Understanding the Role of Ethics in the Responsible Use of AI

BCS Foundation Award

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Document Change History

Any changes made to the syllabus shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

Version Number	Changes Made
V1.0	Document Creation

Introduction

The BCS Foundation Award in Understanding the Role of Ethics in the Responsible Use of AI is designed for anyone wishing to gain an understanding of how an ethical culture can support and ensure responsible use of AI.

AI is increasing in its use. Now a presence within our workplaces and our homes, there is a greater need now more than ever to understand the moral implications associated with AI and how it is impacting on society. This award considers the responsibility of organisations and society towards ensuring AI is implemented for the good of others. It considers the potential harm AI may pose, and the safeguards that can be implemented to ensure it is used safely, ethically and for the good of society. Candidates will be encouraged to explore the benefits associated with AI and the potential value it can add towards the continued evolution of humankind if managed well.

Qualification Suitability and Overview

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

The BCS Foundation Award in Understanding the Role of Ethics in the Responsible Use of AI has been created for IT professionals of all levels, particularly those considering AI as a solution. It aims to provide them with a basic understanding of the ethical challenges posed upon society, whilst also recognising the business benefits.

This award has been created alongside a selection of other awards in the AI space which offer candidates a clear pathway of progression into other disciplines of IT along with a broader knowledge of AI in the workplace. This makes it ideally suited for those looking for a change in career, an upskilling workforce, sustainable employers and individuals with a background in: science, engineering, knowledge engineering, finance, education or IT services.

This list is not exhaustive and many other roles may benefit.

This award represents 4 credits that can count towards the credits required for a BCS Foundation Certificate or Diploma in a relevant discipline.

Candidates can study for this award by attending a training course provided by a BCS accredited Training Provider or through self-study.

Total Qualification Time	Guided Learning Hours	Independent Learning	Assessment Qualification Time	Credits
40 hours	16 hours	23.5 hours	0.5 hours	4

*Examples of Independent Learning include reading of articles or books, watching videos, attendance of other types of training or work shadowing.

Trainer Criteria

It is recommended that to effectively deliver this award, trainers should possess:

- BCS Foundation Certificate in Artificial Intelligence or a similar qualification.
- A minimum of 2 years' training experience or a recognised qualification training qualification.

SFIA Levels

This award provides candidates with the level of knowledge highlighted within the table, enabling candidates to develop the skills to operate successfully at the levels of responsibility indicated.

Level	Levels of Knowledge	Levels of Skill and Responsibility (SFIA)
K7		Set strategy, inspire and mobilise
K6	Evaluate	Initiate and influence
K5	Synthesise	Ensure and advise
K4	Analyse	Enable
K3	Apply	**Apply**
K2	**Understand**	**Assist**
K1	**Remember**	**Follow**

SFIA Plus

This syllabus has been linked to the SFIA knowledge skills and behaviours required of an individual at level 3;

KSC04

Applying standards, practices, codes, and assessment and certification programmes relevant to the IT industry and the specific organisation or business domain.

Further detail around the SFIA Levels can be found at www.bcs.org/levels.

Learning Outcomes

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

1. An understanding of the impact and level of responsibility of AI in business
2. An understanding of the need to scale up the impact and responsibility of AI to society
3. An understanding of potential harm and safeguards
4. An understanding of the role of humans in an AI world

Syllabus

1. The impact and level of responsibility of AI in business (20%) (K1,K2)

Candidates will be able to:

1.1 Identify the levels of responsibility AI has and explain the impact on the business.

Indicative content

a. High stake and low stake decision making
b. Risk
c. Level of sign off by AI and humans
d. Decision making
e. Changes
f. Staff
g. Process

Guidance

Aim to explore the balance between human and AI responsibilities within an organisation, for example, are tasks or decisions previously undertaken by humans now completed by an AI solution? Consider the level at (or sectors in) which it becomes dangerous or problematic to replace human input, and the impact of this on human workforce.

Candidates will be able to:

1.2 Explain the difficulty with establishing ownership of AI and where the responsibility lies.

Indicative content

a. Owner of the business
b. The user
c. The person who created the AI
d. Contract law
e. Intellectual property

Guidance

This future of this is a somewhat grey area, due to current laws needing a human to have ownership. AI is not a human and therefore ownership is more difficult to understand. This is particularly difficult as decisions made by automated systems can potentially be a risk to life.

