The Open University of Sri Lanka

Faculty of Engineering Technology

Department of Agricultural and Plantation Engineering

Bachelor of Industrial Studies Honours (Agriculture) Degree Programme

AGW5401 Industrial Training 11 (Agriculture)

Training standards

(05 pages)

Industrial Training II (AGW5401) is a compulsory course for all the students enrolled in the Bachelor of Industrial Studies Agriculture stream. Students should undergo 13 weeks of training any one of the industries related to the agriculture specialization as stated below. By undergoing the training, the students are expected to acquire practical knowledge, subject specific skills and transferable skills to practice in any work environment. The competencies are identified in the Course Learning Outcomes as given below.

- Recall learned theories, standards and practices associated in the field of agriculture.
- Recognize operational and control mechanisms in the industry to meet desired output subjected to the techno-economical, environmental, social, ethical, health and safety constraints.
- Identify terms and regulations set up by the organization.
- Responding to the organization's work ethics in terms of interpersonal interactions, discipline, rules/regulations and methods of performing assigned tasks.
- Ability to demonstrate broad knowledge of ethical responsibilities and professional standards in a multi-disciplinary environment as a manager as well as an effective team member.
- Apply appropriate techniques, resources and skills to solve problems in the industry
- Generates self-confidence through acquired technical and managerial skills.

The students should select the sections mentioned below (section A and B) to complete the 13 weeks of the Industrial raining requirement.

Section A

Training on organizational structure and layout, human resource or administrative procedures, safety and hygiene practices (01-week)

1. Familiarize with the organizational structure and their responsibilities at each level.
2. Familiarize with the building layout and functions of each section.
3. Familiarize with the activities of the department of human resource and available documents for certification process.
4. Familiarize with the labor rules, leave entitlements, welfair and training plan.
5. Acquaint with occupational health and safety measures and perform risk management assessment.

6. Familiarize with the emergency procedures for fire safety, power cuts related in house processing section cleaning procedures.
7. Familiarize with the machinery/ tool safety, laboratory safety, Environmental safety with green concepts, chemical, biosafety and Biosecurity Safety and Compliance.

Section B

Training on Industries related to Agriculture
Broad areas, the trainee shall engage and explore within the organization (12 weeks)

Students should be able to learn and gain skills in any one of the broad areas given below.

- Production processes with specific types of the machinery, tools and techniques used
- Storage and packaging of raw materials and finished products
- product quality and safety assurance compliances according to local and international standards
- In house cleaning procedures, identification of critical control points of the manufacturing procedure and industrial safety and health hazards of workers.
- obtained international and local certification systems for both production processes and final products (Environmental, Energy, GMP, organic, HACCP, FSMS, ISO and SLS certifications)
- Liquid and solid Waste management strategies
- Marketing of product both in local and foreign market

Area of Specific Training that a student could undergo

Students may undergo the 13 weeks of training in the areas categorized under the different fields of Agriculture

1. Crop production and Postharvest Technology

- Tea manufacturing industry (harvesting, withering, rolling, fermentation, drying, sorting, grading, tea testing, value addition packaging)
- Rubber processing and manufacturing industry
- Coconut and other Palm based industries
- Export agricultural crop processing and value addition (cinnamon processing, cardamom, white pepper processing, drying of products and maintain quality with packaging)
- Fruits and vegetable-based industry (processing, preservation, value addition, packaging, storage).
- Grain processing industry (processing, value addition, and packaging)
- Rice milling using modern machinery.
- Tuber/root crop processing for export market
- Spice and curry mix productions (processing, preservation, value addition, packaging, storage).

2. Ornamental Horticulture

- Cut flowers and Foliage plants production
- Commercial scale planting material production including nursery management (seed production, seed certification, budding, grafting, layering, tissue culture, Plant breeding etc.).
- Protected Agriculture/Hydroponics/Aeroponics and their product preparation for marketing

3. Animal production

- Animal production (egg-based productions, meat and meat processing industry, value added meet products like sausage, bacon).

- Milk based product industry (Powdered milk, pasteurized and sterilized milk, Yoghurt, Cheese, curd, flavored ready to drink Milk, ice cream, ghee)
- Animal feed industry.
- Fish based industry (inland farming, brackish water farming, dry fish production)
- Quarantine practices during export and import agricultural products including legislations.
- Farm waste management (commercial scale compost, wormy compost, biogas production) and farm level renewable energy production (gasification of Gliricedia).

4. Food Processing and Value addition

- Milk based product industry (Powdered milk, pasteurized and sterilized milk, Yoghurt, Cheese, ghee, curd, flavored Ready to Drink Milk, ice cream)
- Confectionary industry (drying, evaporation, extruded products, desserts, sweets, chocolate, dehydrated fruits)
- Receiving of vegetable or fruit as raw material, determine quality of material, apply unit operations where necessary, processing (soup mix, canning, frozen, pulp, juice extraction) packaging, storage and marketing
- Receiving of meat/fish as raw material, determine quality of material, apply unit operations where necessary, processing (sausage, ham, bacon, marinated cooked meat, meat balls, caning), packaging, storage and marketing
- Food packaging industry (identify packaging degradable and non-degradable materials, required labeling details, printing labels or packages, disposal of martials)
- Logistic management in agricultural fresh and processed products (storage, shipments, Cargo).

5. Soil and Water management

- Irrigation methods such as basin, furrow, flood irrigation
- Irrigation Systems such as drip and sprinkler irrigation
- Farm Drainage
- Problems due to poor drainage

- Soil conservation techniques
- Soil and water analysis
- Fertilizer application and methods
- Bio fertilizers
- Rainwater Harvesting
- Groundwater quality

6. Plant Protection and Bio technology

- Organic agriculture
- Industries where giving priorities in applying IPM.
- Gene cloning and recombinant DNA technology applications and developing new varieties and hybrids through genetic engineering.
- Crop development through various tissue culture methods: cell cultures, protoplast cultures, anther cultures or other related applications.
- Biotechnology applications: bio fertilizers, bio pesticides, biogas, waste management, biofuels and other related industries.
- Enzyme and Fermentation technology.
- Biotechnology applications in aquaculture.
- DNA fingerprinting

7. Agricultural Machinery Manufacturing and maintenance

- Two Wheel tractor
- Four Wheel tractor
- Land preparation equipments
- Seeders
- Weeders
- Transplanters
- Harvesters

8. Agri Business, Extension and Marketing

Note: Any other areas not listed above and are relevant to Agriculture specialization acceptable after obtaining prior approval from the department.

Training Placement and Monitoring

Training placements are arranged by the Industrial Training Engineer of the Faculty according to an approved procedure by the Faculty and with the coordination of National Apprentice and Industrial Training Authority (NAITA).

The Training Engineer and the academic staff of the Department of Agricultural and Plantation Engineering are required to monitor the progress of trainees either by visiting

training organizations on regular basis or/and by calling reports on the status of progress from the responsible persons under whom the trainees are working on.

Evaluation of Trainees

The trainees are evaluated at the end of training period based on a comprehensive report submitted by them and performance of a viva-voce examinations conducted by a panel consisting of staff of the department of Agricultural and Plantation Engineering, representative from NAITA and external examiner/s. The evaluation process is administrated by the Training Engineer according to the Faculty approved guidelines.

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