



## **CURRICULUM OF MEAT TECHNOLOGY (LEVEL - 3)**

**Meat Cutter/ Meat Packer/ Butcher**



**National Vocational and Technical Training Commission, Islamabad**

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## TABLE OF CONTENTS

| SR.NO                                 | CONTENTS                                                        | PAGES |
|---------------------------------------|-----------------------------------------------------------------|-------|
| 1.                                    | Introduction                                                    | 1     |
| 2.                                    | Purpose of the training program                                 | 1     |
| 3.                                    | Overall objectives of training program                          | 2     |
| 4.                                    | Competencies to be gained after completion of course            | 2     |
| 5.                                    | Job opportunities available immediately and later in the future | 2     |
| 6.                                    | Trainee entry level                                             | 3     |
| 7.                                    | Minimum qualification of trainer                                | 3     |
| 8.                                    | Recommended trainer : trainee ratio                             | 3     |
| 9.                                    | Medium of instruction i.e. language of instruction              | 3     |
| 10.                                   | Curriculum Validation Committee                                 | 4     |
| 11.                                   | Duration of course (total time, theory and practical)           | 5     |
| 12.                                   | Summary of Competency Standards                                 | 5     |
| 13.                                   | Summary - Overview of the curriculum                            | 6-7   |
| <b>SEQUENCE OF CURRICULUM MODULES</b> |                                                                 |       |
| 0721MT01                              | Implement quality and safety standards                          | 8-10  |
| 0721MT02                              | Maintain cutting area                                           | 11-13 |
| 0721MT03                              | Perform physical inspection and grading of carcass              | 14-17 |
| 0721MT04                              | Prepare poultry meat cuts                                       | 18-22 |
| 0721MT05                              | Prepare goat/sheep meat cuts                                    | 23-27 |
| 0721MT06                              | Prepare cattle/buffalo meat cuts                                | 28-31 |
| 0721MT07                              | Prepare fish meat cuts                                          | 32-35 |
| 0721MT08                              | Perform meat packaging as per manufacturing order               | 36-39 |
| <b>Tools and Equipment</b>            |                                                                 | 40    |

## 1. INTRODUCTION

The agriculture sector is playing pivotal role to maintain the economy of the Pakistan where large number of individuals are directly or indirectly related to this sector to earn their livelihood. Amongst the agriculture, livestock and meat industry are the vital sectors that are providing quality food especially protein to the masses. Meat Industry is one of the largest employers in Pakistan, and demand for processed meat has shown tremendous increase due to busy life and increased awareness about meat safety and hygiene. Production of skilled human resources in the area of meat processing and preservation will help to create business opportunities as well as jobs at the local community levels alongside ensuring safe meat production for the consumers.

The present Federal Government has rightly recognized the immense potential of meat processing and preservation in Pakistan and is now taking steps to tap this potential to overcome the shortfalls in this sector. Pakistan's meat processing industry is broadly categorized into different sectors like Halal slaughtering and handling of carcass, poultry processing, seafood processing, meat production and frozen meat processing. The goal of this course is to provide students with a fundamental understanding of meat technology and to ensure that students are technically sound in practical and problem-solving approaches for entrepreneurial startups and/or jobs in the meat industry. Notably, students are stimulated to polish their entrepreneurial skills and explore new horizons of the meat processing industry.

Preservation of meat can be done by chilling, freezing, canning, fermentation, dehydration, smoking, by different chemical agents, and various non-thermal techniques. Production of a range of meat products using these preservation techniques and processes is adopted by the meat industries. In this context, the students will also develop an understanding of shelf life and nutritional consequences of meat preservation techniques.

This course will provide opportunity to the students to learn different methods to process and preserve various types of meat, sampling and handling techniques, GMPs, HACCP, different meat contaminations, meat quality control, quality assurance, meat storage, and meat shipping etc. The main goal of this course on meat technology is to prepare a student as skilled personnel for efficient meat processing to increase the productivity with effective quality control and to preserve the environment while fulfilling consumer expectations.

To improve the quality and relevancy of this training program, National Vocational & Technical Training Commission via Qualification Development Committee (QDC) developed National Competency Standards Level 3 for Meat Technology. The learning outcomes through this curriculum provide enough grounds to enrich the meat industry with demand-driven trained personnel in line with the latest industrial needs. Furthermore, this curriculum can be implemented in different sectorial pathways with flexibility in both public and private sector institutes.

## 2. PURPOSE OF THE TRAINING PROGRAMME

The purpose of this qualification is to give the trainee a thorough understanding of meat processing and preservation in meat industry with effective quality control and safety of the meat products. Meat processing and preservation are diversified methods and continuously subject to changes over time. It is therefore important to stress the need for a multidisciplinary approach to meet the challenges within this sector. Upon successful completion of this course the trainees should be able to:

- Explain the core elements of meat processing and preservation techniques
- Understand the chemistry underlying the properties and reactions of various meat components
- Understand basic principles behind analytical techniques associated with meat
- Be able to use the laboratory techniques common to basic and applied meat chemistry
- Understand the basic principles and practices of cleaning and sanitation in meat processing operations
- Apply the principles of meat science to control and assure the quality and safety of meat products
- Be aware of current topics of importance to the meat industry
- Work effectively with others; provide supervision in a variety of situations and can deal with individual and/or group conflict

### **3. Overall objectives of training course**

The primary objective of this training program is to provide the trainees with up-to-date knowledge and skills required by the meat processing sector in a comprehensive way to cope the challenges of the food industries. After qualifying the course at different levels (Level 2 – 5), the students will be able to get job in the meat handling and processing industries and be able to function as entrepreneurs. The contents of the course are specifically designed in such a way that it covers all the major sectors in meat industry hence, the students are sufficiently exposed to operational requirements of these sectors and are ready to perform their duties confidently.

The overall objectives of developing this qualification are to:

- Improve the overall quality of training delivery and setting national benchmarks for training of Meat Technology (Level 5) in the country
- Provide flexible and progressive learning opportunity for trainees to receive relevant and up-to-date skills in meat industry
- Provide basis for competency-based assessment which is recognized and accepted by employers in modern days
- Establish a standardized and sustainable training in consultation with the meat industry

### **4. Competencies to be gained after completion of course**

After completing this course, the students will be capable of performing different food processing operations decently in the food industries. Furthermore, this skilled training program enables the students to develop multispectral competencies such as creative thinking, problem solving, research skills, personal and group management, presentation and communication skills, technical and professional negotiations related to food processing operations. The below listed competencies imprinted by this training program are quite prominent to the students' profile to enhance their employability in their career in food sector:

- Knowledge and concepts of processing operations in meat industry
- Creative thinking and troubleshooting skills in food manufacturing
- Potential to translate theoretical knowledge into practice
- Identify and explore potential areas of opportunities in meat sector
- Develop strategies to maintain quality and safety of meat products
- Time management, working in teams and conflict handling among co-workers
- Safe and secure use of workplace tools, techniques and materials at worksites
- Digital documentation and effective communication skills
- Working in commercial setups and meeting the timelines

### **5. Job opportunities available immediately and in the future**

The successful pass outs of this course may avail entrepreneurial opportunities and/or fetch job/employment in food sectors as

- Assistant Slaughterer / Helper (Level-II)
- Meat Cutter / Meat Packer / Butcher (Level-III)
- Assistant Meat Processor / Assistant Supervisor (Level-IV)
- Supervisor/ Assistant Line Inspector (Level-V)

#### **6. Trainee Entry Level:**

- Level – 3 qualified in meat technology.

