

**West Bengal State University**  
**B.Sc. (Hons.) in Agriculture and Rural Development**  
**Draft Syllabus under CBCS (Semester System)**  
**With Effect from the Session 2018 – 19**

**Structure**

- **Core Course : 13 Courses with 4 + 2= 6 credits each (Theory 4 credits + Practical 2 credits)**  
**1 Course with 5 + 1= 6 credit (Theory 5 credits + Tutorial 1 credit)**
- **DSE Course : 4 Courses with 4 + 2= 6 credits each (Theory 4 credits + Practical 2 credits)**
- **GE Course : 4 Courses with 4 + 2= 6 credits each (Theory 4 credits + Practical 2 credits)**
- **AECC : 2 Courses with 2 credits each**
- **SEC : 2 Courses with 2 credits each**

Semester	Core	AECC	SEC	DSE	GE*
Sem – I	<b>ARDACOR01T</b> <b>ARDACOR01P</b> Fundamentals of Agriculture	English Communication / MIL)			GE1
	<b>ARDACOR02T</b> <b>ARDACOR02P</b> Basics of Rural Development				
Sem – II	<b>ARDACOR03T</b> <b>ARDACOR03P</b> Animal Husbandry and Livestock Production	Environmental Science / English /MIL Communication			GE2
	<b>ARDACOR04T</b> <b>ARDACOR04P</b> Rural Institutions and Rural Development Programme				
Sem – III	<b>ARDACOR05T</b> <b>ARDACOR05P</b> Fundamentals of Horticulture, Sericulture & Fisheries		<b>ARDSSEC01M</b> Basics of Computer Application		GE3

	<p><b>ARDACOR06T</b> Rural Economics</p>				
	<p><b>ARDACOR07T</b> <b>ARDACOR07P</b> Rural Sociology and Social Structure</p>				
<b>Sem – IV</b>	<p><b>ARDACOR08T</b> <b>ARDACOR08P</b> Agricultural Technology and Plant Protection</p>		<b>ARDSSEC02M</b> Village Study and Community Planning		<b>GE4</b>
	<p><b>ARDACOR09T</b> <b>ARDACOR09P</b> Rural Marketing and Farm Business Management</p>				
	<p><b>ARDACOR10T</b> <b>ARDACOR10P</b> Fundamentals of Agricultural Extension Education</p>				
<b>Sem – V</b>	<p><b>ARDACOR11T</b> <b>ARDACOR11P</b> Elementary Statistics for Agriculture and Rural Development</p>			<p>(Choose Any Two)</p> <p><b>ARDADSE01T</b> <b>ARDADSE01P</b> Organic Farming</p> <p><b>ARDADSE02T</b> <b>ARDADSE01P</b> Agriculture Botany</p> <p><b>ARDADSE03T</b> <b>ARDADSE03P</b> Environment and Natural Resources</p>	
	<p><b>ARDACOR12T</b> <b>ARDACOR12P</b> Rural Entrepreneurship Development and Agricultural Finance</p>				

<b>Sem – VI</b>	<b>ARDACOR13T</b> <b>ARDACOR13P</b> Rural Livelihood Studies and Poverty			<b>[Dissertation / Project</b> (ARDADSE04T, ARDADSE04P) <b>is compulsory and Choose Any one from the rest]</b>	
	<b>ARDACOR14T</b> <b>ARDACOR14P</b> Field Survey Methodology for Rural Research			<b>ARDADSE04T</b> <b>ARDADSE04P</b> Dissertation / Project (Preparation of Project/ Dissertation on Agriculture and Rural Development Issues)	
				<b>ARDADSE05T</b> <b>ARDADSE05P</b> Rural Health	
				<b>ARDADSE06T</b> <b>ARDADSE06P</b> Population Studies	

**GE\*:** Students have to choose two Subjects/Disciplines other than Agriculture and Rural Development as GE Courses. GE1 & GE2 will be from a Subject/Discipline and GE3 & GE4 from another Subject/Discipline.

