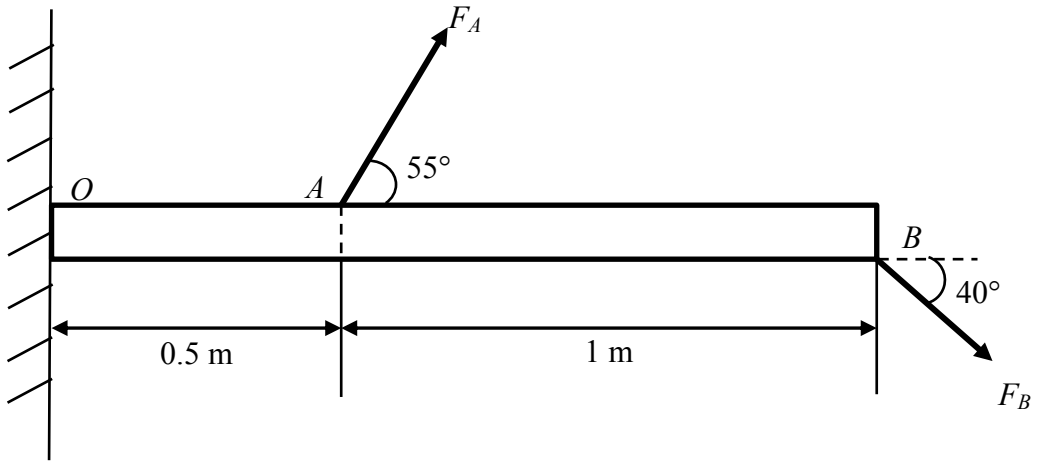
16. Determine the probability of failure of the beam if the distribution of the allowable resultant moment acting on the beam at O follows normal distribution $M \sim N(800,10^2)\text{N}\cdot\text{m}$, clockwise. The two forces are normally and independently distributed with $F_A \sim N(250,12^2)\,N$ and $F_B \sim N(800,54^2)\,\text{N}$. M, F_A, and F_B are independently distributed.



Solution: The probability of the beam failure is 0.0069.