#### **7. Minimum Qualification of Trainer**

- 2-5 years of professional experience in food/meat industry after DAE (Food Technology) / Bachelor degree (B Tech) / Food Technologist

#### **8. Recommended trainer : trainee ratio**

- The recommended trainer and trainee ratio is 1:25 per class

#### **9. Medium of Instruction:**

- Urdu, English or Local Language

## 10. Curriculum Validation Committee

The following members participated in the Curriculum validation meeting from November 21-25, 2022 at Park Lane Hotel, Lahore:

| Sr. | Name                       | Designation                                                                                                                              |
|-----|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Mr. Muhammad Nasir Khan    | Ex DD NAVTTC<br>DACUM Facilitator                                                                                                        |
| 2.  | Ms. Saima Asghar           | DACUM Expert, Lahore                                                                                                                     |
| 3.  | Mr. Muhammad Aasim         | Assistant Director<br>NAVTTC Coordinator                                                                                                 |
| 4.  | Dr. Shinawar Waseem Ali    | Associate Professor/Chairman, Department of Food Sciences, University of the Punjab, Lahore<br>Ex-Quality Assurance Officer K&N Pakistan |
| 5.  | Mr. Ibrahim Anwar          | Lecturer Food Technology, GCT Nowshera<br>Representative KP-TEVTA                                                                        |
| 6.  | Mr. Muhammad Shahzad Javed | Senior Research Officer, PBTE                                                                                                            |
| 7.  | Mr. Muhammad Ahmad         | Technical Auditor<br>Halal Food Punjab, Lahore                                                                                           |
| 8.  | Dr. Iahtisham-Ul-Haq       | Assistant Professor, Kauser Abdulla Malik School of Life Science, Forman Christian College (A Chartered University), Lahore              |
| 9.  | Dr. Muhammad Sohaib        | Assistant Professor, Dept. of Food Science and Human Nutrition, University of Veterinary and Animal Sciences, Lahore                     |
| 10. | Dr. Kashif Nauman          | Assistant Professor, Dept. of Meat Science and Technology, University of Veterinary and Animal Sciences, Lahore                          |
| 11. | Dr. Tabussam Tufail        | Assistant Professor, Department of Food Science and Human Nutrition, University of Lahore                                                |
| 12. | Muhammad Saeed Ahmed       | Farm Manager, Farm Manager Office, University of Veterinary and Animal Sciences Lahore                                                   |
| 13. | Mr. Shakir Manzoor         | Manager Operations, Professional Quality Solutions, Lahore                                                                               |

### 11. Duration of Course (Total time, theory & practical) [20:80]

| Module #     | Title                                              | Theory Total (Hours) | Practical Total (Hours) | Total (Hours) | Credit hours |
|--------------|----------------------------------------------------|----------------------|-------------------------|---------------|--------------|
| 1.           | Implement quality and safety standards             | 14                   | 36                      | 50            | 5            |
| 2.           | Maintain cutting area                              | 14                   | 36                      | 50            | 5            |
| 3.           | Perform physical inspection and grading of carcass | 10                   | 30                      | 40            | 4            |
| 4.           | Prepare poultry meat cuts                          | 15                   | 75                      | 90            | 9            |
| 5.           | Prepare goat/sheep meat cuts                       | 20                   | 90                      | 110           | 11           |
| 6.           | Prepare cattle/buffalo meat cuts                   | 20                   | 90                      | 110           | 11           |
| 7.           | Prepare fish meat cuts                             | 15                   | 75                      | 90            | 9            |
| 8.           | Perform meat packaging as per manufacturing order  | 12                   | 48                      | 60            | 6            |
| <b>Total</b> |                                                    | <b>120</b>           | <b>480</b>              | <b>600</b>    | <b>60</b>    |

### 12. Summary of Competency Standards:

The proposed curriculum is composed of 8 modules that will be covered in 600 hrs. It is proposed that the course may be delivered in six (06) months period. The distribution of contact hours (practical & theory) is given below:

- **Theory:** (20%) **Practical** (80%)
- **Theory:** 120 hours
- **Practical:** 480 hours

### 13. SUMMARY – OVERVIEW OF THE CURRICULUM

| Module Title                                                             | Learning Units                                                                                                                                                   | Theory Days/hours | Workplace Days/hours | Timeframe of modules |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------|----------------------|
| <b>Module 01.<br/>Implement quality and safety standards</b>             | <b>LU1.</b> Perform work according to meat Safety Program<br><b>LU2.</b> Maintain meat quality aspects at workplace<br><b>LU3.</b> Follow GMPs at workplace      | 14                | 36                   | 50                   |
| <b>Module 02.<br/>Maintain cutting area</b>                              | <b>LU1.</b> Clean and sanitize cutting place<br><b>LU2.</b> Arrange standard cutting tools<br><b>LU3.</b> Perform scrubbing and decontamination of cutting tools | 14                | 36                   | 50                   |
| <b>Module 03.<br/>Perform physical inspection and grading of carcass</b> | <b>LU1.</b> Apply physical quality checks of carcass<br><b>LU2.</b> Apply measures to prevent contamination                                                      | 10                | 30                   | 40                   |
| <b>Module 04.<br/>Prepare poultry meat cuts</b>                          | <b>LU1.</b> Perform deboning<br><b>LU2.</b> Perform cutting<br><b>LU3.</b> Handle meat waste material<br><b>LU4.</b> Wash cutting tools                          | 15                | 75                   | 90                   |
| <b>Module 05.<br/>Prepare goat/sheep meat cuts</b>                       | <b>LU1.</b> Perform cutting<br><b>LU2.</b> Perform deboning<br><b>LU3.</b> Handle meat waste material<br><b>LU4.</b> Wash cutting tools                          | 20                | 90                   | 110                  |
| <b>Module 06.<br/>Prepare cattle/buffalo meat cuts</b>                   | <b>LU1.</b> Perform cutting<br><b>LU2.</b> Perform deboning<br><b>LU3.</b> Handle meat waste material<br><b>LU4.</b> Wash cutting tools                          | 20                | 90                   | 110                  |

|                                                                               |                                                                                                                                                                                                                                                                                                                                    |    |    |    |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|
| <b>Module 07.</b><br><b>Prepare fish meat cuts</b>                            | <b>LU1.</b> Perform fish scaling<br><b>LU2.</b> Perform skinning and deboning<br><b>LU3.</b> Perform cutting<br><b>LU4.</b> Handle fish waste material<br><b>LU5.</b> Wash cutting tools                                                                                                                                           | 15 | 75 | 90 |
| <b>Module 08.</b><br><b>Perform meat packaging as per manufacturing order</b> | <b>LU1.</b> Receive packaging materials as per specifications<br><b>LU2.</b> Execute packing operation<br><b>LU3.</b> Verify label contents as per processing order<br><b>LU4.</b> Make packaging for bulk handling for warehouses storage & shipping /transport<br><b>LU5.</b> Maintain chilling, freezing and storage conditions | 12 | 48 | 60 |

