

Arsuaga, Ainara¹, De La Peña, J. Iñaki², Garayeta, Asier³,
Gómez-Cacho, Olga⁴, Moreno, Rafael⁵, Trigo, Eduardo⁶

^{1,2,3} Dpto. Economía Financiera I, Facultad de Economía y Empresa, Universidad del País Vasco/Euskal Herriko Unibertsitatea
^{4,5,6} Dpto. Finanzas y Contabilidad, Facultad de Ciencias Económicas y Empresariales, Universidad de Málaga
¹ ainara.arsuaga@ehu.es, ² jinaki.delapena@ehu.es, ³ asier.garayeta@ehu.es, ⁴ ogp@uma.es, ⁵ moreno@uma.es, ⁶ trigom@uma.es

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INTRODUCTION

The actuarial profession has a long history and is internationally recognised. In the European Union (EU), it can be a regulated profession, with one or more activity reserves and accessed by means of a protected qualification [1], [2].

International actuarial associations (IAA, AAE) design, revise and update the *Syllabus* [3], [4] which guarantee professional competences. IAE actively participates in this work and validates compliance among its members.

Figure 1: International Actuarial Association (IAA)



Figure 2: Actuarial Association of Europe (AAE)



Figure 3: Instituto de Actuarios Españoles (IAE)



METHODOLOGY

We analyse:

- AAE Syllabus [4].

Table 1: AAE Syllabus. Number of Areas and Sub-Areas

Areas	No. Sub-Areas	No. Sub-Sub-Areas
I. Statistics	7	31
II. Economics	3	31
III. Finance	4	24
IV. Financial Systems	4	12
V. Assets	4	18
VI. Data Systems	5	22
VII. Actuarial Models	6	34
VIII. Actuarial Risk Management	5	26
IX. Personal and Actuarial Professional Practice	5	37
TOTAL	43	235

Source: Own work based on AAE Syllabus [4]

We start from Bloom's taxonomy [5], [6], which is reformulated [7] to get at six levels: remembering, understanding, applying, analysing, evaluating and creating.

Most current university degrees develop their competences with this taxonomy [8].

- **Activity regulation.** Actuarial profession has activity reserves in most EU countries [2], [9], [10] and, in Spain, in the following areas:

