

**West Bengal State University**  
**Draft Syllabus of the 4-year Undergraduate Programme**  
**(Honours)**

**Subject: Agriculture and Rural Development**

**With effect from the Session 2023–24**



**DEPARTMENT OF RURAL STUDIES**  
**WEST BENGAL STATE UNIVERSITY**  
**2023**

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**Draft Syllabus of the 4-year Undergraduate Programme (Honours)**

**Subject: Agriculture and Rural Development**

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**Structure : Semester-wise and Course category-wise structure of syllabus**

<b>SEM</b>	<b>Major(DSC)</b>	<b>Minor</b>	<b>MDC</b>	<b>AEC</b>	<b>SEC</b>	<b>VAC</b>	<b>Internship</b>
<b>I</b>	<b>ARDDSC101M:</b> Fundamentals of Agriculture (3+2)	ARDMIN101 M:Livestock Production & Management (3+2)	<b>ARDMDC101T</b> Fundamentals of Agriculture & Rural Development (3)	AE-1 (3)	<b>ARDSEC101M :</b> Computer Application (3)	VA-1 (3)	
<b>II</b>	<b>ARDDSC202M:</b> Basics of Rural Development (3+2)	ARDMIN202 M:Rural Women Empowerment (3+2)	MD-2 (3)	AE- 2(3)	<b>ARDASEC202M</b> Introduction to Field Work (3)	VA-2 (3)	(4**)
<b>III</b>	<b>ARDDSC303M:</b> Rural Institutions & Rural Development Programmes (3+2)	ARDMIN303 M: Integrated Farming (3+2)	MD-3 (3)	AE- 3(3)	<b>ARDSEC303M:</b> Village Study & Community Planning (3)		
<b>IV</b>	<b>ARDDSC404M:</b> Animal Husbandry & Livestock Production (3+2)  <b>ARDDSC405M:</b> Fundamentals of Horticulture, Sericulture & Fishery (3+2)						(4**)

	<p><b>ARDDSC406M:</b> Rural Economics (3+2)</p> <p><b>ARDDSC407M:</b> Rural Sociology (3+2)</p>						
<b>V</b>	<p><b>ARDDSC508M:</b> Agricultural Production and Plant Protection (3+2)</p> <p><b>ARDDSC509M</b> Rural Marketing &amp; Farm Business Management (3+2)</p> <p><b>ARDDSC510M:</b> Fundamentals of Agricultural Extension (3+2)</p> <p><b>ARDDSC511M</b> Research Methodology and Elementary Statistics (3+2)</p>						
<b>VI</b>	<p><b>ARDDSC612M</b> Rural Entrepreneurship Development (3+2)</p> <p><b>ARDDSC613M</b> Environment &amp; Natural Resources (3+2)</p> <p><b>ARDDSC614M</b> Sustainable Agriculture (3+2)</p> <p><b>ARDDSC615M</b> Rural Livelihood (3+2)</p>						(4**)

<b>VII</b>	<b>ARDDSC716M</b> Field Survey (3+2)	SM-1 (5) SM-2 (5)					
	<b>ARDDSC717T</b> Women & Rural Development (4+1)						
<b>VIII</b>	<b>ARDDSC818T</b> Rural Health (4+1)						<b>ARDRES 801P</b> Dissertation (P15)##
	<b>ARDDSC819M</b> Population Studies (3+2)						
	<b>ARDDSC820M</b> Agriculture Botany (3+2) (+)						
	<b>ARDDSC821M</b> Rural Culture & Heritage (3+2) (+)						
<b>Credit</b>							

All DS courses are of 5 credits/ each

\*\* Internship to take exit with certificate/Diploma/Degree

+ Course not applicable for 'Honours with Research'

## Research: Students who secure 75 % marks above in first six semesters and wish to undertake research at the undergraduate level have to complete 15 credit dissertation.

# SYLLABUS

## Semester-I

### ARDDSC101M : Fundamentals of Agriculture

Theory: 3 credits      Practical: 2 Credits

	Credit
<b>Unit I: Basics of Agriculture</b> <ul style="list-style-type: none"><li>• Agriculture-Concept, history, Present scenario of agriculture in India</li><li>• Concept of agricultural land and land holding, land units, irrigated and non-irrigated land, Agro-climatic zones</li><li>• Crop classification, Major agricultural season</li></ul>	1
<b>Unit II: Crop Production Techniques</b> <ul style="list-style-type: none"><li>• Crop production techniques of major crops in India: Paddy, Wheat, Jute</li><li>• Fertilizer-concept, classification, Different types of Inorganic fertilizers and organic manures, method of fertilizer application</li><li>• Integrated nutrient management: concept and importance</li></ul>	1
<b>Unit III: Soil and its composition</b> <ul style="list-style-type: none"><li>• Soil: origin, types, properties of soil: chemical, physical, biological</li><li>• Soil consistency, soil density, ion exchange capacity of soil, soil pH</li><li>• Soil nutrients- concept, types, deficiency symptoms</li></ul>	1
<b>Practical:</b> <ul style="list-style-type: none"><li>• Identification of different field crops and fertilizers, manure</li><li>• Soil testing (N,P,K, Soil pH, organic carbon)</li></ul>	2

### Suggested readings:

- 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
- Introductory Soil Science by D. K. Das
- Soil and Fertilizers: at a Glance by I. L. Somani and P. C. Khantaliya
- Oxford Hand Book of Agriculture in India by Ray
- Indigenous Agricultural Practice by Sundaramani and Ranganathan

## ARDMDC101T: Fundamentals of Agriculture and Rural Development

Theory: 3 credits

<b>Unit I: Rural Development</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Concept of rural development, rural-urban dichotomy, present status of rural India</li><li>• Rural institutions: Basic concept of Panchayati Raj Institutions,</li><li>• Cooperatives, Regional Rural Bank, Self-help group</li></ul>	1
<b>Unit II: Basics of Agriculture</b> <ul style="list-style-type: none"><li>• Agriculture: Concept, present scenario, types of crops,</li><li>• concept of horticulture and floriculture</li><li>• Cropping seasons, season wise major crops, Problems of Indian agriculture</li></ul>	1
<b>Unit III: Basics of Animal husbandry</b> <ul style="list-style-type: none"><li>• Animal husbandry: concept, scope, importance</li><li>• Major animal husbandry practices, Poultry, Duck, cattle, goat: basic concept, importance and varieties</li><li>• Concept of agricultural institutions: ICAR, KVK</li></ul>	1

