SITYOG INSTITUTE OF TECHNOLOGY
Growth Center, Jasoiya More, Aurangabad (Bihar) – 824102
Approved By AICTE under Govt. of India (Ministry of HRD),
Affiliated to Aryabhatta Knowledge University, Patna/ Bihar Engineering University, Patna
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Experiential Learning

The implementation and impact of experimental learning at SITYOG Institute of Technology, Experimental learning, a pedagogical approach emphasizing hands-on activities and practical experiences, has been integrated into the institute's curriculum to enhance student engagement and foster deeper learning. The report details the strategies employed, the involvement of faculty, student feedback, challenges faced, and recommendations for further improvement.

Experimental learning is a dynamic teaching method that promotes active engagement, critical thinking, and the application of knowledge in real-world contexts. At SITYOG Institute of Technology, the incorporation of experimental learning aligns with our commitment to providing a holistic and enriching educational experience.

Objectives of Experimental Learning:

The institute aims to achieve several key objectives through experimental learning, including:

- Enhancing students' practical skills and problem-solving abilities.
- Fostering a deeper understanding of theoretical concepts through hands-on experiences.
- Promoting creativity and innovation among students.
- Aligning with industry demands by providing relevant, practical knowledge.

Implementation of Experimental Learning:

Experimental learning is seamlessly integrated into various courses and programs across disciplines. Notable initiatives include:

Project-Based Learning: Courses feature hands-on projects where students apply theoretical concepts to real-world scenarios.

Internships and Industry Collaborations: Students engage in internships with industry partners, gaining practical experience and exposure to professional settings.

Workshop Series: Regular workshops led by industry experts provide practical insights and skill-building opportunities.

Peer-to-Peer Learning: Collaborative projects encourage students to learn from each other and share diverse perspectives.

Problem-Based Learning: Students tackle real-world problems, fostering critical thinking and analytical skills.

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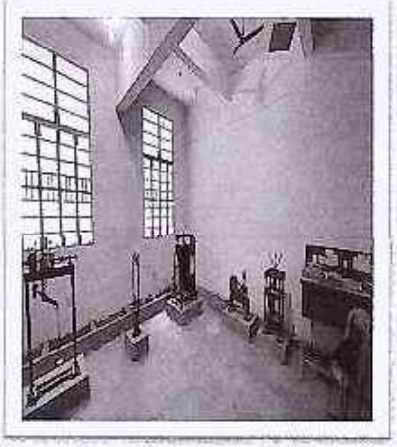
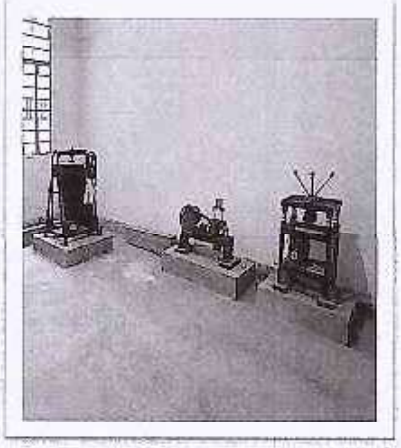
Some Photographs of Laboratory



