

## **Mix Design Proposed for Geopolymer Concrete Mixtures Based on Ground Granulated Blast furnace slag**

Nowadays, geopolymer concrete (GPC) usage is considered as a necessity for minimization the threats of environment through the reduction of cement consumption. Thus, a stepwise mix design methodology for GPC based on ground granulated blast furnace slag (GGBFS) was developed taking into consideration accomplishing convenient workability and compressive strength with feasible cost through using different variables. Besides, providing design charts at various curing circumstances. The mix design methodology was illustrated in a flow chart form which was clarified with the aid of an example. The experiments were conducted to investigate the impact of the setting time for geopolymer paste, workability and compressive strength for geopolymer concrete. The experimental outcomes demonstrate that an increment in compressive strength and workability of GPC was recognized due to the increment of slag content simultaneously an increment in the GPC compressive strength was observed with the increment in the curing temperature. While, the GPC mechanical properties increases through increasing sodium silicate solution to sodium hydroxide till  $R=3$ . However, the increase of sodium hydroxide molarity decreases the initial and setting time. Also, an increment in compressive strength was observed as superplasticizer ratio increases till 2.5% due to reduction in water demand and increment in reaction rate.