



**COLLEGE OF ENGINEERING AND MINES
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING**

COURSE CODE	EE F102 F01 (CRN: 32862)		
COURSE NAME	INTRODUCTION TO ELECTRICAL AND COMPUTER ENGINEERING		
SEMESTER	SPRING		
YEAR	2023		
TYPE AND NUMBER OF SUBMISSION	HOMEWORK 1		
METHOD OF SUBMISSION	ONLINE VIA CANVAS		
DATE OF ASSIGNMENT	WEDNESDAY 25 JAN 2023		
DUE DATE OF SUBMISSION	FRIDAY 03 FEB 2023	DUE TIME OF SUBMISSION	23:59

STUDENT NAME	
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MAKE THIS FORM A "COVER PAGE" FOR YOUR HOMEWORK SUBMISSION.
FOR THE TA USE ONLY
REMARKS:

FOR THE TA USE ONLY		
PROBLEM NUMBER	MAXIMUM POINTS POSSIBLE	POINTS EARNED
PROBLEM 1	50	
PROBLEM 2	50	
PROBLEM 3	50	
TOTAL	150	

Problem HW-1-1

Points
Distribution

- (a) An object has been moved a distance of 2500 cm by using a 1 kilo Newton (kN) of force. (10)
Calculate the energy, in kJ, required to do the work described above.
- (b) A lossless generator (i.e. it has 100% efficiency), with a maximum power capacity of 500 kW, is used to supply electric power to a remote Alaskan village for 16 hours per day. If the generator is operated with its maximum capacity (500 kW) for the period of 16 hrs, calculate total energy used, in mega joules (MJ). (10)
- (c) How many significant digits are in the following numbers: (10)
- i. 69.00056 m
 - ii. 0.01225600 ft
 - iii. 123.800000 in
- (d) Three Methods have been used to measure a 10 Ω resistor. (10)
Each measurement has been repeated 4 times and tabulated in the following table.
Determine the method with highest accuracy.
You can use spreadsheet tool to perform quick calculations.

Method I (Ω)	Method II (Ω)	Method III (Ω)
10.0022	10.0041	10.1012
10.0011	10.0151	10.1112
10.0101	10.0991	10.1023
10.0041	10.0261	10.1022

- (e) A battery rated at 60 Ah supplies 4500 mA to a load. (10)
How long, in hours, this battery takes to be fully drained (battery life)?

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Problem HW-1-2

Points
Distribution

- (a) Calculate the current at a specified point where 3000 coulombs of charge pass the point during a time of 10 minutes.

(25)

- (b) Fill out the right column with the correct value that match the unit shown in the column title

(25)

feet	in
15	

kilometer	mile
100	

Ω	m Ω
0.003	

W	kW
746	

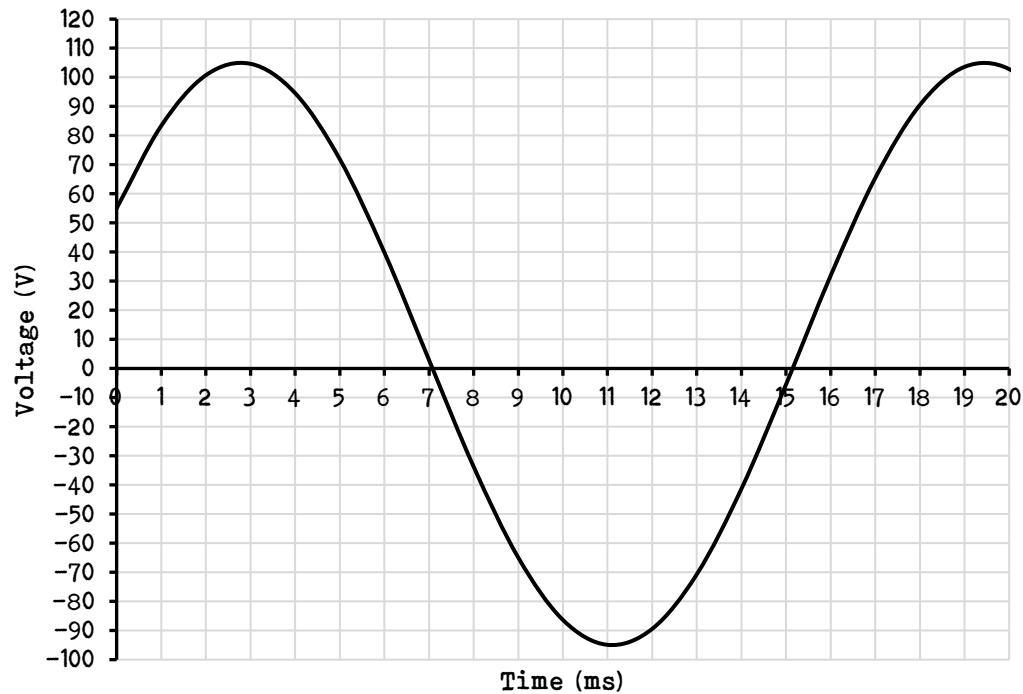
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Problem HW-1-3

Determine the value of the DC offset "A", in volts, the amplitude "B", in volts, the period "T", in seconds, frequency, in Hz, and the phase angle "φ", in radians and degrees, of the voltage signal seen in the following figure.

Points
Distribution

(50)



$$v(t) = A + B \sin(\omega t + \phi)$$

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