Appendix I

Questionnaires used

Questionnaire on generic skills

Questionnaire for Graduates

This questionnaire presents a series of questions related to the *skills and competences* that may be important for success in your career. Please answer all the questions. The answers may be very valuable in improving course planning for future students of your degree subject. Please circle the best option in each case.

Many thanks for your co-operation

1. Age in years: . . . . . .
2. Sex:
   1. Male ☐
   2. Female ☐
3. Year in which you graduated: . . . . . .
4. Title of your first degree (in the national language): . . . . . .
5. Present employment situation:
   1. Working in a position related to your degree ☐
   2. Working in a position not related to your degree ☐
   3. Further study ☐
   4. Looking for your first job ☐
   5. Unemployed, but have previously been employed ☐
   6. Neither employed nor looking for employment ☐
   7. Other (please specify): . . . . . .

6. Do you feel that the education you have received at the university has been adequate?

   1. Very much ☐
   2. Much ☐
   3. Some ☐
   4. Little ☐
   5. Very little ☐

7. How would you rate the employment potential of your degree?

   1. Very poor ☐
   2. Poor ☐
   3. Fair ☐
   4. Good ☐
   5. Very Good ☐

For each of the skills listed below, please estimate:

—the **importance** of the skill or competence, in your opinion, for work in your profession;
—the **level** to which each skill or competence is developed by your degree programme at your university.

The blank spaces may be used to indicate any other skills that you consider important but which do not appear on the list.

Please use the following scale:
1 = none; 2 = weak; 3 = considerable; 4 = strong.

Questionnaire for Employers

This questionnaire presents a series of questions related to the *skills and competences* that may be important for success in the career of (**include here the area).** Please answer all the questions. The answers will be very valuable in improving the planning of courses for future students of this subject.

Many thanks for your co-operation

1. Name of the organization: . . . . . .
2. Position of the person answering: . . . . . .
3. Number of employees: . . . . . .
4. Do you consider that university has given your (**include here the area)** employees adequate preparation for working in your company?

   1. Very much ☐
   2. Much ☐
   3. Some ☐
   4. Little ☐
   5. Very little ☐

For each of the skills listed below, please estimate:

— the **importance** of the skill or competence, in your opinion, for work in your organization;
— the **level** to which each skill or competence is developed by degree programmes at university in (include name of area).

The blank space may be used to indicate any other skills that you consider important but which do not appear on the list.

Please use the following scale:
1 = none; 2 = weak; 3 = considerable; 4 = strong.

Skill/Competence	Importance	Level to which developed by University Degree
1. Capacity for analysis and synthesis	1 2 3 4	1 2 3 4
2. Capacity for applying knowledge in practice	1 2 3 4	1 2 3 4
3. Planning and time management	1 2 3 4	1 2 3 4
4. Basic general knowledge in the field of study	1 2 3 4	1 2 3 4
5. Grounding in basic knowledge of the profession in practice	1 2 3 4	1 2 3 4
6. Oral and written communication in your native language	1 2 3 4	1 2 3 4
7. Knowledge of a second language	1 2 3 4	1 2 3 4
8. Elementary computing skills	1 2 3 4	1 2 3 4
9. Research skills	1 2 3 4	1 2 3 4
10. Capacity to learn	1 2 3 4	1 2 3 4
11. Information management skills (ability to retrieve and analyse information from different sources)	1 2 3 4	1 2 3 4
12. Critical and self-critical abilities	1 2 3 4	1 2 3 4
13. Capacity to adapt to new situations	1 2 3 4	1 2 3 4
14. Capacity for generating new ideas (creativity)	1 2 3 4	1 2 3 4
15. Problem solving	1 2 3 4	1 2 3 4
16. Decision-making	1 2 3 4	1 2 3 4
17. Teamwork	1 2 3 4	1 2 3 4
18. Interpersonal skills	1 2 3 4	1 2 3 4
19. Leadership	1 2 3 4	1 2 3 4
20. Ability to work in an interdisciplinary team	1 2 3 4	1 2 3 4

Skill/Competence	Importance	Level to which developed by University Degree
21. Ability to communicate with non-experts (in the field)	1 2 3 4	1 2 3 4
22. Appreciation of diversity and multiculturality	1 2 3 4	1 2 3 4
23. Ability to work in an international context	1 2 3 4	1 2 3 4
24. Understanding of cultures and customs of other countries	1 2 3 4	1 2 3 4
25. Ability to work autonomously	1 2 3 4	1 2 3 4
26. Project design and management	1 2 3 4	1 2 3 4
27. Initiative and entrepreneurial spirit	1 2 3 4	1 2 3 4
28. Ethical commitment	1 2 3 4	1 2 3 4
29. Concern for quality	1 2 3 4	1 2 3 4
30. Will to succeed	1 2 3 4	1 2 3 4
31.	1 2 3 4	1 2 3 4
32.	1 2 3 4	1 2 3 4
33.	1 2 3 4	1 2 3 4

Please rank below **the five most important competences** according to your opinion. Please write the number of the item within the box. Mark on the first box the most important, on the second box the second most important and so on.

1. **Item number** ☐
2. **Item number** ☐
3. **Item number** ☐
4. **Item number** ☐
5. **Item number** ☐

Many thanks for your co-operation

Questionnaire for academics

Ranking of Generic Competences

Listed below are the 17 competences that have been considered as most important for the professional development of university graduates, both by graduates and by the companies that employ them.

Please rank these 17 competences in order of importance according to your opinion. (1 being the most and 17 the least important).

