Tuning
Educational Structures
in Europe

TUNING PROJECT 2000 - 2006

LEARNING OUTCOMES AND COMPETENCES IN HIGHER EDUCATION:

The Tuning approach

Robert Wagenaar

Joint co-ordinator Tuning Projects

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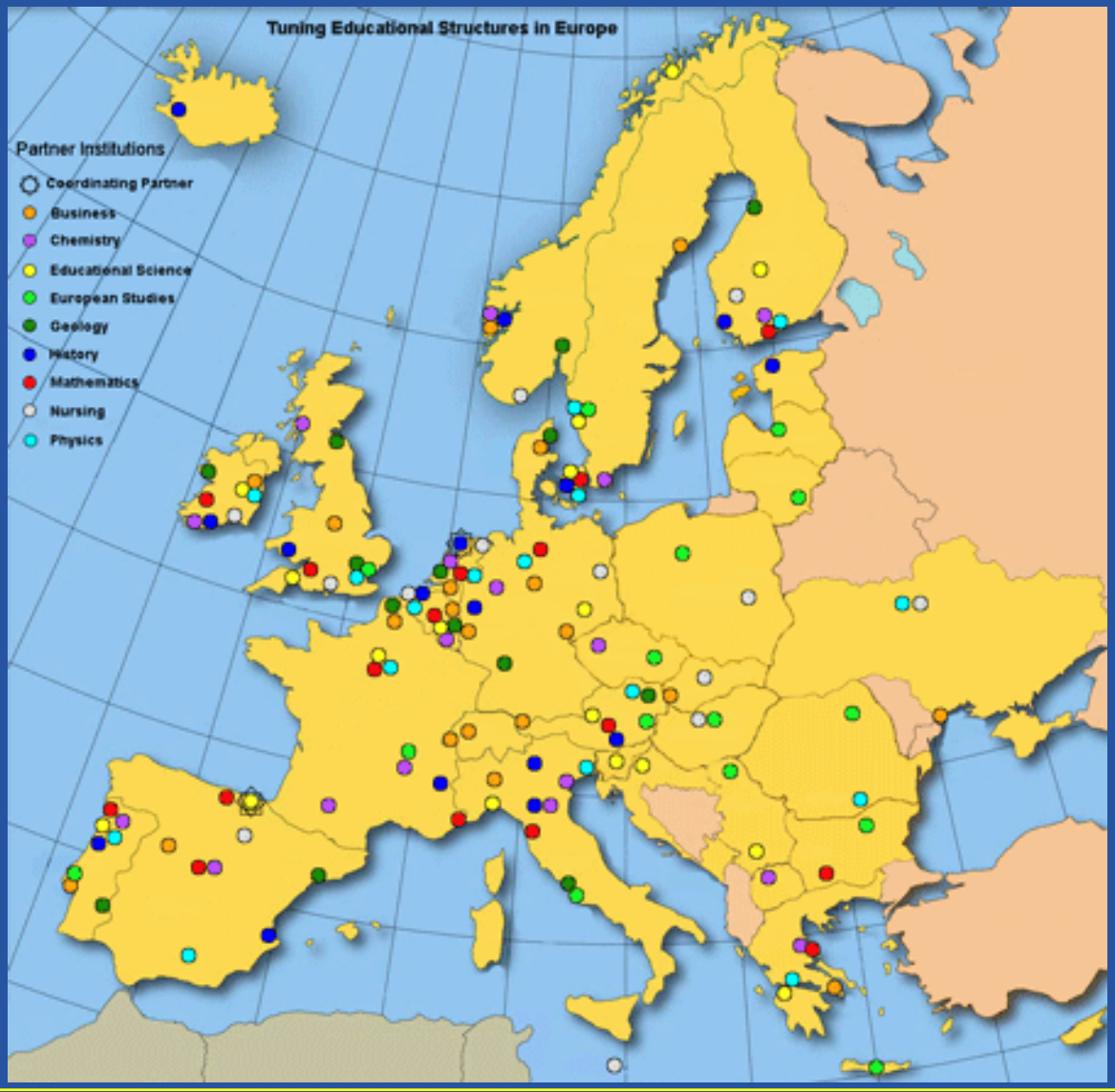
The TUNING project is a project by and for universities.

It is the Universities' response to the challenge of the Bologna Declaration

TUNING MOTTO

Tuning of educational structures and programmes on the basis of diversity and autonomy

Tuning Educational Structures in Europe



Tuning II:

27 countries

135 higher education institutions

9 subject areas

Tuning III:

33 countries

143 higher education institutions

WHY TUNING?

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The objectives:

- **To implement the Bologna - Prague - Berlin – Bergen – London process on university level**
- **To find ways to implement two cycles**
- **To identify common reference points from discipline and university perspective**
- **To develop professional profiles and comparable and compatible learning outcomes**
- **To facilitate employability by promoting transparency in educational structures (easily readable and comparable degrees)**
- **To develop a common language which is understood by all stakeholders (Higher education sector, employers, professional bodies)**

Berlin Communiqué

(19 September 2003)

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Degree structure: adoption of a system essentially based on two main cycles

"Ministers encourage the member States to elaborate a framework of comparable and compatible qualifications for their higher education systems, which should seek to describe qualifications in terms of workload, level, learning outcomes, competences and profile. They also undertake to elaborate an overarching framework of qualifications for the Higher Education Area."

EC Action Plan:
From Bergen to London
The EU Contribution
(25 January 2006)

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Priorities in the Bologna Process:

..the degree system, quality assurance and recognition of degrees and study periods.

The degree system:

'At higher education level, the preparation of sectorial EQFs has started by groups of academics working together in a Commission supported project called Tuning Educational Structures in Europe. The Tuning project develops reference points for comon curricula on the basis of agreed competences and cycle level descriptors for a series of subject areas. …..'

