ENGI 1331 Workshop Basic User-Defined Function Activity
MW 5:30 PM
Week 3 - Class 6 - 09/07/22

Write the following user-defined function. Use the file‘NewtonGravitationScriptWeek3Class6.m’ to take the user’s inputs and call the function.

Newton’s Law of Universal Gravitation states that every object in the universe attracts every other object in the universe. It can be mathematically expressed with the following formula:

$$F = G \cdot \frac{m1 \cdot m2}{r^2}$$

where,

- **F** is the gravitational force between the objects in Newtons (N)
- **G** is the Gravitational Constant, which is $\mathbf{6.674 \cdot 10^{-11}}$ $(N \cdot m^2 / kg^2)$
- **m1** is the mass of the first object in kilograms (kg)
- **m2** is the mass of the second object in kilograms (kg)
- **r** is the distance between the centers of the two objects in meters (m)

Create a user-defined function ‘NewtonGravitationCalc’ that calculates the gravitational force, **F**, between two objects. After doing this, use the starter script file ‘NewtonGravitationScriptWeek3Class6.m’ to take the user’s inputs and call the function. Be sure to suppress all intermediary steps.

Assume that the user enters all inputs correctly with the appropriate units. As a result of this, no unit conversion is required in the function or script.

A sample output is provided below: