ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

FSN 437: Cereal Science and Technology

Course Specifications

Institution King Saud University	Date of Report 30/01/2014
College/Department Food and Agriculture Sciences/ Food Science and Human Nutrition	

A. Course Identification and General Information

1. Course title and code:
Cereal Science and Technology, FSN 437

2. Credit hours 4 (2 credit lecture+ 2 credit laboratory)

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Food Science and Human Nutrition

4. Name of faculty member responsible for the course
Dr. Hassan A. Almana

5. Level/year at which this course is offered
B. Sc (Hons) Food Science/ 4th year-2nd term

6. Pre-requisites for this course (if any)
CHEM 108 and FSN 202

7. Co-requisites for this course (if any)

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. Traditional classroom	√	What percentage?	70
b. Blended (traditional and online)	√	What percentage?	10
c. e-learning	√	What percentage?	10
d. Correspondence		What percentage?	
f. Other	√	What percentage?	10

Comments:

Most of the teaching method is traditional class room with smart board and visual aid devices. Students will be gives assignments to gather information on line and attend video description of different operations related to bread baking and other cereal related operations. The other mode of instruction is mostly class discussion and students interaction in a form of a seminar.

B Objectives

1. What is the main purpose for this course?

The purpose of this course is to equip the learners with the basic and applied knowledge of cereals characteristics, quality attributes, processing techniques and products development. This course will enable the graduates to hunt for career in public and private sector associated with handling, storage, processing and distribution of cereals and their products.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Continuous Improvement in the course structure will be done by following means.

- Improvement in the course contents based on current research
- Inclusion of recent trends in cereal based product development
- Update the translated textbook when new edition of the original book is published.
- Use of digital and electronic media to improve the course contents
- Addition of latest analytical tools being used in analysis of cereals and their products
- Improve the course contents based on current market trends related to cereal and their products

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Nutritional, Technological and Commercial Importance of cereals	1	4
Grain classification, type and quality	1	4
Grain pre-processing and storage	2	8
Dry milling	3	12
Wet milling	2	8
Pasta	1.5	6
Flour quality evaluation and bread production	4	16
Breakfast Cereals and other bakery products	1.5	6

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	32		32			64
Credit	2		2			4

3. Additional private study/learning hours expected for students per week.	NA

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The ***National Qualification Framework*** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Ability to define, memorize and describe the characteristics of different cereals and their products	lectures	Midterm and final exams
1.2	Outline, write and memorize the concepts and principles of cereals and their product analysis	Teaching the philosophy of cereal testing and products	Written evaluation and grading
1.3	List the chemical composition of cereals	lectures	Midterm and final exams
1.4	Recognize the different wheat types	lectures	Midterm and final exams
1.5	Describe the storages conditions of cereals	lectures	Midterm and final exams
1.6	recognize the differences between cereals and legumes .	lectures	On spot evaluation
1.7	Name the basic principles of cereal extrusion	Lab experiments	Grading the reports

2.0	**Cognitive Skills**		
2.1	Evaluate and interpret the practical testing of cereals and their products	Lab experiments	Grading the lab reports
2.2	Calculate, predict and evaluate the anticipated and unanticipated issues and problems may evolve during the experiments and processing	Lab demonstration using variable raw materials, process parameters.	On spot evaluation, grading the lab reports
2.3	Be able to decide the appropriate application of the wheat varieties	Lab work	Evaluate lab report
2.4	Develop hands on test of grad dough and decide its quality	Lab work	Evaluate lab report
3.0	**Interpersonal Skills & Responsibility**		
3.1	Show initiative in identifying the problems and modify the conditions to solve them, show leadership when required.	Small group assignments	Grading the group assignments, on spot evaluation of individual role
3.2	By now, students should have developed abilities to troubleshoot and manage small products problems	Class discussion	Evaluate class discussion participation
3.3	Use appropriate methods or approach to fulfill the given task within the time frame.	Creative thinking assignments	Grading the assignments
4.0	**Communication, Information Technology, Numerical**		
4.1	Able to evaluate and interpret the collected data using appropriate numerical or statistical models	Practice on the use of mathematical and statistical programs	Grading the lab reports and numerical assignments
4.2	At this point, students should have knowledge to anticipate production related problems	Lab work analysis	Look for students analytical approach to problem solving
4.3	Ability to communicate effectively through oral or written means using appropriate media	Class discussions	Evaluating the communication skills (written or oral)
5.0	**Psychomotor**		
5.1	NA		
5.2			