## Module 1: Implement Quality and Safety Standards

**Objective:** This Competency Standard identifies the competencies required to apply skills and knowledge to control quality. The trainee will be expected to apply quality control principles during meat processing at the workplace.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>50</b> | <b>Practical</b> | <b>36</b> | <b>Theory</b> | <b>14</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                                             | Learning Outcomes                                                                                                                            | Learning Elements                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Duration                                                                                            | Materials Required                                                                                                                                                                                              | Learning Place                |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>LU1. Perform work according to meat Safety Program</b> | <ul style="list-style-type: none"> <li>• Apply SOPs of meat safety program.</li> <li>• Check compliance of GHPs in meat handling.</li> </ul> | <ul style="list-style-type: none"> <li>• Understanding of meat safety program</li> <li>• Understanding of operational prerequisite program (OPRP)</li> <li>• Knowledge of good hygienic practices (GHP).</li> <li>• Describe safety signs and symbols, and their importance</li> </ul> <p><b>Practical Activity</b></p> <ul style="list-style-type: none"> <li>• Practice good hygienic practices (GHPs) at work place.</li> <li>• Demonstrate how to respond in case of emergency</li> </ul> | <p><b>Total:</b><br/>16 hrs</p> <p><b>Theory:</b><br/>4 hrs</p> <p><b>Practical:</b><br/>12 hrs</p> | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Duster</li> <li>• White Board</li> <li>• Multimedia</li> <li>• White board marker</li> <li>• Computer System</li> <li>• Internet Connection</li> </ul> | Class Room and Workplace /Lab |

|                                                        |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |                                                                                                                                                          |                               |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>LU2. Maintain meat quality aspects at workplace</b> | <ul style="list-style-type: none"> <li>• Check water supply and drain at cutting site.</li> <li>• Check electric supplies carefully.</li> <li>• Check proper functioning of hot water sterilizer</li> <li>• Shift meat hygienically at workplace.</li> <li>• Maintain hygienic preparation of meat carcass.</li> </ul> | <ul style="list-style-type: none"> <li>• Understanding the importance of quality system in meat</li> <li>• Understanding of meat quality characteristics</li> <li>• Understanding of quality assurance in meat industry</li> <li>• Knowledge of sterilization techniques used in meat industry</li> <li>• Describe the function of hot water sterilizer</li> </ul> <p><b>Practical Activity</b></p> <ul style="list-style-type: none"> <li>• Practice to handle the meat hygienically</li> <li>• Demonstrate function of meat sterilizer</li> </ul> | <p><b>Total:</b><br/>17 hrs</p> <p><b>Theory:</b><br/>5 hrs</p> <p><b>Practical:</b><br/>12 hrs</p> | <ul style="list-style-type: none"> <li>• Duster</li> <li>• Sterilizer</li> <li>• White Board</li> <li>• Multimedia</li> <li>• Computer System</li> </ul> | Class Room and Workplace /Lab |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|

|                                                                        |                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                     |                                                                                                                                                                                                                                                                        |                               |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>LU3. Perform Standard meat cutting techniques and cutting tools</b> | <ul style="list-style-type: none"> <li>• Check implementation of GMPs in all sections of the cutting process.</li> <li>• Avoid mishandling in work area.</li> <li>• Identify meat cutting tools</li> </ul> | <ul style="list-style-type: none"> <li>• Define GMPs</li> <li>• Importance of GMPs</li> <li>• Enlist standard cutting tools</li> <li>• knowledge of cutting techniques</li> <li>• Identify meat cutting tools</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Practice to implement GMPs in meat cutting process</li> <li>• Practice to identify meat cutting tools</li> </ul> | <p><b>Total:</b><br/>17 hrs</p> <p><b>Theory:</b><br/>5 hrs</p> <p><b>Practical:</b><br/>12 hrs</p> | <ul style="list-style-type: none"> <li>• Knives</li> <li>• Sharpening steel</li> <li>• Meat axes</li> <li>• Cutting boards</li> <li>• Internet Connection</li> <li>• White board marker</li> <li>• Duster White Board</li> <li>• Multimedia Computer System</li> </ul> | Class Room and Workplace /Lab |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|

## Module 2: Maintain Cutting Area

**Objective:** This Competency Standard covers the competencies required to select suitable area for meat processing to keep personal health and safety at the workplace according to the industry's approved guidelines, procedures, and interpret rules/regulations. The underpinning knowledge regarding personal safety will be sufficient to provide the basis for the job at the workplace.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>50</b> | <b>Practical</b> | <b>36</b> | <b>Theory</b> | <b>14</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                                | Learning Outcomes                                                                                                                                                                                       | Learning Elements                                                                                                                                                                                                                                                                                                                                    | Duration                                                                                  | Materials Required                                                                                                                                                                                                                                                                                                                                                                               | Learning Place           |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>LU1. Clean and sanitize cutting place</b> | <ul style="list-style-type: none"> <li>• Select and wear PPEs at workplace.</li> <li>• Wash cutting area before and after processing.</li> <li>• Apply proper disinfectants, detergents etc.</li> </ul> | <ul style="list-style-type: none"> <li>• Explain the measures to prevent health hazards</li> <li>• Define sanitization</li> <li>• Define cleaning</li> <li>• Explain different cleaning operations</li> <li>• Describe the principles of sanitization</li> <li>• Enlist different types of sanitization techniques used in meat industry.</li> </ul> | <b>Total:</b><br>17 hrs<br><br><b>Theory:</b><br>5 hrs<br><br><b>Practical:</b><br>12 hrs | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Detergents</li> <li>• Sanitizers</li> <li>• Disinfectants</li> <li>• Cleaning trolleys</li> <li>• Mop and bucket</li> <li>• Internet Connection</li> <li>• White board marker</li> <li>• Internet Connection</li> <li>• Web Browser</li> <li>• Search Engines</li> <li>• Duster</li> <li>• White Board</li> <li>• Multimedia</li> </ul> | Class Room and workplace |

|                                            |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                     |                                                                                                                                                                |                              |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                            |                                                                                                               | <ul style="list-style-type: none"> <li>Enlist types of detergents used for washing of processing area</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Perform washing of cutting area</li> <li>Perform disinfection.</li> <li>Perform dry cleaning of cutting place</li> <li>Perform wet cleaning of cutting place</li> </ul> |                                                                                                     | Computer System                                                                                                                                                |                              |
| <b>LU2. Arrange standard cutting tools</b> | <ul style="list-style-type: none"> <li>Clean cutting tools.</li> <li>Place required cutting tools.</li> </ul> | <ul style="list-style-type: none"> <li>Define standard cutting tools</li> <li>Enlist cutting tools</li> <li>Explain sterilization process</li> <li>Describe autoclave equipment</li> </ul> <p><b><u>Practical Activity</u></b></p>                                                                                                                                      | <p><b>Total:</b><br/>13 hrs</p> <p><b>Theory:</b><br/>4 hrs</p> <p><b>Practical:</b><br/>09 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Sharpening steel</li> <li>Meat axes</li> <li>Cutting boards</li> <li>Sanitizer</li> </ul> | Class Room and Workplace/Lab |