### **GE Courses offered by the Dept. of Agriculture and Rural Development**

<b>Semester 1</b>	<b>ARDHGEC01T</b> <b>ARDHGEC01P</b> Livestock Production and Management
<b>Semester II</b>	<b>ARDHGEC02T</b> <b>ARDHGEC02P</b> Rural Women Empowerment
<b>Semester III</b>	<b>ARDHGEC03T</b> <b>ARDHGEC03P</b> Integrated Fish Farming
<b>Semester IV</b>	<b>ARDHGEC04T</b> <b>ARDHGEC04P</b> Fundamentals of Rural Management

# Syllabus

## SEMESTER – I

### **CORE COURSE – 1 (ARDACOR01T): Fundamentals of Agriculture**

- Brief History of Agricultural Science & Agricultural Institutions in the context of India ; Agro Climatic Zones, Crop Production: Field Crop Production, Season-wise Production, Rice, Wheat & Jute ; Crop rotation ; Crop pattern ; Fertilizer application – Organic & Inorganic, Time and Methods of fertilizer application, Integrated Nutrient Management.
- Soil: Origin and Formation of the Earth Crust, Soil formation, Soil profile : Physical, Chemical and Biological and Thermal texture, Classification, consistency, Bulk density, Soil and Plant, Carbon Cycle, Ion Exchange, Soil Organisms and their Roles, Soil Biology.

**Practical (ARDACOR01P):** Identification of different crops and fertilizers. Soil testing (Soil pH, Soil organic carbon, Phosphate etc.)

### **CORE COURSE – 2 (ARDACOR02T): Basics of Rural Development**

- Concept and Scope of Rural Development- Principle, Objectives, Indicators, Policies, Strategies ; Rural Development Experiments and Efforts in India (Nilokheri, Gurgaon, Marthandam, Sriniketan, Sevagram.), Problems of Rural Development in the context of India ; Different Institutions and Agencies involved in Rural Development: Elementary concepts ; Rural Management: Conceptual Issues .
- Land tenure system: Concept and issues with special reference to India; Types of land utilization and its relevance to planning; Land Reform, Rural labour: concepts, types and problems. Participation of rural labourforce.

**Practical (ARDACOR02P):** Visit to a Village and submit a report on Socio-economic status.

### **Recommended Books:**

- Hand Book of Agriculture by Indian Council of Agricultural Research
- A Text Book of Soil Science by D.K. Das
- Agronomy (A Text Book) by S.S. Singh
- Rural Development Principles, Policies and Management 3/E by Singh and Katar
- Rural Development by Sisodia
- Rural Development: Indian Context by Manie Ahuja
- Rural Development in India Past, Present, & Future, Vasant Desai, Himalaya
- Rural Development Khanna, Sulbha: Sonali Publication, New Delhi
- Rural Development: Concept, Approach and Strategy, Prasad, B.K, Sarup & Sons, New Delhi
- Introductory Soil Science by D. K. Das
- Soil and Fertilizers: at a Glance by I. L. Somani and P. C. Khantaliya
- Fundamentals of Soil by V. N. Sahai
- Oxford Hand Book of Agriculture in India by Ray

- Indigenous Agricultural Practice by Sundaramani and Ranganathan
- Vermi Composting for Sustainable Agriculture 2/E by P.K. Gupta
- Biofertilizer for Sustainable Agriculture by Arun K. Sharma

### **GE Course for other Departments**

#### **GE – 1(ARDHGEC01T): Livestock Production and Management**

- Livestock Production and Management: Definition, Importance, Issues & Scope, livestock housing, routine management, practices of life grooming, washing, dipping, casting.
- Buffalo and Cattle Management, Livestock disease management. Elementary Knowledge of Hatching and its Management, Poultry Management– Dip litter system, Disease control and Vaccination.

