ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
CBCS Pattern (From 2019-2020 onwards)
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

SEMESTER I				
Part	**Sub. Code**	**Title of the Paper**	**Hours**	**Credits**
I	19UTAL11/ 19UHNL11/ 19UFNL11	Tamil/Hindi/French	5	4
II	19UENB11	English through Prose & Short Story – Stream - B	5	4
III	19URDC11	Core-1 Fundamentals of Life Sciences	5	4
	19URDC21	Core-2 Basics of Farm Animal Management	5	4
	19URDP11	IRD Practical	2	2
	19URDA11	Allied-1 Introduction to Rural Society	5	4
IV	19UFCE11	FC – Personality Development	1	1
	19UCSH12	Communication Skill	1	-
	19USSI16	Basic Professional Skills	1	-
V	19UNCC/NSS/ PHY.EDU./ YRC/ ROT/ACF/NCB12	Extension Activities NCC/NSS/Phy.Edn./ YRC /ROTARACT/AICUF/Nature Club	-	-
	19UBRC11	Bridge Course	-	1
		Total	**30**	**24**
SEMESTER II				
I	19UTAL22/ 19UHNL22/ 19UFNL22	Tamil / Hindi /French	5	4
II	19UENB22	English through Prose & Short Story – Stream - B	5	4
III	19URDC32	Core-3 Dynamics of Rural Development	5	4
	19URDC42	Core-4 Introduction to Agriculture	5	3
IV	19URDP22	IRD Practical	2	2
	19URDA22	Allied-2 Energy Science	5	4
	19UFCH22	FC – Social Responsibility and Global Citizenship	1	1
	19UCSH12	Communication Skill	1	1
	19USSI26	Self-Development Skills	1	-
	19UNCC/NSS/ PHY.EDU./YRC/ ROT/ACF/NCB12	Extension Activities NCC/NSS/Phy.Edn./ YRC /ROTARACT/AICUF/Nature Club	-	1
		Total	**30**	**24**

SEMESTER III				
III	19URCA53/ 19URCH53/ 19URCS53	Core-5 Agronomy of Field Crops/ Dairy Husbandry/ Participatory Rural Appraisal	4	3
IV	19URCA63/ 19URCH63/ 19URCS63	Core-6 Agronomy of Horticultural Crops/ Milk and Milk Products/Gender, Society and Development	4	3
	19URCA73/ 19URCH73/ 19URCS73	Core-7 Agricultural Entomology / Farm Management Practice-I /Human Behaviour in Rural Society	4	3
	19URAP33/ 19URHP33/ 19URSP33	IRD Practical	5	4
V	19URDA33	Allied-3 Community Based Disaster Management	5	4
	19URDN13	NME-1 Contemporary Social Problems in India (for Science students)	3	2
	19USBZ13	SBE-1- Fundamentals of Computer, Internet and Office Automation	1	1
	19USBY13	SBE-1- Fundamentals of Computer, Internet and Office Automation – Practical	2	1
	19UFCE34	Environmental Studies	1	1
	19USSI36	Emotional & Motivational Skills	1	
	19UNCC/NSS/ PED/YRC/ROT/ ACF/NCB12	Extension Activities NCC / NSS / Phy.Edn. / YRC / ROTARACT / AICUF / Nature Club	-	-
	19UARE14	ARISE	-	-
		Total	**30**	**22**
SEMESTER IV				
III	19URCA84/ 19URCH84/ 19URCS84	Core-8 Plant Pathology/ Poultry Husbandry/ Rural Economics	4	3
IV	19URCA94/ 19URCH94/ 19URCS94	Core-9 Organic Farming/ Pig Farming / Science and Technology for Rural Development	4	3
	19URCA04/ 19URCH04/ 19URCS04	Core-10 Agricultural Bio-Technology / Farm Management Practice-II / Youth Empowerment and Policies	4	3
	19URAP44/ 19URHP44/ 19URSP44	IRD Practical	5	4
V	19URDA44	Allied-4 Communication and Extension	5	4
	19URDN24	NME-2 Food Preservation	3	2
	19USBZ24	SBE-1- Web Design	1	1

	19USBY24	SBE-1- Web Design – Practical	2	1
	19UFCH44	Religious Literacy and Peace Ethics	1	1
	19USSI46	Stress & Time Management	1	
	19UNSS/NCC/ PED/YRC/ROT/ ACF/NCB12	Extension Activities NSS / NCC / Phy.Edn. / YRC / ROTARACT / AICUF / Nature Club	-	1
	19UARE14	ARISE	-	1
		Total	**30**	**24**
SEMESTER V				
III	19URDD15	Core-11 Social Welfare Administration	6	5
	19URDD25	Core-12 Community Based Organisation	4	3
	19URDD35	Core-13 Rural Social Problems	4	3
	19URDD45	Core-14 Social Research Methodology	**6**	**5**
	19URDP55	IRD Practical	**5**	**5**
	19URDE15	Core Elective-1 Commercial Agriculture	4	3
	19USSI56	Interview & Group Discussion Skills	1	
		Total	**30**	**24**
SEMESTER VI				
III	19URDD56	Core-15 Development of the Marginalised	6	5
	19URDD66	Core-16 Corporate Social Responsibility for Rural Development	5	4
	19URDD76	Core-17 Rural Community Health	4	3
	19URDD86	Core-18 Rural Industries and Management	**5**	**4**
	19URDP66	IRD Practical – 15 day internship programme	**5**	**5**
	19URDE26	Core Elective-2 Marketing of Animal Products	4	3
	19USSI66	Leadership & Team Building Skills	1	2
		Total	**30**	**26**

SEMESTER	**I**	**II**	**III**	**IV**	**V**	**VI**	**TOTAL**
CREDITS	**24**	**24**	**22**	**24**	**24**	**26**	**144**

Part – I	08
Part – II	08
Part – III	
Core	87
Allied	16
Core Electives	06
Total	108

Part – IV

Non-Major Electives	04
Skill based Electives	04
Value Education	04
Total	12

Part – V 02

Bridge Course	01
Arise	01
Communication Skill	01
Soft Skill	02

SELF LEARNING COURSES			
Semester	**Sub.Code**	**Paper**	**Credit**
III	19URDSL3	Human Rights	3
IV	19URDSL4	Aquaculture	3
V	19URDSL5	Mushroom Production	3
VI	19URDSL6	Milk Products	3

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: I B.Sc., RDS	Part	: III Core-1
Semester	: I	Hours	: 75
Sub. Code	: 19URDC11	Credits	: 04

FUNDAMENTALS OF LIFE SCIENCES

(Outcome based syllabus under CBCS structure for the students admitted from the academic year 2019-2020)

Course Educational Objectives

1. Learning the definition of Biomolecules their structure, types, sources, importance and function in living organisms
2. Study the cell structure, differences of Plant and Animal cells basic concept of Genetics, Mendelian principle and hereditary units structure and functions
3. Understanding the system physiology in plants and animals, pathway and organelles involved in System physiological process
4. Educate of Microorganism their size, shape, structure and organelles, Importance's of microorganism
5. Describe the flow of nutrients in biogeo chemical cycles, interaction of atmosphere with solid earth, ocean and biota

Unit - I Biomolecules **(25 hours)**

Carbohydrates –Monosaccharide, Disaccharide, Polysaccharide; Proteins – Types, Importance of proteins; Lipids -Types, Importance of Lipids; Vitamins – Types of water and fat soluble vitamins – sources and Importance.

Unit – II Cell Biology **(20 hours)**

Cell - Structure and functions of plant and animal cells - Inheritance of Characters – Mendelian principles, Chromosomes, Heriditary material – DNA and RNA – structure and functions.

Unit – III System Physiology **(15 hours)**

Photosynthesis, Respiration in plants and animals, Digestion in animals, Excretion in animals, Reproduction in plants and animals.

Unit – IV Microbiology **(5 hours)**

Microorganisms – Bacteria and Viruses – Importance.

Unit – V Bioresources **(10 hours)**

Biogeo chemical cycles - Definition - Carbon Cycle, Nitrogen cycle, Phosphorus Cycle and Hydrological Cycle.

References

Arora, M.P., **Microbiology**, Himalaya Publishing House, Mumbai, 2005.

Ambika Sanmugam, **Fundamentals of Biochemistry**, Wolters Kluwer, India, 2005.

Ananthakrishnan, **Bioresources Ecology**; Oxford University, Mumbai, 1981.

De Robertis , E.D. P. and De Robertis, E.M.F., **Essentials of Cell and Molecular Biology**, Holt Saundars International, 1981.

Gardner, E.J., **Principles of Genetics**, Wiley Eastern, New Delhi.

Nagabushnam, R., Kodaarkar, M.S. and Sarojini, R., **Text book of Animal Physiology**, Oxford University Prress, New Delhi, 1987.

Paday, S.N. and Sinha, B. K., **Plant Physiology**, Vikas Publishing House Pvt. Ltd, 1988.
Powar, C.B., **Cell Biology**, Himalaya Book Publishing, New Delhi, 1989.

Teaching and learning methods

- Class Lecture
- Digital Presentation
- Practical demonstration
- Learning through exposure

Course outcome

S.No	Course outcome	Knowledge level (Bloom's Taxonomy)
CO1	Learning Biomolecules definition structure sources and their functions	**K1**
CO2	Familiarity the cell, Differences between Plant and animal cells. Concepts of Genetics and hereditary units	**K2**
CO3	Understanding the Physiology of plant and animal system and organelles involved in the physiological process	**K2**
CO4	Study the microorganism and their structure, reproduction ad importance	**K2**
CO5	Describe the flow of nutrients of biogeo chemical cycle and Interaction of atmosphere, solid earth, ocean and biota	**K1**

K1 = knowledge; K2 = Understanding r; K3 = Application; K4 = Analysis; K5 = Synthesis & Evaluation

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**Sum of COs with POs & PSOs**
CO1	**3**	**2**	3	3	2	2				**1**			**1**	17
CO2	**3**	**3**	2			2			**3**	**2**	**1**			16
CO3	**3**	**3**	3	2	2		2	1		**3**	**2**			21
CO4	**3**	**1**	3	2	3			2	**3**		**3**			20
CO5	**1**	**3**	3	3	2	2			**3**	**3**	**3**			23
Grand Total of COs with POs & PSOs														97
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{97}{41}$														2.36

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.36**
Observation	**COs of Fundamentals of Life Sciences are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: I B.Sc., RDS	Part	: Core-2
Semester	: II	Hours	: 75
Sub. Code	: 19URDC21	Credits	: 04

BASICS OF FARM ANIMAL MANAGEMENT

(Outcome based syllabus under CBSC structure for the students admitted from the academic Year 2019-2020 onwards)

Course Educational Objectives

1. Impart knowledge about history of domestication and classification of livestock
2. Study the technical terms and definition of farm animals
3. Study and understand the structure and functions of vital systems found in the animal body.
4. To impart basic knowledge required for the management of farm animals (Cattle, Sheep, Goat and Pig)
5. Study about the classification feeds and fodders and important nutrients and their functions in the animal body.

Unit – I Domestication and Classification (10 Hours)

History of domestication of livestock – growth of livestock industry in India – Vedic period, medival period and modern era, . Importance and role of livestock in India– challenges and opportunities –livestock resources and resources management - zoological classification of cattle, sheep, goat and pig-ICT in animal husbandry.

Unit – II Terminology and definition (10 Hours)

Definition of common terms applied to cattle, buffaloes, sheep, goat and pig - Factors of economic importance – age at maturity, age at first breeding, age at first calving/lambing/kidding/farrowing, calving/lambing/kidding/farrowing interval, breeding seasons.

Unit – III Digestive, Circulatory and Respiratory systems (20 Hours)

Digestive systems of ruminants and non-ruminants – structure and functions - Circulatory system – heart –structure and functions - arteries and veins -functions. Respiratory system-lungs – structure and functions.

Unit – IV Reproductive, Mammary, Endocrine and Excretory systems (20 Hours)

Reproductive System – structure and functions - oestrus cycle and different stages of estrus cycle, symptoms of oestrum, Structure and functions of mammary gland- Endocrine system in ruminants and non-ruminants – structure and functions of endocrine glands – pituitary, adrenal and pineal gland- Excretory system – kidney – structure and functions.

Unit – V. Feeds and Composition (15 Hours)

Classification of feeds and fodders– proximate principles - nutrient composition of commonly used feed materials - Various functions and deficiency disorders of important nutrients in the animal body.

Book for study

Banerjee, G.C., Text Book of Animal Husbandry, Mohan Primlani Publishers, New Delhi, 2006.

Books for Reference

ICAR, Hand book of Animal Husbandry, ICAR Publications, New Delhi, 2017.
Bogart, R., Scientific Farm Animal Production, Surjeet Publisher, New Delhi, 2002.
Gopalakrishnan, C.A., Livestock and Poultry enterprises for Rural Development, Mohan Primlani Publishers, New Delhi, 1980.
Mukherjee, D.D. and Banerjee G.C., Genetic & Breeding of Farm Animals, New Delhi, 1990.
Shastry, N.S.R., Farm Animal Management Vikas Publications, New Delhi, 1978.
Shri Uma Shankar., Under Secretary, ICAR Hand Book of Animal Husbandry, Vani Educational Books, New Delhi, 1985.

Teaching and learning methods

- Class room lecture with models and specimens
- Digital presentation
- Student's seminar presentation
- Learning through field practical

Course outcome

S.No.	Course outcome	Knowledge level (Bloom's Taxonomy)
CO1	Learning domestication and classification of livestock	**K1**
CO2	Familiarize various terminologies used in animal husbandry	**K2**
CO3	Understand the various vital systems found in the animal body	**K3**
CO4	Analyze the differences among systems of ruminants and non-ruminants	**K4**
CO5	Asses the importance of various feed and fodder used for livestock	**K4**

K1 = Knowledge, **K2** = Understanding, **K3**= Application, **K4**= Analysis and **K5** = Synthesis

Mapping CO with PSO and PO

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	1	3	2	2	1	1	1			21
CO2	3	1	1	2	1	3	3	3	2	2				21
CO3	3	3	2	1	2	3	2	1		1	1			19
CO4	3	2	3		1	2	3	1		2	2			19
CO5	2	2	2	2	1	2	1		2	1				17
Grand Total of COs with POs & PSOs														97
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{97}{48}$														2.02

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.02**
Observation	**COs of basics of farm animal management are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: I B.Sc., RDS	Part	: III Core Lab-1
Semester	: I	Hours	: 30
Sub. Code	: 19URDP11	Credits	: 02

INTEGRATED RURAL DEVELOPMENT PRACTICAL

(Outcome based syllabus under CBCS structure for the students admitted from the academic year 2019-2020)

A. Animal Husbandry

Course Educational Objective

1. To impart the practical knowledge about the basic systems of cattle and Pig

Ex.No. Title

1. External Parts of the Cattle and Pig
2. Digestive System of Cattle and Pig
3. Reproductive System of Bull
4. Female Reproductive System of Cattle and Pig
5. Structure of Mammary Gland of a Cow

B. Biological Sciences

Course Educational Objective:

1. To create the familiarity in the analysis of organic compounds present in a given solution.
2. Identify and compare the external and internal characteristics of vascular bundles of Monocot and Dicot plants

Ex.No. Title

1. Qualitative Tests for proteins.
2. Qualitative Tests for Lipids.
3. Qualitative Tests for Carbohydrates.
4. .Cross sectioning the Monocot ad Dicot Plants.
5. Structure of DNA and RNA.

C. Social Science

1. 5 days Village Exposure Programme to have live in experience

Course outcome

S.No.	Course outcome	Knowledge level (Bloom's Taxonomy)
CO1	Educate about the external parts of cattle and pig	**K1**
CO2	Understand the basic systems of cattle and pig with their functions	**K2**
CO3	Analyse the basic nutrients (carbohydrate, fat and protein) found in the plant and animal body	**K3**
CO4	Differentiate monocot & dicot and DNA & RNA	**K3**
CO5	Observe the various socio-economic structures of a village	**K1**

K1 = Knowledge, **K2** = Understanding, **K3**= Application, **K4**= Analysis and **K5** = Synthesis

Mapping CO with PSO and PO

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3		2		3	2	2		3	3		2		20
CO2	3		2	3	3	2	2		3	3		3		24
CO3	2	2		3	2	3	3		3	3		3		24
CO4	3			3	2	3	3			3				17
CO5	2	2	2	3		3	3	3	3	3		3	3	30
Grand Total of COs with POs & PSOs														115
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{115}{43}$														**2.67**

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.67**
Observation	**COs of IRD – I Practical are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**: I B.Sc. RDS**	**Part**	**: III Allied-1**
Semester	**: I**	**Hours**	**: 75**
Sub. Code	**: 19URDA11**	**Credits**	**: 04**

INTRODUCTION TO RURAL SOCIETY

(From the academic year 2018 -2019 onwards under the new CBCS pattern)

Course Educational Objectives

1. To impart knowledge about the rural society, its structures, characteristic and Functions
2. To Identify the family, marriage and Kinship and its functions and significant in the society
3. To understand the economic systems in the Rural society
4. To familiarize the rural political power structures
5. To integrate the relationship among the rural social factors

Unit I: Basic Concepts **(10 Hours)**

Society, Community, Association, Institution and culture: Meaning – Definition – Characteristics.

Unit II: Social Institutions **(15 Hours)**

Family, Marriage and Kinship: Meaning – Characteristics – Types – Functions- Recent trends.

Unit III: Rural Economic Institutions **(20 Hours)**

Economy and Economic System – Jaimani System – Decline of Jaimani system – Meaning of work occupation and property – Division of land holdings – Position of rural labourers – Problem of landlessness -Bhoodan Movement – Changing trends.

Unit IV: Rural Political Institutions **(15 Hours)**

Power – Authority – Democracy – Village Panchayat – Gram Sabha – Factors influencing village political structure – Changing trends.

Unit V: Social Stratification **(15 Hours)**

Social differentiation – Hierarchy – Inequality – Forms of Stratification: Caste, Class and Gender – Social Mobility: Meaning – Types.

Book for Study

Bhusan, Vidya and Sachdeva. 1997. An Introduction to Sociology. KitabMahal, Allahabad.
Chitambar, J.B. 2007.Introductory Rural Sociology. Wiley Eastern Ltd, New Delhi.
Sharma. K. L. 2010. Perspectives on social Stratification. Rawat Publication, Jaipur.
Srinivas.M.N. 1995. Social Change in Modern India: Orient Blackswan, New Delhi.

Book for Reference

Desai.A.R. 2007.Rural Sociology in India. Popular Prakshan Publishers, Mumbai.
Doshi, S.L. 1999. Rural Sociology. Rawat Publications, Jaipur.

Teaching and Learning Methods

1. Lecture
2. Use of ICT
3. Group Discussion

4. Case Study
5. Rural Camps
6. Exposure Visits
7. Field work

Course Outcome

SL.NO	Course Outcome	Knowledge Level
CO1	Recall the various Concepts, Terms and Definitions related to rural society	K1
CO2	Understand the relationship between various rural social institutions	K2
CO3	Assess the Rural Economic systems	K3
CO4	Analyzing the dynamics of the Rural Political power structures	K4
CO5	Integrate among various social factors	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	2	2	2	2	3	2	2	2				22
CO2	2	3	2	2	2	3	3	2	2	2				23
CO3	2	2	3	2	2	3	2	3	2	2				23
CO4	2	3	2			2	3	2						14
CO5	3	2	2			2	1							10
Grand Total of COs with POs & PSOs														92
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{92}{41}$														2.24

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.24**
Observation	**COs of INTRODUCTION TO RURAL SOCIETY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**: I B.Sc. RDS**	**Part**	**: III Core-3**
Semester	**: II**	**Hours**	**: 75**
Sub. Code	**: 19URDC32**	**Credits**	**: 04**

Core: DYNAMICS OF RURAL DEVELOPMENT

(Outcome based syllabus under CBSC structure for the students admitted from the academic Year 2019-2020 onwards)

Course Educational Objectives

The course enables the pupil to

1. Learn the basic concept and principles of rural development
2. Distinguish between the rural development experiments and approaches
3. Examine the rural development administration and role of various Stakeholders
4. Acquire specific knowledge on Panchayatraj Institutions (PRIs)
5. Enhance skills on critical review of rural development Programmes

Unit I Concept of Rural Development (10 Hours)

Introduction to Rural Development: Concept – Meaning – Objectives – Principles – Scope and importance.

Unit II History of Rural Development (20 Hours)

Evolution of the concept – rural development experiments in Pre and Post-independence: Rural Reconstruction programme by Mahatma Gandhi, The Sriniketan Experiment, The Martandam experiment, The Gurgaon experiment, The Baroda experiment, The Firka development scheme, The Etawah Pilot project, The Nilokheri experiment, The Bhoodan movement, Community development programme and National extension service – Approaches to rural development.

Unit III Administrative Structure (15 Hours)

Planning Commission– National Development Council – NITIAayog - State Planning Commission – Directorate of rural development – District Rural Development Agency- NIRD-SIRD.

Unit IV Planning and Implementation (15 Hours)

Panchayat Raj Institution (PRI) – Structure and Functions – Village level – Gram Sabha – Block Level – District Level – Changing trends.

Unit V Rural development programmes (15 Hours)

Central Government programmes: National Rural Livelihood Mission, National Rurban Mission, PMAY, DDUGKY, PMGSY, MGNREGA, SAGY, NSAP, Annapurna Scheme – State Government programmes: PuduVazhvu Project, THAI, SSS, RIS, SEDP, SWMS, CMSPGHS-Role of NGO's in Rural Development– Recent trends and challenges.

Books for Study

Aslam, M. & Singh, R.P., Evolution of Panchayati Raj and the Constitution (73rd Amendment) Act, 1992, IGNOU Project Material, New Delhi, 2001.

Singh Katar, Rural Development – Principles, Policies and Management, Sage Publications. New Delhi, 2009.

Sundaram, Satya,I.: Rural Development, Himalaya Publishing house, 2013.

Vasant Desai, Rural Development in India, Himalaya Publishing House, Mumbai, 2012.

Vijay. C.M., Rural Development Administration in India. Jaipur: Prateeksha, 1989.

Books for Reference

Desai, I.A. and Chaudhri, B.L., History of Rural Development in Modern India, Vol. II, Impex India, New Delhi, 1977.

Dubhashi, P.R., Rural Development Administration in India, Mumbai, 2000.

Rajneesh and Shalini, Rural Development through Democratic Decentralization, Deep & Deep Publications Pvt. Ltd., New Delhi, 2002.

Sachinanda and Purnendu, Fifty Years of Rural Development in India, Firma KLM Pvt Ltd., Kolkata, 2001.

Thomas Willam.A & Christopher,A.J, Rural Development and Recent Approaches, Rawat Publication, Mumbai, 2013.

Teaching and learning methods

- ICT based class Lecture
- Group Discussion
- Brainstorming
- Role plays
- Study assignment

Course Outcome

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Acquaint with basic concept of Rural development	**K1**
CO 2	Versed in various approaches and experiments in rural development	**K2**
CO 3	Proficient in the role of various Stakeholders in rural development	**K3**
CO 4	Expert in analyze the functions of Panchaythraj Institution(PRIs)	**K4**
CO 5	Synthesizing on critical review of rural development Programmes	**K5**

K1 = Knowledge, **K2** = Understanding, **K3**= Application, **K4**= Analysis and **K5** = Synthesis

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2		1					3	2	1	2	1	15
CO2	3	2	3	2	2	2	1	1	3	3	2	1	3	28
CO3	2	1	2	2	2	1		1	2	2	2		1	18
CO4	3	2	2	2	2		2	2	3	2	3	2	2	27
CO5	2	2	3	3	2	2	2	2	1	2	3	2	3	29
Grand Total of COs with POs & PSOs														117
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{117}{57}$														2.05

Strong – 3; Medium-2; Low – 1

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.05**
Observation	**COs of Dynamics of Rural Development are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RDS

Class	**:**	**I B.Sc. RDS**	**Part**	**:**	**Core-4**
Semester	**:**	**II**	**Hours**	**:**	**75**
Sub.Code	**:**	**19URDC42**	**Credits**	**:**	**3**

INTRODUCTION TO AGRICULTURE

(Outcome based syllabus under CBCS structure for the students admitted from the academic year 2017-2018)

Course Educational objectives:

1. Elucidate the formation of soils, its types and it components.
2. Description of seed with its structure, types and production strategy
3. Elaborate the methods of formation of water, irrigation types and its conservation
4. Identification of nutrient management system and types of fertilisers
5. Depiction of plant pests their classification and methods of control .

