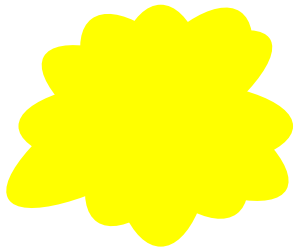


How do we make High Quality Degree Programmes?

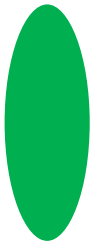
Using Tuning approach to design a Degree Programme

Pablo Beneitone

Hashemite University, 18 May 2015



Meta profile



Degree profile

Year	Semester	Course/Module	Credits
1	1st Semester	General Chemistry and Lab	6
		General Physics: Principles and Techniques	6
	2nd Semester	Organic and Inorganic Chemistry	6
		Physical Chemistry: Equilibrium and Kinetics	6
		Mathematics: Calculus	6
		Mathematics: Algebra and Trigonometry	6
2	3rd Semester	Advanced Organic Chemistry	6
		Advanced Inorganic Chemistry	6
	4th Semester	Physical Chemistry: Electrochemistry and Surface Chemistry	6
		Mathematics: Probability and Statistics	6
		Mathematics: Differential Equations	6
		Mathematics: Matrix Algebra	6
3	5th Semester	Advanced Physical Chemistry	6
		Advanced Organic Chemistry	6
	6th Semester	Advanced Inorganic Chemistry	6
		Advanced Organic Chemistry	6
		Advanced Physical Chemistry	6
		Advanced Organic Chemistry	6

