1. ***FST 4102 MEAT, POULTRY AND FISH TECHNOLOGY***
2. ***COURSE INSTRUCTOR***

*Dr. John Muyonga [BSc. Food Sc & Tech; M.S. Food Sc.; PhD. Food Sc.]*

1. ***COURSE TYPE***

*Core course for Year 4 BSc. Food Science & Technology & Elective for B.Sc. Agriculture*

1. ***COURSE STRUCTURE***

*Course is 4 credit units (4 CU): 3 lecture hours and 2 practical hours per week for 15 study weeks; [i.e. 45 lecture hours & 30 practical hours equivalent to 60 contact hours].*

1. ***COURSE DESCRIPTION***

Structure and composition of various animal muscles: beef, pork, poultry and fish. Slaughtering and butchering techniques. Post-mortem meat handling. Storage and processing of meat products: dried, smoked, salted products and sausages. Poultry processing and cooling techniques. Poultry products. Egg processing and preservation, fish structure and composition in relation to preservation and processing. Icing, freezing and cold storage. Drying and smoking salt fish products. Fish protein concentrates. Disposal of waste products of meat, fish and poultry processing.

1. ***COURSE OBJECTIVES***
2. *Describe the structure of and composition of meat*
3. *Outline the post-harvest changes that occur in animal flesh after slaughter*
4. *Describe major meat quality attributes, their measurement and processes used to ensure quality*
5. *Describe the processes that should be followed to obtain quality meat from animals*
6. *Develop skills in processing and preservation of meat, fish and poultry products*
7. ***RECOMMENEDED REFERENCES***
8. *Feiner, G. 2006. Meat products handbook. Practical science and technology. Woodhead Publishing in Food Science, technology and Nutrition. Cambridge, England.*
9. *Pearson, A.M. and Tauber, F.W. 1984. Processed meats. 2nd Edition. AVI Publishing Company*, Inc. Westport, Connecticut, US.
10. ***COURSE CONTENT, METHODS OF INSTRUCTION, TOOLS AND***

***EQUIPMENT***

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| ***TOPIC*** | ***CONTENT*** | ***METHOD OF INSTRUCTION/ Time allocation******(i.e. contact hours)*** | ***TOOLS/ Equipment needed*** |
| 1. *Introduction*
 | * *Scope*
* *Importance of meat, poultry and fish in nutrition*
* *Per capita consumption data and trends*
* *Special challenges of handling meat, poultry and fish*
 | *-Interactive lectures* *(2 hr)*  | *LCD projector/ White boards*  |
| 1. *Meat structure and composition*
 | * *Structure of mammalian muscle*
* *Structure of fish*
* *Composition of meat, poultry and fish*
 | *-Interactive lectures* *(4 hrs)* *-Assignments* | *LCD projector/ White boards*  |
| 1. *Animal slaughtering and butchering*
 | * 1. *Beef*
	2. *Poultry*
	3. *Preparation of fish after capture*
 | *-Interactive lectures* *(4 hr)* *- Field practicals (6 hrs)* | *LCD projector/ White boards / Transport to slaughter house, poultry and fish processing plant* |
| 1. *Post mortem muscle biochemistry*
 | * *Changes in glycogen*
* *Changes in adenosine nucleotides*
* *Changes in myofibrillar proteins*
 | *- Interactive lecture* *(2 hrs)**-Reading assignment* | *LCD projector/ White boards*  |
| 1. *Meat, poultry and fish quality*
 | * *Composition*
* *Texture*
* *Color*
* *The chemistry of myoglobin and meat colour*
* *Flavor*
* *Micro-organisms and parasites*
* *Procedures to ensure quality of meat, poultry and fish*
* *Quality evaluation*
 | *-Interactive lectures* *(6 hr)* *-Assignments* *- Lab practical (6 hrs)* | *LCD projector/ White boards / Flip charts/ Materials and reagents* |
|  | *Mid semester evaluation* | *- Mid semester test*  |  |
| 1. *Meat processing and preservation*
 | * *Cold storage*
* *Refrigeration*
* *Freezing*
* *Modified and controlled atmosphere packaging*
* *Irradiation*
* *Meat curing*
* *Salting*
* *Smoking*
* *Fermentation*
* *Drying*
* *Pickling*
* *Thermal processing*
* *Sausage manufacture and product classification*
* *Sectioned meat products*
* *Design of meat processing facilities*
 | *- Interactive lectures* *(9 hrs)**- Lab practical (9 hrs)**-Assignment*  | *LCD projector/ White boards / Flip charts/ Materials and reagents* |
| 1. *Egg processing and preservation*

 | * *Egg quality*
* *Egg quality determination*
* *Egg processing and preservation*
 | *-Interactive lecture* *(1 hr)* *-Assignment* *Lab practical 3* | *LCD projector/ White boards* |
| 1. *Waste management in meat, poultry and fish processing*
 | * *Identification of by products*
* *Minimization of waste*
* *Production of value added products: protein concentrates, gelatine, blood sausages.*
 | *-Interactive lectures* *(2 hrs)* *-Assignment* *- Lab practical (6 hrs)* | *LCD projector/ White Board/ Flip charts/ Materials and reagents* |

1. ***SUMMARY OF T IME NEEDED***
* *Lecture hours 45 hr*
* *Practicals 30 hr*
1. ***OVERALL COURSE EVALUATION***
	* *Assignments 10%*
	* *Practicals, class attendance and participation 10%*
	* *Course tests 20%*
	* *Final exam 60%*