COURSES RECOMMENDED BY
5TH DEAN’S COMMITTEE OF ICAR BOOKS
Restructuring of UG Programmes
for increased Practical / Practice Contents
Discipline-wise Courses

AGRONOMY

Fundamentals of Agronomy 4(3+1)
- आर्य, आर.एल.: सर्व विज्ञान के सिद्धान्त
- Das N.R.: Introduction to Crops of India. 2nd
- Antony Joseph : Agroforestry Theory and Practices
- Walia, U.S. : Crop Management
- Jat, M.L.: Dryland Technology 2nd Ed.
- Walia, U S: Science of Agronomy
- Arya, R.L.: Fundamentals of Agronomy

Introductory Agro-meteorology & Climate Change
- FAO : Climate-Smart Agriculture Source Book
- Rao, G.P : Climate Change Adaptation Strategies in Agriculture and Allied Sectors
- Sundaresan, J : Climate Change and Environment
- Mohanty, M : Crop Growth Simulation Modelling and Climate Change.
- Niggli, URS : Organic Agriculture and Climate Change Mitigation
- Mote, B M : Principles of Agricultural Meteorology
- Gaur, M : Remote Sensing for Natural Resources Management & Monitoring
- Dev, Indra: Agroforestry for Climate Resilience and Rural Livelihood.
- Sehgal, V.K.: Climate Agriculture and Man Shrinking Biodiversity and sustainability.

Crop Production Technology – I (Kharif crops)
- Khare D.: Seed Technology. 2nd Ed.
- Das N.R.: Introduction to Crops of India. 2nd
- Jat, M.L.: Dryland Technology 2nd Ed.
- Sharma, A.R. : Resource Conserving Techniques in Crop Production
- Ghosh, P.K.: Resource Conservation Technology in Pulses
- Das, N.R.: Glossary of Indian Crops
- Khare, D.: Farm Mechanization for Production of Pulses
- FAO: The Use of Saline-Waters for Crop Production

Crop Production Technology – II (Rabi crops)
- Khare D.: Seed Technology. 2nd ed.
- Das N.R.: Introduction to Crops of India. 2nd
- Jat, M.L.: Dryland Technology 2nd Ed.
- Dhirendra Khare : Farm Mechanization for Production of Pulses
- Ghosh, P.K.: Resource Conservation Technology in Pulses
- Sharma A.R.: Resource Conserving Techniques in Crop Production
- FAO : The Use of Saline Waters for Crop Production
- Das, N.R.: Wheat Crop Management
- Das, N.R.: Glossary of Indian Crops
- Khare, D.: Farm Mechanization for Production

Farming System & Sustainable Agriculture 1(1+0)
- Palaniappan, S.P. Organic Farming -Theory and Practice
- Walia, U.S. : Crop Management
- Narain, P : Diversification of Arid Farming Systems
- Jat, M.L.: Dryland Technology 2nd Ed.
- Singh, R.P. : Sustainable Development of Dryland Agriculture in India
- Meena, R.S.: Sustainable Agriculture
- Hani, F.J.: Sustainable Agriculture: From Common Principles to common practice

Principles of Organic Farming 2(1+1)
- Palaniappan SP: Organic Farming – Theory and Practice
- Tarafdar JC: Organic Agriculture.
- Walia, U.S. : Crop Management
- Narain, P : Diversification of Arid Farming Systems
- Joshi, M: New Vistas of Organic Farming, 2nd Ed.
- Niggli, URS : Organic Agriculture and Climate Change Mitigation
- Ilka Gomez : Training Manual Organic Agriculture

