

EVALUATING QUALITY ASSESSMENT DATA IN A ERASMUS MUNDUS MASTER

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July 11, 2016

Koblenz Summer School

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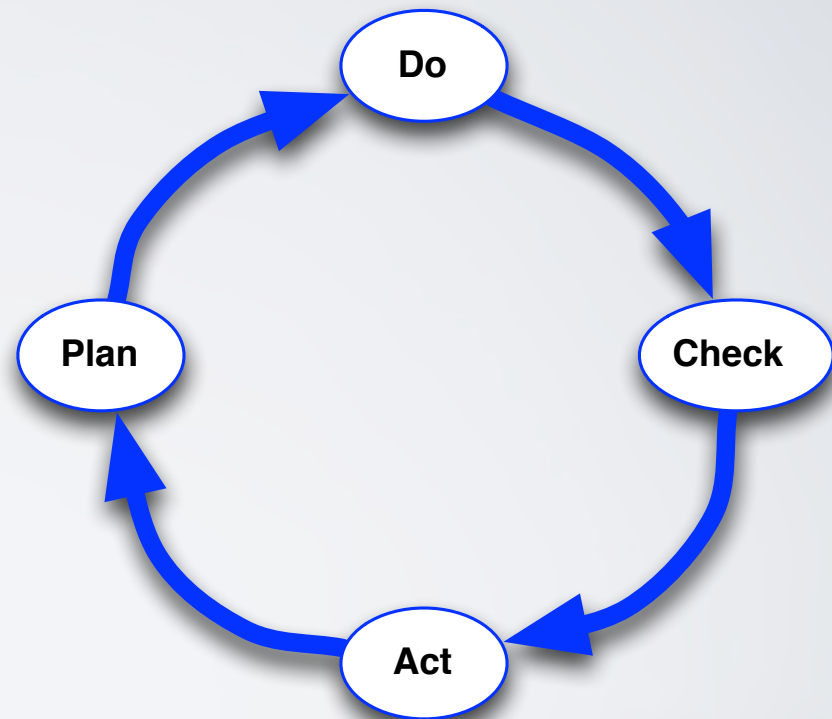
1. Introduction: applying PDCA to a masters degree
2. The EMQAL: Erasmus Mundus Master in Quality in Analytical Laboratories
3. Quality Management and Quality Assessment in the EMQAL

I. INTRODUCTION

Applying the Plan-Do-Check-Act cycle to the management of a
Master degree

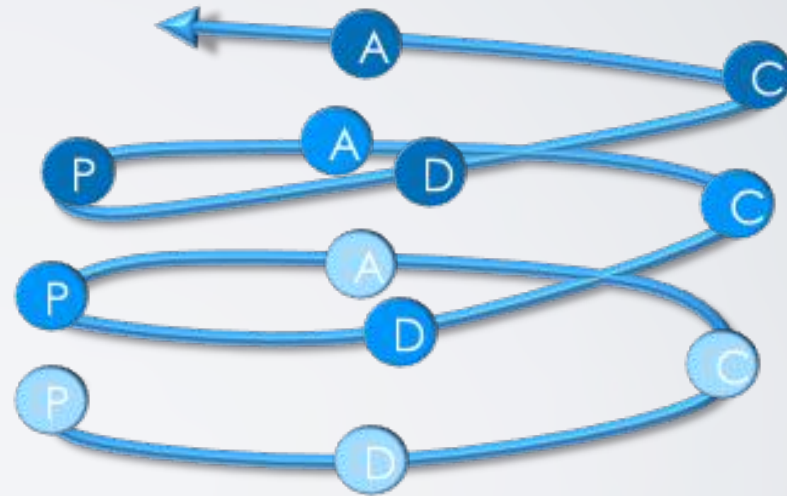
THE CYCLE OF CONTINUOUS IMPROVEMENT

- Plan
 - define objectives
 - define solutions/processes
- Do
 - implement solutions/processes
- Check
 - measure results
- Act
 - make adjustments



