1.3.2: Number of course that include experiential learning through project work/field work/internship during the year

Dept: Civil **Academic Year:2023-2024**

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
GUNDUR, TIRUCHIRAPALLI - 620 007.

1.3.2: Number of courses that include experiential learning through project work/field work/internship during last year

Dept : Civil **Academic Year 2022-2023**

S.No	Name of the Course	Course Code	Program Code	Program Offering	Project Work	Field Work	Internship	Page no
1.	Engineering Graphics	GE8152	103	B.E CIVIL ENGINEERING			✓	43
2.	Strength of Materials I	CE8301	103	B.E CIVIL ENGINEERING	✓			7-10
3.	Surveying	CE8351	103	B.E CIVIL ENGINEERING			✓	59
4.	Construction Materials	CE8391	103	B.E CIVIL ENGINEERING	✓		✓	3-6
5.	Construction Techniques and Practices	CE8401	103	B.E CIVIL ENGINEERING	✓	✓	✓	11-14
6.	Concrete Technology	CE8404	103	B.E CIVIL ENGINEERING	✓		✓	7-10
7.	Design of Reinforced Cement Concrete Elements	CE8501	103	B.E CIVIL ENGINEERING			✓	53
8.	Structural Analysis I	CE8502	103	B.E CIVIL ENGINEERING			✓	41
9.	Water Supply Engineering	EN8491	103	B.E CIVIL ENGINEERING			✓	40
10.	Design of Steel Structural Elements	CE8601	103	B.E CIVIL ENGINEERING	✓			7-10
11.	Structural Analysis II	CE8602	103	B.E CIVIL ENGINEERING	✓		✓	27-29
12.	Wastewater Engineering	EN8592	103	B.E CIVIL ENGINEERING	✓			15-18
13.	Estimation, Costing and Valuation Engineering	CE8701	103	B.E CIVIL ENGINEERING	✓	✓	✓	25-29
14.	Structural Design and Drawing	CE8703	103	B.E CIVIL ENGINEERING	✓		✓	31-34
15.	Municipal Solid Waste Management	EN8591	103	B.E CIVIL ENGINEERING	✓	✓		17-20,21-31-34

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ANALYSIS AND DESIGN OF A G+2 RESIDENTIAL BUILDING USING STAAD Pro

A PROJECT REPORT

Submitted by

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ASIF K

KUTHRATH NIYAS M

SAIFULLAH N

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

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NOVEMBER 2023

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INTERNAL EXAMINER

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ABSTRACT

This project focuses on the design of a G+2 residential building constructed with reinforced concrete, covering a total area of 400 square meters. The building comprises slabs, beams, columns, and footings. To ensure its structural integrity, appropriate loads are applied after performing load calculations in accordance with the Indian Standard code.

The project employs STAAD Pro software, where the dimensions and loading parameters are input for detailed structural analysis. The results of this analysis closely align with manual calculations, demonstrating a high degree of similarity in the design outcomes. The architectural plans for the building are crafted using AutoCAD and further refined through analysis and design using STAAD Pro.

In accordance with the Indian Standard code, the design of this G+2 residential building considers factors such as dead loads, live loads, and wind loads, as well as various load combinations. It fully complies with the requirements outlined in IS 456:2000, utilizing the Limit State Method for the design process. The manual analysis follows the moment distribution method, while the manual design process adheres to the limit state method. Furthermore, these calculations meet the stipulations of IS 875: Part 1 to 5, SP 16, and SP7 (NBC), including considerations for features such as parking lot areas.

CHAPTER 9

CONCLUSION

As indicated in the abstract, we have undertaken a thorough and meticulous endeavor to design and detail a G+2 residential building. The framed structure of this building is analyzed and designed using STAAD Pro. This comprehensive process includes the creation of shear force and bending moment diagrams for the structure.

Every structural member is meticulously designed in accordance with the limit state method, and Indian standard codes are applied to determine loadings and load combinations. The detailed drawings of each structural element are crafted using AutoCAD. The results obtained from the structural analysis in STAAD Pro are thoughtfully compared with manually derived outcomes.

Our project work is thoughtfully structured to encompass all major aspects of design. Over the course of this project, we have acquired significant knowledge in the analysis and design of slabs, beams, columns, staircases, and ramps. Furthermore, we have addressed the design of foundations and staircase. The manual design of the structure adheres to the standards set by IS 456: 2000. In addition, we have gained valuable experience in the practical applications of AutoCAD during the project's execution.