It is vital that you rank ALL 17 and that you **do not give any competences equal ranking.**

General Competences	Ranking
1. Ability to work in an interdisciplinary team	
2. Appreciation of diversity and multiculturality	
3. Basic knowledge of the field of study	
4. Basic knowledge of the profession	
5. Capacity for analysis and synthesis	
6. Capacity for applying knowledge in practice	
7. Capacity for generating new ideas (creativity)	
8. Capacity to adapt to new situations	
9. Capacity to learn	
10. Critical and self-critical abilities	
11. Decision-making	
12. Elementary computing skills (word processing, database, other utilities)	
13. Ethical commitment	
14. Interpersonal skills	
15. Knowledge of a second language	
16. Oral and written communication in your native language	
17. Research skills	

Introduction to questionnaire on the evaluation of the importance of specific competences (for each group)

Below are presented a series of competences specific to your area. For each of them we would ask you to do two things:

a. Indicate how important you think it is that a student should acquire the competence in his/her education **for the First Cycle**. Please use the values 1 to 4 according to the following key: 1 = None, 2 = Weak, 3 = Considerable, 4 = Strong. Please, **select the option** in the corresponding box using the mouse of your computer.
b. Indicate how important you think it is that a student should acquire the competence in his/her education **for the Second Cycle**. Please use the values 1 to 4 according to the following key: 1 = None, 2 = Weak, 3 = Considerable, 4 = Strong. Please, **select the option** in the corresponding box using the mouse of your computer.

Business

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
1. Ability to analyse and stucture a problem of an enterprise and design a solution (i.e. entering a new market)	------	------
2. Audit an organisation and design consultancy plans (i.e. tax law, investment, case studies, project work)	------	------
3. Define criteria according to which an enterprise is defined and link the results with the analysis of the environment to identify perspectives (i.e. SWOT, internal and external value chain)	------	------
4. Identify and operate adequate software	------	------
5. Design and implement information systems	------	------
6. Identify and use adequate tools (i.e. market research, statistical analysis, comparative ratios)	------	------
7. Identify related issues such as culture and ethics and understand their impact on business organisations	------	------
8. Identify the constitutional characteristics of an organisation (i.e. goals and objectives, ownerhsip, size, structure)	------	------
9. Identify the functional areas of an organisation and their relations (i.e. purchasing, production, logistics, marketing, finance, human ressource)	------	------
10. Identify the impact of macro- and microeconomic elements on business organisations (i.e. financial and monetary systems, internal markets)	------	------
11. Learn-to-learn, i.e. how, when, where - new personal developments is needed (i.e. rhetorics, presentation, working in teams, personal management)	------	------
12. Change management	------	------
13. Managing a company by planning and controlling by use concepts, methods and tools (i.e. strategy design and implementation, benchmarking, TQM, etc.)	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
14. On the basis of knowledge acquired in university, identify the impact of culture on business operations. (i.e. the possibility of seeling beer wordwide)	------	------
15. Understand details of business functions, business enterprises, geographic regions, size of enterprises, business sectors and link them with the basic knowledge and theories	------	------
16. Understand existent and new technology and its impact for new / future markets	------	------
17. Understand the principles of engineering and link them with business / management knowledge (i.e. operations management, gantt chart, information technology)	------	------
18. Understand the principles of ethics, identify the implications for business organisations, design scenario (i.e. exploitation of human resources, environment)	------	------
19. Understand the principles of Law and link them with business / management knowledge (i.e. competition law, taxation laws etc.)	------	------
20. Understand the principles of psychology, identify the implications for business organisations, and redesign (i.e. working in groups, teams, behavioural studies)	------	------
21. Understand the structure of the foreign language, and develop a vocabulary allowing to work i.e. in English as a foreign language	------	------
22. Understand und use bookkeeping and financial systems (i.e. profit and loss account, balance sheet)	------	------
23. Understanding, reading, speaking, writing in a foreign language (i.e. working in English as a foreign language)	------	------
24. Use the respective instruments for business environment analysis (i.e. industry analysis, market analysis, PEST)	------	------
25. Work assignments abroad (i.e. work experience in an enterprise for 20 weeks abroad)	------	------
26. Other (specify)	------	------
27. Other (specify)	------	------
28. Other (specify)	------	------

Chemistry

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
1. Ability to apply chemistry knowledge and understanding to the solution of qualitative and quantitative problems of an unfamiliar nature	------	------
2. Ability to apply such knowledge and understanding to the solution of qualitative and quantitative problems of a familiar nature	------	------
3. Ability to conduct risk assessments concerning the use of chemical substances and laboratory procedures	------	------
4. Ability to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the subject areas identified above	------	------
5. Ability to interpret data derived from laboratory observations and measurements in terms of their significance and relate them to appropiate theory	------	------
6. Ability to recognise and analyse novel problems and plans strategies for their solution	------	------
7. Ability to recognise and implement good measurement science and practice	------	------
8. An in-depth knowledge and understanding of an specific area of chemistry	------	------
9. Awareness of major issues at the frontiers of chemical research and development	------	------
10. Communication skills, covering both written and oral communciation, in at least two of the official European languages	------	------
11. Competence in the planning, design and execution of practical investigations, from the problem recognition stage through to the evaluation and appraisal of results and findings; this to include the ability to select appropiate techniques and procedures	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
12. Computational and data-processing skills, relating to chemical information and data	------	------
13. Information-retrieval skills, in relation to primary and secondary information sources, including information retrieval through on-line computer searches	------	------
14. Information-technology skills such as word-processing and spreadsheet use, data-logging and storage	------	------
15. Internet communication, etc.	------	------
16. Interpersonal skills,relating to the ability to interact with other people and to engage in team-working	------	------
17. Major aspects of chemical terminology, nomenclature, conventions and units	------	------
18. Major synthetic pathways in organic chemistry, involving functional group interconversions and carbon-carbon and carbon-heteroatom bond information	------	------
19. Numeracy and calculation skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units	------	------
20. Problem-solving skills, relating to qualitative and quantitative information	------	------
21. Skills in presenting scientific material and arguments in writing and orally, to an informed audience	------	------
22. Skills in the evaluation, interpretation and synthesis of chemical information and data	------	------
23. Skills in the monitoring, by observation and measurement, of chemical properties, events or changes, and the systematic and reliable recording and documentation thereof	------	------
24. Skills in the safe handling of chemical materials, taking into account their physical and chemical properties, including any specific hazards asociated with their use	------	------
25. Skills required for the conduct of standard laboratory procedures involved and use of instrumentation in synthetic and analytical work, in relation to both organic and inorganic systems	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
26. Study skills needed for continuing professional development	------	------
27. The characteristics properties of elements and their compounds, including group relationships and trends within the Periodic Table	------	------
28. The characteristics of the different states of matter and the theories used to describe them	------	------
29. The kinetics of chemical change, including catalysis; the mechanistic interpretation of chemical reactions	------	------
30. The major types of chemical reaction and the main characteristics associated with them	------	------
31. The nature and behaviour of functional groups in organic molecules	------	------
32. The principal techniques of structural investigations, including spectroscopy	------	------
33. The principles and procedures used in chemical analysis and the characterisation of chemical compounds	------	------
34. The principles of quantum mechanics and their application to the description of the structure and properties of atoms and molecules	------	------
35. The principles of thermodynamics and their applications to chemistry	------	------
36. The properties of aliphatic, aromatic, heterocyclic and organometallic compounds	------	------
37. The relation between bulk properties and the properties of individual atoms and molecules, including macromolecules	------	------
38. The structural features of chemical elements and their compounds, including stereochemistry	------	------
39. Other (specify)	------	------
40. Other (specify)	------	------
41. Other (specify)	------	------

