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Abstract	:	Texture depth of textured journal bearing played an important role to predict the overall performance of journal bearing efficiently. Hence in this case study, the investigation was done on the effect of surface texture depth on the performance of journal bearing using computational fluid dynamic (CFD) ANSYS FLUENT. This case study also innovated the potential of refined bleached and deodorized (RBD) palm oil as a renewable source that can replace engine oil that is used in the application of journal bearing. The depth of texture was introduced at 0.049mm, 0.050mm, 0.051mm, 0.052mm and 0.053mm. The study was conducted at a different rotational speed of journal bearing start from 200rpm, 400rpm, 600rpm, 800rpm, and 1000rpm and at a constant eccentricity ratio of 0.7. As a result, depth texture of 0.050mm at a rotational speed of 800rpm and depth texture at 0.050mm,0.051mm, and 0.052mm at a rotational speed of 1000rpm showed a high value of maximum fluid film pressure as compared to plain journal bearing. The potential of RBD palm oil was fully studied during the simulation study and proved that these types of bio-lubricants can replace conventional oil in the future specifically in journal bearing applications.