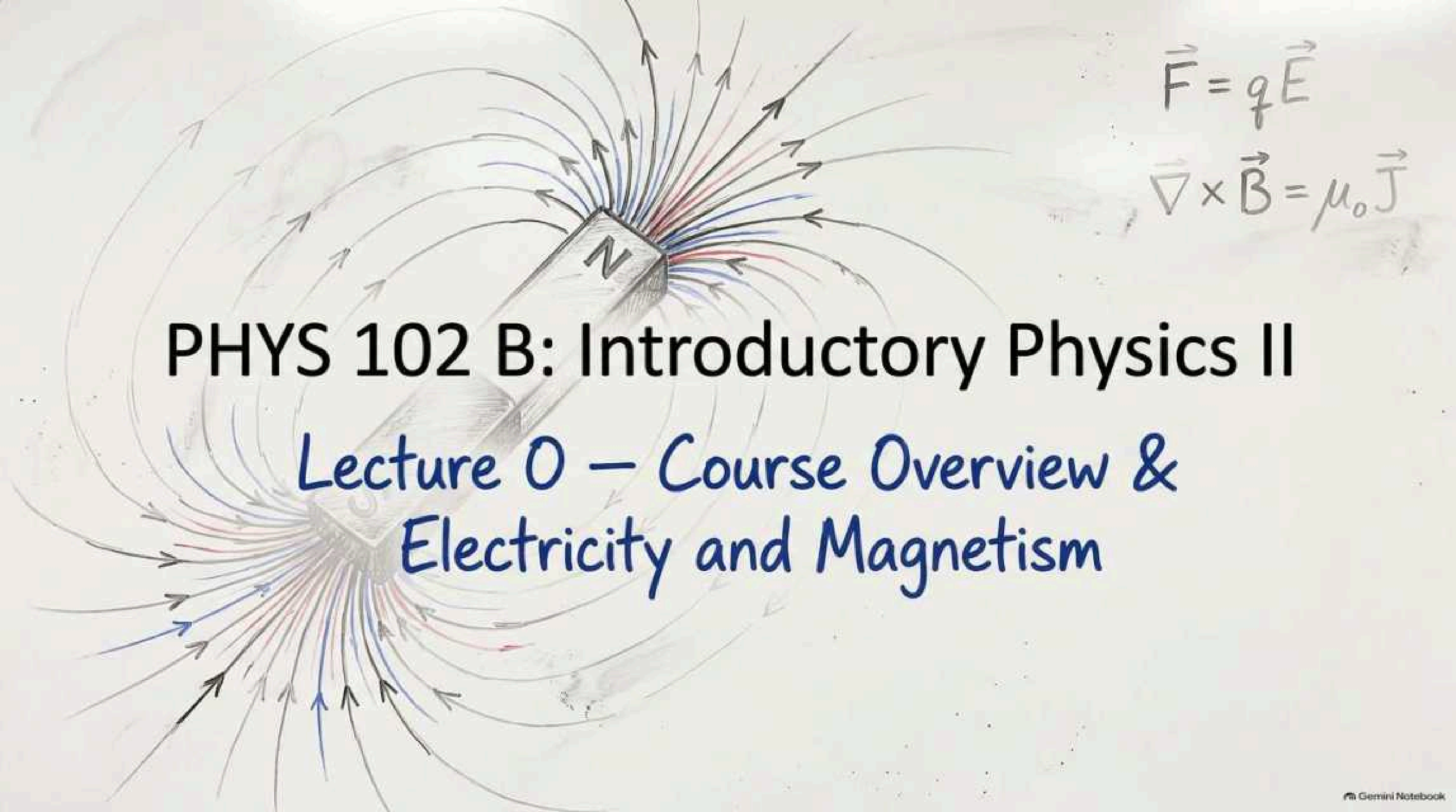


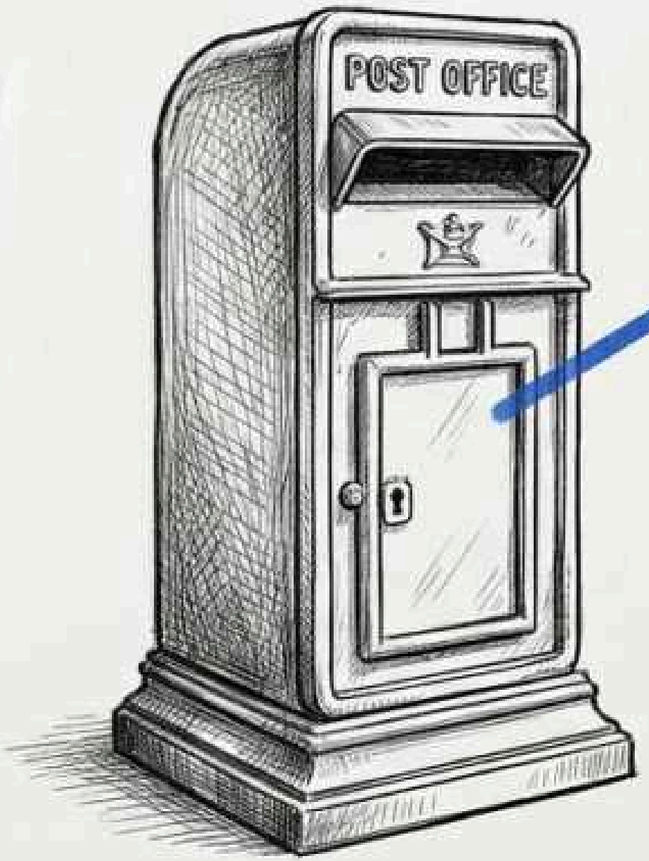
PHYS 102 B: Introductory Physics II

Lecture 0 – Course Overview & Electricity and Magnetism

Gemini Notebook