Education

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
Subject-specific competences in educational sciencies		
1. Ability to analyse educational concepts, theories and issues of policy in a systematic way	------	------
2. Ability to identify potential connections between aspects of subject knowledge and their application in educational policies and contexts	------	------
3. Ability to reflect on one's own value system	------	------
4. Ability to question concepts and theories encountered in education studies	------	------
5. Ability to recognise the diversity of learners and the complexities of the learning process	------	------
6. Awareness of the different contexts in which learning can take place	------	------
7. Awareness of the different roles of participants in the learning process	------	------
8. Understanding of the structures and purposes of educational systems	------	------
9. Ability to do educational research in different contexts	------	------
10. Counselling skills	------	------
11. Ability to manage projects for school improvement/ development	------	------
12. Ability to manage educational programmes	------	------
13. Ability to evaluate educational programmes/materials	------	------
14. Ability to foresee new educational needs and demands	------	------
15. Ability to lead or coordinate multidisciplinary educational teams	------	------

Specific Competences	Importance for First Cycle None Weak Considerable Strong 1 2 3 4	Importance for Second Cycle None Weak Considerable Strong 1 2 3 4
16. Other (specify)	------	------
17. Other (specify)	------	------
18. Other (specify)	------	------
Subject-specific competences in teacher sciencies	------	------
1. Commitment to learners' progress and achievement	------	------
2. Competence in a number of teaching/learning strategies	------	------
3. Competence in counselling learners and parents	------	------
4. Knowledge of the subject to be taught	------	------
5. Ability to communicate effectively with groups and individuals	------	------
6. Ability to create a climate conducive to learning	------	------
7. Ability to make use of e-learning and to integrate it into the learning environments	------	------
8. Ability to manage time effectively	------	------
9. Ability to reflect upon and evaluate one's own performance	------	------
10. Awareness of the need for continuous professional development	------	------
11. Ability to assess the outcomes of learning and learners' achievements	------	------
12. Competence in collaborative problem solving	------	------
13. Ability to respond to the diverse needs of learners	------	------
14. Ability to improve the teaching/learning environment	------	------
15. Ability to adjust the curriculum to a specific educational context	------	------
16. Other (specify)	------	------
17. Other (specify)	------	------
18. Other (specify)	------	------

Geology

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
1. Analysing, synthesising and summarising information critically, including prior research	------	------
2. Applying knowledge and understanding to address familiar and unfamiliar problems	------	------
3. Appreciating issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory	------	------
4. Collecting and integrating several lines of evidence to formulate and test hypotheses	------	------
5. Collecting, recording and analysing data using appropriate techniques in the field and laboratory	------	------
6. Communicating appropriately to a variety of audiences in written, verbal and graphical forms.	------	------
7. Developing an adaptable and flexible approach to study and work	------	------
8. Developing the skills necessary for self-managed and lifelong learning (eg working independently, time management and organisation skills)	------	------
9. Evaluating performance as an individual and a team member	------	------
10. Identifying and working towards targets for personal, academic and career development	------	------
11. Identifying individual and collective goals and responsibilities and performing in a manner appropriate to these roles	------	------
12. Planning, conducting, and reporting on investigations, including the use of secondary data	------	------
13. Preparing, processing, interpreting and presenting data, using appropriate qualitative and quantitative techniques and packages	------	------

Specific Competences	Importance for First Cycle None Weak Considerable Strong 1 2 3 4	Importance for Second Cycle None Weak Considerable Strong 1 2 3 4
14. Receiving and responding to a variety of information sources (eg textual, numerical, verbal, graphical)	------	------
15. Recognising and respecting the views and opinions of other team members	------	------
16. Recognising and using subject-specific theories, paradigms, concepts and principles	------	------
17. Recognising the moral and ethical issues of investigations and appreciating the need for professional codes of conduct	------	------
18. Referencing work in an appropriate manner		
19. Solving numerical problems using computer and non-computer based techniques	------	------
20. Undertaking field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations, and sensitivity to the impact of investigations on the environment and stakeholders	------	------
21. Using the Internet critically as a means of communication and a source of information	------	------
22. Other (specify)	------	------
23. Other (specify)	------	------
24. Other (specify)	------	------

History

Questionnaire for academics

Specific Competences	History Degree		Import. in courses offered to students of other subject of areas None Weak Consider. Strong 1 2 3 4	Import. in degrees in which History studies have a relevant part None Weak Consider. Strong 1 2 3 4
	Import. for First Cycle None Weak Consider. Strong 1 2 3 4	**Import. for Second Cycle** None Weak Consider. Strong 1 2 3 4		
25. A critical awareness of the relationship between current events and processes and the past	------	------	------	------
26. Ability to comment, annotate or edit texts and documents correctly according to the critical canons of the discipline	------	------	------	------
27. Ability to communicate orally in foreign languages using the terminology and techniques accepted in the historiographical profession	------	------	------	------
28. Ability to communicate orally in one's own language using the terminology and techniques accepted in the historiographical profession	------	------	------	------
29. Ability to define research topics suitable to contribute to historiographical knowledge and debate	------	------	------	------
30. Ability to give narrative form to research results according to the canons of the discipline	------	------	------	------
31. Ability to identify and utilise appropriately sources of information (bibliography, documents, oral testimony etc.) for research project	------	------	------	------
32. Ability to organise complex historical information in coherent form	------	------	------	------
33. Ability to read historiographical texts or original documents in one's own language; to summarise or transcribe and catalogue information as appropriate	------	------	------	------