TUNING METHODOLOGY:
learning outcomes and competences

General tendencies in higher education:

- **Shift of paradigm: moving from a staff oriented approach to a student centred approach**
- **Less specialised academic education in the first cycle**
- **More flexibility in first and second cycle programmes**

What should a student know, understand and be able to do to be employable?

The Tuning action lines

- **Line 1: Generic competences**

  Linking competences to approaches to learning, teaching and assessment.
- **Line 2: Subject specific competences (knowledge, understanding and skills)**

  Linking competences to approaches to learning, teaching and assessment.
- **Line 3: ECTS as a European credit accumulation system: new perspectives**
  - Linking credits to learning outcomes and competences.
  - An approach for measuring student workload.
- **Line 4: Approaches to teaching / learning and assessment**

  Identifying possibilities and good practice to achieve competence based learning outcomes
- **Line 5: Quality enhancement**

  Development of tools and methodology to enhance quality in programme design and delivery

LINE 1 + 2

Why Focus on competences?

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1. Further transparency of professional profiles in study programmes and emphasis on learning outcomes
2. Shift to a more learner oriented approach to education
3. Growing demands of a lifelong learning society which requires more flexibility
4. Need for higher levels of employability and citizenship
5. Enhancement of the European dimension of Higher Education
6. Need for a shared language for consultation with all stakeholders

Methodology and definitions

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Learning outcomes:

Statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of learning.

They can refer to a single course unit or module or else to a period of studies, for example, a first or a second cycle programme. Learning outcomes specify the requirements for award of credit.

[learning outcomes are formulated by academic staff]

Learning outcomes: different pathways leading to comparable results

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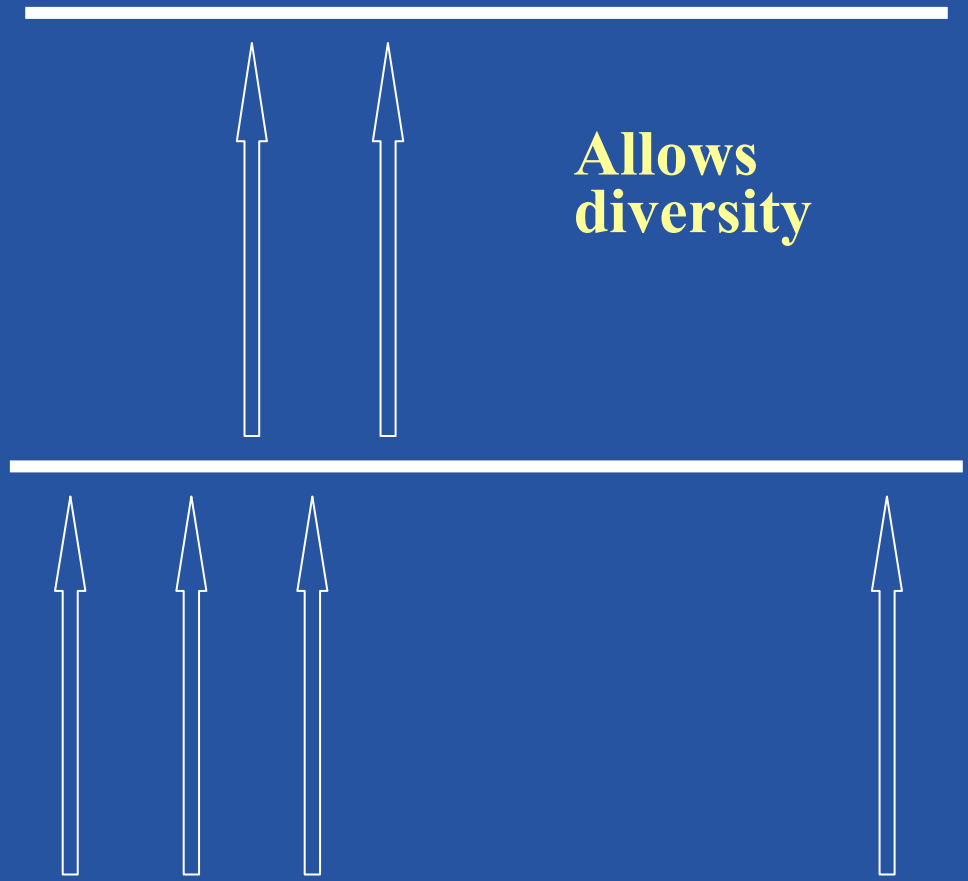
Second cycle learning outcomes:

Different pathways:
(60) 90 – 120 ECTS-credits

First cycle learning outcomes:

Different pathways:
180 – 240 ECTS-credits



Methodology and definitions

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Competences:

Competences represent a dynamic combination of knowledge, understanding, skills and abilities.

Fostering competences is the object of educational programmes.

Competences are formed in various course units and assessed at different stages.

[competences are obtained by the student]

Methodolgy and definitions

How are competences and learning outcomes related?

- Learning outcomes according to Tuning methodology should be formulated in terms of competences.
- Tuning methodology is based on **desired** learning outcomes not on threshold or minimum requirement

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LEARNING OUTCOMES AND COMPETENCES IN STUDY PROGRAMMES

Example

Course unit/ learning outcome	Competence									
	A	B	C	D	E	F	G	H	I	F
Unit 1		X			X					
Unit 2	X			X			X			
Unit 3		X				X			X	
Unit 4	X		X							X

X = THIS COMPETENCE IS DEVELOPED AND ASSESSED AND IS MENTIONED IN THE LEARNING OUTCOME OF THIS UNIT

THE TUNING QUESTIONNAIRE

FOCUS ON GENERIC COMPETENCES (GENERAL ACADEMIC SKILLS)

TARGET GROUPS:

- GRADUATES
- EMPLOYERS
- ACADEMICS

WHAT ARE THE MOST IMPORTANT COMPETENCES TO BE EMPLOYABLE INDEPENDENT OF ONE'S SUBJECT AREA?

