

Sister Nivedita University, Kolkata
School of Agricultural Sciences

The semester-wise break-up of syllabuses of B. Sc. (Ag) Hons Course

1st Year

1st Semester

| S No | Course Title | Credit hours |
|--------------|---|------------------------|
| 1 | Fundamentals of Horticulture | 2 (1+1) |
| 2 | Fundamentals of Genetics | 3 (2+1) |
| 3 | Fundamentals of Soil Science | 3 (2+1) |
| 4 | Introduction to Forestry | 2 (1+1) |
| 5 | Comprehension & Communication Skills in English | 2 (1+1) |
| 6 | Fundamentals of Agronomy | 3 (2+1) |
| 7 | Introductory Biology*/Elementary Mathematics* | 2 (1+1)/ 2(2+0)* |
| 8 | Agricultural Heritage* | 1(1+0)* |
| 9 | Rural Sociology & Educational Psychology | 2 (2+0) |
| 10 | Human Values & Ethics (non-gradual) | 1(1+0)** |
| 11 | NSS/NCC/Physical Education & Yoga Practices** | 2 (0+2)** |
| Total | | 17+04*/03*+03** |

*Remedial, **Optional

| II Semester | | |
|--------------------|--|---------------------|
| S No | Course Title | Credit hours |
| 1 | Fundamentals of Plant Biochemistry and Biotechnology | 3 (2+1) |
| 2 | Agricultural Microbiology | 2 (1+1) |
| 3 | Soil and Water Conservation Engineering | 2 (1+1) |
| 4 | Fundamentals of Crop Physiology | 2 (1+1) |
| 5 | Fundamentals of Agricultural Economics | 2 (2+0) |
| 6 | Fundamentals of Plant Pathology | 4 (3+1) |
| 7 | Fundamentals of Entomology | 4 (3+1) |
| 8 | Fundamentals of Agricultural Extension Education | 3 (2+1) |
| 9 | Communication Skills and Personality Development | 2 (1+1) |
| 10 | Irrigation Water Management | 2 (1+1) |
| Total | | 26 (17+9) |

2nd Year**III Semester**

| S No | Course Title | Credit hours |
|--------------|--|---------------------|
| 1 | Crop Production Technology – I (<i>Kharif Crops</i>) | 2 (1+1) |
| 2 | Fundamentals of Plant Breeding | 3 (2+1) |
| 3 | Agricultural Finance and Cooperation | 3 (2+1) |
| 4 | Agri- Informatics | 2 (1+1) |
| 5 | Farm Machinery and Power | 2 (1+1) |
| 6 | Production Technology for Vegetables and Spices | 2 (1+1) |
| 7 | Environmental Studies and Disaster Management | 3 (2+1) |
| 8 | Statistical Methods | 2 (1+1) |
| 9 | Livestock and Poultry Management | 4 (3+1) |
| Total | | 23 (14+9) |

| IV Semester | | |
|--------------------|---|-----------------------------------|
| S No | Course Title | Credit hours |
| 1 | Crop Production Technology –II (<i>Rabi Crops</i>) | 2 (1+1) |
| 2 | Production Technology for Ornamental Crops, MAP and Landscaping | 2 (1+1) |
| 3 | Renewable Energy and Green Technology | 2 (1+1) |
| 4 | Problematic Soils and their Management | 2 (2+0) |
| 5 | Production Technology for Fruit and Plantation Crops | 2 (1+1) |
| 6 | Principles of Seed Technology | 3 (1+2) |
| 7 | Farming System & Sustainable Agriculture | 1 (1+0) |
| 8 | Agricultural Marketing Trade & Prices | 3 (2+1) |
| 9 | Introductory Agro-meteorology & Climate Change | 2 (1+1) |
| 10 | Elective courses | 3 credits |
| Total | | 19 (11+8) + 3 Credit Hours |

3rd Year**V Semester**

| S No | Course Title | Credit hours |
|--------------|---|-----------------------------------|
| 1 | Principles of Integrated Pest and Disease Management | 3(2+1) |
| 2 | Manures, Fertilizers and Soil Fertility Management | 3(2+1) |
| 3 | Pests of Crops and Stored Grain and their Management | 3(2+1) |
| 4 | Diseases of Field and Horticultural Crops and their Management -I | 3(2+1) |
| 5 | Crop Improvement-I (<i>Kharif Crops</i>) | 2 (1+1) |
| 6 | Entrepreneurship Development and Business Communication | 2 (1+1) |
| 7 | Geo-informatics and Nano-technology and Precision Farming | 2 (1+1) |
| 8 | Practical Crop Production – I (<i>Kharif crops</i>) | 2 (0+2) |
| 9 | Intellectual Property Rights | 1(1+0) |
| 10 | Elective Course | 3 credits |
| Total | | 21 (12+9) + 3 Credit Hours |

