



PONNAIYAH RAMAJAYAM INSTITUTE OF SCIENCE & TECHNOLOGY

**PRIST**

DEEMED UNIVERSITY

Accredited by NAAC

Vallam, Thanjavur – 613 403. [www.prist.ac.in](http://www.prist.ac.in)



Prof. Dr. B. Chandrasekaran, M.Sc (Ag), Ph.D.,  
F.(ISA), F.ISR (FAO, Rome), C.SRINM (IRRI), Prod. Advocate (APO, Japan)  
Dean  
School of Agriculture

Date: 02.07.2018

### CIRCULAR

The Board of Studies meeting is scheduled on 03.07.2018 at 10.00 a.m. in the Dean's Chamber at School of Agriculture, PRIST University, Thanjavur under the Chairmanship of Dr. A. Sathyavelu, (HOD). All are requested to attend without fail.

#### Agenda of the meeting

S.No	Subject
<b>Welcome Address</b>	
1.	Welcome Address by the Council Chairman
<b>Confirmation of Minutes</b>	
2.	To confirm the minutes of the Board of studies meeting held on 03.07.2018
<b>Action taken with regard to the resolutions passed</b>	
3.	To report and record the action taken on the resolutions passed in the Board of Studies Meeting held on 16.05.2018
<b>Items for reporting to the Board of Studies Meetings</b>	
4.	To consider the suggestions revealed by faculty members and students for the revision of B.Sc. (Ag) 2017-2018 courses.
5.	Finalizing the list of courses for I year (2018-2022 Batch).
6.	Finalizing the syllabi.

Dean

School of Agriculture.

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## BOARD OF STUDIES MEETINGS

Date: 03.07.2018 (10.00 am)

Venue: School of Agriculture

### AGENDA

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<b>Welcome Address</b>	
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**School of Agriculture**

**MEETING OF BOARD OF STUDIES (03.07.2018)**

**MINUTES OF THE MEETING**

The Meeting of Board of Studies in School of Agriculture was held on Tuesday, 03<sup>rd</sup> July 2018 at 10.00 A.M. under the Chairmanship of Dr. A. Sathiyavelu, (HOD), School of Agriculture.

The following members were present:

**Name and Designation**

**Signature**

**Chairman**

1. Dr. A. Sathiyavelu  
Head of the Department  
School of Agriculture  
PRIST University

**Members:**

1. Dr. B. Chandrasekaran  
Dean  
School of Agriculture  
PRIST University
2. Prof. N. Ilanchezhian  
*PROFESSOR*  
School of Agriculture  
PRIST University
3. Dr. V. Shanthi  
Associate Professor (Agricultural Microbiology)  
School of Agriculture  
PRIST University

4. Ms. J.U. Janusia  
Assistant Professor (Agricultural Extension)  
School of Agriculture  
PRIST University



5. Mr. A. Mathesh  
Assistant Professor (Soil Science)  
School of Agriculture  
PRIST University



**Signature**

**External Members:**

**Industrial Expert:**

1. Mr. S. Saravanan,  
Seed Production and seed processing Unit,  
Kumbakonam.



**Academic Expert:**

1. Dr. C. Rathinasabapathy,  
Professor (Pathology),  
PAJANCOA,  
Karaikal  
Puducherry




The minutes of the meeting are as follows,

1. The board of Studies approved the adoption of new nomenclature B.Sc. (Hons) Agriculture Degree Programme as per ICAR 5th Dean's Committee recommendation instead of B.Sc. (Ag) Degree Programme.
2. The Board of Studies approved the adoption of ICAR 5 Dean's Committee recommended National syllabus for the B.Sc. (Hons) Agriculture during the Academic year 2018-19 year onwards.
3. The board suggested to change the code of PBG into G&PB according to ICAR pattern.
4. The board has accepted for certain inclusion in the syllabus of Agronomy, Plant breeding, Pathology, Extension.
5. The board minimally accepted to change the name of B.Sc., (Ag) degree programme as B.Sc., (Hons. Ag) on par with TNAU & PAJANCOA University. Since ICAR has approved these degree as a technical degree.
6. The board compared the credit hours conducted in various Universities and approved 105 working days adopted in PRIST as optional.
7. The Board of Studies approved the adding new value added course

**List of new courses :**

- Agricultural Heritage (non gradial)\*
- Human Values & Ethics (non gradial)\*
- Introductory Biology
- NSS/NCC/Physical Education & Yoga Practices
- Irrigation Water Management
- Intellectual Property Rights
- Protected Cultivation and Secondary Agriculture

  
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**List of new value added course :**

- Certificate course on Integrated Pest and Disease Management
- Certificate course on Agri-Tourism
- Certificate course on Herbal science
- Certificate course on Farm machinery and its maintenance
- Certificate course on Green house technology
- Certificate course on fruit culture and propagation



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## **Programme educational objectives**

The educational objectives are intended to impart high quality education so as to produce not just agricultural graduates but agro technocrats with practical and conceptual skills. With precise and deliberate course modules, which provides education, research and training along with first hand field experiences, the students would sure be transformed as skilled human resources.

During the programme of four year duration, the students will undergo 65 courses in the domain of agriculture, horticulture, agricultural engineering, and information technology including linguistics. The students would gain in depth expertise in scientific farm management and post harvest technologies. The students are also taught with elective courses on mushroom cultivation, sericulture, tissue culture crops and bio fertilizer production, which could explore the graduates' entrepreneurial skills and also add students 'competitive values' in job market.

## **Programme outcome**

At the end of the programme, the graduate should be able to:

1. Recognize the importance of agriculture in providing food, fibre and income as well as nation building.
2. Understand scientific methods of cultivation of field crops and horticultural crops along with animal production.
3. Establish agro based start-ups for the upliftment of rural community
4. Initiate rural enterprises there by providing jobs for the jobless.
5. Carry out basic and applied research geared towards augmentation of crop and animal production
6. Transfer of agro technologies to the farming community via public and private sector stakeholders.
7. Pursue advanced courses and trainings in International and National institutions

## Semester – wise distribution of courses

<b>I Semester</b>			
S. No.	Course Code	Course Title	Credit Hours
1	18 AGR 101	Fundamentals of Agronomy	3(2+1)
2	18 AGR 102	Agricultural Heritage*	1(1+0)
3	18 AGR 103	Introduction to Forestry	2(1+1)
4	18 AEX 101	Rural Sociology & Educational Psychology	2(2+0)
5	18 AEX 102	Human Values & Ethics (non gradial)	1(1+0)
6	18 GPB 101	Introductory Biology	2(1+1)
7	18 HOR 101	Fundamentals of Horticulture	2(1+1)
8	18 SAC 101	Fundamentals of Soil Science	3(2+1)
9	18 BIC 101	Fundamentals of Plant Biochemistry and Biotechnology	3(2+1)
10	18 ENG 101	Comprehension & Communication Skills in English	2(1+1)
11	18 NSS 100	NSS/NCC/Physical Education & Yoga Practices	2(0+2)
<b>Total</b>			<b>23(14+9)</b>

