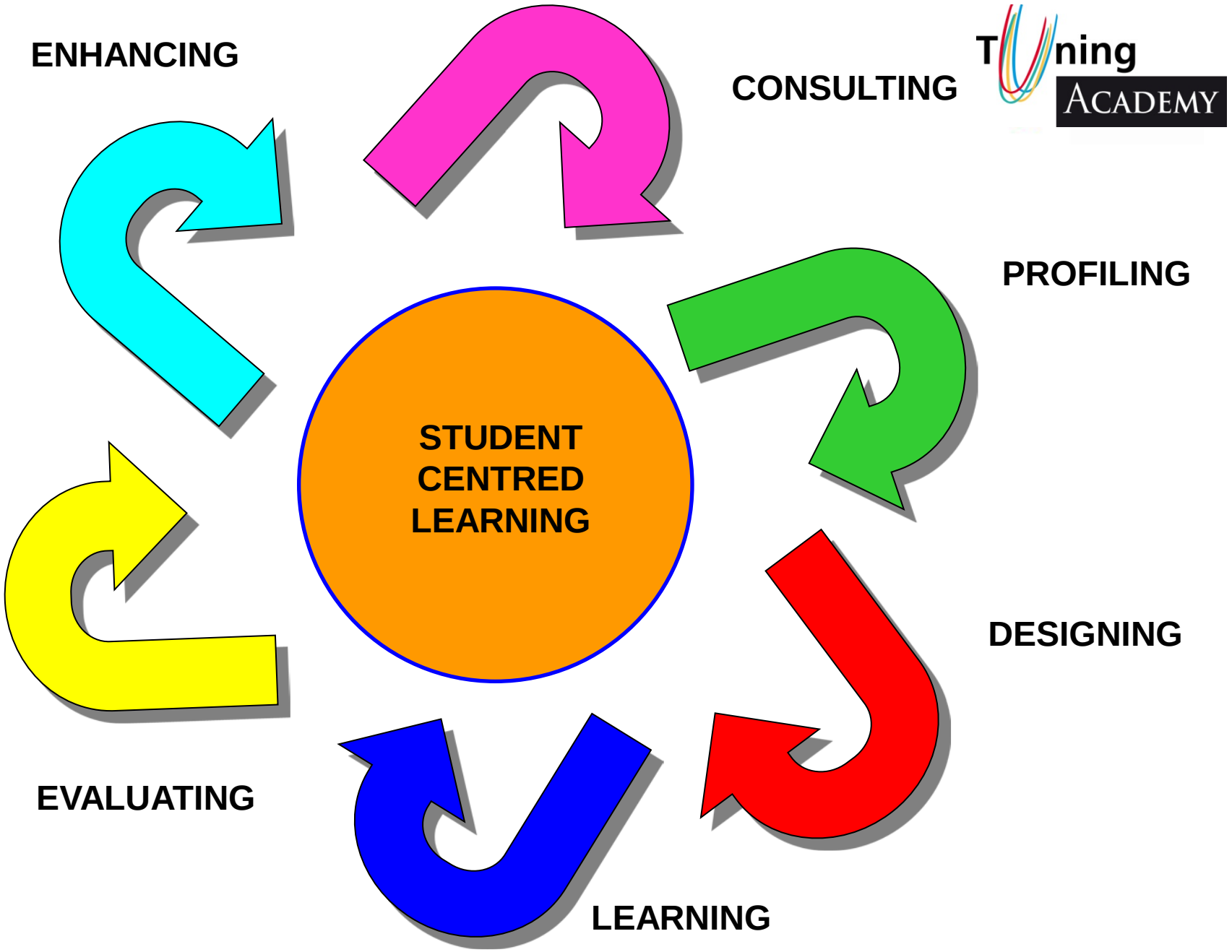
Workshop Tuning Japan

From consulting to profiling: some examples of Meta–Profiles

Pablo Beneitone and Robert Wagenaar

Tokyo, March 2015


ENHANCING
CONSULTING
PROFILING
STUDENT CENTRED LEARNING
DESIGNING
EVALUATING
LEARNING

Key elements

Tuning Academy

Meta profile

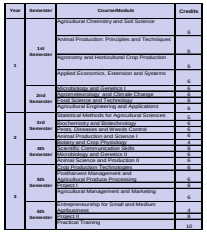
Degree profile

Programme

Key Competences

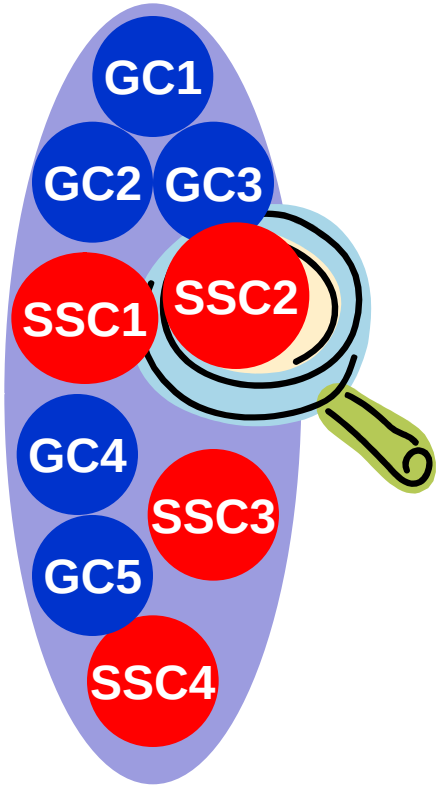
KC

LEARNING OUTCOMES



Year	Semester	Course/Module	Credits
1	1st Semester	Agricultural Chemistry and Soil Science	6
		Animal Production: Principles and Techniques	6
		Agronomy and Horticultural Crop Production	6
		Applied Economics, Extension and Systems	6
	2nd Semester	Agrometeorology and Climate Change	6
		Food Science and Technology	6
		Agricultural engineering and Applications	6
2	3rd Semester	Statistical Methods for Agricultural Sciences	6
		Biochemistry and Biotechnology	6
		Agricultural Entrepreneurship and Project	6
	4th Semester	Animal Production and Science I	6
		Botany and Crop Physiology	6
		Scientific Communication Skills	6
3	5th Semester	Microbiology and Genetics II	6
		Animal Science and Production II	6
		Crop Protection Technologies	6
		Fruit/Harvest Management and Agricultural Produce Processing	6
		Project I	6
		Agricultural Management and Marketing	6
	6th Semester	Entrepreneurship for Small and Medium Agribusiness	6
		Project II	6
		Practical Training	10

Concepts. Definitions



Degree profile

Describes in terms of competences and learning outcomes what graduates will know, understand and be able to do by the time they have successfully completed the programme.

A set of key competences (Generic (GC) and Subject Specific (SS)) to be developed by the learners in the framework of a programme.

Should be very concise and it needs to be very clear.