VI Semester

| S No | Course Title | Credit hours |
|--------------|---|-------------------------------------|
| 1 | Rainfed Agriculture & Watershed Management | |
| 2 | Protected Cultivation and Secondary Agriculture | 2 (1+1) |
| 3 | Diseases of Field and Horticultural Crops and their Management-II | 3(2+1) |
| 4 | Post-harvest Management and Value Addition of Fruits and vegetables | 2 (1+1) |
| 5 | Management of Beneficial Insects | 2 (1+1) |
| 6 | Crop Improvement-II (<i>Rabi crops</i>) | 2 (1+1) |
| 7 | Practical Crop Production –II (<i>Rabi crops</i>) | 2 (0+2) |
| 8 | Principles of Organic Farming | 2 (1+1) |
| 9 | Farm Management, Production & Resource Economics | 2 (1+1) |
| 10 | Principles of Food Science and Nutrition | 2 (2+0) |
| 11 | Elective Course | 3 Credits |
| Total | | 21 (11+10) + 3 credits Hours |

NB: The course(s) could offered altering with interchangeable semester, if requires and approve by the competent authority

Student READY Programme

Introduction

The term **READY** refers to “Rural Entrepreneurship Awareness Development Yojana”.

Objective

To reorient graduates of Agriculture and allied subjects for ensuring and assuring employability and develop entrepreneurs for emerging knowledge intensive agriculture, the component envisages the introduction of the program in all the Agricultural Universities as an essential prerequisite for the award of degree to ensure hands on experience and practical training.

Component of the programme

It is proposed to include following components in StudentREADY program as follows:

- | | |
|---|-------------------|
| i. Experiential Learning/Hands on Training | –24 weeks |
| ii. Skill Development Training | - 24 weeks |
| iii. Rural Agriculture Work Experience | –10 weeks |
| iv. In Plant Training/ Industrial attachment | –10 weeks |
| v. Students Projects | - 10 weeks |

In some disciplines where some components, say, Experiential Learning is not possible at graduate level, the students will be given Hands on Training and/or Skill Development Training, but it should be (out of these 5 components) implemented for the complete year.

All the above mentioned components are interactive and are conceptualized for building skills in project development and execution, decision-making, individual and team coordination, approach to problem solving, accounting, quality control, marketing and resolving conflicts, etc. with end to end approach.

1. Experiential Learning helps the student to develop competence, capability, capacity building, acquiring skills, expertise, and confidence to start their own enterprise and turn job creators instead of job seekers. This is step forward for earning while learning concept. Experiential Learning is major step forward for High Quality Professional Competence, Practical Work Experience in Real Life Situation to Graduates, Production Oriented Courses, Production to Consumption Project working, Facilitates producing Job Providers rather than Job Seekers and Entrepreneurial Orientation;
2. Rural Agriculture Work Experience also enable the students to gain rural experience giving them confidence and enhancing on farm problem solving abilities in real life situations especially in contact with farmers, growers etc.
3. In-plant training for a short period of time in relevant industry to gain the knowledge and experience of the work culture. In Plant training by reputed organization either MNC’s or organized sectors provide an industrial exposure to the students as well as to develop their career in the high tech industrial requirements.
4. Skill development component include use of Agriculture Systems & devices for enhancing functional skill. It is expected that basic infrastructure and Experiential Learning Unit available university may help in boosting livelihood ensuring opportunity.
5. Student Project is essential for students interested in higher education. Through this component, they will know how to identify research problem, experimental set up and writing report etc.

6. For the discipline of Dairy Technology, Food science & Technology and Agricultural engineering there will 20 weeks in-plant training in place of RAWE. The students of Veterinary science discipline will undergo six months training at hospitals;

All the components as per suitability of course i.e. Experiential Learning, Skill Development Training, Rural Agriculture Work Experience (RAWE), Internship/in-plant training and Student Projects are included in the final year of study for 2 semesters to provide entrepreneurial skills, confidence and hands on experience. There are 20 credits for Experiential Learning/Skill Development Training (24 weeks), 10 credits for RAWE (10 weeks programme) and 10 Credits for Industry Attachment/Student Project (10 weeks attachment to industry).

Some of the important components of Student READY programme are given as follows
Experiential Learning

a) Concept

The word 'experiential' essentially means that learning and development are achieved through personally determined experience and involvement, rather than on received teaching or training, typically in group, by observation, study of theory or hypothesis, bring in innovation or some other transfer of skills or knowledge. Experiential learning is a business curriculum-related endeavour which is interactive.

EL is for building (or reinforcing) skills in Project development and execution, decision-making, individual and team coordination, approach to problem solving, accounting, marketing and resolving conflicts, etc. The programme has end to end approach. Carefully calibrated activities move participants to explore and discover their own potential. Both activities and facilitation play a critical role in enhancing team performance.

b) Objectives

EL provides the students an excellent opportunity to develop analytical and entrepreneurial skills, and knowledge through meaningful hands on experience, confidence in their ability to design and execute project work.

