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):

$$\text{AADT}=\frac{650000*(2*0.10+1*0.90)}{365}=1958.9\cong 1959\,\text{pcu/day}$$

Calculation of Design Hourly Traffic (DHT) Volume:

$$\text{DHT}=\text{AADT}*K=1959*\frac{1}{6}=326\,\text{pcu/hr}$$

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:

$$T_n=T_0*(1+r)^n$$

$$T_n=326*(1+0.01)^{20}=397.78\cong 398\,\text{pcu/hr}$$