<b>II Semester</b>			
S. No.	Course Code	Course Title	Credit Hours
1	18 AGR 104	Introductory Agro-meteorology & Climate Change	2(1+1)
2	18 AEC 101	Fundamentals of Agricultural Economics	2(2+0)
3	18 AEN 101	Fundamentals of Entomology	3(2+1)
4	18 AEX 103	Fundamentals of Agricultural Extension Education	3(2+1)
5	18 AGM 101	Agricultural Microbiology	2(1+1)
6	18 GPB 102	Fundamentals of Genetics	3(2+1)
7	18 CRP 101	Fundamentals of Crop Physiology	2(1+1)
8	18 PAT 101	Fundamentals of Plant Pathology	3(2+1)
9	18 SWE 111	Soil and Water Conservation Engineering	2(1+1)
<b>Total</b>			<b>22(14+8)</b>



### III Semester

S. No.	Course Code	Course Title	Credit Hours
1	18 AGR 201	Crop Production Technology - I (Kharif Crops)	2(1+1)
2	18 AGR 202	Education of Tour	1(0+1)
3	18 AEC 201	Agricultural Finance and Co-operation	2(1+1)
4	18 AMP 201	Livestock and Poultry Management	3(2+1)
5	18 ENS 201	Environmental Studies and Disaster Management	3(2+1)
6	18 FMP 201	Farm Machinery and Power	2(1+1)
7	18 GPB 201	Fundamentals of Plant Breeding	3(2+1)
8	18 HOR 201	Production Technology for Vegetables and Spices	2(1+1)
9	18 COM 201	Agro-Informatics	2(1+1)
10	18 MAT 201	Statistical Methods	2(1+1)
11	18 AGR 203	Farming System & Sustainable Agriculture	1(1+0)
<b>Total</b>			<b>23(13+10)</b>

### IV Semester

S. No.	Course Code	Course Title	Credit Hours
1	18 AGR 204	Crop Production Technology - II (Rabi Crops)	2(1+1)
2	18 AGR 205	Irrigation Water Management	2(1+1)
3	18 AEC 202	Agricultural Marketing Trade & Prices	3(2+1)
4	18 AEX 201	Communication Skills and Personality Development	2(1+1)
5	18 ERG 211	Renewable Energy and Green Technology	2(1+1)
6	18 HOR 202	Production Technology for Fruit and Plantation Crops	2(1+1)
7	18 PAT 201	Principles of Integrated Pest and Disease Management	3(2+1)
8	18 SAC 201	Problematic Soils and their Management	2(1+1)
9	18 SST 201	Principles of Seed Technology	3(2+1)
10	18 OPT 201	Elective Course	3(2+1)
<b>Total</b>			<b>24(14+10)</b>

### V Semester

S. No.	Course Code	Course Title	Credit Hours
1	18 GPB 301	Crop Improvement - I (Kharif Crops)	2(1+1)
2	18 AGR 301	Rainfed Agriculture & Watershed Management	2(1+1)
3	18 AGR 302	Practical Crop Production - I (Kharif Crops)	2(1+1)
4	18 AEN 301	Pests of Crops and Stored Grain and their Management - I	3(2+1)
5	18 AEX 301	Entrepreneurship Development and Business Communication	2(1+1)
6	18 HOR 301	Production Technology for Ornamental Crops, MAP and Landscaping	2(1+1)
7	18 PAT 302	Diseases of Field and Horticultural Crops and their Management - I	3(2+1)
8	18 SAC 301	Manures, Fertilizers and Soil Fertility Management	3(2+1)
9	18 IPR 301	Intellectual Property Rights	1(1+0)
10	18 OPT301	Elective Course	3(2+1)
<b>Total</b>			<b>23(14+9)</b>

### VI Semester

S. No.	Course Code	Course Title	Credit Hours
1	18 AGR 303	Geoinformatics and Nano-technology and Precision Farming	2(1+1)
2	18 GPB 302	Crop Improvement - II (Rabi Crops)	2(1+1)
3	18 AGR 304	Practical Crop Production - II (Rabi Crops)	2(1+1)
4	18 AGR 305	Principles of Organic Farming	2(1+1)
5	18 AEC 301	Farm Management, Production & Resource Economics	2(1+1)
6	18 AEN 302	Pest of Horticulture Crops and Management of Beneficial Insects	2(1+1)
7	18 FSN 301	Principles of Food Science and Nutrition	2(2+0)
8	18 HOR 302	Post-Harvest Management and Value Addition of Fruits and Vegetable	2(1+1)
9	18 PAT 302	Diseases of Field and Horticultural Crops and their Management - II	2(1+1)
10	18 PCA 301	Protected Cultivation and Secondary Agriculture	2(1+1)
11	18 OPT 302	Elective Course	3(2+1)
<b>Total</b>			<b>23(13+10)</b>

### VII Semester

### VII Semester

No.	Course Code	Rural Agricultural Work Experience and Agro-industrial Attachment (RAWE & AIA)		
		Activites	No. of weeks	Credit Hours
1	18 AEX 401	General orientation & On campus training by different faculties	1	14
		Village attachment	8	
		Unit attachment in Univ./ College. KVK/ Research Station Attachment	5	
		Plant clinic	2	02
		Agro-Industrial Attachment	3	04
		Project Report Preparation, Presentation and Evaluation	1	02
		<b>Total weeks for RAWE &amp; AIA</b>	<b>20</b>	<b>20</b>

- **Agro-Industrial Attachment:** The students would be attached with the agro-industries for a period of 3 weeks to get an experience of the industrial environment and working.
- Educational tour will be conducted in break between IV & V Semester or VI & VII Semester

#### RAWE Component-I

#### Village Attachment Training Programme

Sl. No.	Activity	Duration
1	Orientation and Survey of Village	1 week
2	Agronomical Interventions	1 week
3	Plant Protection Interventions	1 week
4	Soil Improvement Interventions (Soil sampling and testing)	1 week
5	Fruit and Vegetable production interventions	1 week
6	Food Processing and Storage interventions	
7	Animal Production Interventions	1 week
8	Extension and Transfer of Technology activities	1 week

#### RAWE Component-II

#### Agro Industrial Attachment

- Students shall be placed in Agro-and Cottage industries and Commodities Boards for 03 weeks.
- Industries include Seed/Sapling production, Pesticides-insecticides, Post harvest-processing-value addition, Agri-finance institutions, etc.

