iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 7 **Issue:** VI **Month of publication:** June 2019

DOI: http://doi.org/10.22214/ijraset.2019.6118

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.177
Volume 7 Issue VI, June 2019- Available at www.ijraset.com

Analysis and Design of Girijabai Auditorium in GSIT College, Karwar

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Abstract: This project deals with the design and analysis of the auditorium of our college GSIT Karwar. In this projects we are designing an auditorium which has a capacity of about 500 persons. Nowadays every colleges are trying to not only educate the students but also they give them opportunity to show their talents in arts and hidden skills youth festivals and entire curricular activities. Auditorium can be used for all these type of formal assembly, lectures, seminar activities etc. The designing and planning of auditorium can be made by using software's like Auto CAD, Rivet, solid work and STAAD Pro. By using Auto CAD and STAAD Pro software structure analysis of auditorium can be done. Rivet and solid work involves planning utility lines and installation, sanitation and water supply lines etc.

I. INTRODUCTION

An Auditorium is a room which is built to enable an audience to hear and watch performance at venue, such as theaters, etc. Auditoria can be found in entailment venues community halls and theaters and may be used for the rehearsal, presentation, performing, arts production or an a boring space as known difference between auditorium and theater is that auditorium is the large room for public meeting or performance while theater is a places or building consisting of a stage and seating in which audience gather to watch place musical performance public This project is based on capacity of 500 persons. The limit state method of collapse using is 456-2000 and SP 16 have been adopted for the design of structural components like slabs beams column and foundations. Auditorium spaces are design to accommodated large audience to accommodated as such as they tends to have a wide spans and are multiple stories high in order to accommodate seating sight line and acoustical requirement.

A. Structural Details

Beam :Beams may be support subjected to transfer load on become are provided to transfer the load form slab and walls to the column to that they are connected. In designing Rcc beam some basic rules are to be followed which are given IS 456-2000. Authors are requested to go through IS 456-2000 before proceeding towards design problems.

Columns :The structural members was magnitude relation of effective length to its least lateral dimensions more them their three times is throat as columns.

Footings :Footing is that a part of the foundation that is in direct contact with a soil. Reinforced concrete is associated admirably appropriate material for footing and is extensively used for footing of building, columns, towers, bridges etc. Different types of footings are used depending upon the Lords outer side different footing and inner side different footings outside combined footing inside individual Foundation.

Slab **:**A slab may be supported by beams or walls and may be used as the flange of the t- beam or l-beam. the slab may be simply supported or continuous over one or more supports.

B. Surveying

Surveying is the process of analyzing and recording the characteristics of a land area span to help design a plan or map for construction.

We are carried out the survey in our college Girijabai Sail Institute of technology is an engineering college in Uttarkannada district of Karnataka, our college is situated approximately 12KM from Karwar in the surrounding of Majali. The college is associated to Vishveshvaraya technological university, Belgaum.The overall area of our college campus is 449.32 Gunta, In that the area of administrative building is 8,568sq.m.The area of mechanical and civil department is about 6,674sq.m.The area of girls hostel 1,600sq.m and area of boys hostel is 3,400sq.m. Beside Administrative building there is a small structure the area of that structure is 258sq.m.In front of this structure we are going to construct an auditorium and the area of that is 4221.80sq.m. The overall strength of the students in our college is 249.There are 46 staff members.The capacity of our auditorium is 500 Persons.

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Fig 1 location Of Gsit Colleges

C. Estimation And Costing

An estimate is the anticipated or probable cost of a work and is usually prepared before the construction is taken up.