## ARDSEC101M: Computer Application

Theory: 2 credits      Practical: 1 Credit

<b>Unit I: Computer Fundamentals</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Introduction to Computer; Properties of computer, history of computer,</li><li>• Computer softwares and hardware, Computer memory, Operating system</li></ul>	1
<b>Unit II: ICT</b> <ul style="list-style-type: none"><li>• Computer as communication and Information Infrastructure,</li><li>• Computer and Rural Development: E-Governance, e-agriculture</li></ul>	1
<b>Unit III: Practical</b> <ul style="list-style-type: none"><li>• Microsoft Word, MS-Excel, Power point, Data Analysis in Excel, Concept of internet</li></ul>	1

## ARDMIN101M/ARDCOR101M: Livestock Production and Management

Theory: 3 credits      Practical: 2 Credits

<b>Unit I: Livestock Production</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Livestock: Definition, Importance, Issues &amp; Scope</li><li>• Different types of livestock, Systems of livestock production</li><li>• Livestock housing, routine management, Breeding- importance of cross breeding washing, dipping, casting</li></ul>	1

<p><b>Unit II: Livestock Management</b></p> <ul style="list-style-type: none"> <li>• Cattle and Buffalo: importance of cattle farming, Indigenous and exotic breed, cattle shed management, rearing procedure, disease and management, cattle products Milk: importance, composition, market</li> <li>• Goat: Importance, farming procedure, varieties, disease and management</li> <li>• Poultry: Types, Elementary Knowledge of Hatching and its Management, Poultry Management– Dip litter system, Disease control and Vaccination.</li> </ul>	1
<p><b>Unit III: Livestock Development</b></p> <ul style="list-style-type: none"> <li>• Live-stock farm integration, Domestic and international market of livestock products</li> <li>• Governmental initiatives in the development of livestock in India: ICAR, KVK, National Livestock Mission, Veterinary Mobile Unit</li> </ul>	1
<p><b>Practical:</b></p> <ul style="list-style-type: none"> <li>• Visit to Livestock Farm and Preparation of Report.</li> <li>• Visit to Poultry Farm/Hatchery and Preparation of Report.</li> </ul>	2

ARDMIN101M : Minor course for Four Year Honours/ Honours with Research

ARDCOR101M: Core course for Three year Multidisciplinary UG Programme

**References:**

- Hand Book of Agriculture by Indian Council of Agricultural Research (ICAR)
- 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

### **ARDDSC202M: Basics of Rural Development**

Theory: 3 Credits Practical: 2 Credits

<b>Unit I: Concept of Rural Development</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Concept of rural; Attributes/problems of rural India (demographic, economic, infrastructural, social, service delivery etc.), rural urban dichotomies.</li><li>• Concept of Rural Development- meaning, nature &amp; scope, objectives, principles. Elementary concept of Rural Management.</li><li>• Major rural development experiments in India (Nilokheri, Gurgaon, Marthandam, Sriniketan, Sevagram)</li></ul>	1
<b>Unit II: Agriculture in rural development</b> <ul style="list-style-type: none"><li>• Role of agriculture in rural development</li><li>• Land tenure system: Concept and issues with special reference to India</li><li>• Land Reforms: concept, major components.</li></ul>	1
<b>Unit III: Major Rural Development Issues in India</b> <ul style="list-style-type: none"><li>• Rural labour: concepts, types and problems.</li><li>• Rural poverty and multidimensional poverty- basic concept</li><li>• Sustainable Development Goals and rural development in India: basic overview</li></ul>	1
<b>Unit IV: Practical Assignment</b> <p>Submit a report on rural development based upon data collected in relation to social and economic infrastructure in a rural area. The study should seek to collect data on major indicators related to rural development, analyse the data, prepare suitable representations of the results and interpret the same to prepare a well organised report.</p>	2

### **Suggested Readings**

- Rural Development: Concept & Recent Approaches by SujitKumarPaul, Concept Publication, New Delhi (2015)
- Sustainable Development Goals and Panchayats edited by Rajesh Kumar Sinha, Rawat Publications (2018)
- Systematic Agricultural Geography by Majid Hussain,
- Agricultural Geography by AlkaGautam
- Dutt&Sundaram's Indian Economy by Gaurav Dutt and Ashwani Mahajan, S. Chand Publishing, 2015.
- Human Development Report 2010



**Course: ARDSEC202M: Introduction to Field Work**

Theory: 2 credits      Practical: 1 Credit

<b>Unit I: Introduction to field research</b>	Credit
<ul style="list-style-type: none"><li>• Context of rural research: fundamental attributes of rural (eg. urban bias in service provisioning, developmental deficits, rural-urban divide), developing country contexts that makes enumeration challenging.</li><li>• Approaches to rural research: basic concept of quantitative and qualitative framework, elements of subjectivity and objectivity in research design</li><li>• Concept of field</li></ul>	1
<b>Unit II: Field research process</b> <ul style="list-style-type: none"><li>• Steps in conducting field work: entry into field, immersion into field, exit from field; role of digital revolution in field research.</li><li>• Role of researcher and reflexivity in field work</li><li>• Ethics in field research</li></ul>	1
<b>Unit III: Practical</b> <ul style="list-style-type: none"><li>• Collection and analysis of secondary data from Government departments working with rural development.</li><li>• Field methods: Preparation of data collection tools (questionnaire), data collection techniques (sampling, household survey).</li><li>• Data compilation and preparation of report.</li></ul>	1

Evaluation of SEC course would be based upon continuous evaluation.

