

**EXTERNAL CONSULTATIVE COUNCIL WITH FACULTY OF EDUCATIONAL PROGRAM OF
ENGINEER IN FOOD INDUSTRY
MEETING FOR ESTABLISHMENT OF EDUCATIONAL OBJECTIVES OF PROGRAM AND
CHANGES OF THE CURRICULUM
ORDINARY SESSION No. 02-2017**

Session held on November 25, 2017, at 9 am, in the meeting room No 1 of the Agribusiness Center.

Employers

External Consultative Council (ECC)

M.Sc. Paola López Cervantes (Sigma)
Eng. Dalila Maldonado Caraza (PepsiCo)
Eng. Jesús Sotelo Navarro Vidales (Bydsa)
Eng. Raúl Guillermo Uribe Alcántara (Qualtia)
Mr. Jaime H. Yesaki Cavazos (JJ Yasaki Food Group)

Absents:

Eng. Roberto Ancira Esquivel (Action Coach Manager)
Eng. Roberto Gómez Esquivel (Molineramx)
Eng. María Guadalupe Ovalle Álvarez (The Hershey Co.)
Eng. Gerardo Ignacio Saldivar Carranza
Eng. Jesús Serrano Leal (The Hershey Co.)
Eng. Hugo de León Pérez (Molinos Azteca)

Faculty

Prof. Juana Aranda Ruiz
Prof. Hugo Bernal Barragán
Prof. Alejandro Sergio del Bosque González
Assoc. Prof. Héctor Flores Breceda
Prof. Celestino García Gómez
Prof. Alejandro Isabel Luna Maldonado
Prof. Julia Mariana Márquez Reyes
Prof. Gerardo Méndez Zamora
Prof. Guillermo Niño Medina
Prof. Humberto Rodríguez Fuentes
Prof. Beatriz Adriana Rodríguez Romero
Prof. Romeo Rojas Molina

Absents:

Prof. Ernesto Javier Sánchez Alejo
Prof. Juan Antonio Vidales Contreras
Prof. Guillermo Cristian Martínez

In accordance with the agenda, the following topics were revised:

1. Analyze and select the educational objectives of the educational program (PE) Food Industry Engineer, which will be presented in the response document required by the Accreditation Board for Engineering and Technology (ABET).

The Dean of the Faculty of Agriculture, Prof. Alejandro Sergio del Bosque González, welcomed the members of the ECC and introduced Prof. Alejandro Isabel Luna Maldonado as the new Head of the EP of Food Industry Engineering from October 25 from 2017 to April 17, 2019, who in turn presented a proposal for the program educational objectives (PEO's), which were analyzed, selected and approved as follows:

Educational Objectives of Program

Purpose

Within 3 to 5 years of graduating from the Food Industry Engineer program, graduates are expected to achieve one or more of the following milestones:

- Advance professionally in positions that integrate food engineering and other perspectives such as research and development, education, etc.
- Earn a postgraduate degree or an advanced certification.
- Assume leadership roles in technical, community, public organizations or other endeavors.
- Become a successful manager, consultant or entrepreneur who is developing global expertise.
- Written scientific articles and received patents.

Food Industry Engineer EP Outcomes

General objective

To provide an education to someone in food industry engineering integrating the principles of engineering and food technology with professional ethics in the sustainable processing of food, considering innovation and design of food processes for the welfare of society.

Specific objectives

- Design agri-food industries based on sustainable processing systems.
- Employ engineering and technical knowledge using interpersonal skills during the development of their profession.
- Address areas of opportunity in the agri-food industry by innovating and applying science and technology.

Food Industry Engineer Student outcomes

1. Apply the knowledge of mathematics, science and engineering.
2. Design and conduct experiments, as well as analyze and interpret data.

3. Design a system, component or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. Work in multidisciplinary teams.
5. Identify, formulate and solve engineering problems.
6. Understand professional and ethical responsibility.
7. Communicate effectively.
8. Understand the impact of engineering solutions in a global, economic, environmental and social context.
9. Recognize the need to participate in lifelong learning.
10. Know the contemporary problems.
11. Use modern engineering techniques, skills and tools necessary for the practice of engineering.