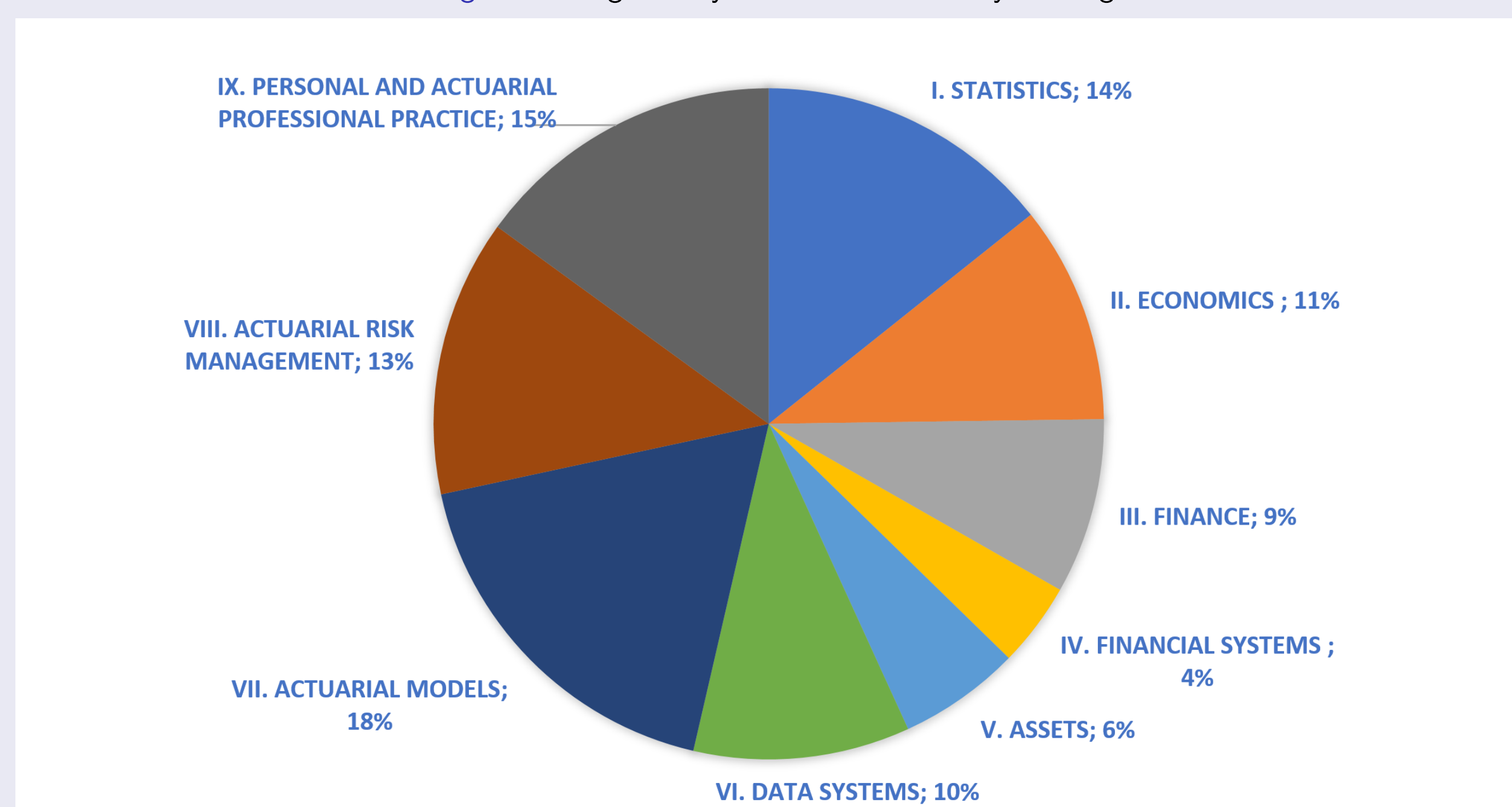
- Insurance and Solvency II [11]–[14].
- Complementary social welfare [15], [16].
- Actuarial valuations of traffic accident injuries [17].

Moreover, there are the following bodies of civil servants:

- Cuerpo Superior de Actuarios, Estadísticos y Economistas de la Administración de la Seguridad Social.
- Cuerpo Superior de Inspectores de Seguros del Estado.

APPLICATION OF THE EUROPEAN SYLLABUS [4] IN SPAIN

Figure 4: Weight of Syllabus areas in actuarial training



Source: Own work

APPLICATION OF THE EUROPEAN SYLLABUS [4] IN SPAIN

For contents of the topics and/or courses of the Máster en Ciencias Actuariales y Financieras (MACF), we determine:

