

# **Skill Enhancement 8(0+8) :-**

## **Objective :-**

To enable the students to acquire basic skills in agricultural engineering so that in case they exit with UG-certificate, they can work as operators and technicians in the fields of farm machinery, micro-irrigation, solar and wind energy or food processing, etc. or can go for self-employment or start their own agro-service centre, agro-processing centre or similar activities. Thus the broad objective of this course is Skill for Employment and Entrepreneurship Development.

## **Indicative Modules :-**

- i. Operation and maintenance of farm machinery
- ii. Repair and maintenance of tractors and power tillers
- iii. Management of agricultural machinery custom hiring and maintenance facilities
- iv. Fabrication, operation and maintenance of renewable energy devices
- v. Operation and maintenance of drones used for agricultural applications
- vi. Machine vision, sensors and sensors architecture
- vii. Design of solar PV system using softwares
- viii. Installation and maintenance of on-grid and off-grid solar systems
- ix. Design and maintenance of agri-voltaic systems
- x. Valorization of agri-biomass and organic waste
- xi. Energy audit, energy conservation and energy efficiency
- xii. Repair and maintenance of pumps and irrigation systems
- xiii. Installation and maintenance of micro-irrigation systems
- xiv. Application of remote sensing and GIS for agricultural water management
- xv. Operation and maintenance of hydro-meteorological instruments
- xvi. Geophysical survey and investigations for groundwater exploration and installation of tube well/ bore well
- xvii. Installation and maintenance of roof top rain water harvesting systems
- xviii. Operation and maintenance of soil conservation structures

- ix. Construction, management and maintenance of protected cultivation structures
- xx. Agro processing methods, equipment operation and maintenance
- xi. Operation and management of multi-commodity agro-processing centre
- xxii. Primary processing and value addition and cold chain logistics
- xxiii. Food grain godown and warehouse management
- xxiv. Post-harvest value chain management including logistics

After two to three days common orientation on different skill enhancement modules, students will take up either two or more modules (maximum four modules recommended) as per the local needs and gain complete hands-on experience on these skill areas. The selection of the module(s) will be entirely on the student's choice.

Indicative details of the skill enhancement modules are given at the end of this section. The credit hours for each module have been kept as 0+4. However, the institution is at liberty to modify

the credit hours/ contents for the skill enhancement modules depending on the level of skill to be imparted to the students. For example, if a student wishes to take up three or four skill modules, the contents and credits can be modified for those skill modules, making the total 8 credits. However, in no case, more than four modules are recommended for offering to a student.

It is emphasized that the purpose is to impart practical knowledge/ skill for operating the system and none of the course should be taken in theoretical mode. In specific cases, the skill enhancement in the specific area can be further continued during the 10 weeks' internship in case of exits for UG-certificate and UG-Diploma for further strengthening of the skill.

The above modules and details are indicative only and the institutions have the liberty to formulate new modules and modify the content of the modules relevant to the respective regions or even modify the titles of the above modules. It is advised that the institutions should define the detailed breakup of the skill areas depending on the facilities/ expertise available.

The course can also be offered in partnership with capable organizations/companies/ NGOs/progressive entrepreneurs. In such cases, a detailed content should be prepared in consultation with the industry/ organization and the institution should have a regular monitoring for the learning process. The evaluation can be done jointly by the institute and collaborating partners. The timetable for the remaining part of the semester will be adjusted accordingly as mentioned earlier.