ARE THESE ACTUALY TAUGHT AND TO WHAT EXTENT?

THE TUNING QUESTIONNAIRE

TYPES OF COMPETENCES MEASURED:

- **Instrumental competences**: cognitive abilities, methodological abilities, technological abilities and linguistic abilities
- **Interpersonal competences**: individual abilities like social skills (social interaction and co-operation)
- **Systemic competences**: abilities and skills concerning whole systems (combination of understanding, sensibility and knowledge; prior acquisition of instrumental and interpersonal competences required)

THE TUNING QUESTIONNAIRE

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TYPES OF COMPETENCES MEASURED:

Instrumental competences:

- Capacity for analyses and synthesis
- Capacity for organisation and planning
- Basic general knowledge
- Grounding in basic knowledge of the profession
- Oral and written communication in your native language
- Knowledge of a second language
- Elementary computing skills
- Information management skills (ability to retrieve and analyse information from different sources)
- Problem solving
- Decision-making

THE TUNING QUESTIONNAIRE

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TYPES OF COMPETENCES MEASURED:

Interpersonal competences:

- Critical and self-critical abilities
- Teamwork
- Interpersonal skills
- Ability to work in an interdisciplinary team
- ability to communicate with experts in other fields
- Appreciation of diversity and multiculturality
- Ability to work in an international context
- Ethical commitment

THE TUNING QUESTIONNAIRE

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TYPES OF COMPETENCES MEASURED:

Systemic competences:

- Capacity for applying knowledge in practice
- Research skills
- Capacity to learn
- Capacity to adapt to new situations
- Capacity for generating new ideas (creativity)
- Leadership
- Understanding of cultures and customs of other countries
- Ability to work autonomously
- Project design and management
- Initiative and entrepreneur spirit
- Concern for quality
- Will to succeed

Methodology and Results

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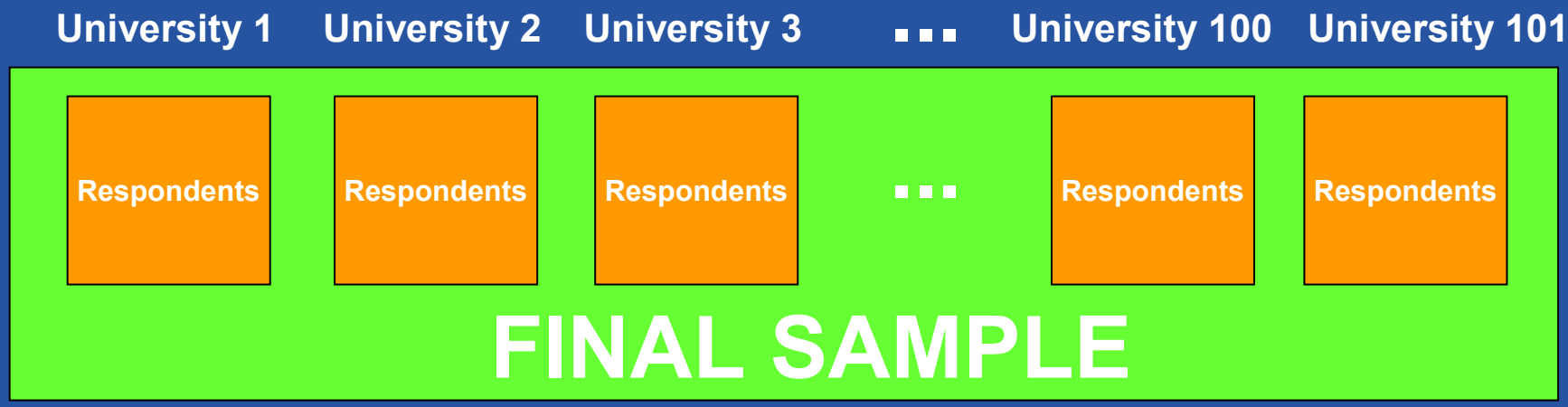
Procedure of sample selection

- Graduates
- Employers
- Academics

RESPONDENTS

Cluster sampling:



