

ACTUARIAL ASSOCIATION OF EUROPE
CORE SYLLABUS FOR ACTUARIAL TRAINING IN EUROPE
OCTOBER 2018

PART ONE: GUIDELINES TO THE AAE CORE SYLLABUS

Introduction

1. In accordance with Article 5 'Criteria for Full Membership' of the Statutes of the Actuarial Association of Europe (AAE) the following Core Syllabus for Actuarial Training in Europe has been adopted by the General Assembly.
2. The Core Syllabus for Actuarial Training in Europe is presented in Part Two of this document. In part one of the document guidelines for the use of the syllabus are presented.

Mutual Recognition

~~3.1. All Full Membership Associations are bound to the Mutual Recognition Agreement of the AAE.~~

~~4.1. The AAE Core Syllabus should be consistent with the Mutual Recognition Agreement regarding practical experience.~~

Purpose of the Core Syllabus

~~5.3.~~ The purpose of the AAE Core Syllabus is to define a common understanding and to achieve a harmonization of the actuarial education as laid out in the detailed learning areas throughout Full Membership Associations. By that, the Core Syllabus is intended to underpin the Mutual Recognition Agreement and the Statutes of the AAE.

~~6.4.~~ The Core Syllabus defines the minimum education standards defined in Article 5 of the AAE Statutes. All members of the AAE have to comply with these minimum education standards.

~~7.5.~~ It is the responsibility of national associations to have procedures ensuring that those admitted to the level of Full Membership relevant for Mutual Recognition have successfully completed all requirements of the Core Syllabus. At a minimum an association has to provide a mapping of their education program to the syllabus at a topic level and will explain in certain cases when a topic is not covered. The AAE Education Committee will check compliance on a regular basis.

~~8.6.~~ The AAE Core Syllabus does not prescribe an education process, leaving this to every national association. There are many different effective actuarial education and

qualification programs which vary from organization to organization and from country to country.

9-7. The AAE Core Syllabus also provides a tool to new national associations and education providers wishing to develop an actuarial education programme.

Structure of the Syllabus

10-8. The AAE Core Syllabus consists of three sections: basic actuarial education with nine separate learning areas, advanced skills and necessary prerequisites. Each learning area in basic actuarial education contains a number of topics and sub-topics.

11-9. The following criteria are set to ensure appropriate breadth of coverage:

- a. All learning areas in the AAE Core Syllabus must be covered.
- b. Topics and sub-topics within a learning area should be seen as an expression of what one might reasonably expect in coverage on that learning area.
- c. Learning areas/topics/sub-topics do not need to be grouped or packaged in the same manner as in the Core Syllabus.
- d. Some learning areas may be required by an association to be taken as pre-study or prerequisite to actuarial study.
- e. Some learning areas might contain topics that will be covered before starting the formal actuarial education.
- f. Some learning areas might require specific previous knowledge that is not explicitly mentioned in a learning area of the AAE Core Syllabus.
- g. The learning areas should not be treated as being of equal weight when prescribing a full qualification process.
- h. Different associations will give more or less weight to the various topics/sub-topics within each learning area based on the needs for actuaries in the markets that each association services.

12-10. In assessing the depth of coverage of any one learning area there may be some averaging across all topics/sub-topics as depth of treatment of different topics/sub-topics within that learning area may vary. An indication of the depth of each sub-topic is set out with reference to the Bloom's Taxonomy.

13-11. Members of Full Membership Associations need to have a solid mathematical education. To support actuarial associations and educational institutions, the "Foundation Mathematics" section includes various mathematical core topics. The topics listed are to be regarded as an absolute minimum of mathematical education and are therefore a prerequisite to an actuarial qualification route.

14-12. In addition to the nine basic learning areas and the necessary mathematical prerequisite actuarial associations need to include a stage for advanced skills. Included in this stage are subjects and items which are needed for an actuary to demonstrate higher order skills of analysis, evaluation and creation in a certain area of actuarial work. Each actuary is expected to have studied to the appropriate level in at least one area of advanced knowledge.

