Course Title – BCS Foundation Award – Knowledge Based Systems	**Course duration –** 1 day
Exam - included	**Exam type -** Invigilated
Qualification – BCS Foundation Award – Knowledge Based Systems	

Course Syllabus

1. Introduction to knowledge-based systems

1.1 Describe how a Knowledge-Based System works and its role within an AI solution.
1.2 Explain the difference between knowledge-based intelligence and computational intelligence.
1.3 Explain how a Knowledge-Based System complements Machine Learning.
1.4 List examples of Knowledge-Based Systems.

2. Rules

2.1 Explain the use of rules within a Knowledge-Based System.
2.2 List examples of statements used within rules.
2.3 Explain the difference between forward chaining and backward chaining.

3. Case-based reasoning

3.1 Describe the use of case-based reasoning.
3.2 List the stages of case-based reasoning.

4. Uncertainty

4.1 Explain the concept of uncertainty in Knowledge-Based Systems.
4.2 Describe the use of Fuzzy Logic.

5. The Inference Engine

5.1 Explain the role of the Inference Engine.
5.2 Describe how the inference engine uses rules to derive facts.
5.3 Describe knowledge-based systems in relation to intelligent agents.

Course Overview

Our BCS Foundation Award in Knowledge-Based Systems is designed for anyone wishing to gain an understanding of the principles of Knowledge-Based Systems and how they can be used to complement other AI technologies such as Machine Learning.

Knowledge-Based Systems are designed to capture human expertise in order to enable AI applications to make intelligent decisions. Through completion of this award you will have the ability to recognise Knowledge-Based Systems, gain an understanding of how they work, and consider how they can add value to an organisation. This award will also enable you to understand the concept of Uncertainty and Fuzzy Logic, and how Knowledge-Based Systems can be used to help organisations to make decisions and act where there is higher level of uncertainty.

Learning Outcomes

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

- An understanding of Knowledge-Based Systems and their role within AI.
- An understanding of the use of rules within a Knowledge-Based System.
- An understanding of the principles of case-based reasoning.
- An understanding of uncertainty and the use of fuzzy logic.
- An understanding of the role of the inference engine.

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 - Knowledge-Based Systems.

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**