SELF-STUDY REPORT

Bachelor of Agricultural Sciences,
Major in Food Science and Human Nutrition

Submitted By:

Department of Food Science and Nutrition
College of Food and Agricultural Sciences
King Saud University
Riyadh, Saudi Arabia

Submitted To:

Agrology Accreditation Committee
Agriculture Institute of Canada (AIC)

March 2010

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The Educational Objectives are the foundation upon which the outcomes and curriculum for the Food Science and Human Nutrition degree are built. Educational Objectives have been developed that are consistent with the mission of the University, the College of Food and Agricultural Sciences and are intended to satisfy the needs of our constituents. The objectives have been reviewed and revised, with input from our constituents. Furthermore, an ongoing process has been implemented to evaluate the objectives and to ensure that the objectives are being achieved. This section is organized as follows: The University, College, and Department mission statements are first presented. This is followed by a description of our constituents. The program Educational Objectives then follow. Next is a discussion of how the Objectives are consistent with the mission of the University and with the AIC accreditation criteria. This is followed by a discussion of how the curriculum and processes ensure achievement of the Educational Objectives. Finally, the process used to establish and review the objectives and the results of that process are described.

B.1 – Mission Statements.

University - The central mission of the King Saud University is "**To provide distinctive education, produce creative research, serve society and contribute in building the knowledge economy and community through learning, creative thinking environment, the optimal use of technology and effective international partnership**". To this end, the University provides excellent undergraduate and graduate courses of study in a variety of disciplines. Our graduates should know how to reason critically and independently yet collaborate productively. They should understand the cultural and physical world, communicate clearly in writing and speech, and develop into informed citizens and leaders. The University faculty has a strong tradition of distinguished scholarship, research, and teaching, which is grounded in a commitment to increase scientific, humanistic, and social knowledge for the enrichment of the larger society. A national government institution, King Saud University was founded as a government university in 1957. The idea of establishing the first university in the Kingdom of Saudi Arabia came as a natural response to the educational revival the kingdom enjoyed since its foundation. With the reign of King Abdulaziz, the kingdom's government sought to propagate education throughout the country. His efforts were crowned when King Fahd bin Abdulaziz assumed the office of the first Ministry of Education. Right after the first session of the Council of Ministers, he gave the following statement: "We will shortly establish the Saudi University; this is a foregone conclusion. This university will be one of the most prominent houses of culture and sciences, and will be worthy of our country where the light of Islamic faith and civilization has emanated." On another occasion, late King Fahd said: "I am seriously interested before anything else in supporting higher and vocational education in the country to have history repeat itself and add a new glory to our glorious past.

Therefore, the establishment of the Saudi university with all its colleges, institutes and laboratories built according to high standards, is my immediate concern." Only three years after the establishment of the Ministry of Education he announced in a statement to the press the following: "The Ministry of Education is seriously considering the creation of the Saudi University." Approximately one year later, the first Saudi university was founded according to the dictates of the Royal Decree No. 17 dated 21/3/1377 H and read as follows. "With the help of Allah, We Saud bin Abdulaziz, King of the Kingdom of Saudi Arabia, having the desire for the dissemination and promotion of knowledge in Our Kingdom, for widening the base of scientific and literary study, and for keeping abreast with other nations in arts and sciences and for contributing with them to discovery and invention, and to revive Islamic civilization and articulate its benefits and glories, along with its ambition to nurture the young virtuously to guarantee them healthy minds and ethics. The University works cooperatively with the area's unique cultural and technical institutions; it provides the finest library in the kingdom and offers the region's people a rich array of public lectures, exhibitions, performances, service programs, and athletic competitions. The University strives for an atmosphere in which all people feel welcome to learn, embracing creativity, critical thinking, and free inquiry, and respecting the views and values of an increasingly diverse population. (The University Mission statement can be found online at www.ksu.edu.sa and in the University catalogue).

College of Food and Agricultural Sciences – The vision of College of Food and Agriculture Science is to **outshine and eclipse internationally through overtopping and outclassing in food, agriculture, and environmental sciences.** The mission of the College of Food and Agriculture Sciences at the King Saud University is to **contribute significantly to the development of agriculture and food production, human nutrition, conservation and development of natural resources**. The objectives of college of Food and Agriculture are to provide modern undergraduate and post-graduate programs for preparing proficient graduates within the fields of food and agricultural sciences, environmental management and sustainable development of natural resources. Foster novel research and technological innovations as well as applied studies aimed at increasing production, developing resources, conserving the environment and promoting scientific knowledge. Serve the community through extension activities, training courses, workshops, conferences and symposia, and advisory services to the public, private and philanthropic sectors. Find technical and practical solutions for water conservation and rationalization of water usage in agriculture. Enhance the role of the College as a center for technological advances and modifications dictated by local and global changes. This is accomplished through the qualification of proficient graduates, innovative research, dissemination and enrichment of knowledge and service to the community. The College encourages a strong tradition of applying its distinguished scholarship, research, educational resources to serve the local and national communities through collaborative efforts with individuals, industry, and government. The College of Food and Agricultural Sciences recognizes the increasing diversity of its students and faculty and, therefore, strives to create an atmosphere in which all people feel welcome to learn and participate in the free exchange of ideas. The College Vision, Mission statement and objectives can be found in the University catalog and online at:
http://colleges.ksu.edu.sa/FoodsAndAgriculture/Pages/VisionMission.aspx

Department of Food Science and Nutrition – The mission of the Department of Food Science and Nutrition is toward **Develop and transfer of knowledge and technology in food science and human nutrition, and provide sources for knowledge and facilities for research and training to improve the output of the department and to serve the community in Saudi Arabia.** The objectives of the Department of Food Science and Nutrition are to qualify specialists in the area of food science and human nutrition with knowledge and skills appropriate for the job market by providing high-quality academic programs at the university level and postgraduate. Develop knowledge in the area of food science and human nutrition through applied research. Transfer knowledge through publishing and translating books in the area of food science and human nutrition. Disseminate knowledge in the area of food science and human nutrition and apply them for community service.
http://colleges.ksu.edu.sa/FoodsAndAgriculture/Food Science and Nutrition/default.aspx.

B.2 – Constituents.

Constituents of the Food Science and Human Nutrition program include students, employers, alumni, faculty, and graduate school. *Students:* The primary and most important constituent group is the students who are currently enrolled. Most of these students have entered the program directly after one year at the preparatory year, and after taking some fundamental courses at College of sciences, and typically, they will complete the degree in the required four years. Their typical age is 18 to 22. The vast majority of these students are full time. Since its inception in 1975, enrollment in the Food Science and Nutrition undergraduate program has ranged between 28 and 80 students.

B.3 – Program Modes.

The Food Science and Human Nutrition courses are available on campus during weekdays between 8:00 am and 5:00 pm. Supporting courses in chemistry, physics, mathematics, and general education are generally available during the day by other departments in other building, with some hours (such as laboratory sections) also available in the evenings.

B.4 – Contact Information.

