



SHARDA
UNIVERSITY
Beyond Boundaries

MONTHLY NEWSLETTER

DEPARTMENT OF CIVIL ENGINEERING

Transforming Engineering Students into Industry-Ready Professionals

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VISION

To become a globally known and recognized destination for technical, innovation, entrepreneurship and research excellence and transfer its achievements for the larger good of the society.

MISSION

- To create facility to integrate research, quality education, ethical values and professional service in the areas related to civil infrastructure and environmental engineering.
- To provide industry and academia with outstanding graduates, entrepreneurs and scholars who advance both engineering practice and fundamental knowledge and play a leadership role.
- To create a center of higher learning and innovation equipped with befitting infrastructure and faculty to attract the students from across nations to use niche facilities for the societal symbiosis.
- To create an environment to enrich graduates through experimental learning and motivate them for self-learning to provide solutions to the industry and society.

NEWS AND EVENTS

Aman Raj, a student of 2nd year BTech civil secured 1st position in the Mobile Photography Competition in MEFT-FEST 2022 conducted by Sharda School of Media Film and Entertainment, Sharda University & Mentor and Mascot Indian Film Federation.



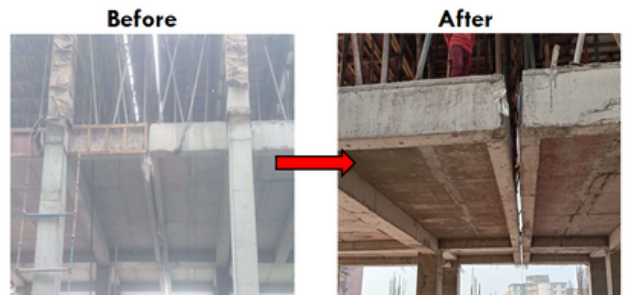
Two live structural/construction engineering problems encountered at the site of Corporate Super Speciality Hospital (Block 10A) were given to students of MTech Structural Engineering and construction management for design solutions. The design solution was provided by the students. The problems were (a) Gap in joints of steel beam and RCC beam. (b) Safety of cut in slab of dimensions 800mm * 600mm.

1. Column above floor protruding out - plumb not maintained.



Remark :
As per site engineer, The column in multiple places are out of plumb. The value ranges from 25mm to 75mm at some places.
As per Code, Up to 20mm out of plumb can be still be considered as axially loaded column and no action should be taken.
• As the value are higher than permissible, The matter should be looked upon by the main structural design engineer.

2. Distorted face of beam, dead shuttering not removed from face of column & wavy beam edge



Shuttering removed from face of column & wavy beam do not cause any structural problem in the building.

3. Beam top shows wide voids, Improper compaction & Expansion joint width more than 100mm



Remark :
Extra expansion joint width can be repaired by the application of additional cushion material.
• Voids shown here are rectified.

4. Expansive honey-combing in casting on concrete wall ...avoidable construction joints.



Remark :
These expansive honeycombs on the wall were repaired and plastered.
• Issue is resolved.

NEWS AND EVENTS

Safety, Health and Environmental audit of all construction activities of Ms RSPL was carried out by students of MTech Environmental Engineering and Geotechnical Engineering on 1st and 2nd December.

Structural audit of defects in construction of Corporate Super Speciality Hospital (Blocks 10B and 10C) was carried out by students of MTech Structural Engineering and construction management on 1st and 2nd December.

Students of final year BTech carried out quality and strength check of RCC cubes cast by Ms RSPL for the month of November and December.



PATENTS GRANTED

A design patent has been granted to the SHARDA UNIVERSITY for an invention entitled Water Dispenser.

Inventor- Dr. Gaurav Saini, Roza Yalem, Aashish Lamichhane
Design No. 344356-001

A design patent has been granted to the SHARDA UNIVERSITY for an invention entitled Hydraulic Prop.

Inventor- Dr. Gaurav Saini, Sanjog Chhetri
Design No. 344076-001

PAPERS PUBLISHED

Title of Paper- Recovery of Sugar and Nutrients from Algae and Colocasia esculenta (Taro) Leaves Using Chemical Hydrolysis

Author- Dr. Pradeep Kumar, Professor, Civil Engineering (CE), Swati Dahiya , Raja Chowdhury, Sanjoy Ghosh and Asha Srinivasan

Brief Description- The hydrolysis of dried algal biomass and Colocasia esculenta (Taro) leaves were investigated using 1%, 2%, and 5% solutions of ferric-chloride, nitric acid, and acetic acid for the reaction times of 30 and 60 min at 121 ° C and 103.4 kPa. 1% and 2% H₂SO₄ treatments were used as the reference. For algal biomass, a 5% acetic acid treatment for 60 min was found to be optimum with a total carbohydrate release of 44.2 mg/g biomass (solubilized monomers-0.82 mg/g of biomass) and N and P solubilization of 1.8 mg total nitrogen/g biomass and 7 mg total phosphorus/g biomass. Moreover, for Colocasia esculenta leaves, the maximum carbohydrate yield of 95 mg/g biomass and nutrient solubilization of 5.02 mg total nitrogen/g biomass was obtained with 5% ferric chloride treatment for 60 min.