|                                                |                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                            |                                                                                                     |                                                                                                                                                                  |                              |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                |                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Practice to arrange standard cutting tools</li> </ul>                                                                                                                                                                                                               |                                                                                                     | <ul style="list-style-type: none"> <li>Autoclave</li> </ul>                                                                                                      |                              |
| <b>LU3. Perform scrubbing of cutting tools</b> | <ul style="list-style-type: none"> <li>Arrange detergents, disinfectants, scrubbers for cleaning tools.</li> <li>Check complete scrubbing of cutting tools.</li> <li>Dry cutting tools after cutting process.</li> </ul> | <ul style="list-style-type: none"> <li>Differentiate between detergents and disinfectants</li> <li>Define scrubbers</li> <li>Importance of scrubbers</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Perform scrubbing of cutting tools and equipment</li> </ul> | <p><b>Total:</b><br/>20 hrs</p> <p><b>Theory:</b><br/>5 hrs</p> <p><b>Practical:</b><br/>15 hrs</p> | <ul style="list-style-type: none"> <li>Detergents</li> <li>Disinfectants</li> <li>Scrubbers</li> <li>Scrappers</li> <li>Sponge</li> <li>Metal brushes</li> </ul> | Class Room and Workplace/Lab |

### Module 3: Perform Physical Inspection of Carcass

**Objective:** This Competency Standard covers the competencies required to check quality of raw meat cuts in accordance with the Current Good Manufacturing Practices (CGMP) as well as industry's approved guidelines and procedures. Quality assurance and control play an essential role in meat inspection process. The trainee will be expected to perform preventive measures for quality product as well as general housekeeping and maintenance of tools/equipment.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>40</b> | <b>Practical</b> | <b>30</b> | <b>Theory</b> | <b>10</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                                        | Learning Outcomes                                                                                                                                                                                                                                           | Learning Elements                                                                                                                                                                                                                                                | Duration                                                                                  | Materials Required                                                                                                                                                                                                    | Learning Place               |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>LU1. Apply physical quality checks of carcass</b> | <ul style="list-style-type: none"> <li>• Check temperature of carcass</li> <li>• Check color of carcass</li> <li>• Check freshness and smell of carcass.</li> <li>• Check sizes of carcass</li> <li>• Grade carcass</li> <li>• Weigh the carcass</li> </ul> | <ul style="list-style-type: none"> <li>• Define carcass</li> <li>• Purpose of quality checks</li> <li>• Quality characteristics of carcass</li> <li>• Define physical inspection</li> <li>• Describe the importance of physical inspection of carcass</li> </ul> | <b>Total:</b><br>20 hrs<br><br><b>Theory:</b><br>5 hrs<br><br><b>Practical:</b><br>15 hrs | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Thermometer</li> <li>• Weighing balance</li> <li>• Internet Connection</li> <li>• White board marker</li> <li>• Duster</li> <li>• Computer System</li> </ul> | Class Room and Workplace/Lab |

|  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                      |  |
|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------|--|
|  |  | <ul style="list-style-type: none"> <li>• Explain factors affecting carcass quality</li> <li>• Define hot and chilled carcass weight</li> <li>• Importance of carcass weight</li> <li>• Knowledge of calibrating scales</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Practice to check temperature and color parameters of carcass</li> <li>• Demonstrate meat grading according to quality</li> <li>• Practice to perform</li> </ul> |  | <ul style="list-style-type: none"> <li>• Internet Connection</li> <li>• White board</li> <li>• Multimedia</li> </ul> |  |
|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------|--|

|                                                     |                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                          |                                                                                   |                                                                                                                                                                                                                                      |                              |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                     |                                                                                                                                                                                                                                                                                                              | calibration of weighing scale                                                                                                                                                                                                                                                                                                                            |                                                                                   |                                                                                                                                                                                                                                      |                              |
| <b>LU2. Apply measures to prevent contamination</b> | <ul style="list-style-type: none"> <li>• Take precautionary measures to prevent contamination.</li> <li>• Control temperature and humidity to prevent microbial growth.</li> <li>• Follow color coding schemes for cutting boards.</li> <li>• Follow color coding schemes for cleaning equipment.</li> </ul> | <ul style="list-style-type: none"> <li>• Define contamination</li> <li>• Explain precautionary measures to prevent contamination</li> <li>• Types of contamination</li> <li>• Define microorganisms</li> <li>• Define color coding schemes</li> <li>• Explain color coding schemes for cutting boards</li> <li>• Explain color coding schemes</li> </ul> | <b>Total:</b><br>20 hrs<br><b>Theory:</b><br>5 hrs<br><b>Practical:</b><br>15 hrs | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Hygrometer</li> <li>• Thermometer</li> <li>• Color coding charts</li> <li>• Color coded cutting boards</li> <li>• Color coded uniforms</li> </ul> <p>Color coded knives</p> | Class Room and Workplace/Lab |

|  |  |                                                                                                                                                                                                                    |  |  |  |
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|  |  | <p>for cleaning equipment and uniforms</p> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Perform color coding activity (uniforms, cutting boards and cleaning tools)</li> </ul> |  |  |  |
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## Module 4: Prepare Poultry Meat Cuts

**Objective:** This Competency Standard covers the competencies required to select suitable procedure to prepare different meat cuts according to the industry's approved guidelines, procedures, and regulations. The trainee will be expected to identify and use appropriate way to cut meats.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>90</b> | <b>Practical</b> | <b>75</b> | <b>Theory</b> | <b>15</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                | Learning Outcomes                                                                                                                                                                                                                                   | Learning Elements                                                                                                                                                                                                                                                                                                   | Duration                                                                                   | Materials Required                                                                                                                               | Learning Place               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>LU1. Perform deboning</b> | <ul style="list-style-type: none"> <li>Place meat carcass at cutting station.</li> <li>Segregate meat carcass according to weight.</li> <li>Select cutting tool</li> <li>Place carcass on conveyor/cutting board and cones for deboning.</li> </ul> | <ul style="list-style-type: none"> <li>Define deboning</li> <li>Purpose of deboning</li> <li>Define tenders</li> <li>Enlist required cutting tools</li> <li>Handling of sharp cutting tools</li> <li>Explain deboning procedure for poultry meat</li> <li>Knowledge of rejected parts of poultry carcass</li> </ul> | <b>Total:</b><br>26 hrs<br><br><b>Theory:</b><br>05 hrs<br><br><b>Practical:</b><br>21 hrs | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>cutters</li> <li>Cutting board</li> <li>Bone saw</li> <li>Basket</li> </ul> | Class Room and Workplace/Lab |