Unit 1: Soil **(15 Hrs.)**

Soil – definition – composition of the Soil – Types of Soil – Physical Structure – Soil Texture – Porosity – Soil Organisms – Organic matter – Soil Fertility – Soil erosion and conservation

Unit 2: Seed **(10 Hrs.)**

Definition of Seed – Seed structure – Monocot – Dicot – Germination – Quality of Good Seed – Seed Production (Rice & Cumbu) – High Yield Varieties (F1). Classes of Seeds.

Unit 3: Water **(15 Hrs.)**

Importance of Water – Sources of water – Types of Water – Hygroscopic – Capillary and non-capillary water – Irrigation – Methods of irrigation – Surface, Sub Surface Overhead – Micro irrigation. Fundamental Practices of water conservation.

Unit 4: Nutrients **(20 Hrs.)**

Plant nutrient – Macronutrient – Secondary major Nutrients – Trace Elements – Sources of Plant Nutrients Organic Sources: Bulky organic Manures – Farm Yard Manure – Green Manure – Green Leaf Manure – Concentrated Cakes – Compost – Bone Meal. Inorganic sources Manure – Fertilizers – straight: Nitrogenous – Phosphatic and Potassic – Bio sources: Bio – Fertilizers.

Unit 5: Pests **(15 Hrs.)**

Classification of Pests: Chemicals used to control them – 'Insecticide' – Weedicide – Fungicide – and their classification based on chemical nature and Mode of action. Biocontrol agents.

Books for study

Sankaran.S. and Subbiah Mudaliar, V.T., Principles of Agronomy, The Bangalore Printing & Publishing Company Limited, Mysore Road, Bangalore,1997.

ICAR Hand Book of Agriculture, Directorate of Information and Publication of Agriculture, New Delhi, 2006.

BalaSubramanian.P and Palaniappan,S.P. Principles and Practices of Agronomy, Agrobios (India) Jodhpur, 2004.

Books for Reference

Brown, R.G. Dictionary of Agriculture IV Y Publishing House, New Delhi.2007.

Sahay, V.N., Fundamentals of Soil, Kalyani Publishers, New Delhi.2006.

Yawalkar,K.S.Agarwal,J.P.andBokde. Manures and Fertilizers, Agri Horticultural Publishing House, Nagpur.2002.

Teaching and Learning methods

- Class room lecture
- LCD presentation
- Practical Demonstration
- Visual Identification of seeds, manures and fertilisers

Course Outcome

S.No	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO_1	Define and recognize the types of soil	K_1
CO_2	Identify and distinguish seeds &its types	K_2
CO_3	Explain the sources of water &methods of irrigation	K_3
CO_4	Justify nutrient sources with examples	K_4
CO_5	Summarize the plant pests with its methods of control	K_5

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	3	2	1			2	3	2		23
CO2	3	2	3	2	3	2	1			2	3	1		22
CO3	3	2	3	2	3	2	1			2	3	2		23

CO4	3	2	3	2	3	2	1			2	3	1		22
CO5	3	2	3	2	3	2	1			2	3	2		23
Grand Total of COs with POs & PSOs														113
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{113}{50}$														2.26

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.26**
Observation	**COs of INTRODUCTION TO AGRICULTURE are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: B.Sc., RDS	Part	: III Core Lab-2
Semester	: II	Hours	: 30
Sub. Code	: 19URDP22	Credits	: 02

INTEGRATED RURAL DEVELOPMENT PRACTICALS

(Outcome based syllabus under CBCS structure for the students admitted from the academic year 2019-2020)

A. Agriculture

Objective:

1.To have practical knowledge on basic components of Agriculture

Ex.No. Title

1. Method of collection of soil sample.
2. Preparation of soil sample for laboratory analysis.
3. A study on structure of a plant.
4. A study on seed structure.
5. Identification of Manures and Fertilizers.

B. Energy Science

Objective

1. Create awareness about alternative energy resources
2. Study about developing efficiency of alternative energy resources contribute to the sustainable Energy system and Energy Security

Ex.No. Title

1. Observation of Biomass energy sources.
2. Identification of Energy Modules.
3. Solar Energy system.
4. Wind Energy system.
5. Visit to Solar PV- Wind Hybrid energy system.
6. Pattern of energy consumption domestic

C. Social Sciences

1. To impart knowledge on PRIs and its various stakeholders

Ex.No. Title

1. Visit to Block Development Office
2. Attend to Gram Sabha Meeting
3. Hands on exposure to students in implementing Government funded rural development programmes like MGNREGA, PMAY, CMSPGH, THAI, etc
4. Observation visit to SIRD, RSETI, NGOs working in rural development etc

Course Outcome

S.No	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO_1	Practical knowledge on soil and energy sources	K_1
CO_2	Understand the structures of plant, seed and energy modules particularly solar and wind energy system	K_1
CO_3	Educated with manures & fertilizers and hybrid energy system	K_2
CO_4	Exposed to the functions of Block Development Office	K_2
CO_5	Understand the work of NGO in Rural Development	K_1

Mapping CO with PSO and PO

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	2		2	2	3	3	3					3		18
CO2	3		3	2	3	3	3		2	2	2			23
CO3	3		3	3	3	3	3			2	2			22
CO4	2	2		3		3	3		3	3	2	3		24
CO5	2	2	3	3					3	3	3	2		21
Grand Total of COs with POs & PSOs														
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{108}{41}$														**2.63**

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.63**
Observation	**COs of IRD - II Practical are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: I B.Sc., RDS	Part	: III Allied-2
Semester	: II	Hours	: 75
Sub. Code	: 19URDA22	Credits	: 04

ENERGY SCIENCE

(Outcome based syllabus under CBCS structure for the students admitted from the academic year 2019-2020)

Course Educational Objectives

1. Study the basic SI units, laws of thermodynamics, Definition, forms and types of energy
2. Understanding the concepts of conventional source and demand of energy
3. Analyse the fundamental scientific technological principles of alternate sources and to produce application oriented energy Hybrid system
4. Study the Biomass, Biomass conversion technology and energy plant
5. Educate and to create awareness of energy conservation

Unit I: Energy (15 Hours)

Energy – Definition, Units of Measurements – Calorie, Joules, Laws of thermodynamics – I & II Laws; forms and types of energy – Conventional and Non-Conventional, Renewable and Non-Renewable, Commercial and Non-Commercial.

Unit II: Conventional Sources of Energy (15 Hours)

Conventional Sources of Energy: Fossil Fuels – Coal, Oil and Natural Gas and Hydro Energy, Geothermal Energy, and Nuclear Energy.

Unit III: Non-Conventional / Alternate Sources of Energy – Solar Energy & Wind Energy (15 Hours)

Solar Energy – Solar Energy Conversion Methods, Problems and Prospects and Applications and Wind Energy – Wind Power System, Problems and Prospects and Applications, Hybrid Energy Systems.

Unit IV: Non-Conventional / Alternate Sources of Energy – Bio Energy (15 Hours)

Biomass – Sources, Types, Charactistics, Biomass conversion Technologies – Physical and Biochemical – Biogas Technology; Biomass Gasifier System, and Energy Plantations.

Unit V: Energy Conservation and Management (15 Hours)

Energy Conservation – Principles, need, education, approach, Co-generation, Energy Storage, Waste Recycling for Energy Generation and Clean and Energy Efficient Technologies.

Books for Study

Garg, H.P. and Prakash, J., Revised First Edition. Solar Energy Fundamentals and Applications, Tata McGraw – Hill, New Delhi, 2000.

Kothandaraman, H. and Geetha Swaminathan, Principles of Environmental Chemistry, B.I.Publishers, Chennai, 1999.

Kothari, D.P., Singal, K.C. and Rakesh Ranjan, Renewable Energy Sources and Energy Technologies, Prentice – Hall of India Private Ltd., New Delhi, 2008.

Mukherjee, D., and Chakrabarti,S., Fundamentals of Renewable Energy Systems, New Age Internation Publishers, New Delhi, 2007.

Narayanan, P., Essentials of Biophysics, New Age International Publishers, New Delhi, 2000.

Reddy, B.S., and Balachandra, P., Energy, Environment and Development, A Technologies Perspective, Narosa Publishing House, New Delhi, 2006.

Books for Reference

Agarwal, M.P., Solar Energy, S. Chand & Company Ltd., New Delhi, 1985.

Ananthakrishnan, T.N., Bioresources Ecology, Oxford & IBH Publications, New Delhi, 1990.

Desai, A.V., Non-Conventional Energy, New Age International (P) Ltd. Publishers, New Delhi, 1990.

Teaching and learning methods

- Class Lecture
- Digital Presentation
- Practical model demonstration
- Field visit and observation of energy system
- Learning through exposure

Course outcome

S. No	Course outcome	Knowledge level (Bloom's Taxonomy)
CO1	Learning laws of thermodynamics, Definition, forms and types of energy	**K1**
CO2	Understanding the concepts of conventional source and demand of energy	**K2**
CO3	Analyse the scientific technological principles of alternate sources to produce application oriented energy system	**K1**
CO4	Study the Biomass conversion technology and energy plant switch over to green sustainable energy system	**K1**
CO5	Educate and to create awareness of energy conservation to reduce environment pollution as well as conserving the energy security	**K1**

K1 = knowledge; K2 = Understanding; K3 = Application; K4 = Analysis; K5 = Synthesis & Evaluation

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	**3**	**2**	2	2	2	3			**2**	**2**			**3**	21
CO2	**2**	**3**	2		3	2			**3**	**2**				17
CO3	**3**	**1**	3	2	2		2	3		**3**	**2**			21
CO4	**2**	**3**	2	2	3			2	**3**		**2**			19
CO5	**1**	**3**	2	3	2	3			**2**	**3**		**2**		21
Grand Total of COs with POs & PSOs														99
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{99}{42}$														2.35

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.35**
Observation	**COs of Fundamentals of Energy Sciences are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (AG)	Part	: III Core -5
Semester	: III	Hours	: 60
Sub. Code	: 19URCA53	Credits	: 3

AGRONOMY OF FIELD CROPS

OBJECTIVES

1. To impart the students knowledge and skills in packages of practices of Paddy.
2. To inculcate the skills in packages of practices of Sorghum and Cumbu both theoretically and practically.
3. To acquaint the packages of practices of Red gram and Black gram, in field conditions.
4. To familiarize the methods of cultivation of Groundnut and Gingelly.
5. To study the packages of practices of Sugarcane and Cotton.

Unit – I Cultural Management of Cereals **15 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management –Irrigation Management – Integrated Pest and Integrated Weed Management – Yield – duration – post harvest technology for **Cereal**– RICE. SRI system

Unit – II Cultural Management of Millets **10 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management –Irrigation Management – Integrated Pest and Integrated Weed Management – Yield – duration – post harvest technology for **Millets**– SORGHUM, CUMBU.

Unit – III Cultural Management of Pulses **15 Hrs**

Variety – Soil – Climate Season – Seed treatment - land preparation - Sowing – Integrated Nutrient Management – Irrigation Management- Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Pulses** – REDGRAM, BLACKGRAM.

Unit – IV Cultural Management of Oil Seeds **10 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management – Irrigation management – Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Oilseeds** – GROUNDNUT, GINGELLY.

Unit – V Cultural Management of commercial crops **10 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation - Sowing – Integrated Nutrient Management – Irrigation management – Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Commercial crops** – SUGARCANE, COTTON.

Books for study

- Joint Director of Agriculture, 2003, Agricultural Technical Bulletin, Department of Agriculture, Madurai

Books for Reference

- Balasubramanian,P, Palaniappan, S.P. 2004. Principles and Practices of Agronomy, Agrobioss (India), Jodhpur.
- Ahlawat, I.P.S., Om Prakash and G.S. Saini. 1998. Scientific Crop Production in India. Rama publishing House, Meerut.
- Chidda Singh. 1997. Modern techniques of raising field crops. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi.
- Singh.S.S. 1997.Crop management under irrigated and rainfed conditions.Kalyani Publishers, New Delhi.

e-references

- www.crida.org
- www.cgiar.org
- www.tnau.ac.in/agriportal

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Enabling the cultivation methodology of paddy.	K1
CO2	Skills in package of practices of Sorghum and Cumbu	K2
CO3	Knowledge on cultivation practices of Redgram and Blackgram	K3
CO4	Identification of methods of cultivation of Groundnut and Gingelly	K3
CO5	Trained in cultivation of Sugarcane and cotton	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	3	2	1			2	3	2		23
CO2	3	2	3	2	3	2	1			2	3	1		22
CO3	3	2	3	2	1	2	1			2	3	2		21
CO4	3	2	3	2	3	2	1			2	3	1		22
CO5	3	2	3	2	3	2	1			2	2	2		22
Grand Total of COs with POs & PSOs														109
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{109}{50}$														2.18

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.18**
Observation	**COs of AGRONOMY OF FIELD CROPS are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core -5
Semester	: III	Hours	: 60
Sub.Code	: 19URCH53	Credits	: 03

DAIRY HUSBANDRY

Objectives

1. To study about the importance and features of the native and exotic breeds of cattle and buffaloes.
2. To impart knowledge and skills on housing and management of dairy cattle and buffaloes.
3. To know about scientific method of feed computation and feeding practices.
4. To acquire knowledge and skill about breeding of cattle and buffaloes.
5. To study about the various types of cattle diseases and their prevention.

UNIT –I. Cattle Breeds and Classification (10 Hours)

Status of dairy industry in India- importance of cattle and buffaloes in rural economy - Classification and characteristics of cattle and buffalo breeds – native and exotic breeds- milch, dual purpose and draught types - judging of dairy animals.

UNIT –II. Housing and Management (10 Hours)

Plan and layout of a dairy farm different structure - loose housing system, single and double row system – Automation in livestock farming. Care and Management of calf, heifer, cow, pregnant and lactating, and dry cattle. Disposal of waste and sewage – treatment and recycling methods. Hygiene and sanitation maintenance in a livestock farm.

UNIT- III. Cattle Nutrition (15 Hours)

Proximate principles - types of food, energy– gross energy, digestible energy, metabolizable energy, net energy, total digestible nutrients, starch equivalent- Protein and energy sources of vegetable and animal origin - unconventional feeds- role of additives in animal feeding- Nutrient requirements of calf, heifer, pregnant and lactating and dry animals. Indian feeding standards - balanced ration- desirable characters of a ration - computation of cattle ration (Thumb rule method)–preparation, hand mixing and storage concentrate feed mixtures and factors affecting the digestibility of ration. Conservation of livestock feed through silage and hay making.

UNIT -IV Breeding and Insemination of Cattle (10 Hours)

Structure - male and female genitalia of cattle – age at maturity- Oestrum symptoms of oestrum- various methods of detection of heat in farm animals- hormonal regulation of heat period –breeding techniques and methods. Artificial insemination - frozen semen- timing of insemination- types of frozen semen straws- evaluation of semen –- factors affecting the survival of spermatozoa – insemination technique- embryo transfer technology - Pregnancy diagnosis –factors affecting fertility in artificial insemination.

UNIT -V Disease Management **(15 Hours)**

Etiology, symptoms, treatment, prevention and control of some major diseases of cattle- **Viral diseases** – Rinderpest, Foot and mouth disease, Rabies, Cow pox, Ephemeral fever. **Bacterial** diseases - Hemorrhagic Septicemia, Tuberculosis, Diphtheria, Anthrax, Black Quarter, Brucellosis, Mastitis. **Parasitic diseases**- problems and control measures of ticks and mites– Ascariasis- Babesiosis, Theileriasis, Coccidiosis. **Metabolic Disorders** - milk fever, ketosis and acidosis. Various types of first aid measures, deworming, deticking and vaccination schedule for cattle and buffaloes.

Book for study

- Banerjee, G. CS., A Text book of Animal Husbandry, Oxford & IBH publishing company, New Delhi, 2013.

Books for Reference

- Bogart, R, Scientific Farm Animal Production, Surjeet Publisher, New Delhi, 2002.
- Gopalakrishnan, C.A.,Livestock and Poultry enterprises for Rural Development, Mohan Primlani Publishers, New Delhi, 1980.
- ICAR, Hand book of Animal Husbandry-ICAR Publication, New Delhi, 2017.
- Jagdish Prasad, Principles and Practices of Dairy Farm, Kalyani Publications, New Delhi, 2012.
- Mukherjee, D.D. and Banerjee G.C., Genetic and Breeding of Farm Animals, New Delhi, 1990.
- Shastry, N.S.R., Farm Animal Management, Vikas Publications, New Delhi, 1978.
- Surendra K.Ranjhan, Nutrition and Feeding Practices, Vikas Publication-6th Edition, New Delhi, 2015.

Teaching Learning Methods

- PPT presentation
- Seminar
- Field visit
- Assignments
- Demonstration and Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Identification and judging of native and cross breeds of cattle	K1
CO2	Enables selection of good dairy animals	K2
CO3	Organization of own scientific dairy enterprise.	K3
CO4	Train the villagers in scientific management of dairy animals.	K3
CO5	Create employment opportunities for others	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	**Sum of COs with POs & PSOs**
CO1	3	3	3	3	3				3	3	3	3	3	30
CO2	3	3	2	2	2				3	3	2	2	2	24
CO3	3	2	2	1	2				2	2	3	2	2	21
CO4	2	2	2	3	2				2	2	1	2		18
CO5	1	1	1		3				1	2	1	2		12
Grand Total of COs with POs & PSOs														105
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{105}{48}$														2.15

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	**Medium**	Strong
Mean Value of COs with POs & PSOs			**2.15**
Observation	**COs of DAIRY HUSBANDRY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (SS)	Part	: III Core-6
Semester	: III	Hours	: 60
Sub. Code	: 19URCS53	Credits	: 03

PARTICIPATORY RURAL APPRAISAL

(2018-19 onwards)

Objectives:

1. To enable them to understand the PRA techniques in formulating a project proposal
2. To provide them with an overview of approaches, methods and techniques
3. To impart skills in participatory project planning.
4. To acquaint the participants with concepts and methods of the participatory rapid appraisal
5. To make the students familiar with preparing Venn diagram and writing reports with proper evaluation on participatory mapping

UNIT: I Participatory Rural Appraisal (PRA)- Basic Concept (10 Hours)

Meaning- Definition- Concept of PRA- Evolution and Importance

UNIT: II PRA Principles and Features (10 Hours)

Principles of PRA- Features of PRA- Pillars of PRA – Difference between RPA (Rapid Rural Appraisal) and PRA- PLA(participatory Learning and Action)- PRA steps

UNIT III: Strategies of PRA (10 Hours)

Information collection- Community meetings – Conscientization - Formation of plans and Programmes (through P.R.A)-Capacity building-Collaboration and Co-ordination-Networking-Information collection and Community meetings

UNIT IV: Methods of PRA - I (15 Hours)

Semi structured interview-Time line- Matrix ranking-Resource flow diagram-Wealth ranking-Livelihood analysis-Mobility mapping

UNIT V: Methods of PRA - II (PRACTICAL) (15 Hours)

Participatory Mapping – Transect walk - Seasonal calendar – Venn diagram - Mobility mapping-Community action plan- Analysis and preparing the report writing, experiences and evaluation,

Books for Study

Mukherjee Amitava, 'Participatory Rural Appraisal', Concept Publications, New Delhi, 2004.

Narayanasamy,N., 'Participatory Rural Appraisal: Principles, Methods and Applications', Sage Publication, New Delhi, 2004.

Books for Reference

Chambers, R., 'The Origins and Practice of Participatory Rural Appraisal', World Development, Vol. 22, No. 7, pp. 953-969, 1994.

Chambers, R., 'Participatory Rural Appraisal (PRA): Analysis of *Experience'*, World Development, Vol. 22, No. 9, pp. 1253-1268, 1994.

Journals & Magazines

The SAGE Encyclopedia of Action Research

Kurukshetra Monthly Magazine

Yojana Monthly Magazine

Teaching Learning Methods

- Group Discussion
- PowerPoint Presentation
- Field study
- Seminar
- Exhibition
- Minor Project

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Apply PRA concepts and techniques in the community development	K1
CO2	Differentiate the basic principles of PRA from that of other methods used in social Sciences.	K2
CO3	Matching various models and organization in their local settings	K3
CO4	Apply the PRA tools, methods and techniques in the field of farming system, health, Agriculture and livelihoods etc.	K3
CO5	Competency to advise and train the farmers to promote the rural development activity.	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course outcomes with Pos and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**Sum of COs with POs & PSOs**
CO1	2	2		3	1		3		2		1	2		16
CO2	2	2		1			1		2	2	1			11
CO3			2	2	2						2	2		10
CO4			1	3	2	2				1	2	2		13
CO5				2	2			2			2	2		10
Grand Total of COs with POs & PSOs														71
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{71}{32}$														2.2

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.2**
Observation	**COs of PARTICIPATORY RURAL APPRAISAL are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (AG)	Part	: III Core -6
Semester	: III	Hours	: 60
Sub. Code	: 19URCA63	Credits	: 3

AGRONOMY OF HORTICULTURAL CROPS

OBJECTIVES

1.To enable the students the cultivation of Mango and Sapota.
2.To impart methods of growing Brinjal and Tomato
3.To enhance the skills in packages of practices of Jasmine and Rose
4.To train the students in cultivation of Coconut and Coffee
5.To inculcate the practical knowledge of Turmeric and Ginger cultivation.

Unit – I Cultural Management of Fruits **15 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management –Irrigation Management – Integrated Pest and Integrated Weed Management – Yield – duration – post harvest technology for **Fruits**– MANGO, SAPOTA

Unit – II Cultural Management of Vegetables **15Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management –Irrigation Management – Integrated Pest and Integrated Weed Management – Yield – duration – post harvest technology for **Vegetables**– BRINJAL, TOMATO

Unit – III Cultural Management of Flowers **10 Hrs**

Variety – Soil – Climate Season – Seed treatment - land preparation - Sowing – Integrated Nutrient Management – Irrigation Management- Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Flowers** – JASMINE, ROSE

Unit – IV Cultural Management of Plantation crops **10 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation – Sowing – Integrated Nutrient Management – Irrigation management – Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Plantation crops**– COCONUT, COFFEE

Unit – V Cultural Management of Spices **10 Hrs**

Variety – Soil – Climate Season – Seed treatment – land preparation - Sowing – Integrated Nutrient Management – Irrigation management – Integrated Pest and Integrated Weed Management – yield – duration – post harvest technology for **Spices**– TURMERIC, GINGER

Book for Study

Kumar, N. 2014. Introduction to Horticulture.Oxford & IBH Publishing co. Pvt. Ltd.

Books for Reference

Chadha, K.L and Pareek, O.P. 1996. (Eds.). Advances in Horticulture. Vols. IIIV. Malhotra Publ. House

Kumar, N. 2014. Introduction to Spices, Plantation, Medicinal and Aromatic crops, IBH Publishing Co. Pvt. Ltd., New Delhi.

Alice Kurian and Peter, K.V. 2007. Horticulture science series Vol. 08, New India Publishing Agency, New Delhi.

Veeeraragavathatham, D and et al.,2004. Scientific fruit culture, Sun Associates, Coimbatore.