#### Activities and Tasks during Agro-Industrial Attachment Programme

- Acquaintance with industry and staff
- Study of structure, functioning, objective and mandates of the industry
- Study of various processing units and hands-on trainings under supervision of industry staff

- Ethics of industry
- Employment generated by the industry
- Contribution of the industry promoting environment
- Learning business network including outlets of the industry
- Skill development in all crucial tasks of the industry
- Documentation of the activities and task performed by the students
- Performance evaluation, appraisal and ranking of students

**Modules for Skill Development and Entrepreneurship:** A student has to register 20 credits opting for two modules of (0+10) credits each (total 20 credits) from the package of modules in the **VIII Semester**.

#### VIII Semester

S. No.	Course Code	Course Title	Credit Hours
1	18 EXP 401	Experiential Learning - Module I	0+10
2	18 EXP 402	Experiential Learning - Module II	0+10

**Experiential Learning:** A student can select two experiential learning out of the following and offer during 8<sup>th</sup> semester.

S. No.	Title of the module	Credits
1	Production Technology for Bioagents and Biofertilizer	0+10
2	Seed Production and Technology	0+10
3	Mushroom Cultivatiuon Technology	0+10
4	Soil, Plant, Water and Seed Testing	0+10
5	Commercial Beekeeping	0+10
6	Poultry Production Technology	0+10
7	Commercial Horticulture	0+10
8	Floriculture and Landscaping	0+10
9	Food Processing	0+10
10	Agriculture Waste Management	0+10
11	Organic Production Technology	0+10
12	Commercial Sericulture	0+10

**Elective Courses:** A student can select three elective courses out of the following and offer during 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> semesters.

S. No.	Courses	Credit Hours
1	Agribusiness Management	3(2+1)
2	Agrochemicals	3(2+1)
3	Commercial Plant Breeding	3(1+2)
4	Landscaping	3(2+1)
5	Food Safety Issues	3(2+1)
6	Biopesticides & Biofertilizers	3(2+1)
7	Protected Cultivation	3(2+1)
8	Micro propagation Technologies	3(1+2)
9	Hi-tech. Horticulture	3(2+1)
10	Weed Management	3(2+1)
11	System Simulation and Agro-advisory	3(2+1)
12	Agricultural Journalism	3(2+1)

18 GPB 101

INTRODUCTORY BIOLOGY

2 (1+1)

Course outlines

Theory

Introduction to the living world. Diversity and characteristics of life, Origin of life, Evolution and Eugenics. Binomial nomenclature and classification, Cell and cell division. Morphology of flowering plants. Seed and seed germination. Plant systematic-viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

Practical

Morphology of flowering plants - root, stem and leaf and their modifications. Inflorescence, flower and fruits. Cell. Tissues & cell division. Internal structure of root, stem and leaf. Study of specimens and slides. Description of plants- Brassicaceae, Fabaceae and Poaceae.

Lecture outlines

Theory

1. Introduction to living world - Properties of life or living things – Growth, development and reproduction, regulation and homeostasis - Diversity of Life – Major domains/ kingdoms of living beings – Bacteria (Eubacteria), Archaea (Archebacteria) and Eukarya (Protista, fungi, plantae, animalia) - Concepts of prokaryotes and eukaryotes, unicellular and multicellular organisms, plants and animals, sporophyte and gametophyte, monocots and dicots - Salient features, classification and alternation of generations of the plants of the following groups – Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms - Evolutionary relationships and differences among different kingdoms, viruses, viroids, prions and lichens and their special features.
2. Origin of life – Theories of origin of life - Special creation, extra-terrestrial and spontaneous - Location of origin of life - Miller-Urey's experiment, Path of evolution of chemical molecules of living beings, theories of origin of cells – Endosymbiotic theory, Bubble theory.
3. Evolution and eugenics – Theories of evolution, eugenics - History, meanings and types.
4. Nomenclature of living beings - Basics in biological classification, need for classification, importance of classification, nomenclature – Polynomial, binomial and trinomial systems of nomenclature - Rules of binomial nomenclature, hierarchy of classification.
5. Cells – Cell structure and organization of plants and animals - Cell theory and cell as the basic unit of life - Overview of the cell. Prokaryotic cells, ultra structure of plant cell (structure in detail and functions in brief ) - Cell membrane, cell wall, cell organelles - Morphology and function: Endoplasmic reticulum, mitochondria, plastids, ribosomes, golgi bodies, vacuoles, lysosomes, microbodies, centrosome and centriole, cilia, flagella, cytoskeleton and nucleus.
6. Chromosomes -Number, structural organization -Nucleosome.
7. Cell cycle, cell division - Somatic cell division or mitosis – Stages and phases - Reproductive cell division or meiosis – Stages and phases and significance.



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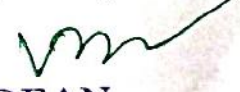
8. Morphology of flowering plants - Roots - Characters, types and modifications of roots, basic external and internal structural organization of root in monocots and dicots.
9. Morphology of flowering plants - Stems - Characters, functions and modification of stems - Basic external and internal structural organization of stem in monocots and dicots.
10. Morphology of flowering plants - Leaf - Parts, functions, types and modifications of leaves - Leaf venation and phyllotaxy.
11. Morphology of flowering plants - Inflorescence - types of inflorescences, types of racemose inflorescence, types of cymose inflorescence - Special types of inflorescences.
12. Morphology of flowering plants - Flower - Structure and parts of flower, types of flowers based on sex distribution, structural symmetry, position of gynoecium, aestivation - Description of types of calyx, corolla, stamens and ovary; Seed - Structure and organization of seed in monocots and dicots - Seed germination - Necessary conditions for germination.
13. Plant systematics – Brassicaceae - Distribution, important plants, economic importance, vegetative and floral characters, pollination, fruit and seed characters.
14. Plant systematics - Fabaceae - Distribution, important plants, economic importance, vegetative and floral characters, pollination, fruit and seed characters.
15. Plant systematics - Poaceae - Distribution, important plants, economic importance, vegetative and floral characters, pollination, fruit and seed characters.
16. Role of animals in agriculture—Animals of draught and milch, fur, wool, etc. - Different animal products used as manure.