|                             |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                          |                                                                                            |                                                                                                                              |                              |
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|                             |                                                                                                                                                                                                                                       | <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>Practice deboning of poultry carcass</li> <li>Practice to pull tenders from both sides of the deboned breast</li> <li>Practice to separate rejected parts of poultry carcass</li> </ul>          |                                                                                            |                                                                                                                              |                              |
| <b>LU2. Perform cutting</b> | <ul style="list-style-type: none"> <li>Place knife at angle as per required for meat cut.</li> <li>Cut carcass into different parts (wing, breast, thigh etc).</li> <li>Prevent exposure of meat cuts from pests, dust etc</li> </ul> | <ul style="list-style-type: none"> <li>Understand different poultry meat cuts</li> <li>Describe different cutting techniques in poultry meat</li> <li>Define cross contamination</li> <li>Explain methods to prevent cross contamination of poultry meat cuts</li> </ul> | <b>Total:</b><br>25 hrs<br><br><b>Theory:</b><br>04 hrs<br><br><b>Practical:</b><br>21 hrs | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cleaver</li> <li>Cutting board/cutting table</li> </ul> | Class Room and Workplace/Lab |

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|                                        |                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Describe different poultry meat cuts</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Perform different meat cuts of poultry carcass</li> </ul>                                                                                                                                                               |                                                                                                      |                                                                                                                                                                                                        |                              |
| <b>LU3. Handle meat waste material</b> | <ul style="list-style-type: none"> <li>Collect meat waste in disposable waste bags.</li> <li>Wash cutting area</li> <li>Prevent cross contamination.</li> </ul> | <ul style="list-style-type: none"> <li>Types of wastes</li> <li>Knowledge of handling of waste material</li> <li>Knowledge of utensils to handle waste material</li> <li>Define cross contamination</li> <li>Methods to avoid cross contamination</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice to collect waste and dispose-</li> </ul> | <p><b>Total:</b><br/>21 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>18 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disposable waste bags</li> <li>Detergents</li> <li>Disinfectants</li> <li>Trolleys</li> <li>Color coded drums</li> <li>Cleaning agents</li> </ul> | Class Room and Workplace/Lab |

|                                |                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                      |                                                                                                                                                  |                              |
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|                                |                                                                                                                                                                                              | off at designated place <ul style="list-style-type: none"> <li>• Perform washing of cutting area</li> </ul>                                                                                                                                                                                                                                                                                                                       |                                                                                                      |                                                                                                                                                  |                              |
| <b>LU4. Wash cutting tools</b> | <ul style="list-style-type: none"> <li>• Use hot water to wash cutting tools.</li> <li>• Disinfect and dry cutting tools.</li> <li>• Store the cutting tools at designated place.</li> </ul> | <ul style="list-style-type: none"> <li>• Define cleaning, disinfection and sterilization</li> <li>• Enlist different disinfectants</li> <li>• Knowledge of sterilization and optimum temperature</li> <li>• Understanding of storage methods for cutting tools</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Demonstrate disinfection and sterilization of cutting tools</li> </ul> | <p><b>Total:</b><br/>18 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>15 hrs</p> | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Disinfectants</li> <li>• Food grade cleaning agents</li> <li>• Cutting tools</li> </ul> | Class Room and Workplace/Lab |

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|  |  | <ul style="list-style-type: none"> <li>Practice for drying cutting tools and store at designated place.</li> </ul> |  |  |  |
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## Module 5: Prepare Goat/Sheep Meat Cuts

**Objective:** This Competency Standard covers the competencies required to select suitable procedure to prepare different mutton meat cuts according to the industry's approved guidelines, procedures, regulations. The trainee will be expected to identify and use appropriate way to cut meats in sizes.

|                  |                    |            |                  |           |               |           |
|------------------|--------------------|------------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>110</b> | <b>Practical</b> | <b>90</b> | <b>Theory</b> | <b>20</b> |
|------------------|--------------------|------------|------------------|-----------|---------------|-----------|

| Learning Unit               | Learning Outcomes                                                                                                                                                                                                                                                                                    | Learning Elements                                                                                                                                                                                                                        | Duration                                                                                   | Materials (Tools & Equipment) Required                                                                                          | Learning Place               |
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| <b>LU1. Perform cutting</b> | <ul style="list-style-type: none"> <li>Place meat carcass at cutting station.</li> <li>Segregate meat carcass according to weight.</li> <li>Select cutting tool</li> <li>Place knife at angle as per required for meat cut.</li> <li>Cut carcass different parts</li> <li>Cover meat cuts</li> </ul> | <ul style="list-style-type: none"> <li>Enlist cutting tools</li> <li>Handling of sharp cutting tools</li> <li>Meat carcass segregation for cutting as per requirement</li> <li>Knowledge of different meat cuts of goat/sheep</li> </ul> | <b>Total:</b><br>32 hrs<br><br><b>Theory:</b><br>05 hrs<br><br><b>Practical:</b><br>27 hrs | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Basket</li> <li>Cutting board</li> <li>Bone saw</li> </ul> | Class Room and Workplace/Lab |

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|                              |                                                                                                                                                               | <ul style="list-style-type: none"> <li>Describe procedure of goat/sheep cutting</li> <li>Describe cross contamination</li> <li>Explain methods to prevent cross contamination of meat cuts</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice cutting of different meat cuts of goat/sheep</li> </ul> |                                                                                                      |                                                                                                                                            |                              |
| <b>LU2. Perform deboning</b> | <ul style="list-style-type: none"> <li>Place carcass on conveyor/cutting board for deboning.</li> <li>Remove bone from various portions of mutton.</li> </ul> | <ul style="list-style-type: none"> <li>Define deboning</li> <li>Purpose of deboning</li> <li>Define tendons</li> <li>Knowledge of rejected meat</li> </ul>                                                                                                                                                                                            | <p><b>Total:</b><br/>32 hrs</p> <p><b>Theory:</b><br/>05 hrs</p> <p><b>Practical:</b><br/>27 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cutters</li> <li>Cleaver</li> <li>baskets</li> <li>Trolley</li> </ul> | Class Room and Workplace/Lab |

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|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                        | <ul style="list-style-type: none"> <li>Inspect deboned carcass.</li> <li>Separate rejected meat.</li> </ul>                                                     | <ul style="list-style-type: none"> <li>Understanding of deboned carcass inspection</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice deboning of goat/sheep carcass</li> <li>Practice to separate rejected parts of goat/sheep meat</li> </ul> |                                                                                                      | <ul style="list-style-type: none"> <li>Cutting board/cutting tablet</li> </ul>                                                                     |                              |
| <b>LU3. Handle meat waste material</b> | <ul style="list-style-type: none"> <li>Collect meat waste in disposable waste bags.</li> <li>Wash cutting area</li> <li>Prevent cross contamination.</li> </ul> | <ul style="list-style-type: none"> <li>Handling of waste material</li> <li>Knowledge of meat by products/waste</li> </ul>                                                                                                                                                                       | <p><b>Total:</b><br/>23 hrs</p> <p><b>Theory:</b><br/>05 hrs</p> <p><b>Practical:</b><br/>18 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disposable waste bags</li> <li>Detergents</li> <li>Disinfectants</li> <li>Trolleys</li> </ul> | Class Room and Workplace/Lab |