The main objectives of EL are:

1. To promote professional skills and knowledge through meaningful hands on experience;
2. To build confidence and to work in project mode; and
3. To acquire enterprise management capabilities

c) Duration

The experiential learning programme will be offered for 180 days (one semester) period in the final year. As the programme is enterprise oriented, students and faculty are expected to attend the activities of the enterprise even on institutional holidays with total commitment, and without any time limit or restriction of working hours for ELP. The Experiential Learning Programme shall be run for full year by making two groups and rotating activities of the final year in two groups.

d) Attendance

The minimum attendance required for this programme is 85%. The attendance of a student will be maintained at the EL unit. The attendance particulars shall be communicated to the Chief Executive Officer (Associate Dean) by the Manager of the EL unit every week. The students will be eligible for the final evaluation of EL only when the attendance requirement is met with. Any student in the event of recording shortage of attendance has to re-register the EL when offered next by paying the assigned fee.

e) Students' Eligibility

To get the eligibility for registering the EL programme, the students should have completed all the courses successfully. No student should be allowed to take up the EL programme with backlog/repeat courses. The assignment/allotment of the EL programme shall be based on merit of the student at the end of 5th Semester. A separate certificate should be issued to the students after successful completion of EL course. Allotment of EL programmes amongst students to different modules should be done strictly on the basis of merit at the end of fifth semester. In this work experience students will know exact problems of farming & suggest appropriate technology and finally useful in enhancing productivity and profitability at farmers end.

Rural Agricultural Work Experience

The Rural Agricultural Work Experience (RAWE) helps the students primarily to understand the rural situations, status of Agricultural technologies adopted by farmers, prioritize the farmer's problems and to develop skills & attitude of working with farm families for overall development in rural area. The timings for RAWE can be flexible for specific regions to coincide with the main cropping season.

Objectives

1. To provide an opportunity to the students to understand the rural setting in relation to agriculture and allied activities.
2. To make the students familiar with socio-economic conditions of the farmers and their problems.
3. To impart diagnostic and remedial knowledge to the students relevant to real field situations through practical training.
4. To develop communication skills in students using extension teaching methods in transfer of technology.
5. To develop confidence and competence to solve agricultural problems.
6. To acquaint students with on-going extension and rural development programmes.

In Plant Training (IPT)

Technology and globalization are ushering an era of unprecedented change. The need and pressure for change and innovation is immense. To enrich the practical knowledge of the students, in-plant training shall be mandatory in the last semester for a period of up to 10 weeks. In this training, students will have to study a problem in industrial perspective and submit the reports to the university. Such in-plant trainings will provide an industrial exposure to the students as well as to develop their career in the high tech industrial requirements. In-Plant training is meant to correlate theory and actual practices in the industries. It is expected that

sense of running an industry may be articulated in right way through this type of industrial attachment mode.

OBJECTIVES

1. To expose the students to Industrial environment, which cannot be simulated in the university;
2. To familiarize the students with various Materials, Machines, Processes, Products and their applications along with relevant aspects of shop management;
3. To make the students understand the psychology of the workers, and approach to problems along with the practices followed at factory;
4. To make the students understand the scope, functions and job responsibility-ties in various departments of an organization.

Exposure to various aspects of entrepreneurship during the programme period

The students will be required to submit the report on various aspects and will be issued certificates upon successful completion of the student READY components. It is planned that Fifth Deans Committee after deliberations with the Conveners/Co-conveners and Subject Matter Specialists recommend the discipline-wise Student READY programs subsequently.

Semester VII

Rural Agricultural Work Experience (RAWE) and Agro-Industrial Attachment (AIA) This program will be undertaken by the students during the seventh semester for a total duration of 20 weeks with a weight-age of 0+20 credit hours in two parts namely RAWE and AIA. It will consist of general orientation and on campus training by different faculties followed by village attachment/unit attachment in University/ College/ KVK or a research station. The students would be attached with the agro-industries to get an experience of the industrial environment and working. Weight-age in terms of credit hours will be given depending upon the duration of stay of students in villages/agro-industries. At the end of RAWE/AIA, the students will be given one week for project report preparation, presentation and evaluation.

The students would be required to record their observations in field and agro-industries on daily basis and will prepare their project report based on these observations

Semester VIII

Experiential Learning Programme (ELP)/ Hands on Training (HoT)

This program will be undertaken by the students preferably during the eighth semester for a total duration of 24 weeks with a weight-age of 0+20 Credit Hours. The students will register for any of two modules, listed below, of 0+10 credit hours each.

Production Technology Bio-agents and Bio-fertilizer

Seed Production and Technology

Mushroom Cultivation Technology

Soil, plant, water and seed Testing

Poultry Production Technology

Hybrid Seed Production Technologies

Floriculture and Landscaping

Food Processing

Commercial Horticulture

Agriculture Waste Management

Organic Production Technology

Commercial Sericulture