### Practical

1. External morphology of monocot roots - Rice and maize.
2. External morphology of dicot roots - Brassica and any legume.
3. External morphology of monocot stem - Rice and maize.
4. External morphology of dicot stem - Brassica and any legume.
5. External morphology of monocot leaf - Rice and maize.
6. External morphology of dicot leaf – Brassica and any legume.
7. Structure and organization of plant cell.
8. Study of different types of tissue systems - Parenchyma, collenchyma and sclerenchyma.
9. Study of mitosis through onion root tip cells.
10. Study of meiosis through onion anther cells.
11. Internal anatomy of monocot stems and roots - Rice and maize.
12. Internal anatomy of dicot stems and roots - Brassica and any legume.
13. Internal anatomy of ovary of monocots and dicots - Any millet and legume.
14. Description of Brassicaceae with live specimens.
15. Description of Fabaceae with live specimens.
16. Description of Poaceae with live specimens.

References 1. *Biology* – Raven P, Mason Johnson G B, Losos J. B, Singer. S.S , 10th edition, 2014. McGraw Hill Publications.

  
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**Course outlines****Theory**

Introduction of Indian agricultural heritage, status of farmers in society, advice by sages to kings on their duties towards farmers, soil management in ancient, medieval & pre-modern India and its relevance in modern day sustainable agriculture, heritage of crop & water management, plant growth and development & plant protection through vrikshayurveda and traditional knowledge. Heritage of medicinal plants and their relevance today, seed health in ancient & medieval history and its relevance to present day agriculture, description of Indian civilization and agriculture by travelers from China, Europe and United States, our journey in agriculture, green revolution and its impact and concerns, vision for the future.

**Lectures outlines****Theory**

1. Introduction to Indian agricultural heritage – Definition of heritage, agriculture heritage - Need to study agriculture heritage
2. Genesis of agriculture and its chronological arrangement - Homes of evolution of agriculture and “old and new” world - Early indigenous domestications.
3. Status of farmers in society and specific role of women in ensuring food security- Farming systems in ancient periods.
4. Status of agriculture and advice by sages to kings on their duties towards farmers- Importance of farmers - Ancient agricultural practices and scientific basis.
5. Soil management in ancient, medieval, pre- modern India - Historical background - Soil management and its relevance in pre-modern India and modern day sustainable agriculture - Use of amendments - Land management, Piercing, tillage, puddling and pre-plant submergence, mulching, fallowing.
6. Soil concept - Ancient systems of soil classification - Ancient systems of soil management - Medieval and pre modern soil management.
7. Heritage of crop and water management: – Ancient and pre-historic period; Medieval period.
8. Plant growth and development- Heritage of plant protection through vrikshayurveda and traditional Knowledge
9. Plant protection in ancient India - Plant disorders – Cause, symptoms, treatment materials.
10. Traditional knowledge in crop production and water management
11. Heritage of medicinal plants and their relevance today
12. Seed health in ancient and medieval history and its relevance to present day agriculture-seed health in Hellenistic age – seed health in India – Materials recommended for seed treatments.
13. Description of Indian civilization and agriculture by travellers from China, Europe and USA.
14. Pre-historic cropping patterns.

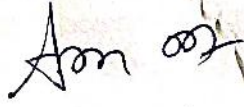
   
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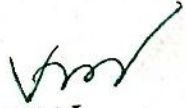
  
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15. Our journey in agriculture-Green revolution and its impact and concerns.
16. Vision for the future – Challenges ahead.

#### References

1. Choudary S.L, Sharma, G.S, and Nene, Y.L (eds). 2000. Ancient and Medieval History of Indian agriculture and its relevance to sustainable agriculture in the 21st century; Proceedings of the summer school held from 28 May to 17 June 1999. Rajasthan college of Agriculture, Udaipur 313001.
2. Nene, Y.L (Ed). 2005. Agricultural Heritage of Asia proceedings of the international conference, 6-8 December 2004, Asian-Agri history Foundation, Secunderabad- 500 009, Andhra Pradesh, India.
3. Nene, Y.L 2007. Glimpses of Agricultural heritage of India. Asian- Agri- History Foundation, 47 – ICRISAT Colony-1 Brig sayeed Road, Secunderabad -500009 A.P India 901PP ISBN-81-903963-0-7.

  
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**18 AEX 101 RURAL SOCIOLOGY AND EDUCATIONAL PSYCHOLOGY 2 (2+0)**

**Objective**

This course will enable students to acquire knowledge on basics concepts related to rural sociology and educational psychology. Students will also learn the practical applications of important sociological and psychological concepts.

**Theory**

**UNIT I**

**Introduction to Sociology, Social groups, Culture and Social Values**

Sociology and Rural Sociology – definitions; Society – rural and urban, characteristics, differences and relationships, important characteristics of Indian rural society; Social groups – definition, classification, role of social groups in extension; Culture – concept, cultural traits, characteristics, functions, Ethnocentrism, Acculturation, Cultural lag, Cultural diffusion, Marginal man, Ethos. Social Values – definition, values and norms, characteristics of values, functions;

**UNIT II**

**Social Structure, Social Stratification and Migration**

Structure of Rural Society – patterns of rural settlement, social institutions, social organizations, ecological entities (Region, Community, Neighbourhood, Family); Social Stratification – concept, functions, types, differences between class and caste system; Migration – concept, factors influencing migration.

**UNIT III**

**Social Control, Social Customs**

Social Control – definition; Customs – conventions, folkways, mores, rituals, taboos; Social Interaction Process – definition, basic social processes; Social Change – concept, factors influencing social change, indicators of social change; Social development :

**UNIT IV**


**Introduction to Educational Psychology, Intelligence, Teaching-Learning Process;**

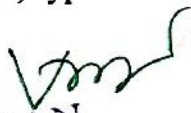
Education – Psychology – Educational Psychology – Social Psychology – definitions, importance in extension; Basic principles of Human behaviour – Sensation, Attention, Cognitive, affective, psychomotor domain Perception – meaning, characteristics; Intelligence – concept, types, measurement, factors affecting intelligence; Personality – concept, types, measurement, factors influencing personality; Teaching-Learning Process – Teaching – definition, meaning, principles of teaching, steps in extension teaching; Learning – definition, meaning, principles, types of learning, learning situation.

**UNIT V**

**Motivation, Attitude**

Motivation – concept, Maslow's hierarchy of needs, intrinsic and extrinsic motivation, techniques of

  
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motivation, importance in extension; Attitude – concept, factors influencing the development of attitudes.

