

Deepak Choudhary

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Education

- 2017–2022 **B Tech M Tech Dual Degree 5Y**, *Department of Civil Engineering (specialization in Structural Engineering), Indian Institute of Technology Kharagpur, India.*
- 2016 **Intermediate**, Jawaharlal Nehru School, Bhopal.
- 2014 **Matriculation**, Jawaharlal Nehru School, Bhopal.

Academic Achievements, Awards and Scholarships

- Qualified JEE Advanced (previously IIT-JEE) among 0.15 million contesting candidates.
- Qualified JEE Main (previously AIEEE) among 1.5 million contesting candidates.
- Qualified International Mathematics Olympiad (2014).
- Receives Madhya Pradesh Medhavi Chatra Special Scholarship.

Internship

- Dec 2019 - **Redevelopment of Habibganj station, Bansal, Bhopal**
Studying and Analysing project (Construction of G+15 Commercial Building) under Project Manager.
Infield experience of Surveying, Planning and Construction of East and West building.

Research Projects

- May 2021 - **Running of Centre for Railway Research** | *Undergraduate Thesis / Prof. Arghya Deb*
Present
 - **Objective:** A study on high-speed rolling contact between a wheel and a contaminated rail
 - Developing 3-D explicit finite element model is developed to investigate the transient wheel–rail rolling contact in presence of rail contamination using Abaqus Explicit model
- July 2020 - **Machine learning in Structural Health Monitoring** | *Prof. D. Maity*
- April 2021
 - **Objective:** Monitoring structure Health using Using Multivariate linear regression
 - Different Neuron behaviour are used to model training and Precision Degradation fault detection was used
- Jan 2021 - **Studying the Failure Patterns in a concrete cylinder** | *Prof. A. Deb*
Aril 2021
 - Using Abaqus (Concrete damage plasticity model) set up an axisymmetric finite element model for a concrete cylinder with variable heights.
 - Plotted contours of the distribution of tensile and compressive damage.
 - Locating shear bands and comparing Load-displacement curves for different cases.
- Jan 2021 - **Finite Element Analysis of Building Frames** | *Prof. N. Dhang*
April 2021
 - Using Python calculated Earthquake Load on building frames for different earthquake zones of India and computed Column Reactions for different load combinations.
 - Calculated first three nodes of each frame and Plotted natural frequency vs height factor of each floor varying from 0.75 to 1.25 (with and without plinth beam).
- Oct 2020 - **Response of SDOF using Fourier Analysis in MATLAB** | *Prof. D. Maity*
Nov 2020
 - Plotted steady state response and equivalent load for different value of n (no. of terms) of an un-damped single degree freedom system subjected to a square wave excitation.

- Jan 2020 - **Design of G+16 Storey Residential Building** | Prof. D. Maity, Prof. L.S. Ramachandra
 April 2020
- As a group project, designed a G+16 Residential RCC tower using AutoCAD and Revit.
 - Analyzed the structure for deflection by applying design loads using STAAD Pro.
- Sept 2019 - **Concrete Technology** | Dr. P.K. Patra
 Nov 2019
- Tests on cement, aggregates, bricks, steel bars; hardened concrete, reinforced concrete, pre-stressed concrete and steel beams; Slump Test; Fabrication of Cages.
 - Casting of concrete specimens and design mix; Post-tensioning and grouting.
 - Study of stress analysis by strain gauges and stress concentration, photo-elasticity and dynamics of single degree of freedom and multiple degree of freedom systems.
- Sept 2019 - **Analytical Traffic Engineering** | Prof. B. Maitra
 Nov 2019
- Implemented **Kruskal's Minimum Spanning Tree Algorithm** in Visual Basic and Macros; optimized operation cost and travelling cost.
 - Spot Speed Analysis of a Road: Collected spot speed data for cars and motorbikes using laser gun; data analysis and statistical calculations; proposed recommendations to improve the effectiveness of the road design.

Relevant Coursework Information

Design of RC Structures, Structural Dynamics and Earthquake Engineering, Advanced Structural Analysis (Finite Element Analysis), Theory of Elasticity and Plasticity, Concrete Behavior, Theory of Elastic Stability, Structural Health Monitoring.

Work Experience and Positions of Responsibility

- 2018-2019 **Associate Member, Megalith, India's Largest Civil Engineering Fest**
- Helped in organizing various events and workshops (1) On G+1 Building design using AutoCAD and STAAD Pro (2) On Foundation Design using STAAD Pro.
- 2019-2020 **Core Web Team Member, Megalith, India's Largest Civil Engineering Fest**
- Headed a 2-tier team of 3 Secretaries and 4 Captains to manage the practices and participations of Residents
 - Helped in Development and Management of Back End part of Megalith 2019 official website
- 2020-2021 **Core Web Team Head, Megalith, India's Largest Civil Engineering Fest**
- Creating the Website of Megalith 2020 (Civil Engineering Department, IIT KGP), Megalith Internship Program 2020, College Representative Program 2020
 - Responsible for successful conduction of 1 Guest Lecture, 2 workshops and 2 Exhibitions during the fest.
 - Single Handed managed whole online registration of 1000+ participants

Technical Skills

Programming C++, Python, PHP, MySQL, HTML, C
 Software Matlab, Wolfram Mathematica, Abaqus Standard/Explicit, AutoCAD, STAAD Pro, SolidWorks, MS Office, Blender

Extra-Curricular Activities

- Actively participated in various awareness drives and rallies conducted by National Service Scheme (NSS 2017)
- As Group Leader, participated actively in various social activities organized by NSS 2018
- Part of MMM hall Inter Hall Table Tennis team for 2 years (2017-18)
- Participated in Inter hall Illumination Competition