Data

7 Areas & 101 university depart. & 16 Countries

- Business
- Geology
- History
- Mathematics
- Physics
- Education
- Chemistry

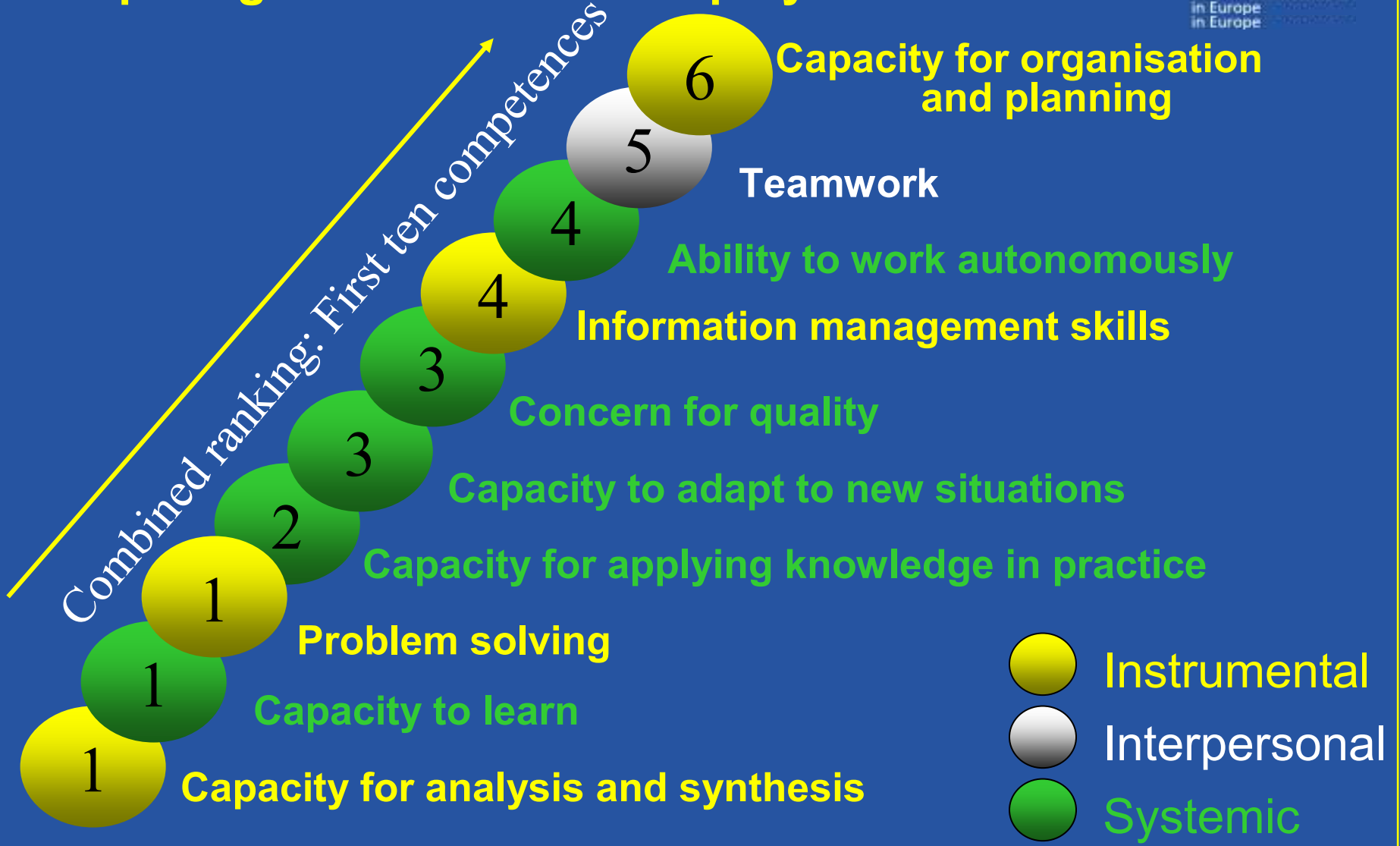
Total number of respondents:

- 5183 Graduates
- 944 Employers
- 998 Academics

- Austria
- Belgium
- Denmark
- Finland
- France
- Germany
- Greece
- Iceland
- Ireland
- Italy
- Netherlands
- Norway
- Portugal
- Spain
- Sweden
- United Kingdon

Results

Comparing Graduates and Employers



Results

Comparing Graduates and Employers

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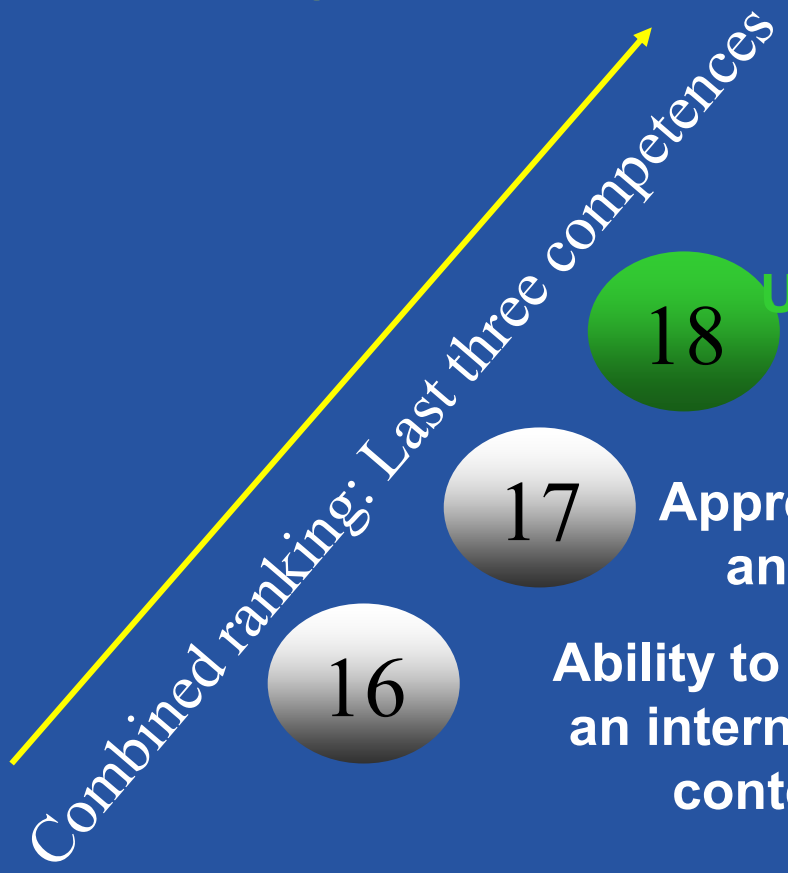

18 **Understanding of cultures and customs of other countries**

17 **Appreciation of diversity and multiculturality**

16 **Ability to work in an international context**

Instrumental

Interpersonal

Systemic

Weighted Ranking of the Most Important Generic Competences. All Subjects

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Graduates	Employers	Academics
▪ Capacity for analysis and synthesis	▪ Capacity to learn	▪ Basic knowledge of the field of study
▪ Capacity to learn	▪ Capacity for applying knowledge in practice	▪ Capacity for analysis and synthesis
▪ Capacity for applying knowledge in practice	▪ Capacity for analysis and synthesis	▪ Capacity to learn
▪ Elementary computing skills	▪ Capacity to adapt to new situations	▪ Capacity for generating new ideas (creativity)
▪ Capacity to adapt to new situations	▪ Interpersonal skills	▪ Capacity for applying knowledge in practice

Staff orientation versus student centred?

