Sao Carlos University
Department of Civil Engineering

Smart Assessment and Retrofit of Masonry Structures

Course Outline

OBJECTIVES

The objectives of this course are for the student to become able to:

1. Introduce the students to the characteristics of ancient, transit and modern masonry materials and systems
2. Understand the evaluation and retrofit process of masonry structures
3. Perform site investigation and analysis of existing masonry structures
4. recognize available techniques used to repair, strengthen or upgrade existing masonry structures on both the local member level and global system level.
5. Understand how to track building envelope response to structural and environmental loads using local and global monitoring techniques.
6. Recognize maintenance process and activities including cleaning of masonry walls
7. Learn how to develop a rational methodology for different types of masonry assessment and retrofit projects via case studies.

PREREQUIZITE

Architectural, Civil or Mechanical undergraduate engineering degree.

CONTACT HOURS/WEEK

6 lecture hours/week. October 16 to November 6, 2023

DAY/TIME

Mondays 9:00-12:00 AM and 1:00-4:00 PM

TOPICS

Introduction to ancient, transit and modern masonry, evaluation and retrofit process, site investigation and analysis, retrofit techniques, monitoring, and case studies.

OUTLINE

1- Introduction to Ancient Masonry	October 16 AM
2- Introduction to Modern Masonry	October 16 PM
3- Evaluation and Retrofit Process	October 23 AM
4- Site Investigation and Analysis	October 23 PM
5- Retrofit	October 30 AM+PM
6- Monitoring	November 6 AM
7- Case Studies	November 6 PM

INSTRUCTOR

Dr. Ahmad Hamid, Emeritus Professor of Civil Engineering, Drexel University, Philadelphia, USA. E-Mail: hamidaa@drexel.edu

TEXTBOOK

Textbook "Assessment and Retrofit of Masonry Structures", Ahmad Hamid and Michael Schuller, published by The Masonry Society in 2019.
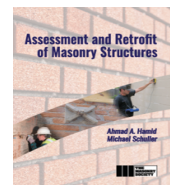
COURSE EVALUATION

Attendance and class participation	20%
Assignments(4 x 20%)	80%