Programme



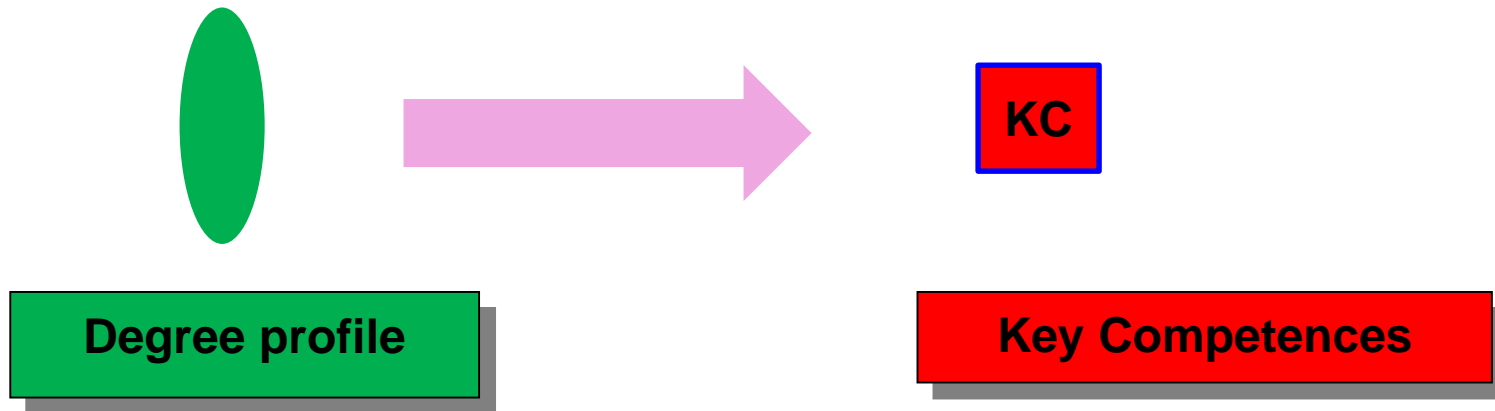
Institutional level

KC

Key Competences

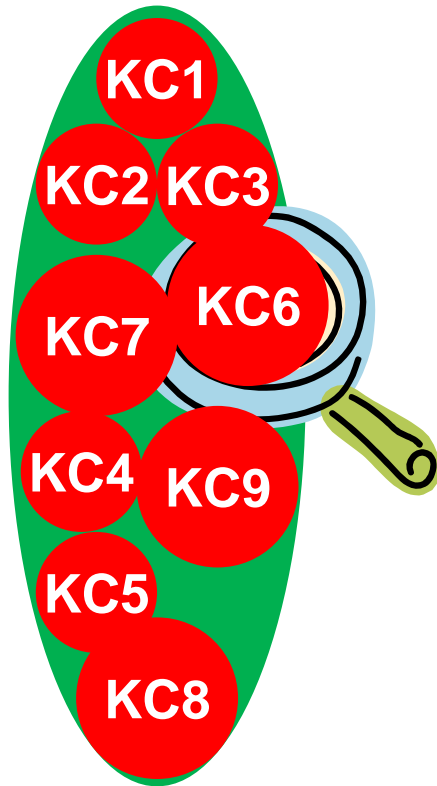
LEARNING OUTCOMES

From Profiling to Designing: 7 steps



1. Revise the degree profile to accommodate the agreed competences.

1. Revise the degree profile to accommodate the agreed competences.



Degree profile

A set of **key competences** to be developed by the learners in the framework of a **programme**.

Key elements:

A. Purpose

B. Characteristics

C. Length

D. Level

E. Employability & further education

F. Key Programme competences

