

## **UNIT 3 – CHOOSING A MAJOR**

### **KEY VOCABULARY**

#### **LESSON 15: INTRODUCTION TO STEM**

**STEM:** (acronym for Science, Technology, Engineering, Mathematics –STEM) is an educational program developed to prepare primary and secondary students for college and graduate study in the fields of science, technology, engineering, and mathematics. In addition to subject-specific learning, STEM aims to foster inquiring minds, logical reasoning, and collaboration skills. Sometimes this includes Art and becomes STEAM but we will focus just on STEM.

**Science:** is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe.

**Technology:** The application of scientific knowledge for practical purposes. We use it to expand every aspect of our lives – through computers, cell phones, video cameras, almost anything.

**Engineering:** The branch of science concerned with the design, building, and use of engines, machines and structures. The application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people. Engineering focuses on things like the designs of roads and bridges, but also tackles the challenges of changing global weather and environmentally friendly changes to our home.

**Mathematics:** The science of numbers and their operations. Algebra, arithmetic, calculus, geometry, and trigonometry are branches of mathematics. It is in every occupation, every activity we do in our lives.

#### **LESSON 16: MEETING DEAF AND HARD OF HEARING COLLEGE STUDENTS WHO ARE STEM MAJORS**

#### **LESSON 17: EXPLORING STEM COLLEGE MAJORS**

**Aerospace Engineering:** Aerospace engineering is the primary field of engineering concerned with the development of aircraft and spacecraft. It has two major and overlapping branches: aeronautical engineering and astronautical engineering.

**Agricultural Engineering:** the branch of engineering that deals with the design of farm machinery, the location and planning of farm structures, farm drainage, soil management and erosion control, water supply and irrigation, rural electrification, and the processing of farm products.

**Architectural Engineering:** also known as building engineering, is the application of engineering principles and technology to building design and construction.

**Bioengineering:** the use of artificial tissues, organs, or organ components to replace damaged or absent parts of the body, such as artificial limbs and heart pacemakers.

**Bioinformatics:** the collection, classification, storage, and analysis of biochemical and biological information using computers especially as applied to molecular genetics and genomics.

**Biomedical Science:** a set of applied sciences applying portions of natural science or formal science, or both, to knowledge, interventions, or technology that are of use in healthcare or public health.

**Biotechnology:** the exploitation of biological processes for industrial and other purposes, especially the genetic manipulation of microorganisms for the production of antibiotics, hormones, etc.

**Calculus:** the branch of mathematics that deals with the finding and properties of derivatives and integrals of functions, by methods originally based on the summation of infinitesimal differences. The two main types are *differential calculus* and *integral calculus*.

**Chemical Engineering:** the branch of engineering concerned with the design and operation of industrial chemical plants.

**Chemistry:** the branch of science that deals with the identification of the substances of which matter is composed; the investigation of their properties and the ways in which they interact, combine, and change; and the use of these processes to form new substances.

**Civil Engineering:** an engineer who designs and maintains roads, bridges, dams, and similar structures.

**Computer Engineering:** a discipline that integrates several fields of electrical engineering and computer science required to develop computer hardware and software.

**Electrical and Electronics Engineering:** a discipline which utilizes nonlinear and active electrical components (such as semiconductor devices, especially transistors, diodes and integrated circuits) to design electronic circuits, devices, microprocessors, microcontrollers and other systems. The discipline typically also designs passive electrical components, usually based on printed circuit boards.

**Environmental Engineering:** the application of engineering principles to improve and maintain the environment for the protection of human health and at-risk ecosystems. In the past, environmental engineers worked to provide clean drinking water, safely manage waste, and clean the air we breathe.

**Graphic Arts:** the visual arts based on the use of line and tone rather than three-dimensional work or the use of color.

**Industrial Engineering:** the branch of engineering which deals with the optimization of complex processes, systems or organizations. Industrial engineers work to eliminate waste of time, money, materials, man-hours, machine time, energy and other resources that do not generate value.

**Manufacturing Engineering:** a discipline of engineering dealing with various manufacturing sciences and practices including the research, design and development of systems, processes, machines, tools, and equipment.

**Materials Science and Engineering:** interdisciplinary field of materials science, also commonly termed materials science and engineering, involves the discovery and design of new materials, with an emphasis on solids.

**Mechanical Engineering:** the branch of engineering dealing with the design, construction, and use of machines.

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**Mining Engineering:** an engineering discipline that applies science and technology to the extraction of minerals from the earth. Mining engineering is associated with many other disciplines, such as geology, mineral processing and metallurgy, geotechnical engineering and surveying.

