

# Engineering Mathematics Report 2

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**Deadline** 23:59 on July 23

**Submission** Solve the following problem, write the answer in a pdf file, and put the file on scomb.

**Note** Write the date when you made the file, your ID number, and your name in the file. As for the graph, use some graph drawing software like gnuplot and embed them in the report. Write the process of calculation. You may hand-write the process of calculation and scan it, but even in that case use some graph drawing software. I recommend you to use a typesetting system L<sup>A</sup>T<sub>E</sub>X. I made the configuration of this report on scomb so that you cannot submit the report after the deadline.

**Problem** Calculate the Fourier series of the function  $f(x) = x^2 + x$  on the range  $[-\pi, \pi]$  and then depict the graph of the partial sum up to the terms  $\cos 5x$  and  $\sin 5x$

$$\frac{1}{2}a_0 + a_1 \cos x + b_1 \sin x + \cdots + a_5 \cos 5x + b_5 \sin 5x$$

together with the graph of the function  $f(x)$ .