

## **DDU Kaushal Kendra**

Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission for skill development based on higher education leading to Bachelor of Vocation (B. Voc.) Degree, with multiple exits as Certificate/Diploma /Advanced Diploma/Degree under the National Skill Qualification framework (NSQF).The B. Voc. Programme incorporate specific job roles and their National Occupational Standards along broad based general education. B. Voc. Programme has been designed as per National Skill Qualification Framework (NSQF) emphasizing on skill based education.

## **Programme Outcome**

### **B.Voc Food Processing & Engineering:**

This course is concentrated on making the students “ready to work” for different food industries enhancing their employability. This course combines vocational and management concepts. Food processing is a contemporary exercise that develops efficiency and improves promotion of the food products. This course is based on developing set of methods and techniques which can be used to transform raw materials into nutritious and safe food for consumption. The course has essentially been designed for students wishing to enhance their employability. This course facilitate such students in learning, earning and growing professionally. The course offers to eligible candidates in:

- relevant work experience.
- practical knowledge in their chosen field.
- expertise in innovative, trendy and interesting disciplines of choice.
- expertise matching candidates’ job aspirations.
- employability for a suitable job as per current market requirements.
- sufficient knowledge to establish themselves in employment and entrepreneurship ventures.

## **Programme Specific outcome**

### **NSQF Level-4 Baking Technician / Operative FOR Part -I (SEMESTER-I)**

- A Baking Technician / Operative is responsible for baking of products, maintaining their consistency and quality, while meeting defined SOPs and leveraging his/ her skill to operate ovens in synchronization with proof box/ rest of the plant/ unit.
- A Baking Technician / Operative must have the ability to plan, organize, prioritize, calculate and handle pressure. She/he must possess reading, writing and communication skills.
- The individual must have stamina to be able to stand for long hours, have personal and professional hygiene and an understanding of food safety standards and requirements.

### **Course outcome**

**CO 1 BVG - 014 Basics of Food Processing :** Students will be able to understand the processing of foods in terms of unit operations.

**CO 2 BVFPE-114 Bakery Science & Technology:**Students will gain wide-ranging understanding of baking science, they will also feature a discussion of gluten structure and functionality in baking which has taken on a great deal of importance in light of current market trends for consumers.

**CO 3 BVFPE-115 Basics of Food Safety & Microbiology :** Students can demonstrate an understanding of micro-organisms and the potential risks associated with microbes in food and how to test for microbes in food, including sampling techniques and reading of laboratory reports.

### **NSQF Level-5 Food Products Packaging Technician For part -I (semester-II)**

- A Food Products Packaging Technician performs various packaging functions and handles all categories of packaging such as primary, secondary and tertiary packaging for food products.
- A Food Products Packaging Technician must have the ability to plan, organize, prioritize, calculate and handle pressure.
- The individual must possess reading, writing and communication skills. In addition, the individual must be a team worker and have good hand eye coordination.

#### **Course outcome**

**CO 4 BVG -015 Principles of Food Preservation :** Students will have the understanding of several principles of food preservation including a brief study of deteriorative factors of food constituents. The principles of food preservation include chemical preservatives, osmoanabiosis, heat treatment, freezing and dehydration.

**CO 5 BVFPE-214 Basics of Food Packaging :** Students will have the wide understanding of food packaging which gives a clear message regarding the features and benefits of the product in a way that is easy to see and understand. Students learn to get the consumers attention with packaging techniques amidst all the food products

**CO 6 BVFPE-215 Food Packaging Techniques:** Students will have the introduction of the most recent developments in food packaging including non-biodegradable, semi-biodegradable and biodegradable packaging materials, intelligent and active packaging, analytical aspects such as shelf-life prediction, and calculation of vapour and gas permeability, tensile strength, elongation and elastic modulus of some representative packaging will be emphasised.