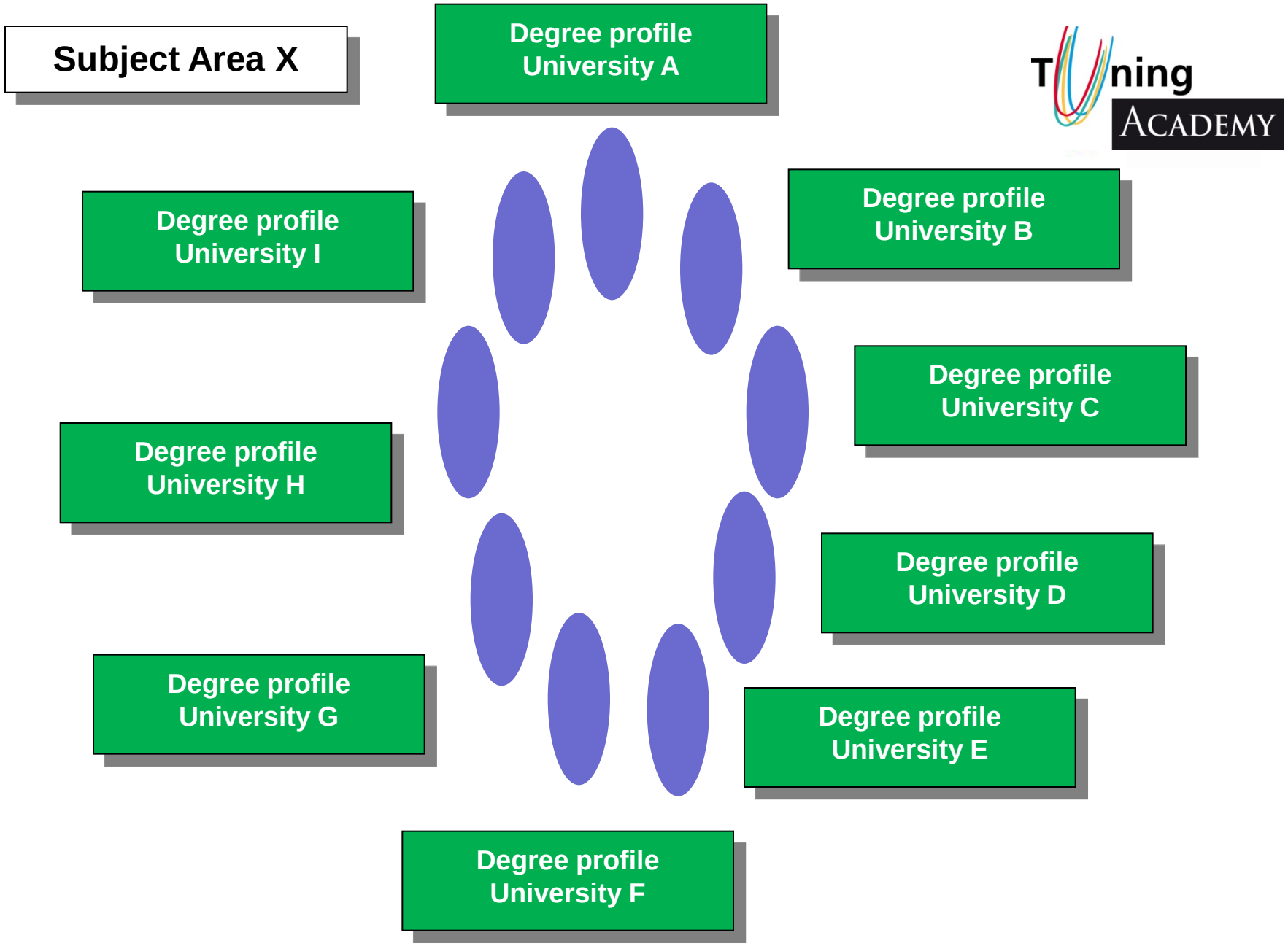
Provides a tool for: COMMUNICATION, TRANSPARENCY and RECOGNITION

Concepts. Definitions

Competence

What is a competence according to Tuning?

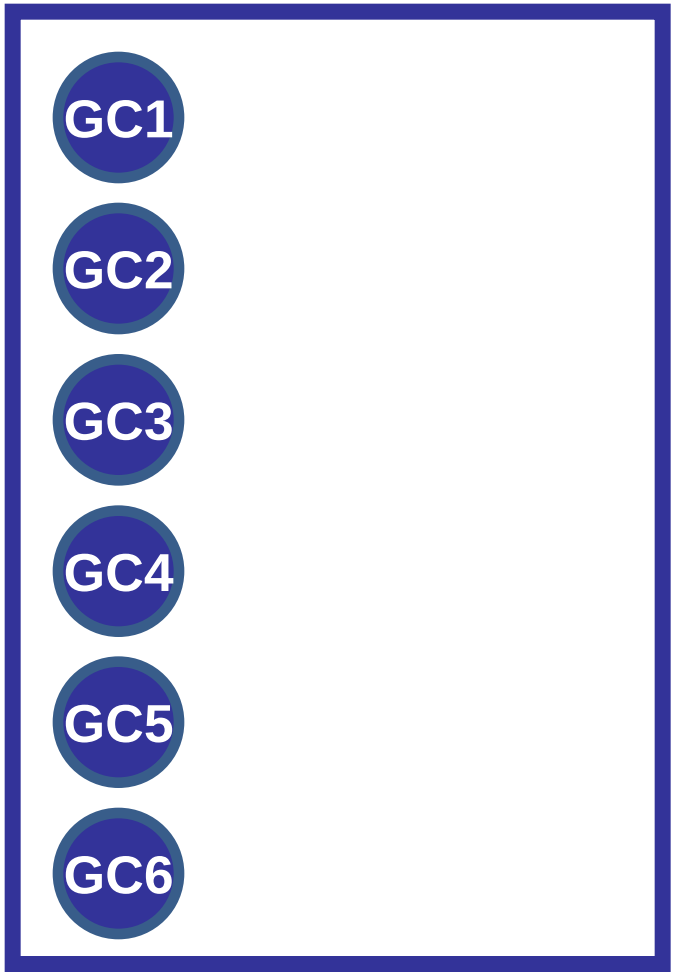
- Is a broad concept
- Represents a dynamic combination of:
  - Knowledge and understanding at different levels
  - Skills and abilities
  - Attitudes and values
- Competences are used to define degree profiles
- Competences are formed in various course units and assessed at different stages.
- Some competences are subject area related (specific to a field of study) while others are generic (common to any degree programme)


Subject Area X
Degree profile University A
Degree profile University B
Degree profile University C
Degree profile University D
Degree profile University E
Degree profile University F
Degree profile University G
Degree profile University H
Degree profile University I
Tuning Academy

