## B.Sc. RDS Course Structure (from 2015-2016 onwards)

### SEMESTER I

<table>
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<tr>
<th>Part</th>
<th>Sub.Code</th>
<th>Title of the Paper</th>
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<td>Core-1 Introduction to Rural Society</td>
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<td>Core-2 Introduction to Agriculture</td>
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<td>Core-6 Livestock Production and Disease Management</td>
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<td>Core-7 Animal Products</td>
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<td>NME-1 Food Preservation (for other students)</td>
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<td>Computer Literacy (Computer Fundamentals and Office Automation)</td>
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<td>Core-10 Horticulture</td>
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<td>Core-12 Community Based Organisation</td>
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<td>Core-13 Social Research Methodology</td>
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<td>Core-14 Rural Social Problems</td>
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<td>Core-15 Development of the Marginalised</td>
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<td>Core-16 Lifelong Learning for Farmers</td>
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<td>Core-17 Rural Industries and Management</td>
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<td>Core-18 Rural Community Health</td>
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Part – I  
08 Credits
Part – II  
08 Credits
Part – III  
Core 90
Allied 16
Core Electives 06
Total 112 Credits
Part – IV  
Non –major Elective 04
Skill Based Elective 04
Value Education 02
Total – 10 Credits
Part – V   
02
Bridge Course 01
Arise 01

**SELF-LEARNING COURSES**

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<td>III</td>
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<td>IV</td>
<td>Aquaculture</td>
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<td>V</td>
<td>Mushroom Production</td>
</tr>
<tr>
<td>VI</td>
<td>Milk Products</td>
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INTRODUCTION TO RURAL SOCIETY
(From 2012 -2013 onwards)

Objectives
1. To introduce the students to the various meaning and concepts related to rural social system.
2. To impart an analytical understanding of various elements of rural society.

Unit I

Unit II

Unit III

Unit IV

Unit V
Rural social and cultural values – traditional values – changing trends of values – factors influencing social values – value conflict – Changing trends.

References
### INTRODUCTION TO AGRICULTURE

*(From 2012 -2013 onwards)*

**Objective**

1. To make the students understand the basic components of agriculture
2. To enable the students learn the basic knowledge and skill to pursue further study in agriculture.

**Unit I: Soil**

|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Unit II: Seed**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Definition of Seed – Seed structure – Monocot – Dicot – Germination – Quality of Good Seed – Seed Production (Rice &amp; Cumbu) – High Yield Varieties (F1). Classes of Seeds.</th>
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</table>

**Unit III: Water**

|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Unit IV: Nutrients**

|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Unit V: Pests**

|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Text Books**


References:

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

Class : B.Sc. RDS
Semester : I
Sub.Code : 15URDA11

Part : III Allied-1
Hours : 60
Credits : 04

FUNDAMENTALS OF LIFE SCIENCES
(From 2012-2013 onwards)

Objectives

1. To impart basic knowledge on fundamentals in Various branches of Life Sciences.
2. To make students to realize the scope and importance of the subject in RDS curriculum.

Unit – I 20 Hours
Carbohydrates – Monosaccharide, Disaccharides, Polysaccharides, Proteins – Types,
importance of proteins, Lipids- types and importance of lipids, vitamins – types water
soluble and fat soluble vitamins – sources and importance

Unit – II 15 Hours
Cell – Structure and functions of plant and animal cells – Inheritance of characters –
Mendelian principles, chromosomes, Hereditary material- DNA and RNA – structure and
functions.

Unit – III 15 Hours
Photosynthesis, Respiration in plants and animals, Digestion in animals, Excretion in
animals, Reproduction in plants and animals

Unit – IV 5 Hours
Microorganisms – Bacteria and Viruses – importance.

Unit – V 5 Hours
Biogeo chemical cycles – Definition – Carbon Cycle, Nitrogen Cycle, Phosphorus Cycle
and Hydrological Cycle.

References

Ananthakrishnan, (1981), Bioresources Ecology; Oxford University, Mumbai.
Biology, Holt Saundars International.
Oxford University Press, New Delhi.
INTEGRATED RURAL DEVELOPMENT PRACTICALS

A. Agriculture

Objective:
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. Social Science

*5 Day Village Exposure Programme to give live-in experience
*Observational Visit to nearby villages of the college.
HUMAN BEHAVIOUR IN RURAL SOCIETY
(From 2012 -2013 onwards)

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.

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 10 Hours

Unit III: Basis of Individual behaviour 10 Hours

Unit IV: Process of Social Interaction & Maladjusted behaviour in community 15 Hours

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.

References:
Ramanth Sharma & SS Chandra General Psychology, Atlantic Pub. ND, 2003
Vidya Bhusan & Sachdeva An Introduction to Sociology, Kitab Mahal, Allagabad
BASICS OF FARM ANIMAL MANAGEMENT
(From 2012 -2013 onwards)

Objectives:

1. To guide the graduates to have interest on Animal Husbandry.
2. To impart basic knowledge on Farm Animal Management

Unit – I Breeds of Farm Animals
Definition of common terms applied to farm animals, different breeds of farm animals.

Unit – II Breeding of Farm Animals
Selection of Farm Animals - Methods of breeding – inbreeding, out breeding, cross Breeding - heterosis

Unit III Systems of farm animals (cattle, pig and poultry)
Digestive System – Anatomy & Physiology - Process of Digestion - Reproductive System – Anatomy, Estrus cycle, heat symptoms & - Hormone Control

Unit – IV Feeds and Composition
Various functions, requirements and disorders of important nutrients in the animal body - Classification – composition of feed materials – unconventional feeds - Conservation of forage – hay and silage making

Unit – V Mixed Farming
Benefits of Mixed Farming - Integration of different farming systems – advantages.

Text Book

References:

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

Class : B.Sc. RDS  
Semester : II  
Sub. Code : 15URDA22

Energy Science  
(From 2012 -2013 onwards)

Objectives:
1. To impart knowledge on energy.
2. To enable students to understand energy applications.
3. To make students to follow and adopt appropriate energy conservation measures and green technologies.

Unit I: Energy  
10 Hours

Unit II: Conventional Sources of Energy  
10 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

Unit IV: Non-Conventional / Alternate Sources of Energy – Bio Energy  
10 Hours

Unit V: Energy Conservation and Management  
15 Hours
References:


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

Class : I B.Sc          Part : Core
Semester : II            Hours : 30
Sub.Code : 15URDP22      Credits : 2

INTEGRATED RURAL DEVELOPMENT PRACTICALS

A. Biological Science
1. Qualitative Tests for Proteins
2. Qualitative Tests for Lipids
3. Qualitative Tests for Carbohydrates
4. Structure of DNA

B. Animal Husbandry
Objective:
To know the physiology of basic systems of cattle and poultry.

Ex. No.   Title
1.      External Parts of the Cattle and Poultry
2.      Digestive System of Cattle and Poultry
3.      Reproductive System of a bull
4.      Female Reproductive System of Cattle and Poultry
5.      Structure of Mammary Gland of a Cow
CROP MANAGEMENT
(Students admitted from the Academic year 2012 -13 onwards)

Objective
1. To impart to the students basic knowledge and skills in packages of practices of selected field crops.
2. To enable the students apply the same under field condition.

Unit – I Cropping System 10 Hours

Unit – II Cultural Management of Cereals and Millets 15 Hours

Unit – III Cultural Management of Pulses 15 Hours

Unit – IV Cultural Management of Oil Seeds 10 Hours

Unit – V Cultural Management of commercial crops 10 Hours

**Text Book:**
Joint Director of Agriculture, 2003, Agricultural Technical Bulletin, Department of Agriculture, Madurai

**References:**
LIVESTOCK PRODUCTION AND DISEASE MANAGEMENT

Objectives
1. To impart knowledge on Livestock Production and Disease Management.
2. To initiate the graduates to start their own suitable farms.
3. To give technical advice to the farmers to start their own farms and to the farmers those who have different farms.