Title of Paper- Prevalence of organic micropollutants in the Yamuna River, Delhi, India: seasonal variations and governing factors

Author- Dr. Pradeep Kumar, Professor, Civil Engineering (CE), SomaMishra, Indu Mehrotra, ManishKumar

Brief Description- This work primarily emphasizes on evaluating the prevalence of organic micropollutants (OMPs) in the perennial Yamuna River (YR) that flow through the national capital of India, Delhi. Sixteen sampling campaigns (non-monsoon, n = 9; monsoon n = 7) were organized to understand the seasonal variations with special emphasis on monsoon. We have found fifty-five OMPs in the monsoon; while forty-seven were detected in non-monsoon. Fifty-seven screened and quantified OMPs in the most polluted stretch of River Yamuna included the pharmaceutically active compounds, pesticides, endocrine-disrupting chemicals, phthalates, personal care products, fatty acids, food additives, hormones, and trace organics present in hospital wastes.

BOOK CHAPTERS

Title- Hydrologic and Hydraulic Modelling of a Bridge

Author- Dr. Rakesh Kumar (Professor C.E), Jagadish Patra, & Pankaj Mani

Publisher- Springer International publishing

Published in - Water Science and Technology Library book series

Brief Description- Estimation of design flood at bridge location with the water level, flow velocity, etc. are key factors to ensure the safety of the bridge. Scour in watercourses and drainage paths causes significant damage to the environment and engineering infrastructure. In order to address the issue of computing flood magnitude and corresponding water level in the river, design floods at a bridge site are estimated using various approaches, and the hydraulic modelling of the river reach with the bridge is carried out using HEC-RAS.

Title- Using Carto DEM data for dam break flood hazard mapping in a hilly terrain.

Author-Dr. Rakesh Kumar(Professor C.E), Pankaj Mani, J. P. Patra

Publisher- Springer International publishing

Published in - River Hydraulics

Brief Description- In this paper, dam break analysis of a small dam located in Uttarakhand in Kumaon Lesser Himalayas is reported. The various scenarios of flooding due to dam breach of the concrete face rockfill dam on Dhauliganga, a tributary of Kali river by routing flood waves in the downstream reach to compute flood inundation, time of occurrences, etc. are discussed. The hydraulic model for the river reach of about 30 km is developed in MIKE 11 using surveyed river cross sections and 10 m resolution digital elevation model of the study area generated using CartoDEM provided by NRSC, Hyderabad. It is observed that the time of travel of the peak flood from the dam site to the major settlement area at Dharchula, about 20 km downstream location, is 42 min for the critical case of dam failure. The maximum flood level and time of travel of the peak flood at the important locations are estimated.

RESEARCH AND INNOVATION

Title- Sustainable and year-round drinking water production by river bank filtration in Haridwar, India

Author- Dr. Pradeep Kumar, Professor, Civil Engineering (CE)

Publisher- UNESCO case studies.

Published in - MANAGING AQUIFER RECHARGE

Brief Description- The riverbank filtration (RBF) scheme in Haridwar by the Ganga River and Upper Ganga Canal (UGC), consisting of 22 caisson wells, is operating sustainably for > 50 years . A consistent removal of $\geq 4 \log_{10}$ ($\geq 99.99\%$) of pathogens (Total Coliforms and E. coli) has been observed since monitoring commenced in 2005 . RBF removes turbidity by $\geq 2.5 \log_{10}$ during monsoon, when the Ganga has a turbidity in the range of 100-744 NTU . The RBF scheme effectively meets peak water demand during religious gatherings when > 1 million bathe in the Ganga and UGC. One of the crucial issues in India for year-round safe drinking water from RBF schemes is to achieve a robust and sustainable disinfection . A potential solution tested within the AquaNES and NIRWINDU projects at the RBF demonstration well 18 was the coupling of inline-electrolysis pilot-plants (to RBF wells) for stand-alone decentralized disinfection of water for rural water supply with a capacity to disinfect $\sim 20 \text{ m}^3/\text{day}$ and a medium capacity plant to disinfect around $1,600 \text{ m}^3/\text{day}$. Both plants show that no total coliforms and E. coli were present in the produced drinking water (after disinfection by inline-electrolyses). Therefore both systems are potential solutions to achieve continuous and robust disinfection, with the system for rural water supply mature to be implemented in a real scenario.

NEWSLETTER TEAM

STUDENT MEMBERS

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