Geoinformatics and Nanotechnology and Precision Farming 2(1+1)
- Jain, N.K.: Concise Concepts of Nanoscience and Nanomaterials
- Tarafdar, J.C.: Nanotechnology
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<tr>
<th><strong>Rainfed Agriculture &amp; Watershed Management 2(1+1)</strong></th>
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<tbody>
<tr>
<td><strong>Das N.R.</strong>: Tillage and Crop Production 2nd</td>
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<tr>
<td><strong>Dhoot A.M.</strong>: Agrotechnology for Dryland Farming</td>
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<td><strong>Rao S.C.</strong>: Challenges and Strategies of Dryland Agriculture</td>
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<td><strong>Singh R.P.</strong>: Sustainable Development of Dryland Agriculture in India</td>
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<td><strong>Singh S.D.</strong>: Arid Land Irrigation and Ecological Mgmt.</td>
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<td><strong>FAO</strong>: Agricultural Drainage Water Management in Arid and Semi-Arid Areas</td>
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<td><strong>Hudson, N.</strong>: Soil &amp; Water conservation in semi arid areas</td>
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<td><strong>Gupta, J.P.</strong>: Agroforestry for Sustained Productivity in Arid Regions</td>
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<td><strong>Jat, M.L.</strong>: Dryland Technology 2nd Ed.</td>
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<td><strong>FAO</strong>: The Use of Saline Waters for Crop Production</td>
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<td><strong>G. Sastry</strong>: Evaluation of Watersheds in India</td>
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<td><strong>Gupta, S.K.</strong>: Management of Saline &amp; Waste Water in Agriculture</td>
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<tr>
<td><strong>G.P. Verma</strong>: Rainfed Farming Development in Central India</td>
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<td><strong>Jat, M.L.</strong>: Rainwater Management Theory and Practice</td>
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<td><strong>FAO</strong>: Waste Water Management and Use in Agriculture</td>
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<td><strong>Smith</strong>: Testing and Evaluation of Agricultural Machinery and Equipment</td>
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<td><strong>FAO</strong>: Irrigation Drainage and Salinity: An International Source Book</td>
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<tr>
<td><strong>FAO</strong>: Control of Water Pollution from Agriculture</td>
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<tr>
<td><strong>Gupta, S.K.</strong>: Drainage Engineering: Principles and Practices</td>
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<td><strong>WOCAT</strong>: Water Harvesting Guidelines to Good Practice</td>
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**GENETICS & PLANT BREEDING**

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<tr>
<th><strong>Fundamentals of Genetics 3(2+1)</strong></th>
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<tr>
<td><strong>Sharma, A.K.</strong>: Crop Improvement and Mutation Breeding</td>
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<tr>
<td><strong>Singh, C.B.</strong>: Genetic Improvement of Field Crops</td>
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<td><strong>Chakraborty, S.</strong>: Plant Molecular Genetics</td>
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<td><strong>Dwivedi, P.</strong>: Plant Tissue Culture</td>
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<td><strong>Kumar, S.</strong>: Plant Tissue Culture: Theory &amp; Techniques</td>
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<tr>
<th><strong>Principles of Seed Technology 3(1+2)</strong></th>
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<tbody>
<tr>
<td><strong>Dhirenra Khare</strong>: Seed Technology, 2nd Ed.</td>
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<tr>
<td><strong>Basra, A.S.</strong>: Handbook of Seed Science and Technology</td>
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<tr>
<td><strong>Mackay, D.B.</strong>: Seed Technology in the Tropics</td>
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<tr>
<td><strong>Vanangamudi, K.</strong>: Weed Seed Biology</td>
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<tr>
<td><strong>Khare, D.</strong>: Principles of Seed Technology (Concise Edition)</td>
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<td><strong>Sagwal, S.S.</strong>: How to Raise and Manage</td>
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<th><strong>Fundamentals of Plant Breeding 3(2+1)</strong></th>
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<tr>
<td><strong>Stoskopf, N.C.</strong>: Plant breeding: theory and Practice</td>
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<td><strong>Singh, B.D.</strong>: Molecular Plant Breeding</td>
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**SOIL SCIENCE & AGRICULTURAL CHEMISTRY**

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<tr>
<th><strong>Fundamentals of Soil Science 3(2+1)</strong></th>
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<tr>
<td><strong>Arya, R.L.</strong>: Fundamentals of Soil Science</td>
</tr>
<tr>
<td><strong>R. Parner</strong>: Organic and Inorganic Fertilizers</td>
</tr>
<tr>
<td><strong>Jackson, M.L.</strong>: Soil Chemical Analysis: Advanced Course</td>
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<tr>
<td><strong>Cowles, G.</strong>: Agriculture Chemical Users Manual</td>
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<tr>
<td><strong>Bear, F.E.</strong>: Chemistry of The Soil, 2nd Ed.</td>
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<tr>
<td><strong>Richards, L.A.</strong>: Diagnosis and Improvement of Saline and Alkali Soils</td>
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<td><strong>Rathinasamy, A.</strong>: Fundamentals of Soil Science</td>
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<tr>
<td><strong>Gupta, S.K.</strong>: Standard Methods for Analysis of Soil Plant and Water</td>
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<tr>
<td><strong>Fried, M.</strong>: The Soil-Plant System in Relation to Inorganic Nutrition</td>
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<tr>
<td><strong>FAO</strong>: The Use of Saline Waters for Crop Production</td>
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<tr>
<td><strong>USDA</strong>: Soil Survey Manual New Revised Ed.</td>
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<tr>
<td><strong>Piper, C.S.</strong>: Soil and Plant Analysis.</td>
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<td><strong>Ryan, J.</strong>: Soil and Plant Analysis: Laboratory Manual</td>
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<th><strong>Manures, Fertilizers and Soil Fertility Management 3(2+1)</strong></th>
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<tr>
<td><strong>Bockman</strong>: Agriculture and Fertilizer</td>
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<td><strong>IFDC</strong>: Fertilizer Manual</td>
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<td><strong>Kannaiyan, S.</strong>: Biofertilizer Technology</td>
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<td><strong>FAO</strong>: Fertilizers and their Use 4th Ed.</td>
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<td><strong>Piper, C.S.</strong>: Soil and Plant Analysis.</td>
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<tr>
<td><strong>Ryan, J.</strong>: Soil and Plant Analysis Laboratory Manual</td>
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<td><strong>Gill, W.R.</strong>: Soil Dynamics in Tillage and Traction</td>
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<tr>
<td><strong>FAO</strong>: Fertilizer and Plant Nutrition Guide</td>
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<tr>
<td><strong>IFDC</strong>: Fertilizer Manual</td>
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<tr>
<td><strong>Kopecky, Mark</strong>: Managing Manure</td>
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<td><strong>FAO</strong>: Manual on Fertilizer Distribution</td>
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**Problematic soils and their Management 2(2+0)**