#### **Practical (ARDHGEC01P)**

- Visit to Livestock Farm and Preparation of Report.
- Visit to Poultry Farm/Hatchery and Preparation of Report.

#### **Recommended Books:**

- Cyber Livestock by G. R. K. Sharma
- Livestock Production Management by N. S. R. and C. K. Thomas Sastry
- Farm Livestock - with information on Cattle, Sheep, Pigs and Horses by V. C. Fishwick
- A Hand Book of Poultry Practice by Keith Wilson

### **SEMESTER – II**

#### **CORE COURSE – 3 (ARDACOR03T): Animal Husbandry and Livestock Production**

- Animal Husbandry – Concept, Scope & Importance towards Rural Development ; Plants & animal husbandry, Dairy Cattle and Buffalo management, Management of Sheep and Goat. Poultry production & management. Diseases and Control Mechanisms: Vaccination for Cattle & Poultry, Concept of piggery and camel farming.
- Livestock Production – concept and importance in the rural economy; Fertility in livestock and reproductive behavior, Selection and breeding of livestock, Important exotic and Indian breeds of livestock ; Disease control measures, Sanitation and care, vaccination and prevention of diseases. Important Livestock products: Milk Egg & Meat, Composition and importance of Egg, milk and milk products, Edible Meat and Meat Products.

**Practical (ARDACOR03P):** Visit to Dairy and/or other Livestock Farms and Preparation of Report.

## **CORE COURSE – 4 (ARDACOR04T): Rural Institutions and Rural Development Programmes**

- Rural Institutions: Definition, Types, Structure, Characteristics & Importance to Rural Development ; Panchayati Raj Institutions : Structure, Functions, Problems ; Seventy Third Amendment of Constitution ; Financial Institutions- Cooperatives, NABARD, Regional Rural Bank, Primary Agricultural Credit Societies, Micro Finance and SHGs: Structure and Functions, Non-Govt. Organizations ( NGOs) & Rural Development.
- Rural Development Programmes: Issues & Challenges in the context of India; Policies and Programmes during Plan Period: Brief Outline; Agricultural Development – Community Development Programme, Green Revolution, Operation Barga, Operation Flood. Employment Generation- MGNREGA & NRLM. ; Infrastructure Development, PMGSY, PMAY, Health Care and Sanitation- NHM.

**Practical (ARDACOR04P):** Evaluation of an on-going Rural Development Programme in a Village Panchayat and Submission of Report.

### **Recommended Books:**

- Rural Development: The Indian Experience by M. L. Dantwala
- Integrated Rural Development Programme by Ambedka
- Development Administration and Rural Development by Hooja and Rakeh
- Cyber Livestock by G. R. K. Sharma
- Rural Development in India by Reddy
- Agriculture and Rural Development in India by M. L. Dewan
- A Hand Book of Poultry Practice by Keith Wilson
- Animal Behaviour 2/E by M. M. Ranga
- Milk and Milk Products by Winton Winton
- Hand Book of Animal Husbandry by ICAR
- Scientific Production and Management of Goats and Rabbits by Ramadhar Singh
- Rural Banking in India, I.C.Dingra, Sultan Chand & Sons
- Co-operative Societies and Rural Development, S.K.Datta, Mittal Publications

## **GE Course for other Departments**

### **GE – 2(ARDHGEC02T): Rural Women Empowerment**

- Women empowerment: Concept and Determinants, Need and barriers of female Education in the Rural Economy, Health and nutritional status of rural women ; Role of women in Panchayati Raj system ; Women and education- Gender bias in enrolment, dropouts ; Women and work participation
- Empowerment of Rural Female, Decision Making of Women, self-help groups, women and leadership ; NGO and women development ; Women and Development ; Govt. Initiatives for Women empowerment in the context of India

**Practical (ARDHGEC02P):** Project report on rural women empowerment/women entrepreneurship based on field study.

### **Recommended Books:**

- Empowering Rural Women, Sujit Kr. Datta, Dr. Dilip Kr. Ghosh, Akansha Publishing House, 2002.
- Rural Women Empowerment, Sawalia Bihari Verma, Shiw Kr. Jiloka. Kumari Jyoti Kushwah, Deep & Deep Publications Pvt. Ltd., 2006.