### **NSQF Level-6 Chief Miller For part -II (semester-III& IV)**

- A Chief Miller manages the milling process for all types of grains while maintaining food safety and hygiene in the work environment.
- A Chief Miller manages the milling process for all types of grains overseeing activities such as handling of various milling machineries, maintenance of process parameters, inspection of raw material and finished goods to achieve the desired quality and quantity of products.
- A Chief Miller must have the ability to plan, organize, prioritize, calculate, concentrate and handle pressure. The individual must possess reading, writing and communication skills. In addition, the individual must have mechanical aptitude and trouble shooting skills.

#### **Course outcome**

**CO 7 BVG 016 Food Chemistry :**Students will understand the basic concepts in food chemistry and food analysis.

**CO 8 BVFPE-314 Technology of Cereal Processing :**Students can outline practices and procedures for the production of safe, high quality cereal-based products and for the development of Good Hygienic Practices (GHP) and Good Manufacturing Practices (GMP) programmes that will serve as the foundation for the preparation of a Hazard Analysis and Critical Control Point (HACCP) system.

**CO 9 BVFPE-315 Food Plant Layout & Sanitation:** Students will have ability to design and operate manufacturing facilities that can quickly and effectively adapt to changing technological and market requirements .In the face of shorter product life cycles, higher product variety, increasingly unpredictable demand, and shorter delivery times, manufacturing facilities dedicated to a single product line cannot be cost effective any longer.

**CO 10 BVG-017 Food Additives:** After completing the course the student has a know-how on food additive legislation and understands the chemical and technological properties of the most relevant food additives used as food improvement agents.

**CO 11 BVFPE-414 Technology of Pulse Processing:** Student will be able to understand wide range of **pulse** varieties and variants; splits, whole, natural or hulled **pulses**. Buhler innovative products are engineered to reduce **pulse** damage and broken grains for maximum product quality

and profit.

**CO 12 BVFPE-415 Quality Assurance & Quality Control:** Students will be able to explain the different meanings of the quality concept and its influence. They can easily describe, distinguish and use several techniques and quality management tools and distinguish the normalisation, homologation and certification activities. Students will Identify the elements that are part of the quality measuring process in the food industry

### **NSQF Level-7 Production Manager For part -III (semester-V& VI)**

- A Production Manager is responsible for production of food products and meeting quantity, quality and cost standards.
- A Production Manager is responsible for production of food products through the process of production planning, coordinating and controlling production process to achieve desired quantity and quality of products.
- A Production Manager must have the ability to read, write, communicate, plan, organize and prioritize. S/he must possess mathematical organizational and analytical skills, ability to concentrate, physical stamina, mechanical aptitude and trouble shooting skills and have an understanding of food safety standards and requirements.

### **Course outcome**

**CO 13 BVG-033: Confectionary Technology:** Students will be able to use the methods and techniques of candy and its raw ingredients analysis .

**CO 14 BVFPE-514: Food Handling & Storage Technology :** Students will be able to understand how food behavior and activities contribute to the **safety of food** and how they can decrease the risk of food borne illness. They will processes on the farm to practices in the kitchen, human activities & their role in **food safety**.

**CO 15 BVFPE-515: Food Fermentation Technology:** Students will acquire fundamental knowledge of fermented food production and food analysis in the field of brewing, winemaking, spirit production and dairy industry technologies

**CO 16 BVG-032: Food Industry Waste Management:** Students will know trends in the food industry wastes and food technology taking into consideration work safety, quality of the final product, energy economy and environmental protection

**CO 17 BVFPE-614: Food Production Engineering :**Students will assess conformity of the food products to norms and specifications and can analyze and assesses new trends in food industry engineering as well as in technological solutions of food processing and preserving

**CO 18 BVFPE-615: IPR & Entrepreneurship:** Students will acquire knowledge of Intellectual Property rights (IPR) and can allow innovative entrepreneurs to protect their inventions. They may also have multiple other functions, such as signaling current and prospective value to investors, competitors and partners, accessing knowledge markets and networks, and preventing rivals from patenting related inventions. However, IP systems can also create obstacles to the development of entrepreneurial ideas and hamper knowledge diffusion and innovation.

