SRTF response to feedback on the syllabus presented at the IAA Vancouver meetings

Introduction

The Syllabus Review Task Force (SRTF) of the Education Committee has carefully considered all feedback received in response to the draft syllabus presented at the Education Committee meeting in Vancouver. In this document we summarise the main points raised by Full Member Associations (FMAs) in their feedback and describe the changes made to the draft syllabus as a result.

The SRTF proposes that the new syllabus comes into effect for students joining the profession from 1 July 2019. As many of the changes relate to later years of study, this would allow until at least 2021 for associations to fully implement the new syllabus. The Education Committee will then undertake reviews of FMAs' education processes beginning after 31 December 2022. The details of the implementation process will be subject to further consultation and discussion with FMAs and agreement by Council.

The SRTF suggests that FMAs begin planning changes to their education system soon after the IAA meetings in May 2016, subject to Council approval of the syllabus.

Background

The goals of the IAA include the maintenance of a basic education syllabus, which is a requirement in terms of the Full Member Association (FMA) accreditation process. One of the accreditation requirements as a FMA is that:

> *"The Full Member shall require all of its actuaries who are recognized as having attained fully qualified actuarial status on or after January 1, 2006 to successfully complete an education programme compliant with the Education Guidelines and Education Syllabus, as adopted by Council from time to time."*

The IAA is therefore introducing nothing new in terms of compliance with a minimum syllabus for membership requirements, but is updating the syllabus as envisaged in this regulation.

However, the IAA also has a very strong principle of subsidiarity, which is being recognized in the very extensive FMA engagement and consultation process being employed in determining the new syllabus, as well as the degree of flexibility being incorporated in the new syllabus.

This flexibility in the syllabus is also necessary because of the global diversity of the actuarial profession and underlying diversity of legal, regulatory, economic and educational systems among the nations in which actuaries practice.

The IAA education syllabus should be the minimum foundation necessary to ensure that FMAs are in fact professional actuarial associations, and not merely trade associations; as well as having a common core competence among actuaries. This is what we are setting out to achieve with the review of our syllabus.

The current syllabus has remained essentially unchanged for many years, noting the addition of specific reference to risk topics some years ago. As a result, it is certainly outdated. In addition, it does not easily support the measurement of depth of understanding; and it does

not focus materially on the newer analytical methods that many FMAs believe will be needed to support entrants to the profession from 2020 onwards. By contrast, the proposed new syllabus is deliberately modern and addresses all these issues

Main points raised in feedback and actions taken in response

1) The level of detail in the syllabus places too many constraints on the ability of FMAs to tailor their education system to their local market and professional needs.

The SRTF accepts the validity and importance of this point, which was made by a number of FMAs. In response, the new syllabus (after the Vancouver meeting) incorporates a significant degree of flexibility in the coverage required. Learning Areas have been split into Core and Supporting (see the Syllabus Preamble for more detail) and the proposed level of flexibility is greater for Supporting Learning Areas than for those in the Core.

The indicative figures for relative coverage of each Learning Area objective have also been removed from the syllabus so that FMAs can determine the balance of coverage required to support learning at the cognitive levels specified.

2) The syllabus does not place enough emphasis on the main current areas of actuarial work, especially insurance and pensions.

The SRTF had designed a syllabus with the intention of providing a foundation set of actuarial tools that could be used in a wide range of application areas. FMAs can teach these tools in a context focussed on insurance or any other application area they chose.

However, the SRTF accepts the comments that users of an *actuarial* syllabus expect to see more recognition of the main areas of actuarial application and so have changed a number of objectives to emphasise application in insurance and pensions. We would also point out the importance of the Financial Systems Learning Area which contains several objectives requiring students to understand operating models for insurance companies and pension funds, their role in financial markets, and the products offered by these and other financial institutions.

The word “Actuarial” has also been added to the title of some of the Learning Areas to emphasize that this is an actuarial syllabus, not a generic applied mathematics or finance syllabus.

3) The relative weighting given to liabilities is too low compared with assets and other financial topics.

The SRTF views this comment as closely related to the comment above about insurance and pensions and it should therefore largely be addressed by the response to point 2. We would also point out that many of the mathematical techniques covered by the Learning Areas of Statistics, Actuarial Modelling and Data & Systems are largely applicable to the modelling of liabilities, while Actuarial Risk Management, Finance and Economics have applications to both the asset and liability side of the balance sheet.

4) **The inclusion of communications and some of the other aspects of Personal & Actuarial Professional Practice are at a higher level than required for a newly-qualified actuary, and are difficult to include in some university based education systems.**

A number of changes have been made to the Personal & Professional Actuarial Practice area to ensure it is at an appropriate level for a newly qualified actuary. In particular, the communications, problem solving and decision making sections are new to the syllabus, although the current syllabus does note the importance of communication skills.

Some feedback has suggested that these are areas covered in more generic business courses, and are also focused on people leadership positions. However, it should be noted that these capabilities are encompassed in the IAAs Principles of Professionalism, and a number of users of actuarial services have indicated that they desire all actuaries possess these skills. Finally, recent research in professional education has indicated the desirability that all professionals possess these skills in order to deliver their technical training to users of professional services. The SRTF believes these are skills all actuaries should have, even if they are in primarily technical roles. The expectation would not be that the newly qualified actuary is able to do a brilliant speech to a large audience, but that they are able to communicate, especially in writing, technical concepts to a non-technical audience.

The SRTF recognises that where education systems are based in mathematically focused university departments it may initially appear difficult to include these elements. However, most if not all, university courses now include projects and group work which are designed to help students develop many of the skills in this Learning Area, while at the same time reinforcing their learning of the technical content. The preparation and presentation of a dissertation or thesis can fulfil the same function. Some of the other skills are more easily developed in the working environment and the Education Committee recognises that work-based assessment or other non-exam assessments may be more appropriate for such skills.

Finally, given the level of flexibility indicated in 1) above, Full Member Associations would be able to adapt these topics to their local needs and even omit some which they feel are difficult to implement, or not locally relevant.

5) **The level of mathematics required is lower than under the existing syllabus and in general too low for an actuarial qualification.**

From the discussions at Vancouver it would appear that the inclusion of Foundation Mathematics has given the impression that the contents of this Learning Area defined the level of mathematics expected under the whole syllabus. In fact, the SRTF intended this to be an indication of the level of mathematics required of a student starting to study actuarial science and certainly acknowledges that a much greater level of mathematics will have to be acquired during the course of study to become an actuary. This is stated in Section 3 of the Syllabus Preamble and, to emphasize that it is an indication of the entry level, the SRTF has moved Foundation Mathematics out of the main syllabus to an Appendix. We have also noted that it would be advantageous for students to have a stronger mathematical background than indicated by the Foundation Mathematics topics.

Finally, it should be noted that with one or two exceptions, all the topics in the existing syllabus are covered in the new syllabus. A mapping between the content of the existing and new syllabuses was published before the Vancouver meeting.

6) Machine Learning techniques are not required by most actuaries.

Some FMAs commented that Machine Learning techniques are a specialist area and have not yet been widely adopted in core actuarial work. The point was also made that some such techniques are “black box” in nature and therefore undesirable.

The SRTF believes that machine learning techniques are already employed quite widely by actuarial employers, and the pace with which they are being adopted for predictive analysis of data makes it inevitable they will have an impact on many more aspects of actuarial work over the next few years. It is therefore important that all actuaries have some understanding of what these techniques entail and **particularly** an understanding of the methods developed by the machine learning community to test and validate “black box” models.

To emphasise continuity with the skill set actuaries have used for many years the SRTF has renamed this section **Statistical Learning**.