

**SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE  
SEHORE (MP) 2017-18**

**B.Sc. (Ag.) DEGREE PROGRAMME**

**3<sup>RD</sup> Year**

**Six Semester**

**Credits**

<b>AG-601-</b> Field crop-II	4
<b>AG-602-</b> Extension Methodologies for Transfer of Agricultural Technology	3
<b>AG-603-</b> Production Economics and Farm Management	4
<b>AG-604-</b> Biochemistry	3
<b>AG-605-</b> Entrepreneurship development and Communication skills	3
<b>AG-606-</b> Weed management	3
<b>AG-607-</b> Comprehension and communication skills in English	3
<b>AG-608-</b> Environmental science & Renewable energy	3
<b>Total</b>	<b>26</b>

# SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18

## SUBJECT CODE-AG 601 Field Crops II (*Rabi*)

**Unit 1.** Cereals – Wheat and barley, Pulses – Chickpea, lentil, peas , Oilseeds – Rapeseed and mustard, sunflower and linseed, Sugar crops – Sugarcane and sugar beet, Commercial crops – Potato and tobacco, Forage crops – Berseem and lucerne.

**Unit 2** Different rabi crops mentioned above will be taught under the following heads:  
Origin, history, distribution and economic importance, Soil and climatic requirement, Agronomic characteristics of the important varieties suitable for the various Farming situations of the state, Land preparation and sowing management: selection of seeds, seed rate, Plant population, seed treatment and seed inoculation, Sowing depth, suitable sowing methods.

**Unit 3.** Application of manures and fertilizers: time and method of application,. Intercultural and weeding, earthing, hoeing, control of weeds by agronomical and chemical methods, Irrigation : methods of irrigation and critical growth stages of crops for irrigation

**Unit 4.** Plant protection measures : insect pests and diseases causing damage to the crops and remedial measures to control them, Judging of maturity stage of crop and method of harvesting

**Unit 5.** Efficient and suitable method of winnowing, cleaning, grading and measurement of yield, Proper storage of produce at suitable moisture content in grains, protection against insect-pest and moisture.

### Practical

1. Identification of different rabi crops and their associated weeds
2. Calculation of seed rate, plant population, fertilizer requirement and herbicide requirement for the crop
3. Application of herbicide in wheat and grain legumes
4. Calculation of yield estimation of sugarcane, gram and wheat etc.
5. Visit to important agronomic experiments and research station related to Rabi crops

### References

1. Scientific crop production (1&2) – C. Thakur
2. Handbook of Agriculture (IV edition 2006)– ICAR Publication
3. Field Crops – Y.M. Iyyer
4. High Yielding Varieties of Crops – Mahabal Ram
5. Principal of Cereal Crop Production – Mahendra Pall, Deka & R.K. Rai
6. Cereal Crop – W.H. Leonard and J.H. Martin
7. Crop Production – B.M. Paugh
8. Text Book of Field Crops – Rajendra Prasad, ICAR Publication
9. Cultivation of Medicinal and Aromatic – A.A.Faruqui & B.S.Crops Shreeramu

# SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18

## SUBJECT CODE-AG 602

### Extension Methodologies for Transfer of Agricultural Technology

**Unit 1.** Meaning, definition and genesis of term communication, Different important models of communication – Aristotle model, Berlo model and Leagans model.

**Unit 2.** Elements of communication and their characteristics, Types of communication and barriers of communication, Extension Program Planning – Meaning, concept and definition of programme planning, Project and its importance Principles of programme planning, Steps of programmes planning.

**Unit 3.** Definition of evaluation, Difference between evaluation and monitoring, Meaning and definition of extension teaching, Methods and their classifications, Individual contact methods-Farm and home visit, result demonstration,

**Unit 4.** Group contact methods-Group discussion, method demonstration, Small group discussion techniques-Lecture, Seminar and Conference, Mass contact methods- Exhibition, Kisan Mela, Radio and T.V- objectives, steps, merits and limitations

**Unit 5.** innovative information sources-concepts and importance of innovative information sources like internet, cyber cafes, Concept of Kisan call centers and, scope and definition of Agricultural clinics, stages of adoption, Meaning, definition and characteristics of Innovation, Adopters categories and their characteristics, Farmers Training Center and Krishi Vigyan Kendra.

#### Practical

1. Organization of Group Discussion and Method demonstration
2. Visit to KVK/FTC
3. Planning and writing of scripts for radio and television
4. Audio-Visual aids-Meaning, Importance and Classification
5. Planning and preparation of visual aids-Charts, Posters,Power Point Slides
6. Planning and preparation of Agricultural Information materials-Leaflet, Folders, Pamphlet, News Stories, Success Stories

#### References

1. Education and Communication for – O.P. Dahama and O.P.Development Bhatnagar
2. Extension Communication and Management – G.L. Ray
3. A Text Book of Agricultural Communication – A.S. Sandhu
4. Diffusion of Innovation – E.M. Rogers

# SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18

## SUBJECT CODE-AG 603

### Production Economics and Farm Management

**Unit 1.** Production Economics: Meaning, definition, nature and scope of agricultural production economics

**Unit 2.** Basic concepts and terms. Concepts of production, Production Functions: Meaning, definition, types

**Unit 3.** Laws of returns: Increasing, constant and decreasing, Linear Programming: Assumptions, advantages and limitations of linear programming.

