

Tuning Middle East and North Africa

T-MEDA

Second General Meeting

From consulting to profiling: some examples of Meta- Profiles

Pablo Beneitone

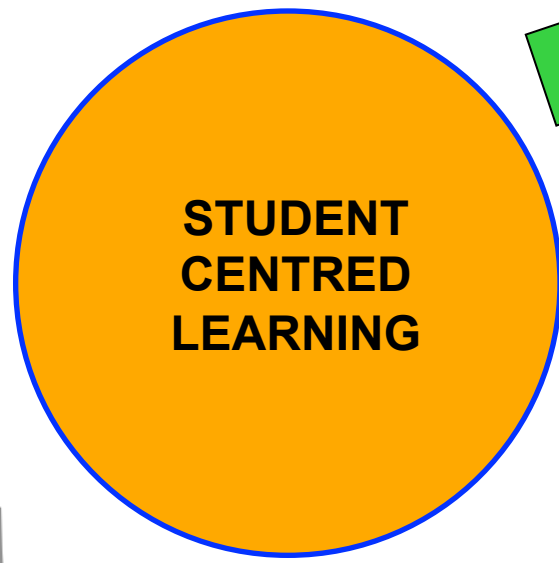
Bilbao, 29th September 2014

ENHANCING

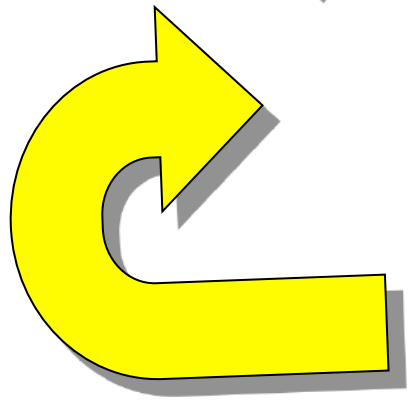
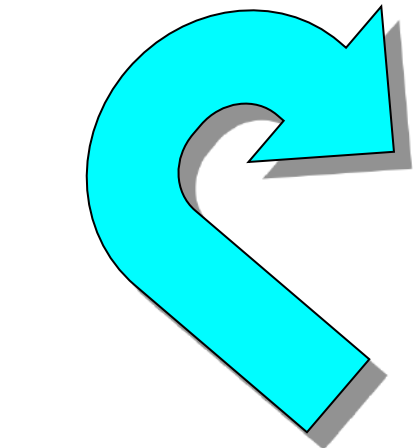
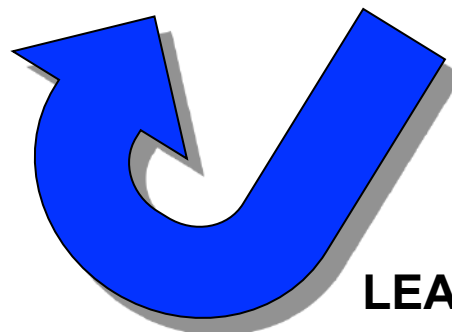
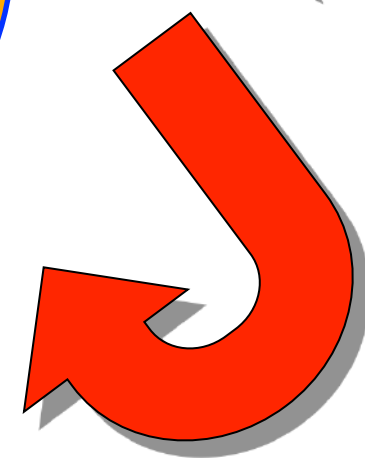
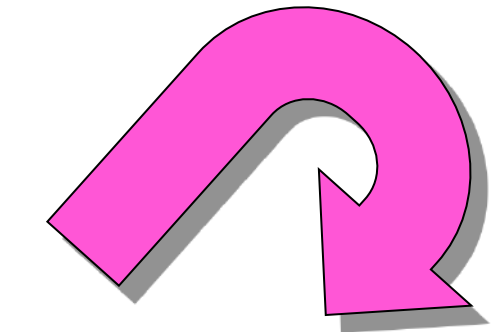
CONSULTING