and learning outcomes

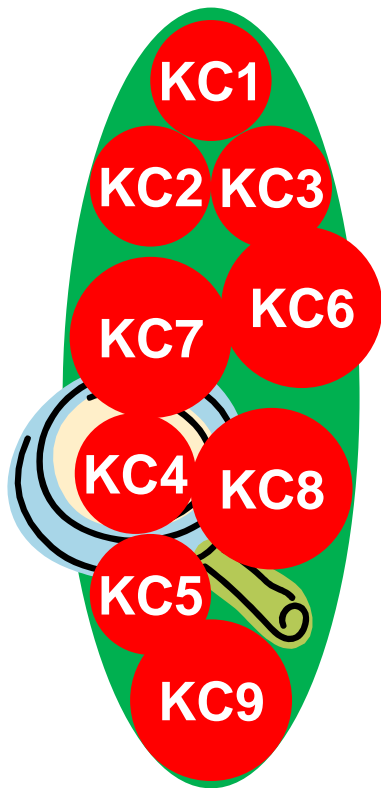


Degree profile

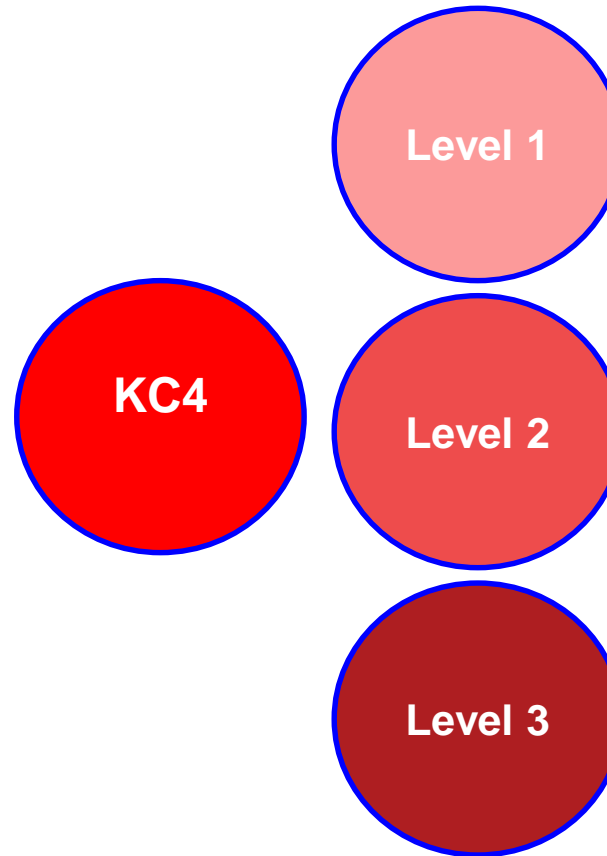
Key Competences

2. Definition of the level of the competences included in the degree profile.

2. Definition of the level of the competences included in the degree profile.



Degree profile



2. Definition of the level of the competences included in the degree profile.

KC4 PROBLEM SOLVING

Identifying, analysing and defining the significant elements constituting a problem in order to solve it effectively and with good criteria.

