kalyani Publishers, Ludhiana.
B. Chandrasekharan, K. Annadurai, E. Somasundaram, 2014, Text book of Agronomy, New age international (P) Limited Publishers, Delhi.17
Balasubramaniyan, P. Palamiappan S.P. 2009, Principles and Practices of Agronomy, Agribios publishers, Jodhpur.
Panda, S.E.2012, Modern Concepts and advanced principles in crop production. Agribios (India) Publishers, Jodhpur.
Das.N.R.2009, Practical Manual on Basic Agronomy (with theory) scientific publishers (India), Jodhpur.

B.Sc. (CBCS) Crop Production - I year
Semester-I Practical syllabus
Paper – I: Fundamentals of Agronomy

1. Study of tillage implements
2. Practice of different tillage implements
3. Practice of puddling
4. Participation in ongoing field operations
5. Study of seeding equipment & different methods of sowing
6. Computation of seed rate and spacing of different crops
7. Study of different inter cultivation implements and practices
8. Classification of manures and fertilizers
9. Methods of preparing composts and farm yard manure
10. Different methods of fertilizer application
11. Effect of sowing depth on germination and seedling vigour
12. Seed viability tests.
13. Study of yield attributing characters and yield estimations
14. Identification of harvest maturity symptoms of various crops
15. Study of problematic soils and their management

B.Sc. (CBCS) Crop Production - I year
Semester-II Theory syllabus
Paper – II: Soil & Water Management

UNIT -I

1. Soil: Pedological and Edaphological concept and components of soil. Important soil forming minerals and rocks, weathering of rocks and minerals. Soil forming factors and processes.
2. Development of soil profile. Physical properties of soil and their significance. Chemical properties of soil, cation and anion exchange phenomenon and their importance in agriculture
3. Soil air: Definition, composition and factors affecting the composition of soil air. Soil water: Retention, potential, soil moisture constant, movement of soil water. Soil colloids - Nature, structure, properties, types, chemical composition and their importance. soil organic matter – composition and their maintenance in soil, humus formation and its importance in soil fertility management
4. Soil fertility: Definition concept, and factors influencing soil fertility. Essential plant nutrients: Criteria of essentiality, forms of nutrients in soil, functions, deficiency Symptoms, Critical levels of deficiency and toxicity.

UNIT -II

5. Mechanism of nutrient transport to plants and factors influencing nutrient availability to plants. Mineralization and immobilization of Nitrogen, fixation and availability of N, P and K.
6. Soil fertility evaluation, soil and plant analysis, tissue tests. Soil testing: Soil test in crop response and correlation, fertilizer recommendation based on soil test.
7. Fertilizers - definition, classification, characteristics, reactions of fertilizer in soil and fertilizers use efficiency. Organic manures: Preparation, properties and use in crop production, nutrient enriched compost, vermi-compost and green manure.
8. Integrated nutrient management – problems and prospects. Concepts of INM and management of soil productivity.

UNIT -III

9. Importance of water in crop production. Water Resources of India. Water Resources of Telangana. Definition and objectives of irrigation and drainage.
10. Soil-water relations. Water retention in soil. Kinds of water in soil. Measurement of soil moisture. Evaporation- transpiration.
11. Soil moisture availability – Field capacity, permanent wilting point, available soil moisture.
12. Scheduling of irrigation Different criteria - Soil water regime approach - Feel and appearance method, Soil moisture tension and Depletion of available soil moisture method. Climatological approach – IW/CPE ratio method. Plant indices approach –Visual plant symptoms, Soil-cums and mini plot technique, Growth rate, Relative water content, Plant water potential, Canopy temperature, Indicator plants & Critical growth stages.

UNIT -IV

13. Water requirement of crops – crop water requirement, effective rainfall, critical stages for irrigation, effective root zone depth and moisture extraction pattern
14. Water management practices for major field and horticultural crops of Telangana (Rice, Groundnut, Maize, Red gram, Mango, Citrus & Banana)
15. Surface irrigation methods – Wild flooding, Check basin, Ring basin, Border strip, Furrow & Corrugations – Advantages and disadvantages. Surface, sprinkler and drip irrigation.
16. Quality of irrigation water.

Reference Books

Murthy, J.V.S. (1994). Watershed management in India. Wiley eastern Publishers, New Delhi.

Gupta, U.S. (1975). Physiological Aspect of Dry land Farming. Oxford & IBH Publishing Co., New Delhi.

Sankara Reddi, G.H. and Yellamanda Reddy, T. (1996). Efficient use of Irrigation water. Kalyani Publishers, Ludhiana.

Misra, R.D. and Ahmed, M. (1987). Manual on Irrigation Agronomy. Oxford & IBH Publishing Co., New Delhi.

Brady, N.C. (1995). The nature and Properties of soil. Mac Millan Publishing Company, New York.

Sahai, V.N. (1990). Fundamentals of Soil. Kalyani Publishers, Ludhiana.

Tisdale, S.L., Nelson, W.L. and Beaton, J.D. (1993). Soil Fertility and Fertilizers. Mac Millan Publishing Company, New York.

Gustafson, A.F. (2003). Hand Book of Fertilizers. Agrobios (India), Jodhpur – 342002.

Kanwar, J.S. (ed.). (1976). Soil Fertility - Theory and Practice. ICAR, New Delhi.

Hillel, D. (1980). Fundamentals of Soil Physics. Academic Press, New York.

Tondon, H.L.S. (1994). Fertilizer Guide. FDCO, New Delhi.

Jones, S.U. (1987). Fertilizers and Soil Fertility. Prentice Hall of India Private Limited, New Delhi.

Yawalkar, K.S., Agarwal, J.P. and Bokde, S. (1997). Manures and Fertilizers. Agri-Horticultural Publishing House, Nagpur.