PROFILING

DESIGNING



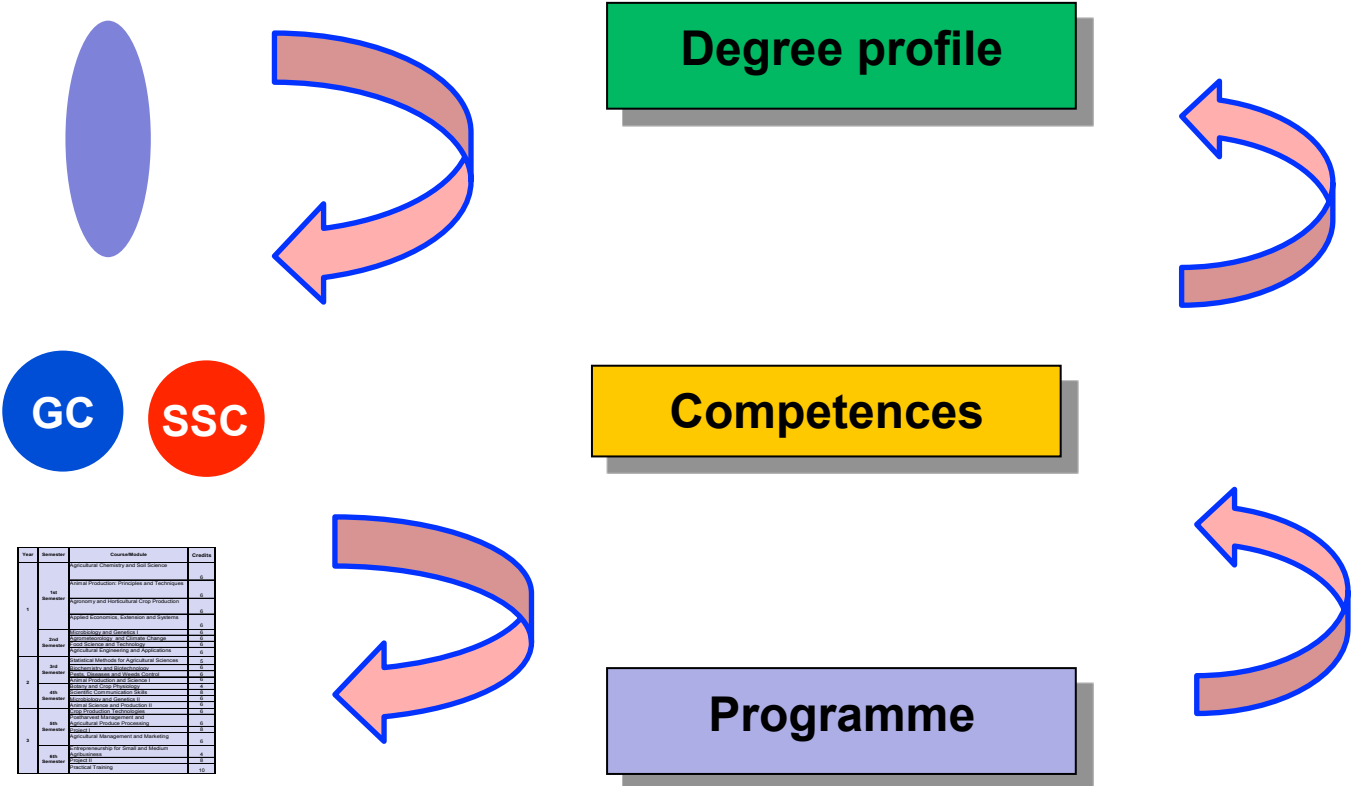
**STUDENT
CENTRED
LEARNING**



EVALUATING

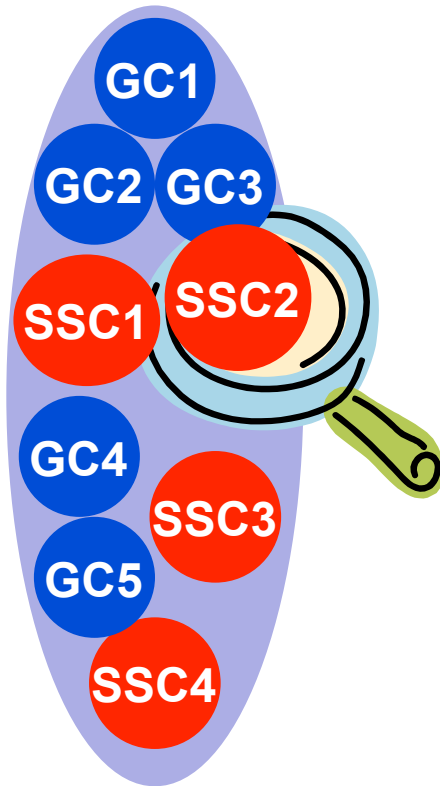
LEARNING

Key elements



Year	Semester	Courses/Modules	Credits
1	1st Semester	Agricultural Chemistry and Soil Science	5
		General Introduction Principles and Mathematics	5
	2nd Semester	Agricultural and Mechanical Crop Production	5
		Applied Economics, Marketing and Systems	5
		Plant Physiology and Pathology	5
		Plant Nutrition and Fertilization	5
2	1st Semester	Plant Breeding and Plant Genetic Resources	5
		Plant Production and Soil Science	5
	2nd Semester	Plant Production and Soil Science	5
		Plant Production and Soil Science	5
		Plant Production and Soil Science	5
		Plant Production and Soil Science	5
3	1st Semester	Plant Production and Soil Science	5
		Plant Production and Soil Science	5
	2nd Semester	Plant Production and Soil Science	5
		Plant Production and Soil Science	5
		Plant Production and Soil Science	5
		Plant Production and Soil Science	5