ANALYSIS AND DESIGN OF RESIDENTIAL BUILDING USING STAAD PRO

A PROJECT REPORT

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ABSTRACT

The principle objective of this project is the comparative study on design and analysis of G+2 "Residential building" by using STAAD Pro software. STAAD Pro. is one of the leading software's for the design of structures. In this project we have analysed the G+2 Residential building for finding the shear forces, bending moments, deflections & reinforcement details for the structural components of building(such as Beams, columns and slabs) to develop the economic design. Finally we will make an attempt to define the economical section of residential building using STAAD Pro. Software .

The structure is designed satisfying the load requirements of **IS 456: 2000** (Limit State Method). These design aid is used to simply the design process and also **IS 875: Part 1 to 5, SP 16 , SP 34** is used for detailing.

CHAPTER 7

CONCLUSION

i. From the work carried out in STAAD pro we can conclude that Using STAAD.Pro the analysis of Residential building has completed much quicker when compare with manual analysis.

ii. It is observed that the reinforcement percentage in the sections is more in the case of software design when compared to manual calculations.

iii. Designing using Software's like STAAD reduces lot of time in design work.

iv. Reinforcement Details of each and every member can be obtained using STAAD pro. All the List of failed frame sections can be obtained in the report given by STAAD Pro so that we can change the property data for a better section.

v. Shear variation and moment variation of particular section can be observed clearly on the building.

vi. Accuracy is improved by using software.

vii. Reinforcement details of each member can obtain directly after analyzing the building.

ANALYSIS AND DESIGN OF A RESTAURANT BUILDING USING STAAD Pro

A PROJECT REPORT

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ABSTRACT

This project aims to apply theoretical knowledge acquired during the course of study to the design of a restaurant building. The focus is on the reinforced concrete frame structure, with a floor area of 195 m^2 (or 2100 sq feet) and a total area of 215 m^2 (or 2300 sq feet), comprising beams and columns. The frame is loaded with appropriate loads specified in IS 875 (PART-1) for Dead load and IS 875 (PART-2) for Live load. Manual calculations for beam, column, slab, and footing are performed. In the event of structural failure during analysis, adjustments are made to the structure's geometry. Subsequent load applications and analyses are conducted until a satisfactory structural performance is achieved. If the structure remains stable, detailed designs for beams and columns are generated using STAAD Pro.

The building plan is created using AutoCAD, and the structural design is finalized with STAAD Pro. The entire design process, considering dead load, live load, and load combinations, adheres to the guidelines provided by the relevant IS codes.

CHAPTER 8

CONCLUSION

The structural analysis, conducted using STAAD Pro, confirms the safety and reliability of the structure, leading to the successful derivation of design details for the restaurant building. AutoCAD is employed for drafting purposes. The structure exhibits shear force, bending moment, and deflection within permissible limits, ensuring its capability to withstand heavy loads without sustaining damage.

This project has provided valuable insights into structural designs, drawings, and material resourcing. The combination of theoretical understanding and practical application gained from this project contributes significantly to our knowledge base for future endeavors. Specifically, it has enhanced our proficiency in AutoCAD drafting and STAAD Pro analysis.

In summary, the utilization of advanced tools and methodologies in this project not only ensures the structural integrity of the restaurant building but also equips us with essential skills and knowledge that are instrumental for our future undertakings.

ANALYSIS AND DESIGN OF HOTEL BUILDING IN SEISMIC ZONE

A PROJECT REPORT

Submitted by

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J. Kevin Jack

S. Mohamed Faizal

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ABSTRACT

The objective of this project work is to apply the concept of theoretical knowledge obtained during the course of study to design the Hotel building. The project deals with the design of G+3 storied reinforced concrete frame structure of a commercial building is 180m^2 and total area is 250m^2. The frame consists of beams and columns. Then the frame is loaded with suitable load after load calculation are done as per Indian Standard code. The dimensions and loading are given as input data in STAAD Pro and the building is analysed. The analysis is compared with the manual calculation as the design match with almost similarity. The plan of the building drawn in the AutoCAD, analysed and designed using STADD Pro. Hence, the design of G+3 Hotel building for dead load, live load, the load combination is done by using IS-code It is designed satisfying the requirements of IS 456: 2000 (Limit State Method). Method used for manual analysis is moment distribution method and method used for designing manually is limit state method. These calculations also fulfil the requirements of IS 875: Part 1 to 5, SP 16 and SP7 like area of parking lot.

