

## Course outline

How does an NPTEL online course work?

WEEK 1 Introduction to IoT

WEEK 2 Addressing the Power challenge

WEEK 3 Addressing the Power challenge continued and System Design for low power

● Power management systems - 01

● Power management systems - 02

● Battery life calculation

● Introduction to System Design for low power

● LDO - 01

● LDO - 02

● LDO - 03

● Buck converter - 01

● Buck converter - 02

● Lab experiment

● Weekly Feedback Form

○ Quiz: Week 3 Assignment 3

● Week 3 - Lecture notes

● Week 3 Assignment 3 Answers

WEEK 4 Sensors and actuators

WEEK 5 Power management algorithms

WEEK 6 IoT protocols - MQTT, COAP, and Websockets with associated applications

WEEK 7 Low power wireless technologies - BLE, IEEE 802.15.4e, Wi-Fi

WEEK 8 Low Power Wide area technologies - NBIoT, LTE-M, LoRa and BLE

Video Download

# Week 3 Assignment 3

The due date for submitting this assignment has passed.

**Due on 2021-08-25, 23:59 IST.**

As per our records you have not submitted this assignment.

- 1) Calculate the power dissipation (in mW) across the LDO with  $V_{out}$  3.2 V, dropout voltage 170 mV at load current 100 mA and  $I_q$  of 10  $\mu$ A

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 16.9,17.1

2 points

- 2) When input voltage goes below certain threshold, the LDO output can go below its regulation window causing the load to fail functionally. The circuitry that responds to this and initiates a soft shutdown is called

- Series pass element  
 UVLO  
 Output capacitance  
 Error amplifier

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
UVLO

1 point

- 3) For a  $V_{out}$  of 3.25V, what will be the LDO accuracy if systematic error and random error are 70mV and -30mV respectively

- 1.24%  
 1.23%  
 1.22%  
 1.25%

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1.23%

1 point

- 4) When load current is 100 mA and switching frequency is increased from 250 KHz to 500 KHz, the drift in efficiency is \_\_\_% (refer Lab experiment video - " <https://youtu.be/msmxUJv0wxI> ")

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 1.20,1.28

0 points

- 5) What is the clock pulse width (in microseconds) if the Buck converter's switching frequency is 850 KHz

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 1.16,1.19

0 points

- 6) A Buck converter gives 81.07% efficiency for a load current of 350 mA. If the input power is 2.16 W, what will be the voltage drawn at the output

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 4.5,5.5

1 point

- 7) From datasheet of TPS717, what maybe the dropout voltage (in mV) at room temperature if output current is 100mA

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 100,120

2 points