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**

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 I**

**Degree profile
University B**

**Degree profile
University H**

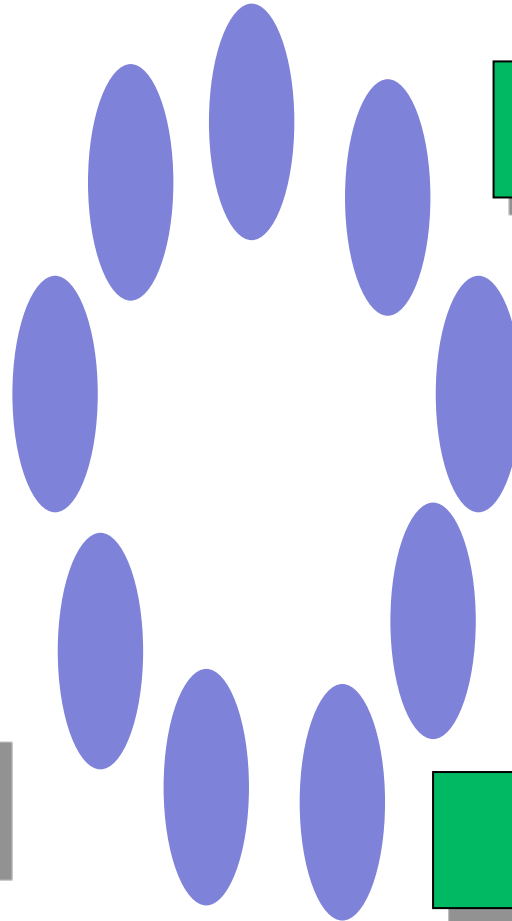
**Degree profile
University C**

**Degree profile
University G**

**Degree profile
University D**

**Degree profile
University E**

**Degree profile
University F**



Subject Area X

List of Generic Competences

GC1

GC2

GC3

GC4

GC5

GC6

List of Subject Specific Competences

SSC1

SSC6

SSC2

SSC7

SSC3

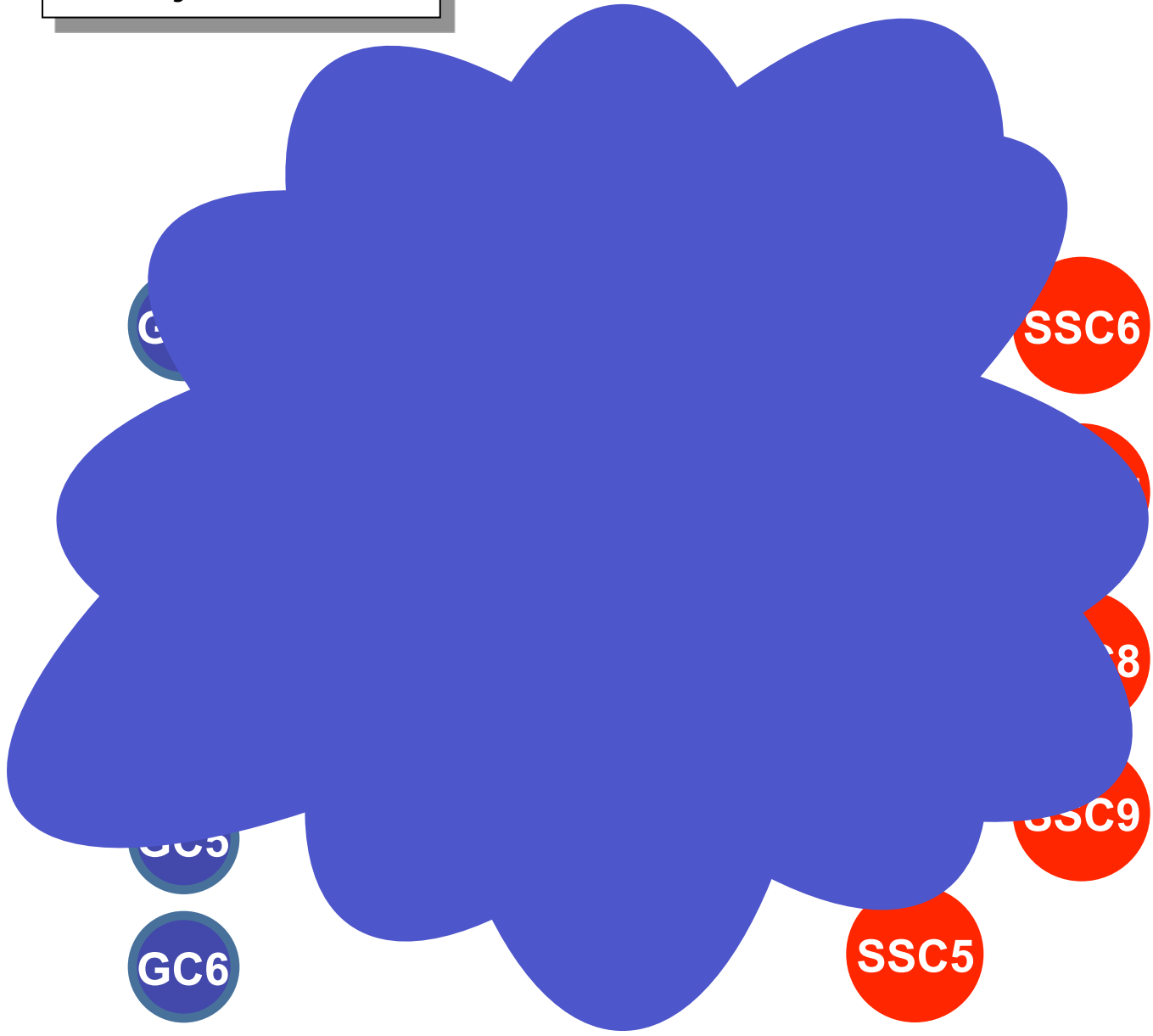
SSC8

SSC4

SSC9

SSC5

Subject Area X



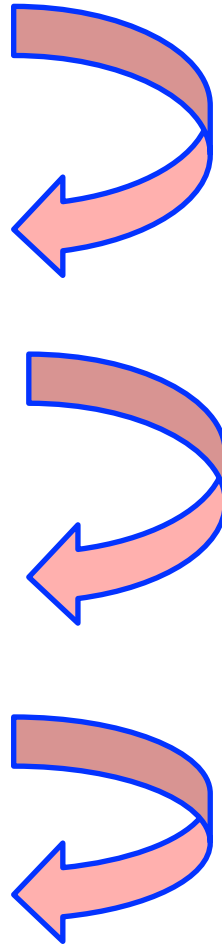
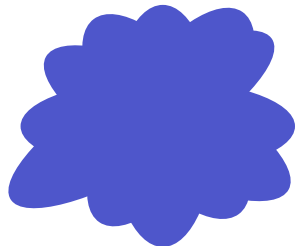
Meta profile



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

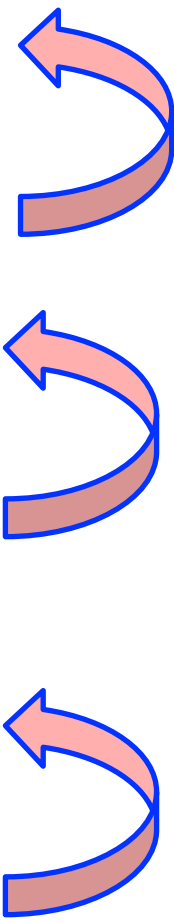


Meta profile

Degree profile

Competences

Programme



Year	Semester	Course/Module	Credits
1	1st Semester	Agricultural Chemistry and Soil Science	6
		Animal Production: Principles and Techniques	6
		Genetics and Molecular Biology	6
	2nd Semester	Animal Nutrition, Welfare and Systems	6
		Biotechnology and Genetics I	6
		Introduction to Agricultural Engineering	6
2	3rd Semester	Animal Health and Production	6
		Animal Health and Production	6
		Animal Health and Production	6
	4th Semester	Animal Health and Production	6
		Animal Health and Production	6
		Animal Health and Production	6
3	5th Semester	Animal Health and Production	6
		Animal Health and Production	6
		Animal Health and Production	6
	6th Semester	Animal Health and Production	6
		Animal Health and Production	6
		Animal Health and Production	6