## **B.Voc. Software Development (2018-19)**

**Program Outcome** - The whole course is focused on the skill of software development. This course engages the students in all aspects of software development from the designing of the software to the software service after its development. This course focuses on practical experience as students have to undergo industrial trainings. After completing the course the student can opt for the career in the computer programming/software development/web development. The course grooms the students for lucrative avenues in IT industry as Web Designer/Developer, Web Administrator, IT consultant, Database Architect, Database Administrator, Software Consultant, System Analyst, and Software Programmer/ Engineer/ Developer etc.

### **PSO-I (NSQF Level 4- Certificate)**

If the student opts for the exit after Semester-I, he/she will be awarded Certificate. Students who opt out will have skills for diverse employability opportunities such as Data Entry Operator, Office Assistant, Technical Assistant and Junior Web Designer.

**CO 1 Computer Fundamentals:** The student after completing the course will be able to

- Understand the fundamental concepts of computers like hardware, software, operating systems, number systems, programming languages, peripheral devices, networking, multimedia and Internet.

**CO 2 Programming using C &Software Lab I:** The student after completing the course will be able to

- Understand the basic terminology used in computer programming, compiling and debugging.
- Read, understand and trace the execution of programs written in C language.
- Write the C code for a given algorithm.

**CO 3 Web Designing using Html and Dhtml & Workshop – I :** The student after completing the course will be able to

- Design and create a media-rich dynamic websites to meet the specifications of clients using text, fonts, colors, images, tables, hyperlinks and other elements using technologies like HTML, CSS, JavaScript, etc.
- Work on software package-MS office for advanced documentation, creating efficient presentation and handling worksheets.

### **PSO-II (NSQF Level 5- Diploma)**

If the student opts for the exit after Semester-II, he/she will be awarded Diploma. Students who opt out will have skills for diverse employability opportunities such as Programming Assistant, Technical Support Executive, Database Manager in addition to job roles specified earlier.

**CO 4 Digital Electronics:** The student after completing the course will be able to

- Understand the Logic Systems and Circuits.
- Analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods.
- Assess the nomenclature and technology in the area of memory devices.

**CO 5 Fundamentals of DBMS &Software Lab II:** The student after completing the course will be able to

- Understand database concepts and database management system software.

- Understand major DBMS components and their function.
- Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model.
- Write SQL commands to create tables and insert/update/delete data, and query data in a DBMS.
- Explore the Microsoft office access environment along with designing and building database.

**CO 6 Programming using C++ & Software Lab III:** The student after completing the course will be able to

- Understand the features and relative merits of C++ supporting object oriented programming.
- Gain knowledge of objects, class, data abstraction, encapsulation, inheritance, polymorphism, dynamic binding and apply them in programming in C++.
- Develop and construct programs using Bottom up design approach.

### **PSO-III (NSQF Level 6- Advance Diploma)**

If the student opts for the exit after 2<sup>nd</sup> year, he/she will be awarded Advance Diploma. Students who opt out will have skills for diverse employability opportunities such as Junior Software Developer, Software Tester, Web Developer, Web Administrator.

**CO 7 Operating System:** The student after completing the course will be able to

- Understand types of operating systems and differences among them.
- Understand the fundamental components of a computer operating system.
- Understand the interactions among the various components of computing systems.
- Familiarize the various features of OS like Unix, Linux, Windows etc.

**CO 8 Software Engineering:** The student after completing the course will be able to

- Understand scientific software development processes to meet the needs of an advanced development project.
- Plan a software engineering process life cycle , including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance and quality requirements.
- Able to use tools necessary for software project management, time management, etc.