Gupta, P.K. (2003). Soil, Plant, Water and Fertilizer Analysis. Agrobios (India), Jodhpur

Seetharaman, S., Biswas, B.C., Maheswari, S. and Yadav, D.S. (1996). Hand Book on Fertilizer Usage. The Fertilizer Association of India, New Delhi.

Dastane N G 1967. A Practical manual for Water Use Research, , Navbharat Publications, Poona.

Misra R.D and Ahmed M. 1998, Manual on Irrigation Agronomy, Oxford and IBH Publishing Co., Ltd., New Delhi.

Water requirement of crops in India. Monograph 4, 1977, IARI, ICAR publication, New Delhi.

Israelsen O W and Hansen V E 1962. Irrigation – Principles & Practices, John Willey and Sons, Inc, U.S.A.

Reddy G H S and Reddy T Y 2006, Efficient Use of Irrigation Water, Kalyani Publishers, Ludhiana.

S.R. Reddy, 2007. Irrigation Agronomy, , Kalyani Publishers, Ludhiana.

D.K. Majumdar, 2002. Irrigation Water Management: Principles & Practices, Prentice hall of India Private Limited, New Delhi.

Michael A M, 2006. Irrigation – Theory & Practice. Vikas publishing house private ltd.

Sivanappan R k Padma Kumari O and Kumar, V 1987. Drip Irrigation –. Keerthi Publishing House Pvt., Ltd., Coimbatore.

Tiwari K N T 2006. Manual on pressurized Irrigation Scientific Publication No: PFDC, ITT, Kharagpur.

Keller J and R D Bliesner 1990. Sprinkler and Trickle Irrigation Van Nortrand Reinhold, New York.

Doorenbos J and Pruitt W O 1975. Crop Water Requirement Irrigation and Drainage Paper No.24, F.A.O., Rome.

B.Sc. (CBCS) Crop Production - I year
Semester-II Practical syllabus
Paper – II: Soil & Water Management

1. Determination of soil pH
2. Determination of electrical conductivity of soil water extract
3. Determination of organic carbon, nitrate, phosphate and potassium by the use of rapid soil test kit
4. Determination of carbonate and bicarbonate ions in soil water extract
5. Participation in different methods of fertilizer application
6. Identification of green manure crops
7. Calculation of soil porosity
8. Determination of soil moisture by gravimetric method
9. Determination of field capacity by field method
10. Estimation crop water requirements
11. Laying out of check basin, ring basin, border strip and furrow irrigation
12. Assessment of quality of irrigation water – pH and EC

B.Sc. (CBCS) Crop Production - II year
Semester-III Theory syllabus
Paper – III: Plant Protection (Entomology & Plant Pathology)

Unit - I

1. History of Entomology in India.
2. Major points related to dominance of Insecta in Animal kingdom.
3. Classification of phylum Arthropoda upto classes. Relationship of class Insecta with other classes of Arthropoda.
4. Insect Ecology: Introduction, Environment and its components. Effect of abiotic factors – temperature, moisture, humidity, rainfall, light, atmospheric pressure and air currents. Effect of biotic factors – food competition, natural and environmental resistance.

Unit - II

5. Categories of pests. Concepts of IPM, Practices, scope and limitations of IPM. Classification of insecticides, toxicity of insecticides and formulations of insecticides. Chemical control importance, hazards and limitations.
6. Recent methods of pest control, repellents, antifeedants, hormones, attractants, gamma radiation. Insecticides Act 1968-Important provisions. Application techniques of spray fluids. Symptoms of poisoning, first aid and antidotes.
7. Systematics: Taxonomy – importance, history and development and binomial nomenclature. Definitions of Biotype, Sub-species, Species, Genus, Family and Order.
8. Classification of Insecta up to Orders, basic groups of present day insects with special emphasis to orders and families of Agricultural importance like Orthoptera, Dictyoptera, Isoptera, Thysanoptera, Hemiptera, Neuroptera, Lepidoptera, Coleoptera, Hymenoptera, Diptera

Unit - III

9. Introduction and History of plant pathology. Terms and concepts in Plant Pathology.
10. Classification of plant diseases based on cause, occurrence, host affected, plant parts affected and symptoms. Study of symptoms of various diseases caused by fungi, bacteria, viruses, viroids, molicutes, FVB and symptoms due to abiotic causes.
11. Survival of plant pathogens. Dispersal of plant pathogens.
12. Phenomenon of infection – pre-penetration, penetration and post-penetration
13. Pathogenesis – Role of enzymes, toxins, growth regulators and polysaccharides in plant diseases with examples.
14. Defense mechanisms in plants – i. Structural defense mechanisms ii. Biochemical defense mechanisms.

UNIT -IV

15. Plant Disease Epidemiology.
16. General principles of Plant Disease Management.
17. Exclusion of inoculum. Eradication. Physical methods and Biological methods: concept, examples of biocontrol agents
18. Protection and therapy. Immunization
19. Biotechnology and its application in Plant Disease Management.
20. Study of symptoms, cause, etiology, host-parasitic relationship and specific control measures of diseases of Rice, Sorghum, Wheat, Sugar cane, Cotton, Tobacco, Ground nut, Sunflower, red gram, green gram, black gram, pearl millet, finger millet and Maize.

