Module 1 – ***What is Intelligence?***

What is Intelligence introduces the foundational ideas of human intelligence. Human intelligence is defined as a mental quality that consists of the abilities to learn from experience, adapt to new situations, understand and handle abstract concepts, and use knowledge to manipulate one's environment. Upon successful completion of this module, you will be able to describe various features of human intelligence, discuss the difficulties in defining and measuring intelligence, describe the features of consciousness, and explain why studying consciousness scientifically is difficult.

Module 2 – ***Can Machines be Intelligent?***

Can Machines be Intelligent tackles whether a machine can exhibit intelligent behavior. An algorithm is a sequence of well-defined instructions used to solve specific problems or to perform a computation. Once you complete this module you'll be able to define the concept of algorithms, give an example of an algorithm from everyday life, describe the Turing test and its intentions, and list and describe some of the various arguments against the possibility of machine intelligence.

Module 3 – ***History of AI***

The **History of AI** is reviewed from its foundational work through the current state of the art. Upon successful completion of this module, you will be able to articulate the history of AI from the 1950s to the present day.

Module 4 – ***Identifying AI***

Identifying AI explores some of the subfields of AI. You will get a better overview of Robotics, Computer Vision, and Natural Language Processing. Module completion results in the ability to name and describe different fields of AI, the ability to describe key concepts of robotics and how it's applied today, the ability to describe the key goals computer vision tries to achieve, and the ability to describe natural language understanding systems and give several current examples.

Module 5 – ***Representation***

This module introduces the concept of **representation** and how it relates to computational and artificial intelligent systems. You will examine ways AI models might differ from the things they are modelling. Information is encoded inside an AI system using knowledge **representation**. Knowledge **representations** present different ways of encoding knowledge inside of a machine. Once you complete this module, you'll be

able to describe the difference between the world and a knowledge of the world, you'll be able to describe how sensors are used by AI to sense the world, and you'll be able to define and describe a knowledge representation.

Module 6 – ***Decision Making***

In **Decision Making,** you will learn one of the earliest methods of allowing intelligent agents to make decisions, known as rule-based systems or expert systems. You will be introduced to simple reflex agents and expert systems. Upon the completion of this module, you'll be able to describe the concept of condition-action rules, to describe how a simple reflex agent works, and to define expert systems and identify their capabilities and limitations.

Module 7 – ***Problem Solving***

In this module, you will be introduced to a fundamental AI technique called **problem solving** by search (problem solving agent). In this approach you'll learn how to represent a problem using a graph and then understanding how AI uses that graph to find a solution to the problem. By the end of the module, you'll be exposed to encoding a problem as a search problem and the basic graph search techniques for solving problems.

Module 8 – ***Machine Learning***

This module provides a high-level introduction to **machine learning**. **Machine Learning** studies methods for developing computer systems that can learn from experience. You will be learning about different machine learning methods and their applications. Learning outcomes for this module are the ability to describe machine learning, the ability to explain what classification is and what it's used for, the ability to illustrate how k-nearest neighbors work at a high-level, and the ability to name additional machine learning methods.

Module 9 – ***Jobs and the Economy***

This module looks at the impact of AI on **jobs and the economy**. Upon the completion of this module, you'll be able to describe the economic changes likely to occur as AI replaces human labor across all industries, to discuss various ways on how AI is expected to eliminate or create job opportunities, and to describe the impact AI will have on particular tasks and fields.

Module 10 – ***Privacy and Liability***

Privacy and Liability introduces the challenges that come with the incorporation of AI into everyday life. In this module, you'll be exposed to potential benefits and problems with surveillance cameras, facial recognition, biometric data retention, and affect

recognition. You'll be exposed to arguments in favor of safety, privacy, and accountability regulation of leading companies and initiatives in AI-implementing industries. Upon the completion of this module, you'll be able to explain what bias is in AI algorithms and why explainability is important.

Module 11 – ***Innovation and Regulation***

This module explores **innovation and regulation** in the context of AI. You will learn about how intellectual property is understood under the context of AI and how the role of intellectual property is enabling companies to take advantage of AI innovations. By the end of the module, you'll be able to compare and contrast different governmental approaches to AI innovations and you'll be exposed to arguments on regulations for different AI-implementing industries.

Module 12 – ***The Future***

The Future explores the impact of AI in everyday life for the next 5 to 30 years. You will be introduced to the concepts of Artificial General Intelligence and the Singularity. Once you complete this module, you'll be able to speculate on the improvements of AI and how that will affect the future, to understand what Artificial General Intelligence means, to understand debates surrounding the rights of sentient machines, and to describe the difficulties that come with assessing the eligibility of AI for human-rights.