**Unit 4.** Factor product relationship, determination of optimum input and output, Product relationship, Types of enterprise relationships, Returns to scale: Meaning, definition, importance

**Unit 5.** Farm Management. Economic principles applied to the organizations of farm Business, Types and systems of farming, Farm planning and budgeting,

#### Practical

1. Computation of cost concepts
2. Methods of computation of depreciation
3. Analysis of net worth statement; Farm inventory analysis
4. Preparation of farm plans and budgets
5. Economic analysis of different crop and livestock enterprises
6. Application of farm management principles

#### References

1. Elements of Farm Management – I.J. Singh and V.K. Puri
2. Economics of Farm Management – A.S. Kahlon and Karam Singh
3. Farm Business Management – S.S. Johl and T.R. Kapoor
4. Farm Management – S.P. Dondyal

# **SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18**

## **SUBJECT CODE-AG 604**

### **Biochemistry**

**Unit 1.** Introduction and importance of Biochemistry, Plant cell, cell wall and its role in plant and animal food.

**Unit 2.** Bio molecules - structure, properties and applications, Amino acids, peptides and proteins - plant proteins and their quality

**Unit 3.** Enzymes - factors affecting the activity, classification, immobilization and other industrial applications, Lipids - acyl lipids, their industrial application in soaps, detergents, paints, varnishes, lubricants, adhesives, plastics, nylon, bio-diesel, Carbohydrates, Nucleotides and nucleic acids.

**Unit 4.** Metabolic energy and its generation - Metabolism, basic concepts, Glycolysis, citric acid cycle, pentose phosphate pathway, General reaction of amino acid degradation. Metabolic regulation.

**Unit 5.** Biosynthesis - carbohydrates, lipids, proteins and nucleic acids. Secondary metabolites, terpenoids, alkaloids, phenolics and their applications in food and pharmaceutical industries.

### **References**

1. Outlines of Biochemistry - Conn and Stumpt
2. Essentials of Biochemistry - M.C. Pant
3. Biochemistry - U. Satyanarayana
4. Biochemistry - Dasgupta
5. Chemistry of natural products - O.P. Agrawal
6. Text book of Biochemistry - AVSS Rama Rao

# **SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18**

## **SUBJECT CODE-AG 605**

### **Entrepreneurship Development and Communication Skills**

**Unit 1.** Entrepreneurship development – Historical perspective, assessing overall, business environment in the Indian economy, Concept, need, scope and prospects of entrepreneurship development.

**Unit 2.** Globalization and the emerging business/entrepreneurial environment, Entrepreneurial and managerial characteristics Managing an enterprise, Motivation and entrepreneurship development, Importance of planning, monitoring, evaluation and follow up.

**Unit 3.** Managing competition and entrepreneurship development programmes viz IRDP, JRY, TRYSEM, SGSY, SWOT analysis, Generation, incubation and commercialization of ideas and innovations.

**Unit 4.** Government schemes and incentives for promotion of entrepreneurship Export and Import policies relevant to agriculture sector, Venture capital, contract farming and joint ventures, public-private Partnership, Characteristics of Indian agricultural processing and export industry, Social responsibility of business.

**Unit 5.** Verbal and non-verbal communication, Field diary and lab record, indexing, footnote and bibliographic procedures, summarizing, abstracting, Individual and group presentations, Organizing seminars and conferences.

#### **Practical**

1. Listening and note taking, writing skills
2. Oral presentation skills
3. Field diary and lab record, indexing, footnote and bibliographic procedures
4. Reading and comprehension of general and technical articles
5. Précis writing, summarizing, abstracting
6. Individual and group presentations

#### **References**

1. Trainer's Manual on Developing – Akhori, M.M.P., Mishra, S.P. and Entrepreneurial Motivation Sengupta, Rita (1989),NIESBUD
2. Entrepreneurial Development – Khanka, S.S., S. Chand Co. Ltd. Ramnagar, New Delhi
3. Fundamental of Entrepreneurship – Agrawal R.C., Laxmi Narayan Agrawal, Agra (U.P.)
4. Dynamics of Entrepreneurial – Desai, Vasant, Himalayan Publication House, New Delhi
5. Farm Communication through Mass – Samant, A.G., Associated Media in the New Millennium Publishing Company, Karol Bag,New Delhi
6. Entrepreneurship Development – Patel, V.G. Programme in India and its relevance.