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Syllabus

1. The impact and level of responsibility of AI in business (20%) (K1,K2)

Candidates will be able to:

1.3 Explain the need for a business to define appropriate use of AI.

Indicative content

a. Sustainability
b. Ethical behaviour
c. Risk management
d. Culture

Guidance

Consider an organisation which did not define appropriate use of AI, and the potential risks (misuse, unethical practises etc). Explore the need to clearly define the use of AI and the boundaries separating human and AI tasks, as well as guidance on how humans and AI can work together.

Candidates will be able to:

1.4 Determine the need for protecting wider society.

Indicative content

a. Equality
b. Diversity
c. Inclusion
d. Vulnerable persons
e. Consideration in products

Guidance

Explore the need for an organisation to take responsibility for its use of AI, and the impact this has on its employees, customers, and society. Following on from the risks mentioned previously (misuse etc), consider how to protect society from such risks, as well as ensuring AI is used in a manner than drives EDI.

Candidates will be able to:

1.5 Describe the typical roles in implementing and using AI.

Indicative content

a. Project Manager
b. AI Committee
c. Information security
d. AI Expert
e. Business change
f. Data Architect

Guidance

Consider the duties and responsibilities of different AI related roles within an organisation, and how they impact one another. For example, business change colleagues may approve an AI project and work with the elected project manager to determine objectives, which the AI committee will then oversee to ensure these are carried out in an ethical and safe manner.

Syllabus

Candidates will be able to:

2.1 Explain the importance of respecting the concerns of AI in society.

Indicative content

a. Unemployment
b. Wellbeing, e.g. not competing against machines
c. Exclusion
d. Super AI
e. Shared consciousness (see John Searle - Consciousness and Language)
f. Can we define consciousness? (see Prof David Charmers – The Conscious Mind)

Guidance

Candidates should be encouraged to consider the concerns around AI – while considering the current reality of it. Explore the balance required between respecting society's concerns (around jobs, discrimination, AI consciousness) while still progressing in the development of AI.

Candidates will be able to:

2.2 Describe the importance of sustainability and how this relates to AI.

Indicative content

a. Environmental
b. Economic
c. Social
d. Continuing into the future
e. UN Sustainability goals and targets

Guidance

Define sustainability in an organisation (increasing long term value across all areas of the business, including/ considering economic, social, and environmental factors). Consider how AI can contribute to sustainability (including the UN sustainability goals, e.g. quality education, gender equality), for example, can we use AI to improve access to education?

Candidates will be able to:

2.3 Identify the applicable standards and legislation that affect the use and build of AI.

Indicative content

a. EU guidelines on ethics
b. Data guidelines - Data Protection/GDPR
c. CDEI
d. Alan Turing Institute
e. ICO

Guidance

The aim is for candidates to understand the key features of the legal, ethical, and organisational requirements around AI. Although knowledge of the finer detail of the legislation isn't required, candidates are expected to be aware of the existence and key points of the abovementioned legislation.

Syllabus

Candidates will be able to:

3.1 Identify the areas of concern with AI development.

Indicative content

a. Bias
b. Accountability
c. Privacy
d. Poor quality
e. Rogue AI
   Auditability / Transparency
   Ambiguity
   Lack of talent
   Lack of informed decision
   makers

Guidance

Deepening the discussing on societal concerns, consider a range of concerns regarding AI development, and the specifics of what they mean. For example – what are the specific privacy concerns to consider – AI "listening", personal data being exploited etc.

Candidates will be able to:

3.2 Explain how an ethics first culture can reduce concerns in these areas.

Indicative content

a. Alan Turing Institute
b. SUM values
   FAST track principles
   Ethical by design

Guidance

Continuing from the above discussion, explore some of the ways of working that help alleviate these concerns. For example, by applying the FAST principles (fairness, accountability, sustainability, transparency).

Candidates will be able to:

3.3 Describe key aspects of a visible ethical AI Culture.

Indicative content

a. Building culture from the
b. top down and bottom up
c. Ethical principles
d. Whistle blowing
   Accountability
   Professional competence

Guidance

Explore the importance of ethics being a clearly visible part of an organisations approach to everyday activities and the impact this has on employees, customers and stakeholders alike.