Specific Competences	History Degree		Import. in courses offered to students of other subject of areas None Weak Consider. Strong 1 2 3 4	Import. in degrees in which History studies have a relevant part None Weak Consider. Strong 1 2 3 4
	Import. for First Cycle None Weak Consider. Strong 1 2 3 4	Import. for Second Cycle None Weak Consider. Strong 1 2 3 4		
34. Ability to read historiographical texts or original documents in other languages; to summarise or transcribe and catalogue information as appropriate	------	------	------	------
35. Ability to use computer and internet resources and techniques elaborating historical or related data (using statistical, cartographic methods, or creating databases, etc.)	------	------	------	------
36. Ability to write in one's own language using correctly the various types of historiographical writing	------	------	------	------
37. Ability to write in other languages using correctly the various types of historiographical writing	------	------	------	------
38. Awareness of and ability to use tools of other human sciences (e.g., literary criticism, and history of language, art history, archaeology, anthropology, law, sociology, philosophy etc.)	------	------	------	------
39. Awareness of and respect for points of view deriving from other national or cultural backgrounds	------	------	------	------
40. Awareness of methods and issues of different branches of historical research (economic, social, political, gender related, etc.)	------	------	------	------
41. Awareness of the differences in historiographical outlooks in various periods and contexts	------	------	------	------
42. Awareness of the issues and themes of present day historiographical debate	------	------	------	------

Specific Competences	History Degree		Import. in courses offered to students of other subject of areas None Weak Consider. Strong 1 2 3 4	Import. in degrees in which History studies have a relevant part None Weak Consider. Strong 1 2 3 4
	Import. for First Cycle None Weak Consider. Strong 1 2 3 4	Import. for Second Cycle None Weak Consider. Strong 1 2 3 4		
43. Awareness of the on-going nature of historical research and debate	------	------	------	------
44. Detailed knowledge of one or more specific periods of the human past	------	------	------	------
45. Knowledge of ancient languages				
46. Knowledge of and ability to use information retrieval tools, such as bibliographical repertoires, archival inventories, e-references	------	------	------	------
47. Knowledge of and ability to use the specific tools necessary to study documents of particular periods (e.g. palaeography, epigraphy)	------	------	------	------
48. Knowledge of didactics of history	------	------	------	------
49. Knowledge of European history in a comparative perspective	------	------	------	------
50. Knowledge of local history	------	------	------	------
51. Knowledge of one's own national history	------	------	------	------
52. Knowledge of the general diachronic framework of the past	------	------	------	------
53. Knowledge of the history of European integration	------	------	------	------
54. Knowledge of world history	------	------	------	------
55. Other (specify)	------	------	------	------
56. Other (specify)	------	------	------	------
57. Other (specify)	------	------	------	------

Mathematics

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
1. Profound knowledge of «elementary» mathematics (such as may be covered in secondary education)	------	------
2. Ability to construct and develop logical mathematical arguments with clear identification of assumptions and conclusions	------	------
3. Facility with abstraction including the logical development of formal theories and the relationships between them	------	------
4. Ability to model mathematically a situation from the real world and to transfer mathematical expertise to non mathematical contexts	------	------
5. Readiness to address new problems from new areas	------	------
6. Capacity for quantitative thinking	------	------
7. Ability to extract qualitative information from quantitative data	------	------
8. Ability to comprehend problems and abstract their essentials	------	------
9. Ability to formulate problems mathematically and in symbolic form so as to facilitate their analysis and solution	------	------
10. Ability to design experimental and observational studies and analyse data resulting from them	------	------
11. Ability to formulate complex problems of optimisation and decision making and to interpret the solutions in the original contexts of the problems	------	------
12. Ability to use computational tools as an aid to mathematical processes and for acquiring further information	------	------
13. Knowledge of specific programming languages or software	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
14. Ability to present mathematical arguments and the conclusions from them with clarity and accuracy and in forms that are suitable for the audiences being addressed, both orally and in writing	------	------
15. Knowledge of the teaching and learning processes of mathematics	------	------
16. Other (specify)	------	------
17. Other (specify)	------	------
18. Other (specify)	------	------