### SEMESTER –III

Course : ARDDSC303 M :Rural Institutions & Rural Development Programmes

Theory: 3 credits      Practical: 2 Credits

Unit	Credit
<b>Unit I Rural Institutions</b> <ul style="list-style-type: none"><li>• Rural Institutions: Definition, Types, Structure.</li><li>• Characteristics and importance of Rural Institutions in development of rural areas</li><li>• Financial Institutions- Cooperatives, NABARD, Regional Rural Bank, Primary Agricultural Credit Societies, Micro Finance and SHGs: Structure and Functions.</li></ul>	1
<b>Unit II: Evolution of the PRI system in India</b> <ul style="list-style-type: none"><li>• Democratic Decentralization: Concept of democratic decentralization; Local Self-Govt. in India: concept &amp; evolution ; Tribal autonomy</li><li>• . Evolution of the Panchayat Raj system in India; Seventy Third Constitutional .Amendment Act ,Aims of Panchayat Raj System</li><li>• Panchayati Raj Institutions : Structure, Functions, Problems</li></ul>	1
<b>Unit III : Rural Development Programmes in India</b> <ul style="list-style-type: none"><li>• Rural Development Programmes: Policies and Programmes during Plan Period; Issues &amp; Challenges in the context of India</li><li>• Agricultural Development &amp; Employment Generation – Community Development Programme, Green Revolution, Operation Barga, Operation Flood. MGNREGA &amp; NRLM.</li><li>• .Infrastructural Development, PMGSY, PMAY, Health Care and Sanitation- NRHM.</li></ul>	1
<b>Unit IV: Practical Assignment :</b> <p>Visit to a Gram Panchayat for preparing a report on the evaluation of on-going functioning of Development Programmes by the selected Gram Panchayat The study should seek to collect data related to rural institutions and its related rural development programmes implemented, analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized Report within 1500-2000 words .</p>	2

#### Suggested Readings

- Rural Development: The Indian Experience by M. L. Dantwala
- Integrated Rural Development Programme by Ambedka
- Development Administration and Rural Development by Hooja and Rakeh •
- Rural Development in India by Reddy
- Agriculture and Rural Development in India by M. L. Dewan
- Rural Banking in India, I.C.Dingra, Sultan Chand & Sons
- Co-operative Societies and Rural Development by S.K.Datta, Mittal Publications
- 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.
- Co-operative Societies and Rural Development, S.K.Datta, Mittal Publications

**Course : ARDSEC303M:Village Study & Community Planning**

Theory: 2 Credits      Practical: 1 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I: Village Study &amp; Community Planning:</b> <ul style="list-style-type: none"> <li>• Definition of an Indian village and its salient features; Types of Villages</li> <li>• Types of rural communities :peasant, tribal communities, hill communities, coastal communities .</li> <li>• Community Planning: Community Development Programmes ; need for planning at community level</li> </ul>	<b>1</b>
<b>Unit II: Source of data</b> <ul style="list-style-type: none"> <li>• Types of data Primary and Secondary data</li> <li>• Collection of data: Primary and Secondary data sources from the village</li> <li>• Sample survey</li> </ul>	<b>1</b>
<b>Unit III: Practical-Village Study</b> <ul style="list-style-type: none"> <li>• Collect primary and secondary data on socio-economic status of a village.</li> <li>• Interpret and analyze the data:</li> <li>• Identify the priority needs of the community of the village</li> </ul>	<b>1</b>

Evaluation of SEC course would be based upon continuous evaluation.

**Suggested Readings :**

- Methods of Community Participation Somesh Kumar, Vistaar Publication, New Delhi.
- Rural Development: Indian Context by Manie Ahuja
- Rural Development in India Past, Present, & Future, Vasant Desai, Himalaya

## Semester-IV

**Course: ARDDSC404M :Animal Husbandry and Livestock Production**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Animal Husbandry</b>	Credit
<ul style="list-style-type: none"><li>• Concept, Scope &amp; Importance towards Rural Development; Different types of animal resources</li><li>• Region specific election of livestock resources, Present status of animal resources in India, Fertility in livestock and reproductive behaviour, Selection and breeding of livestock, Important exotic and Indian breeds of livestock</li><li>• Constraints of Animal husbandry practices in India, Opportunities of future development of livestock production towards sustainable development</li></ul>	1
<b>Unit II: Management of livestock resources</b> <ul style="list-style-type: none"><li>• Dairy Cattle and Buffalo Management, Management of Sheep and Goat.</li><li>• Poultry production &amp; management. Concept of Piggery</li><li>• Diseases and Control Mechanisms: Vaccination for Cattle &amp; Poultry, Sanitation and care,</li></ul>	1
<b>Unit III: Livestock production</b> <ul style="list-style-type: none"><li>• Livestock Production – concept and importance in the rural economy; Important Livestock products</li><li>• Different livestock products and origin of products, Need of livestock production in Indian context</li><li>• Concept of Dairy Development Board, White revolution, National livestock mission</li></ul>	1
<b>Practical:</b> <ul style="list-style-type: none"><li>• Visit to Dairy / livestock farm and preparation of report based on field based data</li><li>• Preparation of report on livestock products and its production process</li></ul>	2

### **Suggested Readings:**

- 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

**Course: ARDDSC405M : Fundamentals of Horticulture, Sericulture and Fishery**

Theory: 3 credits      Practical: 2 Credits

<b>Unit I: Fundamentals of Horticulture</b>	Credit
<ul style="list-style-type: none"> <li>• Horticulture: Concept, Branches of horticulture, Importance and scope of horticulture in Indian context, Horticulture and human nutrition</li> <li>• Concept of Floriculture and pomology, nursery, Management of plants at nursery, Planting system, Pruning system, Orchards-types, Management-training and pruning,</li> <li>• Orchards-types, Management-training and pruning, Production procedures of vegetable crops-Brinjal, Chili, Potato, Onion</li> </ul>	1
<p><b>Unit II: Sericulture and Apiculture</b></p> <ul style="list-style-type: none"> <li>• Sericulture: Characteristics, scope, types of silk worms, host plants. Life history and rearing ; Cocoon production and reeling.</li> <li>• Disease and pest management of mulberry and silkworm. Research and Development of Sericulture in India</li> <li>• Apiculture: scope and Characteristics, Morphology structural adoption. Honey bee rearing, disease and pest management</li> </ul>	1
<p><b>Unit III: Fishery</b></p> <ul style="list-style-type: none"> <li>• Definition and scope of fishery. Resources of India (inland and offshore). Exotic fishes, fish breeding. Major fishes in Indian market</li> <li>• Fish market in India and overseas, Fish handling and processing, constraints of fish production in India</li> <li>• Polyculture, Fish based integrated farming system-importance, models</li> </ul>	1
<p><b>Practical:</b></p> <ul style="list-style-type: none"> <li>• Visit to Sericulture/ Fishery/ horticulture farm and prepare a report.</li> <li>• Assignment on present post-harvest management of horticultural crops in India.</li> </ul>	2

