UNIVERSIDAD AUTÓNOMA DE BAJA CALIFORNIA

COORDINACIÓN GENERAL DE FORMACIÓN BÁSICA COORDINACIÓN GENERAL DE FORMACIÓN PROFESIONAL Y VINCULACIÓN UNIVERSITARIA PROGRAMA DE UNIDAD DE APRENDIZAJE

I. IDENTIFICATION INFORMATION

- 1. Academic Unit: Faculty of Engineering, Architecture and Design, Ensenada.
- 2. Study Program: Nanotechnology Engineer
- 3. Plan Duration: 2019-2
- 4. Name of Learning Unit: Formulation and Evaluation of Nanotechnological Projects
- 5. Code: 33563
- 6. HC: <u>01</u> HL: <u>00</u> HT: <u>03</u> HPC: <u>00</u> HCL: <u>00</u> HE: <u>01</u> CR: <u>05</u>
- 7. Learning stage to which it belongs: Terminal
- 8. Character of Learning Unit: Obligatory
- 9. Requirements for enrollment in learning unit: None



PUA Formulated by: José de Jesús Zamarripa Topete Miguel Ángel Adame Monreal	Signature Comoscilea States	Approved by Humberto Cervantes De Ávila DE BAJA CALIFORNIA
Date: September 4, 2018		
		FACULTAD DE INGENIERÍA, ARQUITECTURA Y DISENO ENSENADA, B.C

Signature

II. GENERAL PURPOSE OF THE COURSE

The purpose of the learning unit Formulation and Evaluation of Nanotechnology Projects is to give to the student the tools to formulate, manage and evaluate nanotechnological projects. Its usefulness is that it forms it in the scope of the projects so that it designs, develops, concludes and evaluates correctly, honestly and professionally. About its characteristics, it is taught in the terminal stage, it is obligatory, integrative, and belongs to the knowledge area of applied engineering.

III. COURSE COMPETENCIES

Design and evaluate a nanotechnological project that solves social or productive needs, with methodologies to study technical, regulatory, market and economic aspects, to determine its potential success or risk by putting it into operation, with responsibility, social foresight and respect for the environment.

IV. EVIDENCE OF PERFORMANCE

Digital evidence portfolio that contains: Nanotechnology project design folder; practice logs; and management and evaluation report with the technical, regulatory, market and economic study, opinion of potential success or level of risk when put into operation.

Executive presentation, for a design and evaluation of a nanotechnology project focused on an opportunity to improve emerging social or productive areas, giving opinion of potential success or level of risk when putting it into operation.

V. DEVELOPMENT BY UNITS

UNIT I. - History of the development of projects, concepts, typology, elements of the project..

Competency:

Describe the historical evolution of the projects, their classification and their constituent elements, through the historical review and the current concepts of project classification, to correctly classify the projects and locate their elements in corresponding categories, with responsibility, social and historical empathy.

Content:

Duration: 4 hours

- 1.1. History of project development.
 - 1.1.1. Stage of the approach to technical quality.
 - 1.1.2. Stage of the approach to budget compliance and delivery.
 - 1.1.3. Customer focus stage.
 - 1.1.4. Stage of long-term relationships.
- 1.2. Concepts.
 - 1.2.1. Project definition.
 - 1.2.2. Acceptance characteristics.
 - 1.2.2.1. Reference characteristics.
 - 1.2.2.2. Time characteristics.
 - 1.2.2.3. Design features.
 - 1.2.2.4. Relationship characteristics.
 - 1.2.2.5. Decision characteristics.
- 1.3. Typology.
 - 1.3.1. Classification for your product.
 - 1.3.2. Classification by its basic objectives.
 - 1.3.3. Classification by its development.
- 1.4. Elements of the project.
 - 1.4.1. Human elements participating in the project.
 - 1.4.1. Time.
 - 1.4.2. Economic resource.
 - 1.4.3. Communication.
 - 1.4.4. Normativity.
 - 1.4.5. Relationship of the elements with the project.

