

## MSR Project Details

Two positions are being offered by the department, one in each of the following projects.

### 1. Environmental Engineering

S.No.	Item details	Description
1.	Name of the principal investigator	Dr. Abhas Singh
2.	Project title	Development of a smartphone camera-based sensor for detection and remediation of chromium pollution in water
3.	Brief description of the project	<p>Hexavalent chromium [Cr(VI)] in drinking water has a deleterious effect on human health as it is a proven carcinogen. Current methods of detection are complicated, costly and require skilled personnel for implementation. The proposed method utilizes ICT technology to develop an inexpensive, robust and easy-to-use smartphone-based detection method. Accurate and instant estimation of Cr(VI) would empower communities to select Cr(VI)-free water among diverse sources for their domestic needs and also help them determine the right dosage of chromate-reducing agents to treat contaminated water.</p> <p>This project targets mitigation of hexavalent chromium from polluted groundwater by developing a low-cost robust chromate removal process, employable at the individual household-scale. Extensive field surveys coupled with experimental work in the lab would be desired. A mastery over wet-chemical lab skills and knowledge of physicochemical principles will be a must to carry out this project.</p>

### 2. Geotechnical Engineering

S.No.	Item details	Description
1.	Name of the principal investigator	Dr. Priyanka Ghosh
2.	Project title	Low cost vibration screening technique for machine excitation in the built up area using bamboos
3.	Brief description of the project	The objective of the present investigation is to explore the vibration screening efficiency of intermittent bamboo in-filled trench under the dynamic response of nearby machine foundation resting on layered soil.