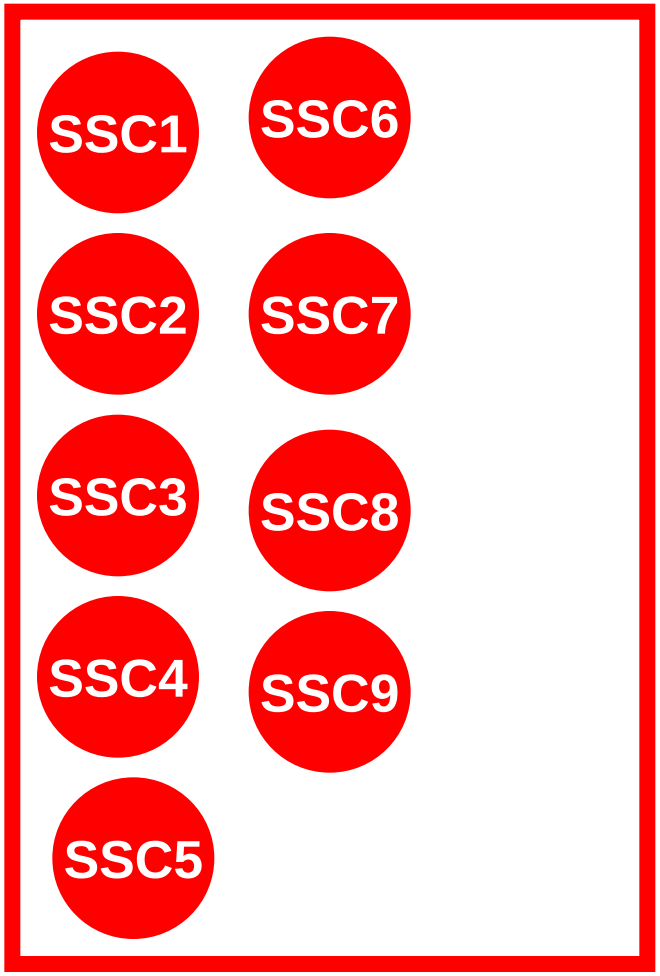
Subject Area X

Tuning Academy

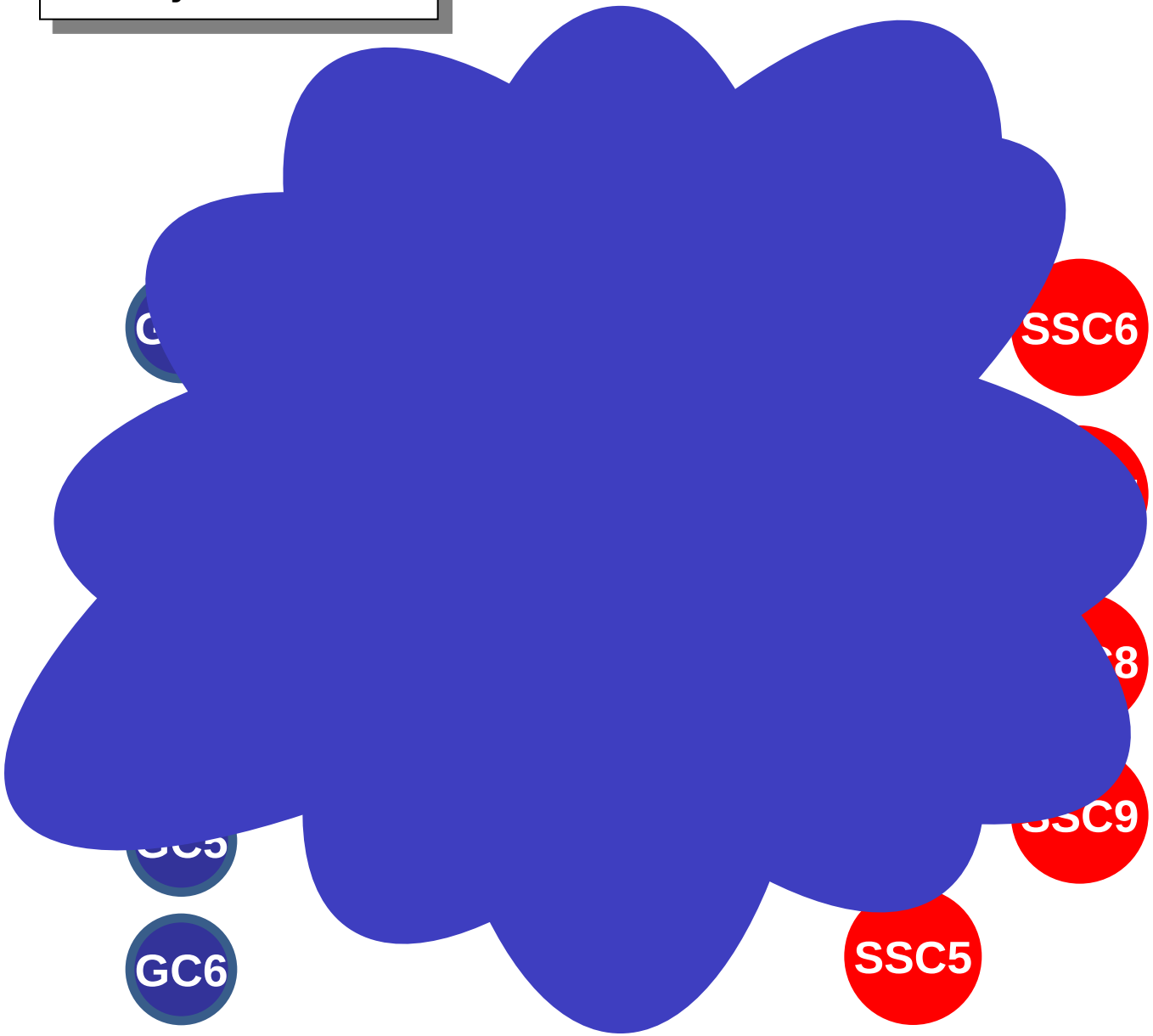
List of Generic Competences



List of Subject Specific Competences



Subject Area X



Meta profile

A Meta – profile is a group´s representation of the structure and combination of competences which gives identity to a thematic area.