Dr. Mohammed A. Alfawaz is the chairman of the department, and serves as the program accreditation coordinator for the purpose of accreditation from AIC. The contact address of Dr. Alfawaz is below:

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Web Site: www.colleges.ksu.edu.sa/Food Science and Nutrition/

Dr. Badriaha Al_Abdulkarim is the vice chairman of the department for the female section only, and serves as the program accreditation coordinator for the female section. The contact address of Dr. Al_Abdulkarim is below:

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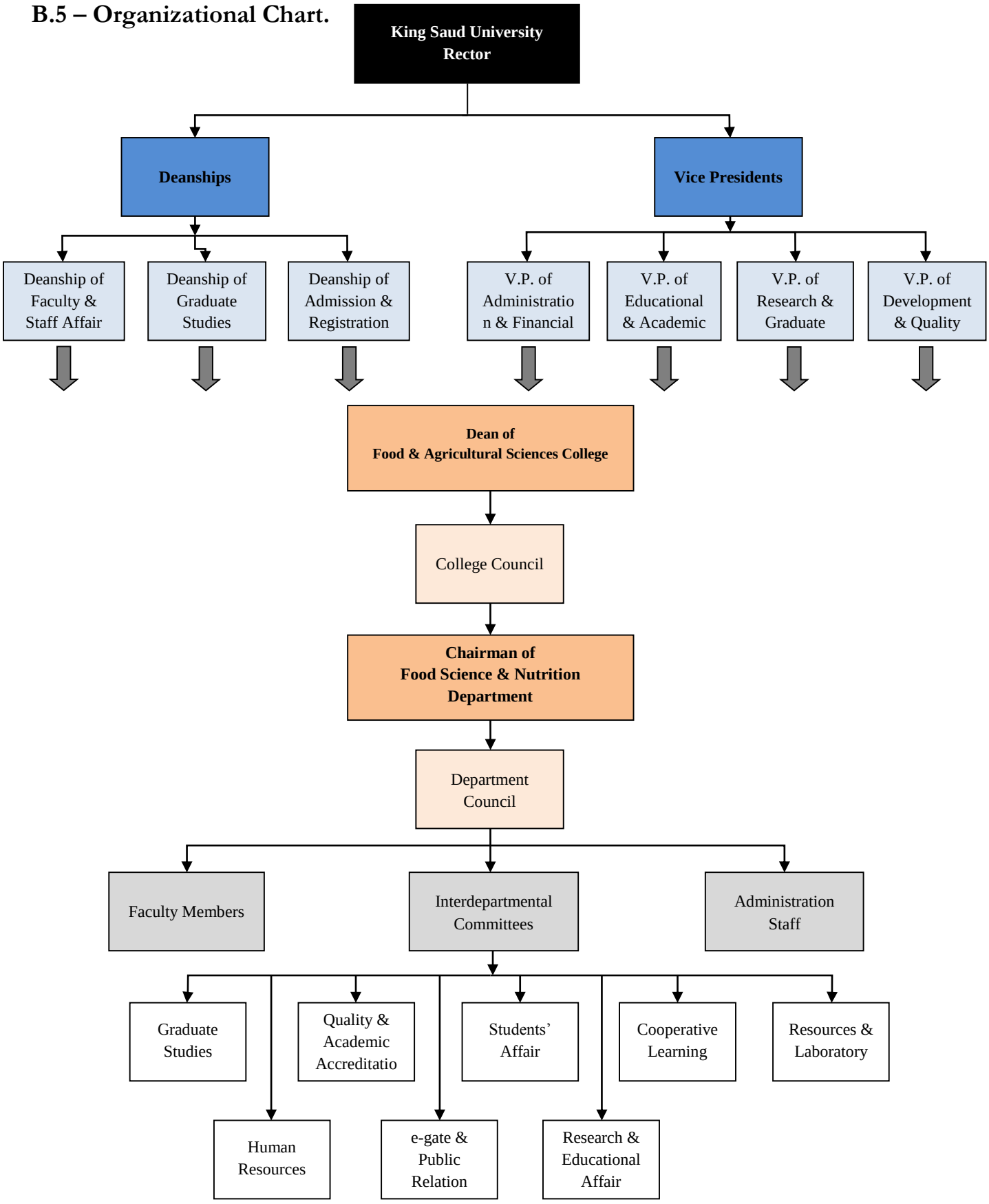
B.5 – Organizational Chart.



Chapter C : Faculty.

C.1 – Number and Type.

Approximately 44 faculty members teach courses in the program being submitted for accreditation (Appendix). Twenty three of them are Full-time tenured faculty members with Ph.D's obtained from well known universities in USA and UK and they are responsible for teaching the theoretical sections of the courses. On the other hand, the rest of them (21) are responsible for the laboratory sections. Nine of them hold Ph.D (4 from Europe, 2 from Egypt, 2 from Asia and 1 from Sudan), five hold masters degrees (1 from Egypt, 1 from Sudan, 1 from England and 2 from Saudi Arabia) and 7 hold B.Sc.
The female Section has six Saudi faculty members and six non-saudi (five Egyptians and one Sudanese) all having Ph.D in Food Science and Nutrition related specialties. They are responsible for teaching the theoretical sections of the courses and all are full time faculty members. Twelve lecturers hold master's degree, and four Demonstrators whom hold Bachelor's degree in Food Science & Nutrition; their main contribution in teaching is the practical sessions for some of the courses.

C.2 – Faculty Qualifications.

The Department of Food Science and Nutrition ranks very high nationally in categories such as the proportion of faculty with a Ph.D degree and the number of courses taught by Full-time tenured track faculty members. The faculty C.V.s in Appendix attest to a high level of Full-time tenured appointments at the Ph.D level teaching in the FSN B.Sc. being submitted for accreditation.

Student evaluations are required of every faculty member in every course in the promotion and merit salary review process. Teaching excellence is of increasing priority in the faculty review process and FSN faculty are encouraged to use sabbatical time, at least in part, for an opportunity to enhance their teaching abilities. The University has many faculty members who have been recognized for their teaching provincially and nationally. Food Science and Nutrition faculty members achieved a high level of scholarship and research as evidenced by their record of publications and their success in competitive granting processes. Our faculty members are of high caliber and are extremely productive in research, publications and graduate student supervision.

C.3 – Distribution of Effort.

Table C- 1 indicates the average distribution of efforts for faculty members in FSN department. This distribution of efforts is given based on the promotion policy of the University. It is of interest to know that the university policy determines the teaching load for professor, associate professor and assistant professor by 10, 12 and 14 teaching hours per week, respectively. The courses taught by individual faculty are given in the attached C.Vs.

Table C-1 Approximate distributions of effort for Food Science and Nutrition faculty members			
Department	Teaching	Research	Service
Non promotion process	35%	45%	30%
For promotion process	25%	60%	15%

The promotion process in the academic units in the department and college are fully integrated with those of the University. There is a common Faculty Policies document for the entire university and all matters relating to appointment and remuneration are managed university wide. The Provost and Academic Vice President is responsible for the implementation of these policies and the approval of all regular appointments and recommendations for promotions and salary increase.

Chapter D : Students.

D.1 – Academic Standards.

The deanship of admission and registration in the university manages the admission process. The admission requirements for each college were set by the college council of each one and these include student number, qualifications, and required tests. The requirements of our college (College of Food and Agricultural Sciences) were secondary school certificate and Test of ability (qualified exam.). The applicants were admitted based on the compound percentage of both until all the available seats were equipped. Then the student should study at least 35-40 credits including Chemistry, Physics, Calculus, Islamic Culture, English, Biology, Statistics, etc. The students who completed these credits should select a department to continue their studies in it and this can be achieved on the basis of their interest and the overall GPA.

Recently the university has established new policy for the admission and this can be summarized as follows: there are three paths for the admission which are: (1) Medical Colleges (such as Medical, Dentistry, Pharmacy etc), (2) Engineering and Science Colleges (including Engineering, Computer, Architecture, Sciences, and Food and Agricultural Sciences), (3) Humanities Colleges(such as Education, Law etc). The deanship of admission and registration manages this process and collect the admission capacity from each college and accept the applicants depending on the total number of each path and the compound percentage mentioned earlier (this set and announced annually). Then the student should study the preparatory year (PY) which consists of 31 credits including Intensive English, Introduction to Mathematics and Calculus, Computer Skills, Learning and Thinking Skills, Health and Fitness Skills and Communication Skills. The student has to complete this program in one academic year with GPA at least 3 out of 5 . Then the student can enroll in the preferred college depending on the basis of the overall GPA and if there are special stipulations . Currently our college just requires the appropriate GPA due to the weak demand. As the student enrolled in the college he should select a department to continue his study in it and this can be achieved on the basis of his interest and the overall GPA.