II. METHODOLOGY

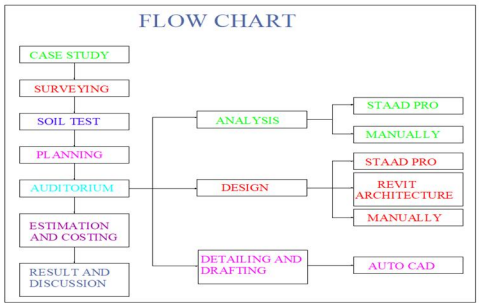


Fig 2 Flow Chart

A. Design Details

Beam size = 0.3mX 0.6m
hanger bars= 2 # 12mm dia
main reinforcement= 2 # 16mm dia
stirrups = 2LVS 8mm dia @ 300mm c/c
Size of the footing= 3m X 2m
reinforcement along a x direction=16mm dia @80mm c/c
reinforcement along y direction= 12mm dia 60mm c/c
Size of the slab =25m X 40m
reinforcement along longer span = 8mm dia @ 130mm c/c
main reinforcement along longer span = 10mm dia bars @100mm c/c
Column size = 0.3mX 0.45m
lateral ties = 8mm dia @ 300mm c/c
main bars = 6 # 20mm dia

Sl.No	Name Of The Test	Result
1	Core Cutter Method	
	1. The bulk density of soil	1.58 gram/cc
	2. The dry density of soil	1.712 gram/cc
	3. Moisture content of soil	10.86 gram/cc
	4. Voids ratio	0.68 gram/cc
	5. Degree saturation	42.48%
2	Specific Gravity Of Soil	2.66
3	Liquid Limit Test	22.04%
4	Plastic Limit Test	35.19 %

Following Software Are Used For Completion Of The Project
Auto – CAD

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A well planned auditorium for about 500 capacity of sitting design on ground floor with one basement.

1) Plan Of Our Auditorium

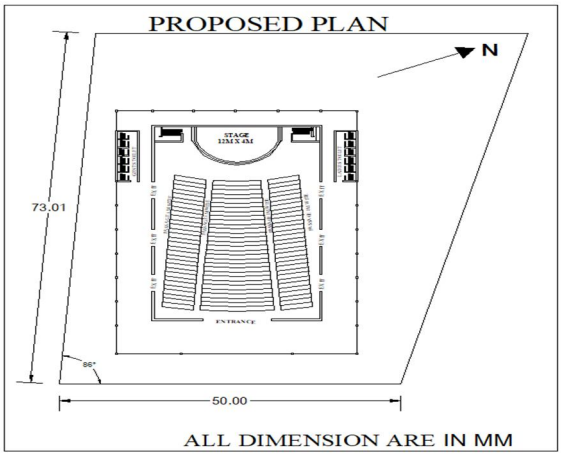


Fig 3 Plan

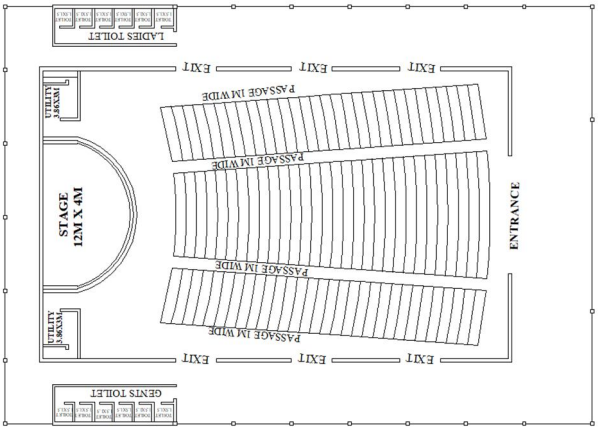


Fig 4 Proposed plan

2) Rivet Architecture (2015)