Unit – I
Breeding Techniques (cattle, sheep, goat and pig)
Age at Maturity, Breeding Seasons, Synchronization, Reasons for Infertility, Embryo Transfer. Insemination, Pregnancy, Parturition, Lactation, Young and Adult management

Unit – II
Housing of farm animals

Unit – III
Feeding of farm animals
Requirement of nutrients – Indian feeding standards - ration – types - method of computing ration – feeding management for farm animals

Unit – IV
Basic Knowledge on disease and their control
Disease, classification, mode of transmission, pre – disposing causes of disease production, contagious and infectious diseases, endemic and epidemic diseases, general principles in the methods of prevention of diseases, active and passive immunity.

Unit – V
Symptoms, prevention and control of important diseases

Text book:

References:
ANIMAL PRODUCTS

Objectives:
1. To impart knowledge on Animal products.
2. To encourage the graduates to start their own manufacturing units.
3. To give technical advice to the farmers to start their own industries and to the farmers those who have different agro industries.

Unit – I
Milk and Milk Products 20 Hours

Unit – II
Meat and Meat Products (Chevon, Mutton, Beef, Pork & Chicken) 10 Hours

Unit – III
Egg and Egg Products 10 Hours

Unit – IV
Institutions and Regulations for Milk and Milk Products 10 Hours

Unit – V
Institutions and Regulations for Meat, Egg and their Products 10 Hours
Types and grades of meat and leather – Government MFPO, HACCP & CCP regulations – Broiler Coordination Committee (BCC) – marketing of meat and leather – cold storage outlets. Egg grades – regulations – NECC (National Egg Coordination Committee) – marketing channels of egg and egg products.

Text Book:
References:
Sharma, R., 2006, Production, Processing and quality of milk products, IBDC, 1st ed.
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II B.Sc. RDS  
Semester : III  
Sub. Code : 12RDC334  
Part : III Allied -3  
Hours : 60  
Crédits: 4

COMMUNICATION SKILLS FOR RURAL DEVELOPMENT-I

Unit I  10 Hours
Parts of Speech-Functional Units (SVOCA)-Active to passive and passive to active-Framing question (for the responses given)-spotting of errors relating to nouns, pronouns, adjectives-adverbs-correction of errors.

Unit II  10 Hours
Idioms and phrases; words often confused; one word substitutes; formation of words (suffixes, prefixes and derivatives)

Unit III  10 Hours
Introduction to principal components of spoken English-transcription, Word accent, Intonation, Weak forms in English.

Unit IV  15 Hours
developing listening and speaking skills through various activities, such as (a) role play activities (b) practicing short dialogues (c) Group discussion debates (d) speeches (f) listening to news bulletins

Unit V  15 Hours
Unseen passage for comprehension -sequencing the jumbled sentences (Textual), Visual Comprehension-Hints development. Case writing and documentation.

Suggested Readings

Common Errors in English, Abdul Hashem, Ramesh publishing House, New Delhi.


Language in use (upper intermediate level) Adrian Doff Christopher Jones, Cambridge University Press.


Spoken English for India, R.K.Bansal and J.B Harrison, Orient Longman, Delhi.
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II B.Sc. (Other Arts) Part : IV NME-1
Semester : III Hours : 60
Sub. Code : 12RNEA32 Credits : 2

FOOD PRESERVATION

Objectives:

1. To impart knowledge on methods of preparation and preservation of milk, meat, fish, fruit and vegetable products
2. To motivate the students to start their own units of production of agro based products.

Unit I 10 Hours
Basic knowledge about the composition of milk, meat, fruits and vegetables- food value of these foods and their products and byproducts.

Unit II 10 Hours

Unit III 15 Hours

Unit IV 15 Hours
Vegetables and Fruit processing – citrus juices, apple juice, grape juice. dehydrated products, RTS syrups, and fruit based beverages. Concentrates- squashes, jams, jellies, pickles. Processing of vegetables - freezing- dehydration, pickling.

Unit V 10 Hours
Marketing of processed Food Products- Marketing channels, Marketing agencies, Marketing regulations and certifications.

Text Book :

Reference:
Madhuarora. 1990; Dictionary of foods nutrition and Dietics; BAPCO Publication, Bangalore.
McWilliams and Paine. H. 1984; Modern food preservation; Surjeet Publications, New Delhi.
Kulshreestha. SK.1994; Food preservation, Vikas Publishing House; New Delhi.
Department of food and preservation, 1987; Basic food preservation, Orient Longman Publication; N. Delhi.
Bose JK and Mitra SK, 1990; Fruits: Tropical and Subtropical, Naya Prakash Publication; Calcutta.
Ananthakrishnan, C.P., and Padmanabhan, 1989; Dairy farming and Milk production, Sri Lakshmi Pathippagam; Chennai.
Ananthakrishnan, C.P, 1993; Milk products preparation and quality control, Sri Lakshmi Pathippagam; Chennai.
Ananthakrishnan, C.P, 1993; Technology of milk processing, Sri Lakshmi Pathippagam; Chennai.
INTEGRATED RURAL DEVELOPMENT PRACTICALS

A. Agriculture

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<th>Ex No</th>
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<tr>
<td>1</td>
<td>Soil sample Collection, Land preparation and Layout for crop production</td>
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<tr>
<td>2</td>
<td>Methods of Seed treatment and sowing - Demonstration</td>
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<td>Methods of Weeding</td>
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<td>4</td>
<td>Methods of irrigation - Demonstration</td>
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<td>5</td>
<td>Method and Application of nutrients to crops</td>
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<td>6</td>
<td>Identification of pests and diseases in standing crop</td>
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<td>7</td>
<td>Hand on experience in harvest operations</td>
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<td>8</td>
<td>Production of compost by Bangalore and Coimbatore methods</td>
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<tr>
<td>9</td>
<td>Production of Enriched Farm Yard Manure and Coir Waste compost</td>
</tr>
<tr>
<td>10</td>
<td>Production of Vermicompost and Vermiwash.</td>
</tr>
<tr>
<td>11</td>
<td>Collection and identification of Green manure and Green Leaf Manure</td>
</tr>
<tr>
<td>12</td>
<td>Preparation of Panchakavya, Navakavya and Amirthakkarisaal</td>
</tr>
<tr>
<td>13</td>
<td>A field study to document indigenous Technical Knowledge on crop production.</td>
</tr>
<tr>
<td>14</td>
<td>A visit to an organic farm.</td>
</tr>
<tr>
<td>15</td>
<td>Farmers Linkage Programme</td>
</tr>
</tbody>
</table>

B. Animal Husbandry

<table>
<thead>
<tr>
<th>Ex No</th>
<th>PRACTICALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>De-budding of calf</td>
</tr>
<tr>
<td>2</td>
<td>Determination of age and body weight</td>
</tr>
<tr>
<td>3</td>
<td>Identification of farm animals</td>
</tr>
<tr>
<td>4</td>
<td>Castration – Burdizzo and surgical method</td>
</tr>
<tr>
<td>5</td>
<td>Selection of dairy cow</td>
</tr>
<tr>
<td>6</td>
<td>Casting and controlling of animals</td>
</tr>
<tr>
<td>7</td>
<td>Structure of spermatozoa and examination of sperm motility</td>
</tr>
<tr>
<td>8</td>
<td>Symptoms of heat and insemination in cattle</td>
</tr>
<tr>
<td>9</td>
<td>Pregnancy diagnosis in cattle</td>
</tr>
<tr>
<td>10</td>
<td>Classification and identification of feed stuffs</td>
</tr>
<tr>
<td>11</td>
<td>Basics about computation of ration (Thumb rule method)</td>
</tr>
<tr>
<td>12</td>
<td>Enrichment of paddy straw</td>
</tr>
<tr>
<td>13</td>
<td>Organoleptic tests in milk</td>
</tr>
<tr>
<td>14</td>
<td>Estimation of Fat and SNF in milk</td>
</tr>
<tr>
<td>15</td>
<td>Detecting adulteration in milk</td>
</tr>
</tbody>
</table>
HUMAN RIGHTS

Objectives
1. To enable the students to understand the basic concepts of Human Rights and its relevance in our day to day lives.
2. To know the various Instruments and Laws relating to Human Rights protection.