D.2 – Counseling and Advising.

There is a strong commitment to advising and counseling of undergraduate students at the department and this can be seen in two approaches. In the first one, any student in the department should have an academic advisor (faculty member) providing him with help especially in curriculum and its rights in general. The student is expected to meet his advisor at least twice each semester to review his progress and the advisor will give his recommendations to the student concerning with the courses to be taken during the next semester. Any change in student status such as carrying an excessively high load or carrying less than a full-time load requires the approval of both advisor and the chairman of the department.

In addition, the advisor can transfer any issues can't be solved to the "student committee in the department for finding the appropriate solution through the arrangement with the chairman of the department . On the other hand, the department has established the "student council" which consists of at least 6 students, one faculty member as a chairman, and the coordinator of accreditation as vice chairman. The main job of this council is that discussing all different aspects relevant to the students' progress including curriculum, resourses, facilities, non academic activities etc. This council meets at least twice each semester. Any recommendations from this council will be transfered to department council for discussion and possibly applying them if they are applicable or referred them for more details. Finally, the Food Science and Human Nutrition curriculum and the degree requirements, as well as the program objectives and outcomes, are given in details in the university catalog, in the department web site and in other departmental publications.

The second approach is a recent one and concerning with counseling unit, and this in reality is applied as new policy from the university. The department to comply with the requirements of this unit, nominated two faculty members for working as advisors for 4 hours weekly. They will provide help for the students and will discuss any problem facing them with other staff members. In addition they will contact with relevant departments in the deanships of student affairs and admission and registration.

D.3 – Professional Attitudes.

The department organizes a special meeting for the new students enrolled in the department in the beginning of every semester. There is a presentation introduced by one of faculty member about the department including curriculum, faculties, resources, counseling and advising and non academic activities. Then there is a tour in the department accompanying one of the staff showing the students the different labs. and offices. The department also, encourages students to register themselves in the Saudi Society of Food and Nutrition which is organized by the department. In addition, the students –after completion 100 credits- may spend at least 6 months as a cooperative training in suitable food establishment. This is a good chance to the student for acquiring experience and in the same time to the department for the development based on the suggestions taken from the students. Moreover, the department participates in any event relevant to the student's interest such as "Job day" and strengths its relation with the employers whether they are in the public or private sectors. Finally, the department encourages the students to enroll and participate in the non academic activities organized by the college.

D.4 – Students Affairs.

D.4.1. Evaluation

Students in the program are evaluated with respect to their preparation for entry into the general practice of Food Science and Nutrition and their preparation for graduate education. The evaluation is conducted primarily through performance as described below:

Course performance;

- Exams (tests, quizzes, and final exams)
- Problem sets and homework
- Reports and projects (oral and written reports)

Instructors' reviews and comments on homework assignments and tests provide the student with feedback on their performance. Knowledge, skills, and ability to perform in the laboratory are evaluated through review of laboratory reports. Ability to work effectively in teams and to communicate correctly and effectively are evaluated through performance in laboratory work and design teams. Our full-year senior design capstone course provides a unique opportunity to evaluate students' overall professional competence and preparedness during their final year. The University uses an "A" through "F" grading system, with "plus" grades available from "A+" through "D" . A minimum average of "C," or a grade point index of 2.0 on a 5.0 scale, on all work taken at the University is required for the baccalaureate degree.

D.4.2. Monitoring

Monitoring of student progress is primarily the responsibility of the advisor, the chairperson and the Vice Dean for Academic Affairs. They have ready access to every student's academic records, notes from past meetings, and any other pertinent material, in the student files maintained in the department office and through notes. Attention is focused on those students having any type of academic difficulty. Monitoring occurs in the following ways:

1. Vice Dean for Academic Affairs reviews academic performance on a periodic basis
2. Chairman and advisor review of academic performance on a periodic basis
3. Senior checkout from the College of Food and Agricultural Sciences

During the student's next-to-last semester, the student and his advisor meet to review the curriculum check sheet to identify those classes the student must complete in order to graduate. Other conditions are also identified, including approval of course substitution forms, completion of incomplete (I) grades, and compliance with university and departmental grade point requirements. Any questions or disagreements are referred to the Department Chairman and the Vice Dean for Academic Affairs in the College.

D.4.3. Transfer Credits

The Vice Dean College of Food and Agriculture Sciences is charged with evaluating transfer credits and/or AP credits for freshman students just starting the Food Science and Nutrition curriculum. Thereafter, all students must obtain approval prior to taking any other courses that they wish to transfer. The vice Dean distributes the standard form for obtaining approval and obtains a copy of the description of the course in question from the catalog of the other institution to make sure it contains the same important elements as the one offered at KSU. The Chairman of the department makes the final decision to accept or reject transfer credits.

Chapter E : Resources.

E.1 – University Commitment.

A letter of university commitment toward supporting the teaching and research programs at all levels in College of Food Science and Agriculture Sciences is included.

E.2 – Academic Resource Sufficiency.

The academic budget for the B.Sc. (Agr) is the responsibility of the Dean of College of Food and Agricultural Sciences. A letter of commitment and support from the Dean is attached.

E.3 – Physical Facilities.

In our department, we take every effort to provide all resources and facilities required for program teaching and improvement. King Saud University administration is supporting all colleges, departments and programs run by the university. Hence, the department of food sciences and nutrition is only responsible for managing the existing resources and ordering required resources from the university administration. Since our department is not self funded, thus, when needs for a new resource came up a "Resource Requisition" will be sent to the Dean of Food and Agricultural Sciences College, who is responsible for providing the required resource.

The department managing its available resources by establishing a master list containing all required information about every single resource available "Resources Master List". This list helps us evaluating the existing resources in measuring resources adequacy; this list also help in identifying the future resources needs (Resources Master List is provided in Appendix). On the other hand, a maintenance procedure is available for maintaining resources and keep them properly working and efficient. The "Maintenance Requisition" is used for requesting maintenance; these requisitions are filed, documented and maintained for reference.

Although we are financially dependent on the King Saud University administration, a financial planning is conducting by us to determine our financial needs, which help the university administration in specifying the required budget for us and provide us with required fund which help us to achieve our mission and objectives. The financial planning in this stage will be done using the "Financial Plan".

The department of Food Science and Nutrition is one of eight departments in the College of Food and Agricultural Sciences . The college is located in building # 2 in the grand campus of King Saud University. The Food Science and Nutrition department owns (24) teaching and research laboratories in different specializations within the Food and Agricultural Sciences college (male campus) and a complete list of the available resources is provided in the Appendices.

The department also owns (23) modern offices for the faculty members furnished with personal computers, department head office, graduate students room, a well equipped meeting room contains video-conference facility that allows faculty and students to link directly to other sites and institutions, kitchen and 3 storage rooms. Room scheduling and student time tables are done centrally in the Registrar's Office. College's faculty are generally able to obtain their preferences for classes and specific needs for special equipment, location, etc. with appropriate input to the scheduling process.

The department shares the main pilot plant of the college with the department of Agriculture Engineering. The college contains about (50) auditoriums in addition to the main auditorium, all contain computer-based multimedia equipment to allow the delivery of technology-assisted courses; these auditoriums as well as a main computer room which allow the students to access to university computer facilities in the Library and in our various academic units are shared by the eight departments within the college. The main library, Prince Salman's main library, is also available for the college of Food and Agricultural Sciences students (including food science and Nutrition students) as well as other colleges students. Study space and an inter library loan is provided by the library.

Regarding the female section, there are the following facilities; computers laboratory, microbiology laboratory, research laboratory, animal house, and two food chemistry laboratories.