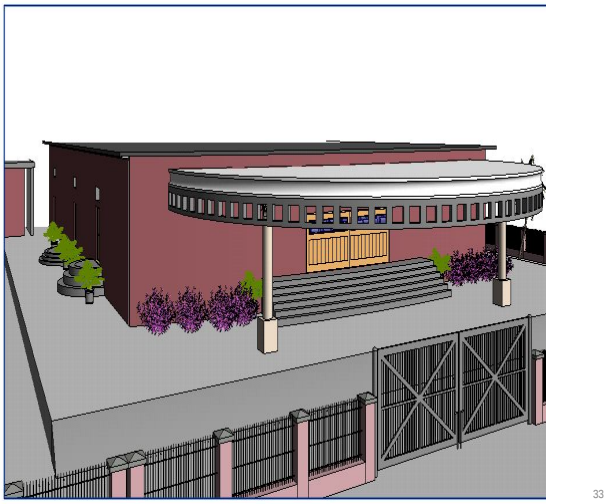


Fig 5 Plan In Revit Architecture

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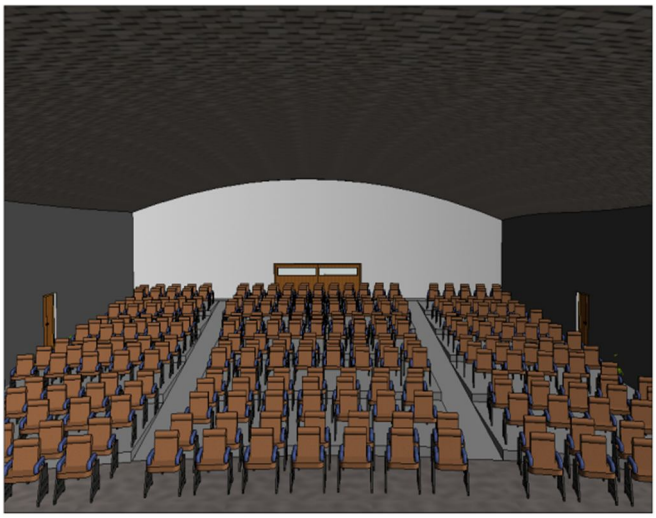


Fig 6 Sitting Arrangement

3) Staad Pro

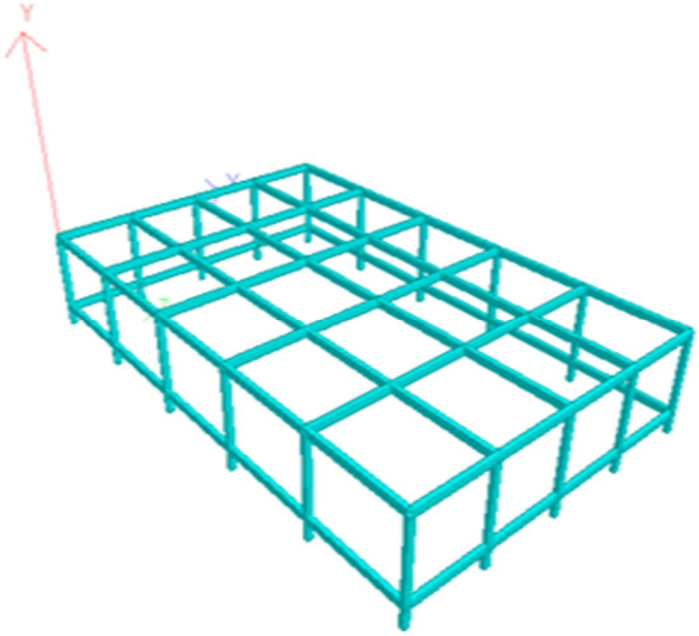


Fig 7 3D rendering of Auditorium

III. CONCLUSION

Our project deals with analysis and design of auditorium of our college Girijabai sail institute of technology Majali. We have used modern software for analysing and designing. We have divided our project in two phase.

A. Architecture design: we have done architectural design by using software name Auto desk Rivet. We successfully did detailed drawing by using Auto cad 2013 in which drawings were based on various architectural design standards and by using Auto desk Rivet we get 3 dimensional view of our structure.

B. Structural Design: By using STAAD PRO software we have done analysis and design of our college auditorium. We get the design which are going to be used with the construction of auditorium . Even we get the axial load which is helpful in designing of column and footing .

