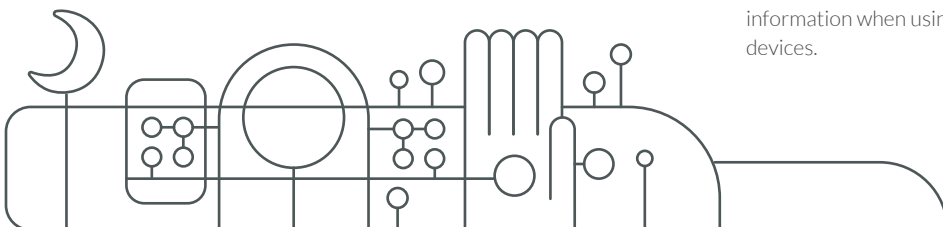


# Endeavor **STEM Literacy and Career Exploration**

## Course Outline

Module	Topics	Module Description	Learning Objectives <i>"Students will be able to..."</i>
<b>Course Introduction and About Me</b>	<ul style="list-style-type: none"> <li>○ Course Introduction</li> <li>○ Self-exploration</li> <li>○ STEM Career Exploration</li> </ul>	<p>Learners are introduced to the course and complete an interactive self- assessment where they dig deeper into their interests, skills, and aptitudes. Learners connect their resulting STEM profile to several career opportunities.</p>	<ul style="list-style-type: none"> <li>○ Gain insight into their skills, interests, and aptitudes</li> <li>○ Identify STEM careers of interest</li> </ul>
<b>Designing the Ultimate Prototype</b>	<ul style="list-style-type: none"> <li>○ Engineering Design Process</li> <li>○ Materials and material science</li> <li>○ 3D printing process</li> <li>○ Testing and comparative data analysis</li> <li>○ STEM Career Exploration</li> </ul>	<p>Learners explore advanced manufacturing techniques by designing and rapidly prototyping a custom sneaker. Through iterative design, learners will link the design process to the high-tech manufacturing techniques shaping the future of production. Learners will connect these skills to STEM careers in engineering and/or which require design and programming skills.</p>	<ul style="list-style-type: none"> <li>○ Solve a virtual engineering problem from a set of constraints</li> <li>○ Explain the basic process for additive 3D printing</li> <li>○ Identify the steps of the design process and explain how it is utilized by designers and engineers</li> <li>○ Differentiate between synthetic materials and explain why one might be preferable to another</li> <li>○ Identify STEM careers that utilize engineering-related skills and identify one or more that might be of interest</li> </ul>
<b>Connecting the Home of the Future</b>	<ul style="list-style-type: none"> <li>○ Classifying data</li> <li>○ Interpreting/ analyzing data</li> <li>○ Password security</li> <li>○ Connected devices/IOT</li> <li>○ STEM Career Exploration</li> </ul>	<p>Learners will explore the world to come by calibrating a connected home. Using a variety of data sources to achieve optimal settings, learners will adjust their smart thermostat, lighting control system, and intelligent refrigerator. For each of these activities, learners will interpret basic data sets (from utility bills, fitness tracker data, etc.) to make cost and energy efficiency decisions. Students also briefly explore the importance of protecting their personal information when using connected devices.</p>	<ul style="list-style-type: none"> <li>○ Define the Internet of Things and describe its potential impact on day-to-day lives</li> <li>○ Identify appropriate visual data formats (scatter plot, line graph, bar graph, etc.) for specific data sets</li> <li>○ Understand the steps necessary to create a secure password</li> <li>○ Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest</li> </ul>



Module	Topics	Module Description	Learning Objectives “Students will be able to...”
<b>Building the Perfect Playlist</b>	<ul style="list-style-type: none"> <li>○ Classifying data</li> <li>○ Interpreting/ analyzing data</li> <li>○ Content filtering</li> <li>○ Collaborative filtering</li> <li>○ STEM Career Exploration</li> </ul>	<p>Learners act as curation engineers at a music software company, analyzing content and user data to determine a perfect playlist. Along the way, they learn about how recommendation engines collect information about users from online behavior.</p>	<ul style="list-style-type: none"> <li>○ Explain how recommendation engines utilize different types of data to predict user preferences</li> <li>○ Distinguish between content and collaborative filtering</li> <li>○ Identify how data might be utilized for recommendation engines</li> <li>○ Identify STEM careers that utilize data literacy-related skills and identify one or more that might be of interest</li> </ul>
<b>Transportation Central</b>	<ul style="list-style-type: none"> <li>○ Inventory and Logistics</li> <li>○ Inventory Management and Other Industry Best Practices</li> <li>○ Packaging, Shipping, and Handling</li> <li>○ Transportation and Transportation Maintenance</li> <li>○ STEM Career Exploration</li> </ul>	<p>Learners explore the industry of transportation, distribution, and logistics (TDL) through a simulation detailing the events that occur between customers placing an order for a product through delivery. Learners must use industry best practices to solve common problems along the way.</p>	<ul style="list-style-type: none"> <li>○ Understand STEM concepts through simulated experience of modern manufacturing, with a focus on transportation, distribution and logistics</li> <li>○ Relate basic STEM concepts to manufacturing</li> <li>○ Connect to the diverse opportunities and paths for careers in the manufacturing industry</li> <li>○ Use STEM concepts to determine what careers in manufacturing might be of interest</li> </ul>
<b>My Field Guide</b>	<ul style="list-style-type: none"> <li>○ STEM Career Exploration</li> <li>○ About Me</li> </ul>	<p>Learners explore different career opportunities based on their interests, skills, and course progress. In addition to the careers selected for the learner, learners can also access this resource at any point during their course.</p>	<ul style="list-style-type: none"> <li>○ Identify STEM careers of interest</li> <li>○ Identify next steps for careers of interest</li> </ul>