Chapter F : Standards for Accreditation.

F.1 – The Program.

The degree offered by the Department of Food Science and Nutrition (FSN) is;

"Bachelor of Agricultural Sciences, Major in Food Science and Human Nutrition"

F.2 – Program Philosophy.

The B.Sc. (Agri.) major in Food Science and Human Nutrition is a 4 year science program designed to provide a fundamental education in the science of food and nutrition. The curriculum includes knowledge in agro-food systems, food and nutrition sciences, chemistry, physical, biological and Communication and Writing skills. The curriculum has been designed to give students a comprehensive understanding of the food system when they graduate. They will be able to integrate their knowledge of food microbiology, food processing and preservation, food chemistry and analysis, resource allocation, nutritional biochemistry, and business management as it applies to the food system. Students are encouraged to integrate their academic program with the course like FSN 400 Cooperative Learning (Internship) and FSN 495 Special Studies.

F.3 – Program Objectives.

3.1 Reflect Program Philosophy.

B.Sc. (Agri.) Food Science and Nutrition Graduates will have the following qualities and/or opportunities:

- self-directed, lifelong learners
- effective communicators
- computer literate
- knowledgeable in food science and nutrition with optional levels of specialization available in majors such as :
    - Food Safety
    - Food Analysis
    - Food Technology
    - Food Engineering
    - Assessment of Nutritional Status
    - Community Nutrition
    - Food service Management
    - Nutritional Education and Counseling
- Opportunities to study abroad (North America, Western Europe, Australia and New Zealand).

- Opportunity for experiential learning activities in third and fourth year.
- Entry into M. Sc. /Ph. D. programs and other professional degrees.

The objectives of the B.Sc. (Agri.), Food Science and Human Nutrition major, Program were designed to fit the general learning objectives of the King Saud University (KSU) . They are a set of objectives described in terms of the desired characteristics of educated graduates and include:

- Literacy
- Numeracy
- Sense of Historical Development
- Global Understanding
- Moral Maturity
- Aesthetic Maturity
- Understanding of Forms of Inquiry
- Depth and Breadth of Understanding
- Independence of Thought
- Enjoy of Learning

3.2 Planning and Evaluation.

A comprehensive restructuring of the B.Sc. (Agri), Food Science and Human Nutrition major, Program curriculum was conducted in 1990 with significant revisions in 1997 and 2006. The B.Sc. (Agri) ,Food Science and Human Nutrition major, program objectives were reviewed in 2006, changes were made, and the revised Objectives were approved by the department and the college councils.

This review of the educational objectives was based the assessment of faculty and employers of the department.

3.3 Professional Practice.

Evaluation and revision of the program objectives required the development of the curriculum. The employer survey will be conducted during this year. Other surveys at the undergraduate level are planned. The curriculum committee of the department has insured that all students have a relevant training in food science and nutrition. The curriculum includes several courses (eg. cooperative training and graduation project) that help students to gain professional training and improve their careers and identify employment opportunities.

F.4 – Program Organization.

4.1 Administrative Structure.

To run the department effectively and efficiently, each department at the King Saud University is administrated academically by a program committee. The program committee is responsible for curriculum, academic review, and provides general support to faculty who teach courses associated with the program. Faculty report to department chairperson who report to College Dean for matters related to administration, personnel, students, etc. The program committee has great and close working relationship with the admission office, curriculum committee, Vice Dean (Academic Affairs), the Dean, the department chairperson, faculty, and students.

4.2 Professional Nature.

The calendar description of the B.Sc. (Agri.) major in Food Science and Human Nutrition, program specifically indicates that graduates meet the educational requirements either Cooperative Learning (Internship) or Graduation Project.

The CFAS sponsors several events on campus in conjunction with the help of the stake-holders like: college council, student government, alumni, employers, food industries. In-Residence Week is going to become an annual occurrence in the near future. The objectives of the in-Residence program are to provide CFAS students and faculty with:

- an appreciation of as a profession
- insight on the application of academic studies beyond university
- an industry perspective on current issues in Saudi food and agriculture
- Knowledge of the existence of the CFAS and its activities; the working of professional bodies, societies, institutions, food industries.

The FSN has also several scholarships available to the students. These financial opportunities provide an equal opportunity for excellent students to continue their academic study.

4.3 Responsibility.

The B.Sc. program committee, comprised primarily of faculty is responsible for the curriculum, and academic review. The program committee is responsible to the College Council (Curriculum Committee), and ultimately to the University. Represent the College Council are the Dean, Vice Dean (Administration Affairs), Vice Dean (Academic Affairs), Vice Dean (Development and Quality Affairs), chairpersons of all the 8 departments of the College, in addition to 2 Faculty representatives. They meet on a regular basis at least monthly if not more frequently.

A faculty member chairs the B.Sc. (Agri.), major in Food Science and Human Nutrition, program committee, usually for a period of 2-4 years. The CFAS Dean's Office through **Prof. Dr. Ahmed Alhaidary** Vice Dean (Academic Affairs), and the University Administration provide professional support for the efficient functioning of the Program Committee on Academic Affairs.

There is also a less formal but effective process at the departmental level. Each academic department has an undergraduate curriculum committee comprised of faculty and who consider new course proposals, provide input to the Program Committee on curriculum and academic standards, and consider revisions to schedules of studies, prerequisites, course descriptions and other matters related to the undergraduate program.

All proposals for curriculum change must be reviewed and signed by the Dean, and the Vice Dean (Academic Affairs) of the CFAS before they are passed to the Board of Undergraduate Studies (Committee). **Prof. Dr. Hassan bin Abdullah Al-Kahtani** is the current Dean. He is the Chairman of the College Council and a member of the B.Sc. (Agri.) Food Science and Human Nutrition Program Committee for many years.

4.4 Planning and Evaluation.

The process and groups described in 4.3 address planning and evaluation on a regular and continuing basis. Individual courses are evaluated every semester by students in a process that is conducted on a departmental basis using questionnaires that are very similar and all include a question on the effectiveness of the instructor. These reports are included in faculty teaching dossiers that are part of the documentation reviewed by departmental and college promotion and tenure committees on a semiannual basis. The dossier engages faculty in a self-assessment process and encourages a reflective approach in developing new teaching strategies. Student assessments of teaching effectiveness, recorded in the teaching dossiers, are important inputs to the evaluation of faculty during tenure, promotion and merit salary considerations. This process provides direct feedback to instructors on the relevance and effectiveness of the materials and teaching methods instructors choose for their courses.

The department of FSN is conducting a special meeting (program review meeting) once a year to discuss subjects regarding program planning and evaluation. In this meeting the program coordinator will attend the meeting and should be prepared with all required materials necessary for program planning and evaluation. The department of FSN has many points to consider as input in program planning and evaluation; theses inputs are:

1- Student Satisfaction Form.
2- Students Consultation Report.
3- Employer Satisfaction Form.
4- Graduate Progression Report.
5- External Advice Report.

The program coordinator will collect all data generated from theses input and present them in a simple way (Excel sheet) during the program review meeting. All data collected from these five points will be considered in program planning and evaluation. During the program review meeting the program coordinator will fill out a special form "Program Planning and Evaluation Worksheet" this worksheet is used to avoid missing any point as it has a fixed agenda. On the other hand, this worksheet is used to record any recommendations and actions came up during the meeting.

4.5 Progress of Graduates.

The department of FSN is routinely survey all department's graduates (if contact with all of them are available) one year after graduation. Satisfaction, career development, employer/position and general commentary are provided by graduates. The graduates progression data is collected by a specially designed form called "Graduate Progression Report". This form to be send directly to the graduates and collected back from them; all collected form will be analyzed to get useful data which used in program planning and evaluation.

Usually our graduates have no difficulties to find job opportunities in Saudi Arabia, and they compete well for admission to graduate degrees and professional programs nationally and internationally.

