

Course Syllabus

PROBLEM SOLVING

Printed by: lualtam

Program: Oceanographic Engineering

1. Course number and name

INDG1033 - PROBLEM SOLVING

2. Credits and contact hours

3 credits and 3 contact hours

3. Instructor's course or coordinator's name

MARIUXI ARACELY LOPEZ AGUIRRE

4. Text book, title, author, and year

- Nigel Cross.. Design Thinking: Understanding How Designers Think and Work (Editorial Reviews)

- a. Other supplemental materials

- Tim Brown. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation (1^a ed.)

- Jeanne Liedtka, Andrew King, Kevin Bennett.. SOLVING PROBLEMS WITH DESIGN THINKING: TEN STORIES OF WHAT WORKS (Columbia Business School Publishing (Book 2))

5. Specific course information

- a. Brief description of the content of the course (catalog description)

In general terms, this course seeks to provide a set of tools, knowledge, and skills that allow students to find and develop alternative and innovative solutions to different problems (Problem Solving), effectively. This course is based on the use of tools and concepts from the Design Thinking methodology for solving problems, whether of a community, a public, private or non-profit institution. The development of the methodologies and activities of this course will contribute preparing professionals with an integral formation so they could have a holistic notion of the problems that exist in the real world.

- b. This course is: Required

6. Specific goals for the course

- a. Specific outcomes of instruction

- 1.- Identify problems through the use of research and empathy tools, for a deep understanding of those problems.

- 2.- Determine a problem through different systematic and methodological processes of "Design Thinking" for the subsequent generation of innovative solutions.

- 3.- Propose innovative solutions through prototyping, validation and testing tools for their evaluation

- 4.- Arguing their ideas effectively by presenting results to bring forward their proposed solutions

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b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

- A recognition of the need for entrepreneurship and the abilities to become an entrepreneur

- An ability to function on multidisciplinary teams

7. Brief list of topics to be covered

- 1.- Innovation, conceptual bases.
- 2.- Introduction to Analysis and Problem Solving
- 3.- Understanding the user's needs
- 4.- Definition and formulation of the problem
- 5.- Generation of ideas
- 6.- Prototyping ideas
- 7.- Validation and testing of prototypes