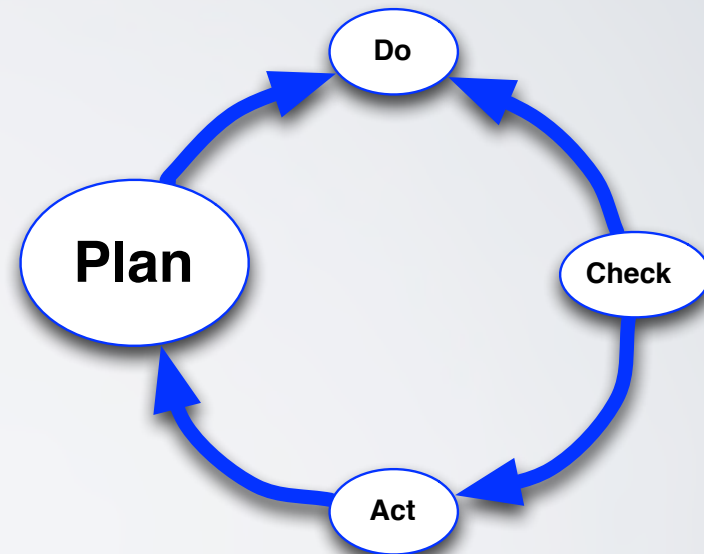
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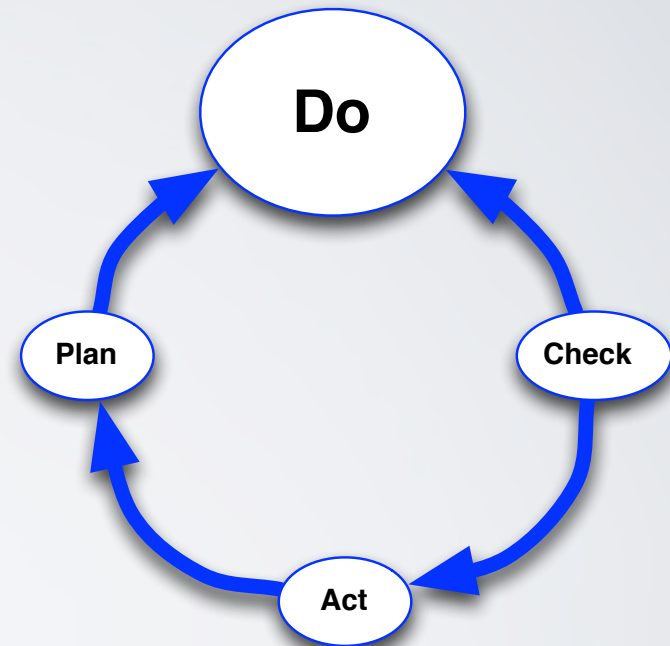
THE CYCLE OF CONTINUOUS IMPROVEMENT

- Plan
 - define objectives
 - define solutions/processes
- In a master course:
 - designing the course
 - creating a study plan
 - *defining contents*
 - *defining learning objectives*
 - designing the structure of classes
 - *number and format of classes*
 - assuring there are sufficient resources
 - *teaching staff, classrooms, labs, ...*
 - defining responsibilities
 - *course director, teaching staff...*