### Theory Schedule

1. Sociology and Rural Sociology – Definitions, nature of rural sociology,
2. Importance of rural sociology in extension education.
3. Society – rural and urban, characteristics, differences and relationship, important characteristics of Indian rural society;
- 4.. Social Groups – definitions, classification, role of social groups in extension.
5. Culture – concept, cultural traits, characteristics, functions,
- 6.. Ethnocentrism, Acculturation, Cultural lag, Cultural diffusion, Marginal man, Ethos.
7. Structure of Rural Society – patterns of rural settlement,
8. Social institutions, Social organizations and ecological entities - Region, Community, Neighbourhood, and Family.
9. Social Stratification – concept, functions, types, differences between class and caste system; Social Values – definition, values and norms, characteristics of values, functions.
- 10.
11. Migration – concept, factors influencing migration.
12. Social Control – definition;
13. Customs – conventions, folkways, mores, rituals, taboos;
14. Social Interaction Process – definition, basic social processes.
15. Social Change – concept, theories, factors and indicators of social change.
16. Social development
17. Mid semester Examination.
18. Education – Psychology – Educational Psychology –definitions, importance in extension.
19. Social Psychology – Definitions, importance in extension.
20. Basic principles of Human behaviour –
21. Cognitive, affective, psychomotor domain
22. Perception – meaning, characteristics.
23. Sensation, Attention
24. Intelligence – concept, types,
25. Intelligence - measurement, factors affecting intelligence;
26. Personality – concept, types,
27. Personality measurement- factors influencing personality
28. Teaching–Learning Process – Teaching – definition, meaning,
29. Principles of teaching, steps in extension teaching.
30. Learning – definition, meaning, principles,
31. Types of learning, learning situation.
32. Motivation – concept, Maslow’s hierarchy of needs (including selfless-service), intrinsic

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- and extrinsic motivation,
33. Techniques of motivation, importance of motivation in extension.
  34. Attitude – concept, factors influencing the development of attitudes.

**Suggested Readings (Textbooks, Reviews, Journals)**

- Adivi Reddy, A. 2001. Extension Education, Sree Lakshmi Press, Bapatla, Andhra Pradesh.
- Chatterjee, S. 2000. Advanced Educational Psychology, Books & Allied (P) Ltd., Calcutta.
- Chauhan, S.S. 2001. Advanced Educational Psychology, Vikas Publishing House Pvt. Ltd., New Delhi.
- Chitambar, J.B.1997. Introductory Rural Sociology, New Age International (P) Ltd., Publishers, New Delhi.
- Dahama, O.P. and O.P. Bhatnagar. 2007. Education and Communication for Development, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
- Kundu, C.L and Tutoo, D.N. 2001. Educational Psychology, Sterling Publishers Pvt. Ltd., New Delhi.
- Lester Crow, D and Alice Crow. 1973. Educational Psychology, Eurasia Publishing House Pvt. Ltd., New Delhi.
- Madumita Gupta. 2011. Fundamentals of Sociology, Pacific Publications, New Delhi.
- Mangal, S.K. 2000. Educational Psychology, Prakash Brothers, Ludhiana.
- Shankar Rao, C.N. 2012. Sociology – Principles of Sociology with an Introduction to Social Thought, S.Chand & Co. Ltd., New Delhi.
- Sharma, R.N. 1968. Principles of Sociology, Asia Publishing House, New Delhi.
- Supe. S.V. 2012. Text book of Extension Education, Agrotech Publishing Academy, Udaipur.
- Usha Rao. 2008. Advanced Educational Psychology, Himalaya Publishing House, New Delhi.
- Vidya Bhushan and Sachdeva, D.R. 2003. An Introduction to Sociology, Kitab Mahal, Allahabad.

**Journals**

- Indian Journal of Social Research
- Journal of Rural Development
- Journal of Social Sciences
- Journal of Advances in Social Work
- Journal of Asian Social Sciences
- Journal of Social Sciences and Research
- Journal of Current Research in Social Psychology
- Journal of Rural Sociology
- Journal of Extension Education – Coimbatore



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**Course outlines****Theory**

Universal human aspirations: Happiness and prosperity; Human values and ethics: Concept, definition, significance and sources; Fundamental values: Right conduct, peace, truth, love and non-violence; Principles and Philosophy. Self Exploration. Self Awareness. Self Satisfaction. Decision Making. Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives. Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination. Ethics: professional, environmental, ICT; Sensitization towards others particularly senior citizens, developmentally challenged and gender.


Spirituality, positive attitude and scientific temper; Team work and volunteering; Rights and responsibilities; Road safety; Human relations and family harmony; Modern challenges and value conflict: Sensitization against drug abuse and other social evils; Developing personal code of conduct (SWOT Analysis); Management of anger and stress.


**Lecture outlines****Theory**

1. Universal human aspirations, happiness and prosperity
2. Human values and ethics - Concept, definition, significance and sources - Fundamental values - Right conduct, peace, truth, love and non-violence.
3. Principles and philosophy – Self exploration, self awareness, self satisfaction, decision making, motivation, sensitivity, success, selfless service.
4. Case study of ethical lives.
5. Positive spirit, body, mind and soul - Attachment and detachment.
6. Spirituality and spirituality quotient.
7. Examinations.
8. Ethics - Professional, environmental, ICT - Sensitization towards others particularly senior citizens, developmentally challenged and gender.
9. Positive attitude and scientific temper.
10. Team work and volunteering.
11. Rights and responsibilities.
12. Road safety.
13. Human relations and family harmony, modern challenges and value conflict.
14. Sensitization against drug abuse and other social evils.
15. Developing personal code of conduct (SWOT/SWOC/SNAC Analysis)
16. Management of anger and stress.

**References**

1. Gaur RR, Sanga IR and Bagaria GP. 2011. *A Foundation Course in Human Values and Professional Ethics*. Excel Books.

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2. Mathur SS. 2010. *Education for Values, Environment and Human Rights*. RSA International.
3. Sharma RA. 2011. *Human Values and Education – Axiology, Inculcation and Research*. R. Lall Book Depot.
4. Sharma RP and Sharma M. 2011. *Value Education and Professional Ethics*. Kanishka Publishers.
5. Srivastava S. 2011. *Human Values and Professional Ethics*. S K Kataria and Sons.
6. Srivastava S. 2011. *Environmental Science*. S K Kataria & Sons.
7. Tripathi A.N. 2009. *Human Values*. New Age International (P) Ltd Publishers.
8. R.S. Nagarajan. *Text Book on Professional Ethics & Human Values*.
9. D.R. Kiran. *Professional Ethics & Human Values*
10. Veerendra Kumar. *Human Values and Professional Ethics*.
11. M.Govindarajan. *Engineering Ethics*.

