

Kafrelsheikh University  
Faculty of Engineering  
Department of  
Physical and Mathematical Engineering



2020/2021  
Second Term  
Research Project  
Preparatory year

Course name: **Engineering physics (1)**  
Course Code: **PHM0002**

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**Write on ONLY ONE of the following Research Topics :**

Research Topic(1)

**A. Electromagnetism**

1. Detailed comparison between electric and magnetic forces.
2. Detailed comparison between finite length solenoid and ideal solenoid.
3. Detailed discussion for induced electric field (with example).

**B. Heat and Thermodynamics**

1. Temperature and The Zeroth Law of Thermodynamic
2. The Unusual Behavior of Water
3. Latent Heat

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Research Topic(2)

**A. Electromagnetism**

1. Detailed comparison between Biot-Savart law and Ampere's law.
2. Detailed discussion for Lenz's law (with example).
3. Detailed discussion for energy stored in magnetic field (with example).

**B. Heat and Thermodynamics**

1. Thermal Expansion of Solids and Liquids
2. Specific Heat and Calorimetry
3. Energy Transfer Mechanisms

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**Best Wishes**

**Dr. Ahmed Saeed**

**Dr. Demyana Adel Abdel Masieh**