References Books:

1. Chapman, R.F. 1988. Insects: Structure and Function. Cambridge Univ. Press, UK.
2. Charles A Triplehom and Norman F. Johnson 2005 Borror and De Long's Introduction to the Study of Insects Thomson Brooks/Cole Publishing. U.S.A.
3. Pant, N.C. and Ghai, S. 1981. Insect Physiology and Anatomy. ICAR, New Delhi.
4. Richards, O.W. and Davies, R.G. 1977. Imm's General Text Book of Entomology (Vol. I and II). Chapman and Hall, London.
5. Agrios, G.N. 2005. Plant Pathology. Elsevier Academic Press, New York.
6. Chaube, H.S. and Ramji Singh. 2001.Introductory Plant Pathology. International Book Distribution Co., Lucknow.
7. Chet, I. 2001. Biotechnology in Plant Diseases Control. John Wiley, New York.
8. Mehrotra, R.S. 1980.Plant Pathology. Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
9. Singh, R.S. 2002.Introduction to Principles of Plant Pathology. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
10. Vidyasekharan, P. 1993.Principles of Plant Pathology. CBS Publishers and Distributors, New Delhi.
11. Cook, A.A. 1981. Diseases of Tropical and Subtropical Field, Fibre and Oilplam. Mac Millan Publishing Co., New York.
12. Rangaswamy, G. and Mahadevan, K. 2001. Diseases of Crop Plants in India. Prentice Hall of India Pvt. Ltd., New Delhi.
13. Singh, R.S. 2005. Plant Diseases. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.

B.Sc. (CBCS) Crop Production - II year
Semester-III Practical syllabus
Paper – III: Plant Protection (Entomology & Plant Pathology)

1. Methods of collection and preservation of insects including immature stages.
2. Study of different types of insect antennae and legs
3. Study of types of mouthparts – biting and chewing, piercing and rasping and sucking
4. Study of types of mouthparts – chewing and lapping, sponging and sucking and siphoning
5. Study of wing venation, types of wings and wing coupling organs
6. Study of different types of insect larva and pupa
7. Study of characters of Order Hemiptera and the sub order Heteroptera and its families
8. Study of characters of Order Lepidoptera and its families
9. Study of characters of Order Coleoptera and its families
10. Study of characters of Order Hymenoptera and Diptera and their families.
11. Study of vegetative structures of fungi and their modifications, reproductive (sexual and asexual) structures of fungi.
12. Study of Oomycetes fungi, mildew fungi, rust fungi, smut fungi, imperfect fungi, imperfect fungi, imperfect fungi
13. Isolation of phytopathogenic bacteria (locally available diseased plant material) and study of colony characteristics and Gram's staining
14. Demonstration of mechanical transmission of plant viruses
15. Demonstration of extraction of Nematodes from soil and plant samples.
16. Collection and preservation of plant diseased specimens for herbarium. (Students should submit 50 pressed and well-mounted specimens.)

B.Sc. (CBCS) Crop Production - II year
Semester-IV Theory syllabus
Paper – IV: Horticulture & Landscape Gardening

UNIT-I

1. Introduction, History, Scope and Importance of horticulture in India.
2. Climatic fruit zones of Indian and Telangana and fruits grown there.
3. Horticulture and Botanical classification. Climate and Soil for Horticultural crops-Temperature, Humidity, Wind, Rainfall and Solar Radiation.
4. Establishment of orchards; Selection of site, systems of planting; orchard soil management.

UNIT-II

5. Propagation and methods of propagation- Sexual, Asexual and vegetative propagation. Plant Propagation Structures- Green house, Lath house, Hot bed, Cold Frame, and other propagating frames.
6. Role of bio regulators in Propagation. Control of Flowering, Fruit set, Fruit drop, Parthenocarpy, Fruit ripening, Fruit size, quality, and Sex expression.
7. Principles of pruning and systems of training of fruit plants.
8. Unfruitfulness - Unfruitfulness in fruit trees, Causes- Environmental causes, Nutritional causes, Inherent causes, Biological causes, and cultural causes and their remedies. Pollination, Pollinizers, and Pollinators, its causes and measures to overcome it.

UNIT-III

9. Juvenility-Definition, Flower bud differentiation, Types of Buds, Fertilization Definition and Types of Fertilization and Parthenocarpy-Definition and Types of Parthenocarpy. Fruit drop -its causes and measures to control it.
10. Systems of irrigation. Methods of Irrigation- Surface Check basin, Furrow, Ring Basin, Basin, Flood, Pitcher, Drip and Sprinkler irrigation system.
11. Fertilizer application in Fruit crops. Types of Fertilizers-Time of Fertilizer application,
12. Methods of Fertilizers Application-Broad casting advantages and Disadvantages, Band placement, Ring Placement, Foliar application, Starter solutions, Fertigation.

UNIT-IV

13. Cultivation of annuals. Commercial cultivation of rose, canna, Chrysanthemum, marigold and Gladiolus.
14. Making and maintenance of Lawn. Making and maintenance of Hedge and edging
15. Elementary knowledge of common shrubs, climbers and trees and their various uses. Indoor gardening.
16. Indoor gardening. Styles of gardens with special reference to Mughal and Japanese gardens.
17. Flower arrangement and techniques to prolong vase life of flowers.

References

1. Kumar, N. Introduction to Horticulture, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi
2. Jitendra Singh, Basic Horticulture Kalyani Publishers, Ludhiana
3. Edmond, J.B., Senn, T.L and Andrews, F.S. Fundamentals of Horticulture McGraw Hill Book C., New York
4. George Acquaash. Horticulture – principles and practices PHI Learning Pvt. Ltd., New Delhi.
5. Sadhu, M.K. Plant Propagation New age International Publishers, New Delhi.
6. Sharma, R.R. Propagation of horticultural crops – principles and practices Kalyani Publishers, Ludhiana
7. Hartmen, H.T and Kester, D.E. Plant propagation – principles and practices Prentice Hall of India Publishing Ltd, Bombay.