- Development and Empowerment : Rural Women in India ,Jaya Arunachalam, U. Kalpagam,Rawat Publications, 2006
- Empowerment of Rural Women through Self Help Groups,B. Suguna, Discovery Publishing House, 2006.
- Empowerment of Women through Panchayati Raj Institutions, A.K.Sinha, Northern Book Centre, 2004.

### **SEMESTER – III**

#### **CORE COURSE – 5 (ARDACOR05T): Fundamentals of Horticulture, Sericulture & Fisheries**

- Sericulture: Characteristics, scope, types of silk worms, host plants. Life history and rearing ; Cocoon production and reeling. Disease and pest management of mulberry and silkworm. Research and Development of Sericulture in India.
- Horticulture: Concept and branches. Pruning system. Seed production of Potato, Brinjal, Chilli, Onion, Mustard and Pea. Concept of Floriculture and Pomology, Apiculture: scope and Characteristics, Morphology structural adoption. Honey bee rearing, disease and pest management.
- Fisheries: Definition and scope of fishery. Resources of India (inland and offshore). Exotic fishes, fish breeding. Polyculture and integrated farming.

**Practical (ARDACOR05P):** Visit to Sericulture, Horticulture and/or Fisheries Farm and Preparation of small Project.

#### **CORE COURSE – 6 (ARDACOR06T): Rural Economics**

- Rural Economy: Definitions, Concept & Structure, Economic Agents, Economic Ideas & Scarcity, Price Theory: Invisible Hand Doctrine, Laws of demand- Determinants of demand, Elasticity of demand. Law of supply, Determinants of supply, Elasticity of supply, Demand-Supply Interaction, Production function, Law of Variable Proportion, Cost of production- Fixed and variable cost, Laws of returns, Market structure- Perfect competition, monopoly, monopolistic competition.
- National Income- Estimation. Inflation & central banking, Commercial Banks, Fiscal policy, Budget: Public Expenditure & Debt, Direct and indirect taxation. Trade cycle. Rural Infrastructures, Rural credit- Sources & Institutions.

#### **CORE COURSE – 7 (ARDACOR07T): Rural Sociology and Social Structure**

- Introduction to Rural Sociology: Concept, emergence, significance; Rural Society: Features; Structural components - Continuity and Change: Village Community, Family, Stratification: Caste and Class. Gender Issues. Social Values.
- Rural Social Problems: Illiteracy, Child Labor, Child Marriage, Violence against Women. Globalization and Rural Economy, Tribal Community: Concept, Features, Safeguards.

**Practical:** Oral or Poster Presentation on any Rural Social Problem based on Field Level Data.

#### **Recommended Books:**

- Selected Readings in Rural Economics by Thomas Nixon Carver
- A Hand Book of Rural economy in India by Surindar S. Jhodka
- Advanced Economic Theory, A. L. Ahuja
- Tribal Communities and Social Change by P.M. Chacko, Sage, 2005
- Social Problems in India by Ram Ahuja, Rawat
- Rural Sociology, N. Jayapalan, Atlantic Publishers & Dist. 2002.