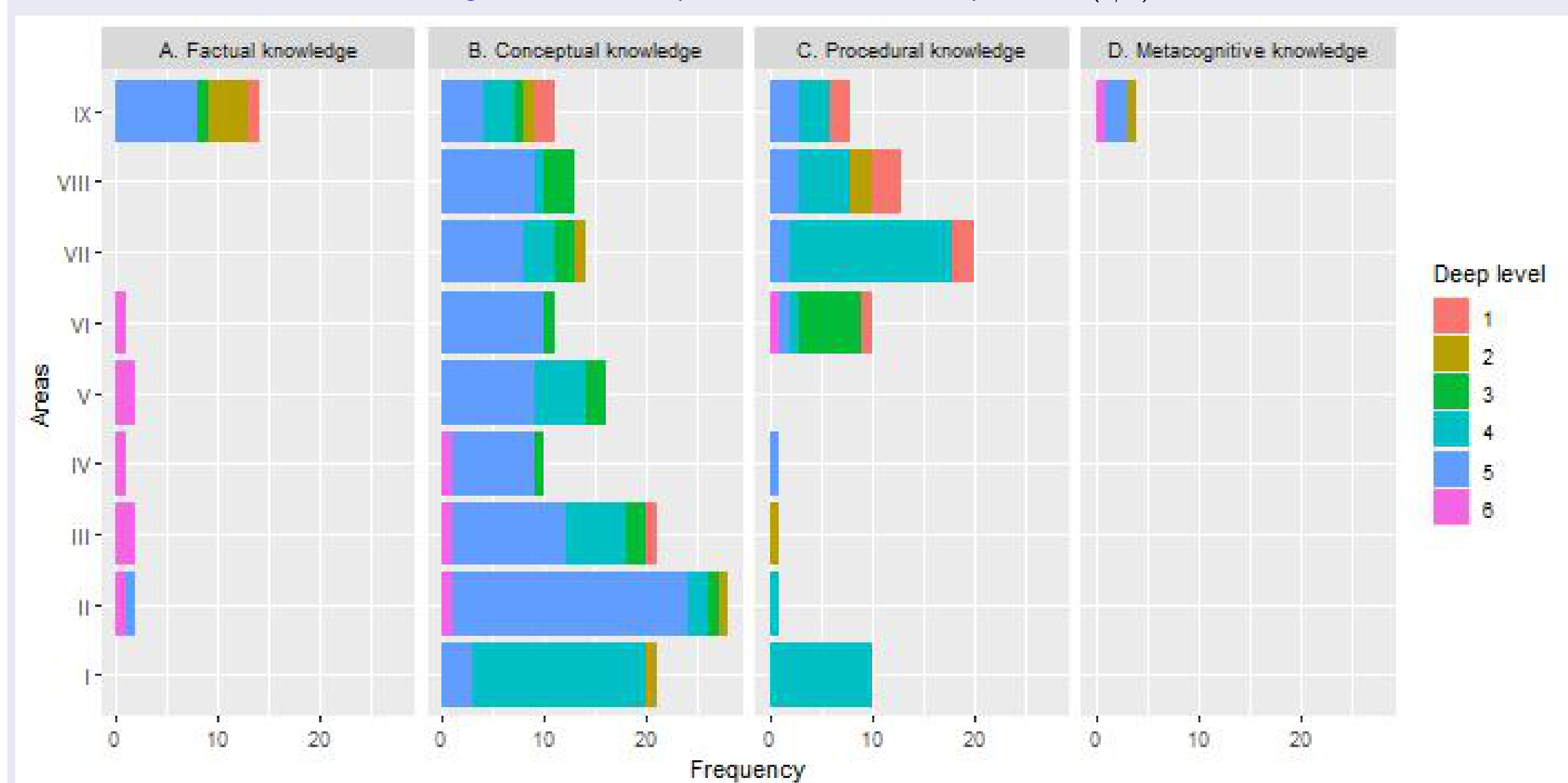
- Type of conceptual development: Factual knowledge (A), Conceptual knowledge (B), Procedural knowledge (C), Metacognitive knowledge (D).
- Degree of depth: Remember (1) Understand (2) Apply (3) Analyze (4) Evaluate (5) Create (6).

The result of this analysis are the frequencies of the degree of depth (1-6) and the type of conceptual development (A-D) of actuarial training.

Frequencies make it possible to determine the level of demand for actuarial training (figures 5-6) [18]. These figures show that the aim of the Syllabus [4] is to provide practical professional training which allows immediate insertion of graduates in the professional field.