[¶ 0.1]

Questions & Feedback Welcome



@garyanderson

garyanderson@mail.grokbot.com

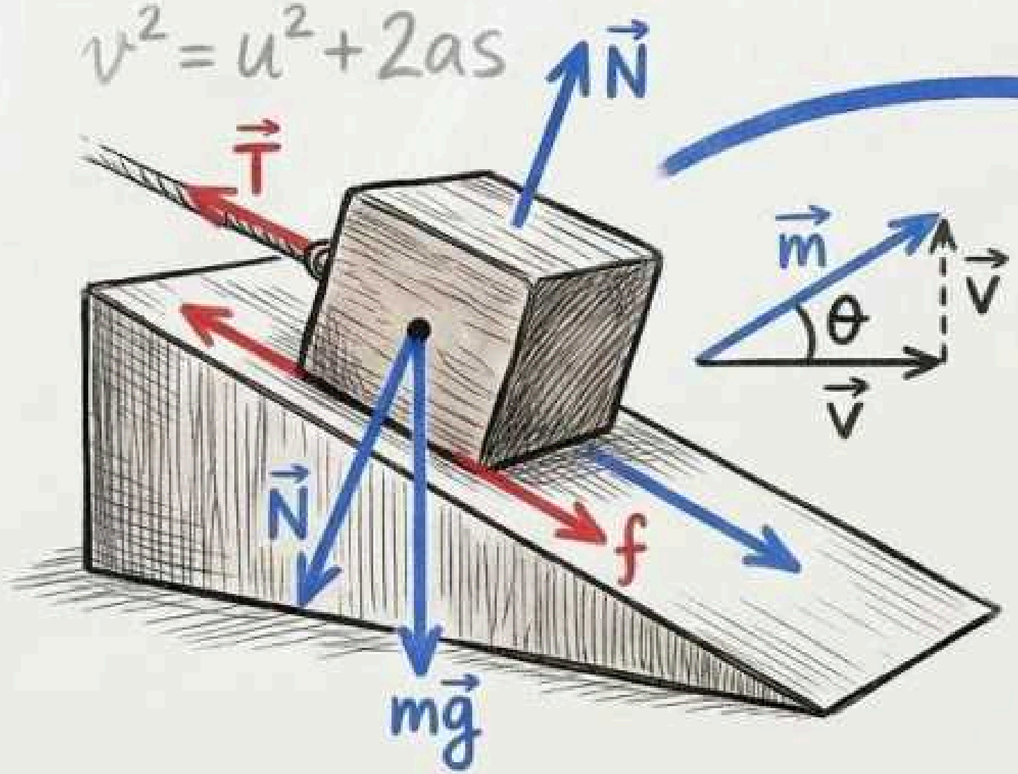


Gemini Notebook

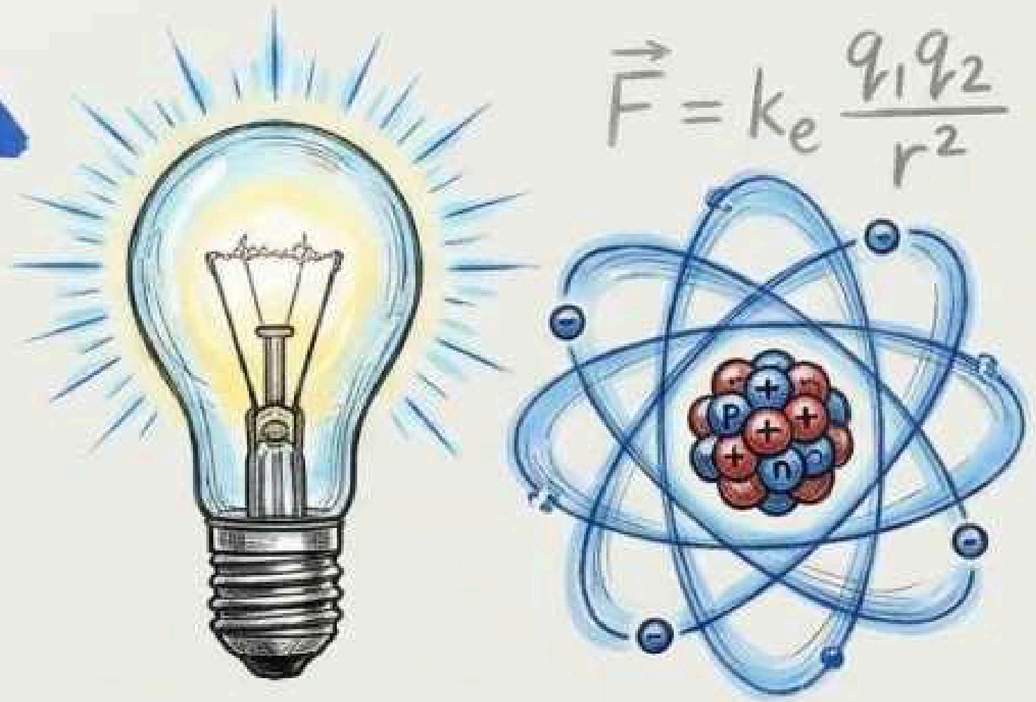
[¶ 0.2]

