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21ucc125@lnmiit.ac.in ✓

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Energy Resources, Economics and Environment (course)



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## Course outline

About NPTEL  
( )

How does an  
NPTEL online  
course work?  
( )

Week 1 -  
Introduction  
( )

Week 2 -  
Energy and  
quality of life,

# Week 3 : Assignment 3

The due date for submitting this assignment has passed.

Due on 2025-02-12, 23:59 IST.

## Assignment submitted on 2025-02-11, 22:16 IST

1) What is the value of the internal rate of return, when the net present value of project becomes zero? **1 point**

- ☒ Equal to discount rate
- ☐ More than the discount rate
- ☐ Less than the discount rate
- ☐ None of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Equal to discount rate*

2) Which of the following options does not consider time value of money? **1 point**

- ☐ Net Present Value
- ☐ Benefit-to-cost ratio
- ☒ Simple payback period
- ☐ Internal rate of return

Yes, the answer is correct.

**Country  
energy  
balance ()**

**Week 3 -  
Energy  
Economics ()**

● Lecture 5A:  
Energy  
Economics -  
Part 1 (unit?  
unit=41&lesson  
=42)

● Lecture 5B:  
Energy  
Economics -  
Part 2 (unit?  
unit=41&lesson  
=43)

● Lecture 6A:  
Energy  
Economics -  
Part 3 (unit?  
unit=41&lesson  
=44)

● Lecture 6B:  
Energy  
Economics -  
Tutorial (unit?  
unit=41&lesson  
=45)

● Additional  
learning and  
activity (unit?  
unit=41&lesson  
=46)

● Weekly  
Feedback  
(unit?  
unit=41&lesson  
=49)

● **Quiz: Week 3 :  
Assignment 3  
(assessment?  
name=208)**

Score: 1

Accepted Answers:

*Simple payback period*

3) Select all the factors that affect the capital recovery factor.

**1 point**

- ☐ Initial investment
- ☒ Lifetime of the equipment
- ☐ Salvage value of the equipment
- ☒ Discount rate

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Lifetime of the equipment*

*Discount rate*

4) A positive value of \_\_\_\_\_ indicates that the investment is expected to generate more value than the cost of the capital invested.

**1 point**

- ☒ Net present value (NPV)
- ☐ Capital cost
- ☐ Annual operation and maintenance cost
- ☐ Life of the equipment

Yes, the answer is correct.

Score: 1

Accepted Answers:

*Net present value (NPV)*

5) The cost of 1 MW coal thermal power plant is estimated to be ₹ 9 crore. If the discount rate is 12 % and plant life is 20 years. The annualized value of the capital cost is ₹ 0.5 crore.

**1 point**

- ☐ True
- ☒ False

Yes, the answer is correct.

Score: 1

Accepted Answers:

*False*

6) Typically, which of the following have the highest discount rates?

**1 point**

- ☐ Public sector companies
- ☒ Low-income households
- ☐ Private sector companies
- ☐ Society as a whole

Yes, the answer is correct.

**Week 4 -  
Energy  
Resources ()**

**Week 5 - Non-  
Renewable  
Resource  
Economics ()**

**Week 6 -  
Preferences,  
Utility and  
Social  
choices ()**

**Week 7 -  
Public and  
private  
goods,  
Externalities  
()**

**Week 8 -  
Energy and  
Financing ()**

**Week 9 -  
Input-Output  
Analysis ()**

**Text  
Transcripts ()**

**Books ()**

**Download  
Videos ()**

Score: 1

Accepted Answers:

*Low-income households*

7) The capital cost of a solar heating system is ₹ 7,200. It is expected to save 9,000 kWh **1 point** of electricity annually. The price of electricity to the user is ₹ 0.15 per kWh. The annual cost of operation of the system is estimated at ₹ 150. The useful life of the system is estimated to be 30 years. The discount rate is 6%. Determine the values of Simple Payback period.

- ☐ 8 years.  
☐ 9 years.  
☐ 5.5 years.  
☒ 6 years.

Yes, the answer is correct.

Score: 1

Accepted Answers:

*6 years.*

8) A factory installed new insulation in their air duct with insulation whose capital cost of **1 point** installation is ₹ 5,00,000. Due to this, factory saves 850 units of grid electricity monthly, where average grid electricity price is ₹ 5 Per unit. If life of the insulation is 10 years and discount rate is 8%, find the benefit to cost ratio, assuming electricity price remains same for whole life.

- ☐ 0.5  
☐ 0.62  
☐ 0.78  
☒ 0.69

Yes, the answer is correct.

Score: 1

Accepted Answers:

*0.69*

9) Which of the following is a component of life cycle costs?

**1 point**

- ☐ Initial investment  
☐ Operating costs  
☐ Maintenance costs  
☒ All of the above

Yes, the answer is correct.

Score: 1

Accepted Answers:

*All of the above*

10) A project has a life of 15 years and discount rate given is 10%. Values of Capital Recovery Factor and Present Value Factor are respectively:

**1 point**

- ☐ 0.16, 6.25

☒ 0.13, 7.6

☐ 6, 0.167

☐ 7.6, 0.13

Yes, the answer is correct.

Score: 1

Accepted Answers:

0.13, 7.6