Unit – I Introduction to Human Rights:

Unit – II UN and Human Rights:

Unit – III Human Rights 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.

Text Book:

Reference:
**PLANT PROTECTION**

**Objective**
1. To enable the students learn practical knowledge and skills to identify the crop pest and diseases and their behaviours.
2. To train them to identify the damages and suggest management Measures.

**Unit – I Introduction to Pest and Diseases**

| Hours | General Life History of major groups of insects – Nature and Damage caused by insects. Fundamental knowledge of Bacteria, Fungi and Virus – Classification of plant diseases & symptom. |

**Unit – II Pests and Diseases of Cereals and Millets**

| Hours | Symptoms of Damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Insect Pest (IPM) and Disease Management (1DM) for Cereals; Rice – Stem borer, BPH, Leaf folder, Brown spot, Blast, Tungro MILLETS: SORGHUM – Shoot fly, Grain midge, Stem Borer, Smuts, Leaf spot, Ergot, CUMBU – Downy mildew, Ergot, Rust, Shoot fly, Pink borer, Midge fly. |

**Unit – III Pest and diseases of Pulses**

| Hours | Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Insect Pest (IPM) and Disease Management (1DM) for Pulses: Red Gram – Pod borer, Sterility Mosaic, Root rot, Wilt Black Gram – Pod borer, Powdery Mildew, yellow Mosaic, Leaf curl and crinkle. |

**Unit – IV Pests and diseases of Oil Seeds**

| Hours | Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Insect Pest (IPM) and Disease Management (1DM) for Oil Seeds – Groundnut – Red hairy caterpillar, Leaf Miner, Stem borer, Tikka leaf spot, Rust, Root rot Coconut – Red Palm weevil, Rhinoceros beetle, Black headed caterpillar, Stem bleeding, Bud rot, Tanjore wilt. |

**Unit – V Pests and diseases of Commercial crops**

| Hours | Symptoms of damage caused and Ecofriendly Measures (Cultural – Mechanical – Legal – Biological) and Chemical Control – Integrated Insect Pest (IPM) and Disease Management (1DM) for Commercial Crops – Sugarcane – Borers, Mealy bugs, hopper, Red rot, Pineapple disease, Grassy shoot Cotton – Boll worms, White fly, Aphids, *Fusarium* and *Verticillium* wilt, Black arm, Root rot. Scientific names and biological cycle of individual insect or microorganisms are not taught. Stress is given for the pest and disease mentioned above only. |

**Text Book**:

**References**:
Gunathilagaraj, 1988 Crop protection guide Tamilnadu Agriculture University New Delhi
POULTRY SCIENCE

Objectives
1. To initiate the graduates to start their own poultry farms.
2. To give technical advice to the farmers to start their own poultry farms and to the farmers those who have different farms including village poultry.

Unit I 10 Hours
Structure and formation of egg and Strains and hybrids of poultry

Unit II 15 Hours
Feeding management for layers, broilers, country chicken, turkey, quails & ducks
Nutrient requirements – computation of ration – equipments for feeding – methods of feeding – steps to avoid feed wastage

Unit III 10 Hours

Unit IV 10 Hours
Management in different levels: Management of layers, broilers, country chicken, turkey, quails and ducks - management during cold and hot climates – culling of birds.

Unit V 15 Hours
Disease Management : Disease – diagnosis, treatment and vaccination shedule – Raniket, IBD, Fowl pox, Bird flu, Marek’s, Fowl cholera, Fowl typhoid, coryza, pullorum leechi and parasitic diseases – ecto parasites-ticks, mites, lice, fleece ; endo parasites – round worms, tape worms and coccidiosis.

Text Book :

Reference:
HORTICULTURE

Objectives
1. To impart to the students the basics of cultivation of important Horticultural Crops.
2. To develop skills in propagation and maintenance of the major horticulture crops.

Unit – I Horticulture

Unit II Orchards
Orchards: Planning – Layout of an orchard – Square, Rectangular, Hexagonal, Diagonal, Triangle, and Contour system of planting – Merits and demerits.

Unit III Propagation Methods

Unit IV Pomology
Pomology: Package of practices for the following fruits – Mango, Banana, Guava, Sapota, Papaya.

Unit V Olericulture and Floriculture

Text Book:

Reference:
Sharma V.K:2004, Advance in horticulture deep & deep publication.
Singh Jitendra,2002, Basic Horticulture, Kalyani Publisher
COMMUNICATION SKILLS FOR RURAL DEVELOPMENT - II

Objectives

1. To help students to acquire the skills of Listening, Reading, Writing and Speaking
2. To develop comprehending skills.
3. To enrich students vocabulary and to develop the writing skill of students with respect to report writing

Unit I
Listening Comprehension – Short passages, short paragraphs, short conversations, anecdotes, dialogues.

Unit II
Reading Comprehension – Story / incident based passages, information based passages.

Unit III

Unit IV

Unit V

References
Shehzad, Wasima, (2003)‘Effective Communication, Listen! Speak, Read & Write, New Delhi:Sterling Publishers,
DEVELOPMENT PROJECT MANAGEMENT

Objectives:
1. To make the students understand the need for planning, meaningful, need-based development projects
2. To enable them to study the process of planning, implementation, monitoring and evaluation of development projects.


Unit IV: Budgeting – Preparation of Budget - Meaning – Importance – Sources of Funding – Role of National, International Funding Agencies – FCRA.

Unit V: Non-Governmental Organisation - Role of NGOs in the Development Project Management – State, Central Government Agencies in supporting NGOs.

Text Book:

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

Class : II B.Sc.   Part : Allied  
Semester : IV   Total No. of Hours : 75  
Sub.Code : Credits : 4

INTEGRATED RURAL DEVELOPMENT PRACTICALS

A. Agriculture

<table>
<thead>
<tr>
<th>Ex No</th>
<th>PRACTICALS</th>
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<tbody>
<tr>
<td>16</td>
<td>Layout of Orchard- Designing an orchard- Demonstration</td>
</tr>
<tr>
<td>17</td>
<td>Hand on experience on propagation techniques-Cutting and Layering</td>
</tr>
<tr>
<td>18</td>
<td>Hand on experience on propagation techniques-Grafting and Budding</td>
</tr>
<tr>
<td>19</td>
<td>Preparation of nutrient content chart of fruits and vegetables</td>
</tr>
<tr>
<td>20</td>
<td>Cultivation of any one vegetable crop in RDS farm</td>
</tr>
<tr>
<td>21</td>
<td>A visit to Horticulture College and Research Institute Periyakulam</td>
</tr>
<tr>
<td>22</td>
<td>Potting and de-potting Techniques - Demonstration</td>
</tr>
<tr>
<td>23</td>
<td>Collection and Identification of Household pests</td>
</tr>
<tr>
<td>24</td>
<td>Collection and Identification of major pests of Rice, Sorghum and Cumbu</td>
</tr>
<tr>
<td>25</td>
<td>Collection and Identification of major pests of Coconut and Groundnut</td>
</tr>
<tr>
<td>26</td>
<td>Collection and Identification of major pests of Sugarcane and Cotton</td>
</tr>
<tr>
<td>27</td>
<td>Collection and Identification of major diseases of Rice and Sugarcane</td>
</tr>
<tr>
<td>28</td>
<td>Collection and Identification of major diseases of Cotton and Groundnut</td>
</tr>
<tr>
<td>29</td>
<td>Preparation methods of Biocontrol agents</td>
</tr>
<tr>
<td>30</td>
<td>Preparation methods of biopesticides</td>
</tr>
</tbody>
</table>