**Suggested Readings:**

- 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

**Course: ARDDSC406M : Rural Economics**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Basic concepts of micro-economics</b>	Credit
<ul style="list-style-type: none"> <li>• Economic issues: Fundamental economic concepts (human want, consumption, utility, money, income, welfare, savings, production, business cycle, inflation etc); Types of economic systems (Traditional, Command, Pure Market, Mixed, Capitalist, Socialist); Economic Agents, Economic Ideas &amp; Scarcity.</li> <li>• Demand and Supply: Laws of demand- Determinants of demand, Law of supply, Determinants of supply, Determination of price through Demand-Supply Interaction.</li> <li>• Elasticity of demand and supply: price elasticity, income elasticity, cross elasticity- concept, determinants, importance.</li> </ul>	1
<b>Unit II: Basic concepts of macro-economics</b> <ul style="list-style-type: none"> <li>• Concepts and estimation of national income: GDP, GNP, GNI and PCI; Circular flow of income.</li> <li>• Inflation &amp; central banking, Commercial Banks, Fiscal policy.</li> <li>• Budget: Public Expenditure &amp; Debt, Direct and indirect taxation.</li> </ul>	1
<b>Unit III: Rural Economy</b> <ul style="list-style-type: none"> <li>• Definitions, Concept &amp; Structure of rural economy (agricultural and non-agricultural sectors)</li> <li>• Rural Infrastructures: Health, education, rural roads, water and sanitation.</li> <li>• Rural credit: institutional and non-institutional sources (NABARD, RRBs, Commercial Banks, Cooperatives) - typology, characteristics. Microfinance.</li> </ul>	1
<b>Unit IV: Practical</b> Assignment: Based on official sample survey (eg. NSSO/NFHS/DLHS etc) prepare a report on any rural economic issues in about 1500-2000 words.	2

**Suggested Readings**

- Lipsey Richard and Alec Chrystal (2015) Economics 13<sup>th</sup> Edition, Oxford University Press, Oxford.
- India Rural Development Report 2012-13, IDFC Rural Development Network, ORIENT Blackswan, 2013.
- Chand Ramesh, S. K. Srivastava and Jaspal Singh (2017) Changing Structure of Rural Economy of India Implications for Employment and Growth, Discussion paper, NITI Aayog

**Course : ARDDSC407M : Rural Sociology**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I: Introduction to Rural Sociology:</b> <ul style="list-style-type: none"><li>• Introduction to Sociology – Concept of rural sociology, emergence, significance; Differences between rural and urban societies</li><li>• Concept of social capital; Components of social capital; Role of social capital in rural development</li><li>• Social change as a product of: sanskritisation, westernization, modernization, industrialization, de-tribalization, urbanization and globalization in rural India</li></ul>	<b>1</b>
<b>Unit II: Rural Society:</b> <ul style="list-style-type: none"><li>• Important Rural Social Institutions: Family, Marriage .Religion.</li><li>• Concept of social stratification, agrarian class, phenomenon of caste; Tribal Community: concept, features, safeguards</li><li>• Emergence of the rural middle class</li></ul>	<b>1</b>
<b>Unit III Rural Social Problems in India</b> <ul style="list-style-type: none"><li>• Illiteracy</li><li>• Child Labor and Child Marriage,</li><li>• Violence against Women and elderly .</li></ul>	<b>1</b>
<b>Unit IV: Practical Assignment :</b> <p>Visit to a village and submit a Report on the social structure and prevalent rural social problems in the selected village. It should be based upon a survey of at least 30 sample households along with panchayat level data. The study should seek to collect data related to rural social structure and problems of the village ,analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized Report within 1500-2000 words</p>	<b>2</b>

**Recommended Books:**

- 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, Atlantic Publishers & Distributors,1997.
- Rural Sociology by Narang, Ashok
- Rural Sociology by Doshi and Jain
- Introductory Rural Sociology: A Synopsis of Concepts & Principles, Wiley Eastern,1976
- Tribal Communities and Social Change by P.M. Chacko, Sage, 2005 •
- Social Problems in India by Ram Ahuja, Rawat •
- Tribal Life in India, Bose, N.K. 2020 5th ed (updated by Tripathi, C.B.), National Book Trust

## Semester-V

### Course: ARDDSC508M : Agricultural Production and Plant Protection

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Farming System</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Definition, types and methods of farming; Fertilizer application</li><li>• Sustainable agriculture: scope and advantages; Fertilizer application &amp; cropping for sustainable agriculture; Modern agricultural technologies</li><li>• Seed Technology: History, importance, characteristics and classification of seed, grain bank</li></ul>	<b>1</b>
<b>Unit II: Plant Protection measures</b> <ul style="list-style-type: none"><li>• Plant Protection: Preliminary knowledge, disease management of Potato, Wheat, Rice,</li><li>• Integrated Disease Management (IDM), Integrated Pest Management (IPM),</li><li>• Weed management, Food Preservation Processes-Importance, Process, Cold storage</li></ul>	<b>1</b>
<b>Unit III: Plant protection and management</b> <ul style="list-style-type: none"><li>• Production Technology: Scope &amp; Importance, Production Technology of Rice, Wheat, Turmeric, Ginger, Coconut, Tea</li><li>• Post Harvest Technology: Importance, advantages &amp; disadvantages, Food Preservation processing and green house technology</li></ul>	<b>1</b>
<b>Unit IV: Practical Assignment</b> <p>Identification of different plant diseases of agriculture crop and preparation of note book based on field observation</p>	<b>2</b>

