Engineering Minds Program Overview

The main goal of Engineering Minds Summer Workshop is to inspire, enlighten, and empower students with engineering and technology using simple-to-complex science and engineering principles and concepts in math, physics, chemistry, and biology. We focus on the "People" who changed the world through their achievements and contributions. Your child will become acquainted with all the great scientists, physicists, chemists, mathematicians, venture capitalists, innovators, visionaries, and risk takers since 600BC, and their contributions to Microelectronics and science, from the electron's perspective (see engineeringminds.org/store.html). We give students broad latitude to apply their creativity and innovation while providing them the theoretical and empirical support for their ideas and inventions. It is a rigorous, open, interactive, engaging, and fun format.

Please refer to the Engineering Minds Summer Workshop syllabus template. We refer to it as a template since we cover a broad range of theoretical, applied, and career topics. This makes it possible to 1) avoid repetitious content, 2) engage students on just about any theoretical, applied, and career topic and principles and 3) translate any high level online theoretical or applied engineering material (e.g. publications, videos, curricula, MOOC lesson, textbook, etc.) to a format students can understand and comprehend.

Examples of each topic from the syllabus template:

Q&A Ideas Inventions:
We engage students on their ideas and inventions with discussions that include the theoretical and empirical explanations and implications. Every/any idea and invention students have is discussed and we encourage students to use their innovative and creative imaginations to pose and answer questions.

Lecture examples:
Topics include, but are not limited to:
Math (all levels)
Physics (quantum and classical)
Chemistry (e.g. semiconductors, graphene, carbon nanotubes)
Electrical and electronics engineering
Mechanical engineering
Biomedical engineering
Computer Science & Engineering
Space Travel
Entrepreneurship and Leadership
Intellectual property
Inventions and Patents
Venture capital
Industry, careers, and academia

Video examples:
YouTube Videos on all the above topics (see engineeringminds.org/videos.html)
Ted talks
Bloomberg Brink documentaries
Documentaries

Project/experiment examples:

Electrical and electronic
Mechanical
Microprocessor/microcontroller/FPGA
Digital to analog conversion
Analog to digital conversion
Light to frequency conversion
Transducers
Encryption and other algorithms
RF Modulation techniques
Motors
Solar Cells
Computers
Displays
(Multi-modal) Sensors (light, acoustic, temperature, pressure, force, Hall effect, gyro, etc.)
Spectroscopy
Fiber optics
Planar and linear imaging arrays

Student Presentation examples:
Pitching inventions
Presenting experiments
Teaching topic(s) of interest
Challenge presentations
Any topic(s) of interest