4.6 Employer Input.

Employer input was fundamental to the curriculum review process. Employers and recent graduates provided the substantial data that resulted in a rethinking of curriculum and inclusion of activities to address communication skills, problem solving, conflict resolution, working in teams, computer skills and leadership qualities. On occasion, employer input comes from different corners who may be working with the CFAS in many different capacities, as employers of our graduates, collaborators in research, etc. The college faculty listens to employer/professional input and often cite such input in curriculum discussions and in support of new course proposals. The CFAS has not and does not directly solicited the views of the Scientific Societies as organizations. The process that has evolved over the years is informally conducted with employers, alumni and professionals on an individual basis.

For the accreditation review, a survey of employers of CFAS graduates will be conducted. Previously in general, the surveys indicated that the employers were satisfied to well satisfied with the overall competence of the graduates and rated them well for specific skills.

4.7 Program Development.

The department of Food science and Nutrition has been developed along with the scientific advances in the field of food science and nutrition and in response to the need of the development in the kingdom of Saudi Arabia.

The department was established in 1965 (1385 H), as the first Department of Food Science and Nutrition among the Saudi Universities, and one of the main departments in the college of Agriculture under the name Department of Food Industries including a dairy plant for students teaching.

In 1981 (1401 H), the department became an independent one awarding B.Sc. in Food Science. The number of faculty, staff and modules had consequently increased and the name of the department was changed to the department of Food Science which include all the fields of food sciences and technology.

Also, in 1981 (1401 H), the number of nutrition modules has expanded to include the field of food and nutritional sciences.. In the same year a joint master degree program was established (with the female program in nutrition and home economic) to offer M.Sc. Degree in human nutrition.

Program offering M.Sc. Degree in Food science was established in 1992 (1413 H). In 1996 (1417 H), the department name was changed to department of Food Science and Nutrition to reflect all the fields in the department and became as one of the recognized consultancy unites in the Kingdom of Saudi Arabia and as a recognized institute in food and nutrition sciences research. Students consequently awarded B.Sc. degree in food science and nutrition.

There is a strong relationship between health and nutritional status which is in turn affected by economic situation. The economical development in the Kingdom led to a drastic changes in nutritional habits that led to many health problems in Saudi society. Despite the importance of nutritional studies to compact these problems, the Saudi universities are in need for the development of academic nutritional programs. Therefore, the College of Food and Agriculture Sciences, represented in department of Food Science and Nutrition has taken this task. In 2004 (1425 H), a Ph.D. program in human nutrition for female students was established. In 2006 (1427 H), a new program of study was developed to improve student qualification in human nutrition field and research.

F.5 – Accreditation Coordinator.

5.1 Designated Coordinator.

Prof. Hassan A. Al-Kahtani (College Dean) is responsible about all academic units, faculty and programs within the College of Food and Agriculture Sciences. Dr. Abdurrahman Al-Haidary (Vice-Dean for Academic Affairs), is directly responsible about function of the academic programs.

The Dean is the designated Accreditation Coordinator for the institutional accreditation; and he is responsible about submission of the documentation regarding the institutional accreditation.
Dr. Abdurrahman Al-Dawood (Vice-Dean for Development and Quality), is the accreditation coordinator for all B.Sc. programs provided by the College of Food and Agricultural Sciences and he is responsible for submission of the documentation to the AIC.

Dr. Mohammed Alfawaz (Food Science and Nutrition Department's Chairman), is the designated coordinator for the department; and responsible for preparing all required documents regarding the academic accreditation for the B.Sc. (Agr) of food science and nutrition.

Dr. Badriaha Al-Abdulkaraim (Food Science and Nutrition Department's Vice Chairman), the designated coordinator for the department representing the female section only; is responsible for preparing all the required documents regarding the academic accreditation for the B.Sc. of Food science and Nutrition.

5.2 Academic Leadership.

Prof. Hassan Al-Khatani (The Dean), has 100% appointment to the CFAS Dean's offices. He meets regularly with the chair of the B.Sc. committee to review agenda items and make implementation plans for curriculum changes. He is involved in assigning instructors for all courses. Vice-Dean of the Academic Affairs investigates cases of academic misconduct by CFAS students or students in other colleges that occur in courses taught by instructors in the CFAS. The Dean and the Vice-Dean for the Academic Affairs are also involved in promotion and recruitment activities.

5.3 Communication to AIC/OAQ.

Prof. Hassan Al-Khatani (The Dean) and Dr. Abdurrahman Al-Dawood (The Vice-Dean for Quality and Academic Accreditation) both are responsible for communication to AIC/OAQ and submission of documentation. Any recommendation regarding the implementation of the academic accreditation should be directed to one of them.

F.6 – Curriculum.

6.1 Proposal and Requirements.

The Food Science and Nutrition is a four-years program in which the student is exposed to cultural, basic science, agricultural, and Food & Nutrition core courses. Moreover, students are supervised for field training in both specialties (Food Science and Human Nutrition). Students who chose not to take the internship are given one more semester of departmental elective courses.

Our program is established and developed based on two main strategic sources;

1. Our experiences in the field of food science and nutrition.
2. Many programs in the same field were considered from reputable universities worldwide.

In order to improve the quality of our program we strive to fulfill the following requirements;

1. Agricultural Institute of Canada (AIC).
2. Institute of Food Technologists (IFT).
3. American Dietetic Association (ADA).

6.2 Consistent with Objectives.

The program is designed to qualify specialists in the area of food science and human nutrition with knowledge and skills appropriate for the job market by providing high-quality academic programs at the university level and postgraduate.

6.3 Sequential Development, Basic Knowledge & Specialization.

Table E-1: B.Sc. (Agri.) Food Science and Human Nutrition Major Course Analysis

Level -1		
Code & No.	**Course Title**	**Credits**
IC 101	Introduction to Islamic Culture	2
PHYS 101	General Physics -1	4
MATH 103	General Mathematics -1	3
BOI 101	General Botany	4
SOSC 103	Introduction to Environmental Science	2
AGEXT 104	Introduction to Agriculture	2
Total		17

Level - 2		
Code & No.	**Course Title**	**Credits**
ARAB 101	Language Skills	2
CHEM 101	General Chemistry (1)	4
IC 102	Islam And The Construction of Society	2
PPS 105	Plant Production Systems	2
FSN 103	Basic Concepts in Food and Nutrition	2
ENG 101	English Language for Agriculture and Education	3
STAT 122	Applied Statistics (1)	3
Total		18

Level - 3		
Code & No.	**Course Title**	**Credits**
IC 103	The Islamic Economics System	2
ANP 105	Animal Production Systems	2
ARAB 103	Expository Writing	2
ZOO 102	Introductory general Zoology	4
AGEXT 203	Communication Skills	2
SOSC 201	Fundamental of Soil Science	3
AG EC 201	Principles of Agricultural Economics	2
CT 102	Introduction to Computer for Agriculture	2
Total		19

Level - 4		
Code & No.	**Course Title**	**Credits**
IC 104	Political System in Islam	2
BCH 101	General Biochemistry	4
FSN 202	Principles of Food Sciences	2
FSN 206	Principles of Human Nutrition	2
CHEM 1081	Introduction of Organic Chemistry	4
PLPT 211	Agricultural Microbiology	3
Total		17

Level - 5		
Code & No.	**Course Title**	**Credits**
ZOO 331	Physiology (1)	3
FSN 315	Nutritional Biochemistry	3
FSN 316	Food Chemistry	3
FSN 322	Food Microbiology	3
FSN 361	Nutrition During the Life Cycle	2
FSN 464	Community Nutrition	3
CHEM 2511	Analytical Chemistry	3
Total		17