Level 1

Identifying and analysing a problem to generate alternative solutions, applying methods learned.

Level 2

Using own experience and criteria to analyse the causes of a problem and construct a more efficient, effective solution.

Level 3

In teams, proposing and constructing solutions to problems in different fields, with an overall view.

KC



Year	Semester	Courses/Modules	Credits
1	1st Semester	Agricultural Chemistry and Soil Science	5
		Animal Production Principles and Practices	5
		Genetics and Hereditary Crop Production	5
	2nd Semester	Applied Economics, Extension and Exports	5
		Biotechnology and Genetics	5
		Plant Production and Crop Production	5
2	1st Semester	Advanced Agricultural Chemistry	5
		Advanced Hereditary Crop Production	5
		Advanced Principles of Agricultural Extension	5
	2nd Semester	Advanced Applied Economics	5
		Advanced Plant Production	5
		Advanced Biotechnology	5
3	1st Semester	Advanced Agricultural Management and Marketing	5
		Advanced Plant Production	5
		Advanced Biotechnology	5
	2nd Semester	Advanced Agricultural Management and Marketing	5
		Advanced Plant Production	5
		Advanced Biotechnology	5
4	1st Semester	Entrepreneurship for Small and Medium Enterprises	5
	2nd Semester	Practical Training	5

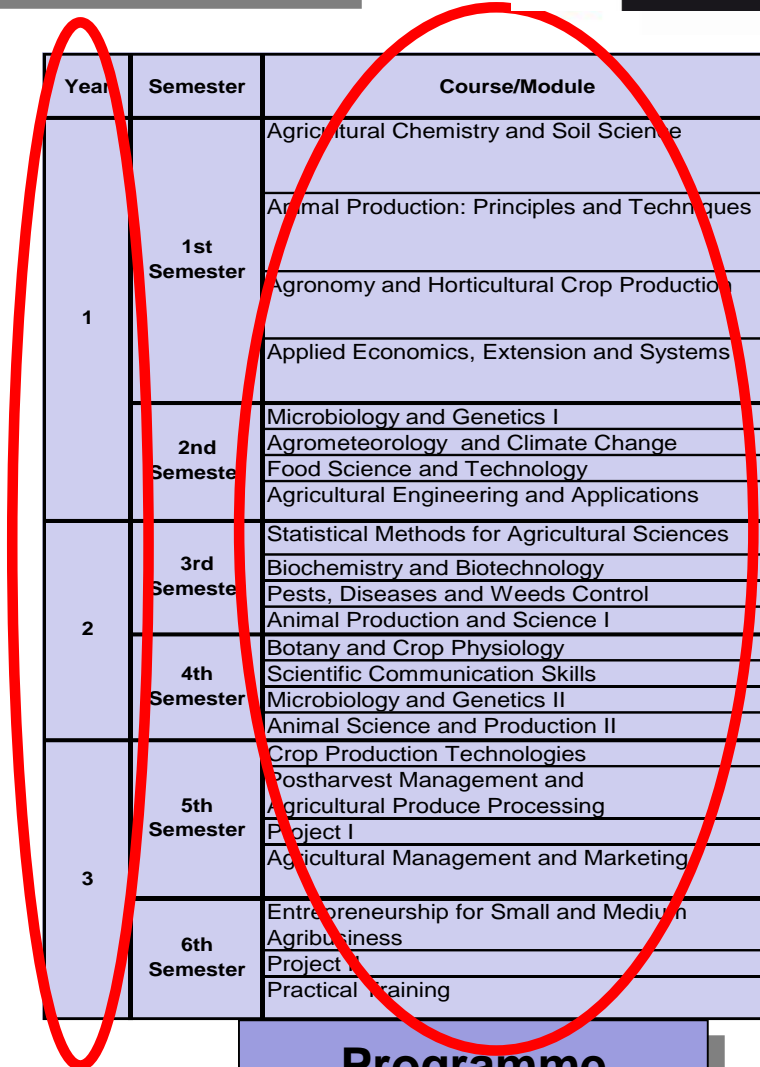
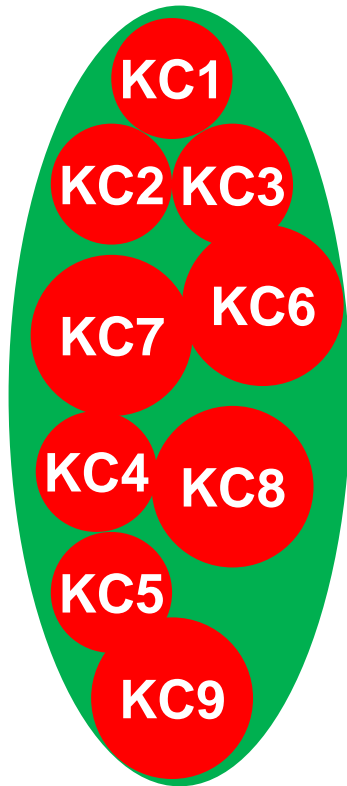
Key Competences