Some examples of META-PROFILES

List of 18 Generic Competences

GC1

GC2

GC3

GC4

GC5

GC6

List of 54 Subject Specific Competences

SSC1

SSC6

SSC2

SSC7

SSC3

SSC8

SSC4

SSC9

SSC5

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



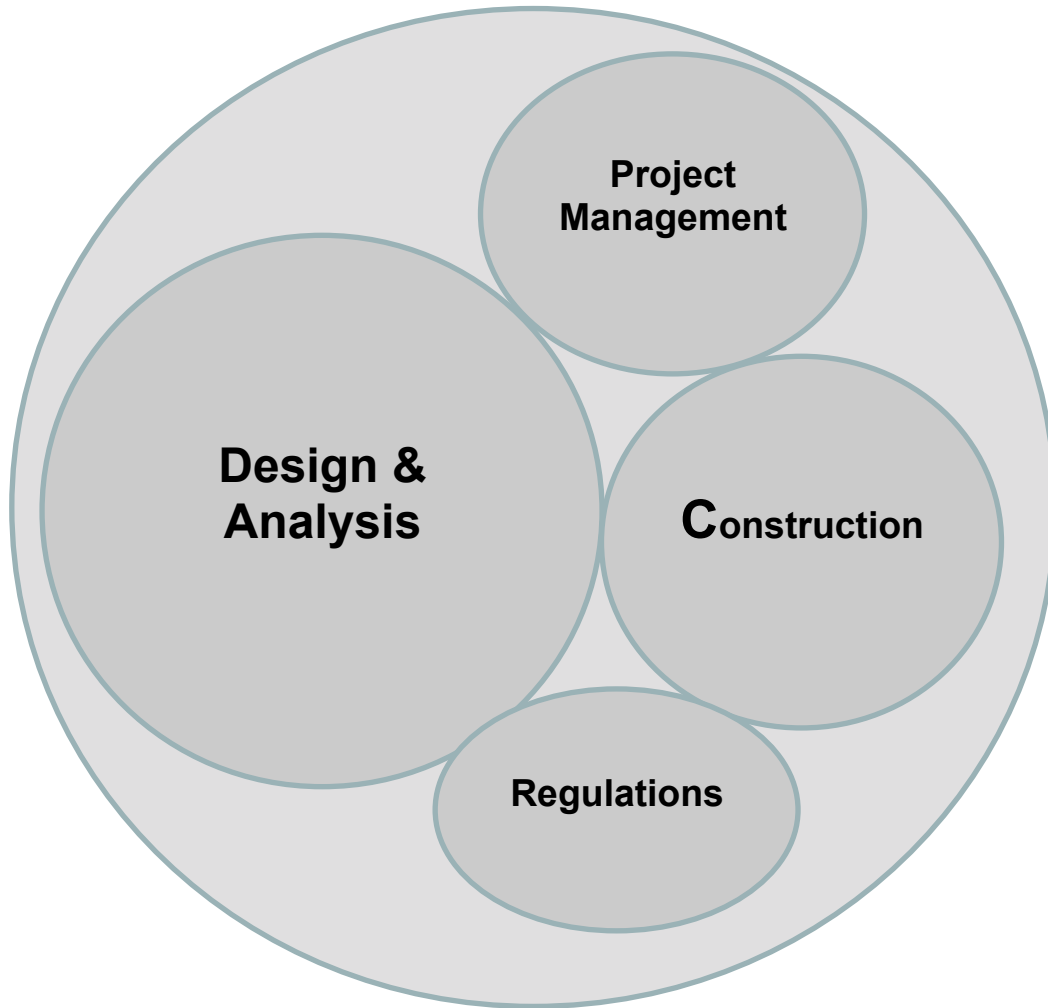
1. Ability to identify the need for construction of any type and structure (new, old)
2. Ability to identify different options (e.g. the need to demolish, reconstruct, maintain, rehabilitate, renovate and to plan those activities)
3. Skills in cost, quality and time optimization
4. Skills in Environmental 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)



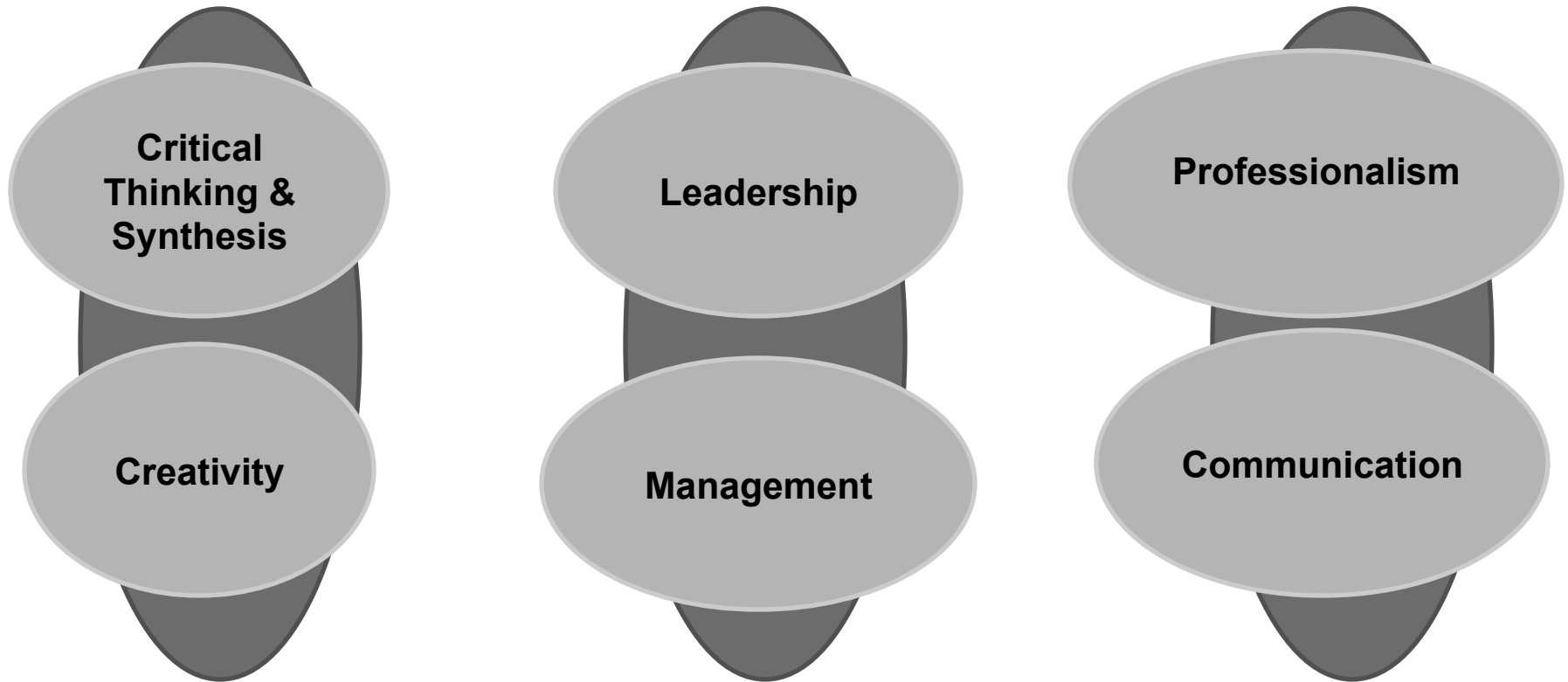
28. Understanding contractual and financial management aspects as well as of insurance and guarantees aspects (procurement)
29. Ability to program (to plan the process and allocate resources)
30. Skills in cost, quality and time optimization
31. Ability of translating, interpreting of data and/or drawings 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)