- Rural Sociology, S.L.Doshi, P.C.Jain, Rawat Publication,1999.
- Rural Sociology in India, A.R. Desai,Popular Prakashan,1994
- Rural Sociology, Rajendra kumar Sharma, AtlanticPublishers & Distributors,1997.
- Rural Sociology by Narang, Ashok
- Rural Sociology by Doshi and Jain
- Introductory Rural Sociology: A Synopsis of Concepts & Principles, Wiley Eastern,1976.
- Improved Technologies of Sericulture by Central Sericultural Research & Training Institute Central Silk Board, Ministry of Textiles, Govt. of India, Berhampore – 742 101 (WB)
- Hand Book of Horticulture Indian Council of Agricultural Research
- Fruit Growing by J.S. Bal
- Horticulture at a Glance (Vegetable, Spices & Condiments) by A.S. Salaria
- An Introduction to Sericulture by G. Ganga and S. Chetty
- Basics of Horticulture by Kalyani Publishers
- Handbook of Horticulture by Dr. Giri Sankar, Agro Indian Publications.
- Integrated Fish Farming by Dr. Nityanand Pandey and Dr. S. Malik
- Integrated Agriculture Aquaculture by A. Primer
- Fish and Fish Product by Winton, Winton

### **SEC-1 (ARDSSEC001): Computer Application**

- Introduction to Computer; Computer as communication and Information Infrastructure, Computer and Rural Development: E-Governance, e-agriculture; Computer Software and hardware, Operating system(windows).
- Microsoft Word, MS-Excel, Power Point, Notepad, Paint, Calculator, Concept of Internet, E-Mail & E-book ; Data Analysis in Excel

### **Recommended Books:**

- Basic Computer Course (BCC) by Prof. Satish Jain, Dr. Shalini Jain, M. Geetha, BPB Publications
- Computers Fundamentals Ms – Office: Including Internet and Web Technology by Anupam Jain and Navneet mehra.

### **GE Course for other Departments**

### **GE – 3 (ARDHGEC03T): Integrated Fish Farming**

- Fisheries Resources of India; Fish Farming & Rural Development, Fisheries: Concept and Types, Inland and marine fisheries; Concept of aquatic eco-system, Types of aquaculture; Integrated Fish farming methods and management;
- Fish Food & Nutrients, Different Type of Diseases of Fishes, Disease control and management of fish, Ornamental fish farming: Concept, Procedure and Importance

### **Practical (ARDHGEC03P): Preparation of field/project report on Ornamental Fish Farming**

### **Recommended Books:**

- Integrated Fish Farming by Dr. Nityanand Pandey and Dr. S. Malik
- Integrated Agriculture Aquaculture by A. Primer.



## **SEMESTER – IV**

### **CORE COURSE – 8 (ARDACOR08T): Agricultural Technology and Plant Protection**

- Farming systems – Definition, types and methods of farming; Sustainable agriculture: scope and advantages; Fertilizer application & cropping for sustainable agriculture; Modern Sustainable agriculture. Production Technology: Scope & Importance, Production Technology of Rice, Wheat, Turmeric, Ginger, Coconut, Tea, Seed Technology: History, importance, characteristics and classification of seed.
- Post Harvest Technology: Importance, advantages & disadvantages, Food Preservation processing and green house technology. Plant Protection: Preliminary knowledge, disease management of Potato, Wheat, Rice, Integrated Disease Management (IDM), Integrated Pest Management (IPM), weed management, Food Preservation Processes.

**Practical (ARDACOR08P):** Field inspection, diagnosis, practical record in relation to Agricultural Technology and Plant Protection

### **CORE COURSE – 9 (ARDACOR09T): Rural Marketing and Farm Business Management**

- Issues in Rural Marketing and characteristics of Rural Markets, Understanding Consumers and their access to Rural Markets, Strategy of product, pricing, promotion, branding, packaging and distribution in Rural Markets, Rural marketing research. Rural marketing management,
- Scope of farm management & Principles. Farm budgeting, cost –benefit analysis of a farm, methods of computing depreciations, net worth statement, farm financial accounts, income statement, measures of farm income, India's Farm economy: Nature and Importance, Growth ; Farm size, Productivity and Efficiency.