Physics

Questionnaire for academics

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
42. Acquire additional qualifications for career, through optional units other than physics **(interdisciplinary attitude/abilities)**	------	------
43. Acquire an understanding of the nature of physics research, of the ways it is carried out, and of how physics research is applicable to many fields other than physics, e.g. engineering; ability to design experimental and/or theoretical procedures for: (i) solving current problems in academic or industrial research; (ii) improving the existing results **(basic and applied research skills)**	------	------
44. Be able to work in an interdisciplinary team; to present one's own research or literature search results to professional as well as to lay audiences **(specific communication skills)**	------	------
45. Be able to carry out the following activities: professional activities in the frame of applied technologies, both at industrial and laboratory level, related in general to physics and, in particular, to radio-protection; tele-communication; tele-sensing; remote control with satellite; quality control; participating in the activities of the public and private research centres (including management); taking care of analysis and modelling issues and of the involved physics and computer aspects **(spectrum of accessible jobs)**	------	------
46. Be able to carry out the following activities: promoting and developing scientific and technological innovation; planning and management of technologies related to physics, in sectors such as industry, environment, health, cultural heritage, public administration; banking; high level popularisation of scientific culture issues, with emphasis on theoretical, experimental and applied aspects of classical and modern physics. **(spectrum of accessible jobs)**	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
47. Be able to compare new experimental data with available models to check their validity and to suggest changes in order to improve the agreement of the models with the data **(modelling skills)**	------	------
48. Be able to develop a personal sense of responsibility, given the free choice of elective/optional courses. Through the wide spectrum of scientific techniques offered in the curriculum, the student/graduate should be able to gain professional flexibility **(human/professional skills)**	------	------
49. Be able to enter new fields through independent study (**learning to learn ability)**	------	------
50. Be able to evaluate clearly the orders of magnitude, to develop a clear perception and insight of situations which are physically different, but which show analogies; hence allow the use of known solutions in new problems **(problem solving skills**)	------	------
51. Be able to identify the essentials of a process / situation and to set up a working model of the same; the graduate should be able to perform the required approximations in order to reduce the problem at a manageable level; i.e. critical thinking to construct physical models **(modelling skills and problem solving skills**)	------	------
52. Be able to perform calculations independently, even when a small PC or a large computer is needed; the graduate should be able to develop software programmes **(problem solving skills and computer skills**)	------	------
53. Be able to search for and use physical and other technical literature, as well as any other sources of information relevant to research work and technical project development. Good knowledge of technical English is required **(literature search and use skills)**	------	------
54. Be able to understand the socially related problems that confront the profession and to comprehend the ethical characteristics of research and of the professional activity in physics and its responsibility to protect public health and the environment (**general and specific ethical awareness**)	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
55. Be able to work with a high degree of autonomy, even accepting responsibilities in project planning and in the managing of structures (**managing skills**)	------	------
56. Be prepared to compete for secondary school teaching positions in physics (**spectrum of accessible jobs)**	------	------
57. Enjoy facility to remain informed of new developments and methods and the ability to provide professional advice on their possible range of applications (**specific updating skills**)	------	------
58. Have a deep knowledge of the foundations of modern physics, say quantum theory, etc. **(deep general culture in physics)**	------	------
59. Have a good knowledge of the state of the art in —at least— one of the presently active physics specialities **(familiarity with frontier research)**	------	------
60. Have a good understanding of the most important physical theories, with insight into their logical and mathematical structure, their experimental support and the physical phenomena that can be described with them **(theoretical understanding of physical phenomena)**	------	------
61. Have become familiar with «*the work of genius*», i.e. with the variety and delight of physical discoveries and theories, thus developing an awareness of the highest standards (**sensitivity to absolute standards**)	------	------
62. Have become familiar with areas of physics most important not only through their intrinsic significance, but because of their expected future relevance for physics and its applications; familiarity with approaches that span many areas in physics **(general culture in physics)**	------	------
63. Have become familiar with most important experimental methods; moreover be able to perform experiments independently, as well as to describe, analyse and critically evaluate experimental data (**experimental and lab skills)**	------	------

Specific Competences	**Importance for First Cycle** None Weak Considerable Strong 1 2 3 4	**Importance for Second Cycle** None Weak Considerable Strong 1 2 3 4
64. Have improved command of foreign languages through participation in courses taught in foreign language: i.e. study abroad via exchange programmes, and recognition of credits at foreign universities or research centres (**general and specific foreign language skills**)	------	------
65. Understand and master the use of the most commonly used mathematical and numerical methods **(problem solving skills and mathematical skills)**	------	------
66. Other (specify)	------	------
67. Other (specify)	------	------
68. Other (specify)	------	------

Appendix II

Length of Studies

Tuning Educational Structures in Europe
Lenght of academic studies

The purpose of this chart is to provide more information about the expected developments in Higher Education with regard to the length of degree programme. This chart is based on the information has been provided by the representatives of the Tuning Inner Circle Institutions and the Synergy Group Chemistry.

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
AUSTRIA	Business	Present: Foreseen:	4 no change for traditional programmes 3 for newly introduced 1st cycle programmes	240 180	undivided undivided	4 3
	Education Education Sciences Teacher Education (compulsory school level) Teacher Education (upper seconday level)	Present: Foreseen: No change foreseen: Present:	4 5 3 4.5 + 1 year «practicum»	240 300 (180 + 120) 180 270	undivided 2 cycles undivided undivided (4.5 at university + 1 year outside university)	4 I:3 II: 1.5 3 4.5 + 1
	Geology	Present: Foreseen:	5 5	undivided 300 (180 + 120)	5 2 cycles	 I:3
	History	Present: Foreseen:2 cycle system under discussion	4	240	undivided	4
	Mathematics	No change foreseen	5	300 (60 + 120 + 120)	3 cycles	I:1 II:2 III:3
	Chemistry	no data available				
	Physics	Present: Foreseen 2002-2003:	5 5	300 300	undivided undivided	5 5