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|                                |                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Importance of washing in cutting area</li> <li>• Describe cross contamination</li> <li>• Explain methods to prevent cross contamination</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Practice to collect waste and dispose-off at designated place</li> </ul> |                                                                                                      | <ul style="list-style-type: none"> <li>• Cleaning agents</li> </ul>                                                                |                              |
| <b>LU4. Wash cutting tools</b> | <ul style="list-style-type: none"> <li>• Use hot water to wash cutting tools.</li> <li>• Disinfect and dry cutting tools.</li> <li>• Store the cutting tools at designated place.</li> </ul> | <ul style="list-style-type: none"> <li>• Define cleaning, disinfection and sterilization</li> <li>• Enlist different disinfectants</li> <li>• Knowledge of sterilization and</li> </ul>                                                                                                                                                               | <p><b>Total:</b><br/>20 hrs</p> <p><b>Theory:</b><br/>02 hrs</p> <p><b>Practical:</b><br/>18 hrs</p> | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Disinfectants</li> <li>• Detergents</li> <li>• Cleaning agents</li> </ul> | Class Room and Workplace/Lab |

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|  |  | <p>optimum temperature</p> <ul style="list-style-type: none"> <li>• Understanding of storage methods for cutting tools</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Demonstrate disinfection and sterilization of cutting tools</li> <li>• Practice for drying cutting tools and store at designated place.</li> </ul> |  |  |  |
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## Module 6: Prepare Cattle/Buffalo meat cuts

**Objective:** This Competency Standard covers the competencies required to select suitable procedure to prepare different beef meat cuts according to the industry's approved guidelines, procedures, and interpret rules/regulations. The trainee will be expected to identify and use appropriate way to cut meats in sizes.

|                  |                    |            |                  |           |               |           |
|------------------|--------------------|------------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>100</b> | <b>Practical</b> | <b>80</b> | <b>Theory</b> | <b>20</b> |
|------------------|--------------------|------------|------------------|-----------|---------------|-----------|

| Learning Unit               | Learning Outcomes                                                                                                                                                                                                                                                                                    | Learning Elements                                                                                                                                                                                                                                                                                                                                                               | Duration                                                                           | Materials Required                                                                                                                                                | Learning Place           |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>LU1. Perform cutting</b> | <ul style="list-style-type: none"> <li>Place meat carcass at cutting station.</li> <li>Segregate meat carcass according to weight.</li> <li>Select cutting tool</li> <li>Place knife at angle as per required for meat cut.</li> <li>Cut carcass different parts</li> <li>Cover meat cuts</li> </ul> | <ul style="list-style-type: none"> <li>Enlist cutting tools</li> <li>Understanding of handling of sharp cutting tools as per standard</li> <li>Knowledge of different meat cuts</li> <li>Knowledge of traditional and standard meat cuts</li> <li>Understanding of meat carcass segregation as per requirement</li> <li>Describe procedure of cattle/buffalo cutting</li> </ul> | <b>Total:</b><br>32 hrs<br><b>Theory:</b><br>05 hrs<br><b>Practical:</b><br>24 hrs | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cutting board</li> <li>Bone saw</li> <li>Basket/trays</li> <li>Covering materials</li> </ul> | Class Room and workplace |

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|                              |                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Describe cross contamination</li> <li>Explain the methods to avoid cross contamination</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice to cut standard meat cuts</li> <li>Practice to cut traditional meat cuts</li> </ul>          |                                                                                                      |                                                                                                                                                                |                          |
| <b>LU2. Perform deboning</b> | <ul style="list-style-type: none"> <li>Place carcass on conveyor/cutting board for deboning.</li> <li>Remove bone from various portions of beef.</li> <li>Inspect deboned carcass.</li> <li>Separate rejected meat.</li> </ul> | <ul style="list-style-type: none"> <li>Define deboning</li> <li>Purpose of deboning</li> <li>Knowledge of rejected meat</li> <li>Understanding of deboned carcass inspection</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice deboning of cattle/buffalo carcass</li> </ul> | <p><b>Total:</b><br/>32 hrs</p> <p><b>Theory:</b><br/>05 hrs</p> <p><b>Practical:</b><br/>24 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cutters</li> <li>Cutting board/cutting table</li> <li>Cleaver</li> <li>baskets</li> </ul> | Class Room and workplace |

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|                                        |                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Practice to trim/separate rejected parts of cattle/buffalo meat</li> </ul>                                                                                                                                                                                                                                                                                                              |                                                                                                      |                                                                                                                                                                             |                          |
| <b>LU3. Handle meat waste material</b> | <ul style="list-style-type: none"> <li>Collect meat waste in disposable waste bags.</li> <li>Wash cutting area</li> <li>Prevent cross contamination.</li> </ul> | <ul style="list-style-type: none"> <li>Handling of waste material</li> <li>Knowledge of meat by products/waste</li> <li>Importance of washing in cutting area</li> <li>Describe cross contamination</li> <li>Explain methods to prevent cross contamination</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice to collect waste and dispose-off at designated place</li> </ul> | <p><b>Total:</b><br/>23 hrs</p> <p><b>Theory:</b><br/>05 hrs</p> <p><b>Practical:</b><br/>15 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disposable waste bags</li> <li>Detergents</li> <li>Trolleys</li> <li>Disinfectants</li> <li>Cleaning agents</li> </ul> | Class Room and workplace |
| <b>LU4. Wash cutting tools</b>         | <ul style="list-style-type: none"> <li>Use hot water to wash cutting tools.</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>Define cleaning, disinfection and sterilization</li> </ul>                                                                                                                                                                                                                                                                                                                              | <p><b>Total:</b><br/>23 hrs</p> <p><b>Theory:</b></p>                                                | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disinfectants</li> <li>Detergents</li> </ul>                                                                           | Class Room and workplace |

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|  | <ul style="list-style-type: none"> <li>• Disinfect and dry cutting tools.</li> <li>• Store the cutting tools at designated place.</li> </ul> | <ul style="list-style-type: none"> <li>• Enlist different disinfectants</li> <li>• Knowledge of sterilization and optimum temperature</li> <li>• Understanding of storage methods for cutting tools</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>• Demonstrate disinfection and sterilization of cutting tools</li> <li>• Practice for drying cutting tools and store at designated place.</li> </ul> | <p>05 hrs</p> <p><b>Practical:</b></p> <p>17 hrs</p> | <ul style="list-style-type: none"> <li>• Computer System</li> <li>• Cleaning agents</li> <li>• Multimedia</li> </ul> |  |
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## Module 7: Prepare Fish Meat Cuts