**Nuclear Engineering:** the branch of engineering concerned with the application of the breakdown (fission) as well as the combination (fusion) of atomic nuclei or the application of other subatomic physics, based on the principles of nuclear physics.

**Petroleum Engineering:** a field of engineering concerned with the activities related to the production of hydrocarbons, which can be either crude oil or natural gas. Exploration and Production are deemed to fall within the upstream sector of the oil and gas industry.

**Physics:** the branch of science concerned with the nature and properties of matter and energy. The subject matter of physics, distinguished from that of chemistry and biology, including mechanics, heat, light and other radiation, sound, electricity, magnetism, and the structure of atoms.

**Pipette:** a slender tube attached to or incorporating a bulb, for transferring or measuring out small quantities of liquid, especially in a laboratory.

**Pipetting:** pour, convey, or draw off using a pipette.

**Quantum Mechanics:** the branch of mechanics that deals with the mathematical description of the motion and interaction of subatomic particles, incorporating the concepts of quantization of energy, wave-particle duality, the uncertainty principle, and the correspondence principle.

**Software Engineering:** a person who uses the application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software.

**Sterilizing:** make (something) free from bacteria or other living microorganisms.

**Web and Mobile Computing:** The mobile web refers to the use of the internet through handheld mobile devices. Increasingly, smartphones and other devices with wireless data access structures access the same "full" internet traditionally accessed on desktop or laptop computers.

**Welding:** join together (metal pieces or parts) by heating the surfaces to the point of melting using a blowtorch, electric arc, or other means, and uniting them by pressing, hammering, etc. There are several types of welding:

- **Shielded Metal Arc Welding (SMAW)** With this particular type of welding, the welder follows a manual process of stick welding.

- Gas Metal Arc Welding (GMAW/MIG) This style of welding is also referred to as Metal Inert Gas (MIG).
- Flux Cored Arc Welding (FCAW).
- Gas Tungsten Arc Gas Welding (GTAW/TIG).

## LESSON 18: TRANSITION FROM HIGH SCHOOL TO COLLEGE

## LESSON 19: COMMUNICATION ACCESS IN COLLEGE CLASSROOMS

**Notetakers:** hearing people, paid to take students during the lecture.

**Communication access:** is where everyone can get their message across. Communication access is about communicating with people who do not use speech or have speech that is difficult to understand. It is about anyone being able to go into shops and services and know that people will: treat you with dignity and respect.

**C-Print:** printed text of spoken English displayed in real time, which is a proven and appropriate means of acquiring information for some individuals who are deaf or hard of hearing. After class, the text can be provided in paper or electronic format for the student to use as notes.

**Captionist:** a person who provides the captions used in closed or open captioned text (such as in C-Print) or to create a video or film

**Terminology:** the technical or special terms used in a business, art, science, or special subject

**Access Service Coordinator:** service coordinators provide assistance and access to community-based supports, skills training and resources. Within a college, this means helping students have access to ASL interpreters, notetakers, C-Print, and captionists.

## LESSON 20: COMMUNICATION WITH PEERS AND CO-WORKERS

**Interact:** act in such a way as to have an effect on another; act reciprocally.

**Interaction:** communication or direct involvement with someone or something

**Interpreter:** a person who interprets, especially one who translates speech orally to and from ASL.

**Group Chat:** a group of people who communicate regularly via the Internet, usually in real time but also by email.

**Google Docs:** a free Web-based application in which documents and spreadsheets can be created, edited and stored online. Files can be accessed from any computer with an Internet connection and a full-featured Web browser. Google Docs is compatible with most presentation software and word processor applications.

**Text App:** a standard way to send messages that include multimedia content to and from a mobile phone.

**Google HangOut:** a unified communications service that allows members to initiate and participate in text, voice or video chats, either one-on-one or in a group. Hangouts are built into Google+ and Gmail, and mobile Hangouts apps are available for iOS and Android.

**UbiDuo:** The UbiDuo system uses two small computers that each feature a keyboard and a split screen to show the typed conversations of the two participants, in real time, during a face-to-face meeting. "Ubi" (pronounced "you bee") stands for 'ubiquitous' – meaning 'everywhere' + "Duo" – for 'two people or two things'.

**Video Remote Interpreter:** an on-demand video telecommunication service that uses devices such as web cameras, videophones or tablets over a high-speed internet connection to provide American Sign Language (ASL) or spoken language interpreting services.

