IfATE
Shaping skills training

Standard Draft Preview

Contents

Standard in development
L7: Actuary
Version 1.2

Title of occupation

Actuary

UOS reference number

ST0502

Core and options

No

Level of occupation

Level 7

Occupational maps data

Route: Legal, finance and accounting
Pathway: Financial
Cluster: Financial services professional

Typical duration of apprenticeship

39 months

Target date for approval

31/01/2025

Resubmission

No

Would your proposed apprenticeship standard replace an existing framework?

No

Does professional recognition exist for the occupation?

Yes

Regulated occupation

Is this a statutory regulated occupation?

Yes

Name of regulator body

Institute and Faculty of Actuaries

The following needs to be approved by the statutory regulator

EPAO

Occupation summary

This occupation is found in the public and private sector. In the private sector an actuary may work in insurance companies such as life, health or general. They may work in financial consultancies, pensions, healthcare, investment and the growing area of financial risk management. In the public sector they are most often to be found in the Government Actuary Department (GAD). In GAD they help government to plan and make decisions.

The broad purpose of the occupation is to use mathematical skills to measure the probability and risk of future events. An Actuary also measures the financial impact on a business and, or, individuals. Actuaries are both problem solvers and strategic thinkers and have a deep understanding of financial systems.

In their daily work an Actuary works as part of a team to analyse data. They build mathematical models to evaluate financial risks and communicate the output to non-specialists.

Insurance company actuaries typically work in areas such as pricing and product development, reserving, capital modelling and risk management. Work for insurance consultancy firms may be in similar areas but more varied on a day-to-day level.

Pensions consultants may advise private and public pension providers and trustees on key matters. These may include the funding levels in their pension schemes and the contributions required to meet future pensions. They may also help their clients understand and manage the risks they face.

An increasing number of actuaries work in less typical fields. They may work in banking, investment management, corporate finance and anywhere financial modelling is deemed useful. Some actuaries work to quantify the risks of climate change and environmental factors.

Actuaries are required to act in the public interest and must therefore maintain the highest standards of professional conduct and competency. They uphold professional standards of ethical behaviour and integrity at all times.

Typical job titles

Actuary | Capital actuary | Climate actuary | Climate change actuary | Environmental, social and governance actuary | Financial actuary | Insurance actuary | Investment actuary | Pensions actuary

Pricing actuary **Reserving actuary** **Risk actuary**

Sustainability actuary

Are there any statutory/regulatory or other typical entry requirements?

Yes

Entry requirements

Whilst any entry requirements will be a matter for individual employers, typically an apprentice will be expected to have already achieved:

- a degree in a numerate subject such as Mathematics, Statistics, Economics, Engineering, Chemistry or Physics; or
- a degree in a non-numerate subject with a Grade B in A-level Mathematics or equivalent; or
- successful completion of a Level 4 Actuarial Technician Apprenticeship, or
- passes from Institute and Faculty of Actuaries exams CM1 and, or, CS1

Occupation duties

DUTY	KSBS
Duty 1 take on actuarial work from stakeholders, gather an understanding of theirs needs and explain the risks and benefits of the options available and next steps.	K5 K6 K7 K8 K13 K16 K19 K20 K21 K22 K23 K24 K25 K26 K27 K28 K29 K30 K31 K32 K33 K34 S4 S5 S6 S8 S9 S10 S14 S15 S16 S17 B2 B3 B4 B5 B6
Duty 2 review and analyse documents and data to identify key facts and evidence and form judgements on the quality of evidence and any gaps or contradictions.	K1 K2 K3 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K17 K18 K19 K20 K24 K25 K26 K28 K31 K32 K33 K34 S1 S2 S3 S4 S5 S6 S7 S8 S10 S11 S12 S13 S15 S16 S17 B2 B3 B4 B5 B6
Duty 3 perform actuarial calculations and build computer models using actuarial techniques.	K1 K2 K3 K4 K6 K7 K8 K11 K12 K13 K14 K15 K28 K33 K34 S1 S2 S3 S4 S5 S6 S10 S11 S12 S13 S17 B2 B3 B4 B5 B6
Duty 4 apply actuarial techniques to solve problems.	K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K20 K21 K22 K23 K24 K25 K26 K27 K28 K29 K30 K31 K32 K33 K34 S1 S2 S3 S4 S5 S6 S7 S8 S10 S11 S12 S13 S14 S15 S16 S17 B2 B3 B4 B5 B6
Duty 5 prepare reports and other communications, including presenting visualisations of data and solutions to clients, colleagues, managers and/or stakeholders.	K9 K10 K13 K14 K16 K26 K28 K31 K32 K33 K34 S7 S10 S12 S13 S14 S15 S16 S17 B2 B3 B4 B5 B6
Duty 6 determine potential risks, measure the probability and the financial impact on stakeholders, and explore ways to reduce them.	K4 K5 K6 K7 K8 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25 K26 K27 K28 K29 K30 K32 K33 K34

