

BCS Essentials Certificate In Artificial Intelligence



Course Overview and Duration:

Duration:	1 Day
Course Delivery:	Classroom or Virtual Classroom Environment (VCE)
Pre-requisites:	None

Summary:

Artificial Intelligence (AI) is a methodology for using a non-human system to learn from experience and imitate human intelligent behaviour. The BCS Essentials Certificate in Artificial Intelligence tests a candidate's knowledge and understanding of the terminology and the general principles. This syllabus covers the potential benefits; types of Artificial Intelligence; the basic process of Machine Learning (ML); the challenges and risks associated with an AI project, and the future of AI and Humans in work.

Course Content:

At the end of this one-day course, delegates will have an understanding of the following:

- The terminology and general principles, including benefits and types of AI
- The basic process of machine learning (ML)
- The challenges and risks associated with an AI project
- The future of AI and humans in work

Target Audience:

The Artificial Intelligence Essentials certificate is focussed on individuals with an interest in, (or need to implement) AI in an organisation, especially those working in areas such as science, engineering, knowledge engineering, finance, or IT services.

The following roles could be interested:

- Engineers
- Scientists
- Professional research managers

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- Chief technical officers
- Chief information officer
- Organisational change practitioners and managers
- Business change practitioners and managers
- Service architects and managers
- Program and planning managers
- Service provider portfolio strategists / leads
- Process architects and managers
- Business strategists and consultants
- Web page developers
- Account Managers
- Service Delivery Managers

Course Outline:

1. Artificial and Human Intelligence: An Introduction and History

- Recall the general definition of human and Artificial Intelligence (AI);
- Describe 'learning from experience' and how it relates to Machine Learning (ML) (Tom Mitchell's explicit definition);
- Understand that ML is a significant contribution to the growth of Artificial Intelligence;
- Describe how AI is part of '*Universal Design*,' and '*The Fourth Industrial Revolution*'.

2. Examples of AI: Benefits, Challenges and Risks

- Explain the benefits of Artificial Intelligence, and
 1. list advantages of machine and human and machine systems;
- Describe the challenges of Artificial Intelligence, and give:
 1. general examples of the limitations of AI compared to human systems,
 2. general ethical challenges AI raises.
- Demonstrate understanding of the risks of Artificial Intelligence
 1. give at least one a general example of the risks of AI;
- Identify a typical funding source for AI projects;
- List opportunities for AI.

3. An introduction to Machine Learning

- Demonstrate understanding of the AI intelligent agent description, and:
- identify the differences with Machine Learning (ML)
- list the four rational agent dependencies,
- describe agents in terms of performance measure, environment, actuators and sensors

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- describe four types of agent: reflex, model-based reflex, goal-based and utility- based.
- Give typical examples of Machine Learning in the following contexts: 3.2.1 business,
 1. social (media, entertainment),
 2. science.
- Recall which typical, narrow AI capability is useful in ML and AI agents' functionality;
- Describe and give examples of the following forms of ML:
 1. Supervised,
 2. unsupervised,
 3. reinforcement.
- Describe the basic schematic of a neural network.

4. The Future of Artificial Intelligence – Human and Machine Together

- Demonstrate an understanding that Artificial Intelligence (in particular, Machine Learning) will drive humans and machines to work together;
- List future directions of humans and machines working together.

Examination:

The exam is multiple choice exam consisting of 20 questions in ½ hour.

13/20 (65%) is required to pass. Upon successfully passing the exam, you will be awarded the BCS Essentials Certificate in Artificial Intelligence.