B.Sc. (CBCS) Crop Production - II year
Semester-IV Practical syllabus
Paper – IV: Horticulture & Landscape Gardening

1. Identification of garden tools and plants.
2. Practice of vegetative propagation – Cuttings, Grafting, Layering and budding
3. Preparation of seed beds and raising of seedlings.
4. Practice of lifting and packing of nursery plants.
5. Practice of making garlands Bouquets
6. Practice of potting and re-potting of plants.
7. Preparation of Growth regulators-powder, Solution, and Lanolin paste,
8. Study of Pruning and Training in Fruit trees
9. Methods of Fertilizer application in different fruit crops
10. Visit to Commercial Nursery/ Orchard Field Visit/Micro propagation labs/Tissue culture labs

B.Sc. (CBCS) Crop Production - III year
Semester - V - Skill Enhancement Course – SEC -1 Syllabus
Agronomy of Cereal Crops

Unit – I

1. Rice: Origin, antiquity of rice, area and production, distribution, classification, description and varietal improvement. Adoptability, Agro-climatic different zones of rice in India, growth of rice, effect of temperature on growth, nutrition and yield of rice, fertilizer-soil interaction in relation to nutrition and yield of rice, cultural practices including integrated weed management for rice. Water & fertilizer management practices for rice. Rice culture in problematic soil conditions.
2. Rice-based cropping systems Yield gap analysis concept and package of practices of hybrid rice. Post-harvest Technology and crop quality. Handling and processing of the produce for maximum production of rice.
3. Maize & Millets: Origin & history, area & production, distribution, botany, classification, description and varietal improvement, adaptability, climate, soil water and cultural requirement, development and nutrition of the crop plant based on agronomic investigation. Crop protection, Cost of cultivation, Crop quality, Industrial uses of byproducts. Handling and processing of the produce for maximum production of Maize and Millets.

Unit - II

1. Wheat & Barley: Origin & history, area & production, distribution, place of wheat and barley crops position in India, description, Varieties and their improvements, adaptability, climatic requirements and soil management, tillage and other special cultural practices in respect of rice-wheat cropping sequence.
2. Growth phases of wheat and barley and its relation with temperature. Agronomic appraisal of varieties, crop quality, handling and processing of the produce, crop protection-weed control, cultivation cost, wheat and barley cultivation with special references to West Bengal conditions.
3. Industrial uses of byproducts. Handling and processing of the produce for maximum production of Wheat and Barley.

Suggested Readings

Das NR. 2007. Introduction to Crops of India. Scientific Publ.
Hunsigi G & Krishna KR. 1998. Science of Field Crop Production. Oxford & IBH.
Khare D & Bhale MS. 2000. Seed Technology. Scientific Publ.
Pal M, Deka J & Rai RK. 1996. Fundamentals of Cereal Crop Production.Tata McGraw Hill.
Prasad, Rajendra. 2002. Text Book of Field Crop Production. ICAR.
Singh C, Singh P & Singh R. 2003. Modern Techniques of Raising Field Crops. Oxford & IBH.
Singh, SS. 1998. Crop Management. Kalyani.

B.Sc. (CBCS) Crop Production - III year
Semester - V - Skill Enhancement Course – SEC -2 Syllabus
Agronomy of Pulse & Oil Seed Crops (Kharif and Rabi)

Unit - I

1. Pulse Crops: Origin & history, area & production, distribution, botany, classification, description and agronomic appraisal of the varietal improvement.
2. Role of green legumes in building of soil fertility and moisture conservation. Adaptability, climate, soil, water and cultural requirements, development and nutrition of the crop plant based on agronomic investigation.
3. Kharif and Rabi legumes based crop rotations and cropping systems. Crop protection. Cost of cultivation, industrial uses of bye-products, Crop quality, handling and processing of the produce for maximum production of Kharif and Rabi Pulses.

Unit - II

1. Oil Seed Crops: Origin & history, area & production, distribution, botany, classification, description and varietal improvement of the crop.
2. Adaptability, climate, soil, water and cultural requirements, development and nutrition of the crop plant based on agronomic investigation. Crop protection, cost of cultivation, industrial uses of byproducts.
3. Crop quality, handling and processing of the produce for maximum production of Kharif (Ground nut, Soybean, Sesame, Castor etc) and Rabi (Rapeseed and Mustard, Linseed, Sunflower, Safflower, Niger and Taramira) Oil Seeds.

Suggested Readings

Hunsigi G & Krishna KR. 1998. Science of Field Crop Production. Oxford & IBH.
Jeswani LM & Baldev B. 1997. Advances in Pulse Production Technology. ICAR.
Khare D & Bhale MS. 2000. Seed Technology. Scientific Publ.
Yadav DS. 1992. Pulse Crops. Kalyani.
Das NR. 2007. Introduction to Crops of India. Scientific Publ.
Das PC. 1997. Oilseed Crops of India. Kalyani.
Prasad, Rajendra. 2002. Text Book of Field Crop Production. ICAR.
Singh C, Singh P & Singh R. 2003. Modern Techniques of Raising Field Crops. Oxford & IBH.
Singh SS. 1998. Crop Management. Kalyani.

B.Sc. (CBCS) Crop Production - III year
Semester-V Theory syllabus
DSE – 1 (A): Biopesticides & Biofertilizers

UNIT - I

1. History and concept of Insect pathogens and Biopesticides.
2. Introduction, importance, scope and potential of Biopesticides.
3. Definitions, concepts and classification of Biopesticides viz. pathogens, botanical pesticides, and bio-rationales.
4. Microbial Bio Pesticides viz. Viruses, Bacteria, Fungi etc.

UNIT - II

5. Virulence, pathogenicity and symptoms of entomopathogenic organisms. Botanicals & other bio rational pesticides and their uses.
6. Role of Bio Pesticides in Organic farming and ecofriendly agriculture.
7. Mass production and scaling up of production of different categories of Bio Pesticides.
8. Methods of applications of Bio Pesticides. Precautionary approaches in application and usage of Biopesticides.

Unit - III

9. Methods of quality control and Techniques of Biopesticides.
10. Constraints & possible solutions in production and use of Biopesticides.
11. Different Agriculturally important beneficial Microorganisms. Introduction and scope of Biofertilizers
12. Types and classification of Biofertilizers. Total Biofertilizer production in India and Telangana state. Different Nitrogen Biofertilizers. Symbiotic & Non-Symbiotic Nitrogen fixation. Nodule formation, Competitiveness, Quantification of Nitrogen fixed. Associative and Free-living Nitrogen fixation. Cyanobacterial Biofertilizers.