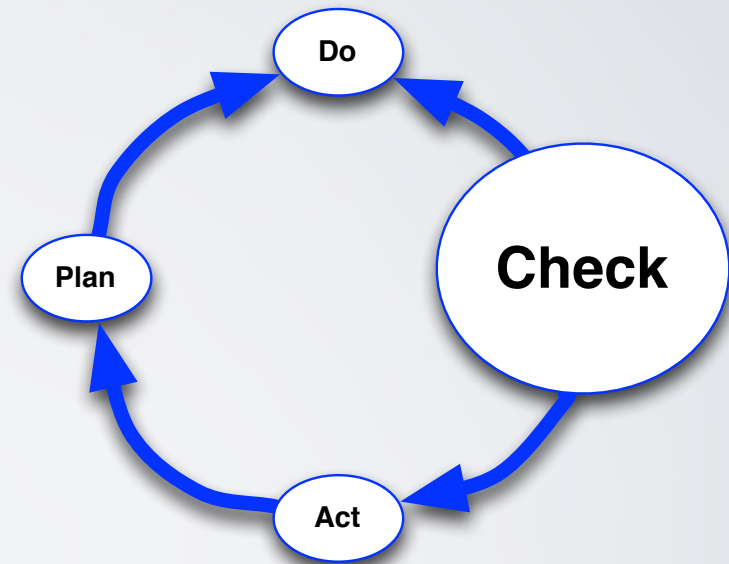
THE CYCLE OF CONTINUOUS IMPROVEMENT

- Do
 - implement solutions/processes
- In a master course:
 - attract students
 - run the course
 - *teaching classes*
 - *evaluating students*
 - *recording grades*
 - *issuing certificates and diplomas*
 - ...



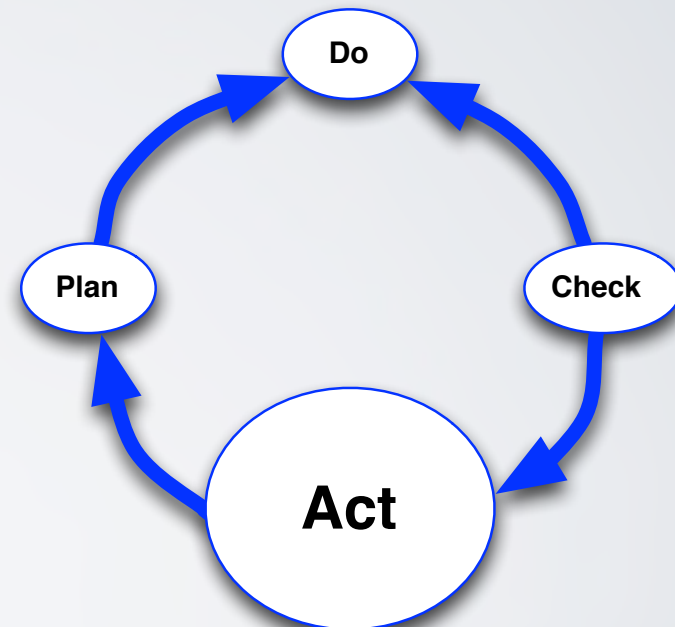
THE CYCLE OF CONTINUOUS IMPROVEMENT

- Check
 - measure results
- In a master course:
 - Student performance
 - *grades, % approval, ...*
 - Student perception
 - *questionnaires*
 - Success of alumni



THE CYCLE OF CONTINUOUS IMPROVEMENT

- Act
 - make necessary adjustments
 - solve the problems *and* their causes
- In a master course:
 - change study plan?
 - improve teaching
 - ...



2.THE EMQAL

Erasmus Mundus Master in Quality in Analytical Laboratories



THE EMQAL: THE ERASMUS MUNDUS MASTER FOR QUALITY IN ANALYTICAL LABORATORIES



Education and Culture DG



Why?

Because analytical laboratories affect
all aspects of modern society





Importance of Analytical Laboratories

Decisions in matters such as

quality of air;

acid rain;

quality of waterways

depend on the data provided by
analytical laboratories



"The Environment Manager at this factory was having problems motivating his colleagues towards ISO14001."

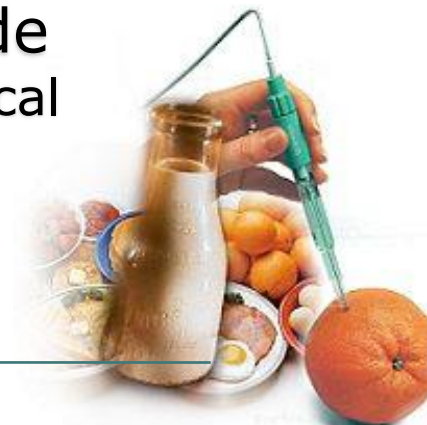


Importance of Analytical Laboratories

- ★ Correct medical diagnosis
and treatment of patients depends
on the results of clinical analysis



- ★ National and international trade
are critically dependent on analytical
results, with chemical composition
often the basis for the definition
of the value of goods
-





Why “Quality” in Analytical Laboratories?