All the members of the ECC reviewed the PEO's and outcomes and agreed with them.

2. Results Analysis of the Interviews to Graduates and Employers to Justify the Changes to the Curriculum of EP Food Industry Engineer.

The Head of the PE of Food Industries Engineer, Prof. Alejandro Isabel Luna Maldonado, with the support of the rest of Faculty, presented the progress of the adaptation of the EP and in addition four members of the ECC suggested the following:

M.Sc. Paola López Cervantes:

Specifically, on microbiology, most of the problems that we have in food organizations are that they do not include a basic knowledge of the severity due to the pathogenicity of some of them, it is important to include in the matter more crisis cases, with the purpose to establish a first foundation in creating a culture of safety.

I do not see in any semester food toxicology.

For food microbiology, it is important that a basic knowledge of NOM ISO 17025 be included in the laboratory, because it is the day to day work.

For the learning unit (LU) Sampling and Analysis of Water, I would suggest not to limit it to just that, it is important in the industry to know how the hardness of the water affects the food product and the washing of the processing equipment, as well as to establish from the design, the permissible levels of chlorine for some foods and the effects they may have on the performance of the process. Considering that it is the basic raw material of the industry, coinciding with its relevance, only focus on the functionality it has.

With respect to the UA programming languages, it is not something that provides value directly on all Visual Basic, it is more useful that the graduates have skills in the Office tools (executive presentations, use macros, use Excel correctly, present reports, monitor and interpret indicators, use of Outlook).

Before the LU Food Quality Systems, I would propose a single HACCP subject, since it is the foundation in the design of a product and process within the food industry, no system can be understood, if you do not have full knowledge, in addition It is complex. Here I would propose that the achievable, at least was to obtain the basic HACCP Alliance degree. About Quality Systems: ISO 22000 is already obsolete, it has been replaced by FSSC 22000 since the other scheme was not recognized or accepted by the Global Food Safety Initiative GFSI. There are currently 10 schemes recognized by GFSI and having a certification is mandatory in the industry, a graduate should at least know generalities, how to do procedures, and how to work with them.

About LU Hygiene, at least this issue should be integrated into the Hygienic Design of the equipment, rather than the LU Quality Systems, however, the Cleaning and Sanitation can even be an independent UA, so it requires a complete module.

It is excellent that you included the LU Waste Management and Disposal.

In the LU Engineering of Machinery and Equipment, I consider important to include the subject of maintenance.

Eng. Dalila Maldonado Caraza:

The graduates decide if they will occupy technical or administrative positions; however, those in administrative positions require Leadership and Communication skills. For example, when students take the LU Differential Equations, they could investigate and make a presentation of their findings.

When the graduate is proactive and requires, for example, advanced mathematics, he will look for ways to learn them even without having taken a previous course.

The academic load or credits really required in the curriculum is important regardless of the time, otherwise, students will not achieve all this type of engineer competencies.

It is recommended that when entering the Faculty, students are classified by their level of English language proficiency to locate them and could even defend cases, as do other students from other universities in the United States of America. It is crucial not to lose opportunities for the language and even add another if the student is fluent in English. In addition, students who are advanced can give English courses to their co-workers.

Eng. Raúl Guillermo Uribe Alcántara:

For the LU of Culture of Peace, it is important to solve theoretical-practical cases in which the students discuss their points of view and implications of their decisions. Learning by heart does not generate changes in behavior.

To encourage the use of English in some subjects, it would be important that the presentation of the final reports be done in English and give extra points for the use of that language.

It is important to add LU's of Quantitative and Bromatological Methods for students to learn how to analyze a food and its impact on food design.

Mr. Jaime H. Yesaki Cavazos:

I would that you include the issue of productivity and discipline to avoid delays in the food value chain.

Permanently expand and update student knowledge and skills to be at the forefront of changes and market speed.

In the university general studies, please include the topic of identity to the UANL and loyalty to the company where the graduate will work.

In LU Food Analysis, include not only heavy metals, but also regulated amounts of proteins and flavors, plus use and abuse of powders and liquids in the marinade of meat and other foods.

From the second year it is very important to include practices or visits to food plants.

Please, invite senior engineers or managers related to the food industry to share their experiences to students in a term, which is crucial for the student.