E-References

http://www.jhortscib.com

http://journal.ashspublications.org

http://www.actahort.org/

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Identification of Mango and Sapota methodology	K1
CO2	Training in cultivation of Brinjal and Tomato	K2
CO3	Practical methods of growing Jasmine and Rose	K3
CO4	Field level practices of Coconut and Coffee cultivation	K3
CO5	Knowledge on cultivation perspective of Turmeric and Ginger.	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with PSO and PO :

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	2	2	1			2	3	2		22
CO2	3	2	3	2	3	2	1			2	3	1		22
CO3	3	2	3	2	1	2	1			2	2	2		20
CO4	3	2	3	2	3	2	1			2	3	1		22
CO5	3	2	3	2	3	2	1			2	1	2		21
Grand Total of COs with POs & PSOs														106
Mean Value of COs with POs & PSOs = $\frac{Grand\ \ Total\ \ of\ \ Cos\ with\ POs\ \&\ PSOs}{Number\ \ of\ \ Cos\ relating\ \ \ with\ POs\ \&\ PSOs} = \frac{106}{50}$														2.12

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.12**
Observation	**COs of AGRONOMY OF HORTICULTURAL CROPS are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core -6
Semester	: III	Hours	: 60
Sub.Code	: 19URCH63	Credits	: 03

MILK AND MILK PRODUCTS

Objectives:

1. To understand the status of dairy industry in India and abroad.
2. To acquire basic knowledge about milk secretion and milk microbiology.
3. To impart skills on milk processing.
4. To understand the Physio and Chemical properties of milk
5. To acquire skill on dairy products manufacturing process

UNIT I Dairy Industry **10 Hrs**

Milk production status in India and Tamil Nadu with reference to global context -per capita availability of milk –food value of milk and milk products - role of milk and milk products in human diet.

UNIT II Physio and Chemical Properties of Milk **15 Hrs**

Structure and physiology of mammary gland- mechanism of milk secretion. Composition of milk- physio-chemical properties- pH, acidity, color, freezing point and surface tension of milk – components of milk- fat, proteins, lipids, lactose, minerals and vitamins – factors influencing the composition of milk.

UNIT III Microbiology of Milk **10 Hrs**

Common microorganisms present in milk and milk products- PFA standards-spoilage of milk- desirable and undesirable fermentation of milk- milk and public health- detection of mastitis milk- clean milk production.

UNIT IV Milk Processing **10 Hrs**

Milk collection, transportation and grading of milk- standardization of milk. Pasteurization and homogenization of milk- packaging of milk. Cleaning and sanitation – cleaning and sterilizing agents- CIP system of cleaning – sterilization of equipment.

UNIT V Milk Products **15 Hrs**

a) Definition and method of manufactures - fat rich dairy products- cream, butter, ghee b) Concentrated and dried milk products- milk khoa, condensed milk, sweetened condensed milk, milk powder c) Frozen dairy product- Ice cream d) Cheddar cheese and other fermented products - common starter cultures used in dairy industry and their characteristics. Manufacture of dahi, yoghurt, shrikhand – indigenous milk products – utilization of dairy by products.

Book for study

- Sukumar De., Outlines of Dairy Technology, Oxford University Press, New Delhi, 2015.

Books for Reference

- Indian Dairy Products – Rangappa (KS) and Acharya (KT)- Asia Publishing House.
- Lincoln M. Lampert., Modern Dairy Products, 2nd Edition, S. Chand and Company (Pvt) Ltd., New Delhi, 1987.
- Milk and Milk products – Clarence and Eckles.
- R. K. Robinson. Modern Dairy Technology – Advances in Milk Processing Ed.2 Vol2., 1993.
- The Technology of milk processing- Ananthakrishnan, C.P., Khan, A.Q. and Padmanabhan, P.N. Srilakshmi Publication.
- Varnam A.H. Sutherland J.P. 1994. Milk and Milk Products Technology Chemistry and Microbiology.
- Walstra, Pieter and Jenness, Robert. Dairy Chemistry and Physics, 1993.
- Yadav, J.S.1993. A Comprehensive Dairy Microbiology.

Teaching Learning Methods

- PPT presentation
- Seminar
- Field visit
- Assignments
- Demonstration
- Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Understand the status of dairy industry in India and abroad.	K1
CO2	Acquired basic knowledge about milk secretion and milk microbiology.	K2
CO3	Imparted skills on milk processing	K3
CO4	Comprehend the Physio and Chemical properties of milk	K3
CO5	Developed skill on dairy products manufacturing	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	**Sum of COs with POs & PSOs**
CO1	3	3	3	2	3				2	3	3	2	3	27
CO2	2	3	1	2	3				2	3	3	2	3	24
CO3	3	3	2	3	2				2	2	3	2	3	25
CO4	2	2	2	3	2				2	3	3	2		19
CO5				2	2				3	2	3	2		14
Grand Total of COs with POs & PSOs														109
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{109}{45}$														2.42

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.42**
Observation	**COs of MILK AND MILK PRODUCTS are Strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**: II B.Sc. RDS (SS)**	**Part**	**: III Core-6**
Semester	**: III**	**Hours**	**: 60**
Sub. Code	**: 19URCS63**	**Credits**	**: 03**

GENDER, SOCIETY AND DEVELOPMENT

Objectives

1. To develop conceptual understanding on gender
2. To provide perspectives on the interrelationship between gender relations and society
3. To sensitize the students on the constitutional and legal provisions for the protection of women
4. To impart the knowledge of the important role of women in the development process
5. To strengthen the gender relations among the students through issue-based analysis

UNIT-I: Gender – Basic Concepts (10 Hours)

Meaning of Gender – Difference between sex and gender – Concept of gender inequality – Forms of gender inequality – Gender auditing – Gender budgeting – Concept of women development.

UNIT-II: Social Shaping of Gender Relations (10 Hours)

Gender and division of labour – Socialization and gender roles – Patriarchy and gender relations – Masculinity and gender relations.

UNIT-III: Policies and Legislation (15 Hours)

Policies and legislation for women's development: The Convention on Elimination of All Forms of Discrimination Against Women (1993), Constitutional Provisions – Articles 14, 15 (1), 15 (3), 16, 39 (a), 39 (d), and 42, 73rd and 74th Constitutional Amendment, 1993, Specific laws - The Dowry Prohibition Act, 1961, the Medical Termination of Pregnancy Act, 1971, the Equal Remuneration Act, 1976, Protection of Women from Domestic Violence Act, 2005, and the Hindu Succession (Amendment) Act, 2005.

UNIT-IV: Social Movements and Women's Organizations (10 Hours)

The anti-price rise movement - Chipko movement – Anti-dowry movement – Self Empowered Women's Association (SEWA) – National Commission for Women – Andhra Pradesh Mahila Abhivruddhi Society (APMAS) – Mysore Rural Development Society (MRDS) - Kudumbashree Programme in Kerala.

UNIT-V: Issues of Gender and Development (15 Hours)

Gender exclusion in politics – Gender and human rights issues – Gender disparity in education - Gender stereotyping in workplace – Gender based violence - Globalization and its impact on gender relations.

Book for Study

Ryle, Robin, 'Questioning Gender: A Sociological Exploration', Sage Publications, New Delhi, 2017.

Books for Reference

Giddens, Anthony and Philip W. Sutton, 'Sociology', Wiley Academic, New Jersey, 2017.

Haralambos and Horborn, 'Sociology: Themes and Perspectives', HarperCollins, Noida, 2008.

Laxmikanth, M., 'Indian Polity', Tata McGraw-Hill, New Delhi, 2019.

Shah, Ghanshyam, 'Social Movements in India: A Review of literature', SAGE Publications India Pvt Ltd, New Delhi, 2004.

Journals & Magazines

Frontline Fortnightly Magazine

Journal of *Gender and Society*

Kurukshetra Monthly Magazine

Yojana Monthly Magazine

Web Sources

www.apmas.org

www.kudumbashree.org

www.ncw.nic.in

www.sewa.org

Teaching and Learning Methods

- Group Discussion
- Film Analysis
- Assignment
- Field Exposure
- Case Study
- Discussion on Newspaper Reports
- PowerPoint Presentation
- Group Presentation

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	The students can apply their conceptual knowledge in understanding the process of gender inequality in the society.	K1
CO2	They can differentiate the gender roles between men and women in the families, communities and societies.	K2
CO3	They will formulate the model policies for women's development	K3
CO4	They will develop an organizing skill to conduct a workshop or a training programme on women's issues	K3
CO5	They are very capable to suggest various measures to solve the gender issues	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course Outcomes with POs and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**Sum of COs with POs & PSOs**
CO1	3	2	2	2			1		3	1	2	2		18
CO2	2	3	2				2		2	2	2	2		17
CO3	2	2	2	3					2	2	2	1		16
CO4	2	2	2	2	3	2			2	2	2	3		22
CO5	2	1	2		2		3	3	2	1	3	3		20
Grand Total of COs with POs & PSOs														93
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{93}{47}$														2.25

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.25**
Observation	**COs of GENDER, SOCIETY AND DEVELOPMENT are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (AG)	Part	: III Core -7
Semester	: III	Hours	: 60
Sub.Code	: 19URCA73	Credits	: 3

AGRICULTURAL ENTOMOLOGY

OBJECTIVES

1. To teach the students with the basic knowledge on the life history of insects.
2. To equip the students in practical skills to identify the pests of paddy, Sorghum and Cumbu with their control measures.
3. To train the students to identify the pests of pulses and oil seeds .
4. To enable the students learn practical knowledge and skills to identify the pests of cash crops and vegetables
5. To impart the students the practical knowledge and skills to identify the pests of fruits and plantation crops.

Unit – I Introduction to Pests (10 Hours)

General Life History of major groups of insects – Nature and Damage caused by insects.
Classification of pest control- Cultural- Physical- Chemical and Biological control methods

Unit – II Pests of Cereals and Millets (15 hours)

Symptoms of Damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Pest Management (IPM) CEREALS: RICE – Stem borer, BPH MILLETS: SORGHUM – Shoot fly,Stem Borer, CUMBU – Shoot fly, Pink borer.

Unit – III Pest of Pulses and Oil seeds (10 Hours)

Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Pest Management (IPM) for PULSES: RED GRAM – Gram Pod borer, Spotted pod borer, BLACK GRAM – Gram Pod borer, Spotted pod borer- OIL SEEDS – GROUNDNUT – Red hairy caterpillar, Leaf Miner, GINGELLY- Leaf webber, Gall fly

Unit – IV Pests of Commercial crops and vegetables (15 hours)

Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control Integrated Pest Management (IPM) forSUGARCANE-Shoot borers, White fly. COTTON- Boll worms, Stem weevil. VEGETABLES- BRINJAL- Stem borer, Fruit borer.TOMATO –Fruit borer, Leaf miner

Unit – V Pests of Fruits & Plantation crops (10 Hours)

Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Pest Management (IPM) for FRUITS- MANGO- Stem borer, Mango nut weevil. SAPOTA-Bud worm, Fruit fly. Plantation crops- COCONUT- Rhinoceros beetle, Red palm weevil. COFFEE- Stem borer, Berry borer.Scientific names and biological cycle of individual insect or microorganisms are not taught. Stress is given for the pest and disease mentioned above only.

Books for study

David- B.V: 1988 Elements of economic entomology, Popular Book Dept., Chennai.

Books of Reference

Chattopadhyay, 1991 Principles and procedures of Plant Protection Oxford IBH New Delhi.
Gunathilagaraj, 1988 Crop protection guide Tamilnadu Agriculture University New Delhi
Nigam Prem Mohan, 1991 plant protection – Insects control, Emkay publication New Delhi.
Popushoi S., 1986 Biological and chemical methods of plant protection IBH.New Delhi.

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Skill to identify the crop pests scientifically.	K1
CO2	Knowledge to assess the damage caused by pests of cereals and millets	K2
CO3	Practical skills in control of pests in pulses and oil seeds	K3
CO4	Training to predict the damage caused by pests in cash crops and vegetables	K3
CO5	Hands on training in pests of fruits and plantation crops	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	3	3	2	3	2	1			2	3	2		24
CO2	3	2	3	2	3	2	1			2	3	2		23
CO3	3	2	3	2	1	2	1			2	3	2		22
CO4	3	2	3	2	3	2	2			2	3	1		22
CO5	3	2	3	2	3	2	1			2	2	2		22
Grand Total of COs with POs & PSOs														112
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{112}{50}$														2.24

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.24**
Observation	**COs of AGRICULTURAL ENTOMOLOGY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core -7
Semester	: III	Hours	: 60
Sub.Code	: 19URCH73	Credits	: 03

FARM MANAGEMENT PRACTICE –I
(CATTLE, SHEEP AND GOAT)

Objectives

1. To provide concise practical knowledge on common management techniques and practices in livestock farms.
2. To get practice in approaching and handling of farm animals and recording of physiological parameters.
3. To prepare housing layout plans for rearing cattle, sheep and goat.
4. To get practice in routine operations carried out in livestock farms.
5. To provide skills on various methods of administration of medicines and first aid measures followed in the livestock farms.

UNIT- I Managemental Practices **15 Hrs**

Familiarizing the various body parts of cattle, sheep and goat. Identification of breeds of dairy cattle, sheep and goat, Approaching, handling, casting and restraining of farm animals, routine management practices like grooming, washing, dipping and exercising. Practice on recording of physiological parameters like temperature, pulse, respiration rate, rumen motility, Hands on practice on administration of medicines, Common vices of animals, their prevention and care.

UNIT-II Identification and Dentition **10 Hrs**

Identification methods – natural and artificial methods - Practice on application of ear tag, methods of determination of body weight of animals. Determination of age of animal by dentition- Types of teeth and Dental formula. Hands on training on dehorning and Castration.

UNIT-III Artificial Insemination **10 Hrs**

Preparation of cattle for insemination - analysis of motility of spermatozoa - training on handling of cryocan and loading of AI gun, practice on insemination and pregnancy diagnosis.

UNIT- IV Housing, Milking and Sanitation Practices **15 Hrs**

Space requirement - Floor, feeding and water for dairy cattle, sheep and goat. Housing systems for dairy cattle, sheep and goat – intensive, semi-intensive and conventional barn system. Draw the floor diagram, elevation and cross section of dairy, sheep and goat farm. Hands on training on milking of cow- Hand milking and machine milking. Common farm management practices including disinfection, isolation, quarantine of sick animals, and disposal of carcass, - methods and purpose.

UNIT –V Health and First aid Measures **10 Hrs**

Practice on various methods of fly control, deticking, deworming, vaccination schedule, and medicines used for cattle, sheep and goat, first aid measures and general health programme of cattle sheep and goat, record maintenance of dairy, sheep and goat farm, Preparation of project reports.

Book for Study

ICAR, Hand book of Animal Husbandry-ICAR Publication, New Delhi, 2017.

Books for Reference

Bogart, R, Scientific Farm Animal Production, Surjeet Publisher, New Delhi, 2002.

Gopalakrishnan, C.A., Livestock and Poultry enterprises for Rural Development, Mohan Primlani Publishers, New Delhi, 1980.

Jagdish Prasad, Principles and Practices of Dairy Farm, Kalyani Publications, New Delhi, 2012.

Surendra K.Ranjhan, Nutrition and Feeding practices Vikas Publication-6th Edition, New Delhi, 2015.

Teaching Learning Methods

- PPT presentation,
- Seminar
- Field visit
- Assignments
- Demonstration
- Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Gained practical knowledge on common managemental techniques and practices in livestock farms.	K1
CO2	Practiced in approaching and handling of farm animals and recording of physiological parameters.	K2
CO3	Prepared housing layout plans for rearing cattle, sheep and goat.	K3
CO4	Practiced in routine operations carried out in livestock farms.	K3
CO5	Enhanced skills on various methods of administration of medicines and first aid measures followed in the livestock farms.	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	2	3	3	3	3				2	3	3	2	3	27
CO2	3	3	3	2	2				2	3	2	3	3	23
CO3	1	2	2	2	2				2	2	3	2	2	20
CO4	2	2	2	1	3				3	3	2	2	2	22
CO5	2	2	2	3	2				2	2	2			109
Grand Total of COs with POs & PSOs														48
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{109}{48}$														2.27

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.27**
Observation	**COs of FARM MANAGEMENT PRACTICE –I are Strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (SS)	Part	: III Core-7
Semester	: III	Hours	: 60
Sub. Code	: 19URCS73	Credits	: 03

HUMAN BEHAVIOUR IN RURAL SOCIETY

Objectives:

1. To impart the principles and laws that governs human behaviour to students.
2. To offer the students a better knowledge and skills of self and others.
3. To enable the students to predict and control the behaviour of rural society as well as their own.
4. To make the students to understand the social process of interactions and Maladjusted behaviours in the society.
5. To help the students to build better interpersonal relationship and understand the barriers in the society.

Unit I: Psychology as the study of Human behaviour (10 Hours)

Psychology: Definition-Meaning-nature-objectives-scope-importance of psychology in Rural Development.

Unit II: Self-Concept (15 Hours)

Self-Concept: Meaning-body image-ideal self- self- esteem-social self- self-acceptance- self – confidence – self – direction.

Unit III: Basics of Individual behaviour (10 Hours)

Basis of individual behaviour – values – attitudes – motivation – personality – emotion – perception – intelligence – learning.

Unit IV: Process of Social Interaction & Maladjusted behaviour in community (10 Hours)

Process of social interaction: Co-operation – accommodation – adjustment – compromise – competition.

Maladjusted behaviour: Alcoholism, – deviance, – anti –social behaviour, – rebellion - suicide – causes – consequences – rehabilitation.

Unit V: Interpersonal relationship (15 Hours)

Interpersonal relationship – Meaning, types, factors and relevance of interpersonal relationship in Rural Development – Barriers: prejudice, stereotypes, myths, superstitions, economic disparity and power positions.

Books for Study

Kuppusamy.,2004, Social Psychology, Allied Publishers. New Delhi.
William. Mc Dougall., 1999, A Text book of Psychology: Discovery Pub. House, New Delhi.

Books for References:

Rachana Sharma., 2005, Abnormal Psychology, Atlantic Pub. New Delhi.
Ramnath Sharma & SS Chandra., 2003, General Psychology, Atlantic Pub. New Delhi,
Vidya Bhusan & Sachdeva, An Introduction to Sociology, Kitab Mahal, Allagabad
Elizabeth B, Hurlock., 2004, Developmental Psychology, McGraw Hill Publication.

Teaching and Learning Methods

- Class Lecture
- Digital Presentation
- Group Discussion
- Case Study
- Conducting personality test
- Field Visit

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Gain knowledge about the Concepts, Terms and Definitions	K1
CO2	Understand the various the Self concepts and theories	K2
CO3	To analyze basic of individual behaviors in the society	K3
CO4	Understand the various social interactions and maladjusted behaviors	K3
CO5	To acquire skills and designing capacity building programmes for social transformation	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course Outcomes with POs and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	2	2	3	3	3				2	3	3	2	1	24
CO2	3	2	3	3	2				2	1	2	2	2	22
CO3	1	3	2	2	2				3	3	2	2	2	22
CO4	3	2	1	2	1				2	3	2	3		19
CO5	2	1	2	3	3					3	2	3	2	21
Grand Total of COs with POs & PSOs														108
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{108}{48}$														2.2

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.2**
Observation	**COs of HUMAN BEHAVIOUR IN RURAL SOCIETY are Strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc	Part	: III Core Lab-3
Semester	: III	Hours	: 75
Sub.Code	: 19URAP33	Credits	: 4

IRD PRACTICAL- Agriculture
(2018-19 onwards)

Course Educational Objectives:

1. To impart practical training in methods of land preparation
2. To get the technical knowledge on intercultural operations
3. To acquire practical skill on agronomy of cereals.
4. To inculcate methods of cultivation of fruits and vegetables.
5. To impart skills on preparation of bioinoculants

E.No.	Title of the Exercise
1.	Preparation of land- types of ploughing
2.	Formation of Irrigation channels-beds- ridges & furrows- raised bed.
3.	Sowing – selection of seeds- types of seed treatment- Pesticides
4.	Biofertilisers- Biopesticides- seed hardening- sowing methods
5.	Intercultural operations- weeding- fertiliser application
6.	Nutrient spray- earthing up
7.	Irrigation methods- surface- micro irrigation
8.	Cultivation methods- selected crops- Paddy- Sorghum
9.	Cultivation methods -Red gram-Groundnut- Sugarcane.
10.	Cost of cultivation- Paddy- Sorghum
11.	Cost of cultivation- Sugarcane
12.	Cultivation methods- selected crops- Brinjal-Tomato
13.	Cultivation methods- Bhendi- Coconut- Mango
14.	Selection of land- Planting methods- seed- sowing methods- seed treatment methods
15.	Application – fertilizer- biopesticides- nutrient sprays- root feeding methods- specific nutrients for crops
16.	Visit to the Agricultural College, Madurai.

Teaching Learning Methods

- Demonstration
- Hands-on training
- ICT
- Seminar

- Field visit
- Assignments
- Field practical visit.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Hands on training in land preparation methods	K3
CO2	Imparting technical knowledge on intercultural operations	K1
CO3	Acquiring practical skill on agronomy of cereals.	K2
CO4	Inculcating methods of cultivation of fruits and vegetables.	K2
CO5	Skills on preparation of bioinoculants	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	3	3	2	3	2	1			2	3	2		24
CO2	3	2	3	2	3	2	1			2	3	2		23
CO3	3	2	3	2	1	2	1			2	3	2		22
CO4	3	2	3	2	3	2	2			2	3	1		22
CO5	3	2	3	2	3	2	1			2	2	2		22
Grand Total of COs with POs & PSOs														112
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ \ with\ POs\ \&\ PSOs} = \frac{112}{50}$														2.24

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.24**
Observation	**COs of IRD practical - Agriculture are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core Lab -3
Semester	: III	Hours	: 75
Sub.Code	: 19URHP33	Credits	: 04

IRD PRACTICALS – Animal Husbandry
(2018-19 onwards)

Course Educational Objectives :

1. To impart practical knowledge on various physicochemical aspects of milk.
2. To give Hands-on practice on various laboratory test to assess the quality of milk.
3. To study about the various function and activities of dairy companies.
4. To impart practical knowledge on the identification of various fodders with their nutritive values.
5. To acquire basic knowledge on various sterilization techniques of laboratory equipments.

E.No.	Title of the Exercise
1.	Collection and sampling of milk samples.
2.	Estimation of pH and titratable acidity of Milk
3.	Estimation of fat percentage of milk by Gerber's Method
4.	Estimation of SNF and total solid percentage of milk
5.	Methylene Blue Reduction Test and Organoleptic test of Milk Sample
6.	Detection of Adulteration in Milk
7.	Identification of microbes in milk by Gram's staining method.
8.	Sterilization of various laboratory equipments.
9.	Demonstration of preparation of different types of culture media.
10.	Enrichment of paddy straw
11.	Identification of various fodder crops and its nutritional values.
12.	Visit to modern dairy farm/ Plants

Teaching Learning Methods

- Demonstration
- Hands-on training
- ICT
- Seminar
- Field visit
- Assignments
- Field practical

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Gained practical knowledge on various physicochemical aspects of milk.	K2
CO2	Hands-on practice on various laboratory test to assess the quality of milk.	K3
CO3	Gained knowledge on various function and activities of dairy companies.	K2
CO4	Practical knowledge on the identification of various fodders and their nutritive values.	K2
CO5	Acquired basic knowledge on various sterilization techniques of laboratory equipments.	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3	3	2	2				3	3	2	1	1	20
CO2	2	2	3	3	3				1	2	1	2	2	18
CO3	2	2	2	3	3				3	3	3	2	1	24
CO4	2	2	2	2	2				2	3	2	2	1	20
CO5	3	3	3	3	2				2	2	2	2	2	24
Grand Total of COs with POs & PSOs														106
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{106}{50}$														2.12

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.12**
Observation	**COs of IRD practical - Agriculture are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (SS)	Part	: III Core Lab - 3
Semester	: III	Hours	: 75
Sub.Code	: 19URSP33	Credits	: 04

IRD PRACTICALS – Social Sciences

(2018-19 onwards)

Course Educational Objectives :

1. To impart practical knowledge in functioning of various social institutions
2. To provide necessary knowledge about starting of social work organization
3. To be acquainted with various polices and progamme of Government
4. To understand the various problems involved in the running of social work institutions
5. To develop skills related to running of social work progarmmes.