Programme

3. Definition of the length of the programme
4. Agree the units/courses to be included.

3. Definition of the length of the programme.

4. Agree the units/courses to be included.



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

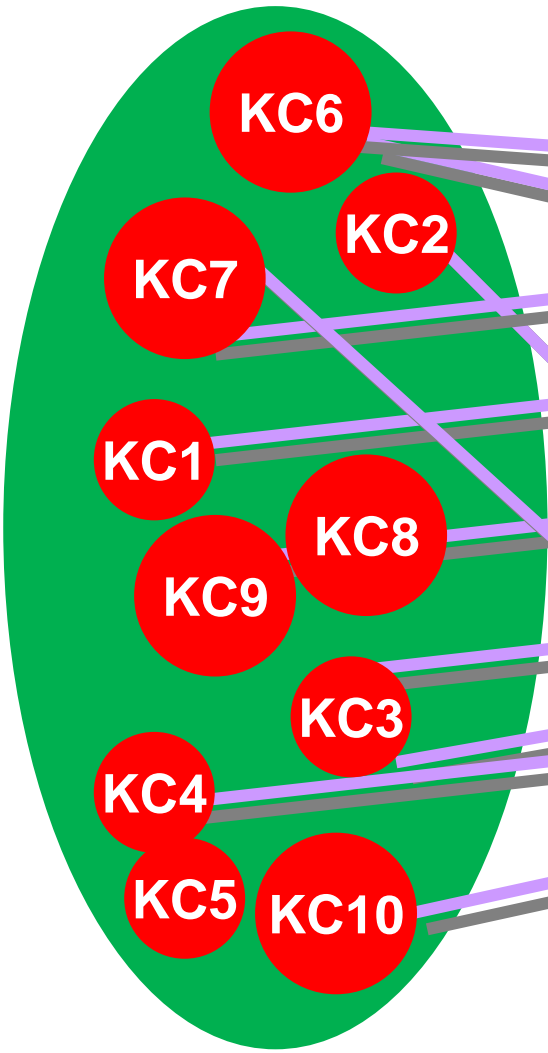
Degree profile

Programme

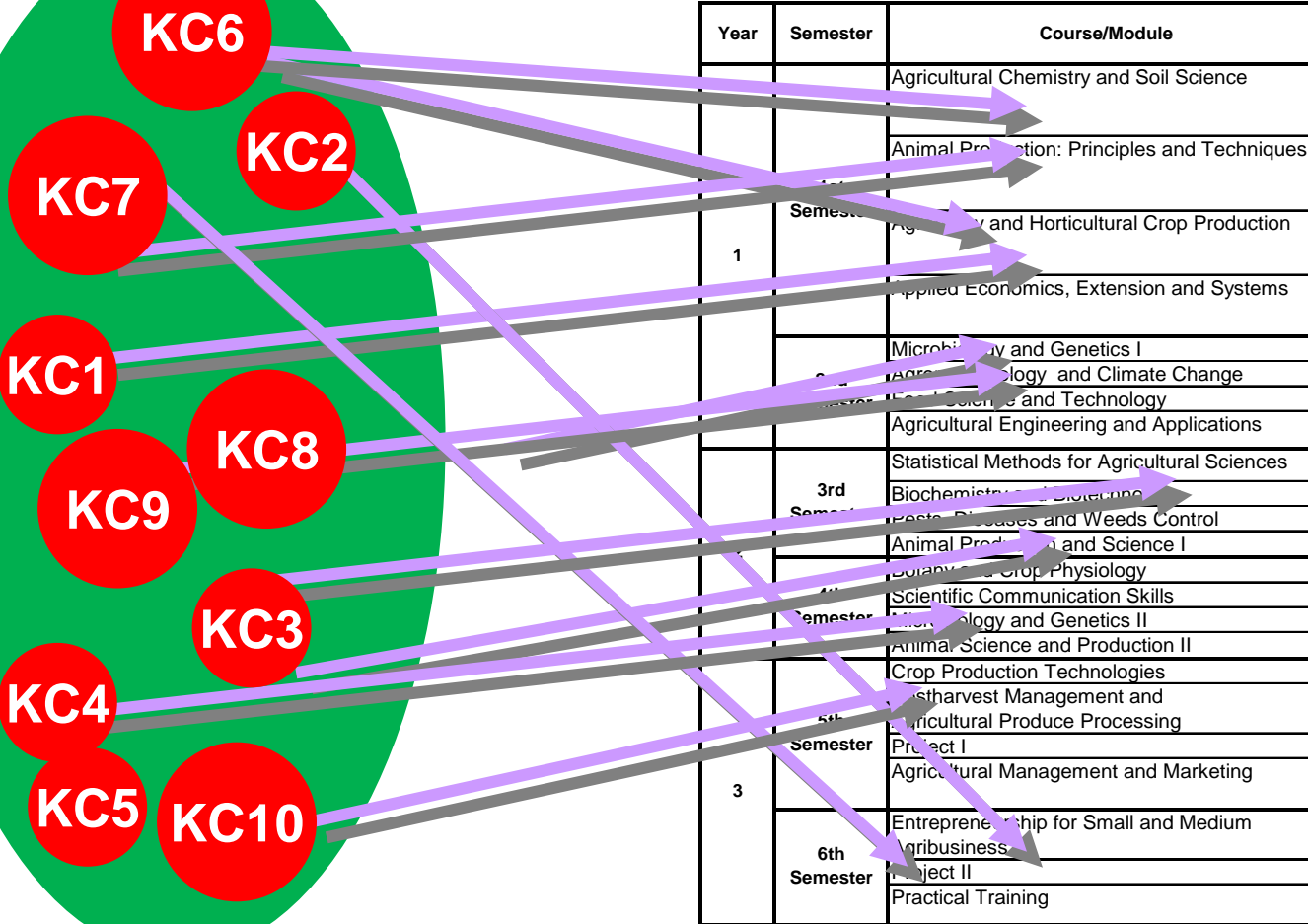
5. Assess the consistency between the profile, programme, competences and length.