B. Animal Husbandry

<table>
<thead>
<tr>
<th>Ex No</th>
<th>PRACTICALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Technical skills on Livestock Production</td>
</tr>
<tr>
<td>17</td>
<td>Hospital and dairy equipments</td>
</tr>
<tr>
<td>18</td>
<td>Recording pulse, respiration, temperature and semen motility in cattle</td>
</tr>
<tr>
<td>19</td>
<td>First aid treatment</td>
</tr>
<tr>
<td>20</td>
<td>Identification of symptoms of some endemic disease</td>
</tr>
<tr>
<td>21</td>
<td>Clinical pathological examination of dung and urine.</td>
</tr>
<tr>
<td>22</td>
<td>Technical skills on Poultry Science &amp; Farm Business</td>
</tr>
<tr>
<td>23</td>
<td>Practical knowledge on available strains of layers and broilers</td>
</tr>
<tr>
<td>24</td>
<td>Brooding of chicks</td>
</tr>
<tr>
<td>25</td>
<td>Poultry equipments and medicines</td>
</tr>
<tr>
<td>26</td>
<td>Practical aspects in feeding of layers and broilers</td>
</tr>
<tr>
<td>27</td>
<td>Disease diagnosis and treatment in poultry</td>
</tr>
<tr>
<td>28</td>
<td>Practical vaccination schedule for layers and broilers and procedure for vaccination</td>
</tr>
<tr>
<td>29</td>
<td>Maintenance of farm records for cattle and poultry farm</td>
</tr>
<tr>
<td>30</td>
<td>Submission of a bank model project proposal for anyone of the livestock farms.</td>
</tr>
<tr>
<td>30</td>
<td>Visit to commercial layer and broiler farms, Aavin, Slaughter house and veterinary hospitals</td>
</tr>
</tbody>
</table>
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. To make students to understand the integration of aquaculture with agriculture and animal husbandry.
3. To enable students to learn fish culture practices.

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 and Maintenance of Fish Farms & Types of Fish Culture
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.

References:
DYNAMICS OF RURAL DEVELOPMENT
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives
1. To promote a basic understanding about the concept relating to development and its administration.
2. To provide knowledge and observe critically the various development programmes of the Government in rural development.

Unit I

Unit II
History and perspectives of rural development in India – Evolution of the concept – Pre-independence – post independence – Approaches to rural development

Unit III

Unit IV
Planning and Implementation – Structure and Functions of Panchayat Raj Institution – Village level – Gram Sabha – Block Level – District Level – Changing trends

Unit V

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

Objectives
1. To provide knowledge and overall understanding of community based organizations.
2. To enable the students to organize and guide people based organizations
3. 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: (20 Hours)

Unit – III: People based organizations (20 Hours)
Farmers club, youth club, Women’s Forum – Panchayat Raj institutions – Panchayat, Block, district level institutions – Micro credit institutions, Co operatives, rural banking – Political institutions.

Unit – IV: Self Help Groups (20 Hours)

Unit – V: NGO Management (20 Hours)
NGO – Meaning, concept, categories of NGOs, - formulation and Registration of NGO – Constitution, byelaws. Memorandum – FCRA

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

Objectives
1. To impart basic knowledge on social research.
2. To motivate the students to undertake people – centered mini research projects.
3. To facilitate the students in the process of identifying rural social problems and evolving possible solutions scientifically.

Unit I – Introduction (10 Hours)

Unit II – Research Design & Models (20 Hours)

Unit III – Sampling (15 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 (10 Hours)

References
6. Doolay David, (2004), Social Research Methods, New Delhi: Prentice Hall,
RURAL SOCIAL PROBLEMS
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives:
1. To sensitize the students about the prevailing rural social problems
2. To make them understand the various dimensions of the problems
3. To help them evolve appropriate remedial measures

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 (10 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 (20 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

References:
   Development, New Delhi : Kanishka Publications.
   New Delhi : Kanishka Publishers.
   Help Groups (SHGs) Non-Governmental Organisations (NGOs) Panchayat Raj Institutions
   (PRIs), New Delhi: Deep & Deep Publications Pvt.Ltd.
ORGANIC FARMING
(For Students admitted from the Academic Year 2010 onwards under the New CBCS Pattern)

Objective:
1. To provide students with a basic knowledge on principles, practices of Organic agriculture.
2. To impart to the students the skills in preparation and application of organic inputs.

Unit – I: Organic Agriculture
(10 Hours)

Unit – II: Organic Resources
(10 Hours)
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 Hours)

Unit – IV: Organic Pest Management
(15 Hours)

Unit – V: Integrated Farming System:
(10 Hours)
Integrated Farming System (IFS)- definition- Principles- advantages- IFM under lowland- gardenland and dryland.

Text Book:

Reference:
Thampar P.K.1995, Organic Agriculture. Peekay Tree Crops Development foundation
Dahama 1997 Organic farming for Sustainable Agriculture Agribios, Jodhpur.
Class : III B.Sc Part : III Core
Semester : V Hours : 75
Sub.Code : Credits: 5

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

Objectives
1. To enable the students to acquire appropriate field experience
2. To improve the various skills in organising, research and development.

1. Observation and Learning Skills through Visit to NGOs
   • Structure and Functioning of NGOs
   • Programmes and Projects-Planning, Implementation and Evaluation

2. Organising Skills (Participating in NGO Programmes and Organise)
   • Conducting Eye Camp
   • HIV Awareness Campaign
   • Environmental Awareness Campaign
   • Conducting Medical Camp
   • Conducting Veterinary Camp

3. Research and Analytical Skills
   • Conducting Baseline Survey
MUSHROOM PRODUCTION
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives
1. Students learn by themselves the package of practices and problems in mushroom production.
2. Students understand the values of mushroom in human life.


UNIT IV: Problems In Mushroom Cultivation – Problems during Media Preparation and Planting of Spawn – Pest and Diseases.


References
DEVELOPMENT OF THE MARGINALISED
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives
1. To develop a perspectives on the different subaltern groups in India.
2. To develop the capacity of the student to examine the social systems that affects the growth and development of subaltern groups.
3. Develop the ability to integrate knowledge and field work practice – to understand the realities in the field and to understand interventions.

Unit – I
Subalterns – Concept, Meaning, Classifications, demographic characteristics, Problems and Prospects.

Unit – II
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
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
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
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)

References
Objective of the Paper

1. To expose the students to the concepts and dimensions of lifelong learning
2. To facilitate the practice of lifelong learning in the rural setting with farmers

Unit I Life Long Learning (18 Hours)
Concepts, definitions, characteristics, importance, process, essential elements for developing Lifelong learning, relationship between lifelong learning and community development, lifelong learning and ICT.

Unit II Learner Profile and Open and Distance Learning (18 Hours)
Learner profile: Meaning, contents of learner profile, methods of collecting learner profile, uses of learner profile, leaner’s need analysis and prioritization using participatory methods
Open and Distance Learning: Concept, definitions, characteristics of ODL, advantages of ODL, functions of ODL systems approach to open and distance learning,

Unit III Developing Content and Delivery Mechanism (18 Hours)
Developing Content: Content: Meaning, features of ODL materials, introduction to multimedia, content creation through multimedia.
Delivery Mechanism: Definition and concepts, methods, learner support, farmer to farmer horizontal transfer of Knowledge. Knowledge management strategies.

Unit IV ODL Models (18 Hours)
Instructional design models – definition, ADDIE model, Alternative Design Model, Computer Aided Instructional Design.

Unit V ICT and Lifelong learning (18 Hours)
Information and Communication Technologies for lifelong learning, Mobile Learning, ODL initiatives by non-governmental agencies, Distance learning through tele-centers, Village Knowledge centers, Internet and lifelong learning.
Reference:

1. COL International (2000) the use of Information and Communication Technology (ICT) in Learning and Distance Education, Final Report, January, 2000


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

Objectives
1. To impart basic knowledge to the students on the various dimensions of rural industries.
2. To acquire basic knowledge on some of the Managerial skills required of rural industrial management

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)

Unit – V: Entrepreneurship Development (15 Hours)
References
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR  
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE  

Class : III B.Sc. RDS  
Semester : VI  
Sub. Code : 12RDE163  
Part : III Core-18  
Hours : 60  
Credits : 3  

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

Objectives  
1. To provide basic knowledge on health and development  
2. To promote awareness among the students on Rural Community Health  

Unit-I  
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)  

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.  