**CO 10 Java Programming and Software Lab IV:** The student after completing the course will be able to

- Understand the structure and model of the Java programming language.
- Familiarize with Java Runtime Environment (JRE), Java Development Kit (JDK), Java Virtual Machine (JVM) and Java compiler.
- Write Java application programs using OOP principles and proper program structuring

**CO 11 Data Structure & Algorithm and Software Lab V:** The student after completing the course will be able to

- Understand basic data structures like arrays, linked lists, binary trees, heaps, and hash tables for storage and retrieval of ordered or unordered data.
- Apply various algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
- Analyze and compare algorithms for efficiency.

- Write programs requiring the implementation of the above data structures.

**CO 12 Management Information System:** The student after completing the course will be able to

- Describe the role of information technology and information systems in business
- Understand Management Information System (MIS) components.
- Understand decision-making process.
- Understand the basics of Decision Support System (DSS).

**CO 13 Content Management System:** The student after completing the course will be able to

- Understand the role of content management technologies to organise and present web content.
- Create and deploy websites using content management systems like Joomla and WordPress., including creating and editing content, creating custom templates or themes, incorporating functionality using plugins and performing site management.

**CO 14 Web Development Using PHP and MYSQL& Software Lab-VI:** The student after completing the course will be able to

- Understand role of server-side programming and databases for creating dynamic websites and web-applications.
- Develop web applications using server side PHP programing and Database Connectivity using MySQL.

**CO 15 Software Testing Concepts and Tools and Software Lab-VII:** The student after completing the course will be able to

- Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs.
- Apply modern software testing processes in relation to provide quality in software development.
- Create test strategies and plans, design test cases, prioritize and execute them.
- Use the various automated testing tools.

#### **PSO-IV (NSQF Level 7- Degree)**

At the End of third year the Student will be awarded degree in B.Voc IT (SD). In addition to the opportunities mentioned earlier, the Student will have skills to acquire employability opportunities such as Web Designer/Developer, Web Administrator, IT consultant, Database Architect, Database Administrator, Software Consultant, System Analyst, and Software Programmer/ Engineer/ Developer etc.

**CO 16 Computer Network:** The student after completing the course will be able to

- Independently understand basic computer network technology and data communication systems.
- Identify the different types of network topologies.
- Understand the functions of the layers of the OSI and TCP/IP models.
- Identify the different types of network devices and their functions within a network
- Familiarity with the basic protocols of computer networks.

**CO 17 RDBMS with ORACLE and Software Lab VIII:** The student after completing the course will be able to

- Demonstrate an understanding of the conceptual framework and the features of RDBMS.

- Attain a good practical understanding of the SQL and PL/SQL.
- Able to develop structured query language (SQL) queries to create, read, update, and delete relational database data.
- Use advanced PL/SQL features like triggers, cursors, stored procedures, etc.

**CO 18 Web Development & Software Lab IX:** The student after completing the course will be able to

- Understand the features, components and architecture of .Net framework.
- Create and deploy database driven web applications and web services using ASP.Net, C#, ADO.Net.

**CO 19 Project:** During this period students will undergo industrial training of 6 months in their desired field. The student after completing the training will be able to:

- Become expert in one's chosen technology.
- Become updated with all the latest changes in technological world.
- To identify, formulate and model problems and find appropriate solutions.
- To develop quality software projects.

## **Program Outcome for B.Voc (Automobile) Degree Course**

After Completing B.Voc, Students can apply for job in all Government sector like administrative services, banking services, Defence services, Supervisor in maintenance and Service stations, Automobile manufacturing industry, Private transport companies. As this course is a skill based program, there is a high demand for skilled persons abroad, so students of this course have good opportunities abroad. We know India is a developing country; industrial and manufacturing sector is under development, students can even explore becoming an entrepreneur in automobile sector.