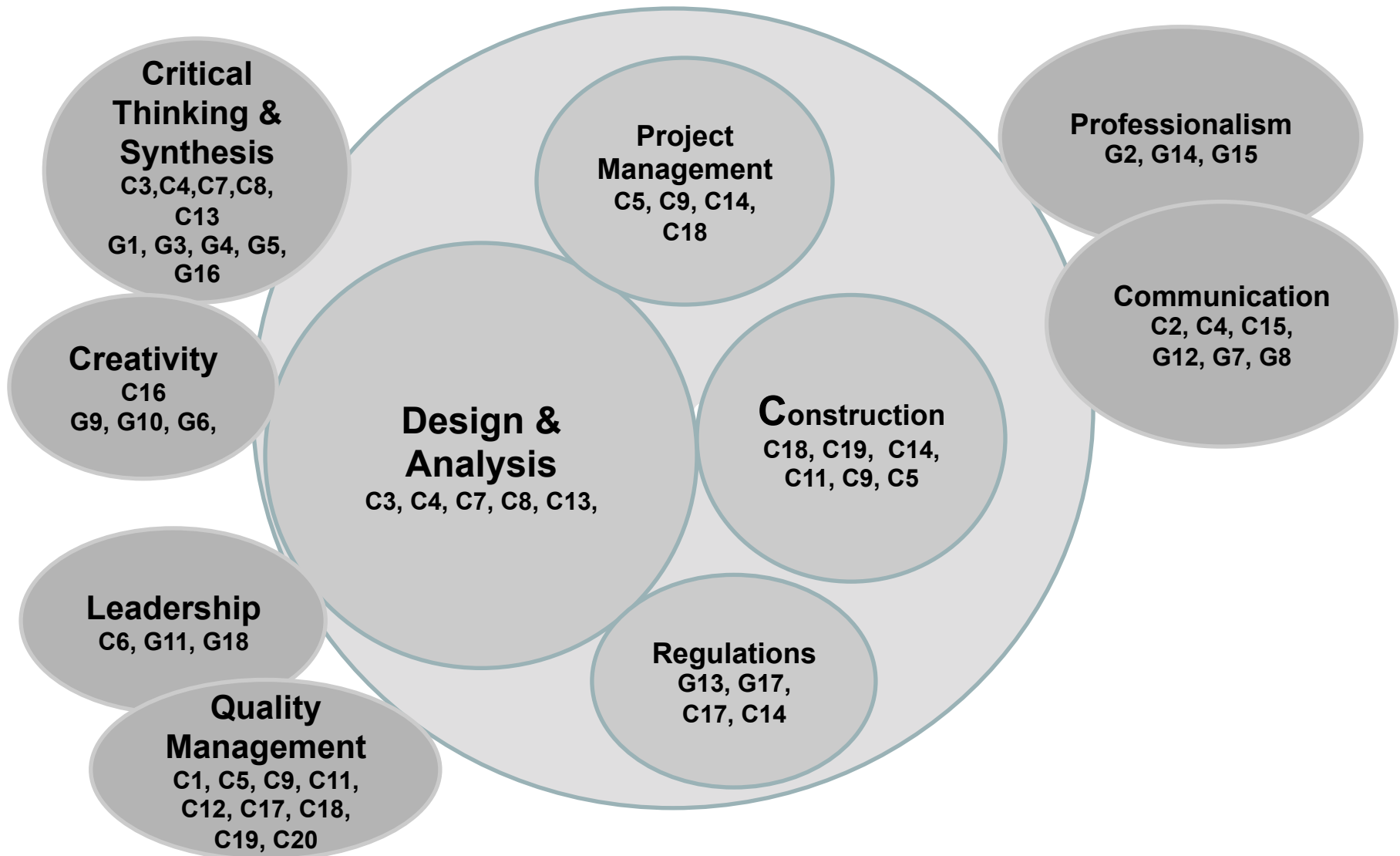
Clustering

	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

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



List of 27 Generic Competences

GC1

GC2

GC3

GC4

GC5

GC6