BUILDING SCIENCE LAB



BUILDING SCIENCE LAB

TRANSPORTATION LAB

ENGINEERING DRAWING LAB

FLUID MECHANICS LAB

SURVEYING LAB

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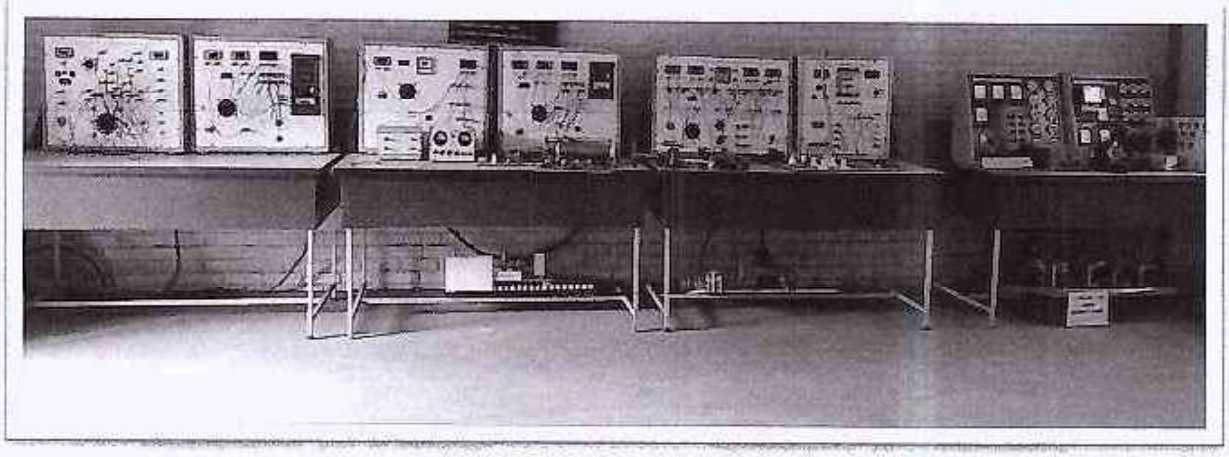
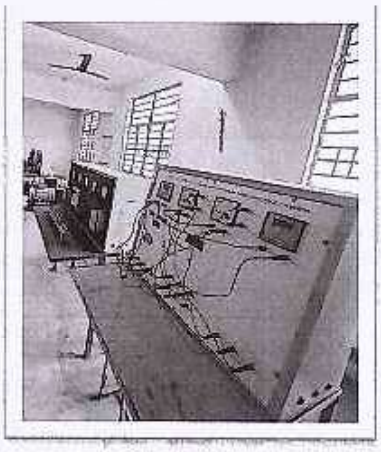
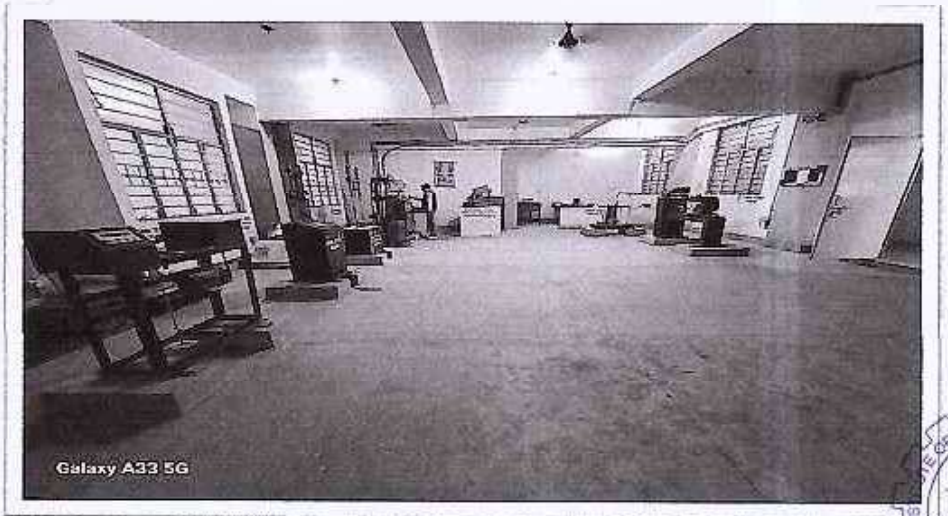