The meta-profiles are referential elements and they are always mental constructions, destined to reflect and analyse the possible and diverse real degree profiles

Key elements

Tuning Academy

Meta profile

Degree profile

Programme

Key Competences

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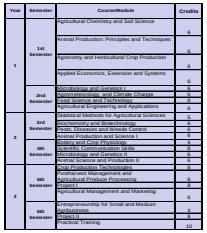
LEARNING OUTCOMES



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Some examples of META-PROFILES

TUNING AFRICA - Civil Engineering

List of 18 Generic Competences

- GC1
- GC2
- GC3
- GC4
- GC5
- GC6

List of 54 Subject Specific Competences

- SSC1
- SSC2
- SSC3
- SSC4
- SSC5
- SSC6
- SSC7
- SSC8
- SSC9

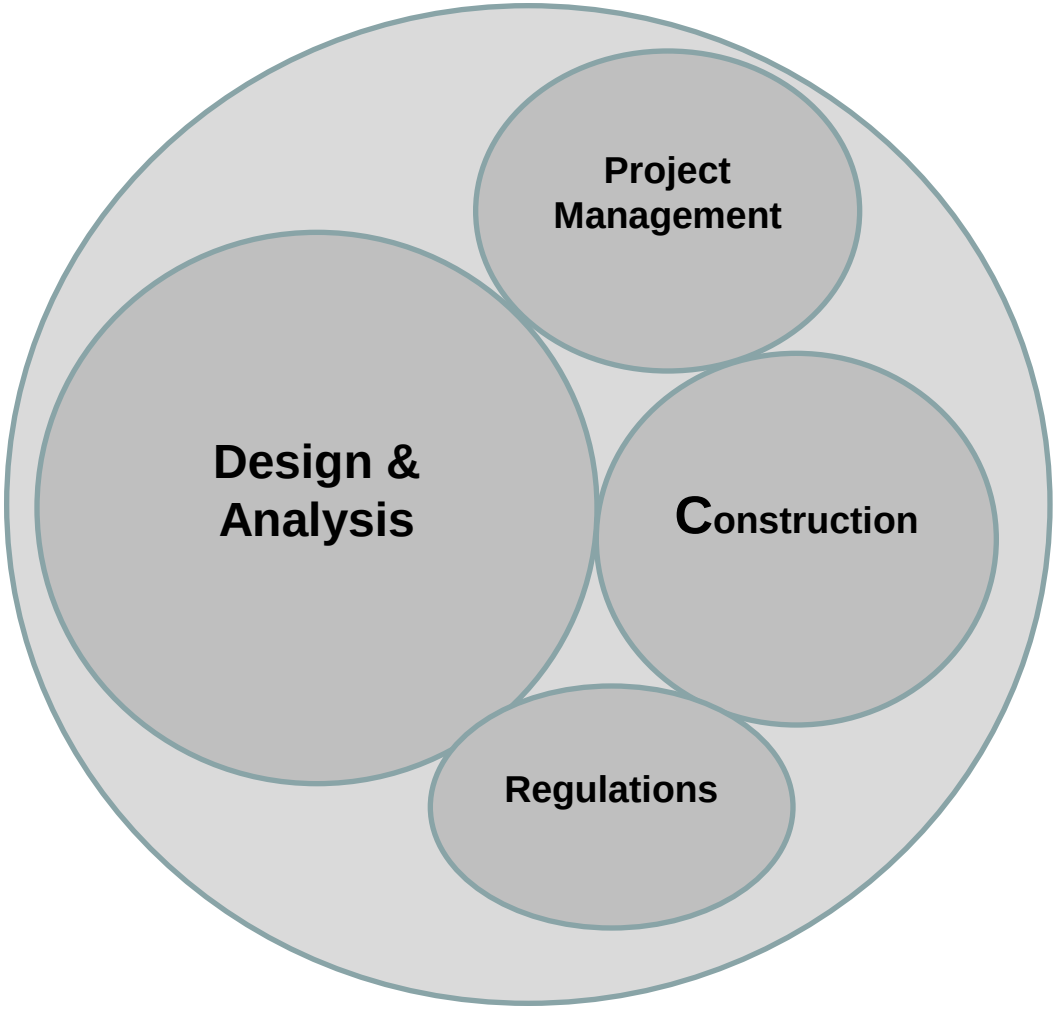
Original Subject Specific Competences for Civil Engineering in Africa (54 competences)

1. Ability to identify the need for construction of any type and structure (new, old)
2. Ability to identify different options (e.g. the need to demolish, reconstruct, maintain, rehabilitate, renovate and to plan those activities)
3. Skills in cost, quality and time optimization
4. Skills in Environmental and Social Impact Assessment
5. Skills in cost, quality and time optimization
6. Knowledge about the context and challenges of environment and development
7. Ability to transmit project requirements into sketches and explain it to clients
8. Ability to analyse, reconfigure and apply relevant drawings, data and technologies
9. Ability to coordinate, supervise and control
10. Capacity to model and simulate systems, structures, projects and processes
11. Ability to effective and professional interaction with other professions and to come to integrate solutions
12. Ability to design
13. Knowledge of plant and equipment
14. Capacity to test the quality of building materials
15. Skills in research on appropriate technologies
16. Skills in developing new construction technologies and materials
17. Skills of testing materials and technologies
18. Skills in cost, quality and time optimization
19. Ability to calculate design parameters (Mathematical skills)
20. Ability to analyse (mathematical and abstract background as basis for decision making)
21. Ability to program (to plan the process and allocate resources)
22. Knowledge about national and international construction standards
23. Ability to identify appropriate legal frameworks
24. Skills in handling data / information (survey data, soil information, materials data, environmental data, social data ...)
25. Knowledge of maintenance of infrastructure
26. Ability to calculate and quantify
27. Ability to effective and professional interaction with other professions and to come to integrate solutions

Original Subject Specific Competences for Civil Engineering in Africa (54 competences)