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<tr>
<td><strong>Gupta, S.K.</strong>: Management of Saline &amp; Waste Water in Agriculture</td>
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<td><strong>Ramula, U.S.S.</strong>: Principles in The Quantitative Analysis of Water, Fertilizers, Plants and Soils</td>
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<td><strong>Garg, B.K.</strong>: Saline Wastelands Environment and Plant Growth</td>
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<td><strong>Garg, B.K.</strong>: Salinity Tolerance in Plants: Methods, Mechanisms and Management</td>
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<td><strong>Gupta, S.K.</strong>: Salt Affected Soils: Reclamation &amp; Mgmt.</td>
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<td><strong>Gupta, I.C.</strong>: Crop Production in Salt Affected Soil</td>
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**ENTOMOLOGY**

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<tr>
<td><strong>Awasthi, V.B.</strong>: Agricultural Insect Pests &amp; Their Control</td>
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<td><strong>Ananthakrishnan, T.N.</strong>: Dynamics of Insect Behaviour</td>
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</table>
• Ananthakrishnan, T.N.: Ecodynamics of Insect Communities
• Ananthakrishnan, T.N.: Ecological Entomology: Insect Life in Odd Environments
• Awasthi, V.B.: Insect Neuroendocrines
• Awasthi, V.B.: Introduction to General and Applied Entomology, 3rd Ed.
• Patton, R.L.: Introductory Insect Physiology
• Agrawal, O.P.: Perspectives in Entomological Research
• Pests of Crops and Stored Grain and their Management 3(2+1)
  • Awasthi, V.B.: Agricultural Insect Pests and Their Control 2nd Ed.
  • Singh, B.: Biological and Molecular Approaches in Pest Management
  • Herdman, R.C.: Biologically Based Technologies for Pest Control
  • Dodia, D.A.: Botanical Pesticides for Pest Management
  • Reddy, P.P.: Insect Mite and Vertebrate Pests and Their Management in Horticultural Crops
  • Dhawan, A.K.: Integrated Pest Management
  • Youdeouei: Pest and Vector Management in the Tropics
  • Dhawan, A.K.: Theory and Practice of Integrated Pest Management
  • Sridhara, S.: Vertebrate Pests in Agriculture
  • Hassall, K.A.: The Chemistry of Pesticides Their Metabolism, Mode of Action and Uses in Crop Protection
  • Matthews, G.A.: Pesticide Application Equipment for Use in Agriculture (Vol. 1)
  • Matthews, G.A.: Pesticide Application Equipment for Use in Agriculture (Vol. 2)
  • Abrol, D.P.: Pests and Pollinators of vegetable and oilseed crops
• Biopesticides and Biofertilizer 3(2+1)
  • Kannaiyan, S.: Biofertilizer Technology
  • Koul, O.: Biopesticides in Sustainable Agriculture Progress and Potential
  • Dodia, D.A.: Botanical Pesticides for Pest Management
  • Singh, B.: Biological and Molecular Approaches in Pest Management
  • Herdman, R.C.: Biologically Based Technologies for Pest Control
• Management of Beneficial Insects 2(1+1)
  • Castner, J.L.: Photographic Atlas of Entomology and Guide to Insect Identification
  • Awasthi, V.B.: Principles of Insect Behaviour, 2nd Ed.
  • Abrol, D.P.: Beekeeping: A Comprehensive Guide to Bee and Beekeeping,
• Tyagi, B.K.: Entomology Ecology & Biodiversity
• Ananthakrishnan, T.N.: Insect Biodiversity - Functional Dynamics and Ecological Perspectives
• Abrol, D.P.: Beekeeping: A Concise Guide to Bees and Beekeeping
• Patron, R.L.: Introductory Insect Physiology
• Sanjayan, K.P.: Insect Physiology