UNIT - IV

13. Phosphate solubilizing Bacteria and Fungi. Mechanism and solubilization of Phosphorus. Phosphate mobilizing microorganisms. VAM in detail.
14. Potassium and Zinc Biofertilizers. Plant Growth Promoting Biofertilizers (PGPR). Production technology; Strain selection, Sterilization, Growth and Fermentation. Mass scale production of different carrier and liquid based biofertilizers
15. FCO specifications and quality control of biofertilizers. Microbes beneficial for recycling of Organic wastes & Composting. Bioremediators and its related Microbes.
16. Application technology for seeds, seedlings, tubers, sets etc. Biofertilizers – Storage, shelf life and marketing. Factors influencing the efficacy of Biofertilizers.

Reference Books

1. Leo, M.L. Nollet, Hamirsingh Rathore. Bio Pesticide Handbook. CRC Press Tayler & Francis group, Newyork.
2. Md. Arshad Anwer. 2017. Bio Pesticides and Bio Agents e book CRC Press Taylor & Francis group Newyork.
3. Dwijendra Singh.2014. Advances in Plant Bio Pesticides. Publisher Springer
4. Ghayur Alam. 2000. A Study of Bio Pesticides and Bio Fertilisers in Haryana, India. International Institute for Environment and Development 3 Endsleigh Street London
5. Vibrant Gujarath. 2017. Setting up a Bio-Fertilizers and Bio-Pesticides Unit Biotechnology
Government of Gujarat. Gujarat State Biotechnology Mission.
6. Salma Mazid, Ratul Ch. Rajkhowa, Jogen Ch. Kalita (2011). A review on the use of Bio Pesticides in Insect Pest Management. International Journal of Science and Advanced Technology, Volume 1 No 7,
7. Muhammad Nawaz, Juma Ibrahim Mabubu and Hongxia Hua. 2016. Current status and advancement of Bio Pesticides: Microbial and Botanical Pesticides.Journal of Entomology and Zoology Studies, Volume 4(2): 241-246 pp.
8. S. Ezhil Vendan. 2016. Current Scenario of Bio pesticides and eco-friendly insect pestmanagementinIndia. South Indian Journal of Biological Sciences 2(2); 268-271pp.

9. Opender Koul.2011. Microbial Bio Pesticides: Opportunities and Challenges. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources Vol 6, No. 56. 1-26 pp.
10. Vaishali Kandpal 2014. Bio Pesticides.International Journal of Environmental Research and Development. 4(2), 191-196 pp.
11. Subrata Datta. 2012. Bio Pesticides and Fertilizers: Novel Substitutes of their Chemical Alternates. Journal of Environmental Research and Development, 6 (3A), 773-777 pp.
12. Biofertilisers in Agriculture by N. S. Subba Rao.
13. Recent Trends in Biofertilisers by Pati Bikasir and Mandal Santi, M.
14. The complete technology book on Biofertiliser and Organic Farming (2nd revised edition) by Niir Board. 2012 published.
15. Hand book of Microbial Biofertilisers by Mahendra Rai. Published in 2006 by CRC Press.
16. Biofertiliser in Sustainable Agriculture by A. C. Guar. Published by ICAR.
17. Biofertilisers Technology by S. Kannaiyan, K. Kumar and Govindarajan published by Scientific Publishers (India) 2004

B.Sc. (CBCS) Crop Production - III year
Semester-V Practical syllabus
DSE – 1 (A): Biopesticides & Biofertilizers

1. Isolation and purification of important Biopesticides: Insect viruses and their production.
2. Isolation and purification of important Biopesticides: Bacterial organisms and their production.
3. Isolation and purification of important Biopesticides: Entomopathogenic Fungi (EPF) and their production.
4. Isolation and purification of important Biopesticides: Antagonistic organisms and their production.
5. Field visit to explore natural infections & epizootics along with study of symptomology under field conditions.
6. Identification of important botanicals.
7. Visit to Bio Pesticides production unit in nearby area.
8. Quality control protocols for Biopesticides. Biofertilizers
9. Isolation of Nitrogen fixing organisms Rhizobium, Azotobacter.
10. Isolation of Phosphate solubilizing mobilizing microbes from soil sample.
11. Development & production of efficient Microbes. Preservation and pure cultures development.
12. Study of Nitrogen fixing Activity by ARA method.
13. Production of Indole Acetic Acid (IAA).
14. Production of Siderophores.
15. Preparation of different Carrier based Biofertilizers. Bacterial and Fungal.
16. Study the Quality parameters of Biofertilizers

B.Sc. (CBCS) Crop Production - III year
Semester-V Theory syllabus
DSE – 1 (B): Weed Management

UNIT- I

1. Introduction - weed definition - harmful and beneficial effects of weeds Classification of weeds – classification based on morphology – life cycle – habitat – origin – association – special features and soil pH with examples.
2. Propagation of weeds – sexual – asexual – vegetative reproduction. Dispersal of weed seeds and fruits – dispersal agents – wind and water – animal – man – manures –farm implements and silage – dispersal of vegetative propagules.
3. Weed Biology – characteristic features of weed. Weed ecology – definition – persistence of weeds – climatic, edaphic and biotic factors
4. Crop - weed competition - principles – factors - critical period of crop-weed competition in some important crops

UNIT - II

5. Allelopathy and its application for weed management. Methods of weed management – preventive weed control measures. Physical / mechanical, cultural weed management practices.
6. Chemical and biological methods of weed control – bioherbicides and their application in agriculture. Integrated weed management – concept and components
7. Herbicides – definition - advantages and limitations of herbicide usage in India. Classification of herbicides based on chemical nature - time and method of application
8. Classes of herbicides based on – selectivity – spectrum – translocation – residual nature – soil sterilants and fumigants Types of formulations of herbicide – Soluble concentrate (SC), Soluble liquid (SL), Soluble powder (SP), Wettable powder (WP), Suspension/flowable concentrates, Water dispersible granules (WDG), Emulsifiable concentrate (EC), Microemulsifiable concentrate