**Schedule:** a plan for carrying out a process or procedure, giving lists of intended events and times.

## **LESSON 21: A TYPICAL DAY IN COLLEGE**

**Schedule:** a plan for carrying out a process or procedure, giving lists of intended events and times.

**Routine:** a sequence of actions regularly followed; a fixed program.

**Barista:** a person whose job involves preparing and serving different types of coffee.

**Assistant:** a person who helps in particular work.

**[College] Credits:** A “CREDIT HOUR” is the unit of measuring educational CREDIT, usually based on the number of classroom hours per week throughout a term. Students are awarded credit for classes on the basis of the Carnegie unit. This defines a semester unit of credit as equal to a minimum of three hours of work per week for a semester.

**Balance:** a condition in which different elements are equal or in the correct proportions  
**Appointment:** an arrangement to meet someone at a particular time and place.

**Homework:** schoolwork that a student is required to do at home.

**Teacher’s Assistant (TA):** Teacher assistants reinforce lessons given by the teachers by reviewing materials with their students or assist those that may need extra help. Teacher assistants also prepare the classroom prior to students starting class such as setting up equipment, computers, or materials.

**Habit:** a settled or regular tendency or practice, especially one that is hard to give up.

## **LESSON 22: THE IMPORTANCE OF ENGLISH SKILLS**

**Internship:** the position of a student or trainee who works in an organization, sometimes without pay, in order to gain work experience or satisfy requirements for a qualification.

**Communication:** the imparting or exchanging of information or news.

**Terminology:** the body of terms used with a particular technical application in a subject of study, profession.

**Bid:** (of a contractor) offer to do (work) for a stated price; tender for; an offer of a price, especially at an auction.

## **LESSON 23: INTERVIEWING SKILLS**

**Résumé:** a brief account of a person’s education, qualifications, and previous experience, typically sent with a job application (usually 1-2 pages).

**Curriculum Vitae:** a longer account of a person's education, qualifications, and previous experience, typically sent with a job application (often more than 2 pages in length).

**Cover letter:** letter used to introduce yourself which explains why you would be a good fit for the job for which you are applying.

**First impression:** How you present yourself in the first meeting of a new person.

## **LESSON 24: FAMILY BACKGROUNDS**

**Primary Mode of Communication:** the preferred way of communicating one's thoughts to other people (using for example ASL, spoken language, written language).

**Access:** a way for Deaf or Hard of Hearing individuals to understand spoken language used in the environment (e.g., through the use of an ASL interpreter, notetaker, C-Print, etc); a means of approaching or entering a place.

**Language Delayed:** a type of communication disorder. A child may have a language delay if they don't meet spoken or signed language developmental milestones for their age. Their language abilities may be developing at a slower rate than most children's. They may have trouble expressing themselves or understanding others.

## **LESSON 25: LIFE GOALS**

**Pursue:** continue or proceed along (a path or route) towards a goal; to follow (someone or something) in order to catch or attack them.

**Goals:** the object of a person's ambition or effort; an aim or desired result.

**Ponder:** think about (something) carefully, especially before making a decision or reaching a conclusion.

**Purpose:** the reason for which something is done or created or for which something exists.

**Impact:** have a strong effect on someone or something; the action of one object coming forcibly into contact with another.

**Contribution:** the part played by a person or thing in bringing about a result or helping something to advance.

## **LESSON 26: LEARNING AMERICAN SIGN LANGUAGE**

**Interpreter:** a person who interprets, especially one who translates speech to and from ASL to spoken English (or from another signed language to a spoken language)

**American Sign Language:** a form of sign language developed in the US and used also in English-speaking parts of Canada.

**Deaf culture:** Dr. Barbara Kannapel, developed a definition of the American Deaf culture that includes a set of learned behaviors of a group of people who are deaf and who have their own language (ASL), values, rules, and traditions.

**Oral and listening skills:** spoken language / lip reading skills and the ability to comprehend spoken language.

## **LESSON 27: WORD OF ADVICE**

**Time management:** the ability to use one's time effectively or productively, especially at work.

**Tutor:** a private teacher, typically one who teaches a single student or a very small group.

**Motivated:** stimulate (someone's) interest in or enthusiasm for doing something.

**Influence:** The capacity to have an effect on the character, development, or behavior of someone or something, or the effect itself.

**Patience:** the capacity to accept or tolerate delay, trouble, or suffering without getting angry or upset.

**Barriers:** A circumstance or obstacle that keeps people or things apart or prevents communication or progress.

**Advocate:** a person who publicly supports or recommends a particular cause or policy.

**Advisor:** a person who gives advice in a particular field.

**Deter:** discourage (someone) from doing something by instilling doubt or fear of the consequences.

**Capable:** having the ability, fitness, or quality necessary to do or achieve a specified thing.

**Worthwhile:** worth the time, money, or effort spent; of value or importance.

## **LESSON 28: STEM COLLEGE PLANNING RESOURCES**

**Assessment:** the evaluation or estimation of the nature, quality, or ability of someone or something.