**Ministry of Education**

Zero Draft Document On Competencies And

Courses Identification For Exit Examination

Program: Natural Resources Management

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Identified Competency Focus Areas and Core Courses for National Exit Examination:

Program: Bachelor of Science in **Food Science and Postharvest Technology (FSPT)**

Animal Sciences Graduates To Be Held In 2015 E.C

Competencies & Courses Suggested For Exit Examination For Bsc In

Animal Sciences Graduates To Be Held In 2015 E.C

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# Introduction

Food science and postharvest technology program is the program in which professionals involved in food production, processing, preservation and packaging are intended to develop competencies for the work. Professionals are capable of doing research in the area of Food Science and postharvest technology and related disciplines such as the food and beverage industries, pharmaceutical and other bioprocess industries (particularly as experts in processing, optimizing/ modifying, quality control and assurance, etc.).

The exit exam as an assessment tool for Food Science and postharvest technology programs is receiving attention to fulfill the gap of the graduates in the profession and will begin in 2015 EC as planned from MoE. Besides basic food science aptitude, several factors have been recognized to contribute to performance, with “motivation to pass” as one of the most significant factors. The subsequent analysis concluded that the exit examination will generate significant amounts of useful assessment data and indeed there should be urgent use of such data to be used in academic performance indicator. Several notations and conclusions have been drawn, however, the examinee’s motivation to pass contribute to the viability of the exam to be taken prior to graduation.

Exit examinations are common for high school graduates who wish to enter university. The exams result in positive effects on student achievement, due to hardworking of students by motivating themselves to pass and instructors to make their students to be promoted by the exam. The goal for implementing exit examinations is to encourage students to put effort into their learning. Although examinations for professional licensing are common for different disciplines, exit exams for students who are completing their bachelor degree are not common in Ethiopia. Exit examination is an exam which a student is required to pass in order to complete a course of study which is given to students towards the end of their higher education tenure. It is Curriculum based exam to assess performance basically knowledge, skill and attitude. It is supposed to measure the learning outputs of a program as a whole not the individual course.

# Graduate Profile

Graduates of this program will be equipped with attitude, skill and knowledge in food processing and preservation, food safety, quality control & assurance and postharvest handling of various agricultural products. They will:

* Consult and advise quality and process control and product development,
* Advise governmental and non-governmental organizations, regulatory agencies (work in inspection, accreditation, standardization, etc), quality standard, health organizations, and the like involved in food processing and preservation, food safety & security and various community development activities,
* Advocate and work towards the standards, codes of conduct and ethics of the food industry, research and food processing,
* Consult stakeholders in the postharvest loss reduction and product quality control,
* Coordinate and consult with stakeholders in the improvement of food retail markets organization, quality handling and structures,
* Conduct food safety and quality tests and manage warehouses,
* Engage in research in food science and postharvest technology and related fields,
* Consult different companies and agencies on food processing, product development and postharvest handling,
* Involve in food security and nutrition programs,
* Involve in food systems monitoring and evaluation to maintain the quality and safety of foods in Ethiopia, and
* Teach at various education levels

# Learning Outcomes and Competencies

Professionals in Food Science and Postharvest Technology are involved in food production, processing, preservation and packaging. They are capable of doing research in the area of Food Science and Technology and related disciplines such as the food and beverage industries, pharmaceutical and other bioprocess industries (particularly as experts in processing, optimizing/ modifying, quality control and assurance, etc).

The Food Science and Postharvest Technology professional produce human power with:

* Knowledge and skills that meet the international standards of Food science and postharvest technology
* Attitude, skill and knowledge necessary for food science and postharvest technology and value addition of agricultural products.
* The ability to adapt and/or generate technologies through demand-driven and problem-solving research in the area of food science and postharvest technology.

Thus the professionals can disseminate appropriate technologies to potential users, demonstrate the ask qualification to serve the market needs, with a high sense of responsibility to themselves and society, with discipline and creativity as well as conducting research and engage in development in Food science and postharvest technology as its outcomes.

1. Competencies**:**

Competencies are capabilities of food science and technology graduates in different stakeholders and that clearly measure students’ performance from the curriculum:

* Identify postharvest problems of the country and provide innovative solutions to problems from farm to fork to contribute to food and nutrition security,
* Identify, plan, design and manage postharvest loss reduction,
* Design and develop new products or modify already existing products,
* Design and implement processes to suit escalating consumer demand for food of high nutrition and quality, international laws and standards necessary to penetrate the global market with processed food of high values,
* Implement quality control programs, good manufacturing practice (GMP), hazard analysis critical control point programs (HACCP) towards consistent quality production and consumer safety,
* Play advisory and technical roles in document preparation-specification, purchase, installation and commissioning of the pilot and large-scale industries,
* Manage production, marketing, packaging and distribution of food and beverage products along the value chain and
* Teach or provide training in food science, postharvest technology, food biochemical processing and the related areas of study.

# Core courses for the exam classified by themes

Course identification is done based on the food science postharvest technology thematic areas, relevancy to measure the three learning domains (knowledge, skill and attitude) as well as the courses that can measure the stated competencies of the graduates. Accordingly, the core courses for this purpose are selected and categorized in themes as follows:

|  |  |
| --- | --- |
| **Theme-1**  **Basics of Food Science and Post-harvest** | |
| **Courses** | **Credit Hours (ECTS)** |
| Food Microbiology | 5 |
| Research Methodology and Experimental Design | 5 |
| Food Analysis | 5 |
| Human Nutrition | 5 |

|  |  |
| --- | --- |
| **Theme-2**  **Food Process Engineering and Post-harvest Technology** | |
| **Courses** | **Credit Hours (ECTS)** |
| Principles of food processing and preservation | 5 |
| Meat, Poultry and Fish Processing Technology | 5 |
| Engineering Properties of Food Materials | 3 |
| Food Packaging Technology | 3 |
| Sugar, Honey and Confectionary Technology | 5 |
| Fats and Oils Processing Technology | 3 |
| Dairy Product Processing Technology | 5 |
| Beverage Processing Technology | 5 |

|  |  |
| --- | --- |
| **Theme-3**  **Post-Harvest Handling and Physiology** | |
| **Courses** | **Credit Hours (ECTS)** |
| Coffee, Tea, Spices and Herbs Processing Technology | 5 |
| Grains Postharvest Handling and Processing Technology | 5 |
| Fruits and Vegetables Postharvest Handling and Processing Technology | 5 |

1. **Conclusion**

An exit examination tests student’s capability at the end of their program of study for attainment of the program's intended learning outcomes and the exam will contain questions from the selected core courses. The exam is a mandatory exam and requirement for degree completion administered on campus. It is vital to the improvement of Food science and postharvest technology programs quality and effectiveness.

For this purpose 15 courses are selected under three themes. Items in the exit exam should be more of general and mapped with the selected core courses, within which the three learning domains (knowledge, skill and attitude) can be measured.