The cost of errors

In clinical analysis	➡	Wrong diagnostics; loss of patients
In trade	➡	Supply of substandard goods / high cost of replacements
In drinking water	➡	Harmful contaminants undetected
In environmental monitoring	➡	Hazards being undetected / identification of unreal hazards
In any case	➡	Loss of confidence in the validity of future results



Quality Systems in Analytical Laboratories

ISO 17025

Competence is a requirement



Accreditation

ISO 9001

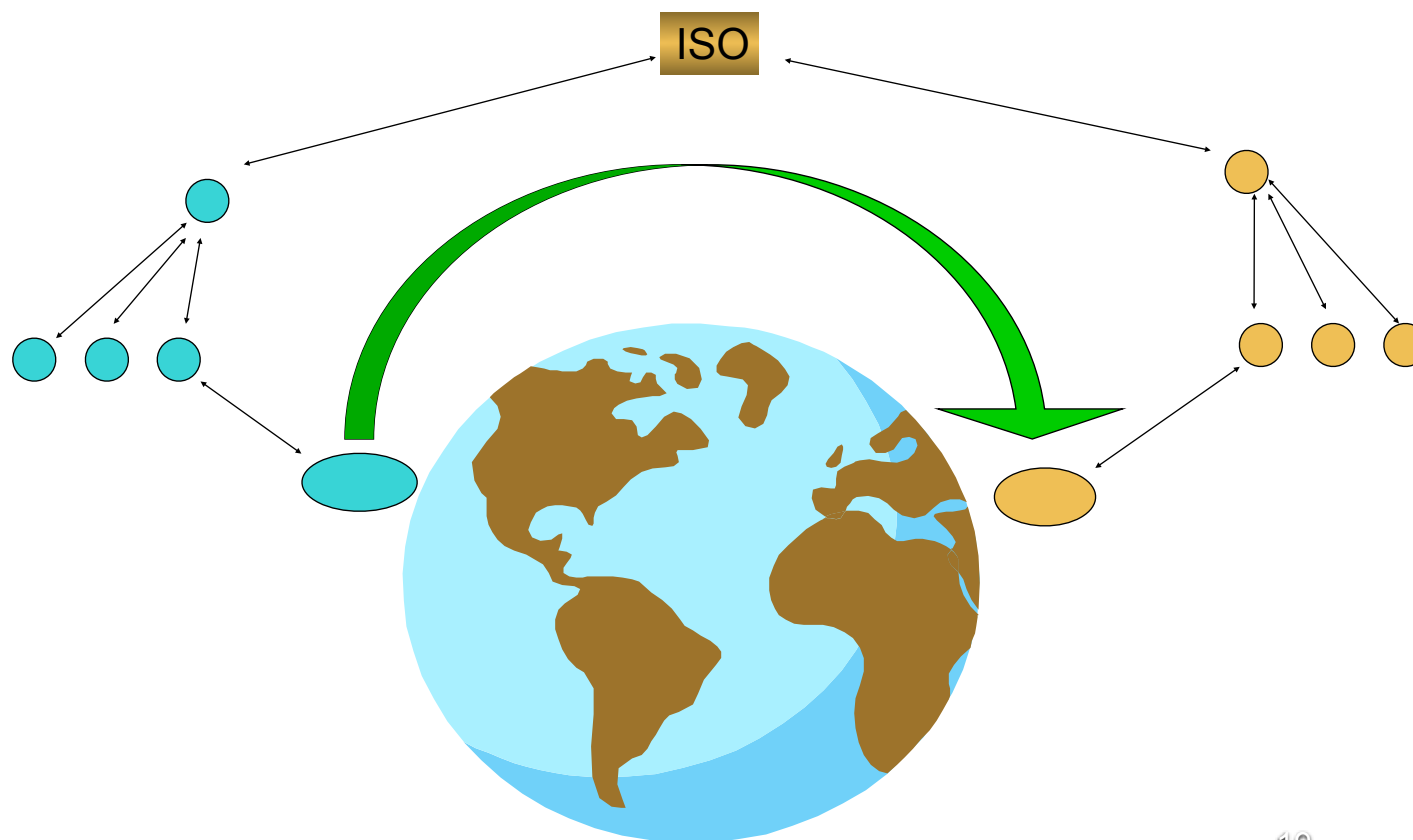
Competence is *not* evaluated



Certification



Comparability of results worldwide





Objectives of this programme

- Training laboratory scientists and administrators to implement and manage Quality Systems in Analytical Laboratories, focusing on:
 - Accreditation
 - Worldwide comparability
-