CHAPTER 7

CONCLUSION

As stated in the abstract, a comprehensive work on the design & detailing of the HOTEL BUILDING subjected to seismic loading with more care and sincerity has been carried out.

In this project we have tried to design a Multi-storeyed hotel building with seismic loads as framed structure. The framed structure for the building is analysed using STADD Pro software and modelling through Auto CAD. The shear force and bending moment diagram of the structure is arrived. All the members are designed by limit state method. Indian standard codes are used for the loadings and load combinations. Detailing of each structural member was done using Auto CAD. The structure analysed in STAAD Pro is compared with manually determined results.

The code book IS 456:2000, IS 1893(Part 1), 2002 & IS 875:1987(Part 1&2) has been referred for loading and seismic loads. To achieve uniform horizontal deflection of the framed structure due to application of lateral loads, the diaphragm action has been incorporated using master slave command. While the project work, we have gained knowledge about analysis and design of two-way slabs and singly, doubly reinforced beams and uniaxially, biaxially loaded columns, staircase and ramps.

The design of structure is done manually as per standards of IS 456:2000, in addition we have learnt the applications of AUTO CAD & STAAD while this project.

ANALYSIS AND DESIGN OF A HOSPITAL BUILDING USING STAAD PRO

A PROJECT REPORT

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

The objective of this project is to apply the theoretical knowledge acquired during the course of our studies to the design of a hospital building. The project involves designing a hospital building with a reinforced concrete frame structure spanning two floors (G+2). The total area of the building is 600 square meters, with the hospital portion covering 140 square meters. This frame structure is composed of beams and columns.

The building's architectural plans are created using AutoCAD, and the structural analysis and design are performed using STAAD Pro. To ensure the structural integrity of the building, loading calculations were done in accordance with the Indian Standard codes. The structure is analysed using STAAD Pro software. Manual design calculations are performed and the results are compared with the STAAD Pro analysis. It is found that the results closely match with each other.

Consequently, the design of this G+2 hospital building accounts for dead loads, live loads, and various other load combinations in accordance with the IS code.

The design adheres to the requirements of IS 456:2000, utilizing the Limit State Method. All calculations are performed to utilizing the standards outlined in IS 875: Part 1 to 5, SP 16, and SP 7, including considerations for a parking lot area.

CHAPTER 7
CONCLUSION

As stated in the starting pages of project report (abstract), a comprehensive work on the design & detailing of the HOSPITAL BUILDING with more care and sincerity.

In this project we have made an attempt to design a Hospital building as framed structure. The framed structure for the building is analysed using STADD Pro software and design through Auto CAD. The shear force and bending moment diagram of the structure is done. All the members are designedby limit state method. Indian standard codes are used for the loadings and load combinations. Detailing of each structural member was done using Auto CAD. The structure analysed in STAAD Pro is compared with manually determined results. We do that each & every chapter of this project will be immense we to student's community in the study of slab, beam and column.

The project work is done in such a manner so as to cover all major work of design. During the course of the project work we have gained much knowledge about analysis & design of slab, beam, column, staircase, foundationhas to be designed.

The design of structure is done manually as per standards of IS 456:2000,in addition we have learnt the applications of AUTO CAD during the course of this project.

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ANALYSIS AND DESIGN OF INSTITUTIONAL BUILDING USING ETABS

A PROJECT REPORT

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BONAFIDE CERTIFICATE

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External Examiner

ABSTRACT

This project deals the design of G+8 stored Reinforced Concrete Institutional building of total area is 1353 Sq.m. Building consists of Slab, Beam, Column and Footing. Then the structure is loaded with the suitable loads after load calculation are done as per Indian Standard code. The dimensions and loading are given as input data in **ETABS** and the building is analyzed. The analysis is compared with the manual calculation as the design match with almost similarity. The plan of the building drawn in the AutoCAD, analyzed and designed using ETABS

Hence, the design of G+8 Institutional building for dead load, live load, wind load, the load combination is done by using IS-code.

It is designed satisfying the requirements of **IS 456: 2000** (Limit State Method). Method used for manual analysis is moment distribution method and method used for designing manually is limit state method. These calculations also fulfill the requirements of **IS 875: Part 1 to 5, SP 16 and SP7 (NBC)** like area of parking lot.