List of 19 Subject Specific Competences for Civil Engineering

SSC1

SSC6

SSC2

SSC7

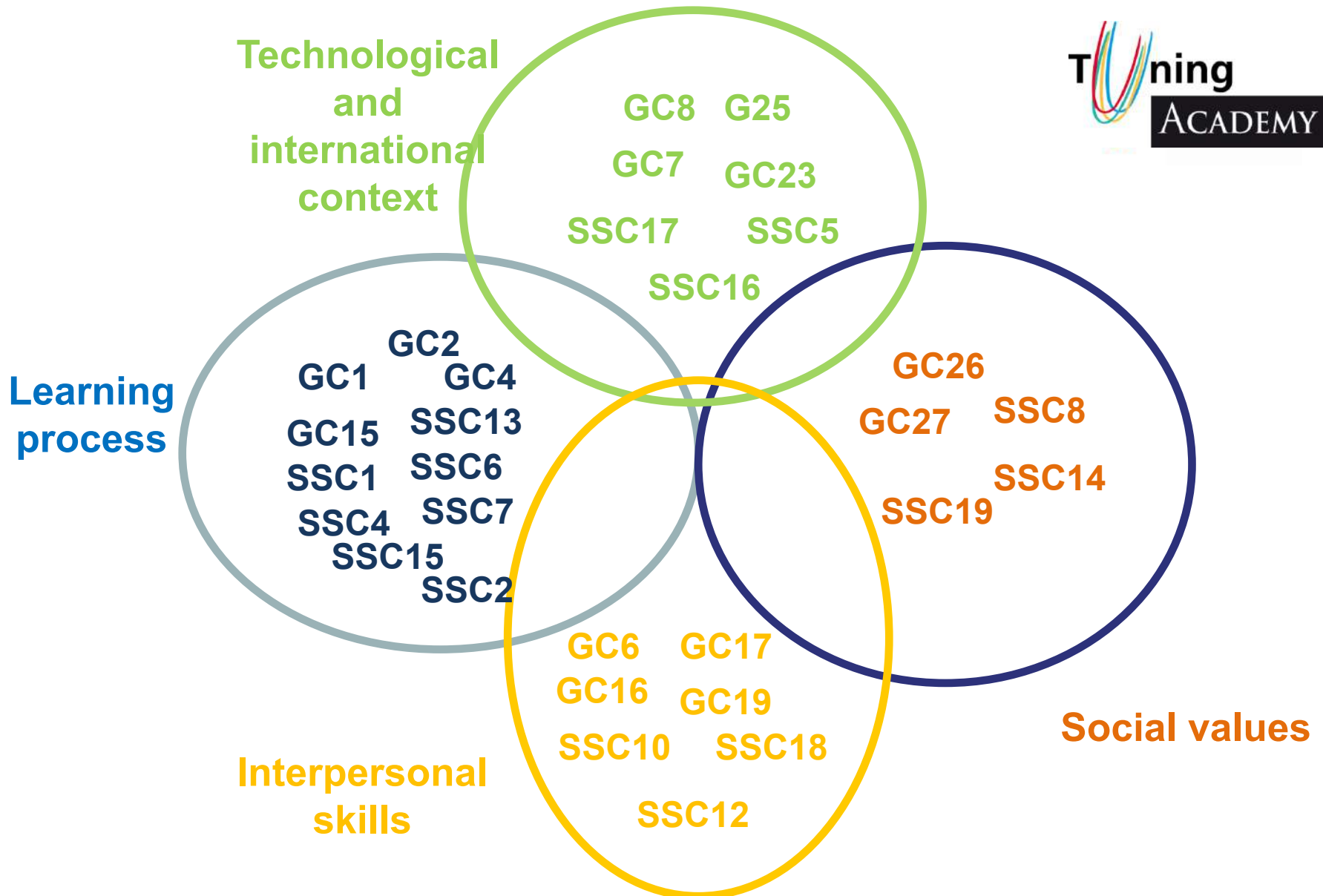
SSC3

SSC8

SSC4

SSC9

SSC5



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

Clustering ...