UNIT II. - Formulation of the project: start (technical, regulatory, market and economic study), design, development, conclusion, operation.

Competency:

Identify the elements involved in the design, development, management, conclusion and operation of a nanotechnology project, by applying the methodologies of formulation and management of projects, in addition to the feasibility studies, for the proposal of design and management of a nanotechnology project, with responsibility, honesty and respect for the environment.

Content:	
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Duration: 10 hours

2.1. Stages of the project.

2.1.1. Start.

2.1.1.1. Technical study.

2.1.1.2. Normative study.

2.1.1.3. Market study.

2.1.1.4. Economic study.

2.1.2. Design.

2.1.2.1. Design supervision.

2.1.3. Development.

2.1.3.1. Development supervision.

2.1.4. conclusion.

2.1.4.1. Project development time.

2.1.4.2. Total project cost.

2.1.4.3. Total communications program.

2.1.5. Project operation.

Competency:

Differentiate the parts of the evaluation of a nanotechnological project, by means of project evaluation instruments, to determine its success or level of risk when operating a nanotechnological project, with responsibility, honesty and teamwork.

Content:

Duration: 2 hours

3.1. Project evaluation.

3.1.1. Diagnostic instrument.

3.1.2. Results of the diagnostic instrument.

3.1.3. Recommendations of the diagnosis.

Proficiency Select from the historical evolution of the most important projects,	Description	Support materials	Time
Select from the historical evolution of the most important projects,	In teams review the most		
Select from the historical evolution of the most important projects,	In teams review the meet		
their classification and their elements, with the historical perspective and the current concepts of project classification, to categorize the projects adequately and specify their elements, with predisposition of team work, responsibility, empathy social and historical.	important projects developed by humanity from its origins to the present. Identify different types of projects with respect to their classification. Locate the elements of the project for their participation.	Examples of projects to be categorized. Class documents, specialized databases and the internet. Videos. Computer. Projector.	12 hours
Perform the design, development, management, conclusion and operation of a nanotechnology project, with methodologies for formulation and management of projects, including feasibility studies, to design and properly manage a nanotechnology project, with responsibility, honesty and respect for the environment.	Carry out a nanotechnology project with technical, regulatory, market and economic studies. Design, develop, manage, conclude and operate a nanotechnology project. Prepare the digital evidence portfolio containing the design folder, the management logbook and the management report, of a nanotechnology project, focused on an opportunity to improve the emerging social or productive areas, including the technical, regulatory, market and economic.	Nanotechnology project to be carried out. List of opportunities for improvement in emerging social or productive areas. Class documents, specialized databases and the internet. Videos. Digital format of the evidence portfolio containing the design folder, management logbook and management report, including the technical, regulatory, market and economic study. Computer. Projector.	30 hours
	Perform the design, development, management, conclusion and operation of a nanotechnology project, with methodologies for formulation and management of porojects, including feasibility studies, to design and properly manage a nanotechnology project, with responsibility, honesty and respect for the environment.	 Perform the design, development, management, conclusion and pperation of a nanotechnology project, with methodologies for formulation and management of projects, including feasibility studies, to design and properly manage a nanotechnology project, with responsibility, honesty and respect for the environment. Carry out a nanotechnology project with technical, regulatory, market and economic studies. Design, develop, manage, conclude and operate a nanotechnology project. Prepare the digital evidence portfolio containing the design folder, the management logbook and the management report, of a nanotechnology project, focused on an opportunity to improve the emerging social or productive areas, including the technical, regulatory, market and economic. 	alegenets, with predisposition of eam work, responsibility, empathy social and historical. Carry out a nanotechnology project with technical, regulatory, market and economic studies. Nanotechnology project to be carried out. Perform the design, development, management, conclusion and peration of a nanotechnology project, with methodologies for iornulation and management of projects, including feasibility studies, to design and properly manage a nanotechnology project, with responsibility, honesty and respect for the environment. Carry out a nanotechnology project with technical, regulatory, market and economic studies. Nanotechnology project to be carried out. Design, develop, manage, conclude and operate a nanotechnology project. Design, develop, manage, conclude and operate a nanotechnology project. Nanotechnology project dout. Prepare the digital evidence portfolio containing the design folder, the management report, of a nanotechnology project, focused on an opportunity to improve the emerging social or productive areas, including the technical, regulatory, market and economic. Videos. Digital format of the evidence portfolio containing the design folder, management report, including the technical, regulatory, market and economic study. Digital format of the evidence portfolio containing the design folder, management report, including the technical, regulatory, market and economic study.