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**18 NSS 100 NSS/NCC/PHYSICAL EDUCATION & YOGA PRACTICES 2 (0+2)**

**Course outlines**

Introduction and basic components of NSS, NSS programmes and activities, Understanding youth, Community mobilization, Social harmony and national integration, Volunteerism and shramdan, Citizenship, constitution and human rights, Family and society, Importance and role of youth leadership, Life competencies, Youth development programmes, Health, hygiene and sanitation, Youth health, lifestyle, HIV AIDS and first aid, Youth and yoga , Vocational skill development, Issues related environment, Disaster management, Entrepreneurship development, Formulation of production oriented project, Documentation and data reporting, Resource mobilization, Additional life skills, Activities directed by the Central and State Government

**Lecture outlines**

- 1 Introduction and basic components of NSS – Orientation - History, objectives, principles, symbol, badge; regular programmes under NSS, organizational structure of NSS, code of conduct for NSS volunteers, points to be considered by NSS volunteers awareness about health
- 2 NSS programmes and activities - Concept of regular activities, special camping, day camps, basis of adoption of village/slums, conducting survey, analysing guiding financial patterns of scheme, youth programme/ schemes of GOI, coordination with different agencies and maintenance of diary
- 3 Understanding youth - Definition, profile, categories, issues and challenges of youth; and opportunities for youth who is agent of the social change
- 4 Community mobilization -Mapping of community stakeholders, designing the message as per problems and their culture; identifying methods of mobilization involving youth-adult partnership
- 5 Social harmony and national integration - Indian history and culture, role of youth in nation building, conflict resolution and peace-building
- 6 Volunteerism and shramdan - Indian tradition of volunteerism, its need, importance, motivation and constraints; shramdan as part of volunteerism
- 7 Citizenship, constitution and human rights - Basic features of constitution of India, fundamental rights and duties, human rights, consumer awareness and rights and rights to information
- 8 Family and society - Concept of family, community (PRIs and other community based organisations) and society
- 9 Importance and role of youth leadership - Meaning, types and traits of leadership, qualities of good leaders; importance and roles of youth leadership
- 10 Life competencies - Definition and importance of life competencies, problemsolving and decision-making, inter personal communication
- 11 Youth development programmes - Development of youth programmes and policy at the national level, state level and voluntary sector; youth-focused and youthled organstions

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- 12 & Health, hygiene and sanitation - Definition needs and scope of health education,  
 13 role of food, nutrition, safe drinking water, water born diseases and sanitation (Swachh Bharat Abhiyan) for health; national health programmes and reproductive health  
 14 Youth health, lifestyle, HIV AIDS and first aid - Healthy lifestyles, HIV AIDS, drugs and substance abuse, home nursing and first aid  
 15 & Youth and yoga - History, philosophy, concept, myths and misconceptions about  
 16 yoga; yoga traditions and its impacts, yoga as a tool for healthy lifestyle, preventive and curative method  
 17 & Vocational skill development - To enhance the employment potential and to set  
 18 up small business enterprises skills of volunteers, a list of 12 to 15 vocational skills will be drawn up based on the local conditions and opportunities. Each volunteer will have the option to select two skill-areas out of this list  
 19 Issues related environment - Environmental conservation, enrichment and sustainability, climatic change, natural resource management (rain water harvesting, energy conservation, forestation, waste land development and soil conservations) and waste management  
 20 & Disaster management - Introduction and classification of disaster, rehabilitation  
 21 and management after disaster; role of NSS volunteers in disaster management.  
 22 Entrepreneurship development - Definition, meaning and quality of entrepreneur; steps in opening of an enterprise and role of financial and support service institution  
 23 Formulation of production oriented project - Planning, implementation, management and impact assessment of project  
 24 Documentation and data reporting - Collection and analysis of data, documentation and dissemination of project reports  
 25 & Youth and crime - Sociological and psychological factors influencing youth crime,  
 26 cyber crime, peer mentoring in preventing crime and awareness for juvenile justice  
 27 & Civil/self defence - Civil defence services, aims and objectives of civil defence;  
 28 needs and training of self defence  
 29 & Resource mobilisation - Writing a project proposal of self fund units (SFUs) and its  
 30 establishment  
 31 & Additional life skills - Positive thinking, self confidence and esteem, setting life  
 32 goals and working to achieve them, management of stress including time management.

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**Course outlines****Theory**

**Irrigation** : Definition and objectives; Water resources, Irrigation projects (major, medium & minor) in India and Andhra Pradesh; Soil - plant - water relationships; Methods of soil moisture estimation; Evapotranspiration and Crop water requirement; Duty of water; Conjunctive use of water; Scheduling of irrigation; Methods of irrigation - Surface, Subsurface, Sprinkler and Drip irrigation; Irrigation efficiency and Water use efficiency; Irrigation water quality criteria and its management; Waterlogging; Agricultural drainage.


**Practical**


Measurement of bulk density, study of soil moisture measuring devices, determination of field capacity and permanent wilting point, measurement of infiltration rate, irrigation water, scheduling of irrigation by IW/CPE ratio method, calculations on soil moisture, irrigation water needs, duty of water and irrigation efficiencies, layout of surface methods of irrigation, demonstration of drip and sprinkler irrigation, visit to micro irrigation systems in farmers fields, water management practices in different crops.

**Lecture outlines****Theory**

- 1 Introduction – importance – definition and objectives - water resources of world.
- 2 Surface and ground water resources in India and Andhra Pradesh – important major irrigation projects in India and Andhra Pradesh.
- 3 Soil-water relations – physical properties of soil viz., depth, soil texture, soil structure, particle density, bulk density and porosity influencing water retention, movement and availability.
- 4 Water retention in soil – adhesion and cohesion – soil moisture tension – pF – soil moisture characteristic curves- Water movement in soils – infiltration – percolation – seepage – permeability – hydraulic conductivity – saturated and unsaturated water flow.
- 5 Kinds of water in soil – gravitational water – capillary water – hygroscopic water – their importance in crop production - Soil moisture constants – saturation – Field capacity (FC) – Permanent Wilting Point (PWP) – Available Soil Moisture (ASM) – hygroscopic coefficient – theories of soil water availability.
- 6 Plant-water relationships – rooting characteristics – effective root zone depth – moisture extraction pattern – moisture sensitive periods of crops – Soil Plant Atmospheric Continuum (SPAC).
- 7 Evapotranspiration – evaporation – transpiration – factors influencing evapotranspiration – Reference crop evapotranspiration (ET<sub>0</sub>) – Crop coefficient – Crop Evapotranspiration (ET<sub>c</sub>) - daily, seasonal and peak period consumptive use.
- 8 Crop water requirement – irrigation requirement – net and gross irrigation requirement – irrigation interval – irrigation period – seasonal water requirement of important crops; duty of

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water – base period – relation between duty and base period – conjunctive use of water – advantages of conjunctive use.

9 Scheduling of irrigation – different criteria – soil moisture regime approach – feel and appearance method – soil moisture tension and depletion of available soil moisture method - climatological approach – Irrigation Water (IW) / Cumulative Pan Evaporation (CPE) ratio method.