The Tuning Appraoch:
learning outcomes and competences

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Examples of learning outcomes phrased in terms of competences:

Generic competence
(module level)

At the end of the course unit / module the learner is expected to be able to demonstrate the use of information-retrieval skills effectively, in relation to primary and secondary information sources, including information retrieval through on-line computer searches

The TUNING approach: learning outcomes and competences

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Subject specific competences (programme level)

History:

- Ability to identify and utilise appropriate sources of information for research projects.
- Ability to organise complex historical information in coherent form.

Chemistry:

- Ability to apply chemistry knowledge and understanding to the solution of qualitative and quantitative problems of an unfamiliar nature.

The TUNING benadering: eindtermen en competenties

Subject specific competences
(module level)

History
At the end of the course unit/module the learner is expected to demonstrate his/her ability to comment and annotate text and documents correctly according to the critical canons of the discipline.

Physics
At the end of the course unit/module the learner is expected to be able to describe and explain the function of the basic devices of optoelectronics; optical fibres; liquid crystal displays; bi-polar and surface field effect transistors and MOS light emitting diodes.

LINE 3

Student Workload, teaching methods and learning outcomes

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ECTS credits: a key element in curriculum design and delivery

The revised European Credit Transfer and Accumulation System (ECTS) is a student-centred system based on the student workload required to achieve the objectives of a programme of study. These objectives should be specified in terms of learning outcomes expressed in competences.

Workload based credits assure the feasibility of a study programme based on learning outcomes.

Student Workload, teaching methods and learning outcomes

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A model for determining student workload:

- It is crucial that the teacher *and* the student focus on the learning outcomes to be achieved and the competences to be obtained.
- The teacher should reflect on which educational activities are more relevant for reaching the learning outcomes of the unit.
- The teacher should have a notion of the average student work time required for each of the activities selected for the unit.
- The student has a crucial role in the monitoring process to determine whether the estimated student workload is realistic.

STUDENT WORKLOAD: The Tuning approach

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PLANNING FORM FOR AN EDUCATIONAL UNIT/ MODULE

Programme of Studies:

- **Name of the module / course unit:**
- **Type of course (e.g. major, minor, elective):**
- **Target group (e.g. BA. MA, PhD):**
- **Prerequisites:**
- **Number of ECTS credits:**
- **Competences to be developed:**

1.....
2.....
3.....
4.....
5.....
6.....

Learning Outcomes	Educational Activities	Estimated student work time in hours	Assessment

LINE 4

Approaches to teaching, learning and assessment of competences

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The Tuning II consultation of both generic and subject specific competences:

The questions to the Tuning members:

1. What does this competence mean for your students?
2. How do you help students to achieve this competence in your teaching methods?
3. What learning activities do your students engage with in order to develop this competence?
4. How do you assess whether, or to what degree, they have achieved this competence?
5. How do your students know whether or to what degree they have achieved this competence, and if not, why they have not achieved it?

LINE 5

Quality Enhancement at Programme Level

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Educational Process:

- degree profile (aims of the educational programme)
- learning outcomes to be achieved and competences to be obtained
- degree/educational programme structure and order of programme components to ensure progression
- coherence of degree / educational programme
- division of workload over the semester and academic year
- feasibility of programme (check)
- teaching, learning and assessment methods
- connection with secondary education
- international cooperation and student mobility

Quality Enhancement at Programme Level

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Educational outcome:

- study rate, cessation of study and switch-overs (output)
- output of 1st and 2nd cycle
- employability

Means and facilities required:

- structural and technical facilities
- staff and material means
- student support: student counsellors

A methodology for designing, planning and implementing curricula

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Traditional methodology:

- developed in a national context largely for mono-disciplinary study programmes
- intended for educating graduates with a traditional profile
- focussing on knowledge and content

Approach:

- staff / teacher oriented
- compulsory subjects to be covered
- input oriented

A methodology for designing, planning and implementing curricula

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Tuning approach:

- student centred
- definition of academic and professional profiles
- definition of learning outcomes
- identifying generic and subject specific competences
- output oriented curricula

Tuning methodology and model:

- appropriate for mono-disciplinary, inter- and multidisciplinary, integrated and joint degree programmes
- valid for graduates with wide range of profiles
- focussing on competences