### **Program Outcome for B.Voc (Automobile) 1<sup>st</sup> year:**

After completing 1<sup>st</sup> year of this program, a student is responsible for the repair and routine servicing and maintenance (including electrical and mechanical aggregates) of vehicles and for managing range of diagnosis and repairs with a wide range of specialised repair of mechanical, electrical and electronic faults and this is considered as diploma in automobile.

### **Program Outcome for B.Voc (Automobile) 2<sup>nd</sup> year:**

After completion of 2<sup>nd</sup> year, a student is responsible for managing advanced diagnosis and repairs of mechanical parts. The individual carries out all types of diagnosis of faults and repairs and is responsible for supervising work of other technicians/senior technicians and a student is awarded with advance diploma in automobile.

### **Program Outcome for B.Voc (Automobile) 3<sup>rd</sup> year:**

After completing 3<sup>rd</sup> year, a student oversees service; repair and maintenance work in the workshop done as per the OEM guidelines and manage the work done by mechanics and other aggregate specialists within the expected time and cost to ensure minimum repeat complaints and is awarded with a degree in automobile.

### **Specific Course Outcome:**

**CO 1 Aspects of Physics in Automobile-** this course provides knowledge of physics basic concepts which are used in automobile sector.

**CO 2 Basics of Automobile-** this course provides knowledge about basic structure of automobile components and tools.

**CO 3 Automobile Repair and Maintenance-** this course provides knowledge of importance of maintenance and techniques of repair

**CO 4 Elementary Physics-** this course provides knowledge about measuring instruments and laws used in automobile sector.

**CO 5 Electrical Repair of an Automobile-** this course provides knowledge about the current-its laws, electrical components and their diagnosis.

**CO 6 Elements of Automobile Engineering-** this course provides knowledge of construction and working of petrol and diesel engines.

**CO 7 Fundamentals of computers-** this course provides basic knowledge of computer operating system and MS Office.

**CO 8 Economics of Automobile Industries-** this course provides basic knowledge about role of economics in automobile industries and business trade cycles.

**1. Automobile Workshop Management-** this course provides knowledge of appropriate use of resources and planning of project.

2. **Automobile Engineering-I** - this course provides knowledge about working of transmission and braking system of automobile.
3. **Functional Management**- this course provides knowledge of management and marketing concepts used in automobile industry.
4. **Environmental and Road Safety Awareness**- this course provides knowledge about environmental policies, practices and awareness programs.
5. **Industrial Engineering**- this course provides knowledge of role industrial engineer and material management in automobile industry.
6. **Automobile Engineering-II** - this course provides knowledge about the assembling and dismantling of automobile parts.
7. **Automobile Electrical & Electronic System**- this course provides knowledge of electronic and electrical components and use of sensors and actuators and their repair and replacement.
8. **Machining Science**- this course provides knowledge about different cutting and finishing processes and their uses in automobile industry.
9. **Corrosion and Prevention**- this course provides knowledge of factors responsible for corrosion and controls for corrosion.
10. **Manufacturing Technology I** - this course provides knowledge about casting processes and metal cutting.
11. **Automobile Workshop Supervision**- this course provides knowledge of duties of supervisor and supervision competencies.
12. **Service and Repair Operations**- this course provides knowledge about quick repairs and standard working procedures followed in repair operation.
13. **Physical Education**- this course provides knowledge of sports relationship and sports psychology
14. **Human Resource Management**- this course provides knowledge about managerial functions, principles of training and development.
15. **Manufacturing Technology II** - this course provides knowledge of powder metallurgy, metal forming and welding processes.
16. **Workshop Maintenance and Safety**- this course provides knowledge about workshop maintenance and safety precautions used in various sections of workshop.
17. **Performance Evaluation in Automobile Workshop**- this course provides knowledge about purpose of performance evaluation and methods for performance appraisal.