References  
LIVESTOCK PRODUCTION AND POULTRY ECONOMICS
(2010 onwards)

Class: III B.Sc. RDS  Part: III Core Elective-2
Semester: VI  Hours: 60
Sub. Code: 12RDC265  Credits: 3

Objectives
1. To impart knowledge on livestock and poultry project formulation.
2. To start their own suitable farms.
3. To give technical advice to the farmers to start their own farms and to the farmers those who have different farms.

Unit I  (10 Hours)
Basic knowledge about technical & production parameters in different types of farms – dairy, sheep, goat, piggery, rabbit, layer, broiler, turkey, quails and ducks.

Unit II  (10 Hours)

Unit III  (10 Hours)
Cost concept – fixed, variable, average, and marginal costs – cost – benefit ratio – break even analysis – institutional credit facilities.
Requirements for animal husbandry projects formulation – models.

Unit IV  (15 Hours)
Working out the economics and preparation of model projects of farm animals
Dairy unit – 10 cows – 10 buffaloes
Sheep unit – 20 + 1
Goat unit – 10 + 1
Piggery unit – 10 + 1
Rabbits – 20 + 2

Unit V  (10 Hours)
Working out the economics and preparation of model projects of birds
Layer unit 1000 birds
Broiler unit 500 birds
Turkey unit 50 birds
Quails unit 1000 birds
Duck unit 100 birds

Text Book:

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

Class : III B.Sc RDS  Part : III Core
Semester : VI  Total No. of Hours : 75
Sub.Code :  Credits : 5

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

Objectives
1. To enable the students to acquire appropriate field experience
2. To improve the various skills in organising, research and development.

1. Leadership Skills
   - Fund Raising
   - Conducting SHG/Youth Club Meeting/Farmer’s Club/Special Coaching Class for students and adults.

2. Communication Skills
   - Report Writing and Documentation

3. Addressing Human Rights Issues in villages
   Learning to identify Human Rights Violation – finding the appropriate forum for redressal – rights of an individual in the case of arrest.
MILK PRODUCTS
(For Students admitted from the Academic Year 2008-2009 onwards under the New CBCS Pattern)

Objectives
1. To make them understand the importance of milk in human life
2. To expose the students to various self employment

Unit I: 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 IV: Classified Butter Fat Products. Makkhan (Butter), Ghee, Lassi (Butter Milk)

Unit V: Storage of Products – Keeping Quality – Marketing – Adulteration – AGMARK.

References
EXTERNAL

PART A

Answer ALL Questions (10 X 1 = 10)
Objective Type Questions

PART B

Answer any TEN out of TWELVE of the following Questions (10X 3 = 30)
(Short Answer Questions)

PART C

Answer any FIVE out of SEVEN of the following Questions (5 X 6 = 30)
(Paragraph Questions)

PART D

Answer any THREE out of FIVE of the following Questions (3 X 10 = 30)
(Essay Type Questions)

TOTAL MARKS - 100
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<td>Social Problems and Intervention Strategies</td>
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*NME (Non-Major Elective is offered to the students of other Disciplines)*
DAIRY CHEMISTRY AND DAIRY MICROBIOLOGY

Objectives

The course is designed to impart knowledge to the students with:

- Recent advances in Dairy chemistry and dairy microbiology
- Recent techniques in detecting pathogenic and spoilage type organisms in milk and milk products.
- Food borne intoxication & infection

UNIT I Dairy Chemistry (10 hours)
Constituents and gross composition of milk of different species and breeds of milch animals, physio-chemical properties of milk constituents, physio-chemical properties of milk-acidity, pH, colour, flavour, density, specific gravity and freezing point of milk. Various type of platform tests.

UNIT II Micro organisms Associated with Milk (15 hours)
Important groups and their classification of dairy micro organisms, role of microorganisms in spoilage of milk-souring, curdling, bitter cream, proteolysis, lipolysis; abnormal flavours and discoloration. Mastitis milk.

UNIT III Microbial Quality of Milk (10 hours)

UNIT IV Anti Microbial Substances in Milk (15 hours)
Immunoglobulin, lactoferrin, lysozymes, LP systems etc. Quality Control in Dairy Industry, Microbial Standards of various milk & milk products. Zoonosis and public health aspects of milk.

UNIT V Starter Culture (10 hours)
Starter cultures - types, propagation, defects. Fermented milk - Natural butter milk, Cultured butter milk, Acidophilus milk, Bulgarian butter milk, Kumis, Kefir and Yoghurt. Preparation of Cheddar cheese.
References:

Food Safety & Quality Assurance—IGNOU, New Delhi, 2014.
Hazards to food Safety, IGNOU, New Delhi, 13th March 2014.
Introduction to food safety, IGNOU, New Delhi, 2011.
Sing, K., Dairy Microbiology, Oxford Book Company, New Delhi.
Sukumar De, Outlines of Dairy Technology, Oxford University, Delhi, 2002.
### DAIRY CHEMISTRY AND DAIRY MICROBIOLOGY - PRACTICAL

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Practical</th>
<th>Nature</th>
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<tbody>
<tr>
<td>1</td>
<td>Sampling and estimation of Acidity, Fat, SNF content of milk</td>
<td>Lab</td>
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<td>2</td>
<td>Quality control tests in dairy industry</td>
<td>Lab</td>
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<td>3</td>
<td>Detection of Adulterants and Preservatives in Milk</td>
<td>Lab</td>
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<tr>
<td>4</td>
<td>Handling of Autoclave, Hot air oven and Bacteriological Hood</td>
<td>Lab</td>
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<td>5</td>
<td>Grams method of straining of bacteria</td>
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<td>6</td>
<td>Standard Plate Count</td>
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<td>7</td>
<td>Coliform count</td>
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<td>8</td>
<td>Thermophilic count</td>
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<td>9</td>
<td>Test for pasteurized milk – Phosphatase test</td>
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<tr>
<td>10</td>
<td>Visit to milk societies and Aavin Madurai Unit</td>
<td>Lab</td>
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</table>
ENTREPRENEURSHIP DEVELOPMENT

Objectives
1. To enable the students to acquire knowledge and skills of entrepreneurship
2. To provide opportunities for the students to gain knowledge on various industrial units based on the observational visits/study.

Unit I (10 hours)

Unit II (15 hours)

Unit III (15 hours)

Unit IV (10 hours)

Unit V (10 hours)

References
Bhattacharaya,(1999), Rural Industrial Management in India, B.R. Publishing Corporation, Mumbai.
## ENTREPRENEURSHIP DEVELOPMENT PRACTICAL

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Title</th>
<th>Practical</th>
<th>Skills</th>
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<tbody>
<tr>
<td>1.</td>
<td>Women Entrepreneurs</td>
<td>• Self help groups</td>
<td>• Starting a new business by the stydebs after study</td>
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<tr>
<td></td>
<td></td>
<td>• Own business product</td>
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<td></td>
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<td>• Handicraft</td>
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<td>• Food Products</td>
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<tr>
<td>2.</td>
<td>Rural Entrepreneurship</td>
<td>• Small Scale Industries</td>
<td>• The students will come up with new innovations to develop rural people skills</td>
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<td></td>
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<td>• Match Industry</td>
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<td></td>
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<td>• Fire works industry</td>
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<td>• Bricks industry</td>
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<td>• Cement industry</td>
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<tr>
<td>3.</td>
<td>Small and large scale units</td>
<td>• Visit the industries through proper channel</td>
<td>• Entrepreneurial career- it provides students to have practical session and hands on training.</td>
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<tr>
<td></td>
<td></td>
<td>• Allow students to take up a minimum projects regarding the topic and sector</td>
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<tr>
<td>4.</td>
<td>Project appraisal</td>
<td>• The total investment for a particular sector</td>
<td>• It provides students to understand the potential market for competition and feasible study of the industry and investment.</td>
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<tr>
<td>5.</td>
<td>Source of short term finance</td>
<td>• Banks provide loans to rural entrepreneur and medium enterprises</td>
<td>• It helps the students to know how to prepare a budget and other estimation of the project learn to approach</td>
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<tr>
<td>6.</td>
<td>Industrial visitis</td>
<td>• NABARD BANK</td>
<td>• Knowledge</td>
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<td>• Agricultural Banks</td>
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<td>• Agro based companies (susee farm)</td>
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<td>• Entrepreneurs both men and women</td>
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<td></td>
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<td>• SHG in Women Entrepreneurs</td>
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<td></td>
<td></td>
<td>• Internship from a particular companies</td>
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PRINCIPLES OF RURAL MANAGEMENT

Objectives

1. To enable the students understand the fundamental principles of Rural Management
2. To equip the students with the knowledge and Skills on the various functions and processes of management.
3. To facilitate the students to learn about the rural resources management.