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
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15. CONCLUSION:

- In conclusion, our project on the design and detailing of an RCC building using ETABS has been a tremendous learning experience for our team of college students.
- Through rigorous analysis, calculations, and attention to detail, we successfully created a structurally sound and aesthetically pleasing building that adheres to modern construction standards.
- Leveraging the power of ETABS has notonly improved our understanding of structural engineering but also allowed us to optimize our design for efficiency and safety.
- This project has emphasized the importance of collaboration and communication among team members as we faced various challenges and made informed decision.
- Moving forward, we aim to stay updated with evolving technologies and methodologies in the field, always striving for innovation and sustainability
- Overall, this project has showcased our dedication to excellence in structural engineering

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ANALYSIS AND DESIGN OF SMART RESIDENTIAL BUILDING USING STAADPRO

A PROJECT REPORT

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A. ABDUL RAHMAN

K.MOHAMED RAHIMUDEEN

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NTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL
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ABSTRACT

This project deals the design of G+1 stored Reinforced Concrete Smart Residential building of 1467 sq ft and total area is 1997 sq ft Building consists of Slab, Beam, Column, Footing and implementation of solar panels at terrace which gives an effective and easy way to introduce clean energy with proven technology. Following project fulfill requirement of clean and renewable energy in our building and hen the structure is loaded with the suitable loads after load calculation are done as per Indian Standard code. The dimensions and loading are given as input data in **STAAD Pro** and the building is analyzed. The analysis is compared with the manual calculation as the design match with almost similarity. The plan of the building drawn in the AutoCAD, analyzed and designed using STADD Pro. Hence, the design of G+1 Residential building for dead load, live load, wind load, the load combination is done by using IS-code. It is designed satisfying the requirements of **IS 456: 2000** (Limit State Method). Method used for manual analysis is moment distribution method and method used for designing manually is limit state method. These calculations also fulfill the requirements of **IS 875: Part 1 to 5, SP 16 and SP7 (NBC)** like area of parking lot.

CHAPTER 8

CONCLUSION

In this project we have made an attempt to design a residential building as framed structure. The framed structure for the building is analysed using STADD Pro software and design through Auto CAD. The shear force and bending moment diagram of the structure is done. All the members are designed by limit state method. Indian standard codes are used for the loadings and load combinations. Detailing of each structural member was done using Auto CAD. The structure analysed in STAAD Pro is compared with manually determined results.

The project work is done in such a manner so as to cover all major work of design. During the course of the project work we have gained much knowledge about analysis & design of slab, beam, column and staircase.

We have acquired an idea of structural designs, structural drawings and the source of materials. This project provides us a good theoretical and practical knowledge, which will be useful for our future. This project was very much helpful for us to obtain more knowledge about drafting using AutoCAD and analyzing-using-STAADPro..

ANALYSIS AND DESIGN OF A SHOPPING COMPLEX BUILDING USING STAAD PRO

A PROJECT REPORT

Submitted by

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22/11/2023

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Department of Civil Engineering,
M.I.E.T. Engineering College,
TRICHY-07

Submitted for the Anna University practical viva held on 22/11/2023

22/11/23.

INTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
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ABSTRACT

The objective of this project work is to apply the concept of theoretical knowledge obtained during the course of study to design a shopping complex Building. The project deals with design of G+2storied reinforced concrete framed structure of a shopping complex with an area of 374m^2 and the total land area is 420m^2. The frame consists of beams, columns, slabs, footings, staircases. The dimensions and loading are given as input data in STAAD Pro, then the building is modeled and analyzed. Then the frame is loaded with suitable load and those load calculations are done as per Indian Standard code. The analysis is compared with the manual calculation as the design match with almost similarity. The plan of the building is drawn in the AutoCAD, analyzed and designed using STAAD Pro. Finally, reinforcement detailing is drafted in AutoCAD. Thus, the design of G+2 shopping complex for dead load, live load and the load combination is done satisfying the requirements of IS 456:2000 (Limit state Method). The calculations fulfill the requirements of IS 875: part 1 to Part 5, SP 16.