## **Program Outcome for Advance Diploma in Auto Electrical and Electronics**

After Completing Advance Diploma in Auto Electrical and Electronics, students can apply job in various automotive sectors. Also students can apply for job in abroad on their skill basis. We know India is a developing country; industrial and manufacturing sector is under development, students can even explore becoming an entrepreneur in automobile sector.

### **Program Outcome for Advance Diploma in Auto Electrical and Electronics 1<sup>st</sup> year:**

After completing 1<sup>st</sup> year, a student is responsible for service and repair of electrical and electronic faults in the vehicle across the various sub systems, aggregates and for managing range of diagnosis and repairs with a wide range of specialised repair of mechanical, electrical and electronic faults.

### **Program Outcome for Advance Diploma in Auto Electrical and Electronics 2<sup>nd</sup> year:**

After completion of 2<sup>nd</sup> year, a student is responsible for managing advanced diagnosis and repairs of mechanical and electronic parts. The individual carries out all types of diagnosis of faults and repairs and is responsible for supervising work of other technicians/senior technicians and a student is awarded with advance diploma in Advance Diploma in Auto Electrical and Electronics.

### **Specific Course Outcome:**

- 1. Elementary Physics-** this course provides knowledge about measuring instruments and laws used in automobile sector.
- 2. Basics of Electricals & Electronics-** this course provides knowledge of basic terms and symbols of electrical and electronics used in automobile and study of electronic components.
- 3. Functioning of various Electrical Components-** this course provides knowledge about the functioning of various electrical and electronic systems.
- 4. Aspects of Physics in Automobiles-** this course provides knowledge of physics basic concepts which are used in automobile sector.
- 5. Service & Repair of Electrical & Electronic Components-** this course provides basic study of engine management system, electronic stability system and its service.
- 6. Functioning of Various Electrical Components-II** - this course provides knowledge of lightning, monitoring, protection systems and transmission system.
- 7. Fundamentals of computers-** this course provides basic knowledge of computer operating system and MS Office.
- 8. Economics of Automobile Industries** -this course provides basic knowledge about role of economics in automobile industries and business trade cycles.
- 9. Automobile Repair Maintenance-** this course provides knowledge of components and tools used in automobile repair maintenance and study of maintenance schedules.
- 10. Fundamentals of Automotive Electrical and Electronics-I** - this course provides knowledge about circuits, battery and its repair.
- 11. Functional Management-** this course provides knowledge of management and marketing concepts used in automobile industry.
- 12. Environmental and Road Safety Awareness-** this course provides knowledge about environmental policies, practices and awareness programs.

- 13. Industrial Engineering-** this course provides knowledge of role industrial engineer and material management in automobile industry.
- 14. Fundamentals of Automotive Electrical and Electronics-II -** this course provides knowledge about alternator, ignition system and its troubleshooting.
- 15. Elements of Auto Electrical & Electronics-** this course provides knowledge of MPFI system and flasher circuit.

**PO 1:B.Voc. (Agriculture) 2019-20:**

- B. Voc. (Agriculture) is a skill oriented course to impart training to the students regarding precision farming, micro irrigation, seed technology, agriculture extension and agro meteorological services. The course curriculum is based on the qualification packs for specific job roles provide by agriculture skill council of India.
- This course is concentrated on making the students “ready to work” for different agriculture industries enhancing their employability. This course combines vocational and management concepts. Agriculture is a contemporary exercise that develops efficiency and improves promotion of the agricultural products.
- The course has essentially been designed for students wishing to enhance their employability. This course facilitates such students in learning, earning and growing professionally.

**PSO 1: NSQF Level- 4 Micro Irrigation Technician:**

- A Micro irrigation technician holds a very critical role in the installation and function of micro irrigation system that not only uses the existing natural resources efficiently but also benefits the farmers in terms of decreased cost of cultivation in the long run.
- This job requires the individual to work independently and be comfortable in making decisions pertaining to his/her area of work which requires clarity, skill to basic arithmetic and algebraic principles.
- The individual should be result oriented and is responsible for his own working and learning. The individual should also be able to demonstrate skills of using various tools and decision making for instant problem solving

**CO 1: Basics of Agriculture- I:** Describe and discuss the use of micro irrigation techniques in different agronomical and horticultural crops like cereals, vegetables, fruit and flowers on the farm.