1. Overview of EMQAL

- **Started in 2002 in UAlg**
 - Increasing number of analytical laboratories;
 - Need for qualified personnel, familiar with accreditation procedures ;
 - Three important areas:
 - Water analysis
 - Food analysis
 - Clinical analysis

The answer:

A master course teaching
Quality Management,
the fundamentals of **Analytical Methods**,
the fundamentals of **Statistical methods**



Overview of EMQAL

- “Mestrado em Qualidade em Análises”
- 2003/2005 – 1st edition
- 2004/2006 – 2nd edition
 - High demand, specially by working students;
 - But:
 - Not enough flexibility
 - Quality Management demands an *international dimension*



Overview of EMQAL

- 2004 – development of integrated master
 - University of Algarve (UAlg)
 - University of Bergen (UiB),
 - University of Cadiz (UCA),
 - Gdansk University of Technology (GUT)
 - University of Malta (UoM)
- 2005
 - University of Barcelona (UB)
- 2007 – Erasmus Mundus Master
- 2008 – 1st edition of EMQAL
- 2009 - 2nd edition of EMQAL
- 2010 - Expansion of the Consortium
 - Central South University (China)
- 2010 - 3rd edition of EMQAL
- 2011 - 4th edition of EMQAL





European Joint Masters in Quality in Analytical Laboratories

Who are the partner universities?

University of Bergen
(Norway)

Gdansk University
of Technology
(Poland)

University of Barcelona
(Spain)

University of Algarve
(Portugal)

University of Cádiz
(Spain)





European Joint Masters in Quality in Analytical Laboratories

Who are the non-EU Partner universities?

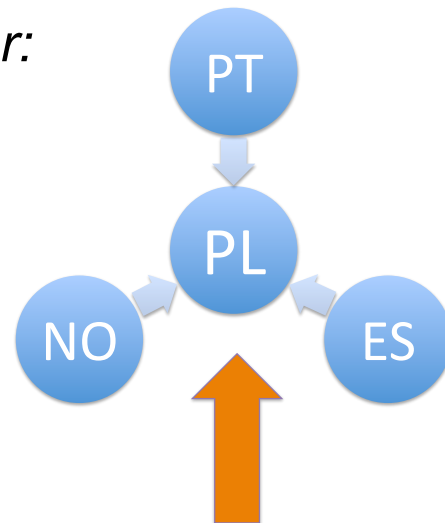




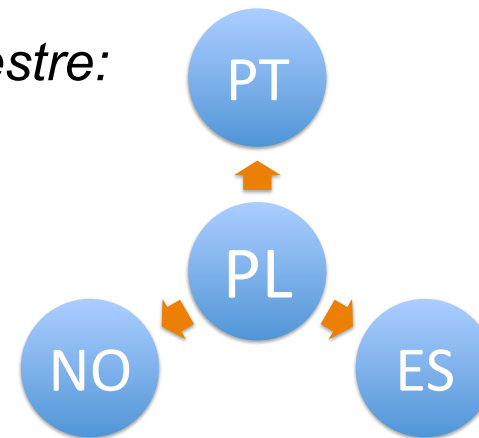
Overview of EMQAL

- Why is it “Erasmus Mundus”?
 - **Integrated curriculum**
 - All partner universities participate in the same course
 - **Mobility** of students and scholars
 - Must visit at least 2 countries of the consortium

1st year:



3rd semestre:



WHY STUDY WITH ERASMUS MUNDUS?

Students from all over the world



WHY STUDY WITH ERASMUS MUNDUS?