#### Suggested Readings:

- 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



## Course: ARDDSC509M : Rural Marketing and Farm Business Management

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Rural Marketing</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Concept of Rural Marketing; Classification of rural markets; characteristics of Rural Markets, rural market segmentation; classification of rural products and their characteristics.</li><li>• Rural consumer behaviour: factors affecting rural consumer behaviour, concept of brand loyalty.</li><li>• Rural marketing strategies: product strategies, pricing strategies, distribution strategies, promotion strategies. Concept of Rural marketing management.</li></ul>	<b>1</b>
<b>Unit II: Farm Business Management</b> <ul style="list-style-type: none"><li>• Farm Business: Concept, importance, characteristics of farm manager, concept of farm as a firm</li><li>• Production function, product-product relationship, Cost concept, Cost-Product relationship, Iso-product, Iso-cost line</li><li>• Production possibility curve, Law of diminishing return, Land, Labour, capital relationship, Farm size, Productivity and Efficiency</li></ul>	<b>1</b>
<b>Unit III: Agricultural Marketing and Farm Business</b> <p>Marketing of agricultural inputs and output; concept of agribusiness.</p> <ul style="list-style-type: none"><li>• Cost –benefit analysis of a farm, methods of computing depreciations, net worth statement,</li><li>• Farm financial accounts, income statement, Net worth statement, measures of farm income</li></ul>	<b>1</b>
<b>Unit IV: Practical Assignment</b> <ul style="list-style-type: none"><li>• Visit to Rural Farm and prepare an asset statement and farm accounting</li><li>• Preparation of effective farm business plan</li></ul>	<b>2</b>

### Suggested Readings:

- 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. 10
- Rural marketing in India, Habeeb-Ur-Rahman, K.S. Himalaya Publishing House
- Rural Management by K. B. Gupta, Faizia Siddiqui and Iftikhar Alam, CBS Publishers and Distributors Pvt. Ltd
- Rural Marketing by Pradeep Kashyap, Pearson Publisher.

## Course: ARDDSC510M: Fundamentals of Agricultural Extension

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Agricultural Extension Education</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Definition, Scope, Objectives, Philosophy, &amp; Principles, Extension Education Process</li><li>• Extension teaching methods: concept, classification, advantage and limitation of each method</li><li>• Concept of market led extension, cyber extension, extension through PPP model, agro-clinics</li></ul>	1
<b>Unit II: Adoption of Innovation</b> <ul style="list-style-type: none"><li>• Innovation-Concept, function and meaning, attributes of innovation</li><li>• Adoption and Diffusion of innovation: concept, Adoption process, adoptor categories</li><li>• Extension programme planning-concept, steps, importance</li></ul>	1
<b>Unit III: Communication in Participatory development</b> <ul style="list-style-type: none"><li>• Communication-importance, components models of communication, different types of communicators</li><li>• A-V aids- importance, types, Use of communication materials in participatory development</li><li>• PRA-concept, tools-Social map, resource map, veen diagram, transact walk, seasonal calendar, crop calendar</li></ul>	1
<b>Unit IV: Practical Assignment</b> <ul style="list-style-type: none"><li>• Preparation of extension materials –leaflet and poster based on agriculture/rural issues.</li><li>• Conduct PRA and prepare maps, diagrams and report.</li></ul>	2

### Suggested Readings

- 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.
- Fundamentals of Agriculture Extension by Sagar Mondal, Kalyani Publishers
- Participatory rural appraisal and questionnaire survey, Neela Mukherjee Concept

## Course:ARDDSC511M:Research Methodology and Elementary Statistics

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Social Science research</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Research-concept, research problems, Characteristics of researcher, steps of research, biasness</li><li>• Data-types, sources, Variables-types, relationship, Measurement scale-nominal, ordinal, interval and ratio</li><li>• Hypothesis-need, types, hypothesis formation, error in hypothesis</li></ul>	<b>1</b>
<b>Unit II: Data collection and quantitative analysis</b> <ul style="list-style-type: none"><li>• Data-quantitative and qualitative, different types of data collection tools, Validity and reliability</li><li>• Tabulation of data, frequency distribution and percentage analysis and representation of graphs</li><li>• Measure of central tendency-Mean, median mode, measures of dispersion-Mean deviation, standard deviation, quartile deviation, skewness, kurtosis</li></ul>	<b>1</b>
<b>Unit III: Association and hypothesis test</b> <ul style="list-style-type: none"><li>• Correlation-types, correlation coefficient, Regression-concept, Difference between correlation and regression</li><li>• Parametric and non-parametric data, different parametric and non-parametric test of hypothesis</li><li>• Research report preparation process</li></ul>	<b>1</b>
<b>Unit IV: Practical Assignment</b> <ul style="list-style-type: none"><li>• Preparation of data collection tools and conduct field survey</li><li>• Perform different statistical tests with the help of statistical software</li></ul>	<b>2</b>

### Suggested Readings:

- Research Methods in Social Sciences and Extension Education by G.L. Ray & Sagar Mondal
- Research Methodology by C. Murthy
- Fundamentals of Statistics by H. Mulholland & C. R. Jones, Butterworth – Heinmann, 1968
- Fundamentals of Statistics by Goon, Gupta, Dasgupta, World Press, 1968, Vol – 1
- 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 Melville, 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
- Research Methodology: Methods & Techniques by C.R. Kothari