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
BELGIUM - FLANDERS	Business	Present: Foreseen. Under discussión	5	300 (120 + 180)	2 cycles	I:2 II:3
	Teacher Education (Kindergarten, Elementary, Lower secondary	Present: 3 Foreseen: under discussión	3	180	undivided	3
	Higher secondary	Present: Foreseen: under discussión	4.9	285 (240 + 45) Foreseen: 300	2 cycles	I:4 II:0.9 year Foreseen: 5
	Geology	Present: Foreseen:	4 5	240 300	2 cycles 2 cycles	I:2 II:2 I:3 II: 2
	History	Present: Foreseen: under discussión	4 4	240 (120 + 120) 240 (180 + 60)	2 cycles 2 cycles	I: 2 II:2 I:3 II:1
	Eng. Physics	Present: Foreseen (from 2002 - 2003)	5 5	300 (120 + 180) 300 (180 + 120)	2 cycles 2 cycles	I:2 II:3 I:3 II:2
	Physics	Present: Foreseen (from 2002 - 2003)	4 4	240 (120 + 120) 240 (180 + 60)	2 cycles 2 cycles	I:2 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
BELGIUM - WALLONIA	Engineering Geology	Present: Foreseen: under discussión	5	300 (120 + 180)	2	I:2 II:3
	Geology	Present: Foreseen: under discussión	4	240 (120 + 120)	2	I:2 II:2
	Mathematics	Present Foreseen:	4 under discussion possibly: 5	240 (120 + 120) (300; 180 + 120)	2 cycles (in theory, undivided in practice, sincethe 2 year diploma is of little value and use)	I:2 II:2 I:3 II:2 (possibly)
	Chemistry	Some change may be made in future	4	240 (120 + 120)	2 cycles	I:2 (Candidatures) II: 2 (Licences)
DENMARK	Business	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	Teacher Education Educational Science	No change foreseen No change foreseen	4 5	240 300 (180 + 120)	undivided 2 cycles	4 (first cycle degree) I:3 II:2
	Geology	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	History	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	Mathematics	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	Chemistry	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	Physics	Present No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
FINLAND	Education Magister degree Primary Teacher Training Magister degree Secondary Teacher Training	No change foreseen No change foreseen	5-6 5-6 (7)	320-360 320 - 360	2 cycles 2 cycles (3)	I:3 II:2-3 I: 4-5 (6) II: 1
	Geology	No change foreseen	6	320	2 cycles	I:3.5 II: 2.5
	History	No change foreseen	5 in theory 7 in practice	320 (normal MA) 360 (teachers)	2 cycles (in theory, practice undivided	I:3 II:2
	Mathematics	No change foreseen	5.5	320 (160 study wks)	undivided	5.5
	Chemistry	No change foreseen	5	240	2 cycles	I:3 II:2
	Physics	Present: No change foreseen	4	240	undivided	4
FRANCE	Business	Present: Foreseen	GE: 3 years (after 2 yrs of post sec. Ed.) Univ: 2 3/4 5 GE: 3 (after 2 yrs of post sec. ed.)	180 (after 120: Bac + 2) 120 180/240 300 180	2 cycles 3 cycles 2 cycles	(After Bac + 2yrs): I: 1 or 2 II: 2 or 1 I: Bac + 2 (DUT, BTS, DEUG) II: Bac + 3/4 (Licence/ Maitrise) III: bac + 5 (DEA+thesis/ DESS) I: 1 or 2 (Bachelor) II: 2 or 1 (Master) Nor officially decided yet by the Chapter.

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
FRANCE			Univ: 3 (after Bac) 5 (after Bac)* * Bac is the exam of sec. ed.		2 cycles	I: bac + 3 (Licence= Bachelor) II: Bac + 5: Mastaire DEA: Master Recherche DESS. Mast. Prof.
	Education Sciences IUFM (Teacher Education)	No change foreseen No change foreseen	(Bac +) 4 (Education Sciences starts at second cycle 2 (after Licence)	(120+) 120/180	2 (3) cycles (Education Sciences starts at second cycle) undivided	(I: (Bac + 2 = DEUG)) II: (Bac + 4= Licence and Maitrise) III: (Bac + 5 = DEA/ DESS) 2
	Geology	Present: Foreseen	2 3/4 5 3 (after Bac) 5 (after Bac)* * Bac is the exam of sec. ed.)	120 180/240 300	3 cycles 2 cycles 2 cycles	I: Bac + 2 (DEUG) II: Bac+3/4 (Licence/Maitrise) III: Bac + 5 (DEA/DESS) I: bac + 3 (Licence= Bachelor) II: Bac + 5 (DEA/DESS= Msc)
	History	Present: Foreseen:	4 4 or 5	240 (120+120) 240 or 300 (180 + 60 or-120)	2 cycles 2 cycles	I:2 II:2 I: 3 II: 1 or 2
	Mathematics	Present: Foreseen:	5 (for most students, but after 4 years Maitrise) 3 (after Bac) 5 (after Bac)*	300 (240) 300 (180 + 120)	2/3 2 cycles	I:2 II:2 III: 1 (DESS/DEA) I:3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
FRANCE	Chemistry	Present: Foreseen No change foreseen No change foreseen	Univ 5 5 Ecole Superieure Lyon: 5 Ecole Superieure Toulouse 5	 300 300 (120 + 180)	3 cycles undivided 2 cycles	I:2 II:2 III:1 I:3 II:2 5 I:2 II:3
	Physics	Present: Foreseen:	5 5	300 expected 300 (180 + 120)	2 cycles 2 cycles	I: 3 or 4 II: 2 or 1 I:3 II:2
GERMANY	Business	Present: Foreseen:	4 (5 for some areas) 5	240 (300) 300	undivided (2 cycles) 2 cycles	4 (some areas 4+1) I: 3 or 4 II: 2 or 1
	Education Teacher training primary education Teacher training Grammar school Teacher training for special education Teacher training secondary education Education Studies Magister degree	Present Present: Present: Present: Present:	 3.5 + 2 years «Referendariat» outside university 4.5 + 2 years «Referendariat» outside university 4.5 + 2 years «Referendariat» outside university 4 + 2 years «Referendariat» outside university 4.5	 210 270 270 240 270	 undivided undivided undivided undivided undivided	 3.5 4.5 4.5 4 4.5
	Note: There is a discussion in the field of Education and in particular in Teacher training to replace the traditional Magister system by a BA/MA system. Some universities already run BA/MA programmes in Teacher training as a test.					