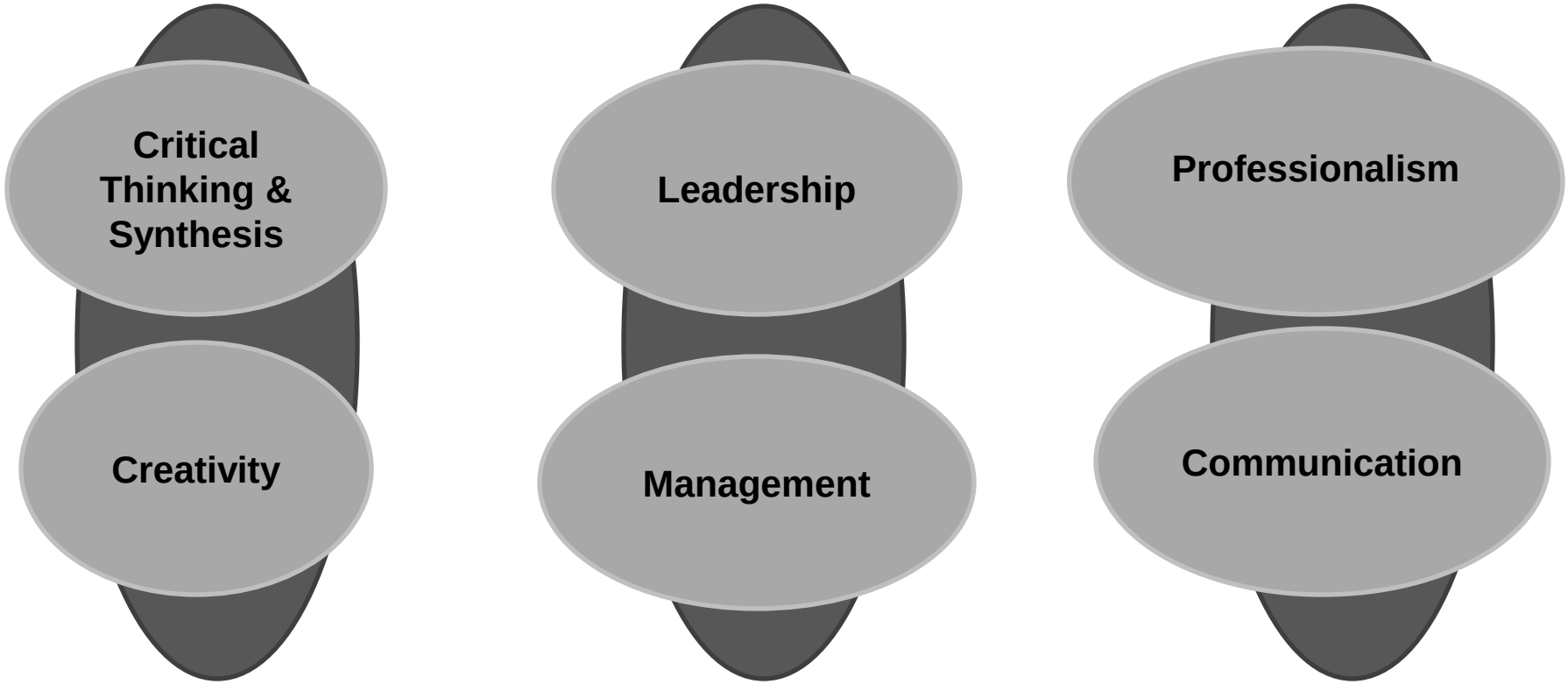
28. Understanding contractual and financial management aspects as well as of insurance and guarantees aspects (procurement)
29. Ability to program (to plan the process and allocate resources)
30. Skills in cost, quality and time optimization
31. Ability of translating, interpreting of data and/or drawings into actual construction
32. Knowledge of plant and equipment
33. Ability of translating, interpreting of data and/or drawings into actual construction
34. Ability to effective and professional interaction with other professions and to come to integrate solutions
35. Knowledge on basic Construction management principles (Work Breakdown, Time, Risk, Quality, Resource, Financial and HR Management, Monitoring)
36. Ability to coordinate, supervise and control
37. Knowledge of plant and equipment
38. Commitment to health and safety
39. Knowledge of maintenance of infrastructure
40. Ability to reconstruct, maintain, rehabilitate, renovate Ability/skills to supervise construction
41. Ability to program (to plan the process and allocate resources)
42. Capacity to test the quality of building materials
43. Skills in developing new construction technologies and materials
44. Ability to supervise/manage
45. Ability to control construction
46. Quality management/ Skills in quality control techniques
47. Skills in cost, quality and time optimization
48. Capacity to introduce health and safety measures in construction and materials
49. Skills in handling data / information (survey data, soil information, materials data, environmental data, social data ...)
50. Skills to deal with dispute resolutions
51. Skills to finalize financial implications and legal responsibilities
52. Skills to deal with dispute resolutions
53. Skills to address defects and quality issues
54. Skills in commissioning

After consultation process, the following core clusters were identified in Africa for Civil Engineering:



The group was in consensus that these four core clusters are identified as central in most Civil Engineering curricula of the Universities taking part in the Tuning project.

Clusters of Generic Competences (also linked with Subject Specific Competences)



Clustering ….

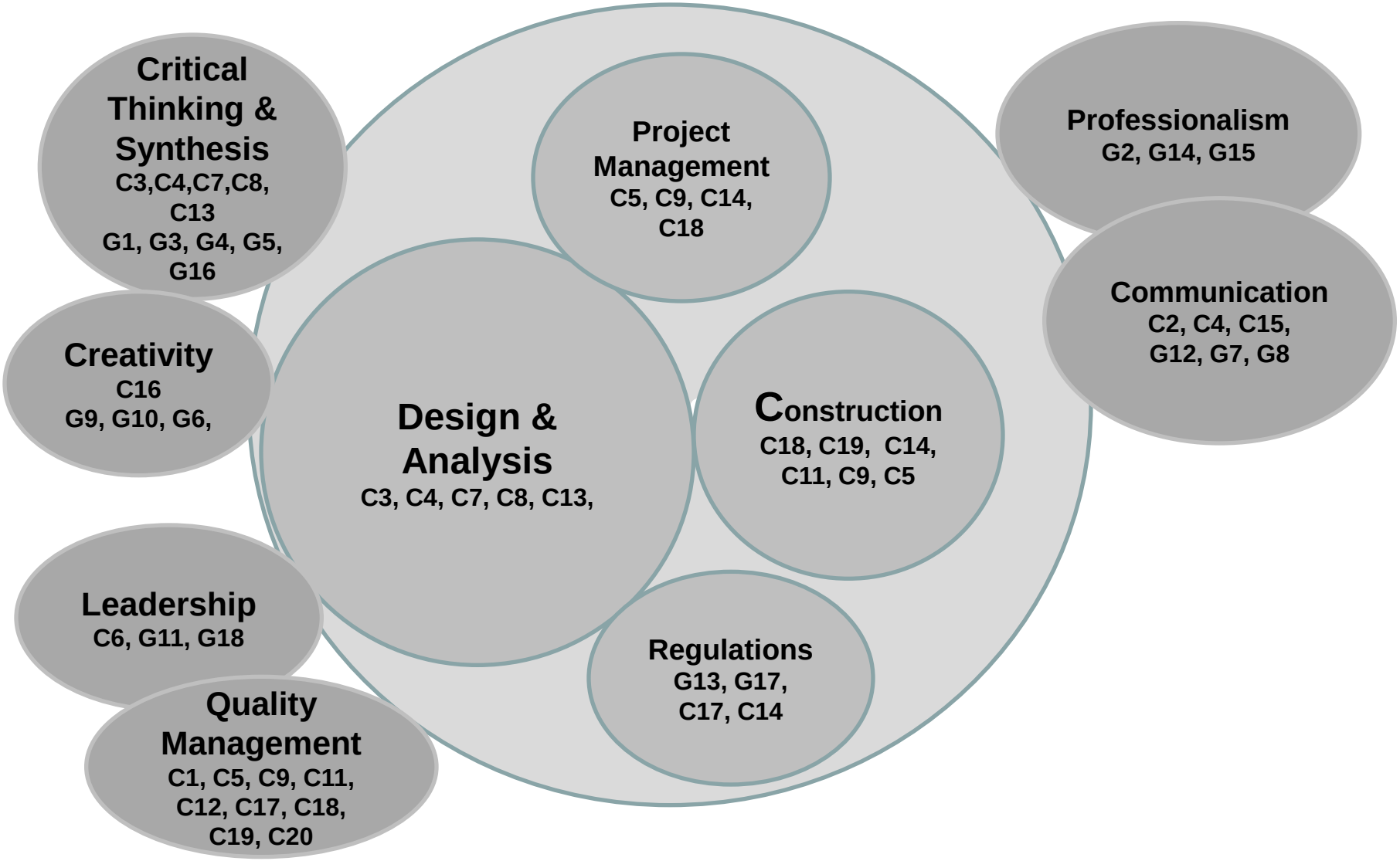
	Subject Specific Competence	Cluster
1.	Ability to coordinate, manage, supervise and control construction	Management
2.	Ability to translate and interpret for data and/or drawings into actual construction	Communication
3.	Ability to design, quantify and calculate parameters and capacity to model and simulate systems, structures, projects and processes	Design & Analysis
4.	Ability to analyze, reconfigure and apply relevant drawings, data and technology and ability to transmit project requirements into sketches and explaining it to clients	Design & Communication
5.	Knowledge to reconstruct, maintain, rehabilitate, renovate and knowledge of maintenance of infrastructure	Management
6.	Skills in cost, quality and time optimization and quality control techniques	Leadership
7.	Skills in handling data or information (survey data, soil information…)	Analysis
8.	Ability to identify the need for construction of any type and structure and ability to identify different options	Analysis
9.	Knowledge of basic construction management principles and to program	Management
10.	Commitment to health and safety and capacity to introduce safety measures in construction and materials	Regulations
11.	Capacity to test the quality of materials	Quality Management
12.	Quality management and skills to address defects and quality issues	Quality Management
13.	Ability to analyze (mathematical abstract background as basis for decision making)	Analysis
14.	Knowledge about national and international construction standards	Regulations
15.	Ability to develop effective and professional interaction with other professions and to come to integrate solutions	Communication
16.	Skills in developing new, appropriate and sustainable construction technologies and materials	Creativity
17.	Skills to finalize financial implications and identify legal responsibilities and frameworks	Management & Regulations
18.	Knowledge of plant and equipment	Management
19.	Basic understanding of contractual and financial management as well as of insurance and guarantee aspects	Management
20.	Skills in environmental and social impact assessment, knowledge about the context and the challenges of development	Regulations & Sustainability

