

ACTIVITY 2: Piston position, velocity and acceleration [100 marks]

BMA3623/ENGINE DESIGN

1. An internal combustion engine has 76.2mm crank radius and connecting rod length of 304.8mm with a bore of 50.8mm. During combustion, the maximum cylinder pressure is 69Bar, occurred at 10 deg after TDC.

Calculate the Gas Torque of this engine at this position and compare:

- Actual gas torque with approximate gas torque

Use Excel worksheet to solve this problem.

You can use the following references:

1. R.L. Norton, 2012. Design of Machinery: An Introduction to the Synthesis and Analysis of Mechanisms and Machines, McGraw-Hill Education; 5th edition.