AGRICULTURAL ECONOMICS

Fundamentals of Agricultural Economics 2(2+0)
• Yadav, S.L.: Agricultural Planning in India
• Chole, R.R.: Entrepreneurship Development and Communication Skills
• Khan, D.: Entrepreneurship in Farming
• Francis Luyayi: Farmers Training Entrepreneurship Manual
• Diwase, S.: Indian Agriculture & Agribusiness Management, 3rd Ed.
• Verma, S.B.: Rural Marketing

Agricultural Finance and Co-Operation 3(2+1)
• Chole, R.R.: Entrepreneurship Development and Communication Skills
• Khan, D.: Entrepreneurship in Farming
• FAO: Farm Business School
• Obst, W.J.: Financial Management for Agribusiness
• Diwase, S.: Indian Agriculture & Agribusiness Management, 3rd Ed.
• Verma, S.B.: Rural Marketing

Agricultural Marketing Trade & Prices 3(2+1)
• Verma, S.B.: Agricultural Marketing
• Diwase, S.: Indian Agriculture & Agribusiness Management, 3rd Ed.
• Verma, S.B.: Rural Marketing
• FAO: Horticultural Marketing: A Resource Training Manual for Extension Officer
• Kristin Brennan: Farmers Market Manual

Farm Management, Production & Resource Economics 2(1+1)
• Yadav, S.L.: Agricultural Planning in India
• FAO: Farm Business School
• Francis Luyayi: Farmers Training Entrepreneurship Manual
• Obst, W.J.: Financial Management for Agribusiness
• Diwase, S.: Indian Agriculture & Agribusiness Management, 3rd Ed.

AGRICULTURAL ENGINEERING

Soil and Water Conservation Engineering 2(1+1)
• USDA: A Manual on Conservation of Soil and Water
• Parmar, H.V.: Agricultural Drainage Engineering
• Parmar, H.V.: Agricultural Drainage Engineering: Field and Laboratory Manual
• FAO: Agricultural Drainage Water Management in Arid and Semi-Arid Areas
• FAO: Deficit Irrigation Practices
• Sastry, G.: Evaluation of Watersheds in India
• Pitchaiah, P.S.: Ground Water
• USDA: Ground Water Manual A Water Resources Technical Publication
• Asiedu, J.J.: Processing Tropical Crops A Technological Approach
• Hicks, D.H.: Soil Conservation Technical Handbook
• Trout, T.J.: Soil-Water Engineering Field and Laboratory Manual
• USDA: Water Measurement Manual
• Hall, D.: Processing Equipment for Agricultural products (2nd Ed.)
• T. Stephens: Manual on Small Earth Dams
• USDA: Design of Small Dams
• USDA: Wood Handbook: Wood as Engineering Material

Farm Machinery and Power 2(1+1)
• Boson, E.S.: Theory, Construction and Calculation Agricultural Machines (Vol. 1)
• Smith: Testing and Evaluation of Agricultural Machinery and Equipment
• FAO: Agricultural Engineering in Development: Guidelines for Mechanization Systems and Machinery Rehabilitation Programmes
• Balls, R.C.: Horticultural Engineering Technology Field Machinery
• USDA: Canal Systems Automation Manual
• Ghosh, R.K.: Practical Agricultural Engineering

Protected Cultivation and Secondary Agriculture
• Nath, P.: Agriculture and Food Technology in Human Life
• Shekhawat, S.S.: Chickpea (Gram) Status and Cultivation Technology
• Nair, B.: Fundamentals of Vegetable Crop Production
• Amit Nath: Post Harvest Management and Production of Important Horticultural Crops
• Sharma, A.D.: Postharvest Technology of Kinnow
• Asiedu, J.J.: Processing Tropical Crops A Technological Approach

PLANT PATHOLOGY

Fundamentals of Plant Pathology 4(3+1)
• Dube, H.C.: An Introduction to Fungi, 4th Ed.
• Bajaj, H.K.: Handbook of Practical Nematology
• Bajaj, H.K.: Introductory Nematology (Hindi)
• Reddy, P.P.: Text Book of Introductory Plant Nematology
• Gour, H.N.: Annual Review of Plant Pathology (1-6)
• Ram Reddy, S.: Essentials of Virology
• Reddy, S.M.: Integrated Plant Pathology
• Chahal, S.S.: Plant Pathology in India
• Chakraborty, B.: Recent Trends in Plant Pathology