Unit I (20 hours)

Unit II (20 hours)

Unit III (20 hours)

Unit IV (15 hours)

Unit V (15 hours)
References:


RESEARCH METHODOLOGY

Objectives
1. To enable the students understand the methodology for carrying out the scientific social research.
2. To impart knowledge on various methods of data collection, for the research study.
3. To facilitate the students to acquire skills on report writing.

Unit I  Introduction  (15 hours)

Unit II  Hypothesis  (15 hours)

Unit III  Research Methods  (25 hours)
g. Participatory Rural Appraisal.

Unit IV  Collection of Data  (25 hours)
e. Documentary sources: Meaning – Kinds – uses of documentary sources in social research.

Unit V Report Writing (10 hours)

References:

Class : I M.Sc. DSRM  
Part : Core Elective-1
Semester : I  
Hours : 90
Sub.Code : 15PDM31  
Credits : 5

IRD Practical - 1
PRACTICAL COMPONENT FOR Principles Of Rural Management
And Research Methodology

1. Visit to a Small Scale Industry
2. Understanding Management Functions (POSDCORB) in an organization
3. To know about Marketing Strategies
4. Learning the various Statutory Requirements
5. Understanding HR functions in an Organization
6. PRA Training
7. Proposal Formulation
8. Mini Project
9. Application of SPSS and COSTAT
10. Writing a Research Paper
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : I M.Sc.DSRM  Part : Core -5
Semester : II  Hours : 60
Sub.Code : 15PDMC52  Credits : 3

LIVESTOCK PRODUCTION TECHNIQUES

Objectives
1. To impart in depth knowledge in breeding and feeding of dairy animals.
2. To impart research orientation on breeding and feeding of dairy animals.

UNIT I Digestive System & Process of Digestion, Absorption and Metabolism
(15 hours)
Anatomy and Physiology of digestive systems of ruminants and non-ruminants. Proximate nutrients – their digestion, absorption and metabolism

UNIT II Feeds and Fodders
(10 hours)
Conventional and unconventional feeds and fodders – their compositions, anti-nutritional factors including aflatoxin – detoxification and enrichments. Local fodders with their composition and importance – preservations of fodders, hay and silage making.

UNIT III Ration Computation and Feed Production
(10 hours)
Indian feeding standard – methods of computation of ration for dairy animals – computers in computation
Equipments for feed production – Incorporation level of various ingredients – replacement of feed ingredients - purchasing quality and processing and mixing of feed ingredients – packaging and storage.

UNIT IV Animal Breeding
(10 hours)
Selection of dairy animals for breeding – systems of breeding in all farm animals their merits and demerits.
Reproductive Physiology of farm animals (Cattle, buffalo, sheep and goat)– hormonal regulation –synchronization of estrus.

UNIT V Breeding Techniques
(15 hours)
Artificial Insemination – Semen collection, evaluation, dilution and storage.
Insemination techniques – transportation of semen – Embryo transfer technique.

References
Sundaresan, P, (1972), Livestock Breeding in India, Vikas Publications.
Livestock Production Techniques Practical

1. Identification of feed materials

2. Estimation of moisture and dry matter / crude fibre and total ash.

3. Demonstration of estimation of crude protein and crude fat.

4. Computation of ration for dairy animals (Thumb rule method)

5. Preparation and mixing of feed ingredients

6. Semen motibility examination

7. Recto-vaginal method of insemination

8. Pregnancy diagnosis in dairy animals

9. Study on the reasons for reproductive abnormalities in dairy animals in villages.
SOIL AND FODDER MANAGEMENT

Objectives
1. To enable the students have a deeper knowledge on soil conservation management
2. To impart skills necessary for soil conservation management.

Unit I (15 hours)
Definition of soil, Soil types of India, their conservation problems and their productivity. Potentials Soil forming processes, rocks and minerals. Soil profile and its development, Soil classification (taxonomy) Soil physical properties Texture and structure, effective soil depth, Bulk density, particle density and porosity. Soil Moisture constants. Classification of soil moisture, Soil chemical properties- Cation and Anion exchange capacity of soil, biological properties.

Unit II (15 hours)
Soil testing, concept, objective, soil chemical analysis pH, EC, organic carbon, available Nitrogen, Phosphorous, potassium and organic carbon. Essential elements of soil fertility evaluation, Deficiency symptoms and their role in plant growth. Importance of fertilizer and manure on soil. Soil erosion and conservation methods

Unit III (10 hours)
Saline and alkaline soil and their identification. Methods of reclamation chemical, Biological and Mechanical, acid soils and their management, Land capability classification. Classes sub classes and units Land use planning and its importance in soil conservation.

Unit IV (10 hours)

Unit V (10 hours)
Cultivation practices of the fodder crops – Cumbu- Napier hybrids, Buffalo grass, Elephant grass, Hedge Lucerne, Lucern, Sesbania, Subabul - Ratooning.
References


Nyle Brady 92002), Nature and properties of soil. PHI New Delhi.


1. Soil Sample Collection

2. Soil Moisture Estimation

3. Soil Density Measurement

4. pH Measurement

5. EC Analysis

6. Texture Measurement

7. Different types of fodder sample collection

8. Fodder cultivation method

9. Visit to Soil processing centre

10. Visit to Agriculture College, Madurai.
SOCIAL STATISTICS AND COMPUTER APPLICATIONS

Objectives
1. To impart knowledge on Statistics in Social Science research
2. To enable students to use statistical tools in Social Science research
3. To train the students to familiarize with MS Excel and SPSS Package.

Unit I  INTRODUCTION  (15 hours)

Unit II  DIAGRAMMATIC AND GRAPHIC PRESENTATION  (20 hours)

Unit III  MEASURES OF CENTRAL TENDENCY  (20 hours)

Unit IV  STATISTICAL TOOLS  (20 hours)

Unit V  SCALING TECHNIQUES  (15 hours)
References

Raza, M, Ed.,(1978),Sources of Economic and Social Statistics in India, Eureka Publishers, New Delhi.
SOCIAL PROBLEMS AND INTERVENTION STRATEGIES

Objectives
1. To sensitize the students the various social problems of the Indian society.
2. To enable the students to understand the major issues affecting the vulnerable sections of the society.
3. To equip the students with knowledge and skills for social interventions.

UNIT I  Social Problems: Concept and Approaches
(20 hours)

UNIT II  Poverty, Unemployment, Population Explosion
(20 hours)

UNIT III  Communalism and Regionalisation
(20 hours)
Concept of communalism – communal violence – concept, features incidence, causes – Theories of communal violence – Secularism – Regionalisation – Role of Police, prescriptive measures to combat communalism.

UNIT IV  Problems of Youth
(15 hours)
Juvenile delinquency Alcoholism, Drug abuse and Drug addiction, AIDS, Terrorism, Youth Unrest and Agitations, Youth leadership and measured to combat problems of youth.

