Tanay Wagh | **160040029**
Civil Engineering | **Dual Degree (B.Tech. + M.Tech.)**
Indian Institute of Technology, Bombay | **Gender: Male**
Specialization: Structural Engineering | **DOB: 01-08-1998**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2021	
Intermediate	Maharashtra State Board	Pratibha Junior College	2016	82.77%
Matriculation	Maharashtra State Board	Mahajan Highschool	2014	96.60%

SCHOLASTIC ACHIEVEMENTS

- Department rank **2** in Dual Degree program (B. Tech + M. Tech) of Civil Engineering Department ['20]
- Awarded **AA** grade in **Credit-based Industry Internship** at Mumbai Railway Vikas Corporation ['19]
- Received **Undergraduate Research Award** for outstanding performance in the field of Concrete Technology ['19]
- Qualified for Scholarship for Higher Education under Innovation in Science Pursuit for Inspired Research ['16]
- Awarded **Scholarship** in National Means cum Merit Scholarship Exam-NMMS ['12]

PROFESSIONAL EXPERIENCE

SUMMER INTERNSHIP | MUMBAI RAILWAY VIKAS CORPORATION LTD [May '19-Jul '19]

DESIGN AND CONSTRUCTION OF FOOT OVER BRIDGE

- Transformed a **2D** Plan of a Foot Over Bridge into a **3D** design using **STAAD.Pro** software to assess its **capacity and stability** against combination of dead, live, wind and earthquake load as per **IS 800:2007** and **Indian Railway Codes**
- Examined beams and columns of the Foot Over Bridge to have **Utility Ratio** less than one for a safe design
- Scrutinized structural drawings and learned about construction of footings, purlin erections, welding, bolting and splicing

CONSTRUCTION OF RAILWAY FLYOVER BRIDGE

- Trained in construction of pile foundations, casting of pre-stressed concrete structures at Mumbra Flyover Bridge site
- Learnt technical concepts and methodologies involved in **pre-stressing and grouting** of pre-cast pier caps and girders
- Witnessed & assisted in on-site activities including casting of piles, pile caps, piers, deck slab and **launching of girders**
- Quoted a sample **budget,** documented material quantity requirements for the construction in the form of Bill of Quantities
- Visited RMC plant, learnt the batching process and performed **slump** and **compressive strength** of concrete tests

RESEARCH PROJECTS

STUDY ON THE EFFECTS OF WOLLASTONITE ON CONCRETE MIXES | RESEARCH PROJECT [May '18-Jul '18]

Guide: Prof. Prakash Nanthagopalan, Civil Engineering Dept. IIT Bombay

- Reviewed the codes **IS 456**, **IS 10262**, **IS 455**, **IS 1489** describing the code of practice for plain and reinforced concrete, concrete mix design, Portland slag cement and fly-ash respectively
- Conducted an experimental study on the effect of **Wollastonite grades** (**Kemolit LG25, Kemolit H-3(N**)) on concrete mixes and analysed the results for strength parameters like compressive and flexural strength of concrete
- Casted concrete blocks and cylinders with partial replacement of cement with **Wollastonite** for four Durability tests- **Water permeability**, **Rapid chloride migration (RCMT)**, **Sorptivity** and **Carbonation test**
- Received **10%** increase in **3rd day compressive strength** by replacing **10%** of cement with Wollastonite grade LG25

VIBRATION CONTROL OF ARCHED TRUSS BRIDGES AGAINST SIMULTANEOUS LOADS | MASTER'S THESIS [Jan'20-Present]

Guide: Prof. Alok Goyal, Civil Engineering Dept. IIT Bombay

- Conducted an extensive review of '**Bridge Rules**' & '**Railway Steel Bridge'** codes to learn loading & design criteria for bridges
- Assimilated the knowledge of stress combination, stress cycle & types of failure in various structural members of bridge
- Modelling the bridge, identifying flaws in the current design and finding better design requirements for vibration control

CALIBRATION OF FLEXURE CRITICAL COLUMNS [Jan '19-Feb '19]

Guide: Prof. Meera Raghunandan, Civil Engineering Dept. IIT Bombay

- Calibrated a rectangular column (Watson and Park 1989, No. 6) for **hysteretic** loading in **OpenSees** software framework
- Programmed a **MATLAB code** for post-processing the results in order to extract flexural response as a plot

STATION AREA PLANNING | MMRC-ORF COMPETITION [Jun '19-Aug '19]

*Selected in **top 19**, based on proposed concept plan, from 51 contesting teams for detailed plan stage*

- Conceptualized plan on grounds of **TOD**, studied current land use, traffic flow, crowd movement & transport facilities
- Established **NMT** as central to last mile connectivity, suggested to **increase** footpath level to facilitate the crowd movement
- Carried out **Service Area Analysis** in **ArcGIS software** to delineate catchment area accounting for flow barriers & speed limit
- Proposed **Scrambled Crossing** to prevent conflicts and suggested the use of **e-buggy** as a sustainable transport mode