CHAPTER 7

CONCLUSION

In this project we have made an attempt to design a commercial office building as framed structure. The framed structure for the building analyzed and designed using STAAD Pro software and drafting of plan, reinforcement through Auto CAD. The shear force and bending moment diagram of the structure is done. All the members are designed by limit state method. Indian standard codes are used for the loadings and load combinations Detailing of each structural member was done using Auto CAD The structure analyzed in STAAD Pro is compared with manually determined results

The project work is done in such a manner so as to cover all major work of design. During the course of the project work we have gained much knowledge about analysis & design of slab, beam, column, staircase, and Footing. The design of structure is done manually as per standards of IS 456-2000, in addition we have learnt the applications of AUTO CAD And STAAD Pro during the course of this project

ANALYSIS AND DESIGN OF A G+2 APARTMENT BUILDING

A PROJECT REPORT

Submitted by

ARAVIND.S

MANIMARAN .R

MOHAMMED JAFAR ALI .A

SETHU VINAYAGAM.S

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

CIVIL ENGINEERING

M.I.E.T. ENGINEERING COLLEGE, TIRUCHIRAPPALLI

ANNA UNIVERSITY:CHENNAI-600 025

NOVEMBER 2023

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
GUNDUR, TIRUCHIRAPALLI - 620 007.

BONAFIDE CERTIFICATE

Certified that this project report **"ANALYSIS AND DESIGN OF G+2 APARTMENT BUILDING"** is the bonafide work of **"ARAVIND.S (812420103001),MANIMARAN.R (812420103321), MOHAMMED JAFARALI.A(812420103327),SETHU VINAYAGAM.S (812420103334),"** who carried out the project work under my supervision.

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Dr.P.V.PREMALATHA

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INTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL
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ABSTRACT

This project work is to apply the concept of theoretical knowledge obtained during the course of study to **"DESIGN THE G+2 APARTMENT BUILDING"**. The project deals with the design of G+2 apartment space reinforced concrete frame structure of apartment building. The frame consists of beams and columns. Then the frame is loaded with suitable load after load calculation are done as per IS code. If the structure fails according to analysis, a few changes introduced in the geometry of the structure and the loading are applied and analysis is done. If the structure does not fail, full design details are obtained in STAAD PRO V8i for columns, beams. The plan of the building drawn in the **AutoCAD**, designed using **STADD Pro.**

Hence, the design of G+2 apartment building for dead load, live load, the load combination is done by using IS-code

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CHAPTER 7

CONCLUSION

The analysis of the structure is done using STAAD PRO according to which the structure is safe and reliable. Hence the design details of the G+2 apartment building is obtained. The drafting works are done with AutoCAD. The structural designs of the structure is done with STAAD PRO . The shear force, bending moment and deflection occurred in this structure, caused by the loads are within the limits so the structure can carries heavy loads without any cause of failures or damages.

We have acquired an idea of structural designs, structural drawings and the source of materials. This project provides us a good theoretical and practical knowledge, which will be useful for our future. This project was very much helpful for us to obtain more knowledge about drafting using Auto CAD and analyzing using-STAAD PRO.

ANALYSIS AND DESIGN OF BIO GAS PLANT USING STAAD PRO

A PROJECT REPORT

Submitted by

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MOHAMEDIBRAHIM

S.ABDUL LATHEEF

A.FAIZULAHAMED

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BONAFIDE CERTIFICATE

Certified that this project report **"ANALYSIS AND DESIGN OF BIO GAS PLANT USING STAAD PRO"** is the bonafide work of following students **FAISAL AHAMED.A (812420103003), MOHAMED IBRAHIM.M (812420103007), ABDUL LATHEEF.S (812420103302), FAIZUL AHAMED. A (812420103311)** Who carried out the project work under my supervision.

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Submitted for University Examination held on 22/11/23

INTERNAL EXAMINER

EXTERNAL EXAMINER

PRINCIPAL
M.I.E.T. ENGINEERING COLLEGE
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ABSTRACT

India is a developing country with a growing economy, which shows high consumption of goods and years of waste especially in urban areas. In modern times, as the demand for energy grows, the demand for biogas has increased. Many biogas plants have already been established in rural and urban areas and studies show that Biogas will soon replace fossil fuels as a source of energy. This project is centered on the design of Biogas Plant for the institutional campus. Production of biogas can be done using raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. In any institute, there are multiple mess and canteen which cater to more than 3000 students daily and generate over 80 kg of solid and semi solid waste in the form of left-over food and remains of vegetables and fruits. In the process of making biogas from biomass, two main products are obtained: i) Methane (55–70 %) and ii) Slurry i.e., organic fertilizer. Methane can be used to light the houses, cook food and as a fuel for vehicles. The organic fertilizers are considered to be more productive than traditional fertilizers and are widely used in fields. The purpose of this biogas plant is to address the problem of waste disposal in canteens and other parts of the campus in an environmentally friendly manner. Various designing factors such as size, site selection, raw materials supply and output calculations are done in the project to meet the requirements. The size of the plant is determined by collecting data of solid mass and semi solid mass generated as waste and plant required to process the raw materials into biogas effectively.