Welcome to Anderson Academy

Previously: PHYS 101 B
(Motion, Forces, Energy, Momentum)

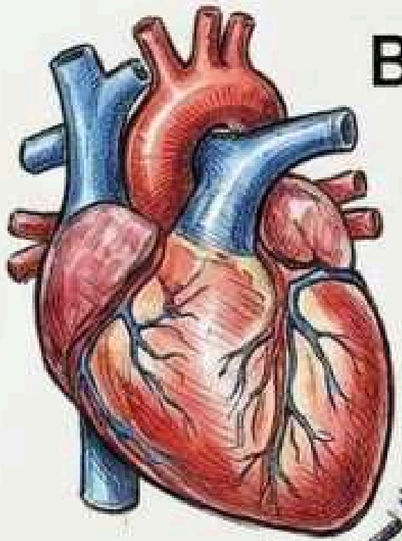


Now: PHYS 102 B
(Electricity & Magnetism: The force that binds atoms and lights homes)



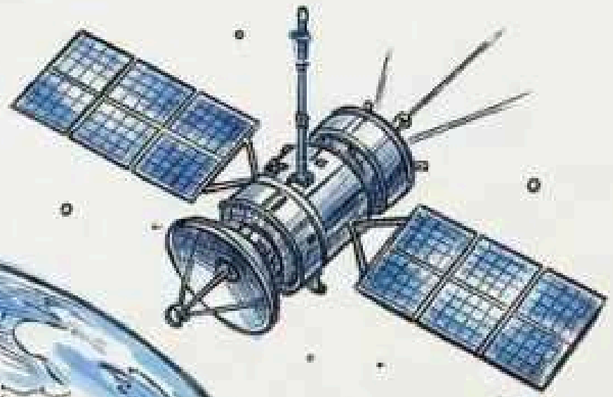
Gemini Notebook

The Force Behind Almost Everything [¶ 0.3]

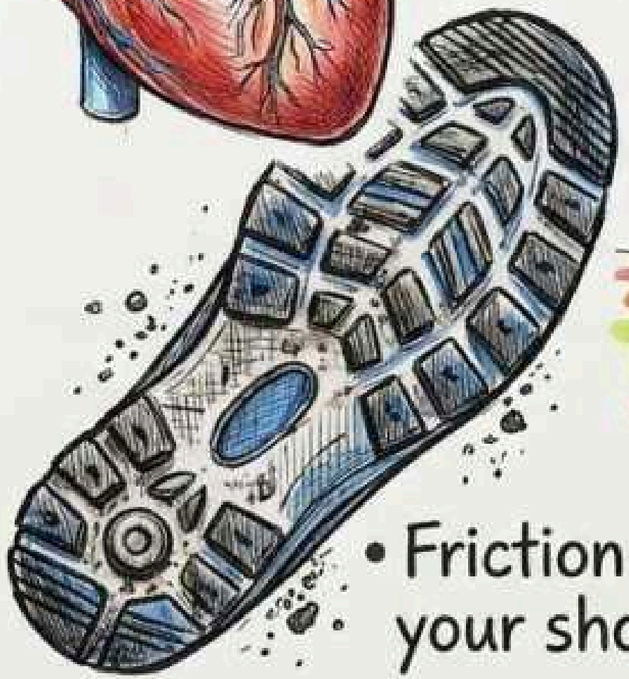


Builds everything else we see:

- Chemistry of your body



- Signals in your phone

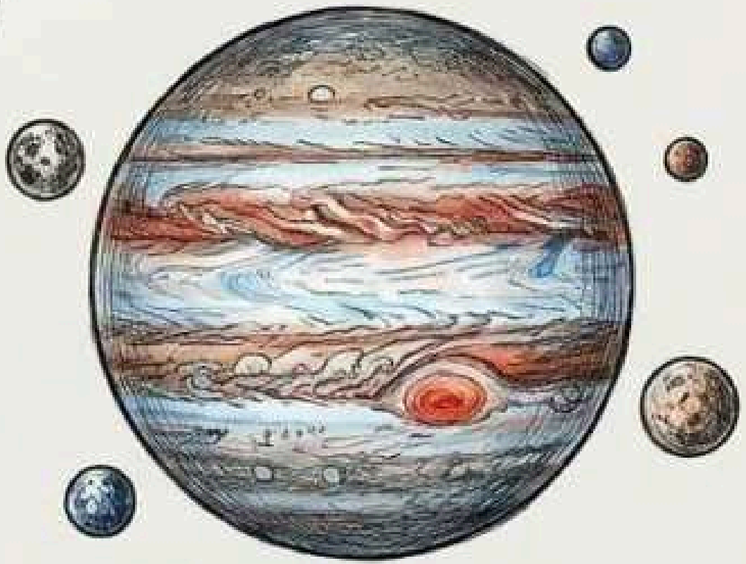


- Friction of your shoes



- Light from the sun

Gravity

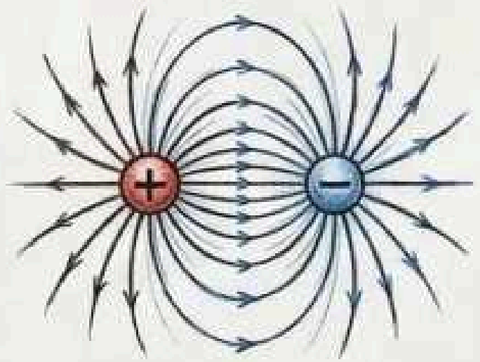


Pulls planets into orbit.

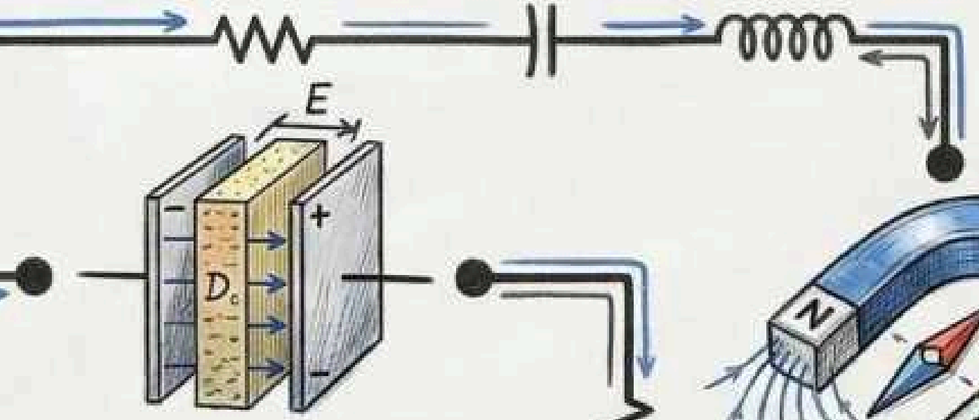
Gemini Notebook

[¶ 0.4]

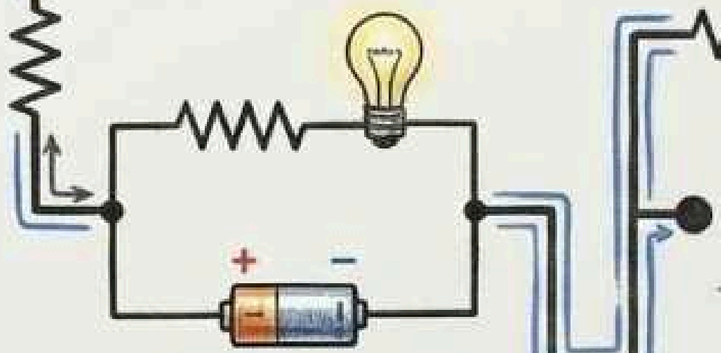
Course Map



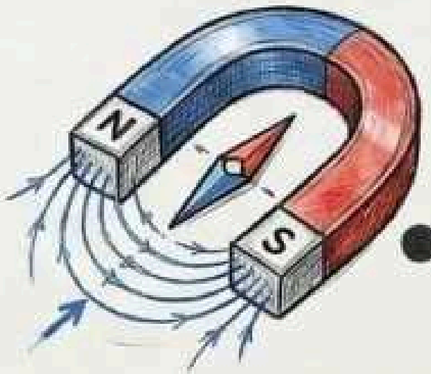
1. Electric Charge, Coulomb's Law & Field



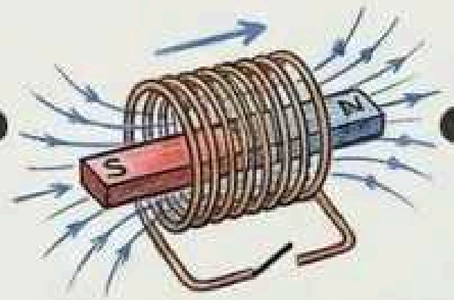
2. Electric Potential, Voltage & Capacitors