Diseases of Field and Horticultural Crops and their Management-I & II 3(2+1)
• Gupta, S.K.: Approaches and Trends in Plant Disease Management
• Lodha, S.: Disease Management in Arid Land Crops
• Third, T.S.: Disease Problems in Vegetable Production 2nd Ed
• Gupta, S.K.: Diseases of Vegetable Ornamental and Spice Crops
• Third, B.S.: Phytopathogenic Procaryotes and Plant Diseases
• Ravichandran, N.G.: Agrochemicals in Plant Diseases Management
• Mawar, R.: Faslon Ke Rog: Parichay evam prabandh

Principles of Integrated Pest and Disease Management 3(2+1)
• Manoharachary, C.: Frontiers in Microbial Biotechnology and Plant Pathology
• Gupta, V.K.: Integrated Disease Management and Plant Health
• Rai, M.K.: Integrated Management of Plant Resources
• Sharma, R.C.: Integrated Plant Disease Management
• Reddy, S.M.: Integrated Plant Pathology

HORTICULTURE

Fundamentals of Horticulture 2(1+1)
• Arya, R.L.: Fundamentals of Horticulture
• Singh, S.P.: Advances in Horticulture and Forestry (Vol. 1-9)
• Nair, B.: Fundamentals of Vegetable Crop Production
• Sud, R.K.: Hort-Agro Project Reports
• Kumar, V.: Nursery and Plantation Practices in Forestry
• Singh, S.P.: Scientific Horticulture (Vol. 2-10)
• Nath, P.: Sustainable Horticulture Development and Nutrition Security

Production Technology for Fruit and Plantation Crops 2(1+1)
• Chandra, A.: Arid Fruit Research
• FAO: Fruit and Vegetable Processing
• FAO: Guidelines for Small-Scale Fruit and Vegetable Processors
• Sud, R.K.: Hort-Agro Project Reports
• Singh, S.P.: Production Technology of Fruit Crops in Wasteland
• Singh, S.P.: Scientific Horticulture (Vol. 2-10)
• Topwal, M.: Production Technology of Minor Vegetables
• USDA: Design of Small Dam
Production Technology for Vegetables and Spices  
2(1+1)
- Singh, S.P.: Advances in Horticulture and Forestry (1-9)
- Gupta S.K.: Disease Problems in Vegetable Production (2nd Ed.)
- Gupta S.K.: Diseases of Vegetable Ornamental and Spice Crops
- Sud, R.K.: Flowers and Vegetables of India
- Nair, B.: Fundamentals of Vegetable Crop Production
- Reddy, P.P.: Productivity Enhancing Technologies for Horticultural Crops
- Singh, S.P.: Scientific Horticulture (Vol.2-10)
- Tyagi, S.K.: Vegetable Crops At A Glance
- Rana, M.K.: Vegetables & their Allied As Protective Food

Production Technology for Ornamental Crops, MAP and Landscaping 2(1+1)
- Singh, S.P.: Advances in Horticulture and Forestry (1-9)
- Sood, S.K.: Flavouring and Fragrant Resources of India
- Sud, R.K.: Flowers and Vegetables of India
- Chopra, V.L.: Ornamental Plants for Gardening
- Pareek, O.P.: Systematic Pomology (Vol. 1-2)
- Barlow, H.S.: Tropical Planting and Gardening 6th Ed.

Post-harvest Management and Value Addition of Fruits and Vegetables 2(1+1)
- Chandra, A.: Arid Fruit Research
- Sud, R.K.: Flowers and Vegetables of India
- FAO: Fruit and Vegetable Processing
- Nair, B.: Fundamentals of Vegetable Crop Production
- Amit Nath: Post Harvest Management and Production of Important Horticultural Crops
- Sharma, A.D.: Postharvest Technology of Kinnow
- Singh, S.P.: Production Technology of Fruit Crops in Wasteland
- Reddy, P.P.: Productivity Enhancing Technologies for Horticultural Crops
- Tyagi, S.K.: Vegetable Crops At A Glance
- Rana M.K.: Vegetables & their Allied As Protective Food
- Canovas, G.V.B.: Handling and preservation of Fruits and Vegetable Processors

AGRICULTURAL EXTENSION & COMMUNICATION

Fundamentals of Agricultural Extension Education 3(2+1)
- Oakley, P.O.: Guide to Extension Training
- Singh, A.K.: Pioneer Research in Extension Education
- Chole, R.R.: Transfer of Agricultural Technology

Entrepreneurship Development and Business Communication 2(1+1)
- Rathakrishnan, T.: Agro Enterprises for Empowering Farm Women
- Panigrahy, S.R.: Agro-Entrepreneurship
- Kadam, J.R.: Communication Skills and Personality Development
- Chole, R.R.: Entrepreneurship Development and Communication Skills
- Khan, D.: Entrepreneurship in Farming