Tuning Academy

After this reflection process the group agreed 20 Subject Specific Competences for Civil Engineering in Africa organized by clusters

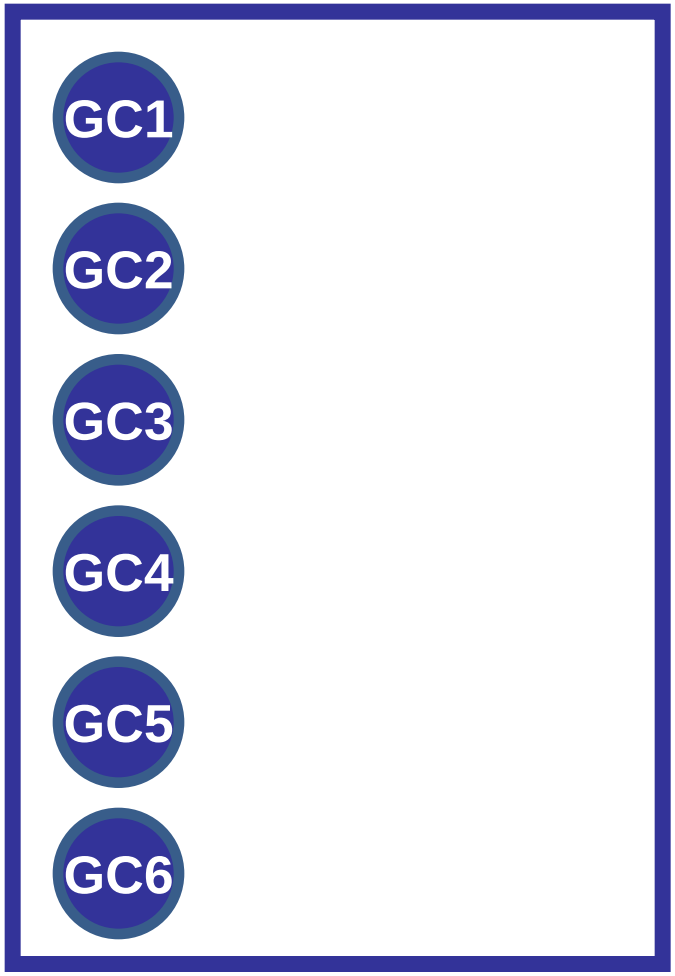
They integrated 18 Generic Competences and they elaborated a Meta-profile for Civil Engineering in Africa