E.No.	Title of the Exercise
1.	Observation visit to Gandhigram Rural Institute(GRI), Dindigul
2.	Conducting participatory research in villages
3.	Visiting to Community Based Organization working in Rural development
4.	Visiting NGOs headed by Women
5.	Exposure visit to Women Movement
6.	Observation visit to Self Help Group(SHGs)
7.	Knowing oneself through SWOT Analysis
8.	Observation visit to rehabilitation centers
9.	Observation visit to Counseling centers
10	Social Analysis Training
11	Media Education Training
12	Visit to Legal Training Centre

Teaching and Learning Methods

- Field Visit
- Discussion with Experts
- Case Study
- Hands on Training
- Report Writing

Course Outcome

S.No	COURSE OUTCOME	Knowledge level (Bloom's Taxonomy)
CO1	Analyze the social structures and its components and issues	**K3**
CO2	Conduct training programmes for children, youth and Women's groups	**K3**
CO3	Train and provide technical support to farmers and NGOs	**K3**
CO4	Plan and start social Welfare organizations	**K4**
CO5	Become a rural development professionals and activist	**K4**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5 = Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3	3	2	2				3	3	1	2	1	20
CO2	2	2	3	3	3				1	2	1	2	2	18
CO3	3	2	3	3	3				3	3	3	3	1	27
CO4	2	2	3	2	2				2	3	2	2	1	21
CO5	3	3	3	3	2				2	2	3	2	2	25
Grand Total of COs with POs & PSOs														109
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{109}{50}$														2.18

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs and PSOs			**2.16**
Observation	**COs of Integrated Social Science Practical are strongly correlated with POs and PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**:**	**II B.Sc. RDS**	**Part**	**: III Allied-3**
Semester	**:**	**III**	**Hours**	**: 75**
Sub. Code	**:**	**19URDA33**	**Credits**	**: 04**

COMMUNITY BASED DISASTER MANAGEMENT

Objectives

The course enables the pupil to

1. Familiarize the concepts of Disaster Management.
2. Know and explain different types of disasters
3. Learn how to assess disaster risk
4. Explain the concept of village disaster management plan and formulation of disaster management teams
5. Highlights the disaster profile in India

UNIT I

Basic Concepts **10 Hours**

Concepts and Definitions: Disaster, Hazard, Vulnerability, Resilience, Risk, Capacity, Disaster management, disaster risk management.

UNIT II

Classification of Disasters **15 Hours**

NATURAL DISASTER- Geological Disasters: Earthquakes, Landslides, Tsunami, Mining **Hydro-Meteorological Disasters:** Floods, Cyclones, Lightning, Thunder-Storms, Hail storms, Droughts, Avalanches. **Biological Disasters**: Epidemics, Pest attacks **Technological Disasters:** Chemical, Industrial, and Radiological, Nuclear **MANMADE DISASTERS -** Building collapse, rural and urban fire, nuclear, chemicals and biological disasters, forest fire.

UNIT III

Disaster Risk Management **20 Hours**

Village Disaster management Plan (VDMP): Concept – need – components- process of developing VDMP. **Disaster Management Committee and Disaster Management Teams** : constitution, types - Warning Team , Evacuation and Response team, First aid team, Sanitation team , Shelter management team, Relief Management team, Carcass disposal team, Counseling team, Damage Assessment team, Reconstruction and Rehabilitation Team- roles and responsibilities

UNIT IV

Assessing Disaster Risk **15 Hours**

Situational Analysis of Village- Hazard Analysis, Vulnerability Analysis, capacity/Resource Analysis, Risk Analysis

UINT V

Disaster Management in India **15 Hours**

Disaster Profile of India – Mega Disasters of India (2001 Gujarat Earthquake, 2004 Indian Ocean Tsunami, 2017-2018 Vartha & Gaja cyclone in Tamilnadu) Disaster Management Act – Institutional and Financial Mechanism, National Policy on Disaster Management; Role of PRI and Non-Governmental Agencies on Disaster management.

Books for Reference

Coppola, D. P. (2007). Introduction to International Disaster Management, Elsevier Science (B/H), London.

Gupta Anil K, & Sreeja S. Nair. (2011). Environmental Knowledge for Disaster Risk Management, NIDM, New Delhi.

Imelda Abarquez and Zubair Murshed . (2004). Community Based Disaster Risk Management: Field Practitioners Handbook, Asian Disaster Preparedness Centre, Bangkok.

Kapur, Anu & others. (2005). Disasters in India Studies of grim reality, Jaipur, Rawat Publishers.

KapurAnu 2010: Vulnerable India: A Geographical Study of Disasters, IIAS and Sage Publishers, New Delhi.

Srivastava H.N. & G.D. Gupta. (2006).Management of Natural Disasters in developing countries, New Delhi, Daya Publishers.

e - Resources

http://nidm.gov.in

http://cwc.gov.in

http://ekdrm.net

http://www.emdat.be

http://www.nws.noaa.gov

Teaching and learning methods

- ICT based class Lecture
- Group Discussion
- Brainstorming
- Role plays
- Study assignment

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Reproduce basic concept of Disaster Management	K2
CO2	Illustrate various types of disasters	K2
CO3	Discover the role of various Stakeholders in Disaster management	K4
CO4	Expert in prepare the Village Disaster Management Plan (VDMP)	K3
CO5	Synthesizing on critical review of Disaster Profile in India	K5

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping Course Outcome with PSO and PO:
(Programme Outcomes – **POs**, Programme Specific Outcomes – **PSOs**)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with POs & PSOs
CO1	2	2	3	2		2		3	3	2		2		21
CO2	1	2	2	3			2	2	2	1	3	2		20
CO3	3	2	3	2	3		3	3	3		2			24
CO4	2		2				3	2	2	2				13
CO5	3	3	2		3	2	2	3	1		3			22
Grand total of COs with POs& PSOs														100
Mean value of COs with POs & PSOs = 100/43														2.30

Strong – 3; Medium-2; Low – 1

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	0.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean values of COs with POs and PSOs			2.30
Observation	**COs of Community based Disaster Management are strongly correlated with PSOs and POs.**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPRTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II BSc.,	Part	: Non Major Elective-1
Semester	: III	Hours	: 45
Subject Code	: 19URDN13	Credits	: 02

CONTEMPORARY SOCIAL PROBLEMS IN INDIA

Course Educational Objectives:

1. To sensitize the students about the prevailing problems in India.
2. To make them to understand the various dimensions of these problems.
3. To make them to visualize the causes of social problems.
4. Apply the three main social theories to various social problems in society.
5. To help them evolve appropriate remedial measures.

UNIT I Social Problems: Meaning and Concept and Population Explosion (5 Hours)

Social Problems, nature and types of Social Problems, Social Problems and Disorganization. Population Explosion, Causes, Effects, Population Policy.

UNIT II Problems of Women and Children (10 Hours)

Violence against Women: Nature, Types, Female infanticide and Foeticide concept, causes, types, preventive measures; Child Abuse and Child Labour; Types of Child abuse; causes of child abuse; Effects of abuse on Children; The problems of child labour.

Unit III Juvenile Delinquency and Child Labour (10 Hours)

Deviance among Children: Concept of Juvenile delinquency; children in conflict with law and children in need of care and protection; Causes and Types of deviance among Juveniles; Preventive measures; Juvenile justice system of child labour.

Unit IV Corruption Rural Poverty and Unemployment (10 Hours)

Meaning, Forms and Causes, Anti-corruption movements in India. Poverty and Unemployment: Types, Causes, Consequence, Remedies; Rural Poverty; nature types and Effective Measures and Poverty Alleviation programmes in India.

Unit V Problems of youth and weaker sections (10 Hours)

Alcoholism and Drug Addiction; Causes, Treatment of Alcoholics, Drug addiction, Causes, Preventing drug abuse and combating drug addicts. Problems of Weaker Sections: Scheduled Caste, Scheduled Tribe, and Backward Castes Possible solution.

Books for Study

Ahuja Ram, 1999, Social Problems in India, Rawat Publication: New Delhi.
Ahuja, Ram, 2000, Social Problems in India, New Delhi: Rawat Publications.

Bateilee, Andre, 1992, Backward Classes in Contemporary India, New Delhi: Beteille, Andre, 1974, Social Inequality, New Delhi:
Desai, Neera & Usha Thakkar, 2007, Women in Indian Society, New Delhi: National Book Trust
Dube, Leela 1991, Women and Kinship, Comparative Perspectives on Gender in South and Southeast Asia, New Delhi: Sage Publication.

Books for Reference

Ahuja Ram, 1999, Social Problems in India, Rawat Publication: New Delhi.
Dandanean Steven P., 2001. Taking it Big: Developing Sociological Consciousness in Postmodern Times. New Delhi. London. Pine Edge Press.
Gupta M. and Chen Martha Alter. 1996. Health, Poverty and Development in India. New Delhi. Sage Publications.
Ram, 2009, Social Problems in India, Jaipur: Rewath Publications.

Teaching and learning methods

- ICT based class Lecture
- Group Discussion
- Brainstorming
- Role plays
- Study assignment

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Identify and describe various theoretical perspectives on social problems .	K1
CO2	Document, analyze, and debate ongoing social problem processes and issues using a sociological framework.	K2
CO3	Investigate and analyze one current social problem in-depth, or investigate and analyze one agency involved in the handling of a social problem.	K3
CO4	Examine actions from the perspective of social responsibility.	K3
CO5	Become conscientious and respect others, commitment to social justice, personal integrity, and service.	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 1	PO 2	PO 3	PO 4	PO 5	Sum of COs with POs & PSOs
CO1	3	3	3	3			2		2			2		18
CO2	2	2	2	2		3	2		1		2			16
CO3	2	3	2	2		2			3				3	17
CO4	2	1	2	1							2			08
CO5	2	1	3	1		3						3		13
Grand Total of COs with POs & PSOs														72
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{72}{33}$														2.18

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.18**
Observation	**COs of CONTEMPORARY SOCIAL PROBLEMS IN INDIA are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: U.G. (Aided)	Part	: Self Learning Course
Semester	: III	Hours	: --
Sub.Code	: 19URDSL3	Credits	: 3

HUMAN RIGHTS

(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives

1. To sensitize the students about the prevailing human rights problem in India
2. To impart the knowledge on human rights;
3. To provide the various dimensions of human rights' issues.
4. Familiarize himself on various human rights agencies in India
5. To help them evolve appropriate remedial measures

Unit – I Introduction to Human Rights:

Human Rights – Universality of Human Rights – The Universal Declaration of Human Rights.

Unit – II UN and Human Rights:

UN Commission on Human Rights – UN Major Human Rights Instruments – Convention on the elimination of Discrimination against Women – Convention on the Rights of the Child.

Unit – III Human Rights in India:

The origin of Human Rights in India – Constitutional Provisions & Laws relating to Human Rights in India - Rights of minorities and Dalits in India – Human Rights Violations in India.

Unit – IV National and State Human Rights Institutions:

The National Human Rights Commission of India – State Human Rights Commission and attached bodies.

Unit – V NGOs in Human Rights:

Role of NGO's, in the protection and redressal of issues, on Human Rights.

NGOs at the National, and State Level working on issues of Human Rights – their role and functions.

Books for Study:

Ravindran, D.J.,(2000). Human Rights Praxis: A Resource book for Study, Action and Reflection Human Rights Study Material, Institute of Human Rights Education, New Delhi.

Balam Singh, (2007). Human Rights, Cyber Tech Publisher, New Delhi.

Books for reference

Ashish Kumar das and Prasant Kumar Mohanty (2007). Human Rights in India: Sarup and Sons. New Delhi.

Baradat Sergio and Swaronjali Ghosh. (2009). Teaching of human rights: Dominant publishers and distributors, New Delhi.

Bani Borgohain. (2007). Human Rights Social Justice and Political Challenge. Kaniska publishers and distributors New Delhi.

Bhavani Prasad Panda.(2007). Human rights Development and environment law: academic excellence, Delhi.

Meena, P.K (2008).Human Rights theory and practice: Murali Lal and sons, New Delhi.

Rao, M.S.A.(1978).Social Movements in India – Social Movements and Social Transformation in India Vol.1 & 2: Manohar Publications, New Delhi.

Roy A.N.(2005).Human Rights Achievements and challenges: Vista International Publishing house, Delhi.

Velan, G.(2008).Human Rights and Development Issues; The associated publishers, Ambala cant.

Vishwanathan,V.N (2006). Human Rights – Twenty First Century Challenges: Kalpaz publications, New Delhi.

Teaching Learning Methods

- ICT usage
- Creative assignments
- Individual cum Group Presentation
- Newspaper Reading and Analysis
- Peer Learning
- Field Exposure and Training
- Group Discussion
- Group Projects
- Short films and other educational videos

Course Outcome: At the end of the course, the students will:

SL.No	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Identify and describe various theoretical perspectives on human rights issues	**K1**
CO 2	Competency to advise and train them to be social activist to fight against human rights issues	**K2**
CO 3	Investigate and analyze one agency involved in the handling of a human right issues	**K4**
CO 4	Differentiate role of National human rights commission and state human rights commission	**K4**
CO 5	Become conscientious and respect others, commitment to social justice	**K5**

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping Course Outcome with PSO and PO:
(Programme Outcomes – **POs**, Programme Specific Outcomes – **PSOs**)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with POs & PSOs
CO1	3	3	1	2	2	3	2	3	3	3		3		28
CO2	2	2	3	2	2	2	2	3	3	2		1		24
CO3	2	2	2	3	2	2	2	2	3	2				22
CO4	2	1	2	2	2	1	2	2	2	2				18
CO5	2	1	2	1	2	1	1	3	2					15
Grand total of COs with POs & PSOs														107
Mean Value of COs with POs & PSOs= $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{107}{51}$														2.09

S Strong – 3; Medium-2; Low – 1

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	0.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean values of COs with POs and PSOs			2.09
Observation	**COs of Community based organization are moderately correlated with PSOs and POs.**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (AG)	Part	: III Core-8
Semester	: IV	Hours	: 60
Sub.Code	: 19URCA84	Credits	: 3

PLANT PATHOLOGY

OBJECTIVES

1. To teach the students with the basic knowledge on the life history of microorganisms.
2. To equip the students in practical skills to identify the diseases of paddy, Sorghum and Cumbu with their control measures.
3. To train the students to identify the diseases of pulses and oil seeds .
4. To enable the students learn practical knowledge and skills to identify the diseases of cash crops and vegetables
5. To impart the students the practical knowledge and skills to identify the diseases of fruits and plantation crops.

Unit – I Introduction to Diseases (10 Hours)

Introduction to microorganisms- Bacteria, Fungi, Actinomycetes, Viruses. Morphology and types of symptoms caused by plant pathogens. Methods of control-Cultural- Physical- Chemical and Biological control methods

Unit – II Diseases of Cereals and Millets (15 hours)

Symptoms caused by pathogens and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Disease Management(IDM) for CEREALS: RICE – Blast, Brown spot. MILLETS: SORGHUM –Smuts, RustCUMBU – Ergot, Downy mildew.

Unit – III Diseases of Pulses and Oil seeds (10 Hours)

Symptoms caused by pathogens and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Disease Management (IDM) for PULSES: RED GRAM –Fusarium wilt, Dry root rot.BLACK GRAM – Leaf spot, Powdery mildew. OIL SEEDS – GROUNDNUT- Leaf spot, Rust. GINGELLY- Leaf spot, Phyllody.

Unit – IV Diseases of Commercial crops and vegetables (15 hours)

Symptoms caused by pathogens and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Disease Management(IDM)for SUGARCANE- Red rot, Rust. COTTON- Fusarium wilt, Boll rot. VEGETABLES- BRINJAL- Bacterial wilt, Cercospora leaf spot.TOMATO –Damping off,Fusarium wilt.

Unit – V Diseases of Fruits & Plantation crops (10 Hours)

Symptoms caused by pathogens and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Disease Management(IDM) for FRUITS- MANGO- Anthracnose, Powdery mildew.SAPOTA- Leaf spot, Sooty mold. Plantation crops- COCONUT- Tanjore wilt, Bud rot. COFFEE- Rust, Brown leaf spot. Scientific names and biological cycle of individual insect or microorganisms are not taught. Stress is given for the pest and disease mentioned above only.

Book for Study

Agrios, G.N. 2005. Plant Pathology – (5th Edition). Academic Press, New York.

Books for Reference

Alexopoulos,C.J., Mims,C.W. and Blackwell, M.2010 Introductory Mycology. John Wiley and Sons Ltd., N.York.

Alice D, and Jeyalakshmi C 2014. Plant Pathology. A.E Publications ,Coimbatore

Dube, H.C.2009. A textbook of Fungi, Bacteria and Viruses, Vikas Publishing House P. Ltd, New Delhi.

Mehrotra, R.S. and Aneja, K.R. 1990. An Introduction to Mycology, Wiley E.Ltd. New Delhi.

Singh, R.S.1982. Plant Pathogens – The Fungi. Oxford and IBH Publishing Co., New Delhi.

Vidyasekaran, P. 1993. Principles of Plant Pathology –.CBS Publishers & Distributors, New Delhi.

eReferences

www.mycobank.org

www.mycology.net

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Skill to identify the crop diseases scientifically.	K1
CO2	Knowledge to assess the damage caused by diseases of cereals and millets	K2
CO3	ractical skills in control of diseases in pulses and oil seeds	K3
CO4	Training to predict the damage caused by diseases in cash crops and vegetables	K3
CO5	Hands on training in diseases of fruits and plantation crops	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	3	2	1			2	3	2		23
CO2	3	2	3	1	3	2	1			2	3	1		21
CO3	3	2	3	2	1	2	1			2	3	2		21
CO4	3	2	3	2	3	2	1			2	2	1		21
CO5	3	2	3	2	3	2	1			2	2	2		22
Grand Total of COs with POs & PSOs														107
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{107}{50}$														2.14

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.14**
Observation	**COs of PLANT PATHOLOGY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core -8
Semester	: IV	Hours	: 60
Sub.Code	: 19URCH84	Credits	: 03

POULTRY HUSBANDRY

Objectives:

1. To understand the poultry industry in India and abroad.
2. To acquire the basic knowledge on housing management poultry
3. To study about the breeds and breeding management poultry
4. To impart knowledge about the feeding management poultry
5. To study about the disease management of poultry.

UNIT I Industry **10 Hrs**

Development of poultry industry in India. Past and present scenario of poultry industry – Role of government and private agencies in poultry development. Breeds of chicken, quail and turkey - egg, meat and dual types - Commercial strains of layers and broilers. Improved varieties of country chicken - qualities and advantages.

UNIT II Housing Management **15 Hrs**

Selection of site and location for poultry farm-systems of rearing- free range system, semi intensive, and intensive rearing – deep litter, cage and slat system - advantages and disadvantages. Types of poultry houses – open sided – deep litter, slat system, wire floor, cage houses and raised platform cage houses, Cages – types of cages, floor, feeder and water space requirement for layer and broiler different age groups under different rearing conditions. Litter – materials- litter management, litter-borne diseases and control. Light management during growing and laying period. Environmentally controlled houses, bio security measures in a poultry farm.

UNIT III Breeding Management **15 Hrs**

Common breeding programs practiced in poultry industry- Selection of breeder flock- layer and broiler, Methods of mating – flock, pen, pair and artificial insemination.–Pre-laying and laying management of breeder flocks– breeder male and female management. Pre-peak, peak and post-peak laying period. Egg – structure and formation of egg. Incubation-natural and artificial-requirements- incubation management, preparation of shed to receive chicks-brooding: Types of brooders and feed and water space requirement – behavior of chicks in brooding.

UNIT IV Feeding Management **10 Hrs**

Feed materials for poultry-energy and protein sources- use of additives – enzymes, probiotics, prebiotics and antibiotics, herbs, performance enhancers - utilization of unconventional feedstuffs. Nutrient requirements of layer, broiler and breeders of different age groups, Systems of feeding – ad libitum, restricted and controlled—feeding of layers, broilers, turkeys, quails and country chicken. Culling in poultry. Marketing channels – integration in commercial rearing.

UNIT V Disease Management **10 Hrs**

Etiology, symptoms, diagnosis, treatment, prevention and control of some major diseases– **Viral diseases** — Ranikhet Disease, Infectious Bursal Disease, Infectious Bronchitis, Marek's Disease, Fowl Pox, Egg drop syndrome, Bird Flu. **Bacterial diseases** -Colibacillosis, Chronic Respiratory Disease, Mycoplasmosis**,** Salmonellosis, Fowl typhoid, Fowl cholera, Pullorum disease, Infectious coryza. **Parasitic diseases** – Ecto and Endo parasites, protozoan infection – Coccidiosis. Fungal disease – Aspergillosis, Mycotoxicosis – types – Aflatoxin. Management during unfavorable weather condition.

Book for Study

Banerjee.G.C, Poultry, 3rd edition, Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi, 2004.

Books for Reference

Bell D. Donald and Weaver D. William Jr., Commercial Chicken Meat and Egg Production, 5th Edition, Springer India Pvt. Ltd., Noida., 2007.

Ensmiger,M. E., Poultry Science, 3rd Edition. International Book Distribution Co., Lucknow, India, 2015.

Hurd M. Louis., Modern Poultry Farming, 1st Edition. International Book Distributing Company, Lucknow, 2003.

Jull A. Morley., Successful Poultry Management, 2nd Edition, Biotech Books, New Delhi, 2007.

Singh, R. A., Poultry Production, 3rd Edition, Kalyani Publishers, New Delhi, 2011.

Sreenivasaiah, P.V., Scientific Poultry Production: A Unique Encyclopaedia, 3rd Revised and Enlarged Edition, IBDC Publishers, International Book Distributing Co., 2006.

Sharma, R.N., Poultry Management, 1stedition, Vista International Publishing House, New Delhi, 2008.

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration
- Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Understand the poultry industry in India and abroad.	K1
CO2	Acquired the basic knowledge on housing management poultry	K2
CO3	Learned about the breeds and breeding management poultry	K3
CO4	Gained knowledge about the feeding management poultry	K3
CO5	Educated about the disease management of poultry.	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 1	PO 2	PO 3	PO 4	PO 5	Sum of COs with POs & PSOs
CO1	2	3	3	3	3				2	2	3	3	3	26
CO2	2	2	2	2	2				3		2	3	3	21
CO3	3	2	2	1	2				3	2	3	2		20
CO4	1	2	2	2	3				2	2	2	2	2	20
CO5	3	3	3	3	3				2	2	2	2	2	25
Grand Total of COs with POs & PSOs														109
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{109}{48}$														2.27

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.2**
Observation	**COs of POULTRY HUSBANDRY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: B.Sc. RDS	Part	: III Core-8
Semester	: IV	Hours	: 60
Sub. Code	: 19URCS84	Credits	: 03

RURAL ECONOMICS

Objectives

1. To help the students to understand the concepts of rural economics.
2. To make them to know the importance of rural economics in rural development.
3. To make the students to aware of the agricultural prices.
4. To impart the knowledge of agriculture products and agriculture marketing
5. To help the students to gain knowledge about the cooperative farming.