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

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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.

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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

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

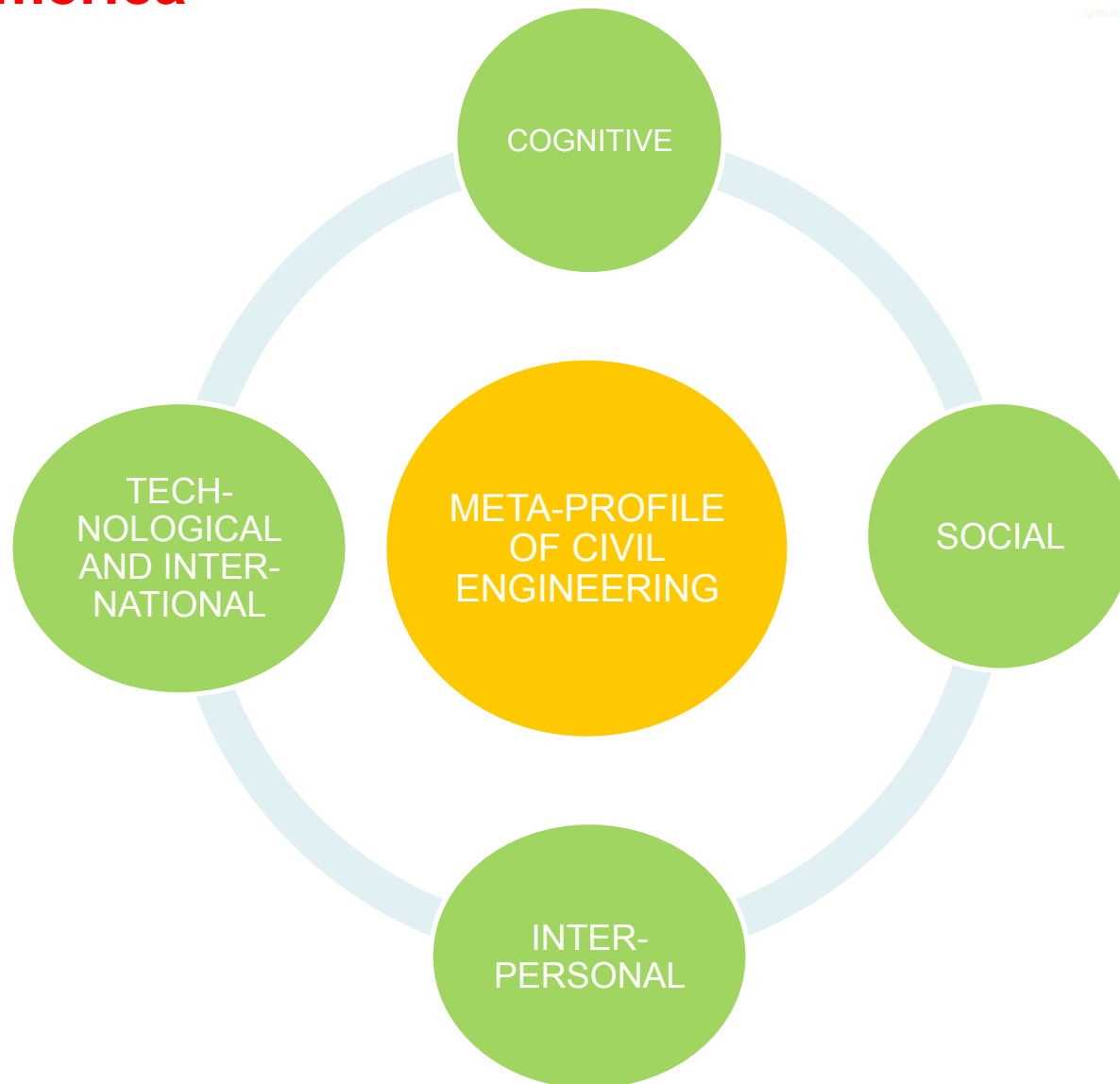
SSC 18 - Capacity to interact with multidisciplinary groups and come up with integral civil engineering solutions

GC6- Capacity for oral and written communication

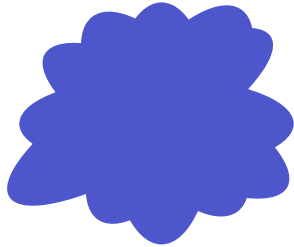
GC19 - Ability to motivate and work towards common goals

**INTERPER-
SONAL
SKILLS**

Meta-profile for Civil Engineering in Latin America



Tasks to be done (during the meeting)



Meta profile

1. Elaborate the meta profile

Eskerrik asko