Degree profile

Programme



Year	Semester	Course/Module
1	1st Semester	Agricultural Chemistry and Soil Science
		Animal Production: Principles and Techniques
		Agriculture and Horticultural Crop Production
		Applied Economics, Extension and Systems
	2nd Semester	Microbiology and Genetics I
		Agriculture and Climate Change
		Plant Science and Technology
	3rd Semester	Agricultural Engineering and Applications
		Statistical Methods for Agricultural Sciences
		Biochemistry and Biotechnology
Insect Pesticides and Weeds Control		
4th Semester	Animal Production and Science I	
	Soil and Crop Physiology	
	Scientific Communication Skills	
	Plant Biology and Genetics II	
5th Semester	Animal Science and Production II	
	Crop Production Technologies	
	Postharvest Management and Agricultural Produce Processing	
	Project I	
6th Semester	Agricultural Management and Marketing	
	Entrepreneurship for Small and Medium Agribusiness	
	Project II	
		Practical Training



5. Assess the consistency between the profile, programme, competences and length.

Learning outcomes and competences in programmes

Example

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

Year	Semester	Course/Module	Credits
1	1st Semester	Agriculture Chemistry and Soil Science	6
		Animal Production: Poultry and Pigeons	6
		Animal and Horticultural Crop Production	6
		Animal Economics, Extension and Systems	6
		Mathematics and Statistics I	6
2	2nd Semester	Animal Production: Pig Production	6
		Animal Production: Aquaculture and Apiculture	6
		Animal Production: Ruminants	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
3	3rd Semester	Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
4	4th Semester	Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
5	5th Semester	Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
6	6th Semester	Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6
		Animal Production: Poultry and Pigeons	6



**LEARNING
OUTCOMES**

Programme

6. Write effective learning outcomes for each unit/course.

6. Write effective learning outcomes for each unit/course.

Course/Unit 1	KC4	LEARNING OUTCOME
		LEARNING OUTCOME
	KC 6	LEARNING OUTCOME
		LEARNING OUTCOME
		LEARNING OUTCOME
	KC8	LEARNING OUTCOME

6. Write effective learning outcomes for each unit/course.

What is a **LEARNING OUTCOME** according to Tuning?

- Statements of what a learner is expected to know, understand and 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.
- Should give a precise overview of what has been learned and has been demonstrated through assessment.
- **Level** of competence is expressed in terms of Learning outcomes.

[learning outcomes are formulated by academic staff]

6. Write effective learning outcomes for each unit/course.

LEARNING OUTCOME

Learning Outcomes are specifications of the direct results and outcomes of the learning process

To formulate Learning Outcome:

- use brief precise formulations**
- check whether the list Los aligns with competences**

They should be:

- Specific**
- Objective**
- Achievable**
- Useful**
- Relevant**
- Standard-setting**

6. Write effective learning outcomes for each unit/course.

LEARNING OUTCOME

Some examples how to write learning outcomes

Biggs' SOLO taxonomy (4 levels of challenge)

- **Unistructural:** memorize, identify, recognize, count, define, draw, find, label, match, name, quote, recall, order, tell, write, imitate
- **Multistructural:** clasify, describe, list report, discuss, illustrate, select, narrate, compute, sequence, outline, separete
- **Relational:** apply, integrate, analyse, explain, predict, conclude, summarize, review, argue, transfer, make a plan, characterize, compare, contrast, differentiate, organize, debate, make a case, construct, review and rewrite, examine, translate, paraphrase, solve a problem
- **Extended abstract:** theorize, hypothesize, generalize, reflect, generate, create, compose, invent, originate, prove from first principles, make an original case, solve from first principles.

Write effective learning outcomes for each unit/course.



