Speaker: Dr Delsye Teo Ching Lee

Title: Structural Lightweight Concrete Produced From Oil Palm Shell (OPS) Aggregates

Concrete is one of the most widely used construction materials in the modern era. However, the production of concrete for construction purposes consumes a large amount of natural resources. This has challenged many Engineers to use renewable resources in construction. Where agriculture is widespread, the wastes generated from the agro-based industries provide valuable alternatives to the conventional concrete materials. Depending on the properties of each material, there is a possibility of incorporating these wastes either as cement replacement, fibres or aggregates in concrete. Malaysia is well known for its oil palm industry, with oil palm planted in over 4 million hectares of land. With such vast area of land planted with oil palm, approximately 4.5 million tonnes of solid waste oil palm shell (OPS) are generated annually. Currently, the need of new renewable resources has lead to this research effort being directed towards the potential use of OPS as coarse aggregates for the production of structural lightweight concrete. OPS is lightweight in nature and has bulk density of about 590 kg/m3. Consequently, the resulting concrete is lightweight. This presentation provides some results on the basic engineering properties, bond behavior and durability properties of structural concrete produced from OPS aggregates.