TUNING METHODOLOGY:
learning outcomes and competences

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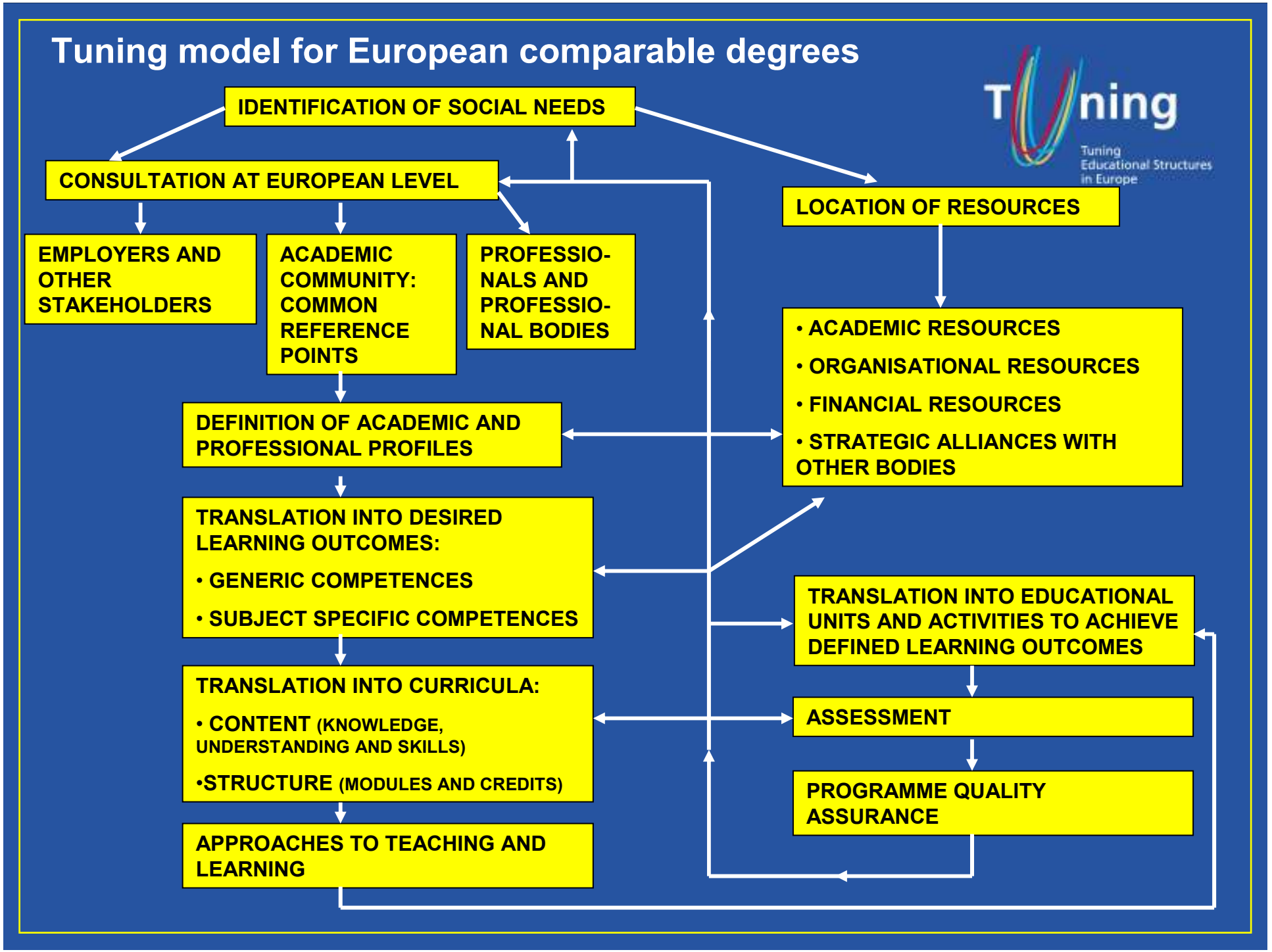
Steps in designing degrees:

1. Identification of social needs
2. Definition of academic and professional profiles: translation into learning outcomes and generic and subject specific competences
3. Translation into curricula
4. Translation into modules and approaches towards teaching, learning and assessment
5. Programme quality assurance: built in monitoring, evaluation and updating procedures

Tuning model for European comparable degrees



THE TUNING DYNAMIC QUALITY DEVELOPMENT CIRCLE

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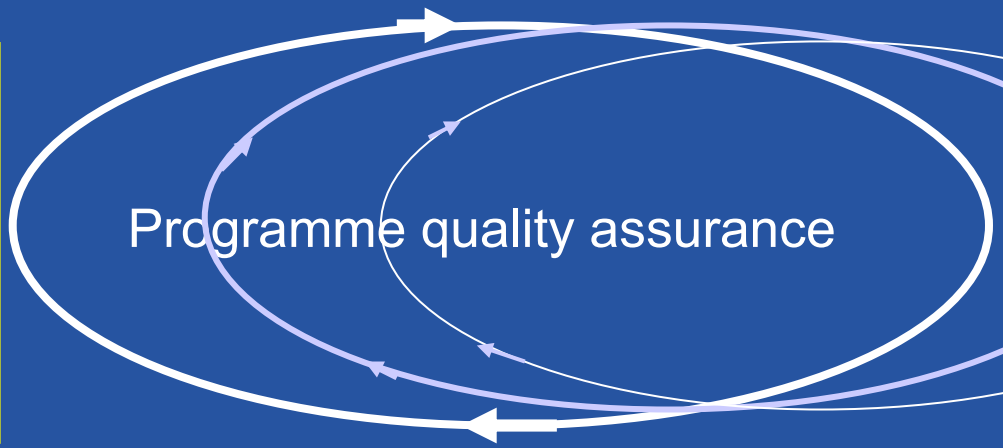
Definition of academic and professional profiles

