Modeling of single plate clutch

A clutch is a mechanical device that engages and disengages the power transmission, especially from driving shaft to drive shaft.

Clutch system is among the main systems inside a vehicle. Clutch is a mechanical device located between a vehicle engine and its transmission and provides mechanical coupling between the engine and transmission input shaft.

The clutch engages the transmission gradually by allowing a certain amount of slippage between the flywheel and the transmission input shaft. However, the slipping mechanism of the clutch generates heat energy due to friction between the clutch disc and the flywheel. At high sliding velocity, excessive frictional heat is generated which lead to high temperature rise at the clutch disc surface, and this causes thermo-mechanical problems such as thermal deformations which can lead to thermal cracking, wear and other mode of failure of the clutch disc component.

In this project we design the single plate clutch and perform the structural and thermal analysis in solid works premium 2014.