

Course outline

How does an NPTEL online course work?

Module 1 - Overview of Electric Vehicles in India

Module 2 - Vehicle Dynamics

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

- Lecture 81 - Introduction to Energy Scnario in India - Part 1

- Lecture 82 - Introduction to Energy Scnario in India - Part 2

- Lecture 83 - A novel Approach towards 100% RE in India - Part 1

- Lecture 84- A novel Approach towards 100% RE in India - Part 2

- Lecture 85- Going Beyond solar, wind, Li Ion and chilled water storage

- Quiz: Week 10: Assignment 1

- Quiz: Week 10: Assignment 2

- Quiz: Week 10: Assignment 3

- Quiz: Week 10: Assignment 4**

- Week 10: Feedback form: Electric Vehicles and Renewable Energy

- Week 10: Lecture notes

- Week 10: Solutions

Module 10: Renewable Energy - Solar and Wind Energy

Module 11: Renewable Energy

Live Session

DOWNLOAD VIDEOS

- Week 10: Lecture notes

- Week 10: Solutions

Module 10: Renewable Energy - Solar and Wind Energy

Module 11: Renewable Energy

Live Session

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Week 10: Assignment 4

The due date for submitting this assignment has passed.

Due on 2021-10-06, 23:59 IST.

As per our records you have not submitted this assignment.

Assume 4 different types of batteries each of size 1kWh and costs as given in Table below. Let them be used for 2 cycles/day. Every 3 years the battery prices become 60% of current price. The vehicle needs to run for 12 years. Assume that battery has a calendar life degradation of 4% every year. Let the rate of interest be 12%. Find the monthly cost as a function of time and the number of battery procurements to be done for each battery type for the vehicle to run for 12 years.

Take combined effect of cycle and calendar life degradation. Discard battery at 80% capacity and buy a new one. Keep doing this till you reach 12 years (the remaining capacity of the last battery may take this beyond 12 years).

Prepare a spreadsheet for the same (use PMT function of excel).

Battery Type	Costs (INR)	Life cycles	DOD %	Cycles per Day	Total Payment to be done in Rs	No of Battery Procurements
A	12000	1000	90%	2	A	B
B	14000	2000	90%	2	C	D
C	18000	5000	90%	2	E	F
D	35000	10000	90%	2	G	H

1) A is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 48000,90000

1 point

2) B is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 9,13

1 point

3) C is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 31000,65000

1 point

4) D is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 5,8

1 point

5) E is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 30000,70000

1 point

6) F is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 3,6

1 point

5) E is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 30000,70000

1 point

6) F is _____.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 3,6

1 point

7) G is _____.

No, the answer is incorrect.
Score: 0