

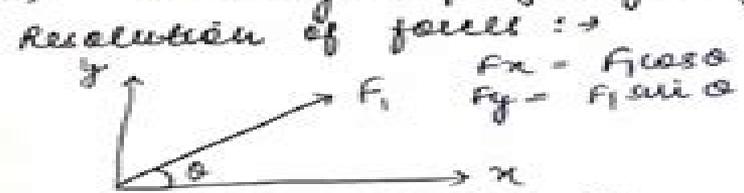
Chapter - 1

Force and moment (Resultant and Equilibrium)

- Engineering mechanics \Rightarrow It is the branch of physical science which deals with the state of a body under the action of external agency.
- State $\begin{cases} \rightarrow \text{state of rest} \\ \rightarrow \text{state of motion} \end{cases}$
- External agency $\begin{cases} \rightarrow \text{Force} \\ \rightarrow \text{moment} \end{cases}$
- Force \Rightarrow Force is an action of an external agency which changes or tries to change the state of a body. (Unit = Newton)
- Moment \Rightarrow It is a measure of turning effect. (Unit = Nm)
- moment = Force \times distance
- moment about O = $F \times d$



- Quantity \Rightarrow Anything which can be measured directly or indirectly.
 - i) Scalar (mag)
 - ii) vector (mag - dir)
- Rigid body \Rightarrow When there is no deformation in the body after the application of external force, the body is said to be rigid.
 - \Rightarrow Deformation is very negligible, so neglected.
 - \Rightarrow No body is perfectly rigid.



- composition of forces \Rightarrow
- Horizontal $\Sigma F_x = F_1 + F_2 \cos \theta_1 - F_4 \sin \theta_2 - F_5 - F_6 \sin \theta_3 + F_8 \sin \theta_4$
- Vertical $\Sigma F_y = F_2 \sin \theta_1 + F_3 + F_4 \cos \theta_2 - F_6 \cos \theta_3 - F_7 - F_8 \cos \theta_4$



Basic Mechanical Engineering Notes Calicut University

Pravin Kumar



Basic Mechanical Engineering Notes Calicut University:

Unveiling the Energy of Verbal Beauty: An Psychological Sojourn through **Basic Mechanical Engineering Notes Calicut University**

In a world inundated with screens and the cacophony of fast conversation, the profound energy and psychological resonance of verbal artistry frequently diminish into obscurity, eclipsed by the continuous onslaught of sound and distractions. Yet, located within the musical pages of **Basic Mechanical Engineering Notes Calicut University**, a captivating work of literary brilliance that impulses with fresh feelings, lies an wonderful trip waiting to be embarked upon. Published with a virtuoso wordsmith, that interesting opus courses readers on an emotional odyssey, delicately revealing the latent potential and profound affect embedded within the elaborate internet of language. Within the heart-wrenching expanse of this evocative evaluation, we shall embark upon an introspective exploration of the book is central themes, dissect its fascinating publishing fashion, and immerse ourselves in the indelible effect it leaves upon the depths of readers souls.

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