## Semester-VI

**Course : ARDDSC612M :Rural Entrepreneurship Development**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I Rural Entrepreneurship:</b> <ul style="list-style-type: none"><li>• Rural Entrepreneurs and Entrepreneurship - definition, characteristics, classification, growth of rural entrepreneurs</li><li>• Entrepreneurship: definition, meaning and scope; classification, determining factors</li><li>• Challenges, problems and prospects of Rural Entrepreneurship</li></ul>	<b>1</b>
<b>Unit II: Entrepreneurship development:</b> <ul style="list-style-type: none"><li>• Entrepreneurship development process: Entrepreneurial personality, knowledge and skill.</li><li>• Factors affecting Entrepreneurial development</li><li>• Women Entrepreneurship Challenges and prospects: Government schemes for Entrepreneurship development</li></ul>	<b>1</b>
<b>Unit III: Entrepreneurship Development in India</b> <ul style="list-style-type: none"><li>• Scope of Entrepreneurship Development in India</li><li>• Government Policies and Programmes for Entrepreneurship Development in India: DDUGKY, MSME - Meaning, Importance, Features, and Challenges</li><li>• Role of NGO in Rural Entrepreneurship.</li></ul>	<b>1</b>
<b>Unit IV: Practical Assignment</b> <p>Visit to a village and submit a Report on the entrepreneurship development in the selected village. It should be based upon a survey of at least any one Governmental and / an NGO/SHG entrepreneurship on its origin , objectives, structure of the organization and present status relating to govt assistance and its performance.The study should seek to collect data related to problems and prospects of such entrepreneurship functioning in the village ,analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized Report within 1000 words.</p>	<b>2</b>

### **Recommended Books:**

- Entrepreneurship by R.V. Badi & N.V. Badi
- Entrepreneurship and Rural Women in India by Jitendra Ahirrao
- Women Entrepreneurs - Problems and Prospects by , Dhillon, P.K, 1993. Blaze Publishers and distributors Pvt. Ltd., New Delhi
- Rural Entrepreneurship Development in Liberalized era by Dwiredi A.K., Anitha.S.2012,, Book well Publishers, New Delhi
- Entrepreneurship Development by Sangeetha Sharma, 2018,, PMT Learning Publishers New Delhi.
- , Entrepreneurship Development by Sanjay R. Ajmeri, 2015, Lulu.Com

**Course: ARDDSC613M- Environment & Natural Resources**

Theory: 4credits      Continuous evaluation: 1 Credit

<b>Unit I: Introduction to Natural Resource</b>	<b>Credit</b>
<ul style="list-style-type: none"> <li>• Concept of natural resources, Renewable and Non-renewable resources; Economics of Natural Resources</li> <li>• Land resources and water resources: concept, typology, environmental issues pertaining to land and water resource exploitation. Common Property Resources: Concept.</li> <li>• Rural energy: types, extent of usage, Major rural energy programmes in West Bengal (WBREDA)India:. Biogas, Improved Chulhas and solar energy.</li> </ul>	<b>1</b>
<p><b>Unit II: Environmental Issues and Challenges</b></p> <ul style="list-style-type: none"> <li>• Pollution and Environmental Degradation: types, extent. Biodiversity loss.</li> <li>• Climate Change : Concept , effects and mitigation and Sustainable Development; Concept of socio-ecological systems.</li> <li>• Environment Management, Disaster Management: fundamental concepts.</li> </ul>	<b>1</b>
<p><b>Unit III: Natural Resource Conservation</b></p> <ul style="list-style-type: none"> <li>• Joint Forest Management: concept, salient features</li> <li>• Watershed Management: concept, salient features</li> <li>• Policy instruments for natural resource management: Environment policies in the Global Prospective, Environmental Policies and Programmes in India.</li> </ul>	<b>1</b>
<p><b>Unit IV: Practical Assignment</b></p> <p>Village level Natural Resource Survey Report</p> <p>The report may be based on preparing an inventory of the natural resources present and their mode of exploitation by the community. It must include the following:</p> <ul style="list-style-type: none"> <li>• Sketch/mapping of the current resources and classifying them meaningfully preferably into broad land cover classes (eg. tree/forest, grazing land, orchards, canals, ponds, wells, farmland, soil classes etc)</li> <li>• Trace the change in the quality and extent/availability over the past few years</li> <li>• Assess the drivers of change in the resources present</li> <li>• Identification of the resource management practices and ownership issues</li> </ul>	<b>2</b>

<p>The report must use mixed methods of enquiry. It should comprise of the following:</p> <ul style="list-style-type: none"> <li>a) Interviews (about 4-6) of local Panchayat Pradhan/ Government officials and members of the community who are resource users.</li> <li>b) A brief questionnaire survey canvassed for at least 30 households.</li> <li>c) PRA techniques to accomplish the mapping exercise.</li> </ul>	
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**Suggested Readings:**

- Environment, Natural Resources and the Indian Economy by Amarendra Das and Padmaja Mishra, New Century Publications.
- Climate Change, Agriculture and Food Security (CCAFS) Village Baseline Study – Site Analysis Report (cgiar.org)
- CCAFS baseline survey data and materials (cgiar.org)

**Course:ARDDSC614M : Sustainable Agriculture**

Theory: 3 Credits      Practical: 2 Credits

<p><b>Unit I: Concept of sustainability</b></p> <ul style="list-style-type: none"> <li>• Concept of sustainable agriculture-Social,economic and environmental sustainability, dimensions of sustainability, Need, importance</li> <li>• Sustainability and natural farming, Cropping system in sustainable agriculture</li> <li>• Sustainable resource management</li> </ul>	<b>Credit</b>
	1
<p><b>Unit II: Organic farming</b></p> <ul style="list-style-type: none"> <li>• Organic Farming: Definition, Concept, Merits and Demerits; importance</li> <li>• Organic manures, types, preparation and application of compost, FYM,vermicompost, vermiwash, green manure</li> <li>• Bio – fertilizer ; liquid manure ; Pest and disease management in organic farming</li> </ul>	<b>1</b>
<p><b>Unit III: Production practices in sustainable agriculture</b></p> <ul style="list-style-type: none"> <li>• Production of field crops through sustainable farming practices</li> <li>• Concept of kitchen garden, medicinal plants</li> <li>• Integrated farming-concept, models; crop-livestock-fish integration</li> </ul>	<b>1</b>
<p><b>Unit IV: Practical Assignment</b></p> <ul style="list-style-type: none"> <li>• Visit to an integrated farm and prepared a report based on field level data</li> <li>• Visit to an organic manure production unit and prepare a report based</li> </ul>	<b>2</b>

on field level observations.	
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**Suggested Readings:**