UNIT V  Social Problems of Vulnerable Sections of the Society
(15 hours)
References
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

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IRD Practical – 2

1. Preparation of tool and collecting quantitative data for statistical applications
2. Organising and Processing of statistical data
3. Classification of collected data
4. Preparation of different types of tables
5. Preparation of different types of Diagrams and Graphs
6. Introduction to Microsoft Excel, Data Entry, Preparation of Graphs, Data Analysis
7. Structure of SPSS windows and options
8. Variable declaration and data entry, data cleaning in SPSS and COSTAT
9. Creating Diagrams and Graphs using SPSS and COSTAT
10. Data Analysis using SPSS and COSTAT: Statistical outputs like, Mean, Media, Standard Deviation, Correlation.
INFORMATION & COMMUNICATION TECHNOLOGY FOR RURAL DEVELOPMENT

Objectives
1. To provide knowledge in information and Communication Technology.
2. To enable students acquire skills in use of mass media in RD
3. To equip students with skills in the area of e-content, e-learning and e-media towards RD.

Unit – I: Information and Communication (20 hours)

Unit – II: Mass Communication (18 hours)
Mass communication and its relevance in the Indian context – mass media – Radio, film, Press, television – Role of mass communication in rural Development with special emphasis on animal husbandry and agriculture.

Unit – III: Communication and Social Change (18 hours)
Communication and social change – effectiveness of mass communication on rural social change. Role of mass media in social, political and economic modernization in rural India. Role of traditional folk media in rural development.

Unit – IV: Communication Strategies (18 hours)
Communication strategies – selecting medium media mix. Application of computers in newspaper, magazine, Radio and television, web and advertising. Introduction to power point – creating a presentation and customizing the slide show.

Unit – V: Technology and Rural Development (16 hours)

Reference:
Prasad, B.K., 2004, NGO’s and Development, Anmol Publication., New Delhi,
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514
DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II M.Sc.DSRM          Part : Core
Semester : III          Total No. of Hours : 60
Sub.Code : Credits : 3

ENERGY AND ENVIRONMENT

Objectives
1. To impart knowledge on energy and environment.
2. To make students become aware of latest trends in energy applications and environmental problems.
3. To enable students to involve for the promotion of environmental protection for sustainable development.

Unit – I (12 hours)


Unit – II (12 hours)


Unit – III (12 hours)


Unit – IV (12 hours)

Environmental problems and resource management: Pollution – air, Water, noise – their effects, and control, depletion of resources – bioresources, soil, water and minerals.

Unit – V (12 hours)

Environmental Protection: Environmental laws, environmental education, role of Government, Educational Institutions, NGOs, movements and peoples’ participation.

References:
Kudesia, V.P.1990 Pollution, Pragati Prakashan, Meerut.
### ENERGY AND ENVIRONMENT PRACTICAL

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<td>Domestic Energy Consumption Pattern</td>
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<td>Energy Input in Agriculture</td>
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#### Lab Practicals

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<td>Estimation of Dissolved Oxygen Content in various water samples</td>
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<td>Estimation of Carbon dioxide in various water samples</td>
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<td>Estimation of Carbonate and Bicarbonate alkalinity in different water samples</td>
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<td>Estimation of Hardness in different water samples.</td>
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<td>Determination of Biochemical Oxygen Demand</td>
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<td>Determination of Energy using Oxygen Bomb Calorimeter</td>
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<td>Energy Applications – Solar and Bio energy</td>
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WATERSHED MANAGEMENT

Objective
1. To impart an in-depth knowledge on watershed management
2. To enable the students learn the skills to construct the watershed devices

Unit – I (10 hours)

Unit – II (15 hours)
Water Availability period – rain water management in different climatic and soil conditions – Rainfall analysis – different water shed technology for rain water management – Soil survey – water budgeting – Soil erosion.

Unit – III (15 hours)
Selection of cropping systems for watershed management – Agro Ecological conditions – Biomass development – Nursery – Planning-layout – Methods of propagation, plant protection methods – Afforestation – Selection of species and management – Agro Forestry and management – Silvipasture and Management

Unit – IV (10 hours)
Soil Management / Land treatment
BUNDING – Graded, Vegetative, Contour and Stone bundings – TERRACING – Bench, Continuous and Contour terracing – Diversion – Drain Treatments on water logged areas.

Unit – V (10 hours)
References:

Lal and Greenland, 1979 soil a Physical properties and Crop Production in the tropics, John Wileef and Sons New York.
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Watershed Management Practical

Class : II M.Sc. (DSRM)  
Semester : III  
Subject Code : (DS&RM)  
Part : Core  
Hours : 30  
Credit : 2

<table>
<thead>
<tr>
<th>S.no</th>
<th>Exercise</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visit to B-class meteorological observatory</td>
<td>Field</td>
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<tr>
<td>2</td>
<td>Rainfall Measurement-Standard and recording type rain gauges</td>
<td>Lab</td>
</tr>
<tr>
<td>3</td>
<td>Calculation of Rainfall using arithmetic and Thessian mean</td>
<td>Lab</td>
</tr>
<tr>
<td>4</td>
<td>Visit to the farm pond and Percolation pond in Fr. Rajanayagam Research Farm</td>
<td>Field</td>
</tr>
<tr>
<td>5</td>
<td>Computation of volume of a pond using Prisomoidal formula</td>
<td>Lab</td>
</tr>
<tr>
<td>6</td>
<td>Demonstration of types of irrigation and Calculation of irrigation efficiency</td>
<td>Field</td>
</tr>
<tr>
<td>7</td>
<td>Identification of elementary surveying equipments</td>
<td>Lab</td>
</tr>
<tr>
<td></td>
<td>PRA training in Watershed</td>
<td>Training</td>
</tr>
<tr>
<td>9</td>
<td>Watershed structures — A field visit</td>
<td>Field</td>
</tr>
<tr>
<td>10</td>
<td>A visit to NGO involved in Watershed management</td>
<td>Field</td>
</tr>
</tbody>
</table>
Class: II M.Sc.DSRM
Semester: III
Sub.Code: 
Part: Core
Total No. of Hours: 60
Credits: 3

FARM ANIMAL ENTERPRISES

Objectives
1. To impart knowledge on livestock enterprises
2. To initiate the graduates to start their own suitable farms.
3. To give technical advice to the farmers to start their own farms and to solve the problems of Livestock enterprises.

(10 hours)

Unit – I Farm enterprises – requirements and feasibility study – agencies involved in livestock business – concept of mixed farming.

(15 hours)

Unit – II Cost Principles – application in livestock and Cost benefit ratio – Break even point analysis. Payback period, Net present value Profitability index and Internal Rate of Return.

(15 hours)

Unit – III a) Technical and production parameters in different types of farms – sheep, cattle, buffalo and goat.

(10 hours)

Unit – IV Credit facilities – institutional credits – types and mode of repayment Livestock project formulation and submission – requirements –NABARD model.