Depths of coverage

15-13. The AAE Core Syllabus, in accordance with the IAA Education Syllabus, illustrates the depth of knowledge and application by using the Model of Learning Objectives created by Rex Heer, Iowa State University. This Model is based on Bloom's Taxonomy of Education Objectives (1956) and Anderson and Krathwohl's 2001 revision.

16-14. The Model of Learning Objectives uses both a knowledge dimension and a cognitive process dimension as demonstrated in the table below:

Revised Bloom's Taxonomy (RBT)

Cognitive Process Dimension

Verbs → Objects ↓	1. REMEMBER Recognize, Recall	2. UNDERSTAND Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain	3. APPLY Execute, Implement	4. ANALYZE Differentiate, Organize, Attribute	5. EVALUATE Check, Critique	6. CREATE Generate, Plan, Produce
A. Factual Knowledge	A1	A2	A3	A4	A5	A6
B. Conceptual Knowledge	B1	B2	B3	B4	B5	B6
C. Procedural Knowledge	C1	C2	C3	C4	C5	C6
D. Metacognitive Knowledge	D1	D2	D3	D4	D5	D6

17-15. Adopting this model of Learning Objectives accommodates defining both the areas of learning achievement expected of future actuaries and also the specific level and type of knowledge suggested. This framework is widely used and provides associations a way of linking the learning objectives with appropriate learning activities and assessments.

18-16. The model uses four types of knowledge – Factual, Conceptual, Procedural and Metacognitive – and six cognitive processes – Remember, Understand, Apply, Analyze, Evaluate and Create:

- Factual knowledge** generally involves terminology associated with actuarial work and specific details with respect to financial security systems, actuarial models, actuarial methods and the external forces important to actuarial work. Factual knowledge also includes specific details with respect to membership in the actuarial profession.
- Conceptual knowledge** generally involves the interrelationships among current or potential future financial security systems, common actuarial models, common actuarial methods, external forces and the actuary.
- Procedural knowledge** involves how an actuary actually does something. To demonstrate Procedural Knowledge often requires both Factual and Conceptual knowledge. Many practical skills require Procedural knowledge.
- Metacognitive knowledge** involves an actuary's awareness of his/her strengths and weaknesses, including when the actuary is not qualified to do specific work. This knowledge will also include an actuary's awareness of personal learning needs and a lifetime learning strategy. Some normative skills involve acquiring Metacognitive knowledge (e.g. self-knowledge).

19-17. The six categories of the cognitive process include nineteen specific cognitive processes that clarify the scope of the six categories. There is a natural order for cognitive processes from the lowest order thinking skills “Remember”, through “Understand”, “Apply”, “Analyze” and “Evaluate” to the highest cognitive order “Create”. The order does not mean to imply difficulty in succeeding at the cognitive level but rather that the lower cognitive process will be subsumed by another higher cognitive process. For example, you would often need to “Remember” to “Create”.

20-18. A suggested Bloom’s Taxonomy category is included in the AAE Core Syllabus for each sub-topic as an indication of the depth recommended. This is not meant to be prescriptive, but is intended to assist in setting out a guideline for the depth of knowledge and skill needed for an actuary.

19. In addition, and as support for educational institutions, it should be noted that the complete workload of the nine learning areas should not be less than 240 credit points according to ECTS, including a significant number obtained in an advanced study program.

21-20. Several competencies that are laid out in the Learning Objectives might not be obtained only through theoretical studies. Therefore a minimum of two years’ of practical actuarial experience should be required by all Full Membership Association to fulfil the requirements of the Core Syllabus.

Mutual Recognition

21. As laid out in Article 6 of the Statutes of the AAE, Full Member Associations that are subject to certain EU Directives on recognition of qualifications must sign the AAE Mutual Recognition Agreement. All Full Membership Associations are bound to the Mutual Recognition Agreement of the AAE.

The AAE Core Syllabus should be consistent with the Mutual Recognition Agreement regarding practical experience.

Core Syllabus Development

22. There is a commitment to keep this syllabus under review and to update it as appropriate on a regular basis. It is important that the syllabus does not become obsolete over time and prepares actuaries to work in the context of current European legislation.

23. By design the AAE Core Syllabus covers all topics the IAA Education Syllabus.