

task_ddjurcpk494go2q1_with_calculation

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

Exercise E1 Capacitor (written test, approx. 12 % of a 120-minute written test, SS2024) 2

electric field, magnetic field, exam ee2 SS2024

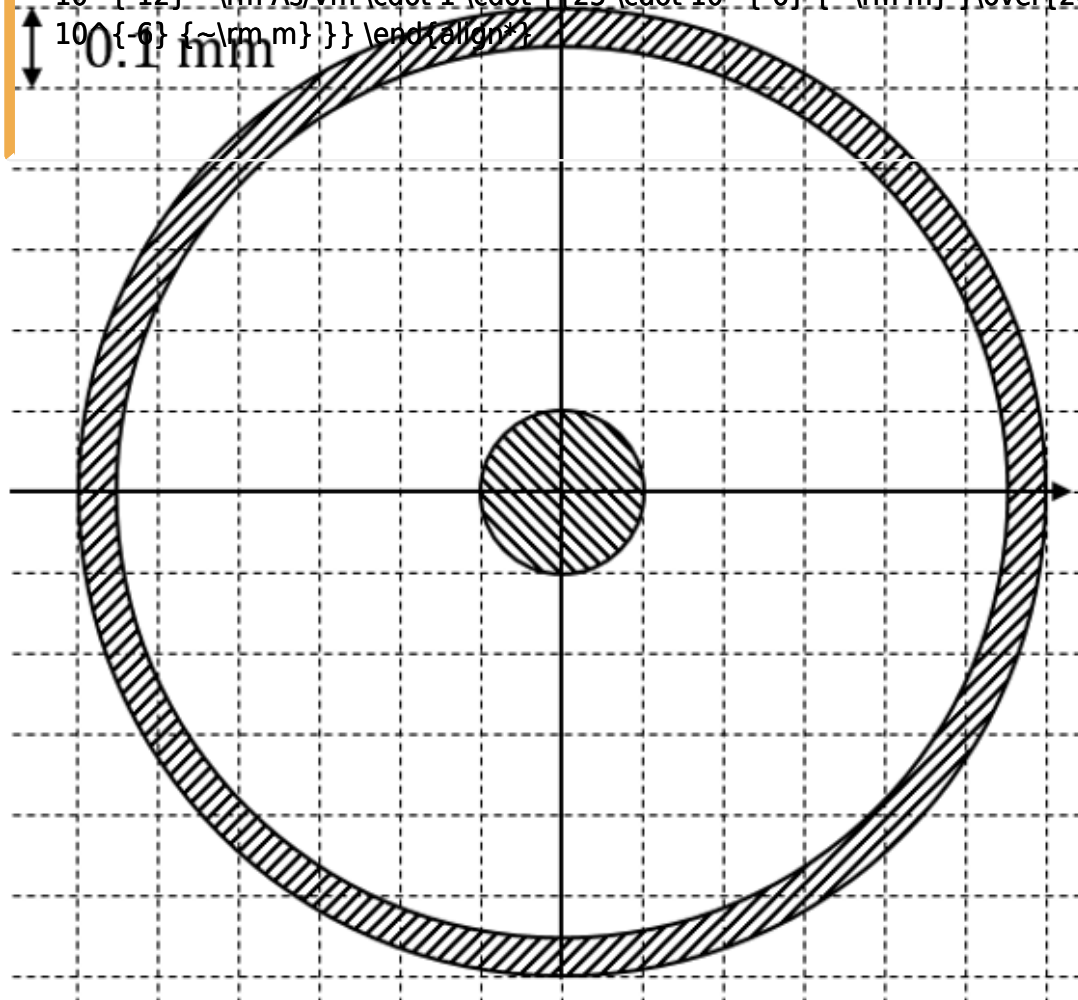
Exercise E1 Capacitor

(written test, approx. 12 % of a 120-minute written test, SS2024)

1. On the graph of the magnitude of the magnetic field strength H (in A/m) versus the distance r (in mm) from the center of the capacitor, the following situation appears: Due to the given load, the following situation appears:

Path

- Inner conductor: $+3.3 \text{ mA}$, $+10 \text{ nC}$ (current into the plane of the diagram)
- Outer conductor: -3.3 mA , 0 nC (current out of the plane of diagram)

$$C = \epsilon_0 \epsilon_r \frac{A}{d} = 8.854 \cdot 10^{-12} \frac{\text{As/Vm} \cdot 1 \cdot [25 \cdot 10^{-6} \text{ m}]}{200 \cdot 10^{-6} \text{ m}}$$


1. What is the magnitude of the magnetic field strength H at $(-0.1 \text{ mm} | 0)$ and $(0.55 \text{ mm} | 0)$?

Path

```
\begin{align*} C &= \varepsilon_0 \varepsilon_r \left\{ \frac{A}{d} \right\} \cdot 8.854 \cdot 10^{-12} \frac{\text{As}}{\text{Vm}} \cdot 1 \cdot \left\{ \frac{25 \cdot 10^{-6} \text{ m}}{200 \cdot 10^{-6} \text{ m}} \right\} \end{align*}
```

From:

<https://mexle.te.hs-heilbronn.de/> - MEXLE Wiki

Permanent link:

https://mexle.te.hs-heilbronn.de/ee2/task_ddjurcpgk494go2q1_with_calculation?rev=1721063344

Last update: **2024/07/15 19:09**