- Organic Farming: How to Raise, Certify and Market Organic Crops and Livestock by Peter V. Fossel, Voyageur Press
- Principles of Organic Farming by SR Reddy, Kalyani Publishers
- Sustainable Market Farming by Pam Dawling

**Course:ARDDSC615M : Rural Livelihood**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Concepts and framework</b>	<b>Credit</b>
<ul style="list-style-type: none"> <li>• Livelihood: Concept and Definition and issues of rural livelihood</li> <li>• Framework of livelihood analysis, Sustainable Rural Livelihood concept and framework,</li> <li>• Rural Livelihood Diversification</li> </ul>	<b>1</b>
<p><b>Unit II: Rural Poverty</b></p> <ul style="list-style-type: none"> <li>• Concept of Poverty, Rural Poverty Indicators; Measures of Rural Poverty,</li> <li>• Causes of Rural Poverty. Poverty trap.</li> <li>• Rural Poverty in India: Nature, Causes and Alleviation Measures.</li> </ul>	<b>1</b>
<p><b>Unit III: Institutions and Policies for rural livelihoods</b></p> <ul style="list-style-type: none"> <li>• National Rural Livelihood Mission</li> <li>• Globalization, macro-policies and rural livelihoods</li> <li>• NGOs in rural livelihood promotions</li> </ul>	<b>1</b>
<p><b>Unit IV: Practical Assignment</b></p> <p>Report on Livelihood Analysis of a Household/Community  The report must be prepared based on at least 30 sample households as well as village level data. The report may focus upon livelihood mapping, understanding the existing livelihoods, emerging changes in the seasonality of the livelihoods, the income/days of work provided by the livelihoods, livelihood outcomes (eg. income), importance of the different livelihood activities in the village (in terms of income, no. of people engaged etc). Statistical techniques may be used to explore causality and relationships,</p>	<b>2</b>

**Suggested Readings:**

- Frank Ellis (2000) Rural Livelihoods and Diversity in Developing Countries, Oxford University Press.

- P.S.Swathilekshmi Livelihood analysis –tools in Winter School on ICT-oriented Strategic Extension for Responsible Fisheries Management[ICT\_Oriented\_Strategic\_Extension\_for\_Responsible\_Fisheries\_Management\_Manual-225-234.pdf (cmfri.org.in)]
- Gaur Seema and N Srinivas Rao (2020) Poverty Measurement In India:A Status Update [WorkingPaper\_Poverty\_DoRD\_Sept\_2020.pdf (rural.nic.in)]
- Rural Development: Concept & Recent Approaches by Sujit Kumar Paul, Concept Publication, New Delhi (2015)



## Semester-VII

**Course : ARDDSC716M : Field Survey**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I: Survey method using Qualitative Techniques</b> 1. Tools of Data Collection: Skills and techniques; Observation – Participant and Non- participant 2. Preparation of interview schedule and semi structured questionnaire 3. Data analysis – Transcribing and Report writing	<b>1</b>
<b>Unit II: Participatory Methods</b> 1. Participatory Research : RRA/PRA/PLA: Concept Principles ,and significance 2. Tools and Techniques 3. Merits and demerits	<b>1</b>
<b>Unit III: Group Methods</b> 1. Focus Group Discussion : Principles, Concept and Objectives 2. Tools and Techniques 3. Merits and demerits	<b>1</b>
<b>Unit IV: Practical Assignment :</b> Visit to a village and collection of data through- Personal Interview, Group interview, Questionnaire in the selected village on any vital contemporary issue. The study should then analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized report within 1000 words	<b>2</b>

### **Suggested Readings :**

- Doing Qualitative Research by Crabtree & Miller (ed ) 2000.Sage Publications New Delhi.:
- Handbook of Qualitative Research by Denzin & Lincoln (eds) 2000.: Sage Publications New Delhi
- Participatory rural appraisal and questionnaire survey by Neela Mukherjee Concept
- Census of India: <https://censusindia.gov.in/census.website/data/census-tables>

## Course: ARDDSC717T: Women & Rural Development

Theory: 4 credits      Continuous evaluation: 1 Credit

<b>Unit I: Status of women in rural society</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Women and education- Gender bias in enrolment, dropouts Need and barriers of female education in the Rural Economy, government policies for women's/girl's education</li><li>• Health and nutrition: status of rural women, government policies for women's health and nutrition</li><li>• Gender equality in 2030 for sustainable development</li></ul>	1
<b>Unit II: Women and Rural Work</b> <ul style="list-style-type: none"><li>• Concept of women's work: paid and unpaid work. Gender division of labour.</li><li>• Women's work participation in agriculture and non-agricultural sectors</li><li>• Impact of economic reforms on women's work</li></ul>	<b>1.5</b>
<b>Unit III: Empowerment of Rural Women</b> <ul style="list-style-type: none"><li>• Women empowerment: Concept and determinants, Approaches, indicators.</li><li>• Role of women in Panchayati Raj system</li><li>• Empowerment of Rural Female, Decision Making of Women, self-help groups, women and leadership; Govt. Initiatives for Women empowerment in the context of India</li></ul>	<b>1.5</b>

### Suggested Readings:

- 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.
- Pahl, R. E. (1988): On Work: Historical, Comparative and Theoretical Approaches, Basil Blackwell, New York.
- Jenkins, Sarah (2004): Gender, Place and the Labour Market, Ashgate.