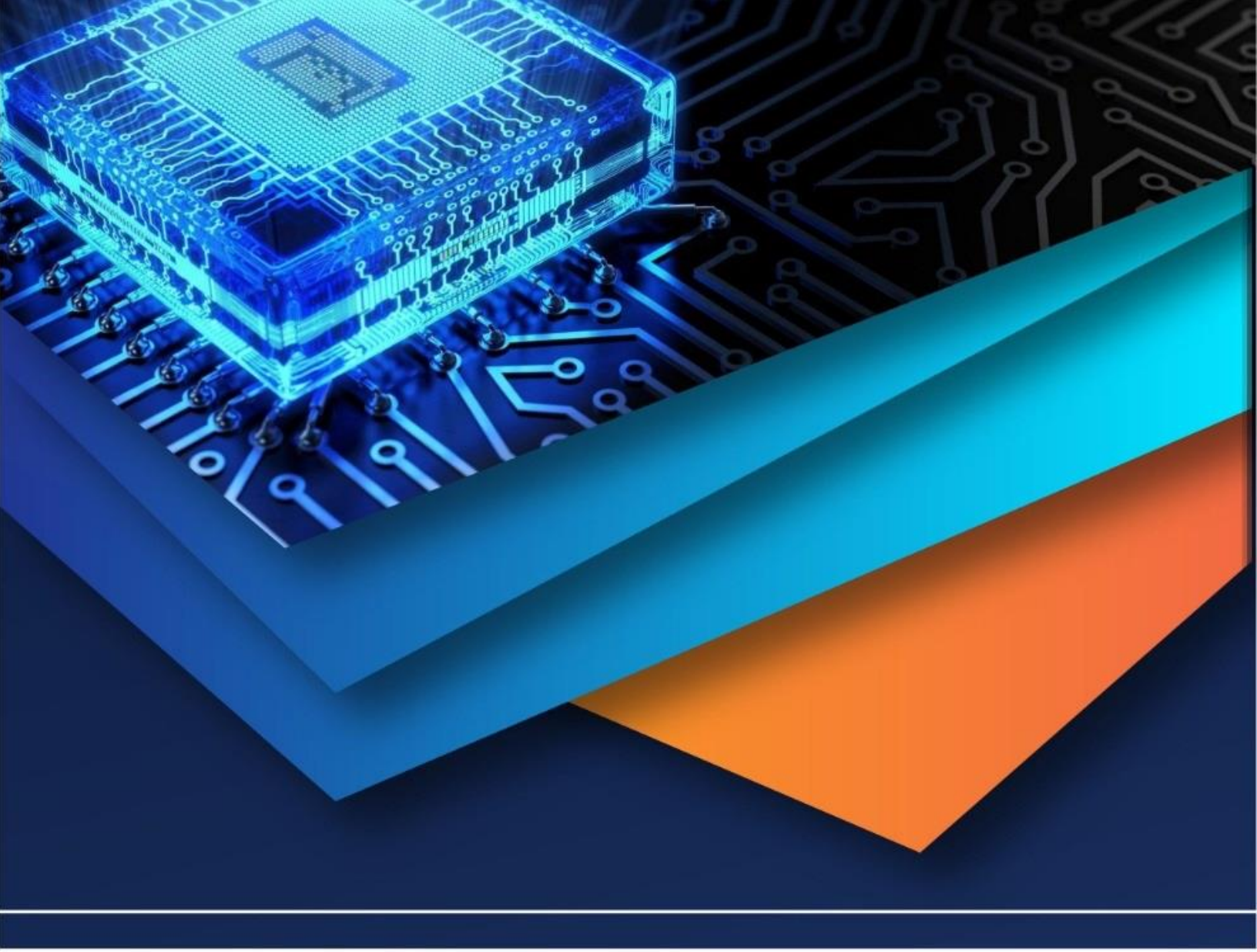
We can conclude that our requirement of auditorium in our college is fulfilled.

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