ANALOG ELECTRONICS LAB



BASIC ELECTRICAL ENGINEERING LAB



STRENGTH OF MATERIALS LAB

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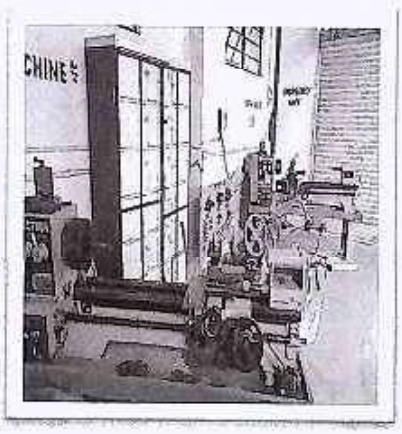
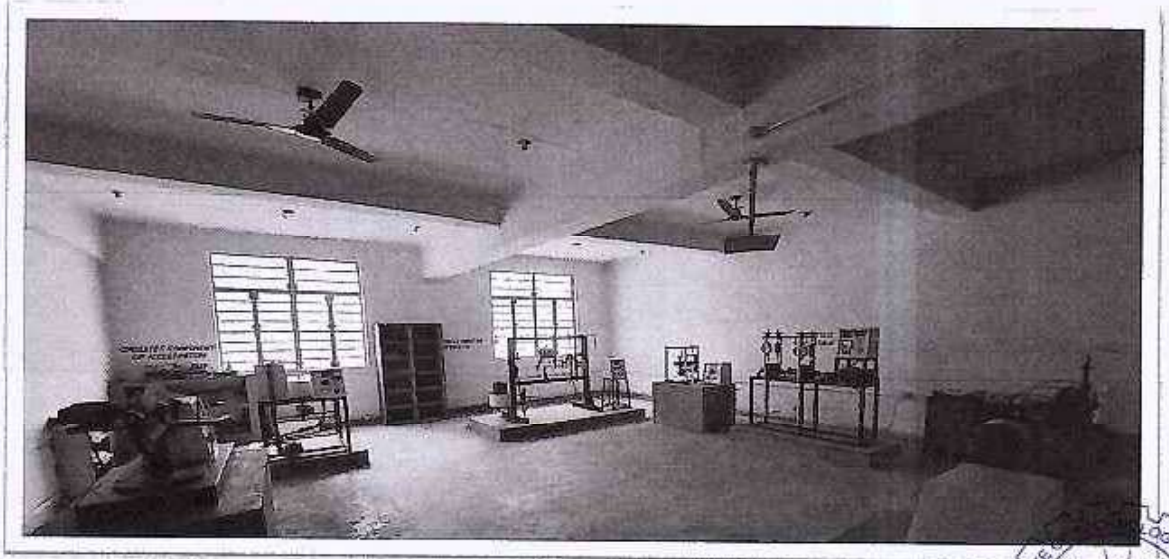


Workshop Lab

Physics Lab



DYNAMICS OF MACHINE

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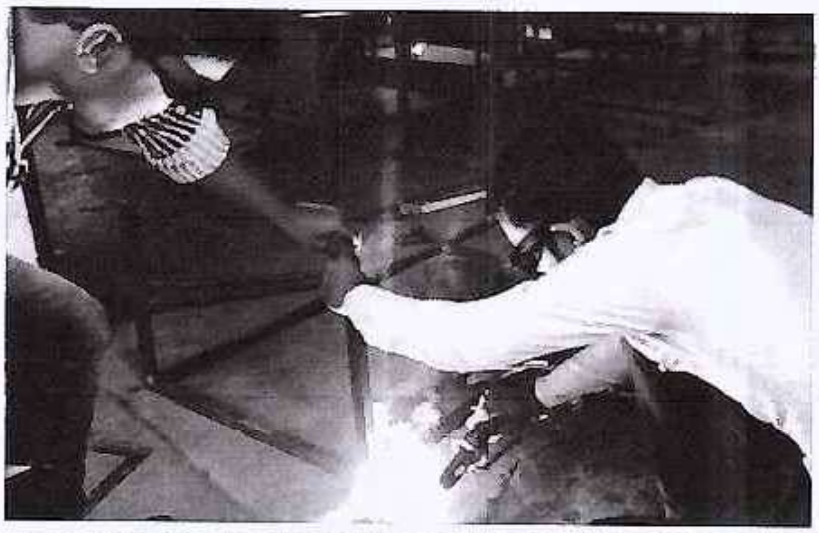
CHEMISTRY LAB



