Course Outline
Institut Pertanian Bogor - ACICIS' Agriculture Semester Program

Unit name	Food Quality Assurance (ITP430)
Department/ Faculty	Food Science and Technology Faculty of Agriculture Technology
Course credit (SKS)	3 (2-1)
Offered in	Odd semester (September-January), final year subject
Pre-requisite	-
Course Coordinator	M. Arpah
Language	Indonesian English ☑ Both

Course description
The course covers the principle of quality assurance in food industry including determination of key quality characteristic, sampling, measurement and test procedure, specification and standard. The course also discusses some quality management systems and their certification for an organization while exploring all essential quality management tools such as tools for understanding the process (flow chart, cause and effect diagram), tools for collecting, organizing, analyzing and understanding data (check sheet, pareto chart, histogram) and process control (SPC, Cp, Cpk).

Learning outcomes
Upon successful completion of this course the student will be able to:

- Describe quality concept development and use terms in quality management system.
- Identify and compare intrinsic key quality characteristic as well as extrinsic key quality characteristic of food.
- Describe specification and type of standards, select a standard.
- Apply quality management tools for collecting, organizing, analysing and under-standing data.
- Apply quality management tools for understanding the process, controlling variations and fluctuations of product quality and planning to improve the quality.
- Apply SPC and SQC for variable data.
- Describe acceptance sampling and acceptance quality level (AQL).
- Describe quality inspection, examination, measurement, analysis and control.
- Describe quality management system principles.
- Construct quality management systems for certification.
- Able to conduct auditing write a report and analyse the audit result, able to follow up audit write recommendation.
- Compare the cost of quality.
- Apply food quality assurance scheme.

Indicative assessment

- Weekly lab and report (15%)
- Quizzes (5%)
- Group assignments (15%)
- Mid-exam (30%)
- Final exam (30%)
- Attendance (5%)

Contact Hours
2 hours lecture and discussion, 3 hours tutorial per week for 14 weeks; no laboratory work

Readings

- Alli, I. 2004. Food Quality Assurance: Principle and Practices. CRC Press, NY.
- Juran, J.M. and Godfrey, A.B. 5th Edition. Juran's Quality Handbook. Mc Graw Hill, NY.
- Dillon, M and Griffith. C. 2001. Auditing in The Food Industry. CRC Press. England.
- Hoyle, D. 1994. Quality System Handbook. Butterworth-Heinmann, Ltd. Oxford.

- Newslow, D. L. 2001. The ISO 9000 Quality System: Application in Food and Technology. Wiley Interscience, NY.

Course topics (subject to change)

Week	Topic	Sub-topic
1	Introduction	▪ Development of quality management system ▪ Concepts of quality ▪ Definition of quality and food quality
2	Intrinsic and extrinsic key quality characteristics of foods	▪ Organoleptic quality characteristics of food ▪ Chemical and physical quality charac-teristics ▪ Microbiological, nutritional and safety quality characteristics ▪ Design quality ▪ Packaging quality ▪ Price, availability and attractiveness
3	Standard and specification	▪ Standard classification by regulation ▪ Standard classification by scope (inter-national, national, professional field association, industry) ▪ Standard classification by subject cate-gories (product, process, raw materials, organization) ▪ Specification criteria and specification values in a standard
4	Quality tools for controlling variations and fluctuations	▪ Scatter plot ▪ Run chart ▪ Histogram ▪ Control chart
5	Quality tools for collecting, organizing, analyzing data	▪ Check sheet ▪ Flow chart ▪ Pareto chart ▪ Fishbone diagram or ishikawa diagram
6	Variable control charts and process capability	▪ X-bar, R chart ▪ Xmr (individual moving range) chart ▪ Process capability (Cp and Cpk)
7	Attribute control charts	▪ P Chart, # of sample variable ▪ Np Chart, # of sample constant ▪ C chart, # of sample variable ▪ U chart, # of sample constant
8	Acceptance sampling	▪ Acceptance sampling plan ▪ Acceptance quality level examples of codex alimentarius commission ▪ Acceptance sampling ▪ Mil-std for variable and attribute data
9	Quality inspection, examination, measurement, analysis, and control	▪ Quality inspection ▪ Quality examination ▪ Quality measurements ▪ Quality analysis ▪ Quality control
10	Quality management systems and their principles	▪ Quality management systems ▪ Quality management principles
11	Quality management systems and their certification scheme	▪ Certification scheme for ISO 9000:2008; ISO 22.000. ▪ Certification scheme for HACCP ▪ Halal food system

Week	Topic	Sub-topic
		▪ Certification scheme for food products under SNI standard
12	Quality audit	▪ Quality audit system ▪ Tools and instruments ▪ Auditors
13	Cost of quality	▪ The Taguchi's Loss function ▪ Cost of conformance and cost of non-conformance (PAF model)
14	Food quality assurance scheme and Legal aspect of food quality assurance in Indonesia	▪ Food quality assurance scheme in Indonesia ▪ Legal aspect of food quality assurance in Indonesia

Tutorial topic outline (subject to change)

Week	Topic
1	Formation of QC in class: applying brainstorming practice in QC groups and analyzing brainstorming outcomes with affinity and relation diagrams, introducing 5S and suggestion system
2	Key quality characteristics of food: defining critical to quality in bread production (Exp. Bakery product)
3	Discussion about Standard and specification
4	Quality tools for controlling variations and fluctuations: application of scatter plot, run chart histogram, control chart
5	Quality tools for collecting, organizing, analyzing data: application of check sheet,flow chart, pareto chart, fishbone diagram, Ishikawa diagram
6	Variable Control Charts and Process capability: application of X-bar, R chart; XmR (individual moving range) chart; process capability (Cp and Cpk)
7	Attribute Control Charts: application of p Chart, # of sample vari-able; np Chart, # of sample constant; c chart, # of sample variable; u chart, # of sample constant
8	Acceptance sampling application
9	Discussion about: Quality inspection, examination, measurement, analysis, and control
10	Discussion about Quality management systems and their principles
11	Discussion about Quality management systems and their certification scheme
12	Quality audit tools and instruments practices
13	Cost of quality quantifications
14	Presentation: Food quality assurance scheme and Legal aspect of food quality assurance in Indonesia.