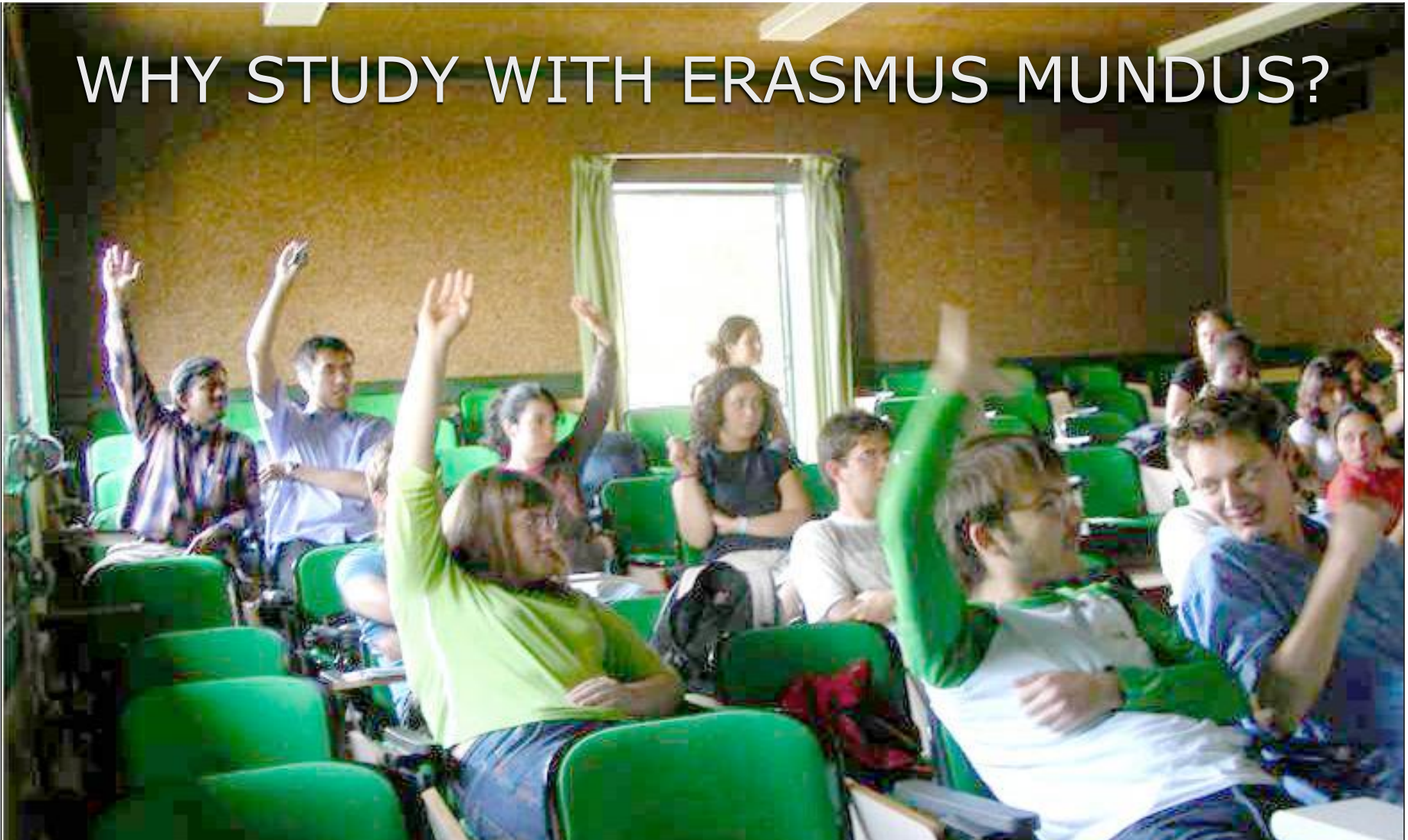
MULTICULTURAL GROUP OF STUDENTS
BEST STUDENTS RECEIVE STUDENTSHIP

WHY STUDY WITH ERASMUS MUNDUS?



INTERNATIONAL GROUP OF LECTURERS
BEST EXPERTS SELECTED

WHY STUDY WITH ERASMUS MUNDUS?