	S2 S3 S4 S5 S6 S8 S10 S11 S12 S13 S15 S17 B2 B3 B4 B5 B6
Duty 7 monitor and develop processes and digital systems to ensure they are efficient and compliant with all relevant legal, regulatory and professional requirements.	K3 K6 K7 K9 K13 K15 K16 K17 K18 K19 K20 K23 K24 K25 K26 K27 K28 K29 K30 K33 K34 S2 S3 S4 S5 S6 S7 S9 S10 S11 S12 S17 S18 B2 B3 B4 B5 B6
Duty 8 build and maintain professional relationships with colleagues and clients to enable delivery of actuarial tasks and objectives	K33 K34 S9 S10 S13 S14 S15 S16 S17 B1 B2 B3 B4 B5 B6
Duty 9 provide ethical professional actuarial advice to clients appropriate to their circumstances and objectives in compliance with the Actuaries Code	K27 K33 K34 S9 S10 S14 S15 S16 S17 S18 B1 B2 B3 B4 B5 B6
Duty 10 Maintain professional standards by undertaking continuous professional development activities and keeping abreast of developments in the wider actuarial landscape.	K17 K18 K19 K20 K21 K22 K23 K24 K25 K31 K32 K33 K34 S18 B1 B2 B3 B4 B5 B6

KSBs

Knowledge

K1: the principles of time preference theory of interest and the time value of money, including standard actuarial compound interest rate functions.

K2: the principles of equation of value to evaluate financial problems in particular relating to loan schedules, bond prices, bond yields and project appraisals.

K3: how to model uncertain future cashflows which may be contingent on mortality, morbidity or survival.

K4: the future loss random variable and its application to the calculation of premiums and reserves for conventional life assurance and annuity contracts.

K5: rational economic theory, including utility theory.

K6: the use of models in portfolio selection and asset pricing, including the term structure of interest rates and credit risk.

K7: the use of models in insurance to calculate the probability of ruin and estimate claims.

K8: the construction and evaluation of common forward and option contracts as well as theoretical models for derivatives and option pricing, in particular the theory and application of binomial and Black-Scholes models.

K9: the basic properties and uses of commonly-used probability distributions and the statistical properties of data generated by randomly sampling from a known distribution.

K10: use of statistics to make inferences about the process underlying a data set.

K11: regression theory and its applications, including generalised linear models.

K12: the fundamental concepts of Bayesian statistics.

K13: statistical distributions suitable for modelling the variables and risks that arise within insurance contracts.

K14: time series analysis methods and stochastic processes, including Markov chains and Markov jump processes.

K15: description, estimation and use of statistical survival models for the time until an event occurs.

K16: elementary principles of machine learning.

K17: corporate governance and regulation, including the different objectives and stakeholders that companies might try to satisfy.

K18: different types of corporations, how they are structured and financed and factors which should be considered when deciding on their structure.

K19: the construction and interpretation of company accounts.

K20: economic concepts and models, their use in business, and recent economic and financial history.

K21: microeconomics, including models of consumer choice, the theory of the firm and how these affect business decisions under different conditions.

K22: macroeconomics, including aggregate economic variables and concepts which relate them to government policy, business decision making and financial market variables.

K23: the business environment in which they will be working and the wider actuarial landscape.

K24: how to tackle business-related problems, including approaches to strategic thinking and business decision making and the the evaluation of investment projects in a corporate setting.

K25: the basic legal principles that are relevant to actuarial work and their practical implications.

