Lecture 1 - Megaliths and Archeoastronomy: Long before Stonehenge, humans have calculated the movements of the sun, moon and stars for calendrical purposes, transporting and setting up large stone markers to track sky locations and changes for agricultural and other reasons; engineering from Alpine megaliths and European cromlechs to Mesopotamian ziggurats.

Lecture 2 - Pyramids, Canals and Nilometers: Even in predynastic Egypt engineers constructed great pyramids of stone quarried from local bedrock and precisely built for multiple purposes, including massive state work projects and kingly majesty; accurately measuring annual Nile flooding was linked to the timing of building phases; building the first Suez canal almost 4000 years ago and early irrigation in Sumerian Mesopotamia are early engineering achievements.

Lecture 3 - Hero of Alexandria, “Baghdad Battery”, Archimedes: a rudimentary understanding of the use of boiling water to create steam as expanding gas to raise pressure; early exploration of conductivity and incipient “electricity”; discovering fundamental principles of mechanics as well as theoretical use of solar power are just a few topics covered in Classical antiquity.

Lecture 4 - Persian qanats and Roman aqueducts, bridges and roads: a civil engineering primer of how the ancient Persians drew water underground from the Zagros mountains across plains and deserts for irrigation at Pasargadae and Persepolis; how the Roman engineers built large-scale water resources like 40 mile aqueducts and the marvel of the Pont du Gard aqueduct bridge, among others, along with more than 50,000 miles of roads in Europe alone.

Lecture 5 - Peruvian engineering of stoneworking and hydrology: from quarrying and transport of hard igneous stone over many miles, to building so tightly in seismically active areas that hardly a knife blade can be inserted between stones in walls; to Inca hydrological engineering of many miles of aqueducts and resourceful building of andene terraces on steep mountainsides, not only altering the landscape but greatly increasing arable land; also earliest potential chemical knowledge of latex and elasticity of materials.

Lecture 6 - Antikythera Mechanism: looking at an artifact from a Hellenistic or Roman Era shipwreck to see the engineering on a small scale with interlocking different gears and incremental adjustments that could be used to calculate like an ancient computer for astronomical data; how this knowledge was acquired and the technology utilized from other recorded data accumulated from Babylon and other societies.