## Semester-VIII

### Course: ARDDSC818T :Rural Health

Theory: 4 credits      Continuous evaluation: 1

<b>Unit I: Concept of Rural Health</b>	<b>Credit</b>
<ul style="list-style-type: none"><li>• Rural Health: conceptual issues ; Importance of Rural Healthcare ;</li><li>• Different types of health care: Preventive health care, curative health, Reproductive health, maternal and child health</li><li>• Health care structure in India,WHO and Rural health</li></ul>	1
<b>Unit II: Health indicators and health communication</b> <ul style="list-style-type: none"><li>• Indicators of Health : Infant Mortality, Child Mortality, MMR Life Expectancy: Concept and importance</li><li>• Disease Intensity in the Rural areas, Major health care issues</li><li>• Health communication: importance, delivery mechanism, Communication failure, concept of IEC and BCC material</li></ul>	<b>1.5</b>
<b>Unit III: Rural health policies and programmes</b> <ul style="list-style-type: none"><li>• Major issues on Rural Health care System</li><li>• Role of Nutrition, Sanitation and Drinking Water in rural healthcare: ICDS, Swatch Bharat Mission, NRDWP</li><li>• Rural Health Policies and Programmes- NHM, RCH,JSY</li></ul>	<b>1.5</b>

#### Suggested Readings:

- Handbook of Rural Health by Satish Laxmanrao Kodape, AITBS Publishers
- 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.

### Course : ARDDSC819M :Population Studies

Theory-4 Credits Practical-2 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I: Introduction to Population Studies:</b> <ul style="list-style-type: none"><li>• Demography: Meaning, Scope, Significance;</li><li>• Population dynamics (natural increase and migration) ; Population growth and development;</li><li>• Sources of Population Data: Census, Civil Registration System, Sample Registration System, National Sample Survey.</li></ul>	<b>1</b>
<b>Unit II: Population and sustainable rural development</b>	<b>1</b>

<ul style="list-style-type: none"> <li>• Demographic Processes: Vital Statistics Fertility &amp; Mortality, Age sex composition and types of population pyramids</li> <li>• Rural Urban Migration: Nature and Causes (Indian Context).</li> <li>• National Population Policy 2000 in India: Salient features .</li> </ul>	
<b>Unit III: Spatial Distribution of Population in India:</b> <ul style="list-style-type: none"> <li>• Measures of density and concentration;</li> <li>• Factors affecting spatial distribution</li> <li>• Temporal changes in density and concentration.</li> </ul>	<b>1</b>
<b>Unit IV: Practical Assignment :</b> Submit a Report on the Population dynamics in the selected village. It should be based upon a survey of at least 30 sample households along with panchayat level data on Vital Statistics. The study should analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized Report within 1000 words	<b>2</b>

### Suggested Readings:

- 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

### Course : ARDDSC820M : Agricultural Botany

Theory: 3 Credits      Practical: 2 Credits

<b>Unit I: Basics of plant physiology</b>	<b>Credit</b>
<ul style="list-style-type: none"> <li>• Agriculture Botany: Conceptual Issues; Cell structure and function,</li> <li>• Photosynthesis process, role of different enzymes in photosynthesis</li> <li>• Osmosis, Absorption of water and mineral salts, Water movement in plant body</li> </ul>	<b>1</b>
<b>Unit II: Plant Genetics</b> <ul style="list-style-type: none"> <li>• Definition, Mendel's law of heredity, cell division-Mitosis and meiosis</li> <li>• Chromosomal theory of inheritance, Linkage and crossing over-types</li> <li>• Structure of DNA, concept and importance of genetical engineering</li> </ul>	<b>1</b>
<b>Unit III: Plant Breeding</b> <ul style="list-style-type: none"> <li>• Plant Breeding- objectives and scope,</li> <li>• Mode of reproduction in crop plants in relation to breeding techniques</li> <li>• Plant tissue culture, Micropropagation</li> <li>• Application of plant genetic engineering in crop improvement</li> </ul>	<b>1</b>

<b>Unit IV: Practical Assignment</b>	<b>2</b>
<ul style="list-style-type: none"> <li>• Prepare permanent slides of different stages of cell division</li> <li>• Identification of different components of cell and different stages of cell divisions</li> </ul>	

**Suggested Readings:**

Plant Breeding: Principles & Methods by B. D. Singh

- Introduction to Botany by Haith & Bhattacharya
- Fundamentals of Plant Biotechnology by Saras Publication

**Course : ARDDSC821M :Rural Culture & Heritage**

Theory: 3 Credits      Practical: 2 Credits

<b>Unit</b>	<b>Credit</b>
<b>Unit I Rural Culture</b> <ul style="list-style-type: none"> <li>• Key Concepts of Culture : Material and Non Material Culture; Tangible and intangible culture.</li> <li>• Cultural Processes: Cultural Assimilation, Integration and Acculturation; Cultural Segregation and Cultural Regeneration, Cultural diffusion</li> <li>• Cultural Diversity and Cultural Landscape.</li> </ul>	<b>1</b>
<b>Unit II: Rural Heritage</b> <ul style="list-style-type: none"> <li>• Key Concepts of Rural Heritage: Tangible and intangible;</li> <li>• Folk heritage and culture</li> <li>• Craft and Handicraft based products</li> </ul>	<b>1</b>
<b>Unit III: Rural Culture &amp; Heritage of West Bengal</b> <ul style="list-style-type: none"> <li>• Village as a Primary Tourism Product, Showcasing Rural Life, Art, Culture and Heritage.</li> <li>• Fairs Festivals, Handicrafts as attractions to Rural Tourism</li> <li>• Benefits and Sustainable Development of Rural Tourism through rural culture and heritage</li> </ul>	<b>1</b>
<b>Unit IV: Practical Assignment :</b> Visit to suitable rural area/ heritage site showcasing rural art and handicrafts, culture (fairs/ festivals)and heritage. Submit a Report based on the observations of the artifacts and the community involved , analyze the data, prepare suitable representations of the results and interpret the same to prepare a well organized Report within 1000 words	<b>2</b>

**Suggested Readings :**

- Nicholas Ralph *Thirteen festivals: a ritual year in Bengal*, Orient Blackswan
- Tarapada Santra: *Folk Arts of West Bengal and the Artist Community*. Niyogi Books
- Bhabesh Das Gupta,2002, *Folk Culture of West Bengal*