

# SAMJHANA SHARMA

KATHMANDU, NEPAL

[samjhana.075bce111@tcioe.edu.np](mailto:samjhana.075bce111@tcioe.edu.np) | [www.linkedin.com/in/samjhana-sharma-45581b180](https://www.linkedin.com/in/samjhana-sharma-45581b180)

## EDUCATION

---

### **Bachelor of Engineering (B.E.) in Civil Engineering**

08/2023

Tribhuvan University (IOE, Thapathali Campus), Nepal

**Score: 80.12%**

- Relevant Courses: Theory of Structures, Design of RCC Structures, Structural Dynamics, Concrete Technology and Masonry Structures, Design of Steel and Timber Structures, Earthquake Resistant Design of Structures, Engineering Mathematics, Probability and Statistics, Engineering Physics
- Senior Research Project: Seismic Performance Evaluation of RC Building in Hill Slope: The Lateral Earth Pressure Paradigm.

### **+2, Higher Secondary Education Board**

06/2017

Prasadi Academy Higher Secondary School, Talfahon, Lalitpur

**Score: 85.30%**

- Relevant Courses: Physics, Mathematics, Chemistry

## RESEARCH AND PROJECT EXPERIENCE

---

### **SEISMIC PERFORMANCE EVALUATION OF RC BUILDING IN HILL SLOPE: THE LATERAL EARTH PRESSURE PARADIGM**

*Lead Author*

2023

- Quantification of the seismic performance of the residential RC Bare and Infill Frame building.
- Multi-hazard assessment of the building using pushover and non-linear time history analysis to predict the level of vulnerability.

*Note: The findings of the research were presented at the 1<sup>st</sup> Thapathali Graduate Conference and awarded as one of the best final-year projects by the Department Project Committee (DPC)*

### **SEISMIC VULNERABILITY ASSESSMENT AND NON-DESTRUCTIVE TESTS OF NEPAL BANK LIMITED'S HISTORICAL NEO-CLASSICAL BUILDING**

2022

- Performed seismic vulnerability assessment on an existing historical building, identifying both structural and non-structural damage states and the crack map was documented.
- Performed nondestructive tests like ambient vibration test and push shear test

### **AMBIENT VIBRATION TEST AND RETROFIT ASSESSMENT OF HISTORICAL BUILDING BALMANDIR, NAXAL**

2022

- Performed ambient vibration test and observed the ongoing retrofit construction.

### **SHOCK TABLE TEST OF FULL-SCALE STONE MASONRY BUILDING EMPLOYING DIFFERENT STRENGTHENING AND RETROFITTING MEASURES**

2022

- Assisted in shock table test of full-scale model of retrofitted masonry building and the adopted intervention and damage states were observed.

### **EARTHQUAKE RESILIENT STRUCTURE: WATER COLUMN DAMPING; HYDRAULIC LIFTING**

2019

*Annual Expo" JIGYASA: IMAGINE INVENT INSPIRE" Civil Model competition*

- Implemented a water tank within the building structure to serve as a damping mechanism. The tank oscillates in response to seismic forces, effectively absorbing and dissipating energy thereby, enhancing structure's resilience to earthquakes.
- Hydraulic lifting system was installed to elevate or lower the building, protecting the structural damage during seismic response.

## PROFESSIONAL EXPERIENCE

---

### 1. ECoCoDE Nepal

*Intern*

5/2023-7/2023

Name of Project: Earthquake Housing Reconstruction Project (EHRP)

Project Implementing Unit: National Disaster Risk Reduction and Management Authority (NDRRMA)

Supported by: The World Bank

#### Accomplishments

- Conducted a comprehensive multi-hazard vulnerability assessment of 9 facilities, comprising 25 buildings, spanning across 6 different districts of Nepal. The assessment included health, educational, and historically significant unreinforced masonry (URM) and reinforced concrete (RC) buildings.
- Performed various nonstructural tests and field investigations to assess existing facilities' condition, providing essential data for both structural and nonstructural interventions.
- Prepared detailed project reports and multi-hazard risk assessments to ensure the resilience of the assessed facilities against various threats.
- Implemented code-compliant retrofitting designs, incorporating state-of-the-art for educational, health, and archeologically important buildings, thereby reinforcing their structural integrity.
- Provided recommendations to mitigate non-structural risks, ensuring the safety of occupants and preserving the structural significance of the buildings.

### 2. Teaching Assistant, Sunshine Secondary School, Bijeshwori-15, Kathmandu

12/2023-present

- Tutored Science, Computer class to the class of around 30 students
- Supervised minor projects, assigned and graded homework and offered constructive feedback to facilitate learning and development.

## TECHNICAL SKILLS

---

- **Programming Language:** Python, MATLAB, Opensees (beginner)
- **Tools and Package:** NumPy, Pandas (Data Science, Data Manipulation), Seaborn & Matplotlib (Data Visualization), Scikit-learn (Classification, Regression)
- **Computer-aided design/engineering:** SAP2000, ETABS, SAFE, TREMURI, AutoCAD, CIVIL 3D, ArcGIS, WAVEVIEW, PHOTOSHOP
- **Office Productivity Software:** MS Office Package

## AWARDS AND GRANTS

---

- Merit-based scholarship by Institute of Engineering, Thapathali Campus for being listed as top 2% of the Department of Civil Engineering (Stipend)
- Merit-based scholarship by Green Peace Co-Ed School (Full Wavier, Basic School)
- Faculty Topper Award by Thapathali Campus, Institute of Engineering
- Diligent Student Award by Prasadi Academy Higher Secondary School
- School Topper Award by Green Peace Co-Ed School
- Best Final Year Project Award by the Department Project Committee (DPC) at the 1<sup>st</sup> Thapathali Graduate Conference
- Outstanding Employee of the Month award (ECoCoDE, Nepal)

## AFFILIATION

1. Member, Seismological Society of America (SSA)
2. Member, American Society of Civil Engineers (ASCE)
3. Registered Class 'A' Civil Engineer  
Nepal Engineering Council

## MISCELLANEOUS

---

1. **Vice-President**, *Civil Engineering Students Society (CESS-Thapathali Campus)*
  - Organized the “Utsarga\_079” - Nationwide Engineering Exhibition Cum Fest
  - Coordinated various civil engineering events like Paper Bridge, Civil Model Competition
2. **Participant**, *Kantipur Half Marathon* | <https://kathmandupost.com/sports/2019/05/20/18-year-old-college-student-faces-daunting-task-in-half-marathon>
  - Participated in 21.1km race from Kantipur publication office through Thimi and returning to the starting point.
  - Participated to generate environmental awareness about pollution among the people
3. **Winner**, *Center for Education and Research in Nepal (CERIN)*
  - Online Article Writing Competition
  - Online Art Competition
4. **Winner**, *Intra-College Civil Engineering Quiz Competition organized by CESS-Thapathali Campus*
5. **Organizer**, *Civil Engineering Welcome Program by 075 batch-Thapathali Campus*
  - Organized and hosted the welcome program for new fresher students in the Civil engineering department
6. **Class Representative, House Captain and eventually School Captain** | *Green Peace Co-Ed School*
  - Lead and manage a class of 55 students during labs, field visits
  - Communicate with teachers and manage class routines, and internal assessments
  - Organized and hosted extracurricular programs such as Quiz Competition, Art Competition, Debate Competition etc. and lead and manage other different school programs
7. **Winner**, *Intra-School Art Competition, Article Competition, Poem Competition*
  - Participated in various scholastic as well as extracurricular activities throughout the academic life

**Spoken Language:** English (Fluent), Nepali (Fluent)