Principles of Engineering

Space Technology

BRIEFING

The Principles of Engineering course is a hands-on approach to learning about the work engineers do. Engineering is the scientific field of technology and invention. Essentially, engineering is the practical application of math and science. There are many types of engineers and the work they do is just as diverse. In this course, you'll study the engineering disciplines associated with the fascinating field of Space Technology. In fact, you will be an engineer as you interpret, design, and build solutions to actual design problems.

The Modular Approach – This course is divided into 10 focus areas called Modules. Depending on the topic, each module will explore various types of engineering skills. Modular study is different than what you might be used to. Crews of students are taught at learning centers where all the materials for a specific topic are gathered together. Since there's typically one learning center per module, crews will work in different modules at the same time.

That's what's so cool about this class. Besides being practical, relevant, and authentic this course is structured around the principles of competency based instruction. Instead of answers, you'll be given problems. Instead of lectures, the instructor will work with you one-on-one. Instead of assignment grades, you'll master every task you're assigned. To a large degree, this course is self-paced so once you're finished with one module, you'll move onto the next. Your grade is determined by the number of tasks you've mastered by the end of the semester.

The Program – After the Introduction, you'll start each module by taking a Pre-Test. The Pre-Test sets the expectations for the module. It lets you know some key information you'll have to learn. You'll then proceed through the exercises and experiments as you research the module's topic. This program also provides you with resources to help you solve the assigned problems. It's also important to note that the foundation of this course is a three-pronged approach towards developing engineering skills. You'll do lots of computer drawing, mathematical modeling, and building in this class.

The most important tool you'll need in this course is the Agenda. The Agenda is a check-list that will guide you through the module you're studying. Your instructor will check your work and initial the Agenda marking each task that's been completed. There are no optional assignments so your goal is to have all items on the agenda checked-off as quickly as possible. You cannot proceed to the next module until you've completed all assigned work and each completed task contributes to your grade in the class.

Assessment – Each module concludes with two types of assessment. There's a computer delivered Exam and the Practicum. You know what exams are, but might be unfamiliar with a Practicum. The practicum is a hands-on exam where you'll be given a scenario describing a design problem. You'll use the skills and knowledge you've learned in the module to develop an engineering solution to the problem. It's an authentic approach to determining if you know your stuff.