Composite materials, especially fibre reinforced plastics, are widely used in industrial, automotive, and household applications. Environmental impact of synthetic fibres forces us to investigate alternate means in the form of natural fibres. The use of natural fibre reinforced plastics represents attractive and suitable methods for replacing synthetic fibres like glass fibre and carbon fibre. Among various natural fibres, banana fibre is of particular interest in that, its composites have high tensile strength, high tensile modulus, and low elongation at break while maintaining low cost and ease of availability. This paper concentrates on the reinforcement of polymer (Epoxy resin) with different lengths of banana and glass fibres to form hybrid composites. Hybrid composites are prepared using hand layup technique. Tests were conducted to calculate fracture toughness (Mode I, Mode II, and Mixed mode) of these composites. The experiments were carried out to investigate the effect of fibre length on the fracture toughness of the hybrid composite. Epoxy is a brittle material, stress intensity factor is used to assess the fracture toughness of the composites. From the experimental results, it is found that the increase in fibre length increases the fracture toughness value of the banana/glass fibre hybrid composite (Ref: Santhanam V, Chandrasekaran M. Studies on fracture toughness of Banana-Glass fibre hybrid composite. *Indian Journal of Engineering*, 2014, 11(26), 21-29).
Studies on fracture toughness of Banana-Glass fibre hybrid composite
Santhanam V, Chandrasekaran M

Composite materials, especially fibre reinforced plastics are widely used in industrial, automotive and household applications. Environmental impact of synthetic fibres forces us to investigate alternate means in the form of natural fibres. The use of natural fibre reinforced plastics represents attractive and suitable methods for replacing the synthetic fibres like glass fibre and carbon fibre. Among various natural fibres, banana fibre is of particular interest in that, its composites has high tensile strength, high tensile modulus, and low elongation at break beside its low cost and ease of availability. This paper concentrates on reinforcement of polymer (Epoxy resin) with different lengths of banana and glass fibre to form hybrid composites. Hybrid composites are prepared using hand layup technique. Tests were conducted to calculate fracture toughness (Mode I, Mode II and Mixed mode) of these composites. The experiments were carried out to investigate the effect of fibre length on the fracture toughness of the hybrid composite. As epoxy is a brittle material, stress intensity factor is used to assess the fracture toughness of the composites. From the experimental results it is found that the increase in fibre length increased the fracture toughness value of the banana/glass fibre hybrid composite.

Indian Journal of Engineering, 2014, 11(26), 21-29

Evaluation for Defective Density in All the Right Places
Chandrakanth G Pujari, Seetharam K

Investigating the use of a binomial distribution to predict which files in a very large software organizational software system are most likely to contain many defects in the software projects. A new empirical study is described whose subject is an automated software system. Not only is this system's functionality substantially different from that of the earlier systems we studied, it also uses a significantly different software development process. Alternate schedule and releases as both of the earlier software systems did, this software system has what are software system referred to as “continuous software projects produces.” Discusses the help of the binomial distribution, as well as a simple software projects lines-of-code based model, to make predictions for this software system and discuss the differences observed from the earlier research. Despite the different software project development procedure, the very good version of the software development project prediction model was able to identify, over the lifetime of the project, 20% of the system’s files that consists, on arithmetic mean, nearly three quarters of the software defects that were detected in the software systems. In this paper an important characteristic of software system is that it must produce functionally or logically accurate calculated results within a predefined time period. Hence, controlling the software defects is very critical for any software system. One approach for realizing this is by predicting the software defect density and taking suitable actions if the calculated value is higher than the set target. A lot of software defect prediction models based on several methods have been proposed in the past. In this paper we used the Bayesian approach to develop the prediction model. Bayesian modeling is very useful when a very complex relationship between the variables exists and when all of the predictor variables are discontinuous. It is very easy to do what-if analysis or sensitivity analysis with Bayesian models. A brief illustration of the aforementioned approach is presented in this paper.

Indian Journal of Engineering, 2014, 11(26), 30-37