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
GERMANY	Geology	Present: Foreseen:	4.5 5	270 (120 + 150) 300 (180 + 120)	2 cycles 2 cycles	I:2 II: 2.5 I:3 II:2
	History	Present: Foreseen:	4.5 5	no 300 (180 + 120)	undivided 2 cycles	4.5 I:3 II:2
	Mathematics	No change foreseen for existing programmes Foreseen for new programmes	4.5 5	270 (120 + 150) 300 (180 + 120)	2 cycles 2 cycles	I:2 II: 2.5 I:3 II:2
	Chemistry	Present: Foreseen:	4.5 5	270 300	2 cycles (in theory, but undivided in practice. The Vordiplom after 2 years is of no use or value) 2 cycles	4.5 I: 3-4 II: 1-2
	Physics	Present: No change foreseen, but maybe:	5 5	300 300 (180 + 120)	undivided 2 cycles	5 I:3 II:2
GREECE	Business	Present:	4 No change for traditional programmes	240 (1st cycle) 90-120 (2nd cycle)	2 cycles	I:4 II: 1-2
	Education (primary and secondary education) Note:There is no distinction between Educational Science and Teacher Training	No change foreseen	6		2 cycles	I:4 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
GREECE	Chemistry	Present: Foreseen:	4 5	240 (180 Greek credits) 300 (240 + 60) (220 Greek credits)	undivided 2 cycles II:1	4 I:4
	Physics	no data available				
ICELAND	History	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
IRELAND	Business	Present: Foreseen:	mostly 5 5 years +	not officially used	2 cycles 2 cycles	I: mostly 4 II:1-2 I:4 II: 1-2
	Education	No major changes foreseen at undergraduate level. ECTS may be extended to second cycle in future	4-7	180-420	2 (3) cycles	I: 3-4 (B.Ed.) (II: 1 (H. Dip. Ed.)) II: 1-2 (MA.Ed/M.Ed)
	Geology	No change foreseen	5	300	2 cycles	I:4 II: full year
	History	No change foreseen	5	300	2 cycles	I: 3-4 II: 1-2
	Mathematics	Present: Foreseen: no serious discussion of change	5 (a minority takes 2nd cycle)	330 (240 + 90)	2 cycles	I:4 II: full year
	Chemistry	No change foreseen	5	300	2 cycles	I:4 (Honours degree) II:1 (Masters degree) Note. After 3 years students can leave with a BSc. Pass degree.
	Physics	No change foreseen	4	240		4 (BSc)

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
ITALY	Business	Present: Foreseen:	4 5	240 + thesis 300 (180 + 120)	undivided 2 cycles	 I:3 II:2
	Education	Present	5	300	2 cycles	I:3 II:2
	Teacher Education (Infant and primary)	Present: Foreseen	4 5	240 300	undivided 2 cycles	4 I:3 II:2
	Teacher Education (secondary)	Present: Foreseen:	6 5	undefined + 120 300	2 cycles 2 cycles	I:4 II:2 I:3 I:2
	Geology	No change foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	History	Present: Foreseen: changes have recently been mad. No further changes foreseen	5	300 (180 + 120)	2 cycles	I:3 II:2
	Mathematics	(Present, i.e. As of 2001-2002)	5	300 (180 + 120)	2 cycles	I:3 II:2
	Chemistry	Present: Foreseen:	3 5	180 300 (180 + 120)	undivided 2 cycles	3 (Laurea degree) I:3 (Laurea degree) II:2 (Laurea Specialistica degree
	Physics	Present, i.e. As of 2001-2002)	3-5	180-300	2 cycles	I:3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
NETHERLANDS	Business	Present: Foreseen:	4 4 (5)	240 240 (300) (180 + 60-120)	undivided 2 cycles	I:3 II:1 (2: research Masters)
	Education Primary education	Present: Foreseen:	4 4	240 240 (180 + 60)	undivided 2 cycles	4 I:3 II:1
	Secondary education	Present: Foreseen:	4 or 5 (for pre-university sec. Ed.) 4 or 5 (for pre-university sec. Ed.)	240 or 300 240 or 300	unidivided or 2 cycles 2 cycles	4 or I:4 II:1 I:3 or 4 II: 1 or 2
	Geology	Present: Foreseen:	5 5	300 (180 + 120) 300 (180 + 120)	transitional 2 cycles	I:3 II:2 I:3 II:2
	History	Present: Foreseen:	4 4 or 5	240 240 or 300 (180 + 60 -120)	undivided 2	4 I:3 II: 1 or 2
	Mathematics	Present: Foreseen:	5 5	300 (60 + 240) 300 (180 + 120)	2 cycles 2 cycles	I:1 II:4 I:3 II:2
	Chemistry	Present: Foreseen:	5 5	300 300 (180 + 120)	undivided 2 cycles	5 I:3 II:2
	Physics	Present: Foreseen:	5 5	300 300 (180 + 120)	undivided 2 cycles	5 I:3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
NORWAY	Business	Present: Foreseen:	4 4 (5)	240 180 + 60 (120)	undivided 2 cycles	4 I:3 II: 1 (2)
	Educational Sciences	Present: Foreseen:	6 5	360 (240 + 120) 300 (180 + 120)	2 cycles 2 cycles	I:4 II:2 I:3 II:2
	Teacher education (primary school teachers) Teacher education (secondary school teachers	Present: Foreseen: Present: Foreseen:	4 (only first cycle (college) (changes forthcoming) a) 4 + 1 year practicum b) 6 + 1 year practicum a) 3 + 1 year practicum b) 5 + 1 year practicum	240 300 420 240 360	1 cycle 2 cycles 2 cycles 2 cycles 2 cycles	I:4 «I:4; II:1» «I:6; II:1» «I:3; II:1» «I:5; II:1»
	Geology	Present: Foreseen:	5 5	300 300 (180 + 120)	2 cycles 2 cycles	I:3.5 II:1.5 I:3 II:2
	History	Present: Foreseen:	6 5		2 cycles 2 cycles	I:4 II:2 I:3 II:2
	Chemistry	Present: Foreseen	5 5	300 300 (180 + 120)	2 cycles 2 cycles	I:3.5 II:1.5 I:3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
PORTUGAL	Business	Present: Foreseen: under discussion	6 (unofficially 7) 5 (-6)		2 cycles 2 cycles	I:4 II:2 I:4 II: 1 (-2)
	Teacher Education pre-elem. School, 1st and 2nd level elem. School 3rd level elem. School and secondary school Education Sciences: no data available	No change foreseen NO change foreseen	6 7	360 (240 + 120) 420 (300 + 120)	2 cycles 2 cycles	I:4 II:2 I:5 II:2
	Geology	Present: Foreseen:	6-7 5	300	2 cycles 2 cycles	I: 4-5 II:2 I:4 II:1
	History	Present: Foreseen: length of masters (2 nd cycle) degree is under discussion)	4 (5 for degree in teaching History in secondary schools)	equivalent to 240 (300)	undivided	4 (5)
	Mathematics	Present: Foreseen: no change foreseen	5-7 5-7(5 for degree in teaching Mathematics in secondary education)		2 cycles 2 cycles	4 I: 4-5 (5 for teaching sec. schools) II: 1-2(usually 2)
	Chemistry	No change foreseen:	4	240	undivided	4