An example of Metaprofile: Civil Engineering in Africa

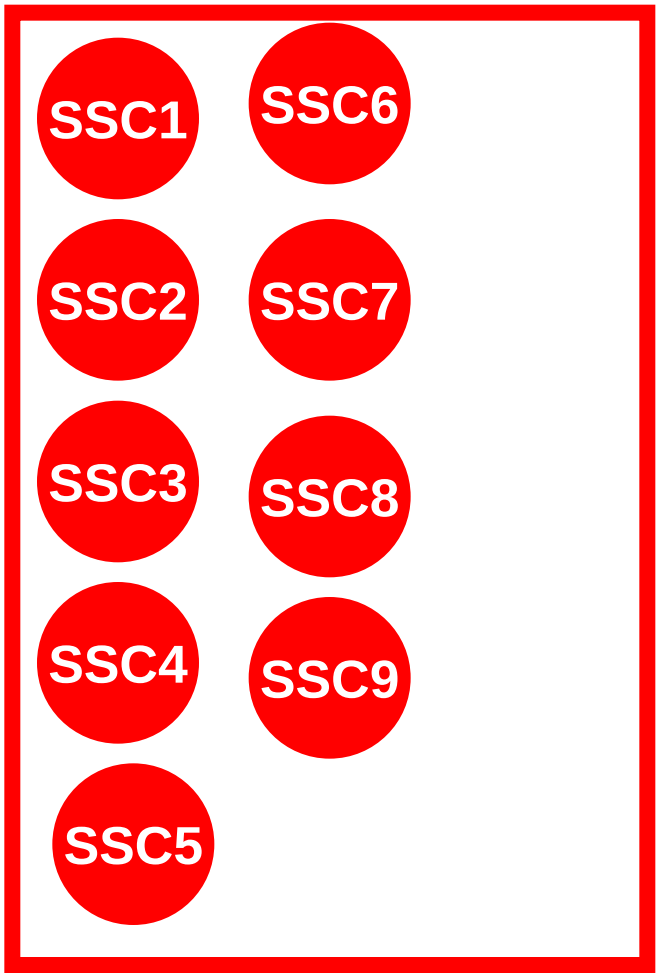


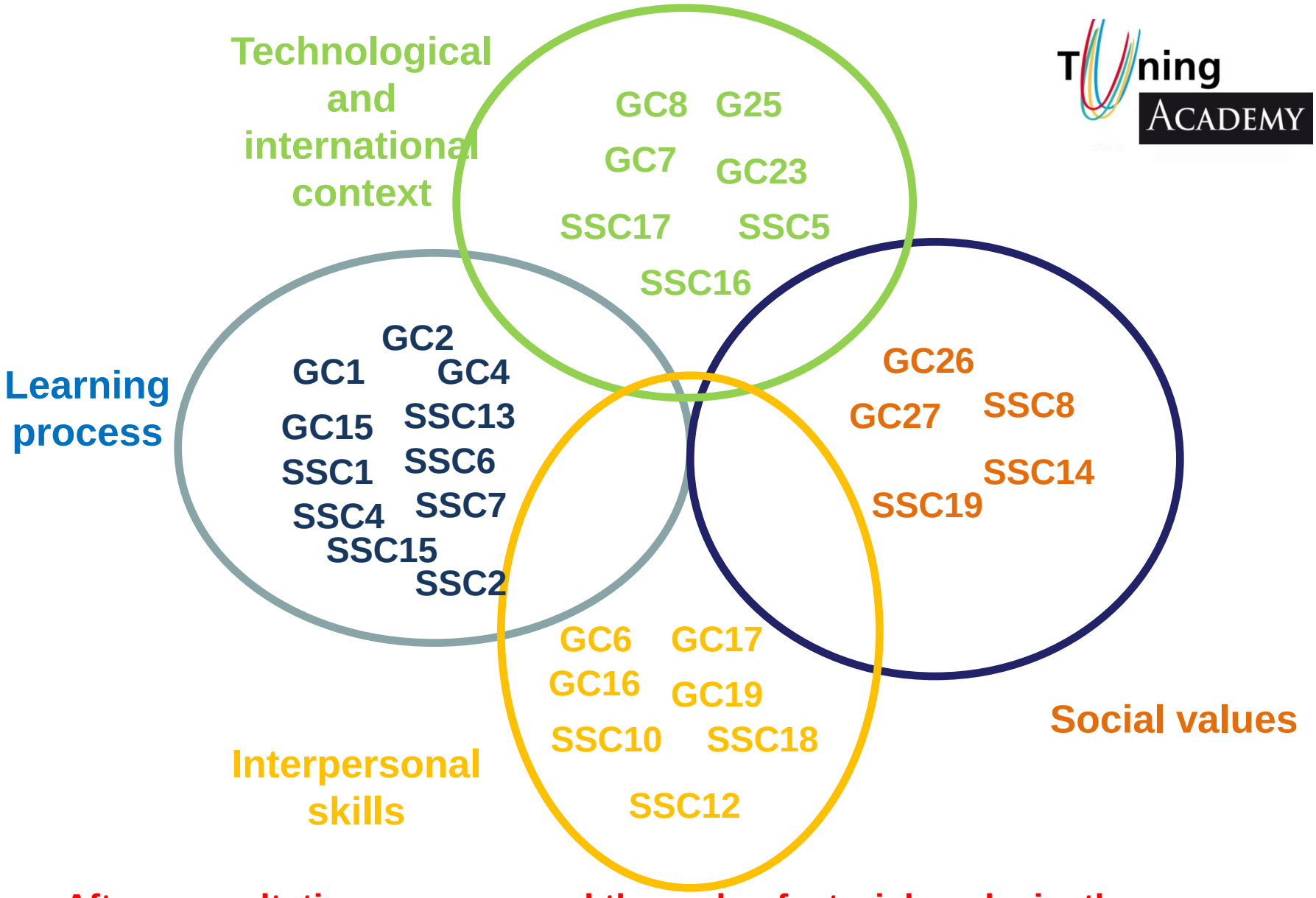
TUNING AMÉRICA LATINA - Civil Engineering

List of 27 Generic Competences



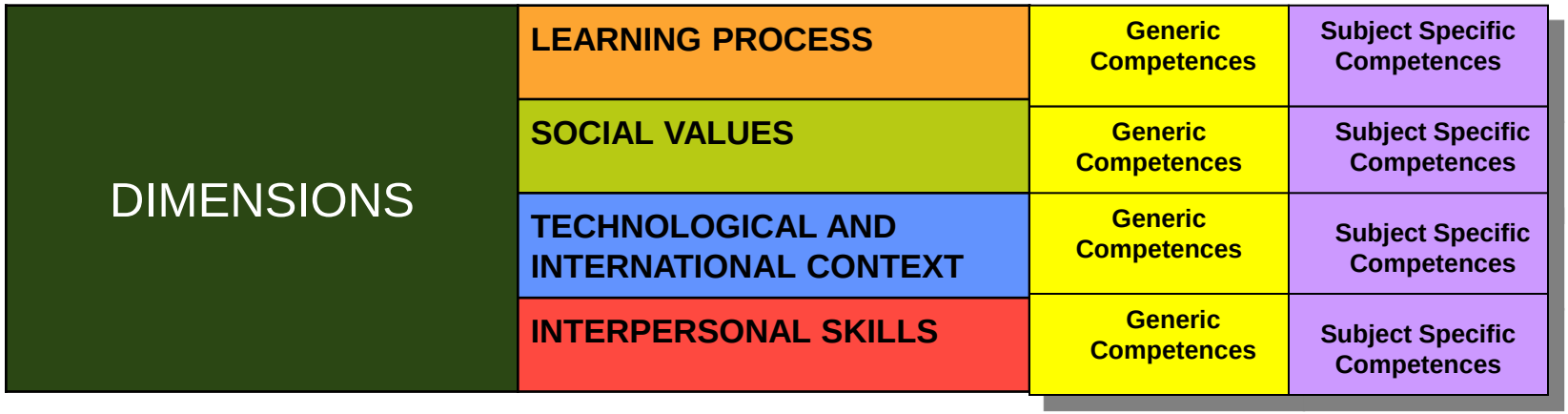
List of 19 Subject Specific Competences for Civil Engineering





After consultation process, and through a factorial analysis, the group identified 4 factors/dimensions for Civil Engineering in Latin America

Clustering ...


DIMENSIONS
LEARNING PROCESS
SOCIAL VALUES
TECHNOLOGICAL AND INTERNATIONAL CONTEXT
INTERPERSONAL SKILLS
Generic Competences
Generic Competences
Generic Competences
Generic Competences
Subject Specific Competences
Subject Specific Competences
Subject Specific Competences
Subject Specific Competences

LEARNING PROCESS
GC1 - Capacity for abstraction, analysis, and synthesis
SSC 13 - Capacity for spatial abstraction and graphic representation
GC2 - Ability to apply knowledge in practice
SSC 1 - Ability to apply knowledge of the basic sciences and sciences of civil engineering
GC 4 - Knowledge regarding the area of study and related profession
SSC 4 - Capacity to conceive, analyse, calculate and design civil engineering works
SSC 6 - Capacity to build, supervise, inspect and evaluate civil engineering works
SSC 7 - Capacity to operate, maintain and rehabilitate civil engineering works
GC 15 - Ability to identify, pose, and solve problems
SSC 15 - Skill in preventing and evaluating accidents and risks in civil engineering works
SSC 2 - Ability to identify, evaluate and implement the most appropriate technologies for the context in hand.