Communication Skills and Personality Development 2(1+1)
- Kadam, J.R.: Communication Skills and Personality Development
- Chole, R.R.: Entrepreneurship Development and Communication Skills
- Oakley, P.O.: Guide to Extension Training

BIOCHEMISTRY / PHYSIOLOGY / MICROBIOLOGY/ ENVIRONMENTAL SCIENCES

Fundamentals of Plant Biochemistry and Biotechnology 3(2+1)
- Saxena, J.: Laboratory Manual of Microbiology, Biochemistry and Molecular Biology
- Saxena, J.: Comprehensive Laboratory Manual of Life Science
- Punia, M.S.: Plant Biotechnology and Molecular Biology - A Laboratory Manual
- Bala, M.: Practicals in Plant Physiology and Biochemistry
- Rai, M.K.: Recent Trends in Biotechnology

Fundamentals of Crop Physiology 2(1+1)
- Gardner, F.P.: Physiology of Crop Plants.
- Rajendran, C.: Nutritional and Physiological Disorders in Crop Plants
- Hemantaranjan, A.: Physiological Efficiency for Crop Improvement
- Balint, A.: Physiological Genetics of Agricultural Crops
- Hemantaranjan, A.: Physiology of Nutrition and Environmental Stresses On Crop Productivity
- Narwal, S.S.: Plant Analysis Research Methods
- Hemantaranjan, A.: Plant Physiology and Plant Molecular Biology in New Millennium
- Narwal, S.S.: Plant Physiology Research Methods
- Hemantaranjan, A.: Plant Stress Tolerance Physiological & Molecular Strategies

Agricultural Microbiology 2(1+1)
- Karwa, A.S.: Handbook of Techniques in Microbiology: A Laboratory Guide to Microbes
- Jamaluddin: General Microbiology
- Pareek, R.P.: Agricultural Microbiology
- Kumar, V.: Laboratory Manual of Microbiology
Saxena, J.: Laboratory Manual of Microbiology, Biochemistry and Molecular Biology
Reddy, B.S.R.: Microbial Diversity: Exploration & Bioprospecting
S. Ram Reddy: Microbial Physiology
Manoharachary, C.: Mycology and Microbiology: A Textbook for UG and PG Courses

Environmental Studies & Disaster Management 3(2+1)
Thakur, V.: A Text Book of Environmental Science
Misra, R.: Ecology Workbook
Singh, Prithipal: Perspectives in Plant Ecology and Environmental Biology
Chouhan, T.S.: Space Technology and GIS for Disaster Monitoring and Mitigation

Introduction to Forestry 2(1+1)
Raj, A.J.: Forestry Principles and Applications
Parthiban, K.T.: Introduction to Forestry
Panwar, P.: Practical Manual on Plantation Forestry
Kumar, V.: Nursery and Plantation Practices in Forestry

Silviculture and Agroforestry (SA) Dendrology 3(2+1)
Naqshi, R.: An Introduction to Botanical Nomenclature

Forest Biology and Tree Improvement (FB) Forest Biotechnology 3(2+1)
D. Sim: Forestry Extension Methods
R. Wazeka: Forestry Extension, Making it work

Natural Resource Management (NR) Rangeland and Livestock Management 2(1+1)
Ward H.M.: Grasses. A handbook for use in the field and laboratory
Singh, J.V.: Forage Legumes
Kaushish, S.K.: Sheep Production in Tropics and Subtropics

Forest Product Utilization (FP) Ethnobotany, Medicinal and Aromatic Plants 3(2+1)
Maheshwari, J.K.: Ethnobotany and medicinal plants of Indian subcontinent

Soil Fertility and Nutrient Management 2(1+1)
Jackson, M.L.: Soil Chemical Analysis: Advanced Course

Soil, Water and Plant Analysis 2(1+1)
Piper, C.S.: Soil and Plant Analysis
Jackson, M.L.: Soil Chemical Analysis
Richards, L.A.: Diagnosis and Improvement of Saline and Alkaline Soils.

Introductory Microbiology 2(1+1)
Jamaluddin, M.: General Microbiology.

SYLLABUS & LECTURE SCHEDULE FOR P.G.

AGRON 507: Agronomy of Cereal Crops-II (Maize and Millets) 2+1
Das, N.R.: Introduction to Crops of India. 2nd
Khare, D: Seed Technology. 2nd Ed.

AGRON. 506 (CORE): Agronomy of Cereal Crop-I (Rice) 2+1
Das, N.R.: Introduction to Crops of India 2nd

AGRON 508: Agronomy of Cereal Crops II (Wheat and Barley) 2+1
Das, N.R.: Introduction to Crops of India. 2nd

AGRON 510: Agronomy of Oil Seed Crops (Kharif and Rabi) 2+1
Das, N.R.: Introduction to Crops of India. 2nd Ed.