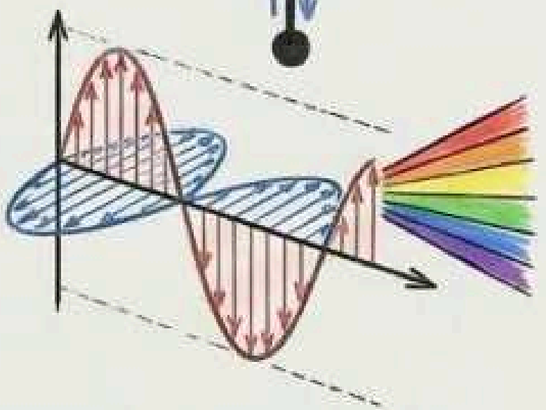
3. Current, Resistance & Circuits



4. Magnetism & Magnetic Forces



5. Changing Fields & Electricity

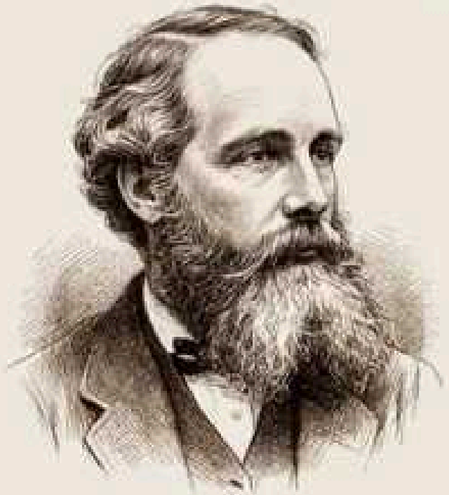


6. Electromagnetic Waves & Light

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Two Faces of One Force

[¶ 0.5]



$$\nabla \cdot \vec{E} = \frac{\rho}{\varepsilon_0}$$

$$\nabla \cdot \vec{B} = 0$$

$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$



$$\nabla \times \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$

$$\mu_0 \vec{J} + \mu_0 \varepsilon_0 \frac{\partial \vec{E}}{\partial t}$$

$$\nabla \times \vec{B} =$$

$$\mu_0 \vec{J} + \mu_0 \varepsilon_0 \frac{\partial \vec{E}}{\partial t}$$

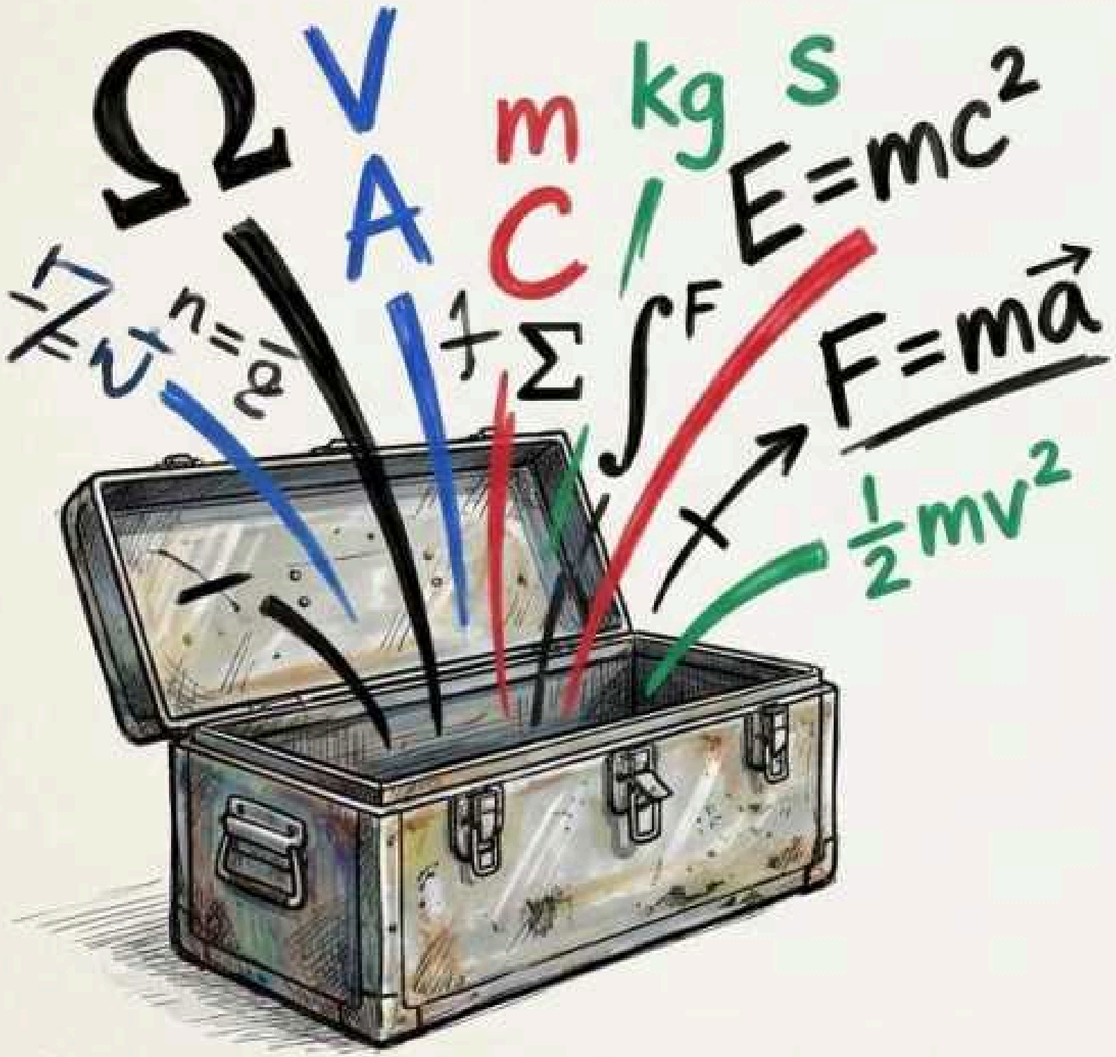
James Clerk Maxwell (1860s) completes the picture, uniting the fields.