UNIT-1 Introduction to Rural Economy **10 hours**

Introduction–Structure,-features of Indian Rural Economy-Characteristics of underdeveloped economy -Distribution of income and wealth- Causes of inequalities Income and Consequences. Family Expenditure Factors affecting expenditure and its necessity. Budget its objectives, steps for preparing family budget.

UNIT-II Importance of Agriculture **15 hours**

Agriculture –Importance of Agriculture and Animal Husbandry –Green- Revolution-factors responsible for green revolution.–causes for Low productivity- remedies. Agriculture price policy in India.

UNIT-III Agricultural Labour and Indebtedness **10 hours**

Agriculture labour-Growth, Causes economic conditions of landless labour - small and marginal farmers. Rural indebtedness-Causes of Rural indebtedness -Measures to improve their status.

UNIT –IV Agricultural Prices and Marketing **15 hours**

Agricultural Market, characteristics of Agricultural produce, functions and defects in marketing agricultural produce-Regulated markets – farmers market- co-operative marketing-Measures taken by the government.

UNIT-V Co-Operating Farming **10 hours**

Meaning and types of cooperative farming, case for and against cooperative farming cooperatives in agriculture development. Cooperative Dairying, Structure of Dairy cooperatives, functioning of village milk - cooperative society- cooperative movement.

Books for Study

Dhingra, Rural Economics –Sultan Chand& Sons, New Delhi, 2007.

Mishra and Puri Indian Economy Himalaya Publishing House, Mumbai, 2007.

Patel (et.al) Rural Economics Himalaya Publishing House, Mumbai, 2007.

S.S.M. Desai : Fundamentals of Rural Economics, Himalaya Publishing House, Mumbai.

Books for Reference

Agarwal A. N, Indian Economy Problems of development and planning, Wiley Eastern India Ltd (2007)

Dhingra, Rural Economics-Sultan Chand &sons, New Delhi (2007)

Datt & Sundram, Indian Economy, S. Chand publishers (2011)
Dingra I.C Rural Banking in India, S. Chand & Co. Limited. New Delhi.
Mishra S. K & V. K Puri Indian Economy Himalaya Publishing House, Mumbai (2008)
Ramaraj, B. Indian Economy Prospects and problems, Vishal Publications Chennai-34 (1997)

Teaching and Learning Methods

- Class Lecture,
- Digital Presentation
- Group Discussion
- Assignment
- Brain storming
- Exposure Visits
- Field work

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Understand the structure of rural economy.	K1
CO2	Know the various aspects of green Revolution in rural economy	K2
CO3	Understand the structure of the agricultural labour in rural economy.	K3
CO4	Demonstrate an awareness of various agricultural market structures and the marketing of agricultural products.	K3
CO5	Familiarize about the structure of cooperative farming	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course outcomes with Pos and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 1	PO 2	PO 3	PO 4	PO 5	Sum of COs with POs & PSOs
CO1	2	2		2					2			2		10
CO2		2			3				1		2	2		10
CO3		3	3		2				3				3	14
CO4		2			2				2	2	2			10
CO5	2		3		2					2		2		11
Grand Total of COs with POs & PSOs														55
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{55}{25}$														2.2

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.2**
Observation	**COs of RURAL ECONOMICS are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (AG)	Part	: III Core -9
Semester	: IV	Hours	: 60
Sub.Code	: 19URCA94	Credits	: 3

ORGANIC FARMING

OBJECTIVES

1. To provide students with a basic knowledge on principles and concepts of Organic agriculture.
2. To impart knowledge of types of manures used in organic farming.
3. To empower the technical knowledge on types of composting.
4. To inculcate the knowledge on types of biocontrol agents.
5. To impart the methods of integrated farming systems.

Unit – I: Organic Agriculture **10 Hrs**

Organic farming: Concept – definition – Principles – needs – Characteristics –objectives – options difference between organic and conventional farming- Impact of Green revolution- Certification of Organic Products.

Unit – II: Organic Resources **10 Hrs**

In-situ manuring –meaning – in-situ manuring by animals- Green manure- benefits- Ex-situ manure- types- FYM- Green leaf manure- oilcakes and meals- Biological resources – definition- types and advantages.

Unit – III: Composting of Organic wastes **15 Hrs**

Composting- definition- Principles- role of micro-organisms in decomposting- process- humus- methods of composting- Bangalore- Coimbatore- Indore methods- Enriched FYM- Weedcomposting- coir-waste composting- Vermicomposting.

Unit – IV: Organic Pest Management **15 Hrs**

Pest management- definition- Biocontrol Agents –Botanics for pest control- neem for pest control – Bioweedicides- Biopesticides- NPV, GV, *Trichoderma- Trichogramma*- Cultural control -Indigenous Technical Knowledge system – *Panchacavya, Navakavya, Amirthakkarisal.*

Unit – V:Integrated Farming System: **10 Hrs**

Integrated Farming System (IFS)- definition-Principles-advantages- IFM under lowland- gardenland and dryland.

Book for study

Palaniappan S.P. 2003 Organic farming Theory and Practice.

Books for Reference

Arul Sharma K.2004, Hand book of the Organic Farming, Agribios, Jodhpur.
Thampar P.K.1995, Organic Agriculture. Peekay Tree Crops Development foundation
Dahama 1997 Organic farming for Sustainable Agriculture Agribios, Jodhpur.

E:References:

www.ifoam.org

www.apeda.org

www.cowindia.org

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Gain basics and principles of organic farming	K1
CO2	Awareness on the types of green manure.	K2
CO3	Basic steps in preparation of composts by different methods	K3
CO4	Knowledge on various biocontrol agents	K3
CO5	Awareness on the types of Integrated Farming System.	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	3	2	1			2	3	2		23
CO2	3	2	3	2	3	2	1			2	3	1		22
CO3	3	2	3	2	1	2	1			2	3	2		21
CO4	3	2	3	2	3	2	1			2	3	1		23
CO5	3	2	3	2	3	2	1			2	2	2		22
Grand Total of COs with POs & PSOs														111
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{111}{50}$														2.22

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.22**
Observation	**COs of ORGANIC FARMING are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core -9
Semester	: IV	Hours	: 60
Sub.Code	: 19URCH94	Credits	: 03

PIG FARMING

Objectives

1. To know about the status of pig farming in India and abroad.
2. To study the principles of reproduction and breeding of pigs.
3. To give scientific and practical exposure in pig rearing systems.
4. To quire knowledge about pig nutrition, pig diseases and its prevention
5. To impart practical knowledge on first aid treatments in pig's disease management.

UNIT-I Breeds and Selection (10 Hours)

Scope and Status of pig industry in India and Tamil Nadu- merits of rearing pigs -classification and characteristic of pig breeds– exotic and indigenous breeds. Characteristics of good sow and boar.

UNIT-II Housing and Management (10 Hours)

Housing of Pig- types of Pig house - housing requirements - layout of piggery farm- construction of a pig house. Care and management of piglets and sow during pregnancy- weaning of piglets. Waste disposal methods in piggery farm – disinfection and fly control measures.

UNIT-III Pig Nutrition (15 Hours)

Feed materials for pigs – concentrates and roughages - growth stimulating substances- nutrient requirements of pigs- guidelines in formation of swine rations - commercially prepared swine rations - creep, starter and fattening rations- feeding methods and methods to avoid feed wastage. Importance of iron supplementation in piglets

UNIT-IV Reproduction and Breeding (10 Hours)

Structure of male and female genitalia- Age at maturity - oestrus cycle- symptoms and hormonal changes – breeding techniques - age at first furrowing – symptoms of furrowing- furrowing interval- Care and management of pregnant sows.

UNIT-V Diseases and Prevention (15 Hours)

Etiology, symptoms, treatment, prevention and control of some major diseases of pigs- Viral diseases- Swine fever, **Porcine parvovirus,** Bacterial diseases- **Exudative dermatitis (greasy pig), Swine dysentery,** Colibacillosis, Mastitis (*E. coli*), Parasitic diseases- Coccidiosis, Deficiency diseases- Piglet anemia, hypoglycemia. First aid measures, deworming and vaccination schedule.

Book for study

Banerjee, G. C., A Text book of Animal Husbandry, Oxford & IBH Publishing Company, New Delhi, 2013.

Books for Reference

Chandra Shekher Sahukar., Piggery India year book 2000, Scientific Publisher and Distributors, New Delhi, 2000.

ICAR, Hand book of Animal Husbandry-ICAR Publication, New Delhi, 2017.

Sastry, N.S.R. and Thomas, C.K., Livestock Production and Management, Kalyani Publishers, Ludhiana, India, 2015.

Sharda, D.P., Swine Production, Indian Council of Agricultural Research, New Delhi, 1982.

Surendra K.Ranjhan ., Nutrition and Feeding Practices, Vikas Publication-6th Edition, New Delhi, 2015.

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration
- Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Understand and analyze the need of pig farming in India.	K1
CO2	Organization and management of pigs under scientific method of rearing.	K3
CO3	Developed as a pig entrepreneur	K3
CO4	Make their own employment opportunities and also employment to others.	K3
CO5	Improve per capita availability of pig meat in India and open the avenues to export pig meat and pork products.	K4

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2	3	2	2				3	2	2	2	3	24
CO2	2	2	2	2	2				2	2	2	2	2	20
CO3	2	2	2	3	2				2	2	3	1	2	21
CO4	2	2	2	2	2				2	2	2	1	1	18
CO5	2	1	2	2	2				1	1	1	1	1	14
Grand Total of COs with POs & PSOs														119
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{119}{50}$														2.38

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.38**
Observation	**COs of PIG FARMING strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (SS)	Part	: III Core-9
Semester	: IV	Hours	: 60
Sub. Code	: 19URCS94	Credits	: 03

SCIENCE AND TECHNOLOGY FOR RURAL DEVELOPMENT

Objectives:

1. To introduce the basic concepts of science, technology and development
2. To describe the vital role of science and technology in different fields of rural development
3. To explain the social issues of technology and its challenges for rural development
4. To incorporate various modern technologies to bring changes in the society
5. To familiarize the students on various challenges of modern technologies towards Digital, gender and climatic conditions

UNIT-I: Basic Concepts (10 Hours)

Science: Meaning and definition –Technology: Meaning and definition – The interrelationship between science and technology – Common features of science and technology – Concept of rural development.

UNIT-II: Technology-Based Initiatives in Agriculture Sector (15 Hours)

Sustainable agriculture: Definition, concept, principles of agricultural sustainability, and renewable energy for sustainable agriculture – Biotechnology revolution and food security – E-agriculture - National Agricultural Market or eNAM.

UNIT-III: Institutional Frame Work for Application of Science & Technology (15 Hours)

Science and Technology System in India: Central Government Science and Technology Department – Central Socio-economic and other Ministries - State Government Science and Technology Department – Science and Technology in Non-Government Organizations – In-House research and Development in Private Industries.

Schemes operational under the SEED (Science for Equity, Empowerment & Development) Programme: Long Term Core Support , Technological Advancement for Rural Areas (TARA), Technological Intervention for Addressing Societal Needs (TIASN), Scheme for Young Scientists and Technologists, Science and Technology for Women, Tribal Sub-Plan and Scheduled Caste Sub-Plan (SCSP).

UNIT-IV: Technology and Social Change (10 Hours)

Technological change and its influence on caste, class and gender relations – Green revolution and the emergence of backward castes in Northern India – Modernization and new middle class – Technology and inclusive development: A Case study on rural women and marginalized communities.

UNIT V: Technological Challenges for Rural Development (10 Hours)

Automation and dehumanization - Digital divide – Gender-selective abortion - Climate refugees.

Book for Study

Singh, Kartar, 'Rural Development: Principles, Policies & Management', Sage Publication, New Delhi, 2009.

Books for Reference

Duncombe. R. (ed.)., 'Digital Technologies for Agricultural and Rural Development in the Global South', The Centre for Agriculture and Bioscience International, Wallingford, 2009.

Reddy, Mahadeva E., D. Uma Devi, and P. Adinarayana Reddy, 'Science and Technology for Rural Development', The Associated Publishers, New Delhi, 2009.

Saravanan, R., C. Kathiresan, and T. Indra Devi, 'Information and Communication Technology for Agriculture and Rural Development', New India Publishing Agency, New Delhi, 2011.

Wickremasinghe, Seetha I., Ma. Josefina P. Abilay, and Jayasarma Gunaratne (eds.)., 'Science and Technology for Rural Development', Daya Publishing House, New Delhi, 2012.

Journals and Magazines

Kurukshetra Monthly Magazine

Y*ojana* Monthly Magazine

Teaching Learning Methods

- Group Discussion
- PowerPoint Presentation
- Field exposure
- Exhibition
- Minor Project

Course Outcome:

At the end of the course, the students will be able to:

SL.NO	Course Outcome	Knowledge Level
CO1	Interrelate the concepts of science and technology and development	K1
CO2	Identify the alternative energy technologies in agriculture sector	K2
CO3	Design an ICT model for rural people	K3
CO4	Associate the technology with the changes in caste, class and gender relations	K3
CO5	Propose some effective measures to the issues of technology	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course outcomes with Pos and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	2	2							3	2				9
CO2	1			2		2			1		2			8
CO3			2	2	2						2	1		9
CO4				2		2	3				2	2		11
CO5						2	2	3			2	2		11
Grand Total of COs with POs & PSOs														48
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{48}{24}$														2.0

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs		**2.0**	
Observation	**COs of SCIENCE AND TECHNOLOGY FOR RURAL DEVELOPMENT are moderately correlated with POs & PSOs**		

ARULANANDARCOLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	:	II B.Sc RDS (AG)	Part	: III Core -10
Semester	:	IV	Hours	: 60
Sub.Code	:	19URCA04	Credits	: 3

AGRICULTURAL BIOTECHNOLOGY

OBJECTIVES:

1. To acquaint the fundamental concepts of plant tissue culture.
2. To impart the methods of tissue culture.
3. To develop experimental skills in applied plant tissue culture.
4. To teach the concepts of soil microbiology.
5. To empower the knowledge of types of biofertilisers and their preparation.

Unit I Basics of Plant Tissue Culture **10 Hrs**

Plant tissue culture: Concepts, history and scope - Media and Culture Conditions - Sterilization techniques- Regeneration methods - morphogenesis, organogenesis and embryogenesis

Unit II Methods of Tissue culture **10 Hrs**

Culture types - callus culture and cell suspension culture; shoot tip and meristem tip culture; anther and pollen culture; ovule and embryo culture. Micropropagation–banana.

Unit III Applied Plant Tissue Culture **10 Hrs**

Applications of organ culture - Meristem tip culture (virus free plants) and another culture (doubled haploids)- Protoplast isolation and fusion- somaclonal variation- synthetic seeds - secondary metabolite production.

Unit IV Soil Microbiology **15 Hrs**

Soil microbiology, definitions- discovery,distribution and importance of soil microorganisms in soil fertility - factors affecting theactivities of soil microorganisms; Rhizosphere microorganisms and importance.

Unit V Biofertilisers **15 Hrs**

Biological nitrogen fixation - symbiotic and non-symbiotic microorganisms.Silicate and zincsolubilising bacteria - types and importance of biofertilizers in agriculture; massproduction and quality control of biofertilizers.

Book for study

Prescott, Harley and Klein, 2013. Microbiology, 9 thedition, McGraw Hill Publishing

Books for Reference

Michael J. Pelczar,JR., E.C.S. Chan, Noel R.Krieg, 2005. Microbiology

Chawla. H S. 2009. Introduction to Plant Biotechnology (3/e).CRC Press , London. 730

.George, E.F, Hall M. A. and Geert-Jan De Klerk. 2009. Plant Propagation by Tissue culture, 3rd Edition, Springer, Netherlands.

eReference

http://microbelibrary.com
http://www.rapidmicrobiology.com
http://www.microbes.info
http://aem.asm.org

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration

Course Outcome:

At the end of the course, the students

SL.NO	Course Outcome	Knowledge Level
CO1	Gain knowledge on basic concepts of plant tissue culture.	K1
CO2	Possess knowledge on methods of plant tissue culture	K1
CO3	Know practical methodology of applied plant tissue culture.	K2
CO4	Know Benefical effects of soil microorganisms	K3
CO5	Gain skills on mass production of biofertilisers	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	2	3	2	3	2	1			2	3	2		23
CO2	3	2	3	2	3	2	1			2	1	1		20
CO3	3	2	3	2	1	2	2			2	3	2		22
CO4	3	2	3	2	3	2	1			2	3	1		22
CO5	3	2	3	2	1	2	1			2	2	2		20
Grand Total of COs with POs & PSOs														107
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{107}{50}$														2.14

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.14**
Observation	**COs of AGRICULTURAL BIOTECHNOLOGY are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core-10
Semester	: IV	Hours	: 60
Sub.Code	: 19URCH04	Credits	: 03

FARM MANAGEMENT PRACTICE –II
(PIG AND POULTRY)

Objectives

1. To impart practical knowledge on various body parts of pig and poultry.
2. To have practice in construction of cattle house and their maintenance.
3. To provide hands on training in all important management practices.
4. To impart practical knowledge on feeding and disease management.
5. To acquire the basic knowledge on Biosecurity of Pig and Poultry

UNIT-I. Breeds and Housing **10 Hrs**

Familiarizing the body parts of pig and poultry and identification of breeds of pig and poultry, Construction of pig sty and poultry sheds of various types - practice on designing and elevations, structure of piggery and poultry shed – drawing of lay out.

UNIT- II .Routine Management Practice **10 Hrs**

Practice on cleaning and grooming of pigs, castration, tail docking, clipping of needle teeth and practice on ear notching and tagging - pig exercising. Practice on incubation in poultry – natural and artificial methods - sexing of chicks- methods and Purpose – brooding of chicks- hands on practice on preparation of poultry shed for receiving of chicks, debeaking and brooding arrangements.

UNIT- III. Dentition, Restraining and Insemination **15 Hrs**

Types of teeth and Dental formula, practice on age determination by dentition in pigs, methods of restraining pig, - Physical and chemical methods- purpose. Handling of poultry - semen collection and artificial insemination in poultry.

UNIT-IV Biosecurity **10 Hrs**

Preparation of bio security measures- Litter management, practice on feeder and waterer types and arrangement – manual and automatic methods, disinfection of piggery and poultry shed, fly control measures, disposal of waste, manure and dead birds and animals.

UNIT- V Health and First Aid Measures **15 Hrs**

Hands on practice on methods of administration of deworming medicines, other medicines and vaccines through various routes. Practical knowledge on common diseases of pig and poultry

and general health programme of pig and Poultry- methods and medications used. Record maintenance in pig and poultry farms.

Book for Study

Banerjee, G. C., A Text book of Animal Husbandry, Oxford & IBH Publishing Company, New Delhi, 2013.

References

Bell D. Donald and Weaver D. William Jr.,Commercial Chicken Meat and Egg Production, 5th Edition, Springer India Pvt. Ltd., Noida., 2007.

Chandra Shekher Sahukar., Piggery India year book 2000, Scientific Publisher and Distributors, New Delhi, 2000.

Hurd M. Louis., Modern Poultry Farming, 1st Edition, International Book Distributing Company, Lucknow, 2003.

Jull A. Morley., Successful Poultry Management, 2nd Edition, Biotech Books, New Delhi, 2007.

Sharda, D.P., Swine Production, Indian Council of Agricultural Research, New Delhi, 1982.

Singh, R. A.,Poultry Production, 3rd Edition, Kalyani Publishers, New Delhi., 2011.

Teaching Learning Methods

- ICT
- Seminar
- Field visit
- Assignments
- Demonstration
- Field practical.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Imparted practical knowledge on various body parts of pig and poultry.	K1
CO2	Practiced in construction of cattle house and their maintenance.	K2
CO3	Trained in all important management practices.	K3
CO4	Imparted practical knowledge on feeding and disease management.	K1
CO5	Acquired the basic knowledge on Biosecurity of Pig and Poultry	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3	3	2	2				3	3	2	1	1	20
CO2	2	2	3	3	3				1	2	1	2	2	18
CO3	2	2	2	3	3				3	3	3	2	1	24
CO4	2	2	2	2	2				2	3	2	2	1	20
CO5	3	3	3	3	2				2	2	2	2	2	24
Grand Total of COs with POs & PSOs														106
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{106}{50}$														2.12

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			
Observation	**COs of FARM MANAGEMENT PRACTICE –II are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc RDS (SS)	Part	: III Core-10
Semester	: IV	Hours	: 60
Sub.Code	: 19URCS04	Credits	: 03

YOUTH EMPOWERMENT AND POLICIES

Objectives

1. To enable the students to understand the concept on youth and present scenario of youth
2. To study the youth in the context of socio-economic milieu and various issues of youth
3. To create awareness on youth participation in the social and political context
4. To impart the knowledge on youth polices and institutions and programmes
5. To build the capacity of the youth for socially committed responsible citizens

UNIT-I Understanding the World of Youth (10 Hours)

Concept of youth - Definition- Types-Needs and Importance- Demographic Profile. Human Development Index Dimensions - Education, Income and Health - Youth in the context of Religion- politics-culture.

Unit-II Development and Problems (10 Hours)

Youth life Cycle - Youth Conflicts – Generation Gap - Unemployment, Alcoholism, Drug & Internet Addiction, Crime, Specific problems of Female Youth .

UNIT-III Participation and Action (10 Hours)

Political and Social participations; Roles and Responsibilities as citizens. Political Engagement; SFI, DYFI, ABVP,NSUI. Democracy Institutions at Grass Roots. Social participation Approaches: Relief-Welfare-Development, Policy.

UNITS –IV Policies and Programmes (15 Hours)

Youth Policy: need and relevance - National Youth Policy: objectives-focus areas - implementation. Youth development Programmes: National Skill Development Commission (NSDC) National Programme for Adolescents Development (NPYAD), Deen Dayal Grameen Kaushalya Yojana. Institutions: Nehru Yuva Kendra Sangathan (NYKS), Rajiv Gandhi National Institute of Youth Development (RGNIYD), United Nations Youth Associations (UNYAs).

UNIT – V Capacity Building (15 Hours)

Concept, Significance of Capacity building. Training Methods: Folk Arts and Street Theatre Training, Exposure Visits, Youth Parliaments, Public Speaking, Debating, Programme Organizing, Formation of Forums and Groups, Use of Social Media for Education and Training.

Books for Study

- Sibereisen K. and Richard M. Lerner, 2007, Approaches to Positive Youth Development,Sage Publications, New Delhi.

- Udaya Mahadevan, Rozario, Gireesan, and Rambabu., 2015, Youth Development: Emerging Perspectives, Shipra Publications, New Delhi.

Books for Reference

Amala Jeyarayan, A. 2014). Empowerment of Marginalized Youth, Abhijeet Publication, New Delhi.

Chowdhry D.P.(1988), Youth Participation and Development, New Delhi . Atma Ram and Sons Publications

Erikson, E.H. 1977, Youth, Change and Challenge, Firma KLM Pvt.Ltd, Calcutta.

G.Palani Thurai and M A Thirunavukarasu, 2010. Youth as Catalysts and Change Makers,Concept Publishing Company, New Delhi.

John, V.V., 1974, Youth and National Goals, Vishwa Youva Kendra, New Delhi.

Kenyon, et.al. 1996, Youth Policy 2000, Formulating and Implementing National YouthPolicies, CYP Publication, Chandigarh.

M.Sarumathi and Kalesh, 2007, Youth Policies and Programmes in South Asia Region,RGNIYD Publication, Sripeumbudur.

Rainer K, Silberesin., (2007), Approaches to Positive Youth Development, SAGE Publication.

Saraswati, 2008, Indian Youth in New Millennium, RGNIYD, Sriperumbudur.

Stephen Hamilton, 2004, The Youth Development Handbook, SAGE Publication, New Delhi.