Level - 6		
Code & No.	**Course Title**	**Credits**
FSN 317	Food Analysis	3
FSN 325	Sanitation and Food safety	2
FSN 352	Food Processing and Preservation	3
FSN 372	Assessment of Nutritional Status	2
FSN 375	Diet Planning	3
FSN 456	Quality Control and Sensory Evaluation of Food	2
CHS 470	Nutrition and diseases	3
Total		18

Level - 7		
Code & No.	**Course Title**	**Credits**
FSN 400	Cooperative Training	12
Total		12

OR

Level - 7		
Code & No.	**Course Title**	**Credits**
FSN 410	Computer Applications in Nutrition	1
FSN 420	Food Biotechnology	2
FSN 481	Selected Topics in Food and Nutrition	2
FSN 495	Special Studies	2
FSN 435	Date Science and Technology	2
ZOO 333	Physiology (2)	3
Total		12

Level – 8 (Male Students)		
Code & No.	**Course Title**	**Credits**
FSN 381	Nutrition Consultation	1
FSN 422	Food Services	2
FSN 433	Dairy Science and Technology	4
FSN 437	Cereal Science and Technology	4
FSN 439	Meat Science and Technology	4
AGENG 320	Fundamentals of Food Process Engineering	3
Total		18

The final semester for the Female students is different than final semester of male students. This difference is due to the fact that females are non accessible to work in food industrial sector. The courses at this level are mainly focused on non nutritional courses. The 8th level courses for the female students are listed in the following table.

Level – 8 (Female Students)		
Code & No.	**Course Title**	**Credits**
BAP 101	Business Administration	**3**
SOC 463	Social and Medical Services	**3**
BCH 376	Analysis of Biological Fluids	**3**
FSN 381	Nutritional Counseling	**1**
FSN 422	Food Services	**2**
FSN 465	Applied Nutrition	**3**
FSN 472	Nutrition in Developing Countries	**2**
FSN 477	Micronutrients	**2**
Total		**18**

6.4 Professional Ethics/Attitudes.

Food Science and Human Nutrition program involves in large with public health and safety issues related to food. Therefore, being honest and promoting trust are essential part of profession. Such values are covered mainly in four courses provided by the Department of Islamic Studies (IC courses) in the first two years of the program. More professional ethics are provided through courses such as FSN 325 and FSN 456.

6.5 Communications Skills.

Students are exposed from the first year in the program to skills development. For example, ARAB 101 and ARAB 103 courses to help developing basic language skills in writing and reading comprehension. More skills related Food and Nutrition profession are given in 203 AGEXT.

6.6 Computer Skills.

All student are required to take 102 TECH in which the learn how to use the computer in different aspects of their academia and profession; such as word processing and spread sheets and communication programs. Furthermore, Food Science and Nutrition students take the course 410 FSN in which they gain more knowledge and skills in using computer in nutrition such as diet planning.

6.7 Critical Analysis/Problem Solving.

Critical analysis and problem solving skills are applied in some of our courses. Students are encouraged to solve problem related to Food Science and Nutrition utilizing some real examples related to field and market place. The program encourages independent and group critical analysis and problem solving skills.

6.8 Team Work/Group Skills.

Starting from the first year, but more comprehensive at the last two years of the program, students are involved in team work practices especially in laboratory sessions. In courses like FSN 375 (Diet Planning), students are practicing the team work skill.

Table F-2: Summary of skill development in core courses of the Food Science and Human Nutrition program.

Course Code	Course Title	PE	CS	CPS	CA/PS	TW/GS
IC 101	introduction to Islamic culture					
IC 102	Islamic and building of community					
IC 103	the economical (system) regulation in Islam					
IC 104	The political regulation in Islam					
ARAB 101	Language Skills					
ARAB 103	Arabic Basic Writing					
PHYS 101	General Physics (I)					
MATH 103	General Mathematics I					
BOT 101	General Botany					
CHEM 101	General Chemistry 1					
CHEM 108-1	Introduction to Organic Chemistry					
CHEM 251	Analytical Chemistry					
BCH 101	General Biochemistry					
STAT 122	Applied Statistics					
ANP 105	Introduction to Animal Production Systems					
SOSC 103	Introduction to Environmental Science					
PPS 105	Plant Production Systems					
ENG 101	English Language					
ZOO 102	Principles of Zoology					
SOSC 201	Fundamental of Soil Science					
CT 102	Introduction to Computer for Agriculture					
CHS 471	Nutrition and Diseases					
ZOO 331	Physiology-1					
ZOO 333	Physiology-2					
AGEXT 104	Introduction to Agriculture					
AGEXT 203	Communication Skills					
AGEC 201	Principles of Agricultural Economics					
AGEN 310	Principles of Food Engineering					
PLPT 211	Agricultural Microbiology					
FSN 103	Basic Principles in Food and Nutrition	L	L	L	L	L
FSN 202	Principles of Food Science	L	L	L	L	L
FSN 206	Principles of Humans Nutrition	L	L	L	L	L
FSN 315	Nutritional Biochemistry	L	L	L	L	L
FSN 316	Food Chemistry	L	L	L	L	L
FSN 317	Food Analysis	L	M	L	H	H
FSN 322	Food Microbiology	L	M	L	H	H
FSN 325	Sanitation and Food Safety	M	M	L	H	M

FSN 352	Food Processing and Preservation	L	L	M	H	H
FSN 361	Nutrition during the Life Cycle	L	L	L	L	L
FSN 372	Assessment of Nutritional Status	M	M	M	M	M
FSN 375	Diets Planning	M	H	H	H	H
FSN 381	Nutritional Consultations	M	H	M	L	M
FSN 400	Cooperative Education	M	H	M	M	H
FSN 410	Computer Applications in Nutrition	L	M	H	M	M
FSN 420	Food Biotechnology	M	L	L	M	L
FSN 422	Food Service	M	M	M	M	M
FSN 433	Dairy Science and Technology	L	M	M	M	H
FSN 435	Dates Science and Technology	L	M	M	M	H
FSN 437	Cereal Science and Technology	L	M	M	M	H
FSN 439	Meat Science and Technology	L	M	M	M	H
FSN 456	Quality Control and sensory Evaluation of Foods	M	H	M	M	H
FSN 464	Community Nutrition	M	M	L	L	L
FSN 470	Nutrition and Diseases	L	L	L	L	L
FSN 481	Selected Topics in Food and Nutrition	M	M	L	M	M
FSN 495	Special Studies	M	M	M	M	M

PE= Professional Ethics, **CS**= Communication skills, **CPS**= Computer skills, **CA/PS**= critical analysis/problem solving, **TW/GS**= Team wok/ group skills.
H= High, **M**= Medium, **L**= Low

6.9 Unique Features.

- The Food Science and Nutrition Department is the oldest department among the Food Science Departments in the Saudi Universities.

- The Food Science and Nutrition Department gets the highest enrolment in the college for the past several years.

- The department is unique in the sense of having four pilot plants; milk pasteurization and cheese processing unit, cereal plant (milling, processing, baking, lab.), meat processing plant as well as date sorting and packaging line. Moreover, controlled atmosphere and extrusion units are supervised in conjunction with Agriculture Engineering Department and used to train FSN students.

- The department has several teaching as well as research laboratories. For example, a well equipped food chemistry and food microbiology labs. are available for teaching students the analysis of the different components of food (protein, lipids, moisture, ash, carbohydrates, …) as well as determining the microbial quality of food and isolation & identification of various microbial hazardous, respectively.

The department also owes several research and teaching laboratories such as an advanced biotechnology lab.,2 food microbiology labs., dairy chemistry lab., advanced food analysis lab., oils and fats lab., detection of irradiated food lab., sensory analysis lab., date technology lab., as well as other research laboratories.