**CO 2:Water management and Micro Irrigation** - The subject's main objective is to teach students how to improve and stabilize the crop yields of smallholder olive farmers through the implementation of sustainable irrigation systems and the promotion of water management practices that optimize the volume and timing of water distribution.

**CO 3: Designing and Layout of Micro Irrigation system-** Describe the designing and layout formation of micro irrigation system before installation. As designing and layout is the basic starting point of any project.

**PSO 2: NSQF Level- 5 Seed Analysis Incharge:**

- A Seed Analysis In-charge is responsible for testing of seeds for germination, vigor and seed quality through laboratory tests and other procedures, by ensuring compliance with established standards.

- A Seed Analysis In-charge must have the ability to plan, organize and prioritize. The individual must possess reading, writing and communication skills.

**CO4: Basics of Agriculture- II:** - Describe and discuss the seed production of different agronomical and horticultural crops like cereals, vegetables, fruit and flowers.

**CO5: Seed Analysis Incharge- I:** It deals with various seed processing practices of different field crop which includes their grading, sorting, drying, cleaning and packing.

**CO6: Seed Analysis Incharge- II:** It deals with various seed storage practices like cold chain and cold storage. It also deals with the overall marketing aspects of the Seed.

**PSO 3: NSQF Level- 6 FARM WORKSHOP:**

- The individual holds a very critical farm workshop system that not only uses the existing natural resources efficiently but also benefits the farmers in terms of decreased cost of cultivation in the long run.
- This job requires the individual to work independently and be comfortable in making decisions pertaining to his/her area of work. Requires clarity, skill to basic arithmetic and algebraic principles. The individual should be result oriented and is responsible for his own working and learning. The individual should also be able to demonstrate skills of using various tools and decision making for instant problem solving.

**CO 7: Basics of Agriculture - III** – To understand the package practices of cereal, pulses, oilseeds as well as concept of organic farming and integrated weed management.

**CO 8: Farm Workshop - I**– To understand basic concepts of farm planning, management and agricultural equipments.

**CO 9: Farm Workshop- II** - The person is able to understand farm financial analysis, farm investment analysis as well as tillage implements.

**CO 10: Basics of Agriculture – IV** - To understand the Tillage, Sowing methods, Implements for intercultural operations, Sprayers and Equipment for land development and soil conservation.

**CO 11: Farm Workshop– III** - They coordinate and motivate the farmers to adapt to modern methods for good returns, farm structures and grain storage structures.

**CO 12: Farm Workshop– IV** – They help the farmer coordination, farm planning, decision making process, record as well as risk management practices.

**PSO 4: NSQF Level- 7 Climate change and Risk Mitigation Manager:**

- Climate change and risk mitigation manager integrates climate change impacts into risk management and other strategic planning activities in the organization and assist organizations to adapt to climate change.
- The climate change and risk mitigation manager is responsible to apply risk management frameworks to ensure the organizations or those they are advising have identified and considered the risks of climate change impact.

**CO 13: Basic of Agro-Meteorology - III** – Describe and discuss the impact of climate on different agronomical and horticultural crops like cereals, vegetables, fruit and flowers.

**CO 14: Climate Change & Risk Mitigation Manager-I** – It deals with the study of different meteorological parameters like temperature, humidity, rainfall, wind speed, wind direction, sunshine hours and cloud formation and their positive and negative effects in agriculture.

**CO 15: Climate Change & Risk Mitigation Manager-II** – There are several positive and negative effects of meteorological parameters on crops, so in this course we study their solution along with climate change (Global warming, carbon emission, ozone depletion and weather drift).

