

21st World

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Advancements in civil engineering using nanotechnology

Civil engineering is an oldest engineering and is an integral part of civilization. From the air we breathe, water we drink to high rise buildings we stay to the roads we travel. Civil engineering has been working wonders for mankind with the help of developments taking place in the field of science and technology. Nano is one such which has greatly influences the developments taking place in the field of construction technology, Geotechnical engineering. Nanotechnology involves the study of material and mechanisms at nanoscale. It enables structuring and restructuring of matter at an extremely small scale i.e., the nanoscale. The new material, engineered at nanoscale is associated with extremely high specific surface area which enables in achieving high purity. It has been observed various concrete structures undergo deterioration due to ingress deteriorating fluids when subjected to harsh environments. Use of nanomaterials in the concrete makes it extremely dense thereby strengthening the microstructure. This makes the concrete durable and the structures serviceable for longer duration. With nano modification of cementing materials it is possible to develop high strength sustainable concrete with the use various mineral admixtures. Nanomaterials have also been used for soil stabilization.

Biography

Shree Laxmi Prashant has her expertise in the fields of concrete technology. She has a passion in trying out new and innovative methods of designing the concrete to optimize the performance of concrete. She has been working on High Volume flyash concrete, Geopolymer concrete and use of industrial, plastic and C&D waste as filler materials for concrete. Presently guiding one Phd Student (under QIP scheme), one Mtech and 6 Btech students for their project on the theme of Sustainable development in concrete using various non biodegradable waste including ewaste. Developing geopolymer concrete in order to minimize the use of cement in concrete to reduce the carbon foot print. The paper entitled "Effect of partial replacement of coarse aggregates by E waste on strength properties of Concrete" has been awarded as Best Technical paper at International Conference on Sustainable construction and building materials at NITK Surathkal June 18-22 2018.

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