10 Scheduling of irrigation – plant indices approach – visual symptoms – soil cumsand mini plot technique – growth rate – relative water content – plant water potential – canopy temperature – indicator plants and critical growth stages.

11 Methods of irrigation - surface methods – wild flooding check basin, ring basin, border strip, furrow and corrugations – advantages and disadvantages- Sub surface irrigation.

12 Micro irrigation systems - sprinkler irrigation – merits and demerits – system components and layout – suitable crops – rain guns.

13. Drip irrigation (surface and sub surface) – merits and demerits – system components and layout – suitable crops - fertigation and maintenance of micro irrigation systems.

14. Water Use Efficiency (WUE) – crop and field water use efficiency – factors influencing WUE – climatic, genetic and management (agronomic) factors - Irrigation efficiencies – water conveyance efficiency, water application efficiency, water storage efficiency, water distribution efficiency and project efficiency.

15. Quality of irrigation water – salinity hazard, sodium hazard, residual sodium carbonate and boron toxicity – criteria and threshold limits – management practices for using poor quality water.


16. Water logging – causes for waterlogging – drainage- surface and sub-surface drainage systems – relative merits.

### Practical

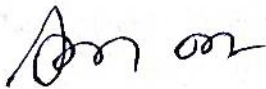
1. Determination of bulk density
2. Determination of soil moisture content by gravimetric and volumetric method
3. Installation and working with tensiometer and resistance blocks
4. Determination of infiltration rate
5. Determination of field capacity by field method
6. Measurement of soil moisture content by moisture probe
7. Measurement of irrigation water through flumes, weirs and V notches
8. Scheduling of irrigation by IW / CPE ratio method
9. Calculation of irrigation water requirements
10. Lay out of surface irrigation methods
11. Problems on duty of water and irrigation efficiencies
12. Demonstration of drip irrigation system (filter cleaning, flushing of laterals and fertigation)
13. Demonstration of operation of sprinkler irrigation system
14. Visit to micro irrigation systems in farmers fields.
15. Water management practices in rice, wheat and maize.
16. Water management practices in groundnut, sunflower and sugarcane.

### References

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1. Michael, A.M. 2006. Irrigation – Theory and Practice. Vikas Publishing House Pvt. Ltd., New Delhi.
2. Reddy, S.R. 2016. Irrigation Agronomy 3 rd Edition. Kalyani Publishers, Ludhiana.
3. Sankara Reddi, G.H. and Yellamanda Reddy, T. 2006. Efficient Use of Irrigation Water. Kalyani Publishers, Ludhiana.
4. Majumdar, D.K. 2013. Irrigation water management: Principles and practices. PHI learning Pvt Ltd, Delhi-92



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**Course outlines****Theory**

Introduction and meaning of intellectual property; brief introduction to GATT, WTO, TRIPs and WIPO; Treaties for IPR protection: Madrid protocol, Berne Convention, Budapest treaty, etc.; Types of Intellectual Property and legislations covering IPR in India: Patents, Copyrights, Trademark, Industrial design, Geographical indications, Integrated circuits, Trade secrets; Patents Act 1970 and Patent system in India, patentability, process and product patent, filing of patent, patent specification, patent claims, Patent opposition and revocation, infringement, Compulsory licensing, Patent Cooperation Treaty, Patent search and patent database; Origin and history including a brief introduction to UPOV for protection of plant varieties; Protection of plant varieties under UPOV and PPV&FR Act of India; Plant breeders rights; Registration of plant varieties under PPV&FR Act 2001; breeders, researcher and farmers rights; Traditional knowledge-meaning and rights of TK holders; Convention on Biological Diversity; International treaty on plant genetic resources for food and agriculture (ITPGRFA). Indian Biological Diversity Act, 2002 and its salient features, access and benefit sharing.


**Lecture outlines****Theory**

- 1 Introduction and meaning of intellectual property.
- 2 Brief introduction to GATT, WTO, TRIPs and WIPO.
- 3 Treaties for IPR protection: Madrid protocol, Berne Convention, Budapest treaty, etc.
- 4-6 Types of Intellectual Property and legislations covering IPR in India: Patents and Copyrights, Trademark, Industrial design, Geographical indications, Integrated circuits, Trade secrets.
- 7 Patents Act 1970.
- 8 Patent system in India, patentability, process and product patent, filing of patent, patent specification, patent claims, Patent opposition and revocation, infringement, Compulsory licensing, Patent Cooperation Treaty, Patent search and patent database
- 9 Origin and history including a brief introduction to UPOV for protection of plant varieties.
- 10 Protection of plant varieties under UPOV and PPV&FR Act of India, Plant breeders rights.
- 11 Registration of plant varieties under PPV&FR Act, 2001.
- 12 Breeders, researcher and farmers rights.
- 13 Traditional knowledge-meaning and rights of TK holders.
- 14 Convention on Biological Diversity.
- 15 International treaty on plant genetic resources for food and agriculture (ITPGRFA), access and benefit sharing.
- 16 Indian Biological Diversity Act, 2002 and its salient features, access and benefit sharing.

**References**

1. Acharya, N.K. 2014. *Text book of Intellectual Property Rights*. Asia Law House, Hyderabad.

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## PROTECTED CULTIVATION AND SECONDARY AGRICULTURE

### Course outlines

#### Theory

Greenhouse technology – Introduction - Types of greenhouses - Plant response to greenhouse environment - Planning and design of greenhouses - Design criteria of green house for cooling and heating purposes - Green house equipments - Materials of construction for traditional and low cost green houses - Irrigation systems used in greenhouses - Typical applications - Passive solar greenhouse - Hot air greenhouse heating systems - Greenhouse drying - Cost estimation and economic analysis.

Important engineering properties such as physical - Thermal and aerodynamic properties of cereals - Pulses and oilseeds - Their application in PHT equipment design and operation - Drying and dehydration - Moisture measurement – EMC - Drying theory - Various drying methods - Commercial grain dryer (deep bed dryer, flat bed dryer, tray dryer, fluidized bed dryer, recirculatory dryer and solar dryer) - Material handling equipment - Screw conveyer and bucket elevator - Their principle - Working and Selection - Primary processing of cereals, pulses and oilseed, like cleaning, grading, packaging etc.

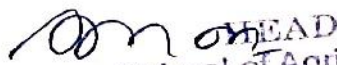
#### Practical

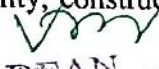
Study of different type of greenhouses based on shape - Determine the rate of air exchange in an active summer winter cooling system - Determination of drying rate of agricultural products inside greenhouse - Study of greenhouse equipment - Visit to various post harvest laboratories - Determination of moisture content of various grains by oven drying & infrared moisture methods - Determination of engineering properties (shape and size, bulk density and porosity of biomaterials) - Determination of moisture content of various grains by moisture meter - Exposure to primary processing equipment like dalmills, graders, cold storages etc. - Field visit to seed processing plant.

