Electrical Engineering Wireless Communications

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Outline

- **Part I**
  - ✓ Electrical Engineering
  - ✓ Divisions within Electrical Engineering

Electrical Engineering & Its Subdivisions

Electrical Engineering

- Electricity, electronics, and electromagnetism.
- Officially recognized as a field in the latter half of nineteenth century.
- Maxwell's equations.
- Electric power distribution.
- Telephone.

Electrical Engineering

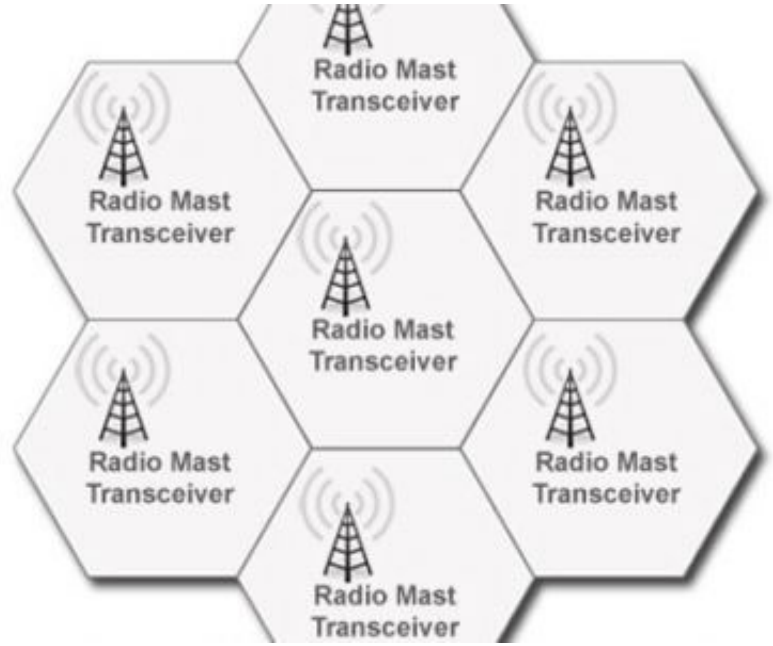
- Power Engineering
- Digital and Wireless Communications
- Electronics
- Signal Processing
- Control Systems
- Radio Frequency (RF) Design
- Biomedical Engineering

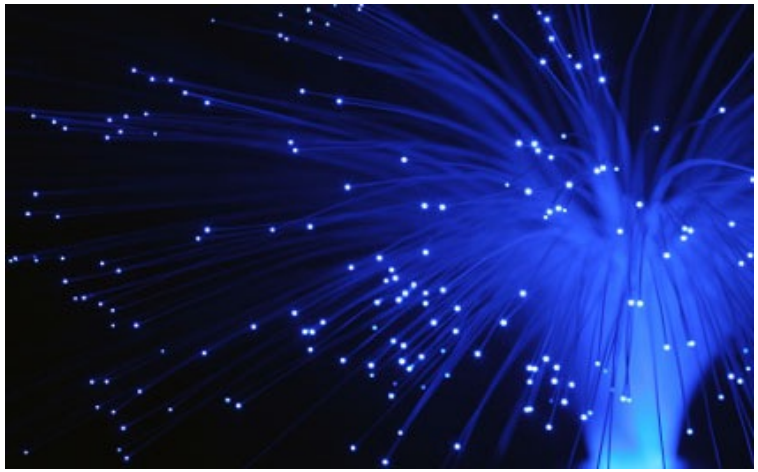
Power Engineering

- Generation, transmission and distribution of electric power.
- Generators, motors and transformers.
- Conversion from AC to DC power.
- Power supply design for computers, cellphones, and electronic devices.
- Renewable energy.

Communications

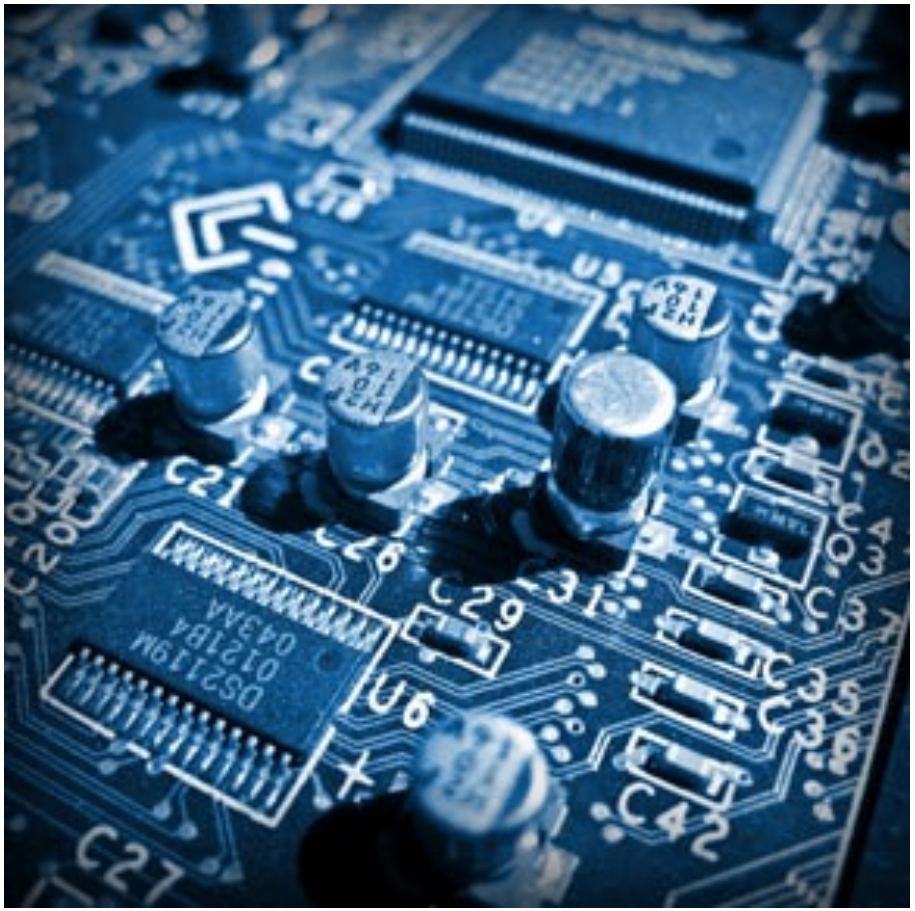
- Cellular Networks
- Fiber Optics
- Wired communications (Asymmetric digital subscriber line (ADSL))
- Wireless Networks
- Satellite Communications





Electronics

- Transistors, diodes and integrated circuits.
- Field programmable gate arrays (FPGAs).
- Passive circuits (RL, RC, and RLC)



Biomedical Engineering

- Diagnosis, monitoring, and therapy
- X-ray machines
- Magnetic resonant imagine (MRI)
- Radiation therapy for cancer
- Orthotics & Artificial limbs
- Telesurgery