**Objective:** This Competency Standard covers the competencies required to select suitable procedure to prepare different fish meat cuts according to the industry's approved guidelines, procedures, regulations. The trainee will be expected to identify and use appropriate way to cut meats in sizes.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>90</b> | <b>Practical</b> | <b>75</b> | <b>Theory</b> | <b>15</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                                | Learning Outcomes                                                                                                                                                                    | Learning Elements                                                                                                                                                                                                                                                                                                                                      | Duration                                                                                             | Materials Required                                                                                                           | Learning Place               |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>LU1. Perform fish scaling</b>             | <ul style="list-style-type: none"> <li>Select scaling tools</li> <li>Select scaling board</li> <li>De-scale the fish by scrapping</li> </ul>                                         | <ul style="list-style-type: none"> <li>Knowledge of non-corrosive material</li> <li>Define fish scaling</li> <li>Describe scaling techniques</li> <li>Enlist scaling tools for fish</li> </ul> <p><b>Practical Activity:</b></p> <ul style="list-style-type: none"> <li>Perform fish scaling</li> <li>Practice different scaling techniques</li> </ul> | <p><b>Total:</b><br/>21 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>18 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Scraper</li> <li>Cutting board/cutting table</li> </ul> | Class Room and Workplace/Lab |
| <b>LU2. Perform de-skinning and deboning</b> | <ul style="list-style-type: none"> <li>Place fish on conveyor/cutting board for deboning</li> <li>Remove skin as per requirement</li> <li>Debone various sections of fish</li> </ul> | <ul style="list-style-type: none"> <li>Deboning of fish</li> <li>De-skinning of fish</li> <li>Purpose of deboning</li> <li>Understanding of deboned fish inspection</li> </ul>                                                                                                                                                                         | <p><b>Total:</b><br/>21 hrs</p> <p><b>Theory:</b><br/>03 hrs</p>                                     | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cutting board</li> <li>Bone saw</li> </ul>              | Class Room and Workplace/Lab |

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|                                        | <ul style="list-style-type: none"> <li>Inspect deboned fish.</li> </ul>                                                                                         | <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>Practice deboning of fish</li> <li>Practice de-skinning of fish</li> </ul>                                                                                                                                                                                                                                  | <b>Practical:</b><br>18 hrs                                                                | <ul style="list-style-type: none"> <li>Basket</li> </ul>                                                                                                       |                              |
| <b>LU3. Perform cutting</b>            | <ul style="list-style-type: none"> <li>Take weighed fish on cutting board.</li> <li>Cut into fillet and steaks.</li> </ul>                                      | <ul style="list-style-type: none"> <li>Knowledge of different fish cuts</li> <li>Types of fish fillet</li> <li>Methods of fish cutting</li> <li>Define gutting</li> <li>Describe the purpose of gutting</li> </ul> <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>Practice to cut fish into fillet and steaks</li> <li>Demonstrate fish gutting</li> </ul> | <b>Total:</b><br>21 hrs<br><br><b>Theory:</b><br>03 hrs<br><br><b>Practical:</b><br>18 hrs | <ul style="list-style-type: none"> <li>PPEs</li> <li>Knives</li> <li>Cutters</li> <li>Cleaver</li> <li>baskets</li> <li>Cutting board/cutting table</li> </ul> | Class Room and Workplace/Lab |
| <b>LU4. Handle fish waste material</b> | <ul style="list-style-type: none"> <li>Collect fish waste in disposable waste bags.</li> <li>Wash cutting area</li> <li>Prevent cross contamination.</li> </ul> | <ul style="list-style-type: none"> <li>Handling of waste material</li> <li>Knowledge of fish by products/waste</li> <li>Importance of washing in cutting area</li> </ul>                                                                                                                                                                                                            | <b>Total:</b><br>15 hrs<br><br><b>Theory:</b><br>03 hrs<br><br><b>Practical:</b>           | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disposable waste bags</li> <li>Detergents</li> </ul>                                                      | Class Room and Workplace/Lab |

|                                |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                         |                                                                                                      |                                                                                                                          |                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                |                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Describe cross contamination</li> <li>Explain methods to prevent cross contamination</li> </ul> <p><b>Practical Activity</b></p> <ul style="list-style-type: none"> <li>Practice to collect waste and dispose-off at designated place</li> </ul> | 12 hrs                                                                                               | <ul style="list-style-type: none"> <li>Cleaning agents</li> <li>Disinfectants</li> </ul>                                 |                              |
| <b>LU5. Wash cutting tools</b> | <ul style="list-style-type: none"> <li>Use hot water to wash cutting tools.</li> <li>Disinfect and dry cutting tools.</li> <li>Store the cutting tools at designated place.</li> </ul> | <ul style="list-style-type: none"> <li>Define cleaning, disinfection and sterilization</li> <li>Enlist different disinfectants</li> <li>Knowledge of sterilization and optimum temperature</li> <li>Understanding of storage methods for cutting tools</li> </ul>                       | <p><b>Total:</b><br/>12 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>09 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Disinfectants</li> <li>Detergents</li> </ul> <p>Cleaning agents</p> | Class Room and Workplace/Lab |

|  |  |                                                                                                                                                                                                                              |  |  |  |
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|  |  | <b><u>Practical Activity</u></b> <ul style="list-style-type: none"> <li>• Demonstrate disinfection and sterilization of cutting tools</li> <li>• Practice for drying cutting tools and store at designated place.</li> </ul> |  |  |  |
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## Module 8: Perform Meat Packaging as per order

**Objective:** This Competency Standard covers the competencies required to apply skills and knowledge to perform packaging of meat cuts as per industry's approved guidelines and procedures. Trainees will be expected to perform packaging of meat and meat cuts as per standard procedure in overwrap trays, boxes, tin pack, and containers for handling, warehouse storage & transport. The trainee must ensure general housekeeping and maintenance of equipment.

|                  |                    |           |                  |           |               |           |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|
| <b>Duration:</b> | <b>Total hours</b> | <b>60</b> | <b>Practical</b> | <b>48</b> | <b>Theory</b> | <b>12</b> |
|------------------|--------------------|-----------|------------------|-----------|---------------|-----------|

| Learning Unit                                                 | Learning Outcomes                                                                                                                                                                     | Learning Elements                                                                                                                                                                                                                                                                                                                                                                                                              | Duration                                                                                             | Materials Required                                                                 | Learning Place                |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|
| <b>LU1. Receive packaging materials as per specifications</b> | <ul style="list-style-type: none"> <li>Receive approved halal packaging material.</li> <li>Check lot number as per specifications.</li> <li>Report to concerned department</li> </ul> | <ul style="list-style-type: none"> <li>Meat packaging</li> <li>Enlist types of packaging materials (polystyrene trays, cling film, leaflets, cups, Ziplock bags, master cartons, labels etc.)</li> <li>Knowledge of halal packaging material</li> <li>Understanding of lot number</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Practice to receive packaging material</li> </ul> | <p><b>Total:</b><br/>08 hrs</p> <p><b>Theory:</b><br/>02 hrs</p> <p><b>Practical:</b><br/>06 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Packaging material</li> </ul> | Class Room and Workplace/ Lab |