- The Department had the major role in the establishment of both The Saudi Society of Food Science and Nutrition and The Saudi Food and Drug Authority. The graduates of the program have a wide range of job opportunities in both governmental and private sectors.

- A Baccalaureate Program Management System was established in accordance with the AIC requirements. It covers the six points listed in the AIC manual: Program's coordinator and faculty members, Program and curriculum, Students, Graduates, Resources and External advice. Each, includes a well written procedure describes such point as well as accompanied records. The combined procedures and their records form the Manual of the FSN Baccalaureate Program Management System, which is considered a unique future for our program.

6.10 General Modification.

According to the new trends and policies of King Saud University to improve study plans to meet the requirements of academic accreditation, implementation of preparatory year for the college student and to fulfill changing in job market requirements. This new step will help in the fulfillment of the department mission and goals.

Table F-3: Proposed Program for B.Sc.(Agri.), Food Science and Human Nutrition.

Preparatory Year		
Code	**Course Title**	**Credits**
ENGL 140	English Language 1	**8**
MATH 140	Mathematics 1	**2**
CSK 140	Communication Skills	**2**
TEC 140	Computer Skills & Information Tech.	**3**
ENGL 150	English Language 2	**8**
MATH 150	Mathematics 2 (calculus)	**3**
LTS 140	Learning, Thinking and Research Skills	**3**
CHS 140	Health and Fitness	**2**
Total		**31**

Level – 3		
Code	**Course Name**	**Credit hrs**
101 IC	Introductory Islamic Culture	**2 (2+0)**
101 PHYS	General Physics (1)	**4 (3+1)**
102 BOT	General Botany	**3 (2+1)**
201 AGEC	Principles of Agricultural Economics	**2 (2+0)**
101 BCH	General Biochemistry	**4 (3+1)**
202 FSN	Principles of Food Science	**2 (2+0)**
106 STAT	Bio Statistics	**2 (2+0)**
Total		**19**

Level – 4		
Code	**Course Name**	**Credit hrs**
102 IC	Islam and Community Structure	**2 (2+0)**
316 FSN	Food Chemistry	**3 (3+0)**
103 ZOO	Principles of Zoology	**3 (2+1)**
211 PLPT	Agricultural Microbiology	**3 (2+1)**
103 CHEM	General Chemistry (1)	**3 (3+0)**
104 CHEM	General Chemistry Lab	**1 (0+1)**
206 FSN	Principles of Human Nutrition	**2 (2+0)**
Total		**17**

Level – 5		
Code	**Course Name**	**Credit hrs**
103 IC	Economic System of Islam	**2 (2+0)**
108-1BOC	Introductory Organic Chemistry	**4 (3+1)**
331 ZOO	Physiology-1- Nutritional Biochemistry	**2 (1+1)**
315 FSN	Food Analysis	**3 (3+0)**
317 FSN	Food Microbiology	**3 (1+2)**
322 FSN	Introduction to Animal	**3 (2+1)**
105 ANPR	Production Systems	**2 (2+0)**
Total		**19**

Level – 6		
Code	**Course Name**	**Credit hrs**
325 FSN	Sanitation and Food Safety	**2 (2+0)**
352 FSN	Food Processing and Preservation	**3 (2+1)**
361 FSN	Nutrition during the Life Cycle	**2 (2+0)**
372 FSN	Assessment of Nutritional Status	**2 (1+1)**
381 FSN	Nutritional Consultations	**1 (1+0)**
375 FSN	Diets Planning	**3 (3+0)**
470 CHS	Nutrition and Disease	**3 (3+0)**
105 PPS	Plant Production Systems	**2 (2+0)**
Total		**18**

Level – 7		
Code	**Course Name**	**Credit hrs**
400 FSN	Cooperative Learning	**12**
	OR *alternative 12 hrs from:*	
464 FSN	Community Nutrition	**3 (2+1)**
410 FSN	Computer Applications in Nutrition	**1 (0+1)**
420 FSN	Food Biotechnology	**2 (2+0)**
422 FSN	Food Service	**2 (2+0)**
456 FSN	Quality Control and sensory Evaluation of Foods	**2 (1+1)**
495 FSN	Special Studies	**2 (0+2)**
333 ZOO	Physiology-2	**3 (2+1)**
Total		**12**

Level – 8 (Food Science Field, Male Only)		
Code	**Course Name**	**Credit hrs**
433 FSN	Dairy Science and Technology	**4 (2+2)**
435 FSN	Dates Science and Technology	**2 (2+0)**
437 FSN	Cereal Science and Technology	**4 (2+2)**
439 FSN	Meat Science and Technology	**4 (2+2)**
104 IC	Principles of Political System in Islam	**2 (2+0)**
320 AGEN	Food Process Engineering Principles	**3 (2+1)**
Total		**17**

Level – 8 (Human Nutrition Field, Male & Female)		
Code No	**Course Name**	**Credit hrs**
465 FSN	Applied Nutrition	**3 (3+0)**
472 FSN	Nutrition in Developing Countries	**2 (2+0)**
477 FSN	Micronutrients	**2 (2+0)**
481 FSN	Selected Topics in Food and Nutrition	**2 (2+0)**
104 IC	Principles of Political System in Islam	**2 (2+0)**
376 BCH	Analysis of Biological Fluids	**3 (2+1)**
463 SOC	Medical Social Work	**2 (2+0)**
101 ADM	Principles of public Management	**3 (3+0)**
Total		**17**

F.7 – Graduates – Work Place Performance.

In preparation of this self study report, one page survey form "Employer Satisfaction Form" is going to be sent to the employers of our graduates. Their expected detailed responses will be analyzed and will be available to the accreditation team as original hand written / typed responses during the site visit.

In addition, a two pages form "Graduate Progression Report" will be sent to all graduates (If contact information is available) after one year of graduation. This form includes two main sections; first is program evaluation; the second is employment progress. Their expected detailed responses will be analyzed and will be available to the accreditation team as original hand written / typed responses during the site visit.

F.8 – External Advices.

The department of Food Science and Nutrition is obtaining external advices in order to use these advices in B.Sc. (Agri.) of Food Science and Human Nutrition program planning and evaluation. The external advices help us to figure out what the job market need. The department obtaining the external advices by inviting persons representing external parties relevant to food and nutrition. External advices are collected from regulatory bodies, employers, governmental agencies, researches bodies, other colleges, scientists and experts, business men, companies managers, and/or any other parties related to or interested in the field of food sciences and nutrition.

The department of Food Science and Nutrition follows a specified procedure to invite and meet with external parties. In addition, graduates survey is a significant source of data and advice for the department, and there is a formal procedure for collecting information and advices from graduates.

Chapter G : Number of Students.

Table G.1 : number of male and female students registered and graduated from the department until the first semester 2010

Year	Registered		Graduated	
	Male	Female	Male	Female
2000	99	245	26	43
2001	99	264	38	50
2002	99	274	19	45
2003	107	265	34	27
2004	106	327	37	30
2005	105	420	37	44
2006	123	479	31	68
2007	147	491	29	62
2008	136	502	44	32
2009	159	473	45	94
2010	167	379	--	--

Chapter H : Program and Curriculum.

Curriculum of both Current and Modified Programs (B.Sc. (Agri.) major Food Science and Human Nutrition).

FSN 103 Basic Principles in Food and Nutrition 2(2+0)

Importance of food- Macro- and micronutrient components of food- criteria used for food control- Safety and wholesomeness of food- Agencies regulating food and nutrition in the Kingdom- some of malnutrition diseases – importance of breast feeding- food guidelines.

FSN 202 Principles of Food Sciences 2(2+0)

Overview of food –Nutritional status in the Kingdom and worldwide – Food Groups (milk- meat, legumes and eggs – vegetables – fruits – cereals and bread products) – Physical, chemical and microbial spoilage of foods – introduction to food preservation – Food commodities (milk and dairy products, vegetables and fruits, cereals, meats, lipids and sugars).