**CO 16: Project (Industrial /Institutional)** - The students shall have to undergo an industrial training under an instructor (to be allotted by the Industry). The instructor shall send the evaluation of the student for the training period to the department. The objective of this industrial training is to train the students about various aspects of sustainable agriculture, which he/she had read in theory courses.

## **PROGRAM OUTCOMES: Advance Diploma in Green House Technology**

The content of the course focuses on engineering aspects of greenhouse horticulture systems in interaction with crop growth and development. In a general introduction an analysis of the sector will be presented, followed by the basics of crop growth and development and the physical principles of the greenhouse climate.

### **PSO 1: NSQF Level-4 Green House Fitter**

The individual plays a critical role in the installation and function of a Green House which require specific skills and techniques for the successful functioning of the Green House. This job requires the individual to work specifically as per the plan making certain decisions pertaining to his/her area of work so as to stick to the lay out and the material that are envisioned for the erection of the green house. Requires clarity, skill to basic arithmetic and algebraic principles. The individual should be result oriented and is responsible for his own working and learning. The individual should also be able to demonstrate skills of using various tools and making decision for instant problem solving.

**CO 1: Basics of Agriculture – I** - Identify various media components. Explain the characteristics, chemistry, and functions of container media. Understand the concept of soil-less/artificial media mixes and their role in growing container crops.

**CO 2: Designing and Layout of Green House** - It is intended that students know the planning and designing, types of greenhouse, structures, Orientation and Covering Materials used will be shown.

**CO 3: Installation and Maintenance of Green House Structures** - Understand various components of Greenhouse lighting, cooling and heating, crop production, design and materials, irrigation and fertilizers & pesticides.

### **PSO 2: NSQF Level-5 Seed Plant Production Supervisor**

A Seed Plant Production Supervisor is responsible for planning and managing seed production as per requirements in a plant. A Seed Plant Production Supervisor must have the ability to plan, organize, prioritize, calculate, concentrate and handle pressure. The individual must possess reading, writing and communication skills. In addition, the individual must have mechanical aptitude and trouble shooting skills.

**CO4: Basics of Agriculture – II** - supervising and coordinating seed production activities in a plant, applying knowledge of production methods, processes, machines and equipment and directing activities to workers engaged in production.

**CO5: Process Machineries for Seed Processing** - Explains what seed processing actually means and outlines the basic principles involved, the properties of good seed, the main benefits seed enterprises can derive from cleaning and packaging their seed, the key steps in the seed cleaning process and the various types of machines and equipment normally used.

**CO6: Seed Processing Unit and Team Management-** Able to sort, classify and graph by manipulating different kinds of seeds and creating graphs to visually show what they have.

### **PSO 3: NSQF Level-6 Agriculture Extension Executive**

The extension executive works with R&D team to market and transfer the technology, products, knowledge and information to the farmers, acting as a bridge between the company and farmers increasing their productivity and profitability. The person is responsible for working with Research and Development team in agriculture industries (including seed, fertilizer, pesticides, and micro irrigation industries) to satisfy the farmer needs. The extension executive also coordinates and motivates the farmers to adapt to modern methods for good returns

**CO 7: Basics of Agriculture - III** – To understand the Extension Education, Teaching, Learning & learning,

communication and Community Development.

**CO 8: Agriculture Extension Executive - I** – They understand and market the technology to be transferred to farmers by way of demonstrations and training.

**CO 9: Agriculture Extension Executive - II** - The person is responsible for working with Research and Development team in agriculture industries to satisfy the farmer needs.

**CO 10: Basics of Agriculture – IV** - To understand the Programme planning, Skill teaching, Evaluation, training and Rural development.

**CO 11: Agriculture Extension Executive – III** - They coordinate and motivate the farmers to adapt to modern methods for good returns.

**CO 12: Agriculture Extension Executive – IV** – They maintain the farmer coordination as well as agricultural practices.