Identification of resources

Programme design: definition of learning outcomes / competences



Construction of curricula: content and structure

Selection of teaching and learning approaches

Selection of types of assessement

Evaluation and improvement **(on the basis of feed back and feed forward)**

LEARNING OUTCOMES AND COMPETENCES IN STUDY PROGRAMMES

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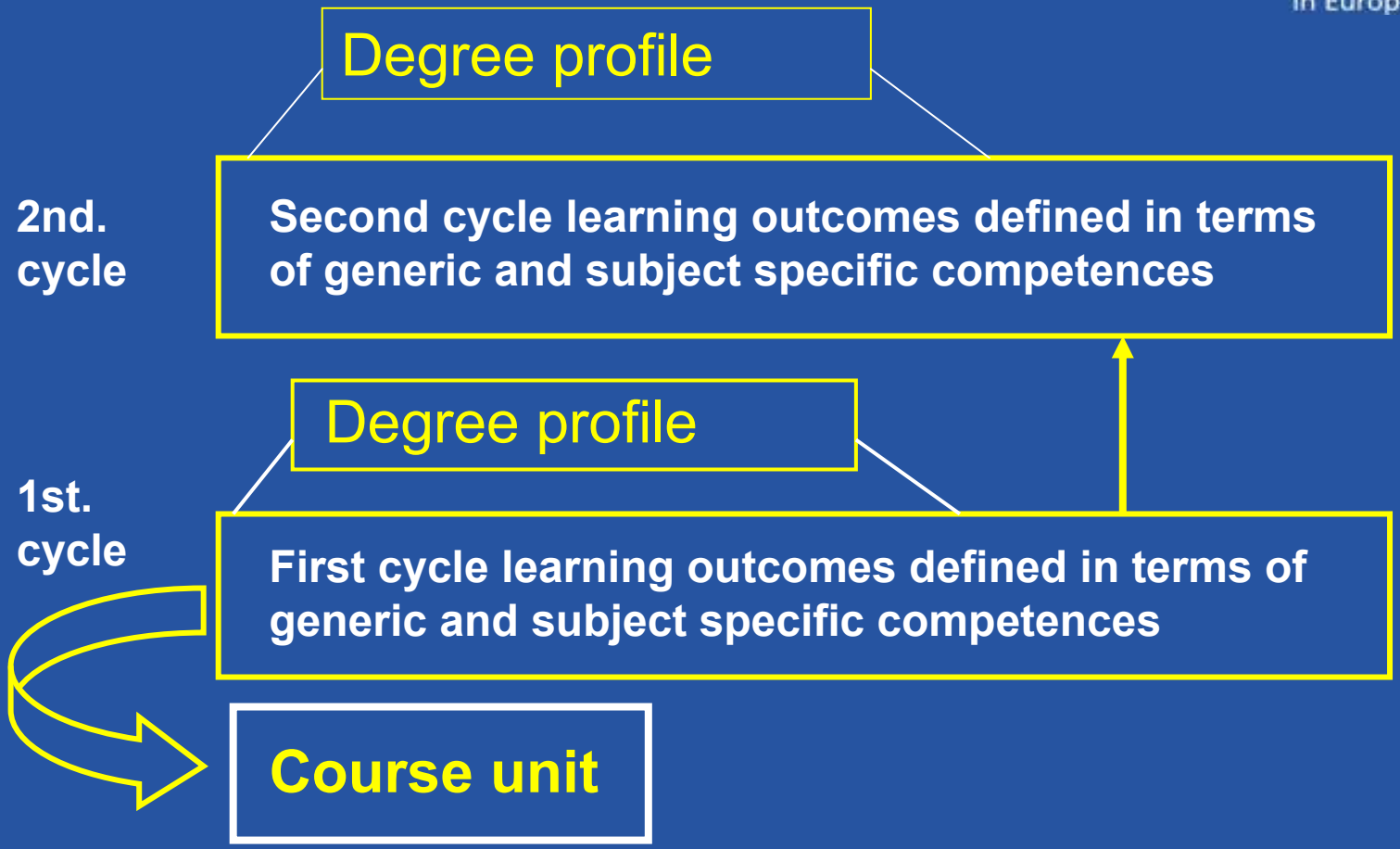

Methodology and definitions

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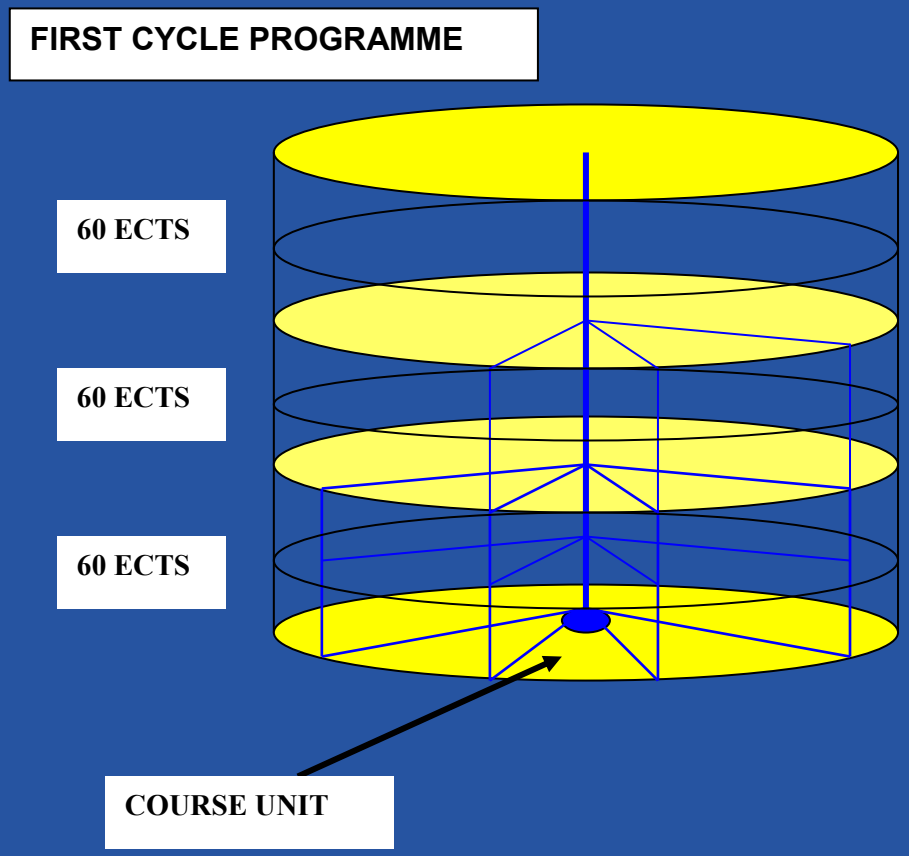

Tuning list of key questions for programme design and delivery Bologna Reform based programmes

DEGREE PROFILE - Key questions:

- Has the need for and the potential of the (new) degree programme been established comprehensively fully and clearly?
- Does it aim to satisfy established or new professional and/or social demands?
- Was there a consultation with stakeholders? Did they identify the need for the degree programme?
- Was the approach used for the consultation adequate? Were the groups selected the relevant ones for the degree programme considered?
- Are the definition of the profile, the identification of the target groups to be addressed and its place in the national and international setting clear?
- Is there convincing evidence that the profile will be recognized in terms of future employment? Is it related to a specific professional or social context?
- Is this profile academically challenging for staff and students?
- Is there awareness of the educational context in which the programme is offered?