AGRON 513: Agronomy of Tuber Crops 2+1
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AGRON 514: Agronomy of Fodder and Forage Crops 2+1
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AGRON 516: Dryland Farming and Watershed Management 2+1
Das, N.R.: Tillage and Crop Production 2nd Ed.
Dhopte, A.M.: Agrotechnology for Dryland Farming (2nd Ed.)
Rao, S.C.: Challenges and Strategies of Dryland Agriculture
Singh, R.P.: Sustainable Development of Dryland Agriculture in India
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R.A. Aldrich: Green House Engineering

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AGRON 601: Current Trends in Agronomy 3+0
Palaniappan SP: Organic Farming - Theory and Practice
Taraifar, J.C.: Organic Agriculture
AGRON 602 Crop Ecology 2+0
- Dwivedi, P.: Biodiversity & Environmental Biotechnology
- Hemantarajan, A.: Environmental Physiology

AGRON 603 Advances in Crop Growth and Productivity 2+1

AGRON 606 Integrated Farming Systems and Sustainable Agriculture 2+0
- Palaniappan, SP: Organic Farming-Theory & Practice
- Meena, R.S.: Sustainable Agriculture

AGRON 521 Modern Concepts in Crop Production 3(3+0)
- Gardner, F.P.: Physiology of Crop Plants

AGRON 531 Agronomy of Major Cereals and Pulses 3(2+1)
- Das, N.R.: Introduction to Crops of India. 2nd
- Khare, D.: Seed Technology. 2nd Ed.
- Khare, D.: Principles of Seed Technology

AGRON 532 Agronomy of Oilseeds, Fibre and Commercial Crops 3(2+1)
- Das, N.R.: Introduction to Crops of India. 2nd

AGRON 534 Principles and Practices of Organic Farming 3(2+1)
- Palaniappan, SP: Organic Farming – Theory and Practice

AGRON 535 Agronomy of Medicinal, Aromatic and Under-Utilized Crops 3(2+1)
- Das, N.R.: Introduction to Crops of India. 2nd

SOILS 521 Soil Fertility and Fertilizer Use 4(3+1)
- Kannaiyan, S.: Biofertilizers Technology.

SOILS 602 Advances in Soil Fertility 2+0
- Kannaiyan, S.: Biofertilizers Technology

PBG 512 Principles of Plant Breeding 3(2+1)
- Stoskopf, N.C.: Plant breeding: theory and Practice

PBG 521 Plant Genetic Resources & Seed Technology 3(2+1)
- Khare, D.: Seed Technology 2nd Ed.
- Khare, D.: Principles of Seed Technology

ENT 537 Vertebrate Pest Management
- Prakash, I.: Rodents in Indian Agriculture. Vol. I. State of Art

ENT 602 Insect Behaviour 1+1
- Awasthi, V.B.: Principles of Insect Behaviour

ENT 610 Agriculture Ornithology 1+1
- Sridhara, S.: Vertebrate Pest in Agriculture

ENT: Insect Morphology and Systematic 3(2+1)
- Awasthi, V.B.: Introduction to General and Applied Entomology. 3rd Ed.

PPATH-512 Detection and Diagnosis of Plant Diseases 3(0+3)
- Baudoin, ABAM: Laboratory Exercises in Plant Pathology: An Instructional Kit

P PATH -523 Diseases of Vegetables and Spices Crops 3 (2+1)
- Gupta S.K.: Disease Problem in Vegetable Production. 2nd Ed.

PPATH -529 Integrated Disease Management 3(2+1)
- Gupta, V.K.: Integrated Disease Management and Plant Health
- Sharma, R.C.: Integrated Plant Disease Management

PPA 509 Diseases of Vegetable, Spices and Medicinal Crops 2+1
- Gupta, S.K.: Disease Problem in Vegetable Production. 2nd Ed.

PPA 516 Integrated Disease Management 2+1

PSMA 608 Environmental Horticulture 2+1
- Singh, P.P.: Perspectives in Plant Ecology and Environmental Biology

AGM 508 Principles of Remote Sensing and its Applications in Agriculture 2+1
- Patel, A.N.: Remote Sensing: Principles and Applications

PPHYS 522 Physiology of Growth and Yield and Modeling 3(2+1)
- Gardner, F.P.: Physiology of Crop Plants.