**Practical (ARDACOR09P):** Visit to Rural Farm and Preparation of Farm Budget

### **CORE COURSE – 10 (ARDACOR10T): Fundamentals of Agricultural Extensions**

- Agricultural Extension Education : Definition, Scope, Objectives, Philosophy, & Principles ; Extension programme planning & Management, Information and Communication Technology, Innovative information sources – Internet, Cyber cafes, Video and Tele conferences, Kisan Call Centers, Agricultural journalism, Agri-clinic
- Diffusion and adoption of Innovations, Communication and Extension Teaching methods, Participatory Rural Appraisal (PRA): tools and techniques; Motivation, Training and capacity building.

**Practical (ARDACOR10P):** Participatory Rural Appraisal (PRA)

#### **Recommended Books:**

- Post Harvest Management of Horticulture Crops by S. N. Pandey, Sandha Pandey, P. H. Pandey
- Hand Book of Pest Management by S. F. Hameed and S. P. Singh
- Identification of Crop and Weed Seeds by Albina F. Musil
- Plant Pathology at a Glance by D. P. Tripathi
- Crop Disease and their Control by Raj Mangat
- Fundamentals of Farm Business Management by S. S. Johl and J. R. Kapoor
- Rural Marketing – Concepts and Practices, Dogra, B. and Ghuman, K. Tata Mc Graw Hill Education Pvt.Ltd.

- Rural marketing in India, Habeeb-Ur-Rahman, K.S. Himalaya Publishing House.
- Rural Marketing Environment Problems and Strategies by T. P. Gopaldaswami
- Extension Communication and Management by G.L. Ray
- Agricultural Extension by Sagar Mondal, Kalyani Publishers
- Methods of Community Participation Somesh Kumar, , Vistaar Publication, New Delhi.
- Participatory rural appraisal and questionnaire survey, Neela Mukherjee Concept

### **GE Course for other Departments**

#### **GE- 4 (ARDHGEC04T): Fundamentals of Rural Management**

- Management: Meaning, need, functions & principles ; Rural Management: Scope, Functions & Importance ; Programme planning - nature, purpose and steps ; Organizational behavior: concept nature and scope ; Water resource management, Farm business management, Human Resource Management.
- Motivation, Decision making concept – SWOT analysis, Mass law formation, Direction and supervision, Coordination and control. Management information system,

#### **Practical (ARDADSE01P): Case Study on Rural Management**

#### **Recommended Books:**

- Fundamentals of Farm Business Management by S. S. Johl and J. R. Kapoor
- Rural Marketing by N. V. Badi and R. V. Badi
- Human Resource Development by Yubaraj S.

## **SEMESTER – V**

#### **CORE COURSE – 11 (ARDACOR11T): Elementary Statistics**

- Definition, Aims, Characteristics and Limitations of Statistics ; Data : Classification & Methods of Collection; Different Parts of Statistical Table, Classification and Tabulation of Data, Diagrammatic representation of data ; Frequency distribution.
- Measures of central tendency; Dispersion: Concept & Measurement ; Correlation analysis : conceptual Issues, Types of Correlation, Measurement Techniques, Data analysis using Statistical Tools and Techniques.

#### **Practical (ARDACOR11P): Use of Statistical Tools and Techniques in Different Data Sets**

#### **CORE COURSE – 12 (ARDACOR12T): Rural Entrepreneurship Development and Agricultural Finance**

- Rural Entrepreneurship: Introduction, Concept, Characteristics and different Types, Entrepreneurial personality, knowledge and Skill. Entrepreneurship development, Planning for Entrepreneurship, Training for Entrepreneurs, Problems and prospects of Rural Entrepreneurship. Role of Government and NGO in rural Entrepreneurship. Scope of Entrepreneurship Development in India.
- Agricultural Finance: Meaning, Characteristics and Importance; Need for Finance in Agriculture, Agricultural Loans: Types, Disbursement and Repayment; Crop Index reflecting use and Farm Finance, Crop insurance.

