Shell Digitalization Academy

Course Outlines

3D Printing Course Outline

Course Goal: Students will learn how to use computer assisted design software to create 3D models that can be translated into a structurally sound physical print.

Course requirements: Students will be required to walk with their laptops. While not mandatory, a mouse to be used with the laptop will also be useful for this course.

Delivery format: In person workshops, interactive content and challenges, course projects.

Course Schedule	Learning Outcomes
Day 1	Students will learn: • What is 3D Printing. • How 3D Printing fundamentally works. • The main types of printing methods.

	• How to navigate the CAD platform. • About the CAD work plane and how to best use it in creating 3-D models. • Complete mini challenges to refine the skills learned through the prior activities.
Day 2	Students will learn: • About the inner structure of 3D prints. • How the inner structure of a print determines its physical traits. • How to consider the inner structure to create a print that meets their desired outcome. • Create their own design from details given in a challenge. • Explore primitive 3D shapes. • Manipulate the basic shapes in different ways to create more complex designs. • Learn the elements of the design process.
Day 3	Students will learn: • About the current applications of 3D printing across several fields and its potential for the future. • Manipulate basic shapes to create stable structures. • Building their projects.
Day 4	Students will learn: • About the current advantages and disadvantages of 3D printing. • Learn efficient design process. • Complete their real-world design challenge and make a 5- minute presentation to the class.

Generative Artificial Intelligence (AI) Outline

Course Goal: Students will learn the fundamentals of AI and how it grew and evolved into its latest iteration, Generative AI.

Course requirements: Students will be required to walk with their laptops.

Delivery format: In person workshops, interactive content and challenges, course projects.

Course Schedule	Learning Outcomes
Day 1	Students will be able to: • Define what AI and Data Mining are. • Understand the foundation of Artificial Intelligence (AI)
Day 2	Students will be able to: • Define Machine Learning. • Understand how Machine Learning works and its natural progression from AI. • Define Deep Learning • Understand how Deep Learning works and its natural progression from Machine Learning.
Day 3	Students will be able to: • Define what Generative AI is. • Understand how generative AI works and its natural progression from Deep Learning
Day 4	Students use the Generative AI resources to solve the real-world problem they were given. Students give presentations on how they used generative AI to solve the problem they were given and receive feedback on their projects.