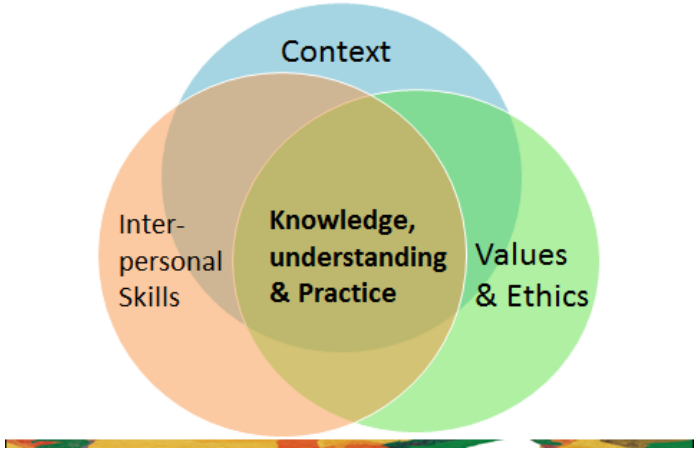
SOCIAL VALUES	GC26 - Ethical commitment
	SSC8 - Skill in evaluating the environmental and social impact of civil works
	SSC14 - Capacity to propose solutions that will contribute to sustainable development
	GC27 - Commitment to quality.
	SSC 19 - Skill in employing quality control techniques in managing civil engineering materials and services.

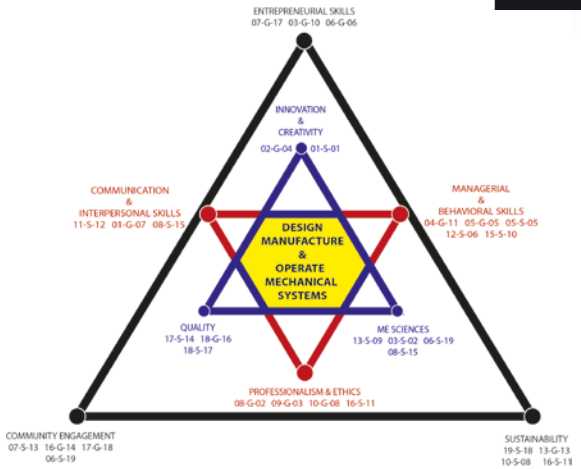
TECHNO-LOGICAL AND INTERNA-TIONAL CONTEXT	GC8 - Ability to use information and communication technology
	SSC17 - Skill in using information technologies, software and tools for civil engineering
	GC25 - Ability to formulate and manage projects
	SSC5 - Skill in planning and programming civil engineering works and services
	SSC 16 - Skill in handling and interpreting field information
	GC7- Ability to communicate in a second language
	GC23 - Ability to work in international contexts

INTERPER-SONAL SKILLS	GC16 - Ability to make decisions
	SSC10 -Capacity to direct and lead human resources
	SSC12 - Capacity to understand and associate legal, economic and financial concepts in decision-making, project management and civil engineering works
	GC17 - Ability to work as part of a team
	SSC 18 - Capacity to interact with multidisciplinary groups and come up with integral civil engineering solutions
	GC6- Capacity for oral and written communication
	GC19 - Ability to motivate and work towards common goals

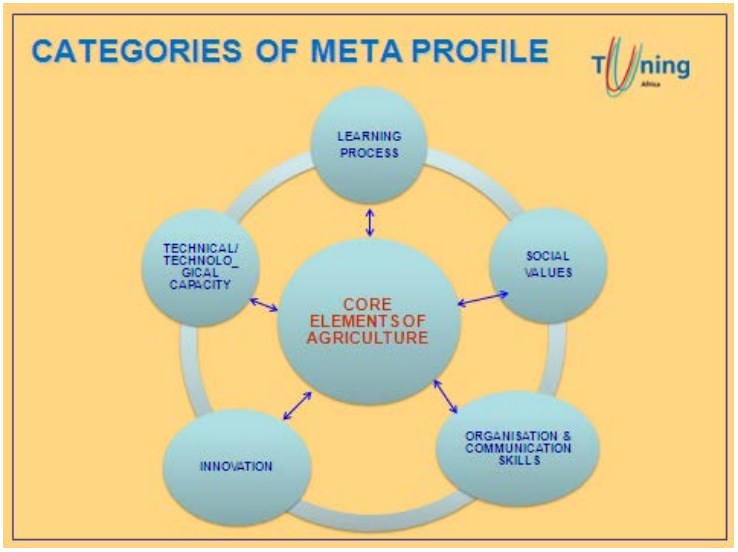
Meta-profile for Civil Engineering in Latin America

Examples of META PROFILES

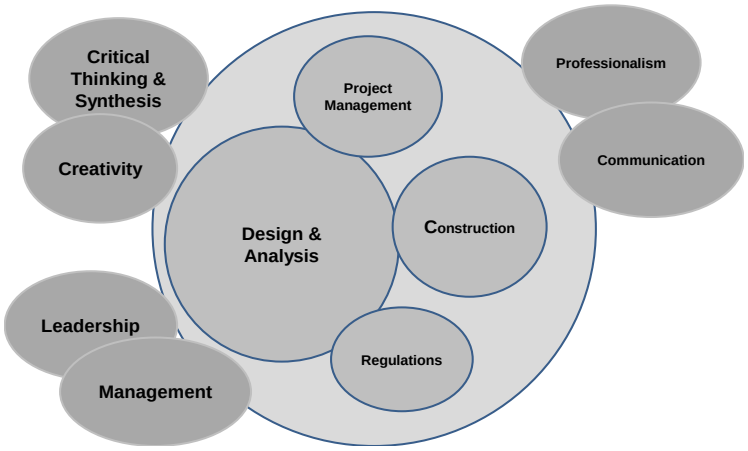


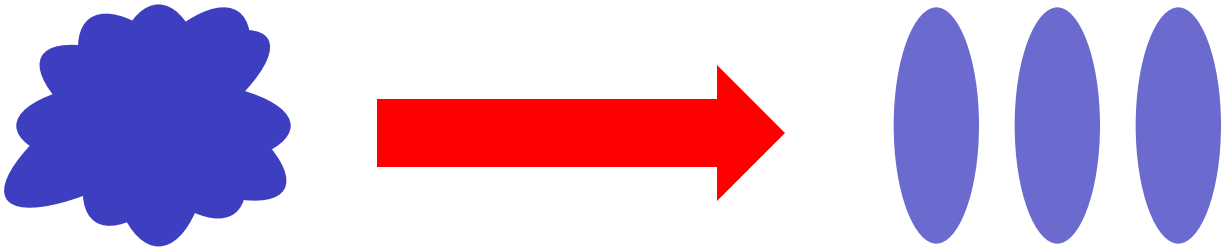


Graphical Representation of Mechanical Engineering Meta - Profile



Civil Engineering Meta Profile





Meta profile

Degree profiles

Contrast the agreed meta-profile with each degree profile in the partner institutions