CHAPTER 7

CONCLUSION

- As stated in the starting pages of project report (abstract), a comprehensive work on the design & detailing of the ANAEROBIC BIOGAS REACTOR with more care and sincerity.
- In this project we have made an attempt to design biogas tank with dome as circular structure. The circular structure of the tank is analyzed using STAAD Pro software and design through AUTO CADD. The shear force and bending moment diagram done. Indian standard codes are used for loading combinations. Detailing of each structural member was done using Auto CADD. The structure analyzed in STADD PRO is compared with manually determined result. We have done our best by collecting as much data as possible and have utilized same for designing.
- We do hope that each and every chapter of this project.
- The project is done in such a manner so as to cover all major work of designing a biogas reactor. During the course of the project work we have gain much knowledge about analyzed and design of a biogas circular tank and a dome.

ANALYSIS AND DESIGN OF HOTEL BUILDING (G+8) USING ETABS IN SALEM

A PROJECT REPORT

Submitted by

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A. CHIBANTONY

V. MOSHIGAN

in partial fulfillment for the award of the degree

of

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Certified that this project report **"ANALYSIS AND DESIGN OF HOTEL BUILDING (G+8) USING ETABS IN SALEM"** is the bonafide work of following students **NANTHAKUMAR S (812420103331), ABDUL AZIZ M (812420103301), CHIBU ANTONY A (812420103310), MOSHIGAN V (812420103329)** Who carried out the project work under my supervision.

20/11/23

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

Salem being the fifth largest urban agglomeration in the state of Tamil Nadu and developing city with a rapid increase in construction field. Hence, there is a need for multistorey building. In this project we mainly deal with analysis and design of multi-story hotel building (G+8) having a total area of 610.56 Sq.m. using ETABS software considering a load of dead loads, imposed load, wind load and seismic load. Salem comes under zone II. The material properties of steel and concrete was assigned as per IS standards. Using the software, we have analysed and designed the beams, columns, slabs, staircase and shear wall. The results are downloaded from the software and compared with manual design as per IS 456-2000.The structure is safe under applied loads.

CHAPTER-11

CONCLUSION

1)E-tabs software design provide adequate strength, durability, serviceability along with economy.

2)E-tabs design is based on limit state method.

3)The force of support reaction is minimum as the response factor taken is zone II.

4)The Dimension of beam or column should be increased as to resist against seismic loads.

5)E-tabs mainly reduces the time & work along with more accuracy.

ANALYSIS AND DESIGN OF A SECURED PRISON BUILDING

A PROJECT REPORT

Submitted by

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AZHAGAR. S

ARUN KUMAR. S

SURESH KUMAR.P

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Certified that this project report **"ANALYSIS AND DESIGN OF SECURE PRISON BUILDING"** is the Bonafide work of **"RAJAGURU.R (812420103332), AZHAGAR.S (812420103308), ARUN KUMAR.S (812420103306) and SURESH KUMAR.P (812420103017)"** who carried out the project work under my supervision.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

The objective of this project work is to apply the concept of theoretical knowledge obtained during the course of study to "Design of Secure Prison Building". The project deals with the design of secure prison space reinforced concrete frame structure of a secure prison building are. The frame consists of beams and columns. Then the frame is loaded with suitable load after load calculation are done as per IS code. If the structure fails according to analysis, a few changes introduced in the geometry of the structure and the loading are applied and analysis is done. If the structure doesn't fail, full design details are obtained in STAAD Pro V8i for columns, beams. The plan of the building drawn in the **Auto CADD**, designed using **STADD Pro.** Hence, the design of secure prison building for dead load, live load, the load combination is done by using IS-codes.

Keywords: Reinforcement, Concrete, Brick wall, Structure, Building, STAAD Pro, Auto CADD & MS-Office.

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CHAPTER 7

CONCLUSION

- Contemporary prison design is a multi-layered and multi-scalar contributor to the prisoners' positive psychological and behavioural change and their acceptance by the common society.
- Based on the considerations as to the meaning and purpose of the contemporary prison, the key qualitative elements of design that impact the re-socialization of inmates are identified.
- These are: Location; Spatial concept and design; Appearance of the prison as a whole; Accommodation cells and blocks; and Content and functionality.
- The study has shown that the socially functional environment of a secured prison may be achieved by applying various design approaches.
- In this regard, the establishment of a common format of new prison architecture seems unnecessary; instead, the model of contemporary prison architecture may actually be interpreted, inter alia, as the spatial response to the ultimate requirement for re-socialization.
- On this point, the set of indicators, established in order to analyse the response of contemporary cases, may be used to determine the potential for re-socialization of older existing facilities, with the aim of future improvement.
- Finally, these same indicators may also be used as guidelines in new prison planning and design.

