

The following are the syllabus copy as per Anna University curriculum and experiential learning document

## **1.3.2**

# **COURSES THAT INCLUDE EXPERIENTIAL LEARNING THROUGH PROJECT WORK/FIELD WORK/INTERNSHIP DURING 2021-2022**



**1.3.2 AVERAGE PERCENTAGE OF COURSES THAT INCLUDE EXPERIENTIAL  
LEARNING THROUGH PROJECT WORK / FIELD WORK / INTERNSHIP  
DURING  
2021-2022**

S.NO	PROGRAME OFFERING	NAME OF THE COURSE	COURSE CODE	PROJECT WORK / FIELD WORK / INTERNSHIP	PAGE NO
1	M.E-Structural Engg	Earthquake Analysis and Design of Structures	ST5301	Internship	3
2	M.E-Structural Engg	Practical Training III (2 Weeks)	ST5411	Internship	6
3	M.E-Structural Engg	Practical Training II (2 Weeks)	ST5311	Internship	9
4	M.E-Structural Engg	Project Work (Phase I)	ST5313	Project work	12



  
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**OBJECTIVE:**

- To study the effect of earthquakes, analysis and design of earthquake resistant Structures.

**UNIT I EARTHQUAKE GROUND MOTION 9**

Engineering Seismology (Definitions, Introduction to Seismic hazard, Earthquake Phenomenon), Seismotectonics and Seismic Zoning of India, Earthquake Monitoring and Seismic Instrumentation, Characteristics of Strong Earthquake Motion, Estimation of Earthquake Parameters, Microzonation.

**UNIT II EFFECTS OF EARTHQUAKE ON STRUCTURES 9**

Dynamics of Structures SDOFS MDOFS - Response Spectra - Evaluation of Earthquake Forces as per code provisions - Effect of Earthquake on Different Types of Structures - Lessons Learnt From Past Earthquakes

**UNIT III EARTHQUAKE RESISTANT DESIGN OF MASONRY STRUCTURES 9**

Structural Systems - Types of Buildings - Causes of damage - Planning Considerations - Philosophy and Principle of Earthquake Resistant Design - Guidelines for Earthquake Resistant Design - Earthquake Resistant Masonry Buildings - Design consideration - Guidelines.

**UNIT IV EARTHQUAKE RESISTANT DESIGN OF RC STRUCTURES 9**

Earthquake Resistant Design of R.C.C. Buildings - Material properties - Lateral load analysis - Capacity based Design and detailing - Rigid Frames - Shear walls.

**UNIT V VIBRATION CONTROL TECHNIQUES 9**

Vibration Control - Tuned Mass Dampers - Principles and application, Basic Concept of Seismic Base Isolation - various Systems- Case Studies, Important structures.

**TOTAL: 45 PERIODS**

**OUTCOME:**

- At the end of this course the students will be able to understand the causes and effect of earthquake.
- They will be able to design masonry and RC structures to the earthquake forces as per the recommendations of IS codes of practice.

**REFERENCES:**

1. Brebbia C. A., "Earthquake Resistant Engineering Structures VIII", WIT Press, 2011
2. Bruce A Bolt, "Earthquakes" W H Freeman and Company, New York, 2004.
3. Duggal S K , "Earthquake Resistant Design of Structures", Oxford University Press, 2007.
4. Mohiuddin Ali Khan "Earthquake-Resistant Structures: Design, Build and Retrofit", Elsevier Science & Technology, 2012
5. Pankaj Agarwal and Manish Shrikhande, "Earthquake Resistant Design of Structures", Prentice Hall of India, 2009.
6. Paulay, T and Priestley, M.J.N., "Seismic Design of Reinforced Concrete and Masonry buildings", John Wiley and Sons, 1992.



*[Handwritten Signature]*  
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23/09/2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms. S. KRITHIKHA, student of I year , M.E., Structural Engineering from NPR College of Engineering & Technology, Natham, Dindigul has undergone internship in our construction\* from 24/08/2021 to 23/09/2021. She completed her training on drafting plan drawing successfully. Her attendance and performance during training was found good.

We wish her all success and well place in life.