#### **Practical (ARDACOR12P): Visit to a Rural Enterprise and Preparation of Project Report**

**Recommended Books:**

- Fundamentals of Statistics by H. Mulholland & C. R. Jones, Butterworth – Heinmann, 1968
- Fundamentals of Statistics by Goon, Gupta, Dasgupta, World Press, 1968, Vol – 1
- Entrepreneurship by R.V. Badi & N.V. Badi
- Business Ethics (Text & Cases) by P.K. Ghosh
- Entrepreneurship and Rural Women in India by Jitendra Ahirrao

**DSE Courses : Choose Two Courses from the following three DSE Courses (DSE-1 , DSE – 2 & DSE - 3)****DSE – 1 (ARDADSE01T): Organic Farming**

- Organic Farming: Definition, Concept, Merits and Demerits; Different cropping systems and Organic farming ; Farming Systems , Developing organic farms – important steps and methods ; Brief idea about manure and fertilizer and pesticides.
- Bio – fertilizer ; Organic manure, green manure, liquid manure ; Vermi-compost, Importance of Organic farming in Agriculture & Rural Development,

**Practical (ARDADSE04P):** Methods of Organic Farming and Vermi-compost Preparation.

**DSE –2 (ARDADSE02T): Agriculture Botany**

- Agriculture Botany: Conceptual Issues; Plant Genetics – Definition & significance, Mendel’s Law, Miosis cell division, Linkage, Crossing over, Mutation. Plant breeding – Objective and scope, Breeding techniques, breeder’s kit, Polyploidy and mutation breeding
- Plant biotechnology – Tissue culture, micro propagation, plasmid vector, RDT, PCR. Agro Ecology – Definition, concept, significance; plant community.

**Practical (ARDADSE02P):** Identification and Slide Preparation, PCR, Protein Estimation.

**DSE – 3 (ARDADSE03T): Natural Resources and Environment**

- Introduction to Natural Resource: Renewable vs. Non-renewable; Economics of Natural Resources; Common Property Resources; Joint Forest Management, Agriculture and Allied Activities, Mining and Biodiversity ; Watershed Management,
- Environmental Issues and Challenges, Pollution and Environmental Degradation, Policy instruments for natural resource management ; Climate Change, Sustainable Development, Environment Management, Disaster Management, Environment policies in the Global Prospective, Rural Energy, Environmental Policies and Programmes in India.

**Practical (ARDADSE03P):** Village level Natural Resource Survey Report

**Recommended Books:**

- Organic Farming: How to Raise, Certify and Market Organic Crops and Livestock by Peter V. Fossel, Voyageur Press
- Plant Breeding: Principles & Methods by B. D. Singh
- Introduction to Botany by Haith & Bhattacharya
- Fundamentals of Plant Biotechnology by Saras Publications
- Environment, Natural Resources and the Indian Economy by Amarendra Das and Padmaja Mishra, New Century Publications.

## **SEMESTER – VI**

### **CORE COURSE – 13 (ARDACOR13T): Rural Livelihood Studies and Poverty**

- Livelihood: Concept and Definition and issues of rural livelihood , Indicators of rural livelihood, Livelihood strategies and Livelihood Outcome ; Framework of livelihood analysis, sustainable livelihood concept and framework, Rural Livelihood Diversification
- Concept of Poverty, Rural Poverty Indicators; Measures of Rural Poverty, Causes of Rural Poverty Rural; Rural Poverty in India: Nature, Causes and Alleviation Measures.

**Practical (ARDACOR13P):** Report on Livelihood Analysis of a Household/Community

### **CORE COURSE – 14 (ARDACOR14T): Field Survey Methodology for Rural Research**

- Social Science Research (Rural Studies) : Meaning, objective, significance, types, and Different Steps. Research Methods & Research Methodology, Research Design, Concept of Hypothesis,
- Source of data – Primary and Secondary, Collection of data, Census, Sample survey, Sampling Design, Field Survey, preparation of interview schedule and questionnaire preparation, Participatory Survey, Action Research.

