ASSIGNMENT 2 [100 marks]

BMA3623/ENGINE DESIGN

DUE DATE: 24 MAR 2017

1. Use the engine assigned to your group and tabulate a complete engine specifications for Kinematic analyses:

Bore [mm]	
Stroke [mm]	
Con-rod length [mm]	
Crank radius [mm]	
Idling speed [RPM]	
P_{max}[kW]@RPM	
T_{max}[N.m]@RPM	

(10 marks)

2. Conduct a kinematic reciprocating engine analyses to obtain the following graphs at **idling speed**, **Max Power speed** and **Max Torque speed**:
   a. Piston position vs. engine crank angle (30 marks)
   b. Piston velocity vs. engine crank angle (30 marks)
   c. Piston acceleration vs. engine crank angle (30 marks)

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.
2. Heywood, J. B. (1988). Internal Combustion Engine Fundamentals, McGraw-Hill International.
3. Willard W. Pulkrabek (2013),Engineering Fundamentals of the Internal Combustion Engine Pearson Education Limited; Pearson New International Edition edition