For Chettinad Constructions



  
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ST5411

PRACTICAL TRAINING III (2 Weeks)

LT PC

0 0 0 1

**OBJECTIVE:**

- To train the students in the field work so as to have a firsthand knowledge of practical problems related to Structural Engineering in carrying out engineering tasks.
- To develop skills in facing and solving the field problems.

**SYLLABUS:**

The students individually undertake training in reputed Industries during the summer vacation for a specified period of two weeks. At the end of training, a detailed report on the work done should be submitted within ten days from the commencement of the semester. The students will be evaluated through a viva-voce examination by a team of internal staff.

**OUTCOME:**

- They are trained in tackling a practical field/industry orientated problem related to Structural Engineering.



  
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*L. Jay*  
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**OBJECTIVE:**

- To identify a specific problem for the current need of the society and collecting information related to the same through detailed review of literature.
- To develop the methodology to solve the identified problem.
- To train the students in preparing project reports and to face reviews and viva-voce examination.

**SYLLABUS:**

The student individually works on a specific topic approved by faculty member who is familiar in this area of interest. The student can select any topic which is relevant to his/her specialization of the programme. The topic may be experimental or analytical or case studies. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work. The students will be evaluated through a viva-voce examination by a panel of examiners including one external examiner.

**TOTAL: 180 PERIODS****OUTCOME:**

- At the end of the course the students will have a clear idea of his/her area of work and they are in a position to carry out the remaining phase II work in a systematic way.



  
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# SOIL STABILIZATION

PHASE I

Submitted by

S. KIRTHIKHA

Reg. No : 920820413001

*In partial fulfillment of the requirements for the award of the  
degree*

*of*

MASTER OF ENGINEERING

IN

STRUCTURAL ENGINEERING



DEPARTMENT OF CIVIL ENGINEERING

N.P.R COLLEGE OF ENGINEERING AND TECHNOLOGY

ANNA UNIVERSITY, CHENNAI - 600 025

DECEMBER - 2021



ANNA UNIVERSITY : CHENNAI 600 025  
BONAFAIDE CERTIFICATE

Certified that this project report SOIL STABILIZATION is the bonafide work of **S. KIRTHIKA** (Reg. No : 920820413001) who carried out the project work under my supervision.

SIGNATURE

**Dr. A. HEMALATHA M.Tech.,**  
**HEAD OF THE DEPARTMENT**

Civil Engineering Department  
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SIGNATURE

**Dr. A. HEMALATHA M.Tech.,**  
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Submitted for the viva-voce Examination held at NPR College of Engineering and Technology, Natham on 22-06-2023

INTERNAL EXAMINER



EXTERNAL EXAMINER

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## ABSTRACT

Nowadays the rapid growth of population and industrialization, generation of organic and inorganic solid wastes has increased many folds causing disposal problems and environmental pollution. A productive use of large scale wastes such as fly ash, coconut shell, rice husk, furnace slag etc... has become a matter of importance, as there is considerable scope for better management and disposal of the same. The waste materials used in this project was coconut shell and steel fibre. The disposal method proposed is by partially using them in building elements such as reinforced concrete elements and plain concrete elements.

For thousands of years, coarse aggregate have been used in the construction of roads and buildings. The high cost of conventional building materials is a major factor affecting housing delivery in world. This has necessitated research into alternative materials of construction. The project paper aims at analysing compressive strength and bond strength characteristic of concrete produced using crushed, granular coconut shell and steel fibre substitutes for conventional coarse aggregate with partial replacement.



## CHAPTER 12

### CONCLUSION

Based on the findings of this work, the following conclusions shall be drawn.

- Maximum dry density increases and Optimum moisture content decreases considerably with addition of optimum percentage of ESP and varying percentage of QD.
- The Unconfined compression strength was found to be increased.
- The California bearing ratio was found to be increased.
- From the analysis, 50% soil + 30% QD added with 20% (constant) ESP gave the maximum in UCS of clay soil.
- By using the Egg shell powder and Quarry dust as soil stabilizers, we can minimize waste disposal problem and also provide an economic means for the stabilization of expansive soils.
- Plasticity index is almost constant for 20% ESP and 30% QD. Hence 20% ESP and 30% QD is selected as optimum percentage.