COURSE PROJECTS

MODELLING ROAD TRAFFIC FATALITIES IN INDIA | PROBABILITY AND STATISTICS [Oct'19-Nov '19]

- Formulated **Logarithmic Regression** model using 16-year data to establish relation between number of accidents & 7 factors
- Determined significant causes of deaths by rejecting **null hypothesis** & provided solutions to reduce traffic hazards in future

TESTING THE PASSING ABILITY OF CORROSION INHIBITOR THROUGH CONCRETE [Mar '19]

- Reviewed the code **ISO 8044:2015** describing the code of practice for corrosion of metal and alloys
- Analysed the effects seen on reinforcement present in concrete cylinder when KP-200 inhibitor passed through it

GLIDER DESIGN COMPETITION [Nov '17]

- Designed a glider using **aerodynamic principles** and optimized its performance for getting maximum **range** and **endurance**
- Secured overall **1st** rank among 10 teams who had participated in the competition

OTHER PROJECTS ['19]

- Prepared **Excel Sheets** for analysis and design of RC Beam and gantry girder (Design of Structures-III)
- Performed gauss elimination & conjugate gradient methods in **MATLAB** to solve system of equations (Numerical Methods)

TECHNICAL SKILLS

- **Programming languages** Python, C++, C, HTML, MATLAB, Visual Basics
- **Software Tools** STAAD.Pro, ETABS, Revit, AutoCAD, Solidworks, MS Office, ArcGIS, SAP
- **Certifications** Python & Statistics for financial Analysis *(Coursera),* Python 3 tutorial Course *(SoloLearn)*

RELEVANT COURSES

- Finite Element Methods
- Advanced Solid Mechanics
- Structural Design
- Numerical Methods
- Construction Management*
- Prestressed Concrete Design
- Structural Dynamics*
- Geotechnical Engineering
- Probability and Statistics **ongoing*
- Bridge Engineering
- Introduction to Earthquake Engineering
- Water Supply and Waste water Engineering

POSITIONS OF RESPONSIBILITY

CORE TEAM MEMBER | NATIONAL SERVICE SCHEME, IIT BOMBAY [Apr '18-Mar '19]

Part of a 11-membered team serving >1 lakh people; impacting society via education and sustainability

- Led a **2-tier** team of **7** Activity Associates and **100+** volunteers for conservation and rejuvenation of degrading ecosystem
- Ideated and launched the website **Greenopedia**, containing description of **85+** tree species with **500+** users and **3k+ views**
- Organised nationwide socio-art competition, **Artistic Impact** which received participations from across 20+ cities of India
- Implemented **Van Mahotsav event** for sowing seeds of conservation in minds of **100+** KV school students
- Managed **'Nursery for All'** event for campus residents to exhibit collected **400+** saplings through 'Sapling Collection Drive'
- Organised paper bag making workshop for KV students to make them aware about the importance of **reusing waste**
- Awarded Certificate of Appreciation by Dean of Student Affairs for immense dedication and efforts

ACTIVITY ASSOCIATE | GREEN CAMPUS | NATIONAL SERVICE SCHEME, IIT BOMBAY [Apr '17-Mar '18]

Part of a 9-membered team for mentoring 100+volunteers to execute activities focused on conservation of biodiversity

- Administered **Prakriti**; a forum for nature enthusiasts, including students and faculty members to initiate discussions and raise awareness about endangered species and environmental issues; fetching 25k+ views
- Managed **Invisible Humans of IIT Bombay** to appreciate unsung heroes of campus; reaching out to 50k+ people
- Identified and mapped **1000+** campus trees of **60+** species on Google map for executing the **Biodiversity Mapping** activity
- Innovated and implemented the reuse of flex banners by making **200+ covers** for planting seeds and saplings

TEACHING ASSISTANT [Aug '20-Present]

- Teaching Assistant for undergraduate course 'Design of Structures - III'
- **Managing** course logistics, assisting the prof. in ensuring smooth running of course for a batch of **30+** students

EXTRA-CURRICULAR ACTIVITIES

PUBLIC SPEAKING	▪ Addressed **1200+** Freshmen in NSS Orientation showcasing the importance of Green Campus Department	['19]
	▪ Acquainted campus residents about unique qualities of various saplings through **'Nursery for All'** event	['18]
SOCIAL SERVICE	▪ Supervised execution of diabetes check-up camp with **500+** screenings for CURED - Pan-India campaign	['16]
	▪ Surveyed Floral diversity and tagged **1000+** trees with informative placards on the campus of IIT Bombay	['16]
	▪ Dedicated **80** hours of community service as a volunteer of National Service Scheme (NSS), IIT Bombay	['16]
MISC.	▪ Secured **Second position** in Badminton organised by Sport Federation, Dhule	['12]
	▪ Secured **3rd rank** in General Knowledge Exam conducted by Gurukul Society, Chandwad	['12]