(10 hours)


References:
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DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Farm Animal Enterprises Practical

<table>
<thead>
<tr>
<th>Class</th>
<th>II M.Sc. (DSRM)</th>
<th>Part</th>
<th>Core</th>
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<tbody>
<tr>
<td>Semester</td>
<td>III</td>
<td>Hours</td>
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<td>Subject Code</td>
<td>(DS&amp;RM)</td>
<td>Credit</td>
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<table>
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<tr>
<th>Ex No</th>
<th>PRACTICALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study about the feasibility to start a farm enterprise unit</td>
</tr>
<tr>
<td>2</td>
<td>Technical parameters and assumptions for a dairy enterprise.</td>
</tr>
<tr>
<td>3</td>
<td>Technical parameters and assumptions for sheep and goat enterprises.</td>
</tr>
<tr>
<td>4</td>
<td>Assessment of Performances of dairy animals.</td>
</tr>
<tr>
<td>5</td>
<td>Methods of water purification and water quality management</td>
</tr>
<tr>
<td>6</td>
<td>Practical tips for construction of farm buildings.</td>
</tr>
<tr>
<td>7</td>
<td>Techniques to dispose wastes and carcasses</td>
</tr>
<tr>
<td>8</td>
<td>Government schemes to organise farm animal enterprises.</td>
</tr>
<tr>
<td>9</td>
<td>Visit to a scientific modern dairy farm.</td>
</tr>
<tr>
<td>10</td>
<td>Project formulation for dairy farm enterprises (bank model)</td>
</tr>
</tbody>
</table>
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

IRD Practical – 3

Class : II M.Sc. (DSRM)  
Semester : III  
Subject Code : (DS&RM)

Part : Core Elective  
Hours : 90 hours/Semester  
Credit : 4

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Practicals</th>
<th>Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Educational Media</td>
<td>E.M.R.C. M.K.University</td>
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<td>2</td>
<td>Content Development</td>
<td>ACPR, AAC</td>
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<tr>
<td>3</td>
<td>Communication Studies</td>
<td>Development Communication, Dept. Of Journalism and Mass Communication, MKU</td>
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<tr>
<td>4</td>
<td>Women Empowerment</td>
<td>Wed Trust</td>
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<td>5</td>
<td>Human Rights Issues and Programmes</td>
<td>People’s Watch</td>
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<td>6</td>
<td>Media and Development</td>
<td>Sathangai Communication Centre</td>
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<td>7</td>
<td>Street Theatre, Folk Arts</td>
<td>ARD</td>
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<td>8</td>
<td>Radio Communication</td>
<td>All India Radio, Madurai</td>
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<td>9</td>
<td>Village Knowledge Centre</td>
<td>Kannivadi, MSSRF</td>
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<tr>
<td>10</td>
<td>ICT Dissemination</td>
<td>Vidiyal,Theni.</td>
</tr>
</tbody>
</table>
DAIRY PRODUCTS AND PACKAGING

OBJECTIVES:

The course is designed to impart knowledge to the students with:

- Manufacturing techniques of various types of dairy products, their composition, packaging, storage and methods of distribution.
- Study the nutritional aspects of various types of dairy products

UNIT- I. CREAM AND BUTTER: (15 hours)


UNIT – II CHEESE AND GHEE: (15 hours)

Cheese- definition, role of milk constituents, method of manufacture of cheddar cheese and mozzarella cheese. Ghee- definition, legal standards, physio- chemical constituent, method of manufacture, fat constants and defects.

UNIT- III FROZEN DAIRY PRODUCTS: (15 hours)

Definitions, classifications and composition of ice-cream. Role of milk constituents in manufacture of ice-cream. Stabilizers, emulsifiers, sweeteners, Colouring and flavouring agents, fruits and nuts - their properties and role in quality of ice-cream. Method of manufacture of ice cream and its nutritive value. Physio-chemical properties of ice-cream mixes and ice-cream. Processing and freezing of ice-cream mix and control of over-run. Packaging, hardening and storage.

UNIT- IV MILK POWDER: (15 hours)


UNIT- V TRADITIONAL DAIRY PRODUCTS (15 hours)

Composition, method of manufacture - Khoa, Paneer, Channa and Gulabjamun
References:


Food Safety & Quality Assurance,IGNOU, New Delhi.


Hazards to food Safety,IGNOU, New Delhi.

Introduction to food safety,IGNOU, New Delhi.


Sukumar De, Outlines of Dairy Technology, Oxford University, Delhi.
<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>11</td>
<td>Test for Plant sanitation – Assessing the sterility of cans</td>
<td>Lab</td>
</tr>
<tr>
<td>12</td>
<td>Preparation of cream</td>
<td>Lab</td>
</tr>
<tr>
<td>13</td>
<td>Preparation of butter- Demonstration</td>
<td>Lab</td>
</tr>
<tr>
<td>14</td>
<td>Preparation of ghee- Demonstration</td>
<td>Lab</td>
</tr>
<tr>
<td>15</td>
<td>Preparation of Khoa</td>
<td>Lab</td>
</tr>
<tr>
<td>16</td>
<td>Preparation of Ice cream</td>
<td>Lab</td>
</tr>
<tr>
<td>17</td>
<td>Preparation of curd</td>
<td>Lab</td>
</tr>
<tr>
<td>18</td>
<td>Preparation of yoghurt</td>
<td>Lab</td>
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<tr>
<td>19</td>
<td>Preparation of milk beverages- Demonstration</td>
<td>Lab</td>
</tr>
<tr>
<td>20</td>
<td>Visit to modern dairy plant</td>
<td>Field</td>
</tr>
</tbody>
</table>
RURAL HEALTH AND SANITATION

Objectives
1. To impart knowledge in health and sanitation
2. To enable students to acquire latest techniques of disease prevention and control
3. To equip students to adopt healthy practices among rural population.

Unit – I  
(12 hours)


Unit – II  
(12 hours)


Unit – III  
(12 hours)


Unit – IV  
(12 hours)


Unit – V  
(12 hours)

References:

Park, K. 2006. Text Book of Preventive and Social Medicine Banarsidas Bhanot Publishers, Jabalpur,
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

Class : II M.Sc          Part : Core
Semester : IV          Total No. of Hours : 30
Sub.Code :              Credits : 2

RURAL HEALTH AND SANITATION PRACTICALS

<table>
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<tr>
<th>Ex No</th>
<th>PRACTICALS</th>
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<tr>
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<td>Field Study / Field Visits</td>
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<tr>
<td>1</td>
<td>Community Nutrition Programme</td>
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<td>2</td>
<td>Immunization Programme</td>
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<td>3</td>
<td>Primary Health Centre</td>
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<td>4</td>
<td>AIDS : Prevention and Control</td>
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<tr>
<td></td>
<td>Lab Practicals</td>
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<tr>
<td>5</td>
<td>Differential count of White Blood Corpuscles</td>
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<tr>
<td>6</td>
<td>Enumeration of Red Blood Corpuscles</td>
</tr>
<tr>
<td>7</td>
<td>Enumeration of White Blood Corpuscles</td>
</tr>
<tr>
<td>8</td>
<td>Life Cycle of Mosquito</td>
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<tr>
<td>9</td>
<td>Chlorination of Well</td>
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</tbody>
</table>
ARUL ANANDAR COLLEGE (AUTONOMOUS), KARUMATHUR- 625514

DEPARTMENT OF RURAL DEVELOPMENT SCIENCE

IRD Practical – 4

Class : II M.Sc. (DSRM)  Part : Core Elective
Semester : III  Hours : 90
Subject Code : (DS&RM)  Credit : 4

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<tr>
<th>Sl.No</th>
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<tbody>
<tr>
<td>1</td>
<td>Structure and Functioning of NGO</td>
<td>WED TRUST</td>
</tr>
<tr>
<td>2</td>
<td>Constitution, Registration,</td>
<td>ARD, Chekkanurani</td>
</tr>
<tr>
<td>3</td>
<td>Development Projects Planning –</td>
<td>Computer Lab</td>
</tr>
<tr>
<td>4</td>
<td>FCRA – Latest provisions</td>
<td>RUSS FOUNDATION</td>
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<tr>
<td>5</td>
<td>Management of SHGs</td>
<td>YESU BHAVAN</td>
</tr>
<tr>
<td>6</td>
<td>Project Proposal writing – Model</td>
<td>Computer Lab</td>
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<td>7</td>
<td>HIV Positives – Psycho Social</td>
<td>ARD, Madurai</td>
</tr>
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<td>8</td>
<td>Micro Credit Management</td>
<td>ASSEFA, Thirumangalam</td>
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<td>9</td>
<td>Project Proposal writing – Model</td>
<td>Computer Lab</td>
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<td>10</td>
<td>Monitoring and Evaluation</td>
<td>PREED, Thirumangalam</td>
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EXTERNAL

PART A

Answer any FIVE Questions (OUT OF EIGHT) of the following (5 X 8 = 40)
Paragraph Type Questions

PART B

Answer any FOUR (OUT OF SIX) of the following Questions (4 X 15 = 60)
Long Answer Type Questions

TOTAL MARKS - 100