Course Title – BCS Foundation Award – Machine learning	**Course duration –** 1 day
Exam - included	**Exam type - I**nvigilated
Qualification – BCS Foundation Award – Machine learning	

Course Syllabus

1. What is machine learning?

1.1 Define machine learning.
1.2 Explain different applications of machine learning.
1.3 Describe the role of a learning agent.
1.4 Explain the concept of deep learning.
1.5 Describe the purpose of a neural network.
1.6 Illustrate how machine learning compliments knowledge-based systems.
1.7 Explain the process through which machine learning works with data.

2. Coding for machine learning

2.1 Explain the use of at least one coding language used in machine learning.
2.2 Identify common open source and proprietary software used in coding for machine learning.

3. Algorithms used in machine learning

3.1 Explain the use of mathematics in enabling a machine to solve numerical problems.
3.2 List and describe typical algorithms used in machine learning.
3.3 Describe supervised, unsupervised and semi-supervised learning.

4. Machine learning in practice

4.1 Describe a particular problem that can be addressed through the use of machine learning.
4.2 Outline typical tasks required in the preparation of data for developing a particular application of machine learning.
4.3 Explain the process of training a machine learning model.
4.4 Explain the process of testing a machine learning model.
4.5 Discuss how to evaluate the results of testing in order to identify the information to be shared with key stakeholders.

Course Overview

The BCS Foundation Award in Machine Learning is designed for individuals wishing to gain an understanding of the principles of machine learning and the process through which it can be developed.

The term "machine learning" has increased in popularity in the last decade and is a technology which is becoming more commonly used within many organisations. With its ability to help solve business problems and develop new customer experiences, there is now a greater demand for individuals with the knowledge and skills to support organisations to successfully implement the technology to deliver improvements.

This award explores what machine learning is and how it is used in practice. It provides an introduction into the different types of machine learning and the tools and techniques required to develop it, including a basic introduction to algorithms. This award will enable you to understand these concepts at a foundation level, enabling you to be better informed and equipping them with knowledge which you can build upon through further study and application.

Learning Outcomes

Upon completion of the award, you will be able to demonstrate:

- An understanding of the basic principles of machine learning
- A basic understanding of the use of coding languages and software used in machine learning
- An understanding of the different types of algorithms used in machine learning
- An understanding of the key stages within the Machine Learning Process

Who should attend?

This award is suitable for any individual wishing to understand the opportunities presented by AI and how these can benefit an organisation.

Entry-Level Requirements

There are no specific entry requirements for this award. However, some professional experience in a business or IT environment may be helpful.

What's included?

1 day in-person classroom training or 1-day virtual online training

Exam information

This award is assessed through completion of an invigilated online exam which candidates will only be able to access at the date and time they are registered to attend.

Type	18 multiple choice questions, 1 scenario-based question
Duration	30 minutes

Supervised	Yes
Open book	No (no materials can be taken into the examination room)
Passmark	13/20 (65%)
Delivery	Digital format only

Adjustments and/or additional time can be requested in line with the BCS reasonable adjustments policy for candidates with a disability, or other special considerations, including English as a second language.

Qualifications

BCS Foundation Award – Machine learning

What else?

This award has been created alongside a selection of other awards available from BCS, which offer candidates a clear pathway of progression into other disciplines of IT. This makes it ideally suited for those looking for a change of career, an upskilling workforce, and sustainable employers.

This award counts towards achieving your Foundation Certificate in AI and/or your Foundation Diploma in AI.

To receive the Foundation Certificate in AI you need to achieve **four awards** – one award from each of the categories

1. **Business innovation**
2. **Data**
3. **Ethics**
4. **Machine learning and other AI techniques**

To receive the Foundation Diploma in AI you need to **achieve eight awards in total** – one or more award from each of the categories

The courses are as follows:

- **How AI can support your organisation**
- **How to manage risk**
- **Understanding the problem and implementing the solution**
- **Understanding data in your organisation**
- **Big Data**
- **Data visualisation**
- **Understanding ethical principles in the IT profession**
- **Understanding the role of ethics in the responsible use of AI**
- **AI and the digital ecosystem**
- **Knowledge-based systems**
- **Smart products, robotics and automation**
- **Machine learning**

- **Generative AI**