The profound prediction: Light itself is an electromagnetic wave.

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[¶ 0.6]

Your Required Toolkit



Math: Ordinary Arithmetic & & Basic Algebra

Physics (from 101 B): Newton's Laws & Energy concepts

SI Units: Meters (m), Kilograms (kg), Seconds (s)

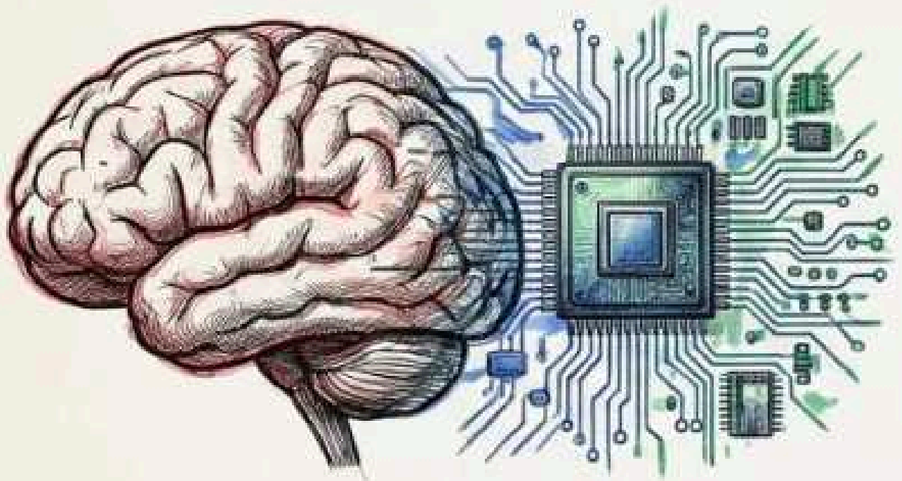
Electrical Units: Coulomb (C), Volt (V), Ampere (A), Ohm (Ω)

Gemini Notebook

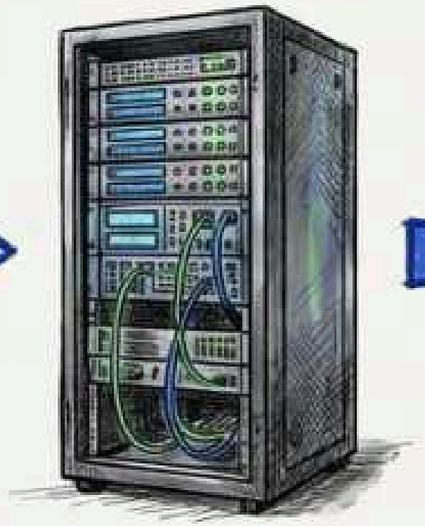
[¶ 0.7]