UNIT-III

9. Nomenclature of herbicides - commonly available herbicides in India. Adjuvants - definition, their use in herbicides application.
10. Mode of action of herbicides – important biochemical modes of action of herbicides interfering with photosynthetic reactions – respiration -enzymatic inhibition etc.
11. Selectivity of herbicides – fundamental principles of selectivity - differential rate of absorption - differences in morphology and growth habit of plants - rate of translocation.
12. Selectivity of herbicides - differential rate of deactivation of herbicides – metabolism – reverse metabolism – conjugation - protoplasmic resistance to the specific herbicide

UNIT-IV

13. Herbicide resistance & management – Definition – Types of resistance – Development of herbicide resistance in weeds and their management. Herbicide rotation, mixtures and relevance in agriculture. Compatibility of herbicides with Agro-chemicals and their application
14. Herbicide residue management – Persistence & residue of herbicides – Management of herbicide residue in soil – cultural & mechanical – enhancing biodegradation – deactivation of herbicides. New developments in herbicides – micro-herbicides & nano-herbicides
15. Weed management in Cereals, Millets, Pulses, Oilseeds, Sugarcane, Cotton, Vegetables, Orchards and Non-cropped areas
16. Shift of weed flora in crops & cropping systems. Aquatic weeds and their management, Problematic weeds and their management

Reference Books

1. Das, T.K. 2011. Weed Science – Basics and Applications. Jain Publishers, New Delhi.
2. Gupta, O.P. 2016. Modern Weed Management. Agro Bios (India), Jodhpur.
3. Naidu, V.S.G.R. 2012. Handbook on Weed Identification. Directorate of Weed Science

Research, Jabalpur.
4. Rao, V.S. 2011. Principles of Weed Science. Oxford & IBH Publishing Co., New Delhi.
5. Subramanian, S., Mohammed Ali, A. and Jayakumar, R. 1991. All About Weed Control. Kalyani Publishers, Ludhiana.
6. Tadulingam, C. and Venkatnarayana, D. 1955. A Handbook of Some South Indian Weeds. Government Press, Madras.

B.Sc. (CBCS) Crop Production - III year
Semester-V Practical syllabus
DSE – 1 (B): Weed Management

1. Identification of weeds and study of losses due to weeds
2. Biology and survey of weeds in cropped area and other habitats
3. Techniques of weed preservation - Herbarium preparation
4. Determination of critical period of crop-weed competition under field condition and study of crop associated weeds
5. Estimation of weed population dynamics and efficacy of herbicides (WCE and WI)
6. Study of biology of important problematic weeds
7. Study of biology of parasitic and aquatic weeds
8. Shift of weed flora study in long term experiments
9. Study of commonly available herbicides in the market, their nomenclature and label information
10. Study of herbicide formulations and mixture of herbicides
11. Computation of herbicide doses
12. Study of herbicide application equipment and calibration
13. Herbicide application methods and precautionary measures
14. Herbicide phytotoxicity scoring under field conditions and its compatibility with agro chemicals
15. Field study of weed control in cropped & non-cropped areas
16. Herbicide residue analysis

B.Sc. (CBCS) Crop Production - III year
Semester-VI - Skill Enhancement Course – SEC -3 Syllabus
Agronomy of Fodder and Forage Crops

UNIT I

Adaptation, distribution, varietal improvement, agro-techniques and quality aspects including anti-quality factors of important fodder crops like maize, bajra, guar, cowpea, oats, barley, berseem, *senji*, lucerne etc.

Adaptation, distribution, varietal improvement, agro-techniques and quality aspects including anti-quality factors of important forage crops/grasses lime, napier grass, *Panicum, Lasiuras, Cenchrus* etc.

UNIT II

Year-round fodder production and management, preservation and utilization of forage and pasture crops.

Principles and methods of hay and silage making; chemical and biochemical changes, nutrient losses and factors affecting quality of hay and silage; use of physical and chemical enrichments and biological methods for improving nutrition; value addition of poor quality fodder.

Economics of forage cultivation uses and seed production techniques.

Suggested Readings

Chatterjee BN. 1989. Forage Crop Production - Principles and Practices. Oxford & IBH.
Das NR. 2007. Introduction to Crops of India. Scientific Publ.
Narayanan TR & Dabadghao PM. 1972. Forage Crops of India. ICAR.
Singh P & Srivastava AK. 1990. Forage Production Technology. IGFRI, Jhansi.
Singh C, Singh P & Singh R. 2003. Modern Techniques of Raising Field Crops. Oxford & IBH.
Tejwani KG. 1994. Agroforestry in India. Oxford & IBH.

B.Sc. (CBCS) Crop Production - III year
Semester-VI - Skill Enhancement Course – SEC - 4 Syllabus
Organic Farming

UNIT I

Organic farming - concept and definition, its relevance to India and global agriculture and future prospects; land and water management - land use, minimum tillage; shelter zones, hedges, pasture management, agro-forestry.

Organic farming and water use efficiency; soil fertility, nutrient recycling, organic residues, organic manures, composting, soil biota and decomposition of organic residues, earthworms and vermicompost, green manures and biofertilizers.

UNIT II

Farming systems, crop rotations, multiple and relay cropping systems, intercropping in relation to maintenance of soil productivity.

Control of weeds, diseases and insect pest management, biological agents and pheromones, biopesticides.

Socio-economic impacts; marketing and export potential: inspection, certification, labeling and accreditation procedures; organic farming and national economy.

Suggested Readings

Ananthakrishnan TN. (Ed.). 1992. Emerging Trends in Biological Control of Phytophagous Insects. Oxford & IBH.