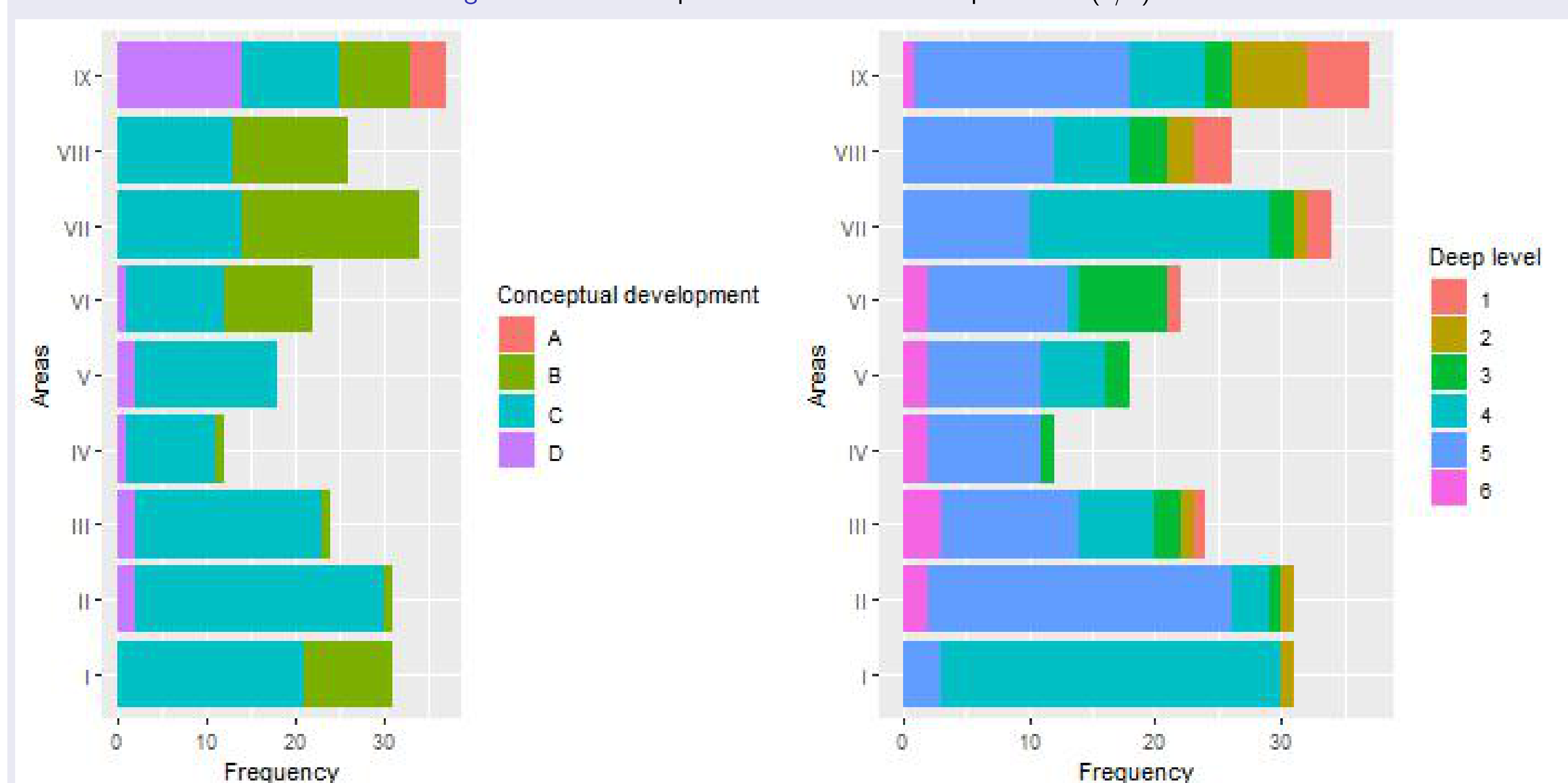
The contents can be assigned to each of areas established by Syllabus [4], which makes it possible to determine the weight that each area has in the actuary's training (Figure 4).

Figure 5: Level of requirement of the actuarial profession (1/2)



Source: Own work

Figure 6: Level of requirement of the actuarial profession (2/2)



Source: Own work

CONCLUSIONS AND COMMENTS

After analysis of the Syllabus [4] and training needs arising from Spanish legislation, actuary's training:

- Requires globally at least 240 ECTS, a significant number of which are obtained by a master degree (MCAF).
- Is divided into three parts:
 - Educational prerequisites.
 - Basic actuarial education.
 - Advanced skills and competences derived from national regulation.
- Must provide the competences and skills required for fulfillment of activity reserves in the regulation [4].

Professional orientation (professionalism) of actuarial training requires a design which meets with these characteristics. Moreover, it requires a system of quality assurance on the professional profile of actuary with instruments that provide evidences that the professional competences are the required ones by the bodies. This system must assess the fulfillment of the competences.

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