ANALYSIS AND DESIGN OF GAS STATION

A PROJECT REPORT

Submitted by

MOHAMED MUKFIL SHINAN

SABARINADHAN . L

MOHAMED THAJIMIL .M

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

CIVIL ENGINEERING

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NOVEMBER 2023

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BONAFIDE CERTIFICATE

Certified that this project report **"ANALYSIS AND DESIGN OF GAS STATION"** is the bonafide work of " **MOHAMED MUKFIL SHINAN (812420103008),SABARINADHAN.L (812420103015), MOHAMED THAJIMIL.M (812420103326)**" who carried out the project work under my supervision.

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Submitted for the Anna University practical viva held on 22.11.2023 (A.N)

INTERNAL EXAMINER

EXTERNAL EXAMINER

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M.I.E.T. ENGINEERING COLLEGE
GUNDUR, TIRUCHIRAPALLI - 620 007.

ABSTRACT

In this project, our aim is to conceptualize a gas station facility capable of accommodating 1000 vehicles, catering to the needs of consumers. The design adheres to the National Building Code (NBC), with structural analysis conducted through Staad Pro. The components, including Footing, Column, Beam, and Slab, are meticulously designed using the limit state method outlined in IS456-2000.

The gas station, covering an area of 357 sqm (3,740 sqft), is equipped to handle dead load, live load, and wind load according to IS-code specifications. The comprehensive load combination analysis ensures structural integrity.

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M.I.E.T. ENGINEERING COLLEGE

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UG - CSE, EEE & MECH Programs Accredited by NBA, New Delhi
Accredited with 'A+' grade by NAAC
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Department of Civil Engineering
REPORT ON ONE DAY SITE VISIT

Name of the Places : **Solid Waste Management Center, Gasifier Crematorium under Construction, Miyawaki forest**

Place of Visit : **Thiruverumbur , Trichy**

Date of Visit : **02.11.2023**

S.No.	Details of the Visit		
1.	Number of Students	39 Nos.	
2.	Faculty Coordinators	Mr.E.Santhosh Kumar Mr.S.Arun Sahyaraj	
3.	Date & Time of Local Visit	02/11/2023	Time:9.30am to 5.00 pm
4.	Approval Date	27.10.2023	
5.	Objective of the Visit	To provide students with a holistic understanding of environmental sustainability and eco-friendly practices. The visit aimed to expose the students to various facets of sustainable living, waste management, and afforestation, fostering a sense of environmental responsibility and promoting awareness about the importance of preserving and protecting our natural resources.	
6.	Learning Experience	**Solid Waste Management Center (Ayyanputhur – Thiruverumbur):** The visit to the waste reuses and recycle center proved to be insightful. The objectives were met as students gained a practical understanding of sustainable waste management. The center effectively conveyed the importance of recycling and reducing waste. Students learned about entrepreneurship ideas from Magalir suya uthavi kuzhu. Students acquired knowledge on innovative project ideas using waste materials including plastic wastes. **Gasifier Crematorium under Construction (Thiruverumbur Union):** The visit to the gasifier crematorium was enlightening. The objectives were clearly met, allowing students to learned about the construction process of crematorium and eriction of inceneration set up. Its cost about 2 crores. Its	