Tuning list of key questions for programme design and delivery Bologna Reform based programmes

LEARNING OUTCOMES – Key questions:

- Have clear and adequate learning outcomes been identified at the level of the programme as a whole and of each of its components?
- Will they result in the profile identified? Are they adequately distributed over the various parts of the programme?
- Is the progression and coherence of the programme and its units sufficiently guaranteed?
- Are the learning outcomes formulated in terms of subject-specific and generic competences covering knowledge, understanding, skills, abilities and values?
- What guarantee is there that the learning outcomes will be recognized and understood within and outside Europe?

Tuning list of key questions for programme design and delivery Bologna Reform based programmes

COMPETENCES – Key questions:

- Are the competences to be obtained by the student clearly identified and formulated, both subject-specific and generic?
- Is the level of the competences to be obtained appropriate for this specific degree programme?
- Are the competences to be gained expressed in such a way that they can actually be measured?
- Is progression guaranteed in the development of the competences?
- Can the competences obtained be assessed adequately? Is the methodology of assessment of the competences clearly specified and suitable for the expressed learning outcomes?
- Are the approaches chosen for learning and teaching the competences clearly specified? What evidence is there to assure that the results will reached?
- Are the approaches chosen sufficiently varied and innovative / creative?
- Are the competences identified comparable and compatible with the European reference points relative to the subject area? (if applicable)

Tuning list of key questions for programme design and delivery Bologna Reform based programmes

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LEVEL – Key questions:

- Has the entrance level of potential students been taken into consideration when identifying their learning needs?
- Does the level of learning outcomes and competences correspond to the level(s) of the degree (cycle) foreseen in the European and National Qualification Framework?
- If sublevels are included, are these described in terms of learning outcomes expressed in competences?
- Are levels described in terms of:
  - acquiring knowledge, understanding, skills and abilities
  - applying knowledge, understanding, skills and abilities in practice
  - making informed judgments and choices
  - communicating knowledge and understanding
  - capacities to continue learning

Tuning List of key questions for programme design and delivery Bologna Reform based programmes

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CREDITS AND WORKLOAD – Key questions:

- Is the degree programme ECTS based? Is it in alignment with the ECTS key features?
- Have credits been allocated to the programme? How is the adequacy of this allocation guaranteed?
- How are credits related to the learning outcomes of this programme?
- How is the correlation between workload and credit allocation checked?
- How is a balanced student workload guaranteed during each learning period in terms of learning, teaching and assessment activities?
- What mechanisms are used for revision of credit allocation and learning, teaching and assessment activities? How are the students involved in this process?
- Is information on the programme (modules and/or course units) presented as described in the ECTS Users' Guide?
- How is student mobility facilitated in the programme?
- How are students advised about mobility?
- How are the key documents of ECTS used for mobility?
- Who is responsible for recognition and which are the procedures

Common format: Template for Summary of Tuning Subject Area Findings

[8-12 pages in total]

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1. Introduction to the subject area

2. Degree profile(s) [in table form]

Typical degrees offered in the subject area:

First cycle in (name subject area / specific parts)

Second cycle in (name subject area / specific parts)

Third cycle in (name subject area / specific parts)

Typical occupations of the graduates in the subject area (map of professions)

First cycle / Second cycle / Third cycle

Role of subject area in other degree programmes:

Which programmes and in what way.

3. Learning outcomes & competences - cycle level descriptors [in table form]

First cycle / Second Cycle / Third cycle (subject specific and generic)

Consultation process with stakeholders

Common format: Template for Summary of Tuning Subject Area Findings

[8-12 pages in total]

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4. Workload and ECTS

Workload of the typical degree programmes expressed in ECTS-credits:

First cycle (180-240?)

Second cycle (60-90-120?)

Third cycle (120-180-240?)

Trends and differences within the European higher education area in this subject area.

5. Learning, teaching & assessment

Three example of best practice in learning, teaching and assessment to achieve competences relevant to the subject area.

6. Quality enhancement

Subject area related observations on the use of Tuning tools in programme design, delivery, monitoring and improvement.

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Socrates

Competences | Workload & ECTS | Teaching, Learning & Assessment | Quality Enhancement

What is Tuning?

search...

- What is Tuning?
  - Background
  - Aims and objectives
  - Organizational structure
- Tuning Methodology
- Subject Areas
- Documents
- Presentations
- Publications
- Newsletter
- Events
- Links
- Contact
- News
- Intranet
- Tuning Latin America

Tuning Educational Structures in Europe

The project Tuning Educational Structures in Europe is at the heart of the Bologna - Prague - Berlin - Bergen process. It is one of the few projects in Europe that actually links the political objectives set in the Bologna Declaration of 1999 to the higher education sector. Tuning is a project developed by and meant for higher education institutions.

The Tuning project focuses not on educational systems, but on educational structures and content of studies. Whereas educational systems are primarily the responsibility of governments, educational structures and content are that of higher education institutions. As a result of the Bologna Declaration the educational systems in all European countries are in the process of reforming. This is the direct effect of the political decision to converge the different national systems in Europe. For Higher Education institutions these reforms mean the actual starting point for an other discussion: the comparability of curricula in terms of structures, programmes and actual teaching. In this reform process the required academic and professional profiles and needs of society (should) play an important role.

Tuning has published a Report of the Second Phase "Universities' contribution to the Bologna Process"

Events Calendar

March 2006

S	M	T	W	T	F	S
26	27	28	1	2	3	4
5	6	7	8	9	10	1
12	13	14	15	16	17	1
19	20	21	22	23	24	2
26	27	28	29	30	31	1

This month

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Websites

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http://tuning.unideusto.org/tuningeu/

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