FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL ENGINEERING**

MASTER DEGREE: **CIVIL ENGINEERING**

SUBJECT: FOUNDATION ENGINEERING

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OBJECTIVES

The overall objective of this course is to provide students the fundamentals and tools needed for the design and analysis of earth retention structures, foundations engineering and analysis of the interaction between the soil, foundation system and the supported structure.

CONTENTS

Site investigations
Shallow footings - bearing capacity and settlements
Shallow foundations – soil/structure interaction
Axial pile capacity and settlement analysis
Laterally loaded piles and pile group analysis
Wall retaining structures
Embedded diaphagm walls

LEARNING OUTCOMES

Application of theories of soil mechanics to Foundations design. In particular:

- the ability to design foundations (shallow, piled, piled raft) and earth retaining systems, by interpreting the borehole investigations and field testing data to get design parameters;
- the capacity to analyse the soil/structure interaction and the serviceability limit state of the foundations.

ASSESSMENT

Written exam: multiple choice and open questions

RECOMMENDED TEXTBOOKS

J. E. Bowles (2001). Foundation Analysis and Design. Mcgraw-Hill Higher Education.
Poulos H.G. and Davis E.H. (1980). Pile Foundation Analysis and Design. John Wiley