K26: how to apply the underlying actuarial principles to a range of problems and issues in commercial and business environments.

K27: how to identify, classify, measure and manage risks in a range of commercial situations including use of the Actuarial Control Cycle for risk management.

K28: how to apply mathematical and statistical techniques to a range of problems and issues in commercial and business environments.

K29: how to apply the business finance and economics concepts to a range of problems and issues in commercial and business environments, including the valuation of liabilities.

K30: problem solving in financial services focussing on problems and issues in financial services, with application to wider domains and industries.

K31: the principal terms used in financial services, investments, asset management and risk management.

K32: the various external forces on an organisation and their impact, including climate change and other environmental issues.

K33: the role of professional and ethical standards in an actuary's work.

K34: the role of peer review in professional work.

Skills

S1: apply actuarial principles to real world examples of interest rates, discounting and evaluation of present values of cashflows.

S2: apply the principles of equation of value to evaluate financial problems in particular relating to loan schedules, bond prices, bond yields and project appraisals.

S3: project cashflows to profit test life insurance contracts and apply projected cashflow techniques to pricing and reserving.

S4: apply a range of financial risk measurement tools to evaluate investment opportunities in the context of utility functions.

S5: apply actuarial modelling to real data sets using Excel.

S6: apply mathematical and statistical methods to real data sets using R programming.

S7: produce simple visualisations and statistics from a data set.

S8: interpret company accounts.

S9: work collaboratively with others.

S10: apply the Actuarial Control Cycle for an organisation.

S11: apply the critical steps to check and model data, and analyse the actuarial methods used and outputs generated.

S12: document actuarial work, and create and maintain an audit trail.

S13: communicate to stakeholders, such as colleagues, the approach, results and conclusions of actuarial modelling.

S14: provide written communications of a technical nature to a non-technical audience, using effective structure, appropriate language and appropriate explanation and incorporating effective communication tools.

S15: identify relevant information and appropriate content in order for a communication to meet its objectives.

S16: present the results of actuarial work to informed but non-technical audiences.

S17: analyse and prioritise stakeholder needs when designing actuarial solutions.

S18: apply the concepts of professionalism, awareness of the Actuaries' Code and business ethics to a range of different situations.

Behaviours

B1: take responsibility for personal and professional development and meet the Associate-level Personal and Professional Development requirements of the Institute and Faculty of Actuaries.

B2: act honestly and with integrity.

B3: carry out work competently and with care

B4: impartial, ensures that their professional judgement is not compromised, and cannot reasonably be seen to be compromised, by bias, conflict of interest, or the undue influence of others.

B5: comply with all relevant legal, regulatory, and professional requirements.

B6: ethical, speaking up if they believe, or have reasonable cause to believe, that a course of action is unethical or is unlawful.

Qualifications

English and Maths

Apprentices without level 2 English and maths will need to achieve this level prior to taking the End-Point Assessment. For those with an education, health and care plan or a legacy statement, the apprenticeship's English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

Does the apprenticeship need to include any mandated qualifications in addition to the above-mentioned English and maths qualifications?

Yes

Other mandatory qualifications

Institute and Faculty of Actuaries Associate Qualification

Level: 7 (non-degree qualification)

Additional information: The qualification comprises of modules as follows: Core Principles Subjects:- CS1 Actuarial Statistics- CS2 Risk Modelling and Survival Analysis- CM1 Actuarial Mathematics for modelling- CM2 Economic modelling- CB1 Business Finance- CB2 Business Economics- CB3 Business ManagementCore Practices Subjects- CP1 Actuarial Practice- CP2 Modelling Practice- CP3 Communications Practice

Professional recognition

This standard aligns with the following professional recognition:

- Institute and Faculty of Actuaries for Institute and Faculty of Actuaries for Associate

Regulated standard

This is a regulated occupation.

Regulator body:

Institute and Faculty of Actuaries

Training provider does not require approval by regulator body

EPAO must be approved by regulator body

Consultation

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Progression Routes

Supporting uploads

Mandatory qualification uploads

ST0502_standard_regulatory-requirements-evidence_ifoa-assessment-regulations-february-2024.pdf

Mandated degree evidence uploads

Professional body confirmation uploads

Subject sector area

15.1 Accounting and finance