1. ***FST 3104 FOOD QUALITY ASSURANCE***
2. ***COURSE INSTRUCTORS***
* *Dr. Y B Byaruhanga [BSc. Food Sc & Tech; M.S. Food Sc.; PhD. Food Sc.]*
1. ***COURSE TYPE:***

*Core course for Year 3 BSc. Food Science & Technology*

1. ***COURSE STRUCTURE***

***Course credits (CU):*** *3 CU i.e. 3 contact hours per week per semester*

***Course duration:*** *15 weeks (45 h) – 30 lecture hours; 30 practical hours*

1. ***COURSE DESCRIPTION***

*Concept of quality in the food industry; Quality assurance; Quality control; Quality characteristics of food; Quality changes in food affecting quality; specifications & quality defects; quality management concepts & systems; quality costs and statistical quality control; Food legislation, quality benchmarking; interactions of man, materials and systems in quality assurance.*

1. ***COURSE OBJECTIVES***

***General objective***

*This course is aimed at equipping students with competences and skills in food quality management*

***Specific objectives***

* **Introduce students to general concepts and principles in quality assurance**
* **Equip students with competences and skills in** application of the principles of food science and quality management in ensuring food quality and safety
1. ***RECOMMENEDED REFERENCES***
2. *Quality assurance in tropical fruit processing, Askar A and Treptow H, 1993; Springer-Verlag*
3. *Food chemistry 4th Ed. Owen Fennema*
4. *Food Science Norman Porter*
5. *Guidelines for drinking water quality 2nd Ed., Vol. 1 Recommendations, 1993; WHO*
6. *Quality control and Industrial statistics 5th Ed. Duncan AJ, 1986; IRWIN*
7. *Statistical quality control for the food industry, 2nd Ed., Hubbard MR 1996; Aspen Publishers*
8. *Quality attributes and their measurement in meat, poultry and fish products-Advances in meat research series Vol. 9. Pearson AM and Dutson TR eds., 1999; Aspen Publishers*
9. *HACCP: A practical approach; Mortimore S and Wallace C, 1994; Chapman & Hall.*
10. *HACCP: A Practical guide; Technical manual No. 38. HACCP Working Party. Leaper S, ed. 1992.Campden & Chorleywood Food Research Association.*
11. *Selected articles from the Journal of Food Science & Food Control,*
12. ***COURSE CONTENT, METHODS OF INSTRUCTION, TOOLS AND EQUIPMENT***

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| ***TOPIC*** | ***CONTENT*** | ***METHOD OF INSTRUCTION/ Time allocation*** | ***TOOLS/ Equipment needed*** |
| *Introduction* | *-Concept of quality in the food industry**-Quality assurance**-Quality control* | *-Interactive lectures coupled with homework and assignments**2 hr)* | *-LCD projector/White boards/flip charts*  |
| *-Quality characteristics of food**-Quality changes in food after harvest**-Demonstration of different quality characteristics of food**-Demonstration of quality changes after harvest* | *-Interactive lectures coupled with homework and assignments**2 hr)* *-Practical (3 hrs)**-Practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Various processed and unprocessed food samples, Plant and animal food samples at different maturity stages* *Functional food quality assurance lab**Chemical reagents* |
| *Quiz*  |
| *Specifications & quality defects in food* | *-Specifications in QA**-Defects on foods**-Sources of defects**-Prevention and control**-Demonstration and preparing of specifications* *-Identification of quality defects in food products* | *-Interactive lectures coupled with case studies and assignments**4 hr)* *-Practical case study (3 hrs)**-Practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Case study materials**Various processed and unprocessed food samples,* *Functional food quality assurance lab**Functional pilot plant**Chemical reagents* |
| *Mid semester test* |
| *Quality Management systems* | *-GMP**-HACCP**Application of GMP and HACCP principles*  | *-Interactive lectures coupled with case studies and assignments**4 hr)* *-Pilot plant Practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Selected food raw materials,* *Functional food quality assurance lab**Functional pilot plant**Chemical reagents* |
| *-TQC* *-TQM**-ISO9000 systems**Industrial application of quality management systems* | *-Interactive lectures coupled with case studies and assignments**2 hr)* *Industrial field trip (3 hrs) (to be assessed by attendance)*  | *-LCD projector/White boards/flip charts* *50 sitter bus* |
| *Quiz*  |
| *Quality costs and statistics* | *-Statistical Quality control* *Variability in quality & its management**Pareto principle**Control charts**Ishikawa models**Flow charts**Industrial application of statistical quality control* | *-Interactive lectures coupled with case studies and assignments**4 hr)* *Practical Case study (3 hrs)* | *-LCD projector/White boards/flip charts* *Case study material* |
| *-Quality costs**-Elements of quality costs & their management**Identifications of quality costs* | *-Interactive lectures coupled with case studies and assignments**4 hr)* *Pilot plant Practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Selected food raw materials,* *Functional food quality assurance lab**Functional pilot plant**Chemical reagents* |
| *Food legislation* | *-National laws, regulations & standards governing the food industry**-National & regional standards governing the food industry**Review of some national & regional laws regulations and standards governing food industry*  | *-Interactive lectures coupled with case studies and assignments**4 hr)* *Practical Case study (3 hrs)* | *-LCD projector/White boards/flip charts* *Sample laws regulations and standards* |
| *Quiz*  |
| *Benchmarking* | *-Process & product benchmarking**-Competitive & collaborative benchmarking**Product &/or process benchmarking* | *-Interactive lectures coupled with case studies and assignments**2 hr)* *Pilot plant practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Two incubatee products or processes,* *Functional food quality assurance lab**Functional pilot plant**Chemical reagents* |
| *Interaction of man and materials* | *-Nature of interaction between man, equipment and materials & its influence on quality**-Operating systems and/or procedures**-Standard operating procedures (SOPs)**Application SOPs* | *-Interactive lectures coupled with case studies and assignments**4 hr)* *Pilot plant practical (3 hrs)* | *-LCD projector/White boards/flip charts* *Functional food quality assurance lab**Functional pilot plant**Chemical reagents* |
| *Final exam* |

1. ***SUMMARY OF T IME (as contact hours) NEEDED***
* *Lecture hours 30 hr*
* *Practicals 30 hr*
1. ***OVERALL COURSE EVALUATION***
	1. *Assignments (at least three assignments) 10%*
	2. *Practicals, & class attendance 10%*
	3. *Field trips & case studies (one trip, three case studies) 10%*
	4. *Quizzes (at least three quizzes) 10%*
	5. *Mid semester Course tests (one course test) 10%*
	6. *Final exam 50%*