Energy Transmission Systems

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Project 01 Question 01
Part a Solutions

project001 — □ ✕

| Energy Transmission Systems | Hamza Gündüz / 31017066 |
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Inputs

Three Phase(MVA): 400

Double-circuit transmission line(kV): 230

Width of the middle ROW(ft): 15

Width of the edge ROW(ft): 60

Height of 'a' (ft): 119.8

Height of 'b' (ft): 84.8

Height of 'c' (ft): 49.8

Current load (A): 502.044

Pick that you want to calculate

○ Middle of the ROW

◉ Edge of the ROW

Solutions

Ra (m) :	40.8387
Rb (m) :	31.6626
Rc (m) :	23.7667
Ra' (m) :	45.6712
Rb' (m) :	37.6906
Rc' (m) :	31.3515
The magnetic field intensity (H) :	1.91626
The magnetic field density (mG) :	24.0804

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Project 01 Question 01
Part b Solutions

project001 — □ ✕

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Inputs

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Solutions

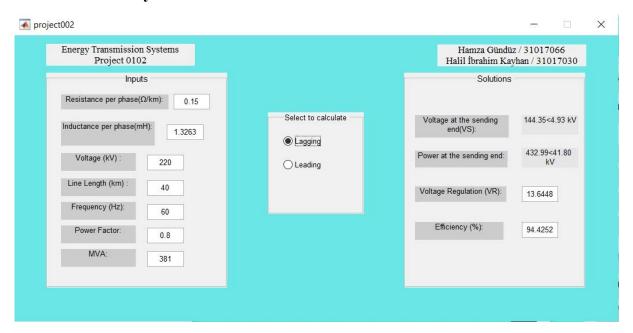|	
Ra (m) :	36.8002
Rb (m) :	26.2483
Rc (m) :	15.8526
Ra' (m) :	36.8002
Rb' (m) :	26.2483
Rc' (m) :	15.8526
The magnetic field intensity (H) :	5.09478
The magnetic field density (mG) :	64.0229

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Project 01 Question 02
Part a Solutions

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Project 01 Question 01
Part b Solutions

project003 — □ ×

Energy Transmission Systems
Project 0102

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Inputs

Apperent Power (MVA):	200
Voltage (kV) :	138
Frequency (Hz):	60
Power Factor :	0.9
Line Length (km) :	100
r (ohm/km) :	0.103
x (ohm/km) :	0.525
y (S/km) :	0.0000033

Calculate

Solutions

Per phase series impedance (Ω):	10.3+i52.5 Ω
Per phase series shunt admittance (S):	i3.3*(10^-4) S
A :	0.991<0.098
B :	53.501<78.90
C :	3.286*10^(-4)<90.05
D :	0.991<0.098

Medium

Sending end voltage (V):	111.81<18.74 V
Voltage regulation (%):	40.34
Efficiency (%):	89.40