Candidates will be able to:

3.4 Explain the role corporate governance has in supporting responsible AI.

Indicative content

a. Collective decision making
b. AI ethics committee

Guidance

Introduce the role of corporate governance and consider what that might include, that has an impact directly on AI. For example, clearly defined roles, tools in place for ongoing monitoring and a support structure should all help to ensure any solution is developed ethically and in line with the project objectives.

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Syllabus

4. The role of humans in an AI world (20%) (K2)

Candidates will be able to:

4.1 Describe the level of responsibility of humans as we move towards a more automated world.

Indicative content	Guidance
a. Government frameworks b. Legal c. Project Managers d. Quality assurance e. Testers	Explore the evolving roles of humans and policy in relation to AI, and how this has changed and continues to change over time. Link back to previous discussions of societal concerns and the need for effective governance and clear responsibilities around AI in an organisation.

Candidates will be able to:

4.2 Recognise how AI allows the human to elevate their position.

Indicative content	Guidance
a. AI takes the heavy lifting to allow humans to move into high value work b. Taking stress away from the human to focus on other tasks	Encourage candidates to reflect on tasks currently performed by AI, and the positive impact this had had on humans. In manufacturing, for example, when many repetitive, manual tasks e.g. production lines are now completed using AI technology. The benefits of freeing humans of such tasks allows for development in other areas – training, learning, devoting time to other areas of the business.

Candidates will be able to:

4.3 Identify the strengths of the human in an AI world.

Indicative content	Guidance
a. Sociability b. Healthier c. Creativity d. Leadership e. Enhances freewill f. Human + machine	The aim here is to reinforce the message that although AI technology is evolving, it is simply not currently capable of performing at a human level. Consider emotion, creativity, empathy, socialising and forming relationships – areas in which humans are simply superior to AI.

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Examination Format

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	16 Multiple Choice questions, 2 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.

Question Weighting

Each major subject heading in this syllabus is assigned a percentage weighting. The purpose of this is:

1. Guidance on the proportion of content allocated to each topic area of an accredited course.
2. Guidance on the proportion of questions in the exam.

Syllabus Area	Question type	
1. The impact and level of responsibility of AI in business	Multiple Choice	**20%**
2. Scaling up the impact and responsibility of AI to society	Multiple Choice	**20%**
3. Potential harm and safeguards	Scenario Based Multiple Choice	**40%**
4. The role of humans in an AI world	Multiple Choice	**20%**
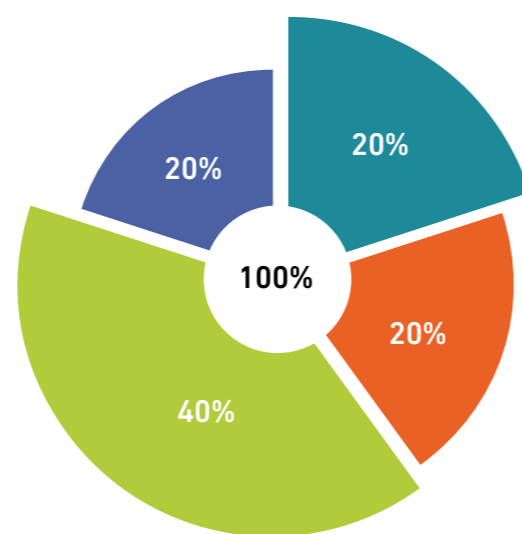
Syllabus Weighting
20% 20% 40% 20%
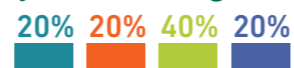
Recommended Reading

The following titles are suggested reading for anyone undertaking this award. Candidates should be encouraged to explore other available sources.

Title:	Consciousness and Language
Author:	John Searle
Publisher:	Cambridge University Press
Publication Date:	January 2010
ISBN:	9780511606366

Title:	The Conscious Mind – In Search of a Fundamental Theory – Philosophy of Mind Series
Author:	David J. Chalmers
Publisher:	Oxford University Press
Publication Date:	March 1998
ISBN:	9780195117899

Title:	#Envision2030: 17 goals to transform the world for persons with disabilities
Author:	United Nations – Department of Economic and Social Affairs
Link:	https://www.un.org/development/desa/disabilities/envision2030.html

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