A) COURSE

Course Id:	Course
5541	Machine Foundation

Class Hours per Week	Lab hours per week	Complementary practices	Credits	Total hour course
3	0	0	6	48

B) GENERAL COURSE INFORMATION:

	EE (IEA)	ME (IM)	MME (IMA)	EME (IME)	MTE (IMT)
Level:		IX	IX	IX	
Course Type (Required/Elective)		Elective	Elective	Elective	
Prerequisite Course:		315 approved credits	360 approved credits	360 approved credits	
CACEI Classification:		AE	AE	AE	

C) COURSE OBJECTIVE

At the end of the course, the student will be capable of:
STUDENTS WILL GET KNOWLEDGE ABOUT MATERIALS, SOIL TYPES, KINDS OF FOUNDATIONS AND BASIC CALCULATIONS SO THAT YOU ALLOW TO PERFORM EFFECTIVELY THE ASSEMBLY OF MACHINERY RELATED TO THEIR PROFESSION. THE STUDENT WILL DEVELOP A WORK TRAINED JOINTLY WITH LABOUR FROM OTHER BRANCHES OF ENGINEERING.

D) TOPICS (CONTENTS AND METHODOLOGY)

1. INTRODUCTION		**3HRS.**
Specific Objective:	OBJECTIVE: IN THIS PART THE STUDENT SHOULD BE POINTED OUT ABOUT THE GENERAL IMPORTANCE OF THE FOUNDATIONS WITH THE AIM TO INTEREST HIM AND TO INSPIRE THE CONFIDENCE IN HIS FUTURE WORK	
1.1 IMPORTANCE OF THE FOUNDATION 1.2 MEANING OF THE FOUNDATION 1.3 SURFACE OF THE GROUND 1.4 SUPER-STRUCTURE 1.5 INFRA-STRUCTURE		
Readings and other resources	Articles, books, Internet, complementary bibliography.	
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.	
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.	

2. THE SUBSOILS AS BASE OF THE FOUNDATION		**2 Hours**
Specific Objective:	OBJECTIVE: THE STUDENT SHOULD KNOW THE DIFFERENT SUBSOIL, SOME USUAL MATERIALS AND SOME SPECIAL PROPERTIES OF THE FOUNDATION.	
2.I TYPES OF MATERIALS AND GROUNDS OF THE FOUNDATION 2.2 ORIGIN OF THE SUBSOIL'S 2.3 PROPERTIES OF SPECIAL MATERIALS USED FOR FOUNDATIONS.		
Readings and other resources	Articles, books, Internet, complementary bibliography.	
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.	
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.	

3 SITE EXPLORATION		**3 Hours**
Specific Objective:	OBJECTIVE: THE STUDENT SHOULD KNOW THE IMPORTANCE OF THE EXPLORATION AND PROFILES OF SUBSOIL.	
3.1 IMPORTANCE OF THE EXPLORATION 3.2 EXPLORATIONS SUPERFICIALLY 3.3 EXPLORATIONS OF DEPTH 3.4 PROFILES OF ONE SUBSOIL 3.5 SAMPLES OF LOAD		
Readings and other resources	Articles, books, Internet, complementary bibliography.	
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.	
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.	

4. FUNDAMENTALS ABOUT THE INFLUENCES OF THE FOUNDATION		**5 Hours**
Specific Objective:	OBJECTIVE: THE STUDENT SHOULD UNDERSTAND HOW THE PRESSURE SPREAD OUT AND THE SETTLEMENTS WHICH RESULT OF STATIC AND DYNAMIC PRESSURE. AFTERWARDS THE STUDENT WOULD SEE SOME TYPES OF REAL SETTLEMENTS.	
4.1 DISTRIBUTION OF THE PRESSURE 4.2 CROSS-SECTION OF THE SUBSOIL. SEATS 4.3 ESTIMATION OF THE SEAT. 4.4 CEMENTED STRUCTURE GIVES OVERCROWDING. 4.5 PRESSURE OF PERMISSIBLE LOADINGS.		
Readings and other resources	Articles, books, Internet, complementary bibliography.	

Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.

5. MACHINE ANCHORS OF THE FOUNDATION	**10Hours**
Specific Objective:	OBJECTIVE: THE STUDENT SHOULD KNOW ONE OF THE ELEMENTS TO MAKE THE FOUNDATION MORE SAVE AND ALSO WOULD EXPERIENCE THE TYPES OF MACHINE ANCHORS WHILE USING AND CALCULATING THEM
5.1 TYPES OF MACHINE ANCHORS 5.2 CALCULATION OF A MACHINE ANCHOR	
Readings and other resources	Articles, books, Internet, complementary bibliography.
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.