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write

Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider Maximize Continue Review Ensure Enlarge Understand
Maintain Reflect Examine Strengthen Explore Encourage Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First class exam	5	15%
2	Midterm laboratory exam	7	7.5%
3	Second class exam	10	15%
4	Final laboratory exam	16	7.5%
5	Final class exam	16	40%
6	Laboratory reports	Weekly	15%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) • Four hours per week consultation hours for the students • Students can consult by E-mail • Consultation with instructor via appointment

E. Learning Resources

1. List Required Textbooks • Kent, L.N.L. and Evers, A.D. 1994. Technology of Cereals. Translated to Arabic by Almana, H.A. 2000. King Saud University, Riyadh, Saudi Arabia. • Delcour, J.A. and Hoseney, R.C. 2010. Principles of cereal science and technology. American Association of Cereal Chemists Inc, St. Paul, Minnesota, USA. • AACC. 2000. American Association of Cereal Chemists. St. Paul. Minnesota, USA.
2. List Essential References Materials (Journals, Reports, etc.) • Cereal Chemistry • Journal of cereal Science • Cereal Food s world • IAACC Approved Methods
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Karel, K. and Joseph, G.P. 2000. Handbook of cereal science and technology. Marcel Dekker, New York, USA. • Al-Saedi, M. 1985. Technology of Cereals. Almousil University, Almousil, Iraq. (Arabic).
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) • http://www.ift.org/ • http://www.aaccnet.org/publications/plexus/cfw/Pages/default.aspx • http://www.fao.org/waicent/faoinfo/economic/faodef/fdef01e.htm • http://www.cerealsdb.uk.net/cerealgenomics/Index_Home.html • http://www.ifst.org/learninghome/helpforteachers/lessonplantopics/cereals/
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. • http://old.sfda.gov.sa/En/Food • http://www.codexalimentarius.org/standards/en/ • http://nutritiondata.self.com/

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) • Classroom with at least 30 seats • Grain testing and milling facility (physical testing, milling of grains etc) • Dough rheology laboratory

• Laboratory scale baking facilities (mixing, sheeting, molding, proofing, baking etc).

2. Computing resources (AV, data show, Smart Board, software, etc.) • Smart board, computer and overhead projector • Audiovisual facilities • Statistical software to demonstrate data analysis for lab reports
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) • Baking ingredients • Weighing balances • Glassware • Bread volume meter etc • Chemicals

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching • In Class feedback at mid semester time by asking questions on an anonymous form. Suggestions can be used to make up the deficiencies for the remaining period. • Students are requested to fill an anonymous online survey related to course contents, deficiencies and teaching methods etc., • End of the semester feedback teacher's evaluation performance are used to get the students feedback. • Students can evaluate the teaching capabilities, contents delivered, and communication skills of the instructor. • Survey Feedback data is analyzed and used to upgrade the course contents, teaching skills of the instructor.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Small Group Analysis method of getting feedback from students by department representative other than instructor. Students are asked to suggest what is needed to improve the course.
3 Processes for Improvement of Teaching • Continuous improvements in the course contents according to the requirements of local job market and international scientific developments • Close collaboration with the other institutions offering the same course. • Consideration of the student's interests and suggestions gathered through teacher's performance evaluation. • Attend workshops, related to teaching skills improvement, offered by the Deanship of Quality at KSU

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Supervisors of students during industrial training are requested to evaluate their performance.
- Students' assignments can be evaluated by eternal examiners from different institutions or from within the department.
- Product development competition supervised by industrial expert can be used as an evaluation method to access the student's capabilities.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

The courses offered during different semesters are discussed in council at departmental level. The council is represented by faculty members. Periodic improvements proposed by instructor based on current requirements can be done upon recommendations of department council. Effectiveness of the course contents can be assessed by having a feedback from the graduates working in public and private sector. Council may have one representative from public and private sector. The course should fulfill the mission of the FSN department in contributing to knowledge based economy objectives.

Faculty or Teaching Staff: _____

Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____