|                                                           |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                      |                                                                                                                |                               |
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|                                                           |                                                                                                                                                                                                                     | and check lot number as per specifications                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                      |                                                                                                                |                               |
| <b>LU2. Execute packing operation</b>                     | <ul style="list-style-type: none"> <li>• Select packaging technique.</li> <li>• Perform cleaning and disinfection of packing machine</li> <li>• Perform Longitudinal Seal (LS) and Transversal Seal (TS)</li> </ul> | <ul style="list-style-type: none"> <li>• Types of packaging</li> <li>• Types of packaging machine</li> <li>• Define leak test protocols</li> <li>• Types of seals and their inspection methods</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Perform cleaning of packing machine</li> <li>• Practice packing of carcass</li> <li>• Practice packing of meat cuts</li> </ul> | <p><b>Total:</b><br/>18 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>15 hrs</p> | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Sealing machine</li> <li>• Packing machine</li> </ul> | Class Room and Workplace/ Lab |
| <b>LU3. Verify label contents as per processing order</b> | <ul style="list-style-type: none"> <li>• Check labelling information</li> <li>• Verify printing quality and content as per standard.</li> </ul>                                                                     | <ul style="list-style-type: none"> <li>• Define labelling</li> <li>• Knowledge of labelling information (batch. no. manufacturing date,</li> </ul>                                                                                                                                                                                                                                                                         | <p><b>Total:</b><br/>08 hrs</p> <p><b>Theory:</b><br/>02 hrs</p> <p><b>Practical:</b></p>            | <ul style="list-style-type: none"> <li>• PPEs</li> <li>• Labelling machine</li> </ul>                          | Class Room and Workplace/ Lab |

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|                                                                                               | <ul style="list-style-type: none"> <li>Report Supervisor for non-compliance.</li> </ul>                                           | <p>expiry date, pack size, manufacturer name, Stamp ink and address on packed meat)</p> <ul style="list-style-type: none"> <li>Understanding of printing quality</li> </ul> <p><b><u>Practical Activity</u></b></p> <ul style="list-style-type: none"> <li>Practice to check labelling information.</li> </ul>                                                    | 06 hrs                                                                                               |                                                                                                                                                                                                                         |                               |
| <b>LU4. Make packaging for bulk handling for warehouses storage &amp; shipping /transport</b> | <ul style="list-style-type: none"> <li>Perform pelleting of packaged meat.</li> <li>Ensure shrink wrapping of pellets.</li> </ul> | <ul style="list-style-type: none"> <li>Define palletization</li> <li>Levels of packaging</li> <li>Knowledge of shrink wrapping</li> <li>Knowledge of pellet labeling</li> <li>Explain the purpose of pelleting</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Demonstrate secondary and tertiary packaging</li> </ul> | <p><b>Total:</b><br/>14 hrs</p> <p><b>Theory:</b><br/>02 hrs</p> <p><b>Practical:</b><br/>12 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Shrink wraps</li> <li>Shrink machine</li> <li>Tape sealers</li> <li>Manual shrink</li> <li>Tertiary packaging machine</li> <li>Scissor</li> <li>Cartons</li> </ul> | Class Room and Workplace/ Lab |

|                                                                |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                      |                                                                                                                                                   |                               |
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|                                                                |                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Practice pelleting of packaged meat.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                      | <ul style="list-style-type: none"> <li>Tape</li> </ul>                                                                                            |                               |
| <b>LU5. Maintain chilling, freezing and storage conditions</b> | <ul style="list-style-type: none"> <li>Keep packed meat cuts at required temperature.</li> <li>Check cleaning and disinfection of chiller, freezer/ cold store</li> <li>Monitor temperature and humidity of cold store.</li> </ul> | <ul style="list-style-type: none"> <li>Describe storage parameters for packaged meat products.</li> <li>Knowledge of chilling, freezing and storage conditions</li> <li>Differentiate between chilling and freezing conditions.</li> <li>Knowledge of cold store disinfection</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Practice to take temperature of chilled and frozen products</li> <li>Practice to store meat in chilling and freezing conditions</li> <li>Practice to check cleaning and disinfection of the chiller</li> </ul> | <p><b>Total:</b><br/>12 hrs</p> <p><b>Theory:</b><br/>03 hrs</p> <p><b>Practical:</b><br/>09 hrs</p> | <ul style="list-style-type: none"> <li>PPEs</li> <li>Chiller</li> <li>Freezer</li> <li>Thermometer</li> <li>Hygrometer</li> <li>Knives</li> </ul> | Class Room and Workplace/ Lab |

| SR.NO | LIST OF TOOL AND EQUIPMENT                                                                                                                                                                    |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | Tools                                                                                                                                                                                         |
| 1.    | Chiller, Freezer, Refrigerator                                                                                                                                                                |
| 2.    | RO (reverse osmoses), Filters.                                                                                                                                                                |
| 3.    | <b>Meat packaging system</b> with filling and sealing, can seamer, shrink wrapper, stripper, case packer, labeller, cap applicators, case sealer, lifters, card board packer, Pressure canner |
| 4.    | Jack lift, fork lifter, hand jack's lifter, material moving lifters, hydraulic lifters, palletizers                                                                                           |
| 5.    | Trolley, liquid jacked tanks                                                                                                                                                                  |
| 6.    | Wheeler                                                                                                                                                                                       |
| 7.    | Poly/temperature sealer, shrink machines, cylinders                                                                                                                                           |
| 8.    | Cap sealer                                                                                                                                                                                    |
| 9.    | Cap seal                                                                                                                                                                                      |
| 10.   | Meat grinder                                                                                                                                                                                  |
| 11.   | Stuffer/linker                                                                                                                                                                                |
| 12.   | Silent bone saw cutter                                                                                                                                                                        |
| 13.   | Electronic scales (0.1 gm. Capacity-50 kg $\pm$ 10 g)                                                                                                                                         |
| 14.   | Vacuum pack machine                                                                                                                                                                           |
| 15.   | Test equipment – pH meter, centrifuge, moisture meter, color chart/colorimeter, texture meter                                                                                                 |
| 16.   | First aid kit                                                                                                                                                                                 |
| 17.   | <b>PPE</b> – apron, face mask, gloves (Steel mesh gloves & Steam gloves), gum shoes (steel toe shoes) chemical suit, face shelled, safety helmet, air protectives, goggles                    |
| 18.   | Weighing scales and balances of various capacities and sensitivities                                                                                                                          |
| 19.   | Pairing knives with sharpening material                                                                                                                                                       |
| 20.   | Hard plastic chopping boards                                                                                                                                                                  |
| 21.   | Thermometers of varying temperature range                                                                                                                                                     |
| 22.   | Soaking container                                                                                                                                                                             |
| 23.   | Fermented containers                                                                                                                                                                          |
| 24.   | Utility trays                                                                                                                                                                                 |
| 25.   | Horizontal packing machine                                                                                                                                                                    |
| 26.   | Rope                                                                                                                                                                                          |