6. REINFORCEMENT OF THE FOUNDATION	**5 Hours**
Specific Objective:	OBJECTIVE: PRESENTING THINGS MORE COMPLICATED WITH REGARD TO FOUNDATIONS THE STUDENT SHOULD KNOW THE FUNCTION OF ARMED CONSTANT STRUCTURES.
6.1 UNIFORM REINFORCEMENT OF FOUNDATION 6.2 CROSS-SHAPED REINFORCEMENT OF FOUNDATION	
Readings and other resources	Articles, books, Internet, complementary bibliography.
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.

7. FOUNDATION LOADED WITH TORQUE	**7 Hours**

Specific Objective:	OBJECTIVE: WE WILL SHOW THE STUDENT WHY STRUCTURES CHANGE THEIR POSITION DUE TO OUTER FORCES.
7.1 BRACINGS MADE OF METAL 7.2 PIN OF ANCHOR 7.3 EFFECTS OF METALLIC REINFORCEMENT 7.4 SPECIAL ANCHORS LOADED BY TORQUES 7.5 ANCHORS LOADED BY TENSILE FORCES	
Readings and other resources	Articles, books, Internet, complementary bibliography.
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.

8. FOUNDATION ABOVE STILTS	**10 Hours**
Specific Objective:	OBJECTIVE: THE STUDENTS WILL KNOW THE EXTREME CASE WITH COULD OCCUR IN A FOUNDATION AND HOW TO SOLVE THE PROBLEM
8.1 SELECTION OF THE TYPE OF STILTS 8.2 CAPACITY TO WITHSTAND A LOAD 8.3 MACHINE ANCHORS ABOVE STILTS WITH VERTICALLY LOADS 8.4 UNIFORM REINFORCEMENT OF FOUNDATION ABOVE STILTS	
Readings and other resources	Articles, books, Internet, complementary bibliography.
Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.
9. ISOLATION OF FOUNDATIONS AGAINST NOISE AND VIBRATION	**3 Hours**
Specific Objective:	OBJECTIVE: THE STUDENT WILL KNOW THE EXISTING MATERIALS WITH COULD BE USED TO STOP THE ENTRY OF NOISE AND VIBRATION PRODUCED BY EQUIPMENT
Readings and other resources	Articles, books, Internet, complementary bibliography.

Teaching Methodologies	AT THE BEGINNING OF EACH SUBJECT WE WILL MAKE A DESCRIPTION IN DRAFT TO EXPLAIN IT TO THE STUDENT AND GIVE HIM HENCEFORTH PHOTOCOPIES. WE ENABLE THE STUDENT TO PARTICIPATE IN THIS WITH HIS OPINIONS AND STATEMENTS TO OPTIMIZE HIS KNOWLEDGE ACCORDINGLY THEY WOULD ANALYZE THE SUBJECTS, PRESENT EXAMPLES TO INCREASE THE OWN EXPERIENCE.
Learning Activities	Dynamics of working in team, assignments, and discussion of these. Studies of reproducibility and repeatability, estimation error, uncertainty, calibration. Analysis of readings and presentations in Powerpoint.

E) TEACHING AND LEARNING METHODOLOGIES

F) EVALUATION CRITERIA:

Evaluation:	Schedule	Suggested Form of Evaluation and weighing	Topics
1er. Partial Evaluation	Session	Exam, Assignment, Presence	
2º Partial Evaluation	Session	Exam, Assignment, Presence	
3er. Partial Evaluation	Session	Exam, Assignment, Presence	
Final Evaluation Ordinary		100% (average partial evaluations)	
Other Activity:			
Special Exam:	Week 17 of the Semester	100% Exam	100% topics
Special Exam	According to schedule school secretary	100% Exam	100% topics
Regularization Exam	According to schedule school secretary	100% Exam	100% topics

G) BIBLIOGRAPHY AND ELECTRONIC RESOURCES

Main Books

DUNHAN C. W.
CIMENTACIÓN DE ESTRUCTURAS EDIT. MCGRAW HILL.
CRESPO VILLAZ CARLOS
MECANICA DE SUELOS Y CIMENTACIONES. EDIT. LIMUSA.
RICO RODRIGUEZ ALFONSO MECÁNICA DE SUELOS
EDIT. LIMUSA.
SOWERS, GEORGE B.
INTRODUCCIÓN A LA MECÁNICA DE SUELOS Y CIMENTACIONES.
JUÁREZ BADILLO, EULALIO
FUNDAMENTOS EN LA MECÁNICA DE SUELO

Complementary Books

Internet Links