SITYOG INSTITUTE OF TECHNOLOGY AURANGABAD

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Some Pictures of Library

LIBRARY OF SITYOG

SITYOG INSTITUTE OF TECHNOLOGY, AURANGABAD

Rajesh Kumar

Project Report

on

National Highway Drainage (NH2)

This report is submitted in partial fulfilment of the requirements for the award of the degree

Bachelor in Technology

Submitted by:

Sameer Ghani	**(17101106023)**
Nitish Kumar	**(19101106036)**
Md. Nejamuddin	**(19101106038)**
Nitish Kumar	**(19101106034)**
Raushan Kumar	**(19101106020)**
Firoj Ansari	**(19101106028)**
Vishwajeetkumar	**(20101106002)**
Abhishek Kumar	**(19101106018)**

Submitted to:

SANOJ KUMAR

HOD

Department of CIVIL Engineering
SITYOG Institute of Technology.

DEPARTMENT OF CIVIL ENGINEERING
SITYOG INSTITUTE OF TECHNOLOGY,
AURANGABAD, BIHAR – 824101

AUGUST- 2023

DECLARATION CERTIFICATE

...is is to certify the work presented in the ProjectReport in **"National Highway Drainage ...N112)"**, in partial fulfilment of the requirement for the award of Degree of Bachelor of ...chnology in CIVIL ENGINEERING(Department) of Sityog Institute of Technology, ...urangabad, is an authentic work carried out by my Team under the supervision of ...dersigned.

...o the best of my knowledge, the content of this report does not form a basis for the award of ...y previous Degree to anyone else.

Date: .....

Sameer Ghani	**17101106023**.....
Nitish Kumar	**19101106036**.....
Md. Nejamuddin	**19101106038** Md. Nejamuddin
Nitish Kumar	**19101106034**.....
Raushan Kumar	**19101106020**.....
Firoj Ansari	**19101106028**.....
Vishwajeetkumar	**20101106002**.....
Abhishek Kumar	**19101106018**.....

...ranch: CIVIL ENGINEERING
...mester:8th
...ear 4th

29/08/23.

...t Supervisor

SITYOG INSTITUTE OF TECHNOLOGY, AURANGABAD

CERTIFICATE OF APPROVAL

The foregoing Project REPORT on **"National Highway Drainage (NH2)"** is hereby approved as a creditable study of Project report and has been presented in satisfactory manner to warrant its acceptance as prerequisite to the degree for which it has been submitted.

It is understood that by these undersigned do not necessarily endorse any conclusion drawn or opinion expressed therein, but approve the report for the purpose for which it is submitted.

Sameer Ghani	**17101106023**
Nitish Kumar	**19101106036**
Md. Nejamuddin	**19101106038**
Nitish Kumar	**19101106034**
Raushan Kumar	**19101106020**
Firoj Ansari	**19101106028**
Vishwajeet Kumar	**20101106002**
Abhishek Kumar	**19101106018**

Branch: Civil Engineering
Semester: 8th
Year: 4th

29/08/23

ernal Examiner

29/08/2023

External Examiner

29/08/23

Head of Department
HOD
Department of Civil Engineering
SITYC INSTITUTE OF TECHNOLOGY
Aura abad, Bihar-824101

Rajesh Kumar

INSTITUTE OF TECHNOLOGY AURANGABAD

ABSTRACT

Roadway as part of land transportation is very important to actualize human or commodity movements. Roadway should be able to show good performance. It is known that inundation at roadway is very serious problem, and often causes disruption to road users. Conventional drainage system that has been applied with the concept of discharging or draining water to the drainage channel has not been able to evade rain water that falls on the road surface. To date, the load of drainage channel is increasing. This is contributed by the decrease of the drainage function in order to flow water through the channel. To overcome the problem, a new concept of drainage is introduced. This study aims to develop a good highway drainage system by increasing the ability to measure the efficiency and effectiveness of the drainage system.