STUDENT PARTICIPATION IS
IMPORTANT, NOT "PASSIVE" LEARNING

WHY STUDY WITH ERASMUS MUNDUS?

**STUDENTS IN
SMALL GROUPS
IN DISCUSSIONS**



WHY STUDY WITH ERASMUS MUNDUS?



LEARNING FROM FIELD
EXPERIENCE AND SITE VISITS

WHY STUDY WITH ERASMUS MUNDUS?

**“LEARNING
THROUGH
DOING”...
SAMPLING...**



WHY STUDY WITH ERASMUS MUNDUS?



**LEARNING THROUGH DOING...
PRACTICAL LAB WORK**



Overview of EMQAL

- Which are the objectives of EMQAL?

Training laboratory scientists and administrators to implement and manage Quality Systems in Analytical Laboratories, focusing on:

- Laboratory Accreditation
- Worldwide comparability of analytical results

EMQAL QUALITY POLICY

- **Mission:**

- capacity building and training of professionals capable of implementing and managing quality systems in analytical laboratories.
- to promote European cooperation and research leading to higher standards in laboratory quality management.

- **Vision:**

- to be a world reference in higher education for analytical laboratory professionals.
- to be a model of successful European cooperation.
- to promote international harmonization of analytical procedures.

EMQAL QUALITY POLICY

- **Objectives:**

1. to develop adequate internal quality assurance mechanisms at three different levels:

- the lectured modules;

- the study programme;

- the host institution facilities

2. to implement transparent external quality assurance mechanisms by the respective competent national authorities;

3. to collaborate with the national authorities and ENQA in establishing a common framework of reference for Quality Assurance



Overview of EMQAL

- How does it work?

- Duration: 18 months

<p>1 year Classes In host university</p>	<p>6 months Research project In a 2nd country</p>
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Overview of EMQAL

1 module = 2 ECTS

- = 50 h student workload (contact hours + self study)
- = 42 h (1 week) classes and study + 8 h preparation for and examination

“Contact” hours may be

- theoretical classes,
- practical classes (exercises and problem solving),
- laboratorial,
- field work,
- seminars,
- tutorials

No. of contact hours may vary in each module from 10 to 20 h:

- More theoretical modules -> 10h
- More practical modules -> 20h



Overview of EMQAL

- Types of modules:
 - QM - Quality Management modules
 - AM - Analytical Methods modules
 - DA – Data Analysis modules
-



Overview of EMQAL

Structure of the course

- 30 modules = 60 ECTS credits
- Research thesis = 30 ECTS credits

Students build their study plan from a large set of modules

There are the following **restrictions** in the choice of modules:

- at least 5 QM modules;
 - at least 5 AM modules;
 - at least 5 DA modules;
 - students must fulfil the **general learning outcomes** of the course
-



Overview of EMQAL

General Learning Outcomes:

- 1** - Design, implement and manage a Quality System
- 2** - Develop and evaluate a quality control scheme for a given type of measurement
- 3** - Fully understand, both at theoretical and practical level, a set of advanced analytical techniques
- 4** - Research, develop and validate new techniques and methods of analysis;
- 5** - Plan a validation program for a given method of analysis
- 6** - Identify critical aspects in a given method of analysis
- 7** - Estimate the uncertainty for a given analytical result;
- 8** - Develop Reference Materials
- 9** - Organize and evaluate Collaborative Studies
- 10** - Fully understand the current state of worldwide standardization and comparability of analytical results



European Joint Masters in Quality in Analytical Laboratories

Some examples of modules...

QM01 - Quality Systems

QM0101	European Quality Policy and Infrastructures
QM0102	Introduction to Quality Management
QM0103	ISO 9000 and ISO 14000 Systems
QM0104	Laboratory Quality Systems: ISO/IEC 17025 and ISO 15189
QM0105	HACCP
QM0106	Good Laboratory Practice

QM02 - Management

QM0201	Business Management
QM0202	Human Resources
QM0203	Managing Instalations, Equipment and Consumables
QM0204	Quality Systems Documentation
QM0205	Financial Accounting
QM0206	Cost Accounting