**Practical (ARDHGEC04T):** A Sample Field Survey Design

#### **Recommended Books:**

- Rural Livelihood and Poverty Reduction Policies by Routledge Publications.
- Diversification & sustainable rural livelihood, ShylendraS.H & Uma Rani, Concept Publishing
- Rural Livelihood in India Social, Economical & Environmental Issues DuttaS. K. P.K Kuri, Serials Publications Pvt. Ltd.
- Sustainable Rural Livelihood Process and Application by S.K. Acharya, A. Biswas & A.N. Goutam
- Sustainable Livelihood and Rural Development by Fernwood Books ltd.
- Rural Livelihood crisis & responses, Bernsten H, B. Crow, H. Jonson(ED), Oxford University Press,Oxford.
- Encyclopedia of Survey Research Methods by Paul J. Lavrakas (Ed.), Sage, 2008
- How to Conduct Surveys: A Step by Step Guide by Arlene Fink, Sage, 2012.
- Research Methodology: An Introduction by Wayen Goddard and Stuart Melvile, Juta and Co. Ltd. 2004
- Research Methods, Research Methods, Ahuja R, Rawat Publication, New Delhi
- Methodology of Research in Social Science -Krishnaswami O.R Himalaya Pub House.
- Research Methods in Social Sciences and Extension Education by G.L. Ray & Sagar Mondal

### **DSE Courses : DSE – 4 (ARDADSE04T) is compulsory and Choose one Course from the rest two DSE Courses (DSE – 5 & DSE -6)**

#### **DSE – 4 (ARDADSE04T): Dissertation / Project**

- Preparation of Project/Dissertation on Agriculture and Rural Development Issues

### **DSE – 5 (ARDADSE05T): Rural Health**

- Rural Health: conceptual issues ; Importance of Rural Healthcare ; Determinants of Rural Healthcare ; Indicators of Health : Infant Mortality, Child Mortality, Life Expectancy ; Disease Intensity in the Rural areas, Reproductive health.
- Problems of Rural Health care System, Food Security, Health and Nutrition Sanitation and Drinking Water, Rural Health Policies and Programmes, WHO and Rural Health, Rural Health Care Structure.

**Practical (ARDADSE05P):** Visit to Rural Primary Health Care Centre and Prepare a Report.

### **DSE – 6 (ARDADSE06T): Population Studies**

- Introduction to Population Studies: Meaning, Scope, Significance; Population dynamics; Population growth and development population ecology, Population and sustainable rural Development, Rural Urban Migration: Nature and Causes (Indian Context).
- Spatial Distribution of Population: Measures of density and concentration; factors affecting spatial distribution and temporal changes in density and concentration; Demographic Processes: Fertility & Mortality; Sources of Population Data: Census, Civil Registration System, Sample Registration System, National Sample Survey.

**Practical (ARDADSE05P):** Field Visit and preparation of report on different aspects of population studies.

### **Recommended Books:**

- Fundamentals of Demography, Mazumder P.K Rawat Publication, New Delhi
- India's Basic Demographic Statistics, Bose, A. (1996), B. R. Publishing Corporation, New Delhi
- A Textbook on Population Studies by R. K. Jain, Neh Publishers & Distributors, 2013
- Principles on Population Studies, by Asha A. Bhende, Tara Kantikar, Himalaya Publishing House
- Human Population Dynamics: Cross – disciplinary Perspectives by Helen Machbeth & Paul Collinson, Cambridge University Press, 2002.
- National Rural Health Mission in India by P. K. Shekhar, Bookleaf Publishers.
- National Health Programme of India - National Policies and Legislation related to health, Kishore, J, Century Publications (2012).
- Health Programmes in India, Nandave. M Mittal publication.
- Rural Health Care and Housing, S B Verma S K Jiloka A C Pathak, Deep & Deep Publications.