Department of Civil Engineering

**Course Name:**

Introduction to Design of Hydraulic Structures

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| **Course Number:** | **Credit:** 3 |
| **Program:** Undergraduate/Graduate | **Course Type:** |
| **Prerequisite**: Hydraulics | **Corequisite:** |

**Course Description (Objectives):**

In this course, students will delve into the principles and procedures underlying hydraulic design for commonly employed water structures, including channels, spillways, and drops. Moreover, the course will extensively cover other vital subjects such as incorporating structural considerations into the design of hydraulic structures, conducting environmental impact assessments, utilizing risk and reliability-based design approaches, and comprehending the concept of resilience. By the end of this course, students will have a thorough understanding of these topics and their applications in hydraulic design.

**Course Content (outline):**

- Chapter 1: An Introduction to Hydraulic Structures and their Applications
- Chapter 2: An Overview of Key Concepts in Hydraulics
- Chapter 3: Design of Open Channels
- Chapter 4: Design of Spillways
- Chapter 5: Design of Drops
- Chapter 6: Structural Considerations
- Chapter 7: Environmental Impact Assessment
- Appendix A: Risk and Reliability-based Design

**References:**


- Hydraulic Structures. James, C. S., Springer, 2020.
- Design of small dams. US Department of the Interior, Bureau of Reclamation, 1987.
- Small Hydraulic Structures. Kraatz, D. B., & Mahajan, I. K., FAO, International commission on irrigation and drainage, 1975.