# AS3020*: Assignment 6

## Module 6: Variational Mechanics

Posted on 18-Oct-2024; Due at 11.59PM on 28-Oct-2024

## General Instructions

1. Write this honor code and sign your name against it in the <u>first page</u> of your submission. Evaluation will not be done unless this is present in the submission .

   *Upon my honor I state that I have received no unauthorized support and can attest that the submission reflects my understanding of the subject matter.*

2. Discussions among students is permitted for this assignment. But ensure that your submission is your own . Do not write anything that you do not understand.

3. You are **encouraged to use** a computer algebra system (CAS) for this assignment. Wxmaxima is recommended.

   (a) Indicate what software you use if you choose to do so.

   (b) If you choose to use proprietary software, please be prepared to show me the license if asked.

## 1 Answer in Detail

1. **(10)** Use the principle of virtual work to obtain the beam deflections and slopes at the ends A and B in terms of $F, M$, and the other provided constants. The ends are supported by linear springs with stiffness $k$. Assume the bending rigidity of the beam to be $EI$ as shown.

   *Tip*: Be careful with the boundary conditions that you specify.