Strengthen the student English language and encourage the students to start a third language.

3. General matters.

A next meeting was proposed for the first half of 2018.

The session ended at 12:00 hours.



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UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN



Facultad de Agronomía

LISTA DE ASISTENCIA DEL CONSEJO CONSULTIVO EXTERNO DEL PROGRAMA EDUCATIVO DE INGENIERO EN INDUSTRIAS ALIMENTARIAS

ING GERARDO IGNACIO SALDIVAR CARRANZA _____
Director General de PICSA de México Internacional, SA de CV

ING. DALILA MALDONADO CARAZA _____
Gerente de Investigación y Desarrollo en Ciencia de los Ingredientes
Para Snacks Globales
PEPSICO, Inc.

ING. JESÚS SOTELO NAVARRO VIDALES _____
Jefe de Investigación y Desarrollo
Botanas y Derivados S.A. (Encanto)

ING. RIGOBERTO GÓMEZ ESQUIVEL _____
Gerente de Ingeniería
Molinera de México, S.A. de C.V.

ING. ROBERTO ANCIRA ESQUIVEL _____
Business Couching
Action Coach

ING. MARIA GUADALUPE OVALLE ALVAREZ _____
Supervisor de Producción, Monterrey, México
The Hershey Company

DON JAIME H. YESAKI CAVAZOS _____
Director General de JJ Alimentos Grupo Yesaki, S.A. de C.V.

ING. JESUS SERRANO LEAL _____
Assoc Manager Talent Acquisition & Dev.
The Hershey Company

ING. RAUL GUILLERMO URIBE ALCANTARA _____
Gerente de Innovación y Desarrollo de Productos
QUALTIA Alimentos

LIC. PAOLA LOPEZ CERVANTES _____
Gerente de Desarrollo de Proveedores y Sistemas de Calidad
SIGMA-Alimentos



“Educación de clase mundial,
un compromiso social”

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**Lista de Asistencia a Junta del Consejo Consultivo del
PE de Ingeniero en Industrias Alimentarias celebrada
el día Sábado, 25 de Noviembre de 2017, citada a las
09:00 a.m.**

| No. Emp | Profesor | Firma | Hora Entrada | Hora Salida |
|---------|---|-------|-----------------|----------------|
| 1 | 017717 ARANDA RUIZ DRA. JUANA | | 9:00 | |
| 2 | 060653 FLORES BRECEDA M.C. HÉCTOR | | 9:00 | |
| 3 | 000048 GARCÍA GÓMEZ DR. CELESTINO | | 9:00 | |
| 4 | 019449 LUNA MALDONADO DR. ALEJANDRO I Coordinador del PE de Ingeniero en Industrias Alimentarias | | 9:00 | |
| 5 | 103699 MÁRQUEZ REYES DRA. JULIA MARIAN | | 9:00 | |
| 6 | 002612 MÉNDEZ ZAMORA DP.H. GERARDO | | 9:00 | |
| 7 | 100082 NIÑO MEDINA DR. GUILLERMO | | 9:00 | |
| 8 | 008088 RODRÍGUEZ FUENTES D.CS. HUMBERT | | 9:00 | |
| 9 | 002631 RODRÍGUEZ ROMERO DRA. BEATRÍZ A | | 9:00 | |
| 10 | 102433 ROJAS MOLINA DR. ROMEO | | 9:00 | |
| 11 | 010992 SÁNCHEZ ALEJO DR. ERNESTO JAVIER | | | |
| 12 | 013770 VIDALES CONTRERAS DR. JUAN ANTO | | | |



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09:00 a.m.**

| No. Emp | Profesor | Firma | Hora Entrada | Hora Salida |
|-------------------|--|-------|-----------------|----------------|
| Ex-Oficio: | | | | |
| 13 011137 | BERNAL BARRAGÁN DR. HUGO Subdirector de Planeación y Mejora Continua | | 9:00 | |
| 14 008097 | DEL BOSQUE GONZÁLEZ PH.D. ALEJAN Director | | | |
| 15 101984 | MARTÍNEZ ÁVILA DR. GUILLERMO CRI Subdirector de Vinculación y Servicio Social | | | |

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