Gaur AC. 1982. A Manual of Rural Composting, FAO/UNDP Regional Project Document, FAO.

Lampin N. 1990. Organic Farming. Press Books, Ipswitch, UK.

Palaniappan SP & Anandurai K. 1999. Organic Farming – Theory and Practice. Scientific Publ.

Rao BV Venkata. 1995. Small Farmer Focused Integrated Rural Development: Socio-economic Environment and Legal Perspective: Publ.3, Parisaraprajna Parishtana, Bangalore.

Reddy MV. (Ed.). 1995. Soil Organisms and Litter Decomposition in the Tropics. Oxford & IBH.

Sharma A. 2002. Hand Book of Organic Farming. Agrobios.

Singh SP. (Ed.) 1994. Technology for Production of Natural Enemies. PDBC, Bangalore.

Subba Rao NS. 2002. Soil Microbiology. Oxford & IBH.

Trivedi RN.1993. A Text Book of Environmental Sciences, Anmol Publ.

Veeresh GK, Shivashankar K & Suiglachar MA. 1997. Organic Farming and Sustainable Agriculture. Association for Promotion of Organic Farming, Bangalore.

WHO. 1990. Public Health Impact of Pesticides Used in Agriculture. WHO.

Woolmer PL & Swift MJ. 1994. The Biological Management of Tropical Soil Fertility. TSBF & Wiley.

B.Sc. (CBCS) Crop Production - III year
Semester-VI Theory syllabus
DSE – 2 (A): Agricultural Finance and Business Management

UNIT-I

1. Credit - Meaning, Importance and credit control.
2. Definition, need for finance in agriculture, characteristics of good agricultural finance (credit).
3. Decision on the use of credit, Principles of farm credit (Equity or Increasing Risk, Added Cost and Added Return, Cost of Credit and no loss no profit goal of farming and opportunity cost Principle.
4. Types of loans and classification of agricultural credit.

UNIT- II

5. Qualifications of a borrower, Analysis and three R's and credit (Return, Repayment Capacity and Risk-bearing Capacity). Analysis of three C's of Credit (Character, Capacity and Capital).
6. Types of Loan, according to liquidity, budgeted loan, loan amortization, even payment method, decreasing method. Crop index reflecting use and farm finance.
7. Role and Rural Credit Institutions (Recommendations of the Banking Commission, Integrated Scheme of Rural Finance (Credit), Institutional Agencies, Taccan.
8. Sources of agricultural finance (Commercial banks, RRB, Lead Bank, NABARD, Cooperative Credit (PACs, Land Development Banks, National Cooperative Federation, Farmers' Service Cooperatives).

UNIT-III

8. Meaning of management, functions of management, role of managers and scope of management in agricultural business. Role and objectives in management references. Decision making by individuals as well as by groups.
9. Functional areas of management and their relationship with agriculture production, finance, marketing and human resources as coordination thereof.
10. Importance and nature of planning, useful generalization of planning forecasting technique with the help of a planning model, components of strategic management. Budgeting in a basic planning technique.
11. Leadership in Management, Types and Leadership for production, planning and control activities (inventory, control, quality control, cost control) and financial management, financial forecasting and planning acquisition of funds; Acquaintance of book-keeping and cash account(s). Knowledge of business environment for operation of bank account cheques, bank draft etc.

UNIT-IV

12. Agricultural Finance- meaning, scope and significance, capital and credit needs and their role in Indian agriculture. Credit: meaning, definition, need, classification. Credit analysis: 3 R's, and 5C's and 7 Ps of credit analysis. Sources of agricultural finance: institutional and non-institutional sources, social control and nationalization of commercial banks, RRBs, Lead bank scheme.
13. Crop loan scheme, Scale of finance and unit cost. Cost of credit, KCC. Financial inclusion, Micro financing, and schemes for financing weaker sections. Crop insurance, AICI, PMFBY.
14. Introduction to higher financing institutions – RBI, World bank group institutions. Recent developments in agricultural credit. Agri. Projects – project- meaning, importance, Project cycle and phases. Basic guidelines for preparation of project reports.
15. Agricultural Cooperation – Meaning, objectives, principles of cooperation, brief history of cooperative development in India, significance of cooperatives in Indian agriculture. Agricultural Cooperative institutions in India- credit, marketing, consumer and multi-purpose cooperatives, farmers' service cooperative societies, processing cooperatives, , cooperative warehousing; Role of ICA, NCUI, NCDC

References

1. Ghosal, S.N. (1966). Agricultural Financing in India, Asia Publishing House, Bombay.
2. Johl, S.S. and C.V. Moore (1970). Essentials of Farm Financial Management, Today and Tommorow's Printers and Publishers, New Delhi.
3. Mamoria, C.B. and R.D. Saksena (1973). Co-operation in India, Kitab Mahal, Allahabad.
4. Mukhi, H R (1983). Cooperation in India and Abroad. New Heights Publishers, New Delhi.
5. Muniraj, R (1987). Farm Finance for Development, Oxford & IBH Publishing Company Private Ltd., New Delhi.
6. Subba Reddy, S. and P.Raghuram (2005). Agricultural Finance and Management, Oxford & IBH Publishing Company Private Ltd., New Delhi.
7. Subba Reddy, S., P.Raghuram., P. Sastry, T.V.N. and Bhavani Devi I (2010). Agricultural Economics., Oxford & IBH Publishing Company Private Ltd., New Delhi.

B.Sc. (CBCS) Crop Production - III year
Semester-VI Practical syllabus
DSE – 2 (A): Agricultural Finance and Business Management

1. Factors governing use of capital and identification of credit needs, Time value of money.
2. Compounding and discounting, Tools of financial management, Balance sheet, Income statement and cash flow analysis.
3. Estimations of credit needs and determining unit costs, preparations and analysis of loan proposals, rules of repayment of loans.
4. Study of financial Institutions - PACS, DCCB, Apex Banks, RRBS, CBS, NABARD.
5. Preparation of practical record.