Web Resources

www.http://www.rgniyd.gov.in
www.http://nyks.nic.in/
www.un.org/development/desa/youth/what-we-do/what-can-you-do/unya.html
www.freechild.org/FPYEWG.pdf

Teaching Learning Methods

- Lectures
- ICT
- Group Discussion
- Visiting Youth Organizations
- Groups presentation

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Gain knowledge about the status of youth in the society	K1
CO2	Understand the challenges and opportunities for young in the new millennium.	K2
CO3	Familiarize the different approaches to youth participation in the society and politics	K3
CO4	Analyze the policies, programmes, techniques and models of youth work	K3
CO5	Acquire the skills and designing capacity building programme of working with youth	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of Course outcomes with Pos and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2	2	3	2				2	3	3	1	2	23
CO2	2	2	2	2	3				2	3	2	2	2	22
CO3	2	3	2	2	2				2	2	3	3	3	24
CO4	2	2	2	3	2				3	3	3	2	3	25
CO5	2	3	2	1	2					2	2	3	2	19
Grand Total of COs with POs & PSOs														113
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{113}{49}$														2.3

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.3**
Observation	**COs of YOUTH EMPOWERMENT AND POLICIES are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II B.Sc RDS (AG) **Part : III Core Lab-4**

Semester : IV **Hours : 75**

Sub.Code : 19URAP44 **Credits : 4**

IRD PRACTICAL- Agriculture

(2018-19 onwards)

Course Educational Objectives:

1. To give hands on training in harvesting methods
2. To Impart technical knowledge on intercultural operations
3. To study and acquire practical skill on agronomy of coconut.
4. To Inculcate methods of organic inputs preparation.
5. To impart skills on preparation of media for plant tissue culture

E.No.	Title of the Exercise
1.	Harvesting methods- Time- methods of Harvesting.
2.	Post harvest processing-fruits- vegetables
3.	Cost of cultivation- Vegetables
4.	Cost of cultivation- Coconut
5.	Chemical control- Preparation of pesticides solution-
6.	Application methods- chemicals- pesticides- fungicides.
7.	Cultural control - Trap crops- summer ploughing
8.	Biological control- Methods of preparation of Biopesticides- Microorganisms- plants
9.	Integrated Pest Management- Paddy
10.	Integrated Pest Management- Coconut
11.	Preparation of organic inputs- Panchakavya- Dasakavya
12.	Preparation of Jeevaamirthakarasal- Meenamilam
13.	Identification of Green manures and green leaf manures- examples
14.	Preparation of media- Isolation of microorganisms
15.	Preparation of Plant tissue culture media- methods of PTC

Teaching Learning Methods

- Demonstration
- Hands-on training
- ICT
- Seminar
- Field visit
- Assignments
- Field practical visit.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Hands on training in harvesting methods	K2
CO2	Imparting technical knowledge on intercultural operations	K1
CO3	Acquiring practical skill on agronomy of coconut.	K3
CO4	Inculcating methods of organic inputs preparation.	K3
CO5	Skills on preparation of media for plant tissue culture	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping course outcome with:

(i) Programme objective

(ii) Programme specific objective

Outcome	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	**Sum of COs with POs & PSOs**
CO1	3	3	3	2	3	2	1			2	3	2		24
CO2	3	2	3	2	3	2	1			2	3	2		23
CO3	3	2	3	2	1	2	2			2	3	2		23
CO4	3	2	3	2	3	2	2			2	3	1		22
CO5	3	2	3	2	3	2	2			2	2	2		23
Grand Total of COs with POs & PSOs														114
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{114}{50}$														2.28

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.28**
Observation	**COs of IRD practical - Agriculture are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: II B.Sc. RDS (AH)	Part	: III Core Lab-4
Semester	: IV	Hours	: 75
Sub.Code	: 19URHP44	Credits	: 04

IRD PRACTICALS – Animal Husbandry
(2018-19 onwards)

Course Educational Objectives :

1. To impart practical knowledge on the various external and internal qualities of a chicken egg.
2. To Know about the various aspects of incubator management and hatching of eggs
3. To give practical training on techniques on hatching, brooding and rearing of chicks.
4. To acquire practical skill on the various slaughtering techniques and cut up parts of the chicken
5. To study about the structure and construction details of various type of poultry farms

E.No.	Title of the Exercise
1.	Determination of egg shape, size and weight
2.	Assessment of eggshell, colour and texture
3.	Determination of egg volume, specific gravity and surface area
4.	Estimation of yolk colour and yolk index
5.	Determination of albumin index
6.	Selection and storage of hatching eggs
7.	Practice artificial incubation.
8.	Preparation of brooder and brooding management.
9.	Computation and preparation of layer and broiler concentrate feed mixture
10.	Demonstration of different types of feeder, waterer, fogger, sprinklers
11.	Slaughtering of broiler and cut up parts of broiler carcass
12.	Slaughter technique and study the parts of the digestive and reproductive tract in the carcass.
13.	Exposure to commercial broiler and layer farms - the different system of housing.

Teaching Learning Methods

- Demonstration
- Hands-on training
- ICT
- Seminar
- Field visit
- Assignments
- Field practical visit.

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Understands the various external and internal qualities of an egg.	K1
CO2	Know the various aspects of incubator management and hatching of eggs	K2
CO3	Trained on techniques on hatching, brooding and rearing of chicks.	K3
CO4	Gained knowledge on various slaughtering techniques and cut up parts of the chicken.	K3
CO5	Familiarize with the structure and functions of various type of poultry farms	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Course Outcomes:

CO1: Understands the various external and internal qualities of an egg.

CO2: Know the various aspects of incubator management and hatching of eggs

CO3: Trained on techniques on hatching, brooding and rearing of chicks.

CO4: Gained knowledge on various slaughtering techniques and cut up parts of the chicken.

CO5: Familiarize with the structure and functions of various type of poultry farms

Mapping of Course outcomes with Pos and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 1	PO 2	PO 3	PO 4	PO 5	Sum of COs with POs & PSOs
CO1	2	2	2	2	3				2			2		10
CO2	1	2	2	2	3				1		2	2		10
CO3	1	3	3	2	2				3				3	14
CO4	1	2	2	2	2				2	2	2			10
CO5	2	1	3	1	2					2		2		11
Grand Total of COs with POs & PSOs														55
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{55}{25}$														2.2

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.20**
Observation	**COs of IRD practical - Agriculture are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**: II B.Sc. RDS (SS)**	**Part**	**: III Core Lab-4**
Semester	**: IV**	**Hours**	**: 75**
Sub.Code	**: 19URSP44**	**Credits:**	**04**

IRD PRACTICALS – Social Sciences
(2018-19 onwards)

Course Educational Objectives

1. To describe the vital role of science and technology in different fields of rural development
2. To impart knowledge on agriculture products and agriculture marketing and its various stakeholders
3. To help the students to gain knowledge about the cooperative farming.
4. To familiarize the students on various challenges of modern technologies towards Digital, gender and climatic conditions
5. To impart the knowledge on youth polices and institutions and programmes

E.No.	Title of the Exercise
1.	Preparing a family Budget
2.	Visiting to Agriculture Primary Cooperative Society
3.	Visit to Agriculture Market and Dairy cooperatives
4.	Visit to Bio-gas unit
5.	Visit to Village Resource Centre
6.	Visit to e learning centre / L3F
7.	Observation visit to Nehru Yuva Kendra (NYK)
8.	Visit to Youth Organisations
9.	Visit to NGOS working in Youth development
10.	Visit to NABARD and Regional Rural Banks
11.	Visiting farmer producer company
12.	Visit to Village based Palm Jaggery Units

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	Identify the alternative energy technologies in agriculture sector	K1
CO2	Demonstrate an awareness of various agricultural market structures and the marketing of agricultural products.	K2
CO3	Acquaint with the structure of cooperative farming	K3
CO4	Associate the technology with the changes in rural society.	K3
CO5	Propose some effective measures about the policies, programmes, techniques and models of youth work	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping Course Outcome with PSO and PO:

(Programme Outcomes – **POs**, Programme Specific Outcomes – **PSOs**)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with POs & PSOs
CO1	2	1	3	2		2		3	3	2		2		21
CO2	3	2	2	3				2	2		2	2		18
CO3	3	2	3	2	1		2	2	3		2			20
CO4	2		2				3	2	2	2				13
CO5	3	1	2		2	2	2	2	2		3			18
Grand total of COs with POs & PSOs														90
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{90}{41}$														2.19

S Strong – 3; Medium-2; Low – 1

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	0.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean values of COs with POs and PSOs			2.19
Observation	**COs of IRD practical are strongly correlated with PSOs and POs.**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	**: II B.Sc. RDS**	**Part**	**: III Allied - 4**
Semester	**: IV**	**Hours**	**: 75**
Sub.Code	**: 19URDA44**	**Credits:**	**4**

COMMUNICATION AND EXTENSION

OBJECTIVES:

To enable the students:

1. To gain basic knowledge on Communication and Communication channels.
2. To understand the concept of extension.
3. To become aware of different extension methods and the role of audio-visual aids.
4. To identify various Common Service Centres to facilitate rural development
5. To comprehend the application of ICT tools in extension and rural development.

UNIT – I COMMUNICATION (15 Hours)

Meaning – Definition – Elements of Communication, Communication Models, Functions of Communication -.Communication Channels: Meaning - Importance –Nature of Communication Channels - Classification of Communication Channels –– Selection of Communication Channels – Problems in Communication – Problems related to Communicator, Message, Channel and Receiver

UNIT- II EXTENSION (15 Hours)

Meaning - Definition- Objectives - Origin, Development and Importance of Extension - Principles and Philosophy of Extension –Extension and Rural Development

UNIT – III EXTENSION METHODS (15 Hours)

Individual – Group and Mass Contact Methods – Steps Involved – Advantages and Disadvantages – Audio- Visual Aids – Role of Audio-visual aids in Rural Development

UNIT –IV COMMON SERVICE CENTRES & RURAL DEVELOPMENT (15 Hours)

E-Governance – Digital India Programme – Telemedicine – Village Knowledge Centre – Village Resource Centre (VRCs) – E-learning and Mobile learning for farmers

UNIT –V ICT, EXTENSION & RURAL DEVELOPMENT (15 Hours)

ICTs – Concept - Definition – ICT Tools: e-learning, Mobile technologies, Information Resources, Sharing and Networking -Application of ICT in Extension and Rural Development - Advantages, Limitations and Opportunities of ICT

Books for study

- Reddy, A. Adivi., 'Extension Education', Sree Lakshmi Press, Bapatta, 1987
- Supe, S.V., 'An Introduction to Extension Education', Oxford & IBH Publishing Co., New Delhi, 1983
- Dahama, O.P, and O.P. Bhatnagar., 'Education and Communications for Development', Oxford and IBH Publishing Co. Pvt Ltd., New Delhi, 1984

Books for Reference

- Manoharan, R.M, Annamalai, S. Somasundaram and K.M. Krishnakumar., 'Extension Methods and Their Principles', Palanippa Printers, Thirunelveli, 1987
- Ray, G.L., 'Extension Communications and Management', Naya Prakash Publications, Calcutta, 1991
- Rudramoorthy, B., 'Extension in Planned Social Change', Allied Publishers Pvt. Ltd., Madras, 1964
- Kumar, K.J., 'Mass Communication in India', Jaico Publishing House, Madras, 2010
- Reddy A. A., 'Extension Education', Sri Lakshmi Press, Bapatta, 2011

Teaching and Learning Methods

1. Class Lecture
2. ICT Presentation
3. Group discussion
4. Assignments and Paper presentations
5. Brain storming sessions
6. Content creation
7. Contents comparative analysis
8. Content review

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	The students will understand the fundamentals of communication and communication process.	K1
CO2	The students will realize the concept of extension and its importance in rural development.	K2
CO3	The students will equip themselves with the knowledge and the skills in Extension methods to work for the development of rural community.	K3
CO4	The students will be aware of various e-service facilities of Government of India	K2
CO5	The students as rural development personnel will be able to make use of modern ICT tools and electronic gadgets for extension and rural development.	K3

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	2	2	3	2			2		3		2	2	2	20
CO2	2	2	2	3		2		2		2	3	2	2	22
CO3	2	2		3		2			2	2	2		2	17
CO4	3	2	2		2		2		3	2	2	2		20
CO5	2	2	2		3	2	2		2	2	2	2		21
Grand Total of COs with POs & PSOs														100
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{100}{46}$														2.17

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.17**
Observation	**COs of COMMUNICATION AND EXTENSION are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II B.Sc. (other Arts) **Part : IV NME-1**

Semester : IV **Hours : 45**

Sub. Code : 19URDN24 **Credits: 2**

FOOD PRESERVATION

Objectives:

1. To enable the students to understand the chemical composition and its food values.
2. To impart knowledge on method of preparation and preservation of milk
3. To motivate the students to start processing and preservation of meat and fish.
4. To familiarize the students about the processing and preservation techniques of juice, syrups and beverages.
5. To emphasize the importance of Marketing food products and agencies.

Units I (9 Hours)

Basic knowledge about the composition of milk, meat, fruits and vegetables-food value of these foods and their product and byproduct. Reason of food spoilage-Microbes, chemicals and temperature.

Units II (9 Hours)

Preparation and preservation of indigenous milk and milk products-butter, cheese, ghee, skim milk, fermented milk products- yoghurt.

Units III (9 Hours)

Processing and Preservation of Meat and Meat Products-cooking-salting-pickling-curing-smoking-freezing and storage of frozen meat, chicken and fish product–Dehydrated egg powder.

Units IV (9 Hours)

Vegetables and Fruit processing – citrus juices, apple juice, grape juice, dehydrated products and fruit based beverages. Concentrates- squash, jams, jellies, pickles.

Units V (9 Hours)

Marketing of processed Food Products- Marketing channels, marketing agencies, Marketing regulation and certification.

Books for Study

- Desrosier and Desrosier. J. 1987, Technology of food preservation, CBCS Publishing, New Delhi.
- Srilakshmi, B. (2003), “Food Science”, New Age International Publishers, New Delhi.
- Subalakshmi, G and Udipi, S.A. (2001), “Food processing and preservation”. New Delhi.

Books for Reference

- Madhuarora. 1990; Dictionary of food nutrition and Dietics; BAPCO Publication, Bangalore.
- Swaminathan. M. 1986; Hand Book of Food and Nutrition; RAPCO Publication, Bangalore.
- Mc Williams and Panie. H. 1984; Modern of food preservation; Surjee Publication, New Delhi.

- Kulshreestha.SK.1994; Food preservation , Vikas Publication House; New Delhi.
- Sugukumar De 2018. Outlines of Dairy Technology. Oxford publication. New Delhi.
- Shakuntala Manay N. 2008. Foods facts and principles. NEW AGE publication. New Delhi.
- Porter N. N. and Hotchkass H. J. 2007 Food science. CBS publication & Distributors Pvt. Ltd. New Delhi.

Teaching Learning Method

1. Class lecture
2. Assignments
3. Seminars
4. Quiz
5. Power point presentation
6. ICT
7. Group Discussion

Course Outcome:

SL.NO	Course Outcome	Knowledge Level
CO1	It enable the students to produce by products and value added products with the help of basic information about the chemical composition of milk, fish, fruits and vegetables	K1
CO2	Help the students to understand different food preservation techniques of milk	K2
CO3	Students gain practical knowledge about the processing and preservation of meat and fish.	K2
CO4	Students are motivated to become entrepreneurs of fruits, vegetable and agro based products.	K3
CO5	Become aware of marketing strategies rules and regulation contribute to start own business.	K2

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**Sum of COs with POs & PSOs**
CO1	**3**	**2**	2	2	2		3		**3**		**3**			20
CO2	**3**	**2**	2		2	3			**3**	**3**				18
CO3	**3**	**2**	3	2	2		2	3		**3**				20
CO4	**2**	**3**	2	3	3			2	**3**		**2**			20
CO5	**3**	**3**	2	3					**3**	**3**		**2**		19
Grand Total of COs with POs & PSOs														97
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{97}{38}$														2.5

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.5**
Observation	**COs of FOOD PRESERVATION are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR – 625 514
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: UG (Aided)	Part	: Self Learning Course
Semester	: IV	Hours	:
Sub code	: 15URDSL4	Credit	: 3

AQUACULTURE

Objective:

1. To provide an opportunity to the students to study the importance of aquaculture in terms of nutrition, rural employment and income generation.
2. Ensure active student participation in activities connected with basic aquaculture and cultivation practices.
3. The gain knowledge about fish fish culture practices.
4. To import knowledge about fish feeding behaviour, breeding and rearing techniques.
5. The gain knowledge and understand the prevention and control of fish diseases.

Unit I:

Scope and Importance of Aquaculture & Fish Nutrition: Scope and importance of aquaculture – as a counter part to agriculture – as a protein substitute – rural employment. Fish nutrition – feeds, artificial diets, live feed organism.

Unit II:

Construction of fish farms – Principles of site selection, soil characteristics, water quality. **Types of Fish Culture** Monoculture, polyculture, composite fish culture, sewage fed fish culture, ornamental fish culture and freshwater prawn culture. Characteristics of cultivable species, Indian major carps and exotic carps – common carp, silver carp and grass carp.

Unit III:

Brackish Water and Marine Fish Culture: Brackish water fish culture and Shell fish culture – shrimp farming (marine prawn culture) and Pearl Oyster Culture.

Unit IV:

Fish Breeding and Fish Seed Production: Breeding technique – hypophysation, induced spawning of Chinese and Indian major carps, common carp breeding, harvesting of fry and fingerlings – transportation of fish seed.

Unit V:

Fish Diseases: Infectious diseases – bacterial, viral, fungal and protozoan diseases – Prevention and control of fish diseases.

Book for References:

Baradach, J.E., Ryther, J.H. and Mclarny, R.W. 1974. Aquaculture.

Jhingran, V.G. 1997. Fish and Fisheries of India. Hindustan Publishing Co., New Delhi, PP. 727.

Santhanam, R. 1990. Fisheries Science. Daya Publishing House, New Delhi. pp. 174.

Santhanam, R. Sukumaran, N and Natarajan,P. 1990. A Manual of Fresh water Aquaculture, Oxford and IBH, New Delhi.

Schaperclaus, W. 1991.Fish diseases. Oxonian Pvt. Ltd., New Delhi.

Venkataramanujam, K and N. Ramanathan. 1994. Manual of finfish biology. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.

Teaching and Learning methods

- Class Lecture
- Digital Presentation
- Lab Practical and demonstration
- Learning through exposure
- Discussion of scientific articles relevant to the lecture theme

COURSE OUTCOME

On completion of the course, the student should be able to:

	COURSE OUTCOME	**KNOWLEDGE LEVEL (Bloom's Taxonomy)**
CO1	In the field of aquaculture, candidates can become an aqua-culturist, farm managers, exporters, traders, breeders and modern fishermen's, etc	**K1**
CO2	An aquaculture consultant workplace typically includes office function. The business aquaculture industry incorporates marine and freshwater exercises.	**K4**
CO3	Confident in identifying the characteristics of different brackish and marine fish	**K2**
CO4	Apply modern equipment in laboratories, special computer programs for design of fisheries and aquaculture farms by implementation of innovative ideas for management of farms.	**K3**
CO5	Solve the technological challenges related to management of fisheries and aquaculture farms; organize activities to ensure their entrepreneurship and competitiveness.	**K3**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5 = Synthesis

Mapping of the course outcome with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**Sum of COs with POs & PSOs**
CO1	**2**	**2**	3	3	2	2				**3**			**1**	18
CO2	**2**	**3**	2			3			**3**	**3**	**3**			19
CO3	**3**	**2**	3	2	2		2	1		**3**	**2**			20
CO4	**3**	**1**	3	3	2			2	**2**		**2**			18
CO5	**2**	**3**	2	2	2	2			**2**	**3**	**3**	**1**		22
Grand Total of COs with POs & PSOs														97
Mean Value of COs with POs & PSOs = $\frac{Grand\ \ Total\ \ of\ \ Cos\ with\ POs\ \&\ PSOs}{Number\ \ of\ \ Cos\ relating\ \ \ with\ POs\ \&\ PSOs} = \frac{97}{42}$														2.30

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.30**
Observation	**COs of Fundamentals of Life Sciences are strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS) KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: Core 11
Semester	: V	Hours	: 90
Sub. Code	: 19URDD15	Credit	: 5

SOCIAL WELFARE ADMINISTRATION

Course Educational Objectives:

6. To impart knowledge about social welfare Administration
7. To provide necessary knowledge about registration and administration of various Welfare organizations.
8. To be acquainted with roles and functions of welfare boards at Central and State level.
9. To understand the basic concept of Social Policy and its formulation
10. To develop skills related to administrative process.

Unit – I: Social Welfare Administration (15 Hours)

Introduction -Meaning, Definition, Nature and Scope. Models of Social Welfare Administration- Familial model, Residual model, Mixed economy model, Model of State control -Principles and Functions of Social Welfare Administration.

Unit – II: Administrative process in Welfare Institutions (20 Hours)

Programme Management -Financial and Office Administration; Budgeting, Accounting, Auditing, Fundraising strategies, Record maintenance, Documentation, Public relations.

Unit –III Registration of Welfare Organisation (20 Hours)

Provisions for various forms of Registration of Welfare Organisation / NGOs: Indian Trust Act 1882/ Society Registration Act 1860/Company Act 1956. Conditions and Procedures required for Registration of NGOs under Registration of Societies Act 1860. Administration of Registered Welfare Agencies: Role and Functions of General body, Role and Responsibilities and Functions of Office bearers.

Unit IV: Social Welfare Boards (15 Hours)

Central Social Welfare Board- State Social Welfare Advisory Board- Objectives - Functions - Programmes and Schemes of the State and Central Social Welfare Boards

Unit V: Social Policy (20 Hours)

Concept and Scope - Process of social policy formulation; Social policy related to Women, Children, Youth, Aged, Destitute, Differently abled and for SCs and STs.

Books for Study

Bhattacharya, Sanjay.,(2006), Social Work Administration, Rawat Publication, Jaipur.
Chowdry, Paul D., (1990), Social Welfare Administration, Atma Ram and Sons, New Delhi.
Dhama, O.P.,(1986), Extension and Rural Welfare, Ram Prasad & Sons, Agra.

Books for reference

Dubey, S.N.,(1972), Social Welfare Policy and Social Welfare Service, Tata Institute of Social Sciences, Bombay.

Goel, S. L.,(2010), Social Welfare Administration: Social Justice and Empowerment. Vol.1& 2, Deep and Deep Publication Pvt. Ltd., New Delhi.

John, Ray.,(1954), Executive Responsibilities, Association Press, New York.

Johri, P.K.,(2007), Social Administration, Anmol Publication, New Delhi.

Mazumdar, Ammu Menon., (1964), Social Welfare in India, Asian Publishing House, Bombay.

Ranjana, Devi.,(2009), Social Welfare: Concepts and Theory, Omega Publications, New Delhi.

Sachedeva, D.R., (2009), Social Welfare Administration, Kitab Mahal, New Delhi.

Skidmore, R.A., (1995), Social Work Administration, Allyn & Bocan, Boston .

Teaching and Learning Methods

- Class Lecture
- Assignment
- Seminars
- Group Discussion
- Case Study
- Use of ICT
- Exposure Visit
- Field Work
- Internship Training

Course outcome

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Identify and understand the various social welfare institutions and models of social welfares	**K1**
CO 2	Plan and organize various social welfare programmes	**K2**
CO 3	Formulate social welfare projects	**K3**
CO 4	Train and provide technical support to social welfare organizations	**K4**
CO 5	Start social welfare institutions to work for marginalized groups	**K4**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3							3	3				12
CO2	3	2		3					2	2	3			15
CO3	2	2			2				2	2	2		3	15
CO4	2	2	3		2				2	2	2	2		17
CO5	2	1			2	3			2	1	1	2		14
Grand Total of COs with POs & PSOs														73
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{73}{33}$														2.2

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.2**
Observation	**COs of SOCIAL WELFARE ADMINISTRATION is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core -12
Semester	: V	Hours	: 60
Sub. Code	: 19URDD25	Credit	: 3

COMMUNITY BASED ORGANISATION

(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives

1. To introduce the basic concepts of civil society organization, its role and principles
2. To provide them with an over view of models and approaches
3. Acquire the specific knowledge on Self Help Groups.
4. Familiarize himself on various agencies in India
5. To equip the students with skills in areas of project proposal, report writing and NGO management

Unit – I: Community Based Organization (10 Hours)

Meaning, Definition, Concept, classification – Broad framework of the state and civil society- Concept, role and functions of civil Society organization – Principles of Community organization.

