**NED UNIVERSITY OF ENGINEERING & TECHNOLOGY**
**DEPARTMENT OF MECHANICAL ENGINEERING**
**ME-214COMPUTER PROGRAMMING & APPLICATIONS**
**SPRING SEMESTER 2022**

# Open Ended Lab (OEL)

Three engines (EFI, Diesel and Petrol) are tested on dynamometer. The results are shown in tablegiven below.

| EFI Engine | | Diesel Engine | | Petrol Engine | |
|---|---|---|---|---|---|
| **Engine RPM** | **BHP (HP)** | **Engine RPM** | **BHP (HP)** | **Engine RPM** | **BHP (HP)** |
| 1522 | 4.029 | 1517 | 1.023 | 994 | 0.823 |
| 1691 | 4.916 | 1707 | 1.207 | 1097 | 0.785 |
| 1803 | 5.644 | 1922 | 1.437 | 1200 | 1.853 |
| 1898 | 5.800 | 2009 | 1.809 | 1309 | 1.911 |
| 2000 | 6.025 | 2224 | 1.744 | 1395 | 1.841 |

**a)** Estimate the constants of each engine based on quadratic relation.
**b)** Plot the equations with the actual data on a single graph.
**c)** Estimate the errors and form a table.
**d)** Evaluate the BHP for all three engines at 1500 rpm.
**e)** Why we use quadratic relation for rpm vs power, instead of linear relationship? To support your answer, draw lines of linear and quadratic equation on a single plot.

***Additional Information***
Use different color, marker, and line type for each curve. Label axes, show title, open grid, and showtext next to each line defining type of engine.

**Announcement Date:** 11th July 2022
**Submission Date:** 22th July 2022
**Submission Details:** All students will submit the OEL in printed form as discussed in classroom through CR. Assignments will not be accepted individually and after submission date.

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