B.Sc. (CBCS) Crop Production - III year
Semester-VI Theory syllabus
DSE – 2 (B): Extension Education and Rural Development

UNIT - I Extension Education:

1. Meaning, Definition, Objectives, Principles, Scope, Philosophy and its distinguishing features.
2. Extension Teaching and Learning: Teaching, Teaching Elements, steps in Teaching and Learning, Learning Situation, Basic Principles of Teaching and Learning.
3. Early Extension Efforts in India. Extension systems in India: extension efforts in pre-independence era (Sriniketan, Marthandam, Sevagram, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various extension/ agriculture development programmes launched by ICAR/ Govt. of India (IADP, IAAP, HYVP, T & V System, KVK, IVLP, ORP, ND, NATP, ATMA, SREP, ATIC, NAIP, NFSM, RKVY etc.).
4. Comparative study of Extension Service in India and USA.

UNIT - II Community Development:

5. Meaning, Definition and objectives of community development.
6. Organizational set up and Activities of Community development at State, District, Block and Village level.
7. Extension and Rural Development Programmes: Including T and V system, National Demonstration, IRDP, Jawahar Rojgar Yozana.
8. Panchayat Raj Systems / Democratic Decentralization and Panchayat Raj – Need, Three Tiers of Panchayat Raj System - Powers, Functions and Organization Set Up; Social Justice & Poverty Alleviation Programmes - ITDA, IWDP, NREP, IRDP, JRY, SGRY, SGSY, MGNREGP Women Development Programmes - ICDS, DWCRA, RMK, MSY, IKP.

UNIT - III Extension Programme Planning, Monitoring and Evaluation:

9. Meaning, Principles and Procedure of Programme Planning.
10. Definition, purpose, types, criteria and steps involved in monitoring and evaluation.
11. Role of extension agent in programme planning
12. Extension Programme planning - Meaning, Process, Principles and Steps in Programme Development. New trends in agriculture extension: privatization extension, cyber extension/ extension, market-led extension, farmer-led extension, expert systems, etc.

UNIT - IV

1. Rural Development: meaning, Definitions, concept, Characteristics, Objectives, Importance and Problems in Rural Development: various rural development programmes launched by Govt. of India - National Extension Service (NES).
2. Participatory Rural Appraisal (PRA), Rural Leadership: Meaning, Definition and concept, types of leaders in rural context, Roles of Leaders, different Methods in Selection of a Leader, Training of Leaders - Lay and Professional Leaders, Advantages and Limitations in using Local Leaders in Agricultural Extension; extension administration: meaning, definition and concept, principles and functions.
3. Training Meaning, definition, Types of Training - Pre Service Training, In - Service, Orientation, Induction Training, Refresher Training and Training for Professional Qualification; Training of Farmers, Farmwomen and Rural Youth - Farmers' Training Centre (FTC): Objectives – Trainings Organized; District Agricultural Advisory and Transfer of Technology Centre (DAATTC) - Objectives.
4. Extension teaching methods: meaning, classification, individual, group and mass contact methods, media mix strategies; and communication: meaning and definition; Functions of Communication, models - Aristotle, Shannon Weaver, Berlo, Schramm, J. P. Leagans, Rogers and Shoemaker, Litterer, Westley Macleans and barriers to communication.

References

1. Extension Education. Adivi Reddy,A .1987. Sree Lakshmi Press, Bapatla.
2. Extension Communication and management. Ray, G. L.1991. Naya Prakashan, Kolkata.
3. Communication. Rayudu, C. S. 1997. Himalaya Publishing House, Hyderabad.
4. Text book on Agricultural communication: Process and methods. Sandhu, A. S. 1993. Oxford and IBH publishing Co. Pvt. Ltd, New Delhi.
5. Fundamentals of Extension Education and management in Extension. Jalihal, K. A. and Veerabhadraiah, V. 2007. Concept Publishing Co. New Delhi.
6. Communication of Innovations. Rogers, E. M. and Floyd F. Shoemaker. 1971 Free Press, A division of Macmillan Publishing Co.
7. Diffusion of innovations. Rogers, E. M. 1995. Free Press, New York.
8. Education and Communication for Development. Dahama, O. P. and Bhatnagar, O. P. 1980. Oxford and IBH Publishing Co., New Delhi.
9. Audio Visual Aids in Teaching, Training and Extension. Yella Reddy, N. 1998. Haritha Publishing House Hyderabad.
10. Mass Communication and Journalism in India. Mehta, D. S. 1979. Allied Publishers Ltd. New Delhi.
11. Essentials of educational technology, teaching learning innovations in education. Aggarwal, J. C.
1995. Vikas publishing house Pvt. Ltd. New Delhi

B.Sc. (CBCS) Crop Production - III year
Semester-VI Practical syllabus
DSE – 2 (B): Extension Education and Rural Development

1. Practice in Conducting Survey
2. Practice in preparing schedule and Questionnaire for studying the organizational set up of community development.
3. Contact with the farmers and educating them in new technology of Agriculture.
4. Preparation of an outline and practice on evaluation of a programme.
5. Classification, Tabulation and diagrammatic representation of data.
6. Writing study Reports.
7. Preparation of practical record.

B.Sc. (CBCS) Crop Production - III year
Project / Dissertation

Project work/Dissertation is considered as a special course involving application of knowledge in solving / analyzing /exploring a real-life situation / difficult problem. The Project/Dissertation work will be of 4 credits. Work should be given in lieu of a discipline specific elective paper, with a view to develop creative thinking, team spirit and skill, a project work at preliminary level will be assigned to students, in groups.

Project report in the form of dissertation is prepared and submitted by the students. It will be evaluated by the External and Internal Examiners. Head of the Department will chair the evaluation panel and proceedings of viva voce.