Unit-II Approaches of community organization: (10 Hours)

Service approach, Developmental approaches, Religious – Cultural approaches, Public movement approach based on understanding of society (ex. Existence model, Co option model, Hierarchical model).

Unit – III: Self Help Groups (10 Hours)

Objectives, Characteristics, Origin and growth of SHGs – Stages: Preformation, Formation, Stabilization, Expansion and Diversification – Achievements and Problems of SHGs – SHGs - Government Organizations- ***Farmers Producers Company***

Unit – IV: *Role of Various Agencies* **(10 Hours)**

Farmers club, youth club, Women's Forum – ***Role of Panchayat Raj – Role of Social Media*** - Micro credit institutions, Co-operatives, rural banking – Political institutions.

Unit – V: NGO Management (20 Hours)

NGO – Meaning, concept, categories of NGOs, - formulation and Registration of NGO – Constitution, byelaws. Memorandum – ***FCRI***

Books for Study:

Kumar, R. and Goel, S.L.(2005). Administration and Management of NGOs: Text and Case studies. New Delhi: Deep & Deep Pub.

Article I. Frances, S. (2009). Microfinance Self Help Groups in India: Living Up to Their Promise. New Delhi: Practical Action Publishing.

Books for reference

Das, P. (2016). Self Help Groups: Problems opportunities and challenges ahead, New Delhi biotech books.

Patil, A. R. (2012). Community Organization and Development: An Indian Perspective. New Delhi: PHI Learning Pvt. Ltd.

Dharmaraj, S. (2006). Panchayat Raj Systems in India. New Delhi: Abhijeet Publications.

Prasad, B.K. (2004). NGO's and Development, New Delhi: Anmol Publication.

Shah, (1993). Voluntarism – Concept and Issue, New Delhi: Vikas Publishing Co.Desai,

Teaching Learning Methods

- ICT usage
- Creative assignments
- Individual cum Group Presentation
- Newspaper Reading and Analysis
- Peer Learning
- Field Exposure and Training
- Group Discussion
- Group Projects
- Short films and other educational videos

Course Outcome: At the end of the course, the students will:

SL.No	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Apply community organization principles, concepts and techniques in the civil society organization and in the community development	**K3**
CO 2	Matching various models and approaches in their local settings	**K2**
CO 3	Competency to advise and train the Self-help Groups to promote the rural development activity	**K4**
CO 4	Interrelat role of panchayat raj, social media, banking and political institution	**K4**
CO 5	Students are motivated to set up an NGOs in future	**K5**

K1=Knowledge, K2=Understanding, K3=Application, K4=Analysis, K5=Synthesis

Mapping Course Outcome with PSO and PO:

(Programme Outcomes – **POs**, Programme Specific Outcomes – **PSOs**)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	Sum of COs with POs & PSOs
CO1	3	2	2	2		3	2	2	2					18
CO2	2	2	2	2		2	2	2	2					16
CO3	2	2	3	2		2	2	2	3					18
CO4	2	2	3	2		2	2	2	2					17
CO5	2	2	3	2	3	2	2	2	2		3			23
Grand Total of COs with POs & PSOs														92
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{92}{44}$														2.09

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.09**
Observation	**COs of COMMUNITY BASED ORGANISATION is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core -13
Semester	: V	Hours	: 60
Sub. Code	: 19URDD35	Credit	: 3

RURAL SOCIAL PROBLEMS

(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives :

1. To bring out the interrelationship between society and social problems
2. To provide the multifaceted aspects of rural poverty
3. To impart a comprehensive knowledge on rural unemployment and population explosion
4. To discuss the problems and challenges of youth
5. To explain the social problems faced by rural women and children

Unit – I: Social Problems: Meaning and Concept **10 Hours**

Meaning - definitions – concepts - characteristics - causes and types of social problems

UNIT - II: Rural Poverty **10 Hours**

Rural Poverty - concept, incidence, magnitude, causes, effective strategies for alleviating poverty

UNIT - III: Rural Unemployment, Population Explosion **10 Hours**

Rural Unemployment - magnitude, features, types, causes and consequences, measures to control unemployment - rural unemployment and remedies.

Population explosion - magnitude, causes, effects of population explosion - population policy, measures to control population explosion.

UNIT- IV: Problems of Youth **15 Hours**

Juvenile delinquency, Alcoholism, Drug abuse and drug addiction, AIDS, Terrorism, Youth unrest and agitations, Youth leadership and measures to combat problems of youth

UNIT - V: Problems of Rural women and Children **15 Hours**

Violence against women, dowry, women harassments, domestic violence, social violence. Child abuse, child labour, preventive and promotive measures, Legal protections of women and children

Book for Study

Ahuja, Ram, (2020), 'Social Problems in India', Rawat Publications, Jaipur.

Books for Reference

Husnain, Nadeem, (2020), 'Indian Society: Themes and Social Issues', McGrow Hill Education (India) Pvt. Ltd., Chennai.

Rao, Shankar C.N., (2015), 'Indian Social Problems: A Sociological Perspective', S. Chand Publishing, New Delhi.

Singh, Awadhesh Kumar and Jayanta Choudhury, (2012), 'Violence against Women and Children: Issues and Concerns', Serials Publications, New Delhi.

Teaching Learning Methods

- Field Exposure and Training
- Group Discussion
- Group Projects
- Individual cum Group Presentation
- Newspaper Reading and Analysis
- Peer Learning
- PowerPoint Presentation
- Short films and other educational videos

Course Outcomes (COs)

S. No.	Course Outcome At the end of the course, the students will	Knowledge Level (Bloom's Taxonomy)
CO1	Identify the social, economic, political and cultural causes of social problems	**K2**
CO2	Formulate suitable intervention strategies to alleviate rural poverty	**K4**
CO3	Organize programmes on population control and propose income generating activities for rural farmers	**K3**
CO4	Counsel the youth affected by social issues	**K3**
CO5	Suggest legal and other measures to safeguard women and child rights	**K2**

K1= Knowledge, K2= Understanding, K3= Application, K4= Analysis and K5= Synthesis

Mapping of Course outcomes with POs and PSOs

(Programme Outcomes – **POs**, Programme Specific Outcomes – **PSOs**)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2							3	1				9
CO2	2	2	2	3					2	2	1	1	2	17
CO3	2	2	2	2	1	1			2	1	1	2	2	18
CO4	2	1	2	2	1				2	2	1	2	2	17
CO5	2	1	3	2	1				1	1	2	2	2	16
Grand Total of COs with POs & PSOs														77
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{77}{45}$														1.71

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs		**1.71**	
Observation	**COs of RURAL SOCIAL PROBLEMS are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core -14
Semester	: V	Hours	: 90
Sub.Code	: 19URDD45	Credit	: 5

SOCIAL RESEARCH METHODOLOGY

Course Educational Objectives:

1. To impart knowledge about social research and its significance in rural development
2. To make the students understand different research designs and methods
3. To enable the students to get familiarized with sampling processes and procedures
4. To identify the appropriate tools of data collection in social science research.
5. To train the students to acquire report writing skills

Unit I – Introduction **(10 Hours)**

Social Research – Definition – Objectives – Scope – Limitations – Identification and formulation of research problem – Significance of social research in rural development – Inter-disciplinary approach.

Unit II – Research Design & Models **(20 Hours)**

Research Design: Exploratory design, Descriptive design, Diagnostic design, Experimental design.
Research methods: Survey method, Case study method, Experimental method, PRA method.

Unit III – Sampling **(20 Hours)**

Meaning and types – Simple random sampling – Systematic random sampling – Stratified random sampling – Multi-stage sampling – Purposive and Quota sampling

Unit IV – Data collection, Process and Analysis **(20 Hours)**

Data: Primary data, Secondary data; Techniques: Interview, unstructured interview, Observation; Tools: Interview guide, Questionnaire.
Classification, Tabulation, Interpretation & Presentation of the data, Measures of central tendency: mean, median, mode.

Unit V – Report Writing **(20 Hours)**

Purpose – Contents – Foot notes – Bibliography – Style of writing – Chapterization – Qualities of a good report.

Teaching Learning methods

- Class lecture
- PPT presentation

- Quiz
- Group discussions to formulate research problem
- Workshops and Hands-on Training to design tools
- Worksheets - statistical averages.

Books for study :

Kumar, Ranjit, (2011), *Research Methodology – A step-by-step guide for beginners,* New Delhi: Pearson.

Raiyani, Jagadish R, (2012), *Research Methodology – Theory and Techniques*, New Delhi, New Century Publications.

Krishnaswami, O.R, and M. Ranganatham, (2013,) *Methodology of Research in Social Sciences,* Mumbai, Himalaya Publishing House.

Kothari, C.R, and Gaurav Garg, (2014), *Research Methodology – Methods and Techniques*, New Delhi, New Age International (P) Limited Publishers.

Books for Reference :

Doolay David, (2004), *Social Research Methods*, New Delhi: Prentice Hall.

Kothari, (1990), *Research Methods and Techniques*, New Delhi: WishwaPrakasan.

Pauline V.Young, (2004), *Scientific Social Survey and Research*, New Delhi: Prentice Hall.

Sadha, (1985), *Research Methodology in Social Sciences,* Meerut: Himalaya Publishing

Santosh Gupta, (2001), *Research Methods and Statistical Techniques*, New Delhi: Deep and Deep Publications.

Vaus,De, (2002), *Surveys in Social Research*, Jaipur: Rawat Publishing.

Wilkinson, and Bandharkar, (1984), *Methodology and Techniques of Social Research*, New Delhi: Himalaya Publishers.

Course Outcomes

After completing this course, the students will

CO.No.	Course Outcome	Level
1.	Gain basic knowledge about social science research and realize its interdisciplinary approach, needs and importance in rural development	K2
2.	Become aware of different research designs, methods and sampling techniques used in social science	K2
3.	Recognize the significant tools used for data collection in social science research	K2
4.	Obtain the skills to calculate statistical average: mean, median and mode	K4
5.	Understand and apply the format and the styles of report writing.	K3

Mapping of Course Outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3							3	2				10
CO2	3	3							3	2				11
CO3		3			2					3	2			10
CO4						3					3	2		8
CO5	3	3			2	2			3	3	2	2		20
Grand Total of COs with POs & PSOs														50
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{50}{24}$														2.08

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.08**
Observation	**COs of SOCIAL RESEARCH METHODOLOGY is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE
COMMERCIAL AGRICULTURE

Class	: III B.Sc	Part	: III Core Elective -1
Semester	: V	Hours	: 60
Sub.Code	: 19URDE15	Credit	: 3

Course Educational Objectives:

1. To impart knowledge on the cultivation of silkworms.
2. To empower students on the technical features of honeybees.
3. To inculcate the agronomical aspects of mushroom
4. To elucidate the composting methods using earthworms.
5. To aquatint the students on the concepts of Agroforestry.

Unit I Sericulture **15 Hrs**

Sericulture –silkworm types and races – Mulberry cultivation – varieties and cultivation –Pests, and diseases of mulberry and their management. Rearing house – types – Chawki rearing – feeding, cleaning, spacing and moulting care in different stages – harvesting – Pests and diseases of silkworm and their management. – Yield- Economics of sericulture

Unit II Apiculture **15 Hrs**

Apiculture - Bee species – comparison- castes of bees, bee behaviour and bee dance; Apiary management practices – bee pasturage, foraging, seasonal variations; Bee products – properties and uses. Effect of agricultural inputs on bee activity – Yield – Economics of bee keeping

Unit III Mushroom cultivation **10 Hrs**

Mushrooms- Types- Oyster, Button and Milky mushrooms- Methods of cultivation- Prerequistes of mushroom shed- Physical conditions- Infrastructure needed. Marketing of mushrooms- Nutritive value –Yield- Economics of mushroom cultivation

Unit IV Vermicomposting **10 Hrs**

Vermicomposting- Earthworm- Life cycle- Types- Methods of vermicomposting- Soil- Tanks- Pits- Sheds- Substrate- Requirements for composting- Management of composting period- Yield- Economics of vermicomposting

Unit V Agroforestry **10 Hrs**

Important farm grown trees -Regeneration techniques – Tending –Rotation – Yield and Uses of *Tectonagrandis, Santalum album,* Casuarina species, Eucalyptus species*, Azadirachtaindica, Meliadubia, Leucaenaleucocephala, Aibizialebbeck, Acacia leucophloea, Acacia auriculilformis,*

Books for Reference :

David, B.V. and V.V. Ramamurthy. 2011. *Elements of Economic Entomology*, Namrutha Publications, Chennai, 386 p.

CSB. 2003. Seri Business Manual- Vol. III Farm & Industry Sectors, Central Silk Board, Bangalore.

Dandin, S.B., J.Jayaswal and K. Giridhar.2003. Hand book of Sericulture Technologies. Central Silk Board, Bangalore, 287 p.

Divya, M.P., K.T.Parthiban, K.Srinivasan, K.Vanangamudi and M.Govinda Rao. 2008. A text book on Social Forestry and Agroforestry. Satish Publishers, Delhi

Dwivedi, A.P. 1992. Agroforestry Principles and Practices. Oxford & IBH publishing Co., New Delhi

Web resources

http://www.sristi.org/hbnew

http://www.ncipm.org.in/recent-publications.htm

http://www.ipmnet.org

Teaching Learning Methods

ICT, Seminar, Field visit , Assignments, Demonstration etc.,

Course outcomes

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Knowledge of Raising allied enterprises of agriculture namely sericulture	**K1**
CO 2	Knowledge on rearing honey bees	**K1**
CO 3	Awareness on the Methods of cultivation of Mushroom	**K2**
CO 4	Skills of Different methods of Vermicomposting.	**K3**
CO 5	Knowledge of Various profitable trees employed in agroforestry.	**K3**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5

Mapping of Course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PS O5	Sum of COs with POs & PSOs
CO1	2	2	2	1	1				2	2	2			14
CO2	2	1	2	2	2				2	2	1			14
CO3	2	1	2	2	1				2	1	1			12
CO4	1	2	1	1	1				1	2	2			11
CO5	2	2	2	1	1				2	2	1			13
Grand Total of Cos with POs & PSOs														64
Mean Value of COs with POs & PSOs = $\frac{Grand\ \ Total\ \ of\ \ Cos\ with\ POs\ \&\ PSOs}{Number\ \ of\ \ Cos\ relating\ \ \ with\ POs\ \&\ PSOs} = \frac{64}{40}$														1.6

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs		**1.60**	
Observation	**COs of COMMERCIAL AGRICULTURE are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc	Part	: III Core
Semester	: V	Hours	: 75
Sub.Code	: 19URDP55	Credit	: 5

INTEGRATED RURAL DEVELOPMENT PRACTICAL
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives

1. To help the students to gain knowledge about appropriate field experience
2. Familiarize himself on various agencies in India
3. Acquire the specific knowledge on Self Help Groups
4. To discuss the problems and challenges of youth
5. To equip the students with skills in areas of project proposal, report writing and NGO management

Title

S.No.	Name of the Exercise
1	Visit to Non- Government organization
2	Visit to Block Development Office
3	Hands on exposure to students in implementing Government funded rural development programmes like MGNREGA, PMAY, THAI, etc
4	Observation visit to NGOs working in youth development etc
5	Observation visit to Nehru Yuva Kendra Sangathan(NYKS) under Ministry of Youth Affair
6	Organizing Skills (Participating in NGO Programmes and Organize) i. HIV Awareness Campaign ii. Environmental Awareness Campaign iii. Conducting Medical Camp iv. Conducting Eye Camp v. Conducting Veterinary Camp

Teaching and Learning Methods

- demonstration
- Presentation
- Learning through exposures and field work
- Record work & viva-voce

Course outcomes

Students will be able to

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Acquaint with the structure of non-government organization	**K2**
CO 2	Interrelate role of, NGO, panchayat raj, social media, banking and political institution	**K3**
CO 3	Competency to advise and train the Self-help Groups to promote the rural development activity	**K3**
CO 4	Counsel the youth affected by social issues	**K3**
CO 5	Students are motivated to set up an NGOs in future	**K3**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5

Mapping of the course outcome with POs and PSOs

(Programme Outcome- Pos, Programme Specific Outcome- PSOs)

Course Out come	Po 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of CO's with PSO's & POs
CO1	2	3	2		2	2			3	2	2	2		20
CO2	3	2	3		2	2			2	2	3	2		21
CO3	3	2	2		2	2			2	3	2	2		20
CO4	2	1	3	2	3	3	2	2	2	2	3	3	1	29
CO5	2	1	2	3	2	2	3	3		2	2	2	3	27
Grand Total of COs with PSO and POs														117
Grand total of COs with PSOs and POs = Mean Value of COs with PSO and POs 117 / Number of COs relating with PSOs and Pos 52 = ------- = 2.25														2.25

Strong – 3 Medium – 2 Low - 1

Mapping Scale	1	2	3
Relation	0.01 to 1.0	1.01 to 2.0	2.01 to 3.0
Quality	Low	Medium	Strong
Mean Value of COs with PSO and POs			2.25
Observation	COs of Integrated Rural Development - Practical Strongly related with PSOs and POs		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc	Part	: Self Learning Course
Semester	: V		
Sub.Code	: 19URDSL5	Crédit	: 3

MUSHROOM PRODUCTION
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives:

1. To introduce the taxonomy of mushroom
2. To elucidate the housing technologies of mushroom.
3. To impart the knowledge of different methods of mushroom cultivation.
4. To aquatint the students about the IPM measures of mushroom.
5. To empower the students on value addition in mushroom.

UNIT I: Mushroom – Definition – Importance – History of Mushroom in India – Morphology – life cycle of mushroom – Types and Varieties of Mushroom.

UNIT II : Housing: Meaning – Systems of housing – Housing material. Compost and methods of composting.

UNIT III: **Crop Management**: temperature – Humidity – Ventilation – Watering – Spawn running – Casing to Mushroom Period – Cropping Period – Picking, Yield storage and preservation methods.

UNIT IV : Problems In Mushroom Cultivation – Problems during Media Preparation and Planting of Spawn – Pest and Diseases.

UNIT V: Values Of Mushroom– Food Value – Proteins – Vitamins – Minerals – Carbohydrates and fats – Energy Values of Mushroom – Medical Values of Mushroom and other Important Uses – Delicious recipes of Mushroom - Value added products - marketing.

Books for Reference

Brig. Hramander Singh, (1991), Mushrooms: The Art of Cultivation, II Edition, New Delhi Sterling Publishers Private Limited.
Chandy, K.T., (1996), Mushrooms: Cultivation Practices, New Delhi: Indian Social Institute,
Chandy, K.T., (1996), Mushrooms: Housing and Composting, New Delhi: Indian Social Institute.
Chandy, K.T., (1996), Mushrooms: in Human Life, New Delhi: Indian Social Institute.
Chandy, K.T., (1996), Problems in Mushrooms Cultivation, New Delhi: Indian Social Institute.
Chandy, K.T., (1997), White Button Mushrooms, New Delhi: Indian Social Institute.
Nita Bahl (1994), HandBook of Mushrooms, III Edition, New Delhi : Oxford and IBH Publishing Co. Pvt. Ltd., TNAU (1999), Crop Production Guide, Directorate of Agriculture, Chennai.

Web resources

http://www.sristi.org/hbnew

http://www.ncipm.org.in/recent-publications.htm

http://www.ipmnet.org

Course outcomes

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Capability to differentiate edible and non-edible mushrooms	**K2**
CO 2	Technical knowledge on housing methodologies of mushroom	**K1**
CO 3	Agronomical skill of different types of mushrooms.	**K3**
CO 4	Proficiency on mushroom pest and disease management.	**K3**
CO 5	Nutritional skills on value addition of mushroom.	**K3**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5

Mapping of Course outcomes with POs and PSOs

(Programme Outcome – **POs**, Programme Specific Outcome – **PSOs**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	2	2	2	1	1				2	2	2			14
CO2	2	1	2	2	2				2	2	1			14
CO3	2	1	2	2	1				2	1	1			12
CO4	1	2	1	1	1				1	2	2			11
CO5	2	2	2	1	1				2	2	1			13
Grand Total of COs with POs & PSOs														64
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{64}{40}$														1.6

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs		**1.60**	
Observation	**COs of MUSHROOM PRODUCTION are moderately correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core-15
Semester	: VI	Hours	: 90
Sub.Code	: 19URDD56	Credit	: 5

DEVELOPMENT OF THE MARGINALISED

Course Educational Objectives:

1. To gain knowledge about the various subaltern groups and their problem in the society
2. To understand the socio-economic status of SC/STs, Women and Children in India
3. To create a perspectives on the different subaltern groups in India.
4. Critically examine the social systems that affect the growth and development of subaltern groups.
5. To integrate knowledge and field work practice – to understand the realities in the field and to understand interventions.

Unit – I **(15 Hours)**

Subalterns – Concept, Meaning, Classifications, demographic characteristics, Problems and Prospects.

Unit – II **(20 Hours)**

Concept and Classification of SC / ST, demographic features of SC / ST and their status with specific reference to socio – economic, cultural, educational and religious correlates. Untouchability, Discrimination.

Unit – III **(20 Hours)**

Constitutional provisions and Legislative measures, regarding removal of social disabilities, protective discrimination (reservation) and political will. UN Declaration of Human Rights and the Role of Gandhi, B.R.Ambedkar and Periyar Social equality.

Unit – IV **(20 Hours)**

Demographic characteristics and disadvantaged children with reference to India – Children in difficult Circumstances, Child Labour – Juvenile Delinquency – Street Children – Child abuse (Causes, Problems and Solutions)

Unit – V **(15 Hours)**

Demographic profile of Women in India and their status with specific reference to socio – economic, cultural, educational and religious correlates. Problems of Women, (womb to tomb)

Books for Study

Agarwal, Meenu (Edit), (2012), The Changing Status of Women in India Issues and Challenges, Pragun Publications, New Delhi.

Bhusan, Vidya and Sachdeva. (1997), An Introduction to Sociology. KitabMahal, Allahabad.

Chinnala, Bala Ramulu **, (**2020), Marginalized Communities and Decentralized Institutions in India: Exclusion and Inclusion. Routledge India, New Delhi .

Books for Reference

Ali Baig, Tara (Ed),(1987). Women of India, Publications Division, Ministry of Information and Broadcasting, Govt of India, New Delhi.

Kapur, Promila, (2000)., Empowering the Indian Women, Publications Division, Ministry of Information and Broadcasting, Govt of India, New Delhi.

Mandar, Harsh & Vidya Rao, (1999), An Agenda for Caring, Interventions for Marginalized Groups, New Delhi: Voluntary Health Association of India.

Rights of the Child, (2002), The Department of Women and Child Development, Ministry of IIRD, Govt. of India, New Delhi.

Sankar Sen, (2005), Trafficking in Women and Children in India, New Delhi: Orient Longman.