How This Course Was Built

Human Teacher Direction + AI Assistance



Computer-Verified Arithmetic



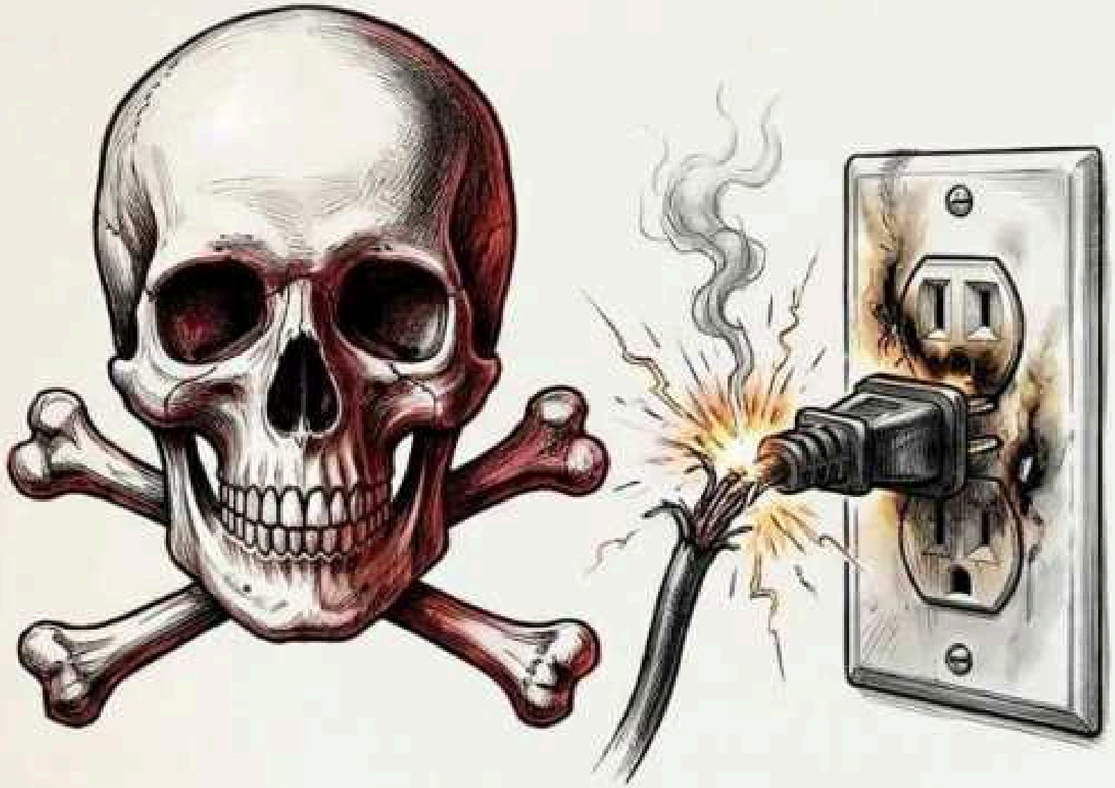
Final Lessons



Mistakes are still possible. Paragraphs are numbered—please report anything that looks wrong!

Gemini Notebook

[¶ 0.8]



SAFETY WARNING

Household electricity can kill.

This course describes behavior; it is NOT instruction for wiring a house, appliance repair, or working with mains voltage.

Leave physical electrical work to licensed electricians.

Never open a charged capacitor or plugged-in device.

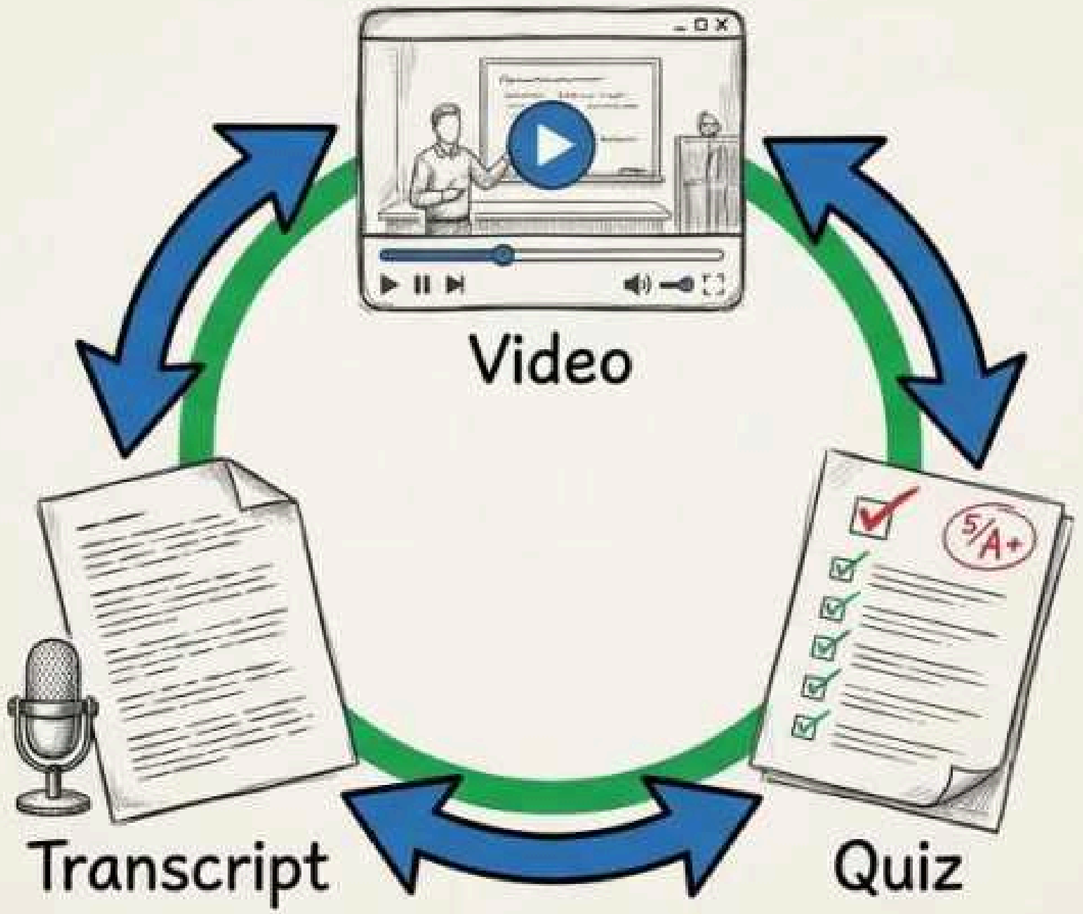
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Navigating the Course