This project delves into the crucial aspect of the National Highway Drainage System, focusing on efficient rainwater management for enhanced infrastructure sustainability. The study involves a comprehensive investigation into existing drainage systems, an extensive literature review of rainwater management strategies, and the development of a sustainable methodology. The primary objective is to optimize the drainage system to mitigate waterlogging, erosion, and associated challenges. Through careful analysis and innovative techniques, the project aims to improve the resilience of national highways to adverse weather conditions, ensuring long-term road safety and minimal environmental impact. This study is carried out to review various research works carried out by researchers on the effects of poor drainage on road pavement. Poor drainage causes early pavement distresses leading to driving problems and structural failures of road as pointed out by researchers. To prevent or minimize premature pavement failures and to enhance the road performance, it is imperative to provide adequate drainage. The review covered: importance of highway drainage system in road construction, requirements of highway drainage system, and effects of bad drainage system on roads. The research pointed out areas of concern for drainage designers and road engineers that are of great importance during road construction to ensure that the constructed road is put to use without failure before the actual design life. The review concluded that effect of poor drainage condition on a road is very adverse. It causes the failure of road in different ways and as well economic hardship on inhabitants of affected communities with devastating effect of sicknesses as a result of breeding of mosquito especially on streets in towns with poor drainage capacity. Proper drainage system provided in the road increases the life of roads. But the improper drainage system causes the failure of road at its early edge. Therefore, effective engineering practices should be considered necessarily during design, construction and management of roads and drainage channels. After the road drainage system is good then they water is going through the gullies and open channel and storage into the tank for commercial, industrial and agriculture use

Keywords: National Highway, Drainage System, Rainwater Management, Infrastructure Sustainability, Environmental Impact, Inundation, disruption, [illegible] drainage, roads

Project Report

Report on

"Design and Analysis of A.S.I. Hyper Elastic Structure"

This report is submitted in partial fulfilment of the requirements for the award of the degree

Bachelor in Technology

Submitted by:

BABLU KUMAR	**19102106004**
SHUBHAM KUMAR	**19102106007**
ARJUN KUMAR	**19102106009**
SANDEEP KUMAR	**19102106013**
MAHENDRA PRASAD	**19102106017**
DILEEP KUMAR	**19102106020**
MANISH KUMAR	**19102106021**
OMPRAKASH KUMAR	**19102106022**
NAJARE ALAM	**19102106025**
AASHUTOSH RAJ	**19102106027**
ANISH KUMAR SINGH	**18102106008**

Submitted to:

Mr. SURAJ

Assistant Professor
Department of Mechanical Engineering
SITYOG Institute of Technology.

DEPARTMENT OF MECHANICAL ENGINEERING
SITYOG INSTITUTE OF TECHNOLOGY,
AURANGABAD, BIHAR – 824101

August 2023

Rajesh Kumar

INSTITUTE OF TECHNOLOGY, AURANGABAD

DECLARATION CERTIFICATE

I hereby certify that the work presented in the PROJECT entitled **"Design and analysis of [illegible] HYPERELASTIC structure"** in partial fulfilment of the requirement for the award of Degree of Bachelor of Technology in **Mechanical Engineering** of SITYOG Institute of Technology, Aurangabad, is an authentic work carried out by me under the supervision of [illegible].

To the best of my knowledge, the content of this project does not form a basis for the award of any previous Degree to anyone else.

Date

Name	Registration No	Signature
[illegible] KUMAR	19102106004	Rahul Kumar
[illegible] BHAM KUMAR	19102106007	Shubhrampal Singh
[illegible] N KUMAR	19102106009	Arjun Kumar
SANDEEP KUMAR	19102106013	Sandeep Kr
MAHENDRA PRASAD	19102106017	Mahendra Prasad.
DILEEP KUMAR	19102106020	Dilip. Kumar.
MANISH KUMAR	19102106021	Manish Kumar.
OMPRAKASH KUMAR	19102106022	Om Prakash Singh
NAJARE ALAM	19102106025	Najre Alam
ASHUTOSH RAJ	19102106027	Ashutosh.
ANISH KUMAR SINGH	18102106008	Anish Kr Singh

Branch: ME
Semester: 8th
Year 4th

19/05/23

.....