LEARNING OUTCOME

Some examples how to write learning outcomes

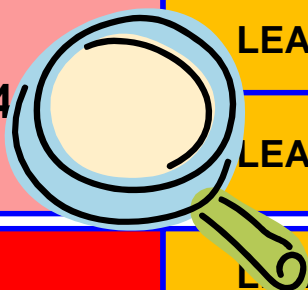
Bloom's taxonomy (updated)

- **Remembering**: define, describe, draw, find, identify, label, list, match, name, quote, recall, recite, tell, write
- **Understanding**: classify, compare, exemplify, conclude, demonstrate, discuss, explain, identify, illustrate, interpret, paraphrase, predict, report
- **Applying**: apply, change, choose, compute, dramatize, implement, interview, prepare, produce, role play, select, show, transfer, use
- **Analysing**: analyse, characterize, classify, compare, contrast, debate, deconstruct, deduce, differentiate, discriminate, distinguish, examine, organize, outline, relate, research, separate, structure
- **Evaluating**: appraise, argue, assess, choose, conclude, critique, decide, evaluate, judge, justify, predict, prioritize, prove, rank, rate, select, monitor
- **Creating**: construct, design, develop, generate, hypothesise, invent, plan, produce, compose, create, make, perform, plan, produce

(Anderson and Krathwohl, 2001)

6. Write effective learning outcomes for each unit/course.

Course/Unit 1	KC4/	LEARNING OUTCOME
		LEARNING OUTCOME
	KC 6	LEARNING OUTCOME
		LEARNING OUTCOME
		LEARNING OUTCOME
	KC8	LEARNING OUTCOME



6. Write effective learning outcomes for each unit/course.

**KC4
PROBLEM
SOLVING**

Identifying, analysing and defining the significant elements constituting a problem in order to solve it effectively and with good criteria.

Level 1

Identifying and analysing a problem to generate alternative solutions, applying methods learned.

Level 2

Using own experience and criteria to analyse the causes of a problem and construct a more efficient, effective solution.

Level 3

In teams, proposing and constructing solutions to problems in different fields, with an overall view.

6. Write effective learning outcomes for each unit/course.

Level 1

Identifying and analysing a problem to generate alternative solutions, applying methods learned.

LEARNING OUTCOMES

(choose one to three)

Identify what is and is not a problem, taking the decision to address it.

Read and/or listen actively. Ask questions to define the problem in hand.

Gather significant information to resolve problems using facts and not only subjective opinions, following a logical method of information analysis.

Follow a logical method to identify the causes of a problem rather than just the symptoms.

Present different options for alternative solutions to a single problem, and evaluating the possible risks and advantages of each.

Design a plan of action for applying the chosen solution.

6. Write effective learning outcomes for each unit/course.

Level 2

Using own experience and criteria to analyse the causes of a problem and construct a more efficient, effective solution

LEARNING OUTCOMES

(choose one to three)

Recognise a complex problem and be able to break it down into manageable parts.

Contrast sources of information and handling facts rigorously.

Have a method of analysis for identifying elusive underlying causes and evaluating their impact on problems.

Present solution options that are most often effective for resolving problems.

Have good criteria for choosing between alternative solutions.

Devise a realistic plan of action and follow-up for applying the solution.

6. Write effective learning outcomes for each unit/course.

Level 3

In teams, proposing and constructing solutions to problems in different fields, with an overall view

LEARNING OUTCOMES

(choose one to three)

Foresee problems before their effects become evident.

Analyse problems and their causes through an overall, medium- and long-term Approach.

Direct the systematic process of working toward decision-making in the group.

Transfer learning from classroom exercises and cases to real situations in other fields.

Obtain the necessary support of others to back actions and have sufficient allies for the success of his/her decisions.

6. Write effective learning outcomes for each unit/course.

Course/Unit 1	KC4	LEARNING OUTCOME
		LEARNING OUTCOME
	KC 6	LEARNING OUTCOME
		LEARNING OUTCOME
		LEARNING OUTCOME
	KC8	LEARNING OUTCOME



7. Elaboration of a final version of a complete Programme

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

Programme



Open Debate

- 1) Have key competences being identified and learning outcomes being formulated for individual degree programmes? Is the need felt by academics?**
- 2) Are there instruments for helping departments and academic staff out to write learning outcome statements for degree programmes and individual courses?**
- 3) If so, how do they look like? If not, who should they look like?**