Teaching and Learning Methods

- Class Lecture
- Assignment
- Seminars
- Use of ICT
- Group Discussion
- Case Study
- Exposure Visit
- Field Work
- Internship Training

Course outcomes

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Identify the various subaltern groups and their problems in the society	K1
CO 2	Plan and organize various social welfare programmes	K2
CO 3	Safeguard and work for the rights of the Schedule caste, Schedule tribes, Women and Children	K3
CO 4	Train and provide technical support to various subaltern groups and social welfare organizations	K4
CO 5	Start social welfare institutions to work for the marginalized communities	K4

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1		2							3	3				8
CO2		2		3					2	2	3			12
CO3		2		2	2				2	2	2		3	15
CO4			3	2					2	2	2	2	2	15
CO5				2		3			1	1	2	2	2	13
Grand Total of Cos with POs & PSOs														63
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{63}{29}$														2.1

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.1**
Observation	**COs of DEVELOPMENT OF THE MARGINALISED is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	:	III B.Sc. RDS	Part	:	Core-16
Semester	:	VI	Hours	:	75
Sub. Code	:	19URDD66	Credits	:	4

CORPORATE SOCIAL RESPONSIBILITY FOR RURAL DEELOPMENT

Course Educational Objectives:

The course enables the pupil to

1. Understand the concept of corporate social responsibility (CSR)
2. Upgrade knowledge and skills on CSR
3. Acquire skills to frame CSR policies and practices
4. Build Capacity to create a project on CSR
5. Gain knowledge on the implementation on CSR activities

UNIT I

Corporate Social Responsibility (15 Hours)

Meaning and Definition, Concept, History and evolution, Principles, Concept of charity, corporate philanthropy, corporate citizenship.

UNIT II

Models of Corporate Social Responsibility (20 Hours)

Trusteeship, stakeholder, Ethical model, Statist model, Liberal model, Contemporary approach on Corporate Social Responsibility

UNIT III

Corporate Social Responsibility Legislation in India (20 Hours)

Government Policies on CSR; Provision of CSR in companies Act 2013, Companies (Corporate Social Responsibility Policy) Rule 2014

Unit IV

Corporate Community Participation (10 Hours)

CSR policies, Constitution of CSR committee, CSR process, CSR Activities, CSR through NGOs, Funding for various CSR activities; Concentration areas- Rural development , Health, Education and Environment.

Unit V

Success stories of CSR in public sector and private sector (10 Hours)

Case Study: TVS Motor Company Limited, Bharat petroleum Corporation Ltd, Hindustan Unilever Ltd, ITC's e-Choupal venture, Dalmia Cement (Bharath) Ltd, Thangamayil Jewellery Limited, Madurai

Books for study

Corporate Social Responsibility in India - Sanjay K Agarwal

Handbook on Corporate Social Responsibility in India, CII.

Handbook of Corporate Sustainability: Frameworks, Strategies and Tools - M. A. Quaddus, Muhammed Abu B. Siddique

Books for Reference

Benn & Bolton, (2011). Key concepts in corporate social responsibility. Australia: Sage Publications Ltd.

Brummer, J.J. (1991). Corporate Responsibility and Legitimacy: An interdisciplinary analysis. Westport, CT: Greenwood Press.

CV. Baxi (2005) Corporate Social Responsibility – concepts and cases.

M.Mahmoudi, (2005) Global Strategic Management, Deep & Deep Publications Pvt.Ltd, Delhi.

Werther, W. B. & Chandler, D. (2011). Strategic corporate social responsibility. Thousand Oaks, CA: Sage

Corporate Social Responsibility: Concepts and Cases: The Indian - C. V. Baxi, Ajit Prasad

e reference

http://www.diedi.de/CMSHomepage/openwebcms3.nsf/%28ynDK_contentByKey%29/ENTR7BMDUB/$FILE/Studies%2026.pdf

http://www.tatapower.com/sustainability/environmental.aspx

Teaching Learning Method:

- ICT based Direct **Instruction**
- Inquiry-based Learning
- Group discussion
- Expeditionary Learning
- Role plays

Course Outcome

SL.NO	COURSE OUTCOME	KNOWLEDGE LEVEL (Bloom's Taxonomy)
CO 1	Outline and discuss the evolution of corporate social responsibility	**K1**
CO 2	Capable of knowledge on stakeholders of CSR and models of major CSR systems found around the world	**K2**
CO 3	Enumerate strategies for CSR legislations	**K3**
CO 4	Build Capacity to create a project on CSR	**K4**
CO 5	Analyse how CSR influence performance of individual firms	**K4**

K1 = Knowledge, K2 = Understanding, K3= Application, K4= Analysis and K5 = Synthesis

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2		2					3		2		2	14
CO2	2	2		2				3	2	3	2		2	16
CO3	2	3		2				2	2	2	2		2	17
CO4	2	2	2	3				2	2	2	2		2	19
CO5	1	2	2	2				1	1	2	2		3	16
Grand Total of COs with POs & PSOs														82
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{82}{39}$														2.1

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.1**
Observation	**COs of CORPORATE SOCIAL RESPONSIBILITY FOR RURAL DEVELOPMENT Is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core-17
Semester	: VI	Hours	: 60
Sub. Code	: 19URDD76	Credit	: 3

RURAL COMMUNITY HEALTH

(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives

1. To provide basic knowledge on health and its dimensions
2. To help the students to understand the biological and psychological determinants of health.
3. To make them learn and recognize the signs and symptoms of common diseases and injuries
4. To update the disease prevention methods and techniques.
5. To educate the students about health education/promotion effort in our community and society

Unit-I Dimensions of Health (10 hours)

Health- Concept -Definition- Dimensions-Determinants of Health-Concept of Disease-Nature-Modes of intervention : Control and prevention methods-Community Health-Primary Health Care.

Unit-II Personal and Environmental Health (10 hours)

Personal Hygiene-Meaning- Definition-Maintenance of Health-Physical health-Mental health- -Various factors determining personal health – Characteristics of Environmental Health – Meaning, Importance and Safeguard measures- Water Borne Diseases.

Unit-III Epidemiology of Disease (10 hours)

Communicable diseases-Meaning - Agent and Host factors – Prevention - Disease transmission – Immunity – Disinfection – Definition –Types - Classification.

Unit-IV Rural Health Education (15 hours)

Health Education-Meaning – Definition – Approches - Content-Principles –Practice – Healthcare – Meaning – Concept – Elements – Principles - Primary Health care in India - Primary Health Center (PHC) - Role of NGOs in health education.

Unit-V Health and Development (15 hours)

Health planning and Management – needs and demands - resources – Health System in India – State, district and block level Health administration - Health Programmes-People's Participation in the Community Health Programme.

Books for Study

Park.k. (2000) Preventive and Social Medicine/S Jabalpur: Banarisdas Bhanot Publishing,
E. Vijay (2002) Community Medicine. Chennai: Beacon Zen.

Books for Reference

Rita Jain & Preeti Goel (2004), Health Education. New Delhi: Sports. (Part-2: Section –I- Health Hygiene & Section – II – Family Life Education)
S.L.Goel (2004) Health Care Organization & Structure. New Delhi: Deep & Deep.
Brett J. Cassens ed., (1990) Preventive Medicine and Public Health. Singapore: John Wailley. (Chapters 1 & 4 – Epidemiology)
Rajiv Misra & Others (2003), India Health Report. New Delhi: Oxford

Teaching and Learning Methods

- Lecture
- Use of ICT
- Group Discussion
- Case Study
- Exposure Visits
- Study assignment

Course Outcome

Learning Outcomes: After studying the course, the student will be able to:

S.No	Course outcome	Knowledge level (Bloom's Taxonomy)
CO 1	Evaluate dimensions of health and how they relate to personal and/or community wellness.	**K1**
CO 2	Understand the importance of nutrition, a healthy lifestyle, and staying physically active in preventing premature disease and promoting wellness.	**K2**
CO 3	Describe the leading health problems, trends, and needs of diverse populations.	**K3**
CO 4	Asses the major agencies, foundations, and associations supporting health at local, state, national and international levels as well as data tools and resources.	**K4**
CO 5	Develop and implement a plan of healthy behavior to meet personal and community needs to enhance quality of life.	**K5**

Mapping course outcome with:
(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3	2						3	3	2			16
CO2	2	3	2						2	3	2			14
CO3	2	2	2						2	2	2			12
CO4	2	2	2	3					2	2	2	2		17
CO5	1	1	2	2	3				1	1	3	2		16
Grand Total of COs with POs & PSOs														75
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{75}{35}$														2.1

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.1**
Observation	**COs of RURAL COMMUNITY HEALTH is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc., RDS	Part	: III Core-18
Semester	: VI	Hours	: 75
Sub. Code	: 19URDD86	Credit	: 5

RURAL INDUSTRIES AND MANAGEMENT

Course Educational Objectives:

1. To introduce the basic concepts related to rural industries
2. To provide inputs about the function of various agencies promoting rural industries
3. To make them aware of appropriate technology and its growing needs.
4. To clarify the cost concepts involved in production and marketing
5. To facilitate the students to identify various avenues and opportunities to become entrepreneurs.

Unit – I: Rural Industries (10 Hours)

Meaning, Scope, Need for rural industrial development in India – Rural industries and Rural Development – Classification and Changing trends. Opportunities for self-employment – Principles of Management (PODSCORB)

Unit – II: Agencies Promoting Rural Industries (15 Hours)

Policies in favour of rural industries – Rural and small industries under latest Five Year Plans – Agencies promoting rural and small scale industries: KVIC, Nationalise banks, NABARD, Industrial Estate Programmes in Tamil Nadu. DIC – Problems and Prospects of rural and small scale industries in TN.

Unit – III: Appropriate Technology (15 Hours)

Meaning, Capital saving and Labour – Intensive technology – Need for introducing appropriate Technology – Factors determining the appropriateness of technology in a given community.

Unit – IV: Production and Marketing (20 Hours)

Cost Concepts: Fixed Cost, Variable Cost, Average Cost, Labour Cost, Overhead Cost – Cost sheet, Prime Cost, Factory Cost, Cost of Production, Simple methods of unit cost. Marketing Process – Market research – Institutional assistance in marketing – Problems in Marketing – Impact of Globalisation on Rural Industries

Unit – V: Entrepreneurship Development (15 Hours)

Definition – Concept – Characteristics – Function of an Entrepreneur – Types of Entrepreneur – Women Entrepreneurs – Rural Entrepreneurship –Problems and Prospects.

Books for study

Desai, Vasant, (1999), *Small Scale Industries and Entrepreneurship*, Hyderabad: Himalaya Publishing House.

Dayanandan, R and A. NilascoArputharaj, (2012), *Entrepreneurship Development and Small Business Management*, New Delhi: Deep & Deep Publications Pvt. Ltd.

Books for Reference:

Sen, K.K, (1989), *Rural Industrialization in India*, New Delhi: Sultan Chand & Sons.

Soundarapandian, (1999,) *Rural Industrialisation*, New Delhi: Motilal Banarsidas.

Renu Arora (2003), *Fundamentals of Entrepreneurship of small Business,* New Delhi: Kalyan Publishers.

Sundaram, J.D, (1985), *Small Industries and Developing Economy*, New Delhi: Concept Publishing Co.

Rao, R.V., (1976), *Rural Industrialization in India*, Bombay: Vikas Publishing Co.

Teaching and Learning Methods

- Class lecture
- PPT presentation
- Assignments
- Visits to rural industries and Government agencies
- Interaction with experienced and successful entrepreneurs
- Case study
- Group Discussions

Course Outcomes

After completing this course, the students will

CO. No.	Course Outcome	Level
1.	Understand the importance and the scope of rural industries in India	K2
2.	Become aware of different agencies that promote rural industries.	K2
3.	Realize the needs and the benefits of appropriate technology	K2
4.	Gain knowledge about cost concepts and marketing processes and strategies of rural industries in the backdrop of globalization with its impact.	K2
5.	Identify the opportunities to become self-employed and motivated to become rural entrepreneurs.	K3

Mapping of Course Outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	2							3	2				10
CO2	3	2							3	2				10
CO3	3	2							3	2				10
CO4	3	2		2					2	2	3	2		16
CO5	2	2	3	2		2			2	2	2	3		20
Grand Total of COs with POs & PSOs														66
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{66}{28}$														2.35

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.35**
Observation	**COs of RURAL INDUSTRIES AND MANAGEMENT is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc., RDS	Part	: III Core Practical
Semester	: VI	No. of Days	: 15
Sub. Code	: 19URDP66	Credits	: 5

Course Educational Objective

1. To impart practical knowledge in dairy, poultry and agriculture farming and social welfare institutions
2. To provide necessary knowledge about starting and running of poultry, dairy and rural development organizations.
3. To be acquainted with various polices and programme
4. To understand the various problems involved in the running of farm and social work institutions
5. To develop skills related to running of the dairy, poultry and agricultural farming and rural development progarmmes.

III B.Sc – Internship Training Programme
General Guidelines

Internship Training Programme is one of the important components in B.Sc Rural Development Science course. It is given to III B.Sc students during the sixth semester to equip them with professional skills and employment opportunities. It is part and parcel of the integrated rural development practical and is also a partial requirement for the completion of the B.Sc RDS course.

The General guidelines for the Internship Training Programme

1. Internship training programme aims at skill development professional training in the fields of NGO Management, Agricultural Sciences and Animal Husbandry.
2. To interrelate theory with practice and make the students as development personnel, based on the theoretical and practical knowledge they acquired in the class room/lab/ field.
3. The students may be placed (off campus) in any one of the organizations related to the subject they are taught (Social Science (NGOs, CBOs, Rural Industries,), Animal Husbandry Farms, Dairy Industries, Agricultural Farms and Agro industries)
4. Internship Training Programme for III B.Sc students will be given in the sixth semester, preferably middle of the semester for 15 full days from morning 9.00 am to 4 pm. The Students will follow the working office hours of the organization.
5. Health factors and financial situation of the students should be considered while allotting the organization for the internship training.
6. All the expenses incurred during the internship training programme shall be borne by the students completely.

7. A team of teaching staff will be assigned for the fixing of the organizations, intermittent visits during the internship training, report submission, correction and evaluation with the consultation of the Head of the Department.
8. Internship training is part of the semester Integrated Rural Development Practical and it is mandatory for every students to complete the IRD practical and no one is exempted from the internship training programme and failing to complete the internship training will be treated as arrears in the IRD practical.
9. No relaxation and changes will be entertained in the internship training programme.
10. The students should go for the field work without fail and follow the organizational norms and guidelines and this should be strictly adhered to during the time of internship training.
11. The students should write report of everyday activities and final consolidated report for the purpose of Integrated Rural Development Practical. The reports should be submitted at the end of the Internship training to the allotted staff in-charge.
12. It is advised that the students should follow the general format given by the department for writing the report.
13. Any difficulties faced by the students during the internship training programme must be brought to the notice of the team of staff and the HOD in order to take immediate necessary action.

Evaluation Procedure

1. Internship Training programme will be evaluated for 100 marks.
2. For 50 marks, the students are evaluated by the institutions in which they are placed.
3. The students must be assessed based on the following five criteria, they are
   i. Regularity
   ii. Adaptation to the working environment
   iii. Work consciousness and creative initiatives
   iv. Working ability and skills acquired
   v. Report

Internal Viva voce will be conducted for the internal 50 marks by the department at end of the semester after receiving the internship training marks along with the report from the concerned agency with consolidated final report.

Course Outcomes

After completing this course, the students will

CO. No.	Course Outcome	Level
1.	Practice the classroom learning in the field of rural development, Agriculture and Animal husbandry	K3
2.	Plan and start social Welfare organizations Agricultural and animal husbandry farm	K3
3.	Conduct training programmes on Rural development /Agricultural and animal Husbandry	K3

4.	Train and provide technical support to farmers and NGOs	K3
5.	Become an entrepreneur	K3

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3	3	2	2				3	3	1	2	1	20
CO2	2	2	3	3	3				1	2	1	2	2	18
CO3	3	2	3	3	3				3	3	2	3	1	26
CO4	2	2	2	2	2				2	3	2	2	1	20
CO5	3	3	3	3	2				2	2	2	2	2	24
Grand Total of COs with POs & PSOs														106
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ of\ Cos\ relating\ with\ POs\ \&\ PSOs} = \frac{108}{50}$														2.16

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	**0.01-1.0**	**1.01-2.0**	**2.1-3**
Quality	**Low**	**Medium**	**Strong**
Mean Value of COs with POs and PSOs			**2.16**
Observation	**COs of internship are strongly correlated with POs and PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc. RDS	Part	: III Core Elective-2
Semester	: VI	Hours	: 60
Sub.Code	: 19URDE26	Credit	: 03

MARKETING OF ANIMAL PRODUCTS

Course Educational Objectives

1. To enable the learners acquire knowledge of livestock parameters
2. To make the pupil comprehend various costs of livestock management
3. To facilitate students in learning the cost of economics in an area related to small scale dairy units and industry.
4. To assist the novice in knowing the nuances of market management and market research
5. To help the learners gain in-depth knowledge on credit facilities for dairy products

Unit –I: Livestock parameters (10 Hours)

Basic knowledge about technical and production parameters in different types of farm –dairy, sheep, goat, piggery, rabbit, layer, turkey, quails and duck.

Unit-II: Cost Concepts (10 Hours)

Cost Concept-Investment-Fixed Cost-variable cost, Average cost and total cost-cost benefit ratio-breakeven analysis- livestock insurance.

Unit-III Working out the Economics (15 Hours)

Dairy units-10 cows -10 buffaloes - Layer Unit -1000 Birds- Sheep unit-20+1- Broiler Unit-500 Birds-Goat Unit-10+1 -Turkey Unit- 50 Birds-Piggery unit-10+1- Quail Unit -1000 Birds-Rabbit-20+2 - Rabbit Unit-100 Birds

Unit-IV: Marketing (15 Hours)

Definition of market – concepts in marketing– classification of markets – Marketing channels - problems – marketing costs and margin – planning , Marketing regulation and certification- Product and its sales-methods of sales – Limitations –- PFA, AGMARK, BIS *and* FSSAI. Organization related to marketing.

Unit V: Credit Facilities (10 Hours)

Credit facilities – Institutional credits-types and mode of repayment-livestock project formulation and submission-NABARD Model-Project appraisal-norms and standard for appraisal-Monitoring, Evaluation-M& E Tools –MIS.

Book for study

Gopalakrishnan, C.A., Livestock and Poultry enterprises for Rural Development, Mohan Primlani Publishers, New Delhi, 1980.

Books for reference:

A.S.Kahlon, Karam Singh, 1981. Economics of Farm Business Management in India Allied Publishers Private Limited.

Banerjee, G. C., A Text book of Animal Husbandry, Oxford & IBH Publishing Company, New Delhi, 2013.

C.P.Annathakrishnan and B.N.Padmanabhan, 1989-Dairy farming and Milk Production. Madras: Shri Lakshmi Publications,

Hand Book of Animal Husbandry 2015 ICAR,New Delhi

R.S.N.PillaiBagavathi, 2002, Modern Marketing Principles and Practices, S.Chand& Company Ltd. New Delhi

S.S.Johl and T.R.Happer, 1973. Fundamentals of Farm Business Management. Kalyani Publishers.

Teaching Learning Method

- Class lecture
- Assignments
- Seminars
- Quiz
- Power point presentation
- ICT
- Group Discussion

Course outcomes

After completion of this course, the students are able to

Course Outcome No.	Course Outcome	Knowledge Level upto
CO1	Discuss the various technical and production parameters of different types of farms	**K2**
CO2	Find the various costs associated in livestock management	**K3**
CO3	Illustrate the working of economics at small scale	**K3**
CO4	Explain the various trends in marketing dairy products	**K2**
CO5	Summarize the different credit facilities available to livestock management	**K2**

K1 = Remember, K2 = Understand, K3 = Apply, K4 = Analyze, K5 = Evaluate, K6 = Create

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3		2	2				3		2	2	2	19
CO2	3	3	2	2	2				3	2	3	2	3	25
CO3	3	3	2	2	2				3	2	3	2	3	25
CO4	3	3		2	2				3		2	2	2	19
CO5	3	3	3	2	2				3		2	2	2	22
Grand Total of COs with POs & PSOs														111
Mean Value of COs with POs & PSOs = $\frac{Grand\ \ Total\ \ of\ \ Cos\ with\ POs\ \&\ PSOs}{Number\ \ of\ \ Cos\ relating\ \ \ with\ POs\ \&\ PSOs} = \frac{107}{45}$														2.46

S – Strong; M – Medium; L – Low

Mapping Scale	**1**	**2**	**3**
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.46**
Observation	**COs of MARKETING OF ANIMAL PRODUCTS is strongly correlated with POs & PSOs**		

ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class	: III B.Sc.	Part	: Self Learning Course
Semester	: VI	Hours	:
Sub.Code	: 19URDSL6	Credit	: 3

MILK PRODUCTS
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Course Educational Objectives:

1. To make them understand the importance of milk in human life.
2. To impart knowledge about the composition of milk.
3. To know about processing of milk.
4. To impart knowledge on preparation of various milk products.
5. To expose the students to various self-employment opportunities related dairy industry.

UnitI : Milk – Definition – Milk Production and Consumption in India and Global level–Milk Secretion – Composition Indian Standards on Milk – Food and Nutritive nature of milk.

Unit II : Milk and Public Health, Clean Milk Products, Milk Grading – Sampling – Weighing Testing – Preheating – Cooling Pasteurization – Homogenization – Standardisation – Storage of milk.

Unit III : Fermentation – Indian whole milk products – kheer – Khoa – Kulfi _Rabri.Coagulated Milk Products – Dahi – Srikhand – Paneer – Chhana.

Unit IV : Classified Butter Fat Products. Makkan (Butter), Ghee, Lassi (Butter Milk)

Unit V : Storage of Products – Keeping Quality – Marketing – Adulteration – AGMARK.

Book for study :

Sukumar, D.E., (2004), Outlines of Dairy Technology, London: Oxford University Press.

Books for Reference:

Boghart Ralph, (1988), Scientific Farm Animal Production, New Delhi: Surjeet Publications,.
Clarence Henry, E., (1973), Milk and Milk Products, New Delhi: Tata McGraw Hill Publishing Co. Ltd.,
Schmid, (1982), Principles of Dairy Science, New Delhi: Surjeet Publications.,
Sharma, R., (2006), Production, Processing and quality of milk products, IBDC, 1st ed.

Teaching Learning Methods :

- Two contact classes per semester
- Preparation of assignments

Course Outcomes :

Course Outcome No.	Course Outcome	Knowledge Level upto
CO1	Discuss about the Milk Production and Consumption in India and Global level– Milk Secretion	**K2**
CO2	Find the various stages of milk processing	**K3**
CO3	Illustrate the fermented whole milk products	**K3**
CO4	Summarize the various Classified Butter Fat Products	**K2**
CO5	Explain the different types of Storage of Milk Products and Marketing.	**K2**

K1 = Remember, K2 = Understand, K3 = Apply, K4 = Analyze, K5 = Evaluate, K6 = Create

Mapping of course outcomes with POs and PSOs

(Programme Outcome- POs, Programme Specific Outcome- PSOs)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	Sum of COs with POs & PSOs
CO1	3	3		2	2				3		2	2	2	19
CO2	3	3	2	2	2				3	2	3	2	3	25
CO3	3	3	2	2	2				3	2	3	2	3	25
CO4	3	3		2	2				3		2	2	2	19
CO5	3	3		2	2				3		2	2	2	19
Grand Total of COs with POs & PSOs														107
Mean Value of COs with POs & PSOs = $\frac{Grand\ Total\ of\ Cos\ with\ POs\ \&\ PSOs}{Number\ \ of\ Cos\ relating\ \ with\ POs\ \&\ PSOs} = \frac{107}{44}$														2.43

S – Strong; M – Medium; L – Low

Mapping Scale	1	2	3
Relation	0.01-1.0	1.01-2.0	2.1-3
Quality	Low	Medium	Strong
Mean Value of COs with POs & PSOs			**2.43**
Observation	**COs of MILK PRODUCTS is strongly correlated with POs & PSOs**		