

Course outline

How does an NPTEL online course work?

Module 1 - Overview of Electric Vehicles in India

Module 2 - Vehicle Dynamics

● Announcement on Week 2

● Lecture 10 - Forces acting when a vehicle move

● Lecture 11 - Aerodynamic drag, Rolling Resistance and Uphill Resistance

● Lecture 12 - Power and Torque to accelerate

● Lecture 13 - Putting it all together - 1

● Lecture 14 - Putting it all together - 2

● Lecture 15 - Concept of Drive Cycle - 1

● Lecture 16 - Concept of Drive Cycle - 2

● Week 2 Slide Content

● Week 2 Feedback Form: Electric Vehicles and Renewable Energy

○ Quiz: Week 2: Assignment 1

○ Quiz: Week 2: Assignment 2

○ Quiz: Week 2: Assignment 3

○ Quiz: Week 2: Assignment 4

○ **Quiz: Week 2: Assignment 5**

● Week 2: Solutions

Module 2 and 3 - Vehicle Dynamics and EV Subsystems

Module 4 - Storage for EVs

Module 4 - Storage for EVs (contd)

Module 5 - Fundamentals of battery pack design

Module 5 and 6 - Battery Pack Design, Motors and Controllers

Module 6 - EV Motors and Controllers

Module 7&8 - Battery Charging and Swapping, Analytics

Module 9: Renewable Energy - Introduction

Module 10: Renewable Energy - Solar and Wind Energy

Module 11: Renewable Energy

Live Session

DOWNLOAD VIDEOS

Module 11: Renewable Energy

Live Session

DOWNLOAD VIDEOS

Week 2: Assignment 5

The due date for submitting this assignment has passed.

Due on 2021-08-18, 23:59 IST.

As per our records you have not submitted this assignment.

Q 2.4. a. A sedan, with specs as given below, accelerates from 0 to 50 kmph in 20 seconds. It then travels at constant speed of 50 kmph for five minutes. It then decelerates to 0 kmph in 20 seconds. Compute the energy used, assuming $R=1$ and $R=0.3$ and the distance travelled. What is Wh/km? Consider the gradient as 0° .

Vehicle	ρ (kg/m ³)	C_D	A (m ²)	μ	weight (kg)	Tyre radius (m)
Sedan	1.2	0.35	2.5	0.013	1200	0.31

1) What is the total distance travelled? (in km)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 4.2,4.6

1 point

2) Assuming $R=1$, the energy used (in Wh) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 290,330

0.5 points

3) Assuming $R=1$, the energy used per km (in Wh/km) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 60,80

0.5 points

4) Assuming $R=0.3$, the energy used (in Wh) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 310,350

0.5 points

5) Assuming $R=0.3$, the energy used per km (in Wh/km) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 65,85

0.5 points

Q 2.4.b. The sedan now goes from 0 to 25 kmph in 15 seconds, travel at 25 kmph for 2 minutes, speeds up to 50 kmph in another 15 seconds, travel for 4 minutes at 50 kmph and then decelerates to 0 kmph in 20 seconds. C Compute the energy used (Wh), assuming $R=1$ and $R=0.3$ and the distance travelled (km). What is Wh/km?

6) What is the total distance travelled? (in km, correct upto 2 dp)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 4.4,4.6

1 point

7) Assuming $R=1$, the energy used (in Wh) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 290,320

Accepted Answers:
(Type: Range) 4.4,4.6

1 point

7) Assuming $R=1$, the energy used (in Wh) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 290,320

0.5 points

8) Assuming $R=1$, the energy used per km (in Wh/km) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 60,75

0.5 points

9) Assuming $R=0.3$, the energy used (in Wh) is

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 300,330

0.5 points

10) Assuming $R=0.3$, the energy used per km (in Wh/km) is

No, the answer is incorrect.
Score: 0