LPM-512 Sheep and Goat Production and Management 3 (2+1)
- Kaushish, S.K.: Sheep Production in the Tropics and Subtropics

SEASON-WISE DISTRIBUTION OF COURSES

I - SEMESTER
1. Fundamentals of Horticulture 2 (1+1)
2. Fundamentals of Plant Biochemistry and Biotechnology 3(2+1)
3. Fundamentals of Soil Science 3(2+1)
4. Introduction to Forestry 2 (1+1)
5. Comprehension & communication skills in english 2(1+1)
6. Fundamentals of Agronomy 4(3+1)
7. Introductory Biology/Elementary Mathematics 2 (1+1)
8. Agricultural Heritage* 1(1+0)
9. Rural Sociology & Educational Psychology 2 (2+0)
10. Human Values & Ethics (non gradial) 1(1+0)**

**II - SEMESTER**
1. Fundamentals of Genetics 3(2+1)
2. Agricultural Microbiology 2(1+1)
3. Soil and Water Conservation Engineering 2(1+1)
4. Fundamentals of Crop Physiology 2(1+1)
5. Fundamentals of Agricultural Economics 2(2+0)
6. Fundamentals of Plant Pathology 4(3+1)
7. Fundamentals of Entomology 4(3+1)
8. Fundamentals of Agricultural Extension Education 3(2+1)
9. Communication Skills & Personality Development 2(1+1)

**III - SEMESTER**
1. Crop Production Technology – I (Kharif Crops) 2 (1+1)
2. Fundamentals of Plant Breeding 3 (2+1)
3. Agricultural Finance and Cooperation 3 (2+1)
4. Agri-Informatics 2(1+1)
5. Farm Machinery and Power 2 (1+1)
6. Production Technology for Vegetables and Spices 2 (1+1)
7. Environmental Studies & Disaster Management 3(2+1)
8. Statistical Methods 2(1+1)
9. Livestock and Poultry Management 4 (3+1)

**IV - SEMESTER**
1. Crop Production Technology – II (Rabi Crops) 2(1+1)
2. Production Technology for Ornamental Crops, MAP and Landscaping 2(1+1)
3. Renewable Energy and Green Technology 2(1+1)
4. Problematic Soils and their Management 2(2+0)
5. Production Technology for Fruit and Plantation Crops 2(1+1)
6. Principles of Seed Technology 3(1+2)
7. Farming System & Sustainable Agriculture 1(1+0)
8. Agricultural Marketing Trade & Prices 3(2+1)
9. Introductory Agro-meteorology & Climate Change 2(1+1)
10. Elective Course 3 credit

**V - SEMESTER**
1. Principles of Integrated Pest and Disease Management 3(2+1)
2. Manures, Fertilizers & Soil Fertility Management 3(2+1)
3. Pests of Crops and Stored Grain and their Management 3 (2+1)

4. Diseases of Field and Horticultural Crops and their Management - I 3 (2+1)
5. Crop Improvement-I (Kharif Crops) 2 (1+1)
6. Entrepreneurship Development and Business Communication 2 (1+1)
7. Geoinformatics and Nanotechnology and Precision Farming 2 (1+1)
8. Practical Crop Production – I (Kharif crops) 2 (0+2)

**VI - SEMESTER**
1. Rainfed Agriculture & Watershed Management 2 (1+1)
2. Protected Cultivation and Secondary Agriculture 2 (1+1)
3. Diseases of Field and Horticultural Crops and their Management-II 3 (2+1)
4. Post-harvest Management and Value Addition of Fruits and Vegetables 2 (1+1)
5. Management of Beneficial Insects 2 (1+1)
6. Crop Improvement-II (Rabi crops) 2 (1+1)
7. Practical Crop Production –II (Rabi crops) 2 (0+2)
8. Principles of Organic Farming 2 (1+1)
9. Farm Management, Production & Resource Economics 2 (1+1)
10. Principles of Food Science and Nutrition 2(2+0)

**NEW COURSES**
1. Geoinformatics, Nanotechnology and Precision Farming 2(1+1)
2. Rainfed Agriculture & Watershed Management 2(1+1)
3. Singh, R.P.: Sustainable Development of Dryland Agriculture in India
4. Problematic Soils and their Management 2(2+0)
5. Renewable Energy and Green Technology 2(1+1)
6. Management of Beneficial Insects 2(1+1)
7. Fundamentals of Horticulture 2(1+1)
8. Introduction to Forestry 2(1+1)
9. Agri-Informatics 2(1+1)
10. Intellectual Property Rights 1(1+0)
11. Principles of Food Science & Technology 2(2+0)
12. Communication Skills and Personality Development 2(1+1)
13. Principles of Integrated Pest & Diseases Management 3(2+1)
14. Agricultural Heritage 1(1+0)
15. Introductory Biology 2(1+1)
16. Elementary Mathematics 2(2+0)
17. Human Values & Ethics (NG) 1(1+0)