FSN 206 Principles of Humans Nutrition 2(2+0)

Introduction to the science of nutrition – Nutrients (carbohydrate, proteins, lipids, vitamins, minerals and water) – Functions, sources and body needs of nutrients – balanced diet – Digestion, absorption and metabolism of macronutrients – food energy and its determination and estimation of body energy needs – Malnutrition diseases.

FSN 315 Nutritional Biochemistry 3(3+0)

Metabolisms of carbohydrates, lipids and protein – Integration and regulation of metabolism – Roles of vitamins in metabolism (B1, B2, niacin,B6 and pantothenic acid) – Metabolism of vitamins and minerals.

FSN 316 Food Chemistry 3(3+0)

Physical, chemical and functional properties of water, carbohydrates, proteins and lipids in foods – The roles of enzymes and food additives in foods – chemical changes and integrations among principle components of foods during handling and production processes – Physical, chemical and stability of vitamins and pigments – Chemical reactions in food such as browning reactions and lipid oxidation.

FSN 317 Food Analysis 3(1+2)

Methods of sampling and handling of samples for analysis – preparation of standard solutions – Preparation of buffer solutions – Method of titration – Determination of moisture, ash, fat, fibers, protein and sugars – Spectrophotometry and chromatography and their applications in foods analysis.

FSN 322 Food Microbiology 3(2+1)

Microbial groups (bacteria, molds and yeasts) important in foods – Factors affecting microbial growth in foods (intrinsic and extrinsic parameters) – Microbial spoilage characteristics of foods – Methods of controlling microorganisms in foods (physical, chemical and biological methods) – Microbiology of different food commodities and food infection and poisoning - Dairy microbiology (contamination – starter cultures) – Pathogenic microorganisms.

FSN 325 Sanitation and Food Safety 2(2+0)

Health hazards (biological, chemical , physical) associated with foods – Food premises sanitation – Cleaning and sanitation of food premises – water in food premises – Liquid and solid wastes management and treatment in food premises – Insects and rodents management at the food establishments – Food inspection systems (role of inspection in food quality and safety, food inspection planning, good manufacturing practicing and good hygienic practicing , hazards analysis and critical control points) – Introductory foodborne diseases epidemiology.

FSN 352 Food Processing and Preservation 3(2+1)

Technologies of preservation and processing and the relationship between them – Preparation of animal and plant raw materials for the methods of preservations (refrigeration, freezing , thermal processing) and processing preservation (canning, pickling, salting, smoking, concentration) and methods of processing (modified processing, extraction, drying) and nontraditional methods of processing (food irradiation) – Development of new products – traditional and innovative packaging systems (smart packaging).

FSN 361 Nutrition during the Life Cycle 2(2+0)

Nutrition during pregnancy – Nutrition during lactation – Nutrition of infants – Nutrition of preschool children – Nutrition of school children – Nutrition of adolescents – Nutrition of adults – Nutrition of the elderly.

FSN 372 Assessment of Nutritional Status 2(1+1)

Introduction to nutritional assessment – Anthropometric methods – Biochemical methods – Clinical methods - dietary intake methods –assessment of body composition – assessment of vitamins status – assessment of minerals status – assessment of macronutrients status.

FSN 375 Diets Planning 3(2+1)

Dietary standards –Food composition tables and their use –Adequate diet – Use of food exchange system and food groups for planning adequate diet – Estimation of human energy requirements – methods of evaluating diet and nutritional status – Diet planning applications .

FSN 381 Nutritional Consultations 1(0+1)

The course introduces applied components of nutrition counseling practice and related counseling theories. Basic communication skills development.

FSN 400 Cooperative Learning 12(0+12)

The student shall work continually for 27 weeks at a food establishment which he selected with the approval of the department. The student will be evaluated by the training supervisor and the academic advisor on the bases of his abidance to the training program and schedule and the reports he submit during training and on the final training report presentation and discussion.

FSN 410 Computer Applications in Nutrition 1(0+1)

Applications of computer programs on human nutrition – Use of nutritional programs on diet planning, nutritional calculations and food tables – Applications of computer on nutrition researches.

FSN 420 Food Biotechnology 2(2+0)

Overview of biotechnology and its historical development – Principles and procedures of biotechnology and its applications in food processing – Industrial fermentations – Types of bioreactor – Use food processing wastes in production of materials of economic value – Enzymes and food processing – New topics in foods biotechnology.

FSN 422 Food Service 2(2+0)

Types and management of food service systems – Designing the food service systems and preparation of food menus and the factors affecting that – Economical and nutritional basis of food selection –Scientific and technical considerations of meal preparation and serving.

FSN 433 Dairy Science and Technology 4(2+2)

Composition and properties of milk - Factors influencing the composition of milk -Sanitary practices in milk production - Changes in milk during storage and processing - Processing of pasteurized and long life milk - Cultures and their preparation -Processing of fermented dairy products - Processing of recombined dairy products -Processing of milk fat products, concentrated and dry milk products - Processing frozen desserts.

FSN 435 Dates Science and Technology 2(2+0)

Kingdom production of dates – Stages of date ripening – Nutritional components of dates – Physical and chemical properties of dates – Engineering characteristics – Complementary processing (sorting, washing, sterilizing, packing, storing, freezing and drying) – date products – Dates in other food products –Dates by products.

FSN 437 Cereal Science and Technology 4(2+2)

Cereal classification according to type and use – Grain storage and pre-processing- Grain dry milling – Rice and rice processing – Pasta : wheat durum products like Macaroni and spaghetti – Grain wet milling : starch , gluten and syrup – Grain flour and flour processing - Biscuit and cake production – Breakfast cereals production.

FSN 439 Meat Science and Technology 4(2+2)

The economic and nutritional values of meat and meat products – Slaughterhouse and its importance – Meat carcasses(major cuts and chemical composition)- Structure and functions of meat muscle- postmortem changes in meat muscles- Factors affecting meat palatability- meat type identification- poultry slaughter and processing- Chemical and physical characteristics of fish – meat, poultry and fish preservation and storage- meat and fish processed products (cured meat products, sausages, smoked meat, dried meat, canned meat, canned fish, smoked fish and dried fish products)- Meat, poultry and fish by-products.

FSN 456 Quality Control and sensory Evaluation of Foods 2(1+1)

Introduction to quality control - Quality aspects and their measurement - Food regulation in the Kingdom - Quality management systems - ISO 9000 standards - Statistical quality control methods - Sensory attributes - Purpose and applications of sensory evaluation in food - Quantitative overall and attribute difference tests - Affective tests (consumer tests) - Descriptive analysis methods.

FSN 464 Community Nutrition 3(3+0)

General principles in community nutrition – Designing , executing and evaluating community nutrition programs – Nutritional intervention – food information– Programs of group nutrition – Roles of local and international organizations in community nutrition.

FSN 470 Nutrition and Diseases 3(3+0)

Nutrition in the states of obesity, diabetes, diseases of digestive and renal systems, disorder of fat metabolism, cardiovascular diseases and hypertension.

FSN 481 Selected Topics in Food and Nutrition 2(2+0)

Selected topics in the current knowledge of the different aspects of food and human nutrition from scientific periodicals in English language.

FSN 495 Special Studies 2(0+2)

Student select with the agreement of one of the staff member study subject in one area of food and nutrition – Student will be evaluated on the basis of his effort in executing , writing and discussion of the report.

Appendices

I. Letters of Support.
II. FSN Baccalaureate Program Manual (FSN-BP-M)
III. FSN Program Description (FSN-P02-F01)
IV. Courses Outlines (FSN-P02-F02)
V. Faculty Personnel Data (FSN-P01-F03)
VI. Department Resources.(FSN-P05-F01)