### Lecture outlines

#### Theory

1. Introduction to green houses - History, definition, greenhouse effect, advantages of green houses.
2. Brief description of types of green houses - Greenhouses based on shape, utility, construction, covering materials and cost, shade nets.
3. Plant response to greenhouse environments - Light, temperature, relative humidity, ventilation and carbon dioxide and environmental requirement of agriculture and horticulture crops inside green houses.
4. Equipment required for controlling green house environment – Summer cooling and winter cooling, natural ventilation, forced ventilation and computers.
5. Planning of green house facility - Site selection and orientation, structural design and covering

  
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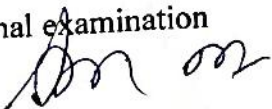
  
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materials.

6. Materials for construction of green houses - Wood, galvanized iron, glass, polyethylene film, poly vinyl chloride film, Tefzel T2 film, fiberglass reinforced plastic rigid panel and acrylic and polycarbonate rigid panel.
7. Design criteria and constructional details of greenhouses - Construction of pipe framed greenhouses, material requirement, preparation of materials and procedure of erection.
8. Greenhouse heating and distribution systems - Greenhouse utilization - Off-season drying of agricultural produce - Economic analysis of greenhouse production - Capital requirement, economics of production and conditions influencing returns.
9. Irrigation system used in greenhouses - Rules of watering, hand watering, perimeter watering, overhead sprinklers, boom watering and drip irrigation.
10. Important engineering properties such as physical, thermal and aero-dynamic properties of cereals, pulses and oil-seeds.
11. Designing post harvest equipment based on physical and thermal properties.
12. Winnowing - Manual and power operated winnowers, care and maintenance - Groundnut decorticators - Hand and power operated decorticators, principle of working, care and maintenance.
13. Moisture measurement - Equilibrium moisture content (EMC) - importance - Drying theory - Drying and dehydration.
14. Commercial grain dryers - Deep bed, flat bed, tray, fluidised bed, recirculated and solar dryers.
15. Material handling equipment - Bucket elevator and screw conveyer and their selection.
16. Primary processing of cereals, pulses and oilseeds - Cleaning, grading and packaging.

### Practical

1. Study of different types of green houses based on shape, etc.
2. Computing the rate of air exchange in an active summer and winter cooling systems.
3. Feasibility study on drying of agricultural products inside a greenhouse and its calculation.
4. Visit to post harvest technology units and laboratories.
5. Determination of moisture content of various grains by oven drying and infrared methods.
6. Determination of size, space, porosity, bulk density, etc., of grains.
7. Determination of aerodynamic properties of grains.
8. Cleaning and grading of grains, pulses and oilseeds.
9. Drying and dehydration of vegetables (cauliflower).
10. Visit to rice mill.
11. Study of LSU dryer.
12. Study of Bucket elevator and screw conveyor.
13. Visit to dhal mill
14. Visit to oil seed processing plant.
15. Visit to cold storage
16. Practical final examination



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## VALUE ADDED COURSE SYLLABUS

### Certificate course on Organic farming

**Unit 1:** Introduction (Definition of organic farming and an Overview of organic farming) Systems Concept/Theory (Components, interactions, structures, hierarchies)

**Unit II:** Initiatives taken by the central and state governments, NGOs and other organizations for promotion of organic agriculture in India. Organic nutrient sources and their fortification organic manures- methods of composting

**Unit III:** Nutrient use in organic farming-scope and limitations. Nutrient management inorganic farming. Organic ecosystem and their concepts

**Unit IV:** Fundamentals of insect, disease and weed management under organic mode of production-cultural-biological methods-non chemical pest & disease management. Botanicals pyrethrum, neem seed kernel extract, neem seed powder, soluble neem formulations, neem oil

**Unit V:** Inspection certification labelling and accreditation procedures for organic products. Processing - economic consideration and viability. Marketing and export potential of organic products-national economy.

### Certificate course on Agri Tourism

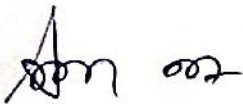
**Unit I:** Agritourism - as part of rural development and tourism. Definition and forms. Strengths and weaknesses.

**Unit II:** Business projects - their content and development. Economic and environmental aspects of agritourism.

**Unit III:** Characteristics of quality and their grant.

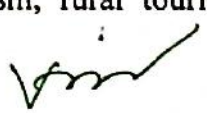
**Unit IV:** Field exercises in agro-tourism farms and facilities.

**Unit V:** Excursion on the international exhibition focusing on tourism, rural tourism and agritourism.



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### Certificate course on Herbal science

**Unit-I :**History, scope, opportunities, constraints in the cultivation of herbal science in India

**Unit-II :**Importance, origin, distribution, area, climate and soil requirements, propagation and nursery techniques of herbal plants.

**Unit-III:** plant protection, harvesting processing of herbal plants

**Unit-IV:** chemical composition of medicinal and aromatic plants and economic use of drugs and essential oils

**Unit-V:** storage techniques of essential oil and marketing aspect of herbal plants

### Certificate course on fruit culture and its propagation

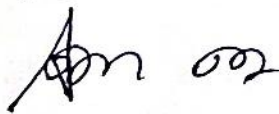
**Unit - 1** Introduction, life cycles in plants, cellular basis for propagation, sexual propagation, apomixis, polyembryony, chimeras. Principles factors influencing seed germination of horticultural crops, dormancy, hormonal regulation of germination and seedling growth.

**Unit 2 -** Seed quality, treatment, packing, storage, certification, testing. Asexual propagation rooting of soft and hard wood cutting under mist by growth regulators. Rooting of cuttings in hotbeds. Physiological, Anatomical and biochemical aspects of root induction in cuttings. Layering-principle and methods.

**Unit 3** Budding and grafting - selection of elite mother plants, methods. Establishment of bud wood bank, stock, selon and inter stock, relationship Incompatibility. Rejuvenation through top working-Progeny orchard and scion bank.

**Unit 4** Micro-propagation principles and concepts, commercial exploitation in horticultural crops. Techniques in vitro clonal propagation, direct organogenesis, embryogenesis, micrografting, meristem culture. Hardening, packing and transport of micro- propagules

**Unit 5 -**Health and safety, Understanding about basic safety checks, operation of all machinery and vehicles and hazards; render appropriate emergency procedures, Fruit Culture and it's propagation



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