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<table>
<tr><td></td><td></td><td>chimneys height was 100feet. About Rs. 20 lakhs for gasifier erection process.
Miyawaki Forest (Navalpattu):
The visit to the Miyawaki forest concept was engaging and educational. The visit effectively emphasized the importance of afforestation. In 7 Acres. About 10,000 different variety of trees planted in 3 Acres, remaining 4 acres are reserved for future purpose.
Due to Heavy rain, we can't visit Bridge Construction in Thiruverumbur.</td></tr>
<tr><td>7.</td><td>Programme Schedule (As executed)</td><td>
<table>
<tr><th>TIME</th><th>ACTIVITIES</th></tr>
<tr><td>9.30am</td><td>Departured from M.I.E.T. Engineering College</td></tr>
<tr><td>10.00 am</td><td>Visited Solid Waste Management Center – Ayyanputhur – Thiruvermbur</td></tr>
<tr><td>11.45 am</td><td>Learned Entrepreneur Ideas in Ayyanputhur – Thiruvermbur</td></tr>
<tr><td>12.30 pm</td><td>Visited Gasifier Crematorium under construction – Thiruvermbur Union</td></tr>
<tr><td>01.30pm</td><td>Lunch</td></tr>
<tr><td>02.30 pm</td><td>Visiting Miyawaki forest - Navalpattu</td></tr>
<tr><td>03.15 pm</td><td>Travel to Visit Bridge Construction - Thiruvermbur</td></tr>
<tr><td>4.00 pm</td><td>Departure from Thiruvermbur</td></tr>
<tr><td>4.45 pm</td><td>Reached M.I.E.T. Engineering College</td></tr>
</table>
</td></tr>
<tr><td>8.</td><td>Brief about the Students Observation</td><td>Students were actively engaged during each visit by participating in discussions and asking questions. Their involvement enhanced the overall learning experience.</td></tr>
<tr><td>9.</td><td>Conclusion</td><td>The culmination of visits to the Waste Reuse and Recycle Center, Construction Process Gasifier Crematorium, and Miyawaki Forest Concept has been a transformative learning experience for our students. Witnessing firsthand the intricacies of sustainable waste management, the eco-friendly aspects of gasifier cremation, and the principles behind urban afforestation has provided a comprehensive insight into environmental sustainability.</td></tr>
</table>

Coordinator **HoD/Civil** **Principal**

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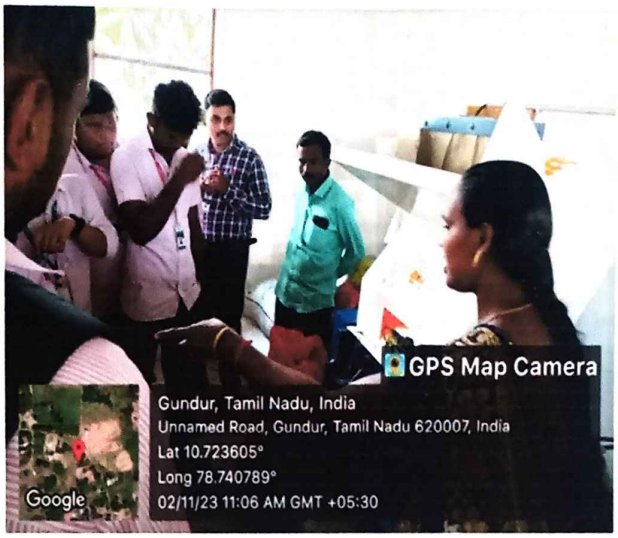
Attachments (Geo-tagged Photos of the Local Visit)



Solid Waste Management Center Ayyanputhur – Thiruverumbur

Gasifier Crematorium under Construction Thiruverumbur

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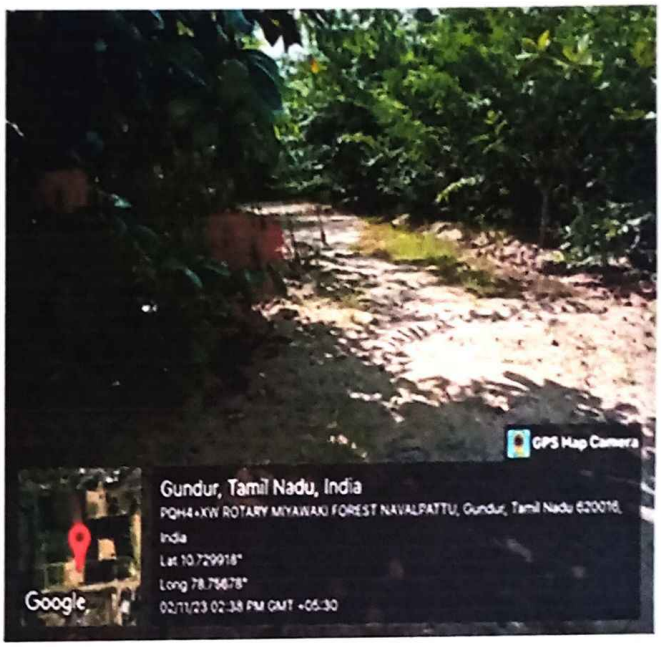

Miyawaki Forest - Navalpattu

Coordinator

HoD/Civil

Principal

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