# **SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18**

## **SUBJECT CODE-AG 606 Weed Management**

**Unit 1.** Weeds: Introduction, harmful and beneficial effects, Classification, propagation and dissemination, Weed biology and ecology.

**Unit 2.** Crop-weed association, Crop-weed competition and allelopathy, Concepts of weed prevention and eradication.

**Unit 3.** Method of weed control: physical, cultural, chemical and biological, Integrated weed management.

**Unit 4.** Herbicides : Advantages and limitation of herbicide usage in India, Herbicides classification and formulation, Methods of herbicide application

**Unit 5.** Introduction to adjuvant and their use in herbicides, Introduction to selectivity of herbicides, Weed management in major field and horticultural crops, Aquatic and problematic weeds and their control.

### **Practical**

1. Identification of weeds
3. Preparation of herbarium of weeds
4. Calculations on weed control efficiency and weed index
5. Herbicide label information
6. Computation of herbicides doses
7. Biology of nut sedge, bermuda grass, parthenium, celosia
8. Economics of weed control practices
9. Visit of weed infested/problematic areas

### **References**

1. Principal of Weed Science – V.S. Rao (1994), Oxford & IBH Publication, New Delhi.
2. Weed Management – Walia, U.S. (2003), Kalyani Publication, New Delhi
3. Weed Management-Principles and – Gupta, O.P. (2000), Agrobios practices Publication, India
4. All about Weed Control – Subramaniam, S., Ali, A.M. and Kumar, R.J. (1977), Kalyani Publication, New Delhi
- 5 Weed Science : Basics and Applications – T.K. Das (2008), Jain Brothers Publication.

# SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18

## SUBJECT CODE-AG 607 Comprehension and Communication Skills in English

**UNIT-1.**Comprehension Vocabulary:- English Language and Indian Culture, Synonyms and antonyms, idioms, Homonyms, Homophones and Homograph, One word Substitution, Affixes, Prefixes and suffixes.

**UNIT-2.**Functional Grammar:- Tenses, Usages of Tenses, Forms of Verb, Verb and its agreement with Subject, Voice and their usage, Narration and their usage, Phrases and clauses.

**UNIT-3.**Sentence Formation:- Subject and Predicate, Sentence formation (Affirmative, Negative & Several ways of sentence formation), some common varieties of sentence structure (including errors), use of Articles, degree, Tags etc.

**UNIT-4.**Reading Comprehension:- Five specified lesson from the suggested text book.

**UNIT-5.**Written Communiqué: Letter and application writing, Report writing, Job Application, Preparation of curriculum vitae, Professional Writing, precise Writing and Essay writing, Preparation for interview.

### Practical

- 1. Reading Comprehension:** Book, Magazine and News paper reading.
- 2. Listening Comprehension:** (Short Talks, Lectures, Speeches)
- 3. Communication:** Spoken English, Stress and intonation, Speech-rhythm, Weak Form, Oral Communication.
- 4. Presentation of Reports:** Seminars and conferences, Physical Appearance, Body Language Posture.

### References

1. English Language and Indian Culture – Tribhuwan Nath Shukla
2. English Conversation Practice – Grant Taylor
3. A Course in Phonetics and – J. Sethi and P.V. Dhamija  
Spoken English
4. Objective English – Hari Mohan Prasad
5. High School English Grammar – Wren and Martinin

# **SRI SATYA SAI UNIVERSITY OF TECHNOLOGY & MEDICAL SCIENCE SEHORE (MP) 2017-18**

## **SUBJECT CODE-AG 608 Environmental Science and Renewable Energy**

**UNIT-1.** Scope and importance of environmental studies. Multidisciplinary nature of environmental studies and need for public awareness, Natural resources - Renewable and non renewable resources , Water resources: Use and over utilization of surface and ground water, floods, drought, conflict over water, dams benefits and problems.

**UNIT-2.** Introduction to energy sources, Biomass conversion processes, Biogas production and application.

**UNIT-3.** Food resources: World food problem, changes caused by agriculture and over-grazing, effect of modern agriculture, fertilizer-pesticides problem, Energy resources: renewable and nonrenewable energy sources, use of alternate energy sources.Ecosystem: Concept of an ecosystem. Producers, consumers and decomposers. Food chain, and ecological pyramids.

**UNIT-4.** Types of biogas plants and constructional details, Agricultural wastes and their characteristics, Principles of combustion, pyrolysis and gasification.

**UNIT-5** Environmental pollution (i) Definitions cause effects and control measures of Air pollution, Waterpollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution.Human population and environment

(a) Women and Child Welfare.

(b) HIV/AIDS.

(c) Population explosion - Family Welfare Programmes

(d) Environment and human health.

### **References**

1. New and Renewable Energy Sources – A.N. Mahur, N.S. Rathore
2. Bio-gas Technology – K.C. Khandelwal and S.S. Mandi
3. Renewable Energy Sources – J.N. Twivell and A. Weir