3	Evaluate a nanotechnological	In working groups, evaluate a	Class documents, specialized	6 hours
	project, with the application of	nanotechnological project to	databases and the internet.	
	project evaluation instruments, to	determine its success or level of	Videos.	
	establish the success or level of	risk when operating it and	Digital format of the evidence	
	risk when operating a	document it in the digital evidence	portfolio that contains the	
	nanotechnological project, with	portfolio.	evaluation of the nanotechnology	
	responsibility, honesty and	Make an executive presentation of	project with its scale of success or	
	teamwork.	the design and evaluation of a	risk when put into operation.	
		nanotechnology project focused on	Computer.	
		an opportunity to improve	Projector.	
		emerging social or productive	,	
		areas, with its opinion of potential		
		success or level of risk when put		
		into operation.		

VII. WORK METHOD

Framing:

The first day of class the teacher must establish the work form, evaluation criteria, quality of academic work, rights and obligations teacher-student.

Teaching activities:

Exhibition of topics in class and on certain topics with audiovisual support. Direction of team work of students. Review of the progress of filling the digital evidence portfolio. Feedback on the essays of the executive presentation.

Students activities:

Specify the nanotechnology project to be carried out.

Choose from a list of opportunities to improve emerging social or productive areas, which will be addressed with the nanotechnology project.

Reading of the material of the class and complemented with bibliographic searches in specialized databases and internet.

Teamwork to prepare the project and fill out the corresponding documents.

In teams, perform the executive presentation of the nanotechnology project and its evaluation.

VIII. EVALUATION CRITERIA			
The evaluation will be carried out permanently during the development of the learning unit as follows:			
Accreditation criterion - 80% attendance to have the right to ordinary exam and 70% attendance to be entitled to extraordinary examination according to the School Statute articles 71 and 72 Scaled from 0 to 100, with a minimum approval of 60.			
Evaluation Criterion Partial exams 3 - 3 exams			

IX. BIBLIOGRAPHY		
Required	Suggested	
Baca G. (2016). Evaluación de proyectos (8 ed.). México: Mc Graw Hill.	Gerardo F. (2016). Proyectos de inversión, fundamentos de evaluación. México: Grupo editorial Patria.	
Berger M. (2017). Nanotechnology: The Future is Tiny. Inglaterra: Royal Society of Chemistry.	Tomczyk M. (2014). NanoInnovation: What Every Manager Needs to Know. United States of America. John Wiley & Sons.	
Gido J. y Clements J. P. (2012). Administración exitosa de proyectos, Tercera edición. México: Cengage Learning.		
Gray C. F. y Larson E. W. (2009). Administración de proyectos, Cuarta Edición. México: Mc Graw Hill.		
Pacheco-Torgal F., Diamanti M. V., Nazari A., Goran-Granqvist C. (2013). Nanotechnology in Eco-Efficient Construction. United States of America. Woodhead Publishing.		
Sapag N. (2013). Preparación y evaluación de proyectos (6 ed.). México: Mc Graw Hill.		

IX. PROFESSOR PROFILE

The teacher preferably having a graduate degree in nanotechnology or related to the learning unit. The teaching experience consists of having taught subjects related to the learning unit. The qualities are tolerant, empathetic, prudent.