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
PORTUGAL	Eng. Physics Physics-Oceanography Meteorology	Present: Foreseen: Present: Foreseen: under discussion	5 5 4 4	300 300 (180/240 - 120/60) 240 240	undivided 2 cycles undivided	5 I:3 or 4 II: 2 or 1
SPAIN	Business	Present: Foreseen: under discussion	4 4 (maybe 5)	240 240 (300; 180 + 120)	undivided undivided (2 cycles)	4 4 (I:3) (II:2)
	Education (Pedagogy	Present: Foreseen:	5 5	240/300	2 cycles (or undivided) 2 cycles	I:4 II: 1-2 I:3/4 II: 2/1
	Geology	Present: Foreseen: under discussion	6 or 7		2 cycles	I:4 or 5 II:2
	History	No change foreseen	5	300	2 cycles	I:3 II:2
	Mathematics	Present: No change foreseen But a new law (already being discussed in Parliament states that degrees will be modified to adjust to eventual common European guidelines	4-5	app. 300 (not ECTS but based on contact hours)	undivided (legally 2 cycles but no diploma after 1st cycle)	4-5 (legally) I:2-3 II:2

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
SPAIN	Chemistry	Present: Foreseen:	5 5	 300 (180 + 120)	2 cycles 2 cycles	I:3 (no degree awarded) II:2 I:3
	Physics	Present: No change foreseen	4 or 5	240 or 300 (180 + 120)	2 cycles	I: 2 or 3 (no degree awarded) II:2
SWEDEN	Business	Present: Foreseen:	4 4	240 240 (180 + 60)	undivided 2 cycles	4 I:3 II:1
	Education Teacher Education	Present: Foreseen:	 3-6 3.5-5	 180-360 210-300	 2 cycles undivided	 I:3-4.5 II: 1-1.5 I:3.5-5
	Educational Sciences	Present: Foreseen:	3-4.5 3-5	180-270 180-300	2 cycles 2 cycles	I:3 II: 1.5 I:3 II:2
	History	Present: Foreseen situation:	Fil. kand.: 3 Magister: 4 Fil. kand: 3 Magister: 4	180 240 180 240	undivided undivided or 2 cycles undivided 2 cycles	3 4 or I:3 II:1 I:3 II:1
	Mathematics	No data available				
	Chemistry	Present: Foreseen: under discussion	Fil.kand. 3 Fil. Mag.: 4	180 240	undivided undivided or 2 cycles	3 4 or I:3 II:1

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
SWEDEN	Physics	Present: No change foreseen Present:	University: 4 Högskolan 04:05	240 270	2 cycles undivided	I:3 II:1 4.5
UNITED KINGDOM	Business (England, Wales, Northern Ireland)	No change foreseen	4-5	270 (180 + 90)	2 cycles	I:3 or 4 II: full year
	Education	no avaliable				
	Geology	No change foreseen	4-5	270 (180 + 90)	2 cycles	I:3 or 4 II: full year
	History	Present: Foreseen:	4-4.5 4-4.5	270 (180 + 90) 270 (180 + 90)	2 cycles 2 cycles	I:3 (BA) II: 1-1.5 (MA) I:3 (BA) II: full year (MA)
	Mathematics	No change foreseen	4-4.5	270 (180 + 90)	2 cycles	I:3 (BA) II: full year (Mmath)
(Scotland Univ. of Strathclyde)	Chemistry	Present: Foreseen:	5 5	300 300	undivided (but exit routes provide after 3 and 4 years. 4 years gives entry to doctorate). undivided (but exit routes provided after 3 or 4 years. The 4 year degree will become more general in nature and lose professional recognition.	5 5

Country	Subject Area	Present/Foreseen situation	Length in terms of academic year (to complete 2nd cycle level)	Length in terms of ECTS Credits	Set up of programme unidivided or 2 cycles	Length of cycles in academic years
UNITED KINGDOM	Physics	Present:	4	240 (or: 180 + 60)	undivided (Msci) or 2 cycles (BSc + MSc)	4 or: I:3 II:1
		Foreseen:	4	240 (or: 180 + 60)	undivided or 2 cycles	4 or: I:3 II:1

Remarks

- «Length in terms of academic years» refers to the total number of years requiered to complete a second cycle degree (this includes the number of academic years of the first cycle degree).
- Not all representatives have completed and returned the questionnaire. In that case the remark «no available» is made in the table.»
- The information provided by the table is based on the situations at the Tuning member institutions. The data do not always represent the situation for a particular discipline nationwide, since there can be variations between institutions as well as between disciplines in a particular country.
- In some cases the number of years required to attain the second cycle degree is follow by a different number in between brackets. This number indicates the years that (some) other institution(s) in the same discipline and country than the Tuning member institution, require a complete the second cycle degree.
- A «full year» Master programme in Ireland and the UK equals 90 ECTS credits.
- The data of the members of the Synergy group Chemistry have been included in the table to have as complete/broad a view per country as possible.

Conclusions

- From the tables it can be leraned that the picture of the existing situation is clear, but that with regard to the future of the length of academic studies much is still open in various countries/at various institutions. Whether this is really the case or whether it is due to insufficient information available to the TUNING members, is not clear.
- According to the information provided, some disciplines in some countries seem not to follow the guidelines of the Bologna Declaration and the Prague Communiqué in planning a fisrt cycle of 2 years. The Bologna Agreement states that the minimum length of the first cycle should be three years. In the Prague Communiqué it is said that the length of a first cycle degree should be
- In nearly all countries and for nearly all disciplines a total number of academic years for students to reach a Masters degree is planned to be 270 to 300 ECTS credits (first + second cycle).
- In nearly all countries a two-cycle system is already in existence or will be implemented soon.

University of Deusto

University of Groningen