[¶ 0.9]

Watch/Read: Video, Transcript, or both.

Tracking: Every paragraph is numbered (e.g., 3.5 = Lecture 3, Paragraph 5).



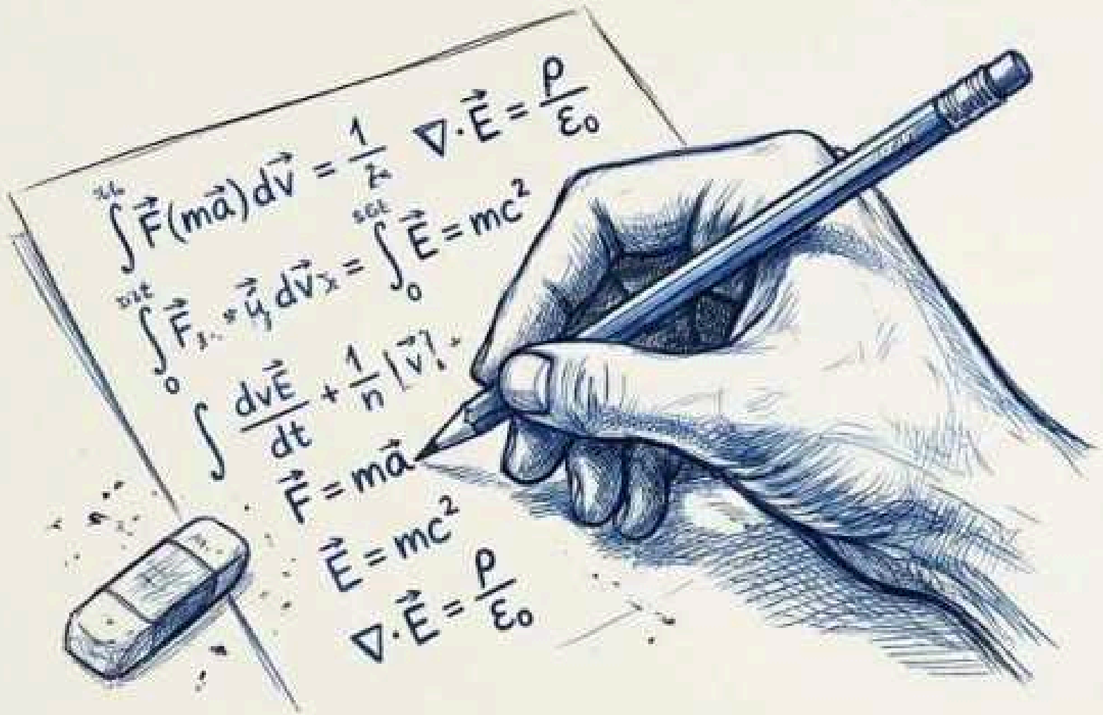
Assessment: 5-Question quiz per lecture. Answers point directly back to the numbered paragraphs.

Reflection: Each lecture ends with a conceptual question to think about.

Physics is a Skill

[¶ 0.10]

The Method: Pause the video → Work the problem on paper → Compare answers.

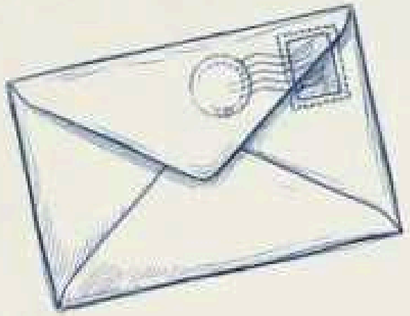


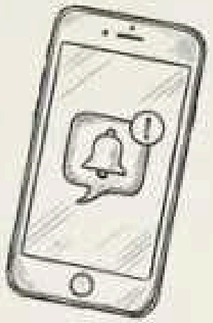


The Philosophy: Physics is like swimming or playing the piano.
You cannot learn by watching alone.

The struggle is where the learning happens.

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[¶ 0.11]

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Let Us Begin.

Up Next: The most basic idea of all — Electric Charge.