Project Supervisor

CERTIFICATE OF APPROVAL

Rajesh Kumar

The foregoing PROJECT entitled "Design and analysis of A.S.I. Hyper-Elastic [illegible]", is hereby approved as a creditable study of research topic and has been presented in satisfactory manner to warrant its acceptance as prerequisite to the degree for which it has been submitted.

It is understood that by this approval, the undersigned do not necessarily endorse any conclusion drawn or opinion expressed therein, but approve the project for the purpose for which it is submitted.

[illegible] KUMAR	19102106004
[illegible] KUMAR	19102106007
[illegible] KUMAR	19102106009
[illegible] KUMAR	19102106013
[illegible] PRASAD	19102106017
[illegible] KUMAR	19102106020
[illegible] KUMAR	19102106021
[illegible] KUMAR	19102106022
[illegible] ALAM	19102106025
[illegible] TOSH RAJ	19102106027
[illegible] KUMAR SINGH	18102106008

[illegible] ME
[illegible]
[illegible]

Internal Examiner

29/8/23.
External Examiner

29/8/23
Head of Department
HOD
Department of Mechanical Engineering
[illegible] INSTITUTE

Rajesh Kumar

ABSTRACT

The basic working of a design of hyper elastic membrane inflation. These chambers will allow a person to find the normal atmospheric pressure on high grounds and ensure safety in [illegible] conditions. The chamber will be designed to constantly maintain the pressure at the [illegible] level. The chamber will help people overcome the effects of low pressure [illegible] of high ground.

The structure will be far less weighted then the traditional oxygen cylinders currently being used in the high-altitude regions. This chamber will be protecting life of many people at a time while an oxygen cylinder can work on one person at a time.

Rajesh Kumar

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TUTORIAL SHEET

Department: Civil Engineering

Semester / Branch: IV / CE

Name of the subject: PCC-CE 204 / Introduction to Fluid Mechanics

Name of the faculty member: Amit Aman

Tutorial No: 1

1) The water is flowing through a taper pipe of length 100 m having diameter 600 mm at the upper end and 300 mm at the lower end, at the rate of 50 litres/s. The pipe has the slope of 1 in 30. Find the pressure at the lower end if the pressure at the higher level is 19.62 N/cm^2.

2) A horizontal venturimeter with inlet diameter 20 cm and throat diameter 10 cm is used to measure the flow of water. The pressure at the inlet is 17.658 N/cm2 and vacuum pressure at the throat is 30 cm of mercury. Find the discharge of water through the venturimeter. Take $C_d = 0.98$.

Signature of Faculty Member

SITYOG INSTITUTE OF TECHNOLOGY, AURANGABAD

Rajesh Kumar

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TUTORIAL SHEET

Department: Mechanical Engineering

Semester / Branch: IV / ME

Name of the subject: PCC-ME 205 / Strength of Material

Name of the faculty member: Aman Kumar

Tutorial No: 1

1) A compound tube consists of a steel tube 140 mm internal diameter and 160 mm external diameter and an outer brass tube 160 mm internal diameter and 180 mm external diameter. The two tubes are of the same length. The compound tube carries an axial load of 900 kN. Find the stress and the load carried by each tube and the amount it shortens. Length of each tube is 140 mm. Take E for steel as 2×10^5 N/mm^2 and for brass as 1×10^5 N/mm^2.

2) Determine the value of Young's modulus of elasticity and Poisson's ratio of a metallic bar of length 30 cm, breadth 4 cm and depth 4 cm when the bar is subjected to an axial compressive load of 400 kN. The decrease in length is given as 0.075 cm and increase in breadth is 0.003 cm.

Signature of Faculty Member

INSTITUTE OF TECHNOLOGY, AURANGABAD

Rajesh Kumar