



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

COURSE CODE	EE F102 F01 (CRN: 34544)		
COURSE NAME	INTRODUCTION TO ELECTRICAL AND COMPUTER ENGINEERING		
SEMESTER	SPRING		
YEAR	2022		
TYPE AND NUMBER OF SUBMISSION	HOMEWORK 2		
METHOD OF SUBMISSION	ONLINE TO : maher.albadri@alaska.edu		
DATE OF ASSIGNMENT	THURSDAY 20 JAN 2022		
DUE DATE OF SUBMISSION	FRIDAY 28 JAN 2022	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	75	
PROBLEM 2	75	
TOTAL	150	

Problem HW-2-1

Points
Distribution

- (a) For the current signal shown, determine:

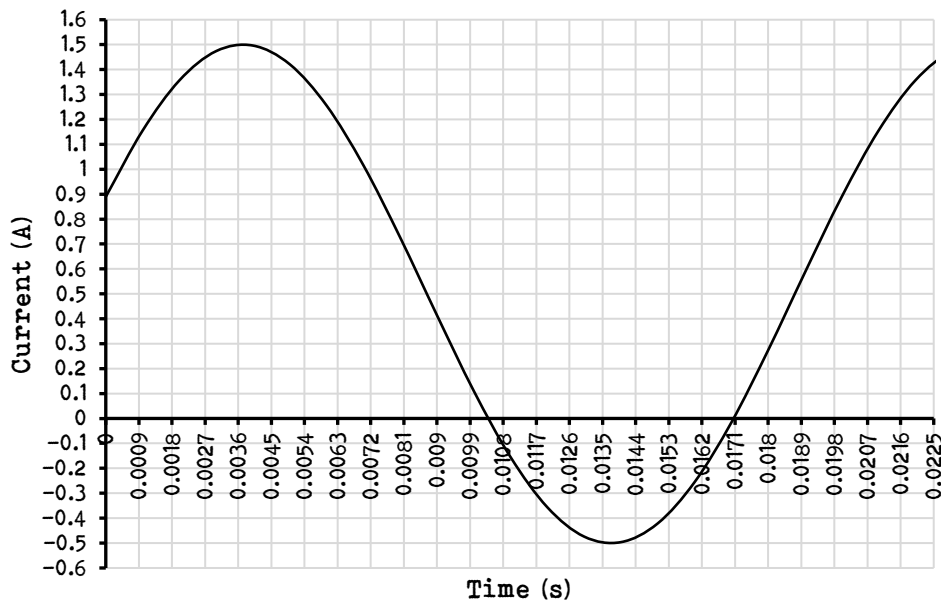
(25)

The DC offset "A", in amperes

The amplitude "B", in amperes

The period "T", in seconds

The frequency "f", in hertz

The angular frequency " ω ", in rad/sThe phase shift angle " ϕ ", in degrees

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

- (b) 1200 C charge moves uniformly through a conductor for 10 minutes.
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- Calculate the current, in amperes, passing through the conductor.

(25)

- (c) A uniform current of 3.5 A flows in a circuit for 30 minutes.
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- Calculate the total charge passed through any point in the circuit.

(25)

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Problem HW-2-2

Points
Distribution

- (a) A neutral body has 10^{10} electrons added to it. Then, a negative charge of $0.1 \mu\text{C}$ was removed from the body. Calculate the body's final charge, in μC . (25)
- (b) A battery rated at 60 Ah supplies 1.0 mA to a resistive load. Determine the battery life in hours. (25)
- (c) Electric potential of 120 V is established when energy is utilized to move 10^{20} electrons from point A to point B. Calculate the value of the energy, in kJ, used to do the work. (25)

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