Design Hourly Traffic Volume Calculation

- Initial traffic \((T_0)\) is 650000 veh/year.
- Service life of highway \((n)\) is 20 years.
- Average annual traffic increment ratio \((r)\) is (the last digit of student’s ID number)\%.
  If the last digit of student’s ID number is 0, it should be taken as 1.
- The percentage of heavy vehicle in traffic is (the digit before the last digit of student’s ID number)\*10. If the digit before the last digit of student’s ID number is 0, it should be taken as 1.
- One heavy vehicle equals two (2) Passenger Car Unit. (1 heavy veh=2 p.c.u).

For example,

If Student’s ID number is 121803001, average annual traffic increment ratio \((r)\) is 1\%, and the ratio of heavy vehicle in traffic is 10\%.

Calculation of Annual Average Daily Traffic (AADT):

\[
\text{AADT} = \frac{650000 \times (2 \times 0.10 + 1 \times 0.90)}{365} = 1958.9 \approx 1959 \text{ pcu/day}
\]

Calculation of Design Hourly Traffic (DHT) Volume:

\[
\text{DHT} = \text{AADT} \times K = 1959 \times \frac{1}{6} = 326 \text{ pcu/hr}
\]

This is initial Design Hourly Traffic Volume \((T_0)\) is 326 pcu/hr.

For the end of service life, the Design Hourly Traffic (DHT) Volume should be calculated as follows:

\[
T_n = T_0 \times (1 + r)^n
\]

\[
T_n = 326 \times (1 + 0.01)^{20} = 397.78 \approx 398 \text{ pcu/hr}
\]