QM03 - Traceability

QM0301	Metrology
QM0302	Calibration and Verification
QM0303	Proficiency Testing Schemes and Certified Reference Materials
QM0304	Preparation and Use of reference Materials
QM0305	Quality of Analytical Results, Traceability

QM05 - Methods of Analysis

QM0501	Method research
QM0502	Method validation
QM0503	Technical Writing

QM06 - Quality Audits

QM0601	Laboratory Audits (EN ISO 19011)
QM0602	Communication Techniques in Laboratory Audits

DA01 - Basic Statistics

DA0101	Measuring variability and Error Propagation
DA0103	Regression Analysis
DA0104	Statistical Decision and Analysis of Variance

AM01 - Natural Water Analysis

AM0101	Water Directive and CEN Standards
AM0102	Water – sampling and General Characterization
AM0104	Water —Metal Analysis
AM0105	Water —Analysis of Organic Components
AM0106	Water —Microbiological Analysis

AM02 - Food Analysis

AM0201	Official Food Control Directive and CEN Standards
AM0202	Foods - Metal analysis in organic matrices
AM0203	Foods – Organic Contaminants analysis
AM0204	Foods - Microbiological analysis
AM0205	Foods – Sample treatment
AM0206	Functional Foods Analysis
AM0207	Electronic noses for food control

AM03 - Clinical Analysis

AM0301	in Vitro Directive and CEN Standards
AM0302	Instrumentation and automation in Clinical Analysis
AM0304	Clinical Pathology
AM0305	Urine and Body Fluids Analysis
AM0306	Haematological Analysis
AM0307	Medical Microbiology
AM0308	Interpreting Laboratory Results
AM0309	Fundamentals of Biochemical Analysis
AM0310	Genetic Testing
AM0311	Virulogy

DA02 - Uncertainty Measurement

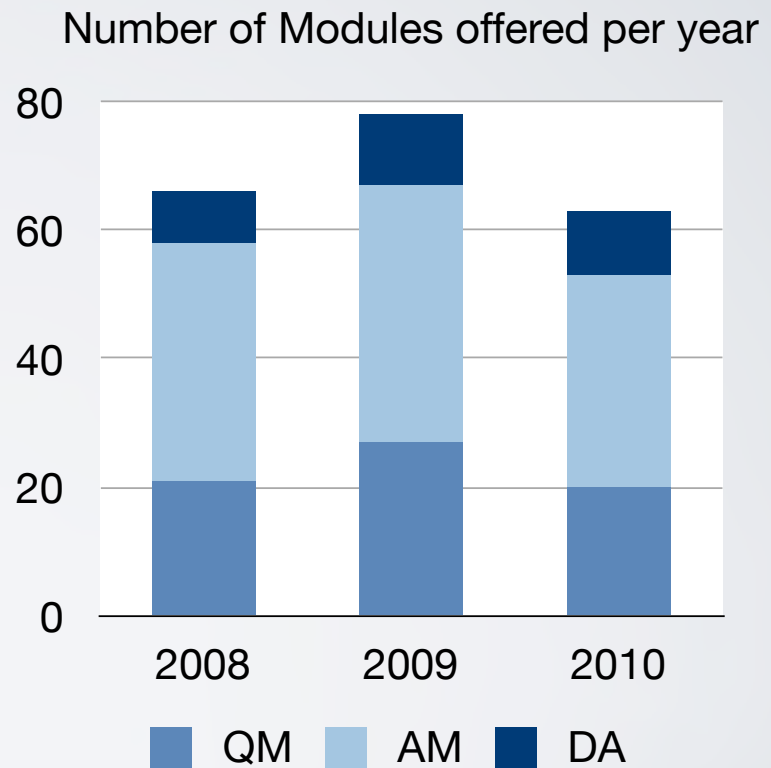
DA0201	Introduction to Uncertainty Measurement
DA0202	Uncertainty Measurement in Physical Tests and Calibration
DA0203	Uncertainty Measurement in Chemical and Microbiological Tests

DA03 - Chemometrics

DA0301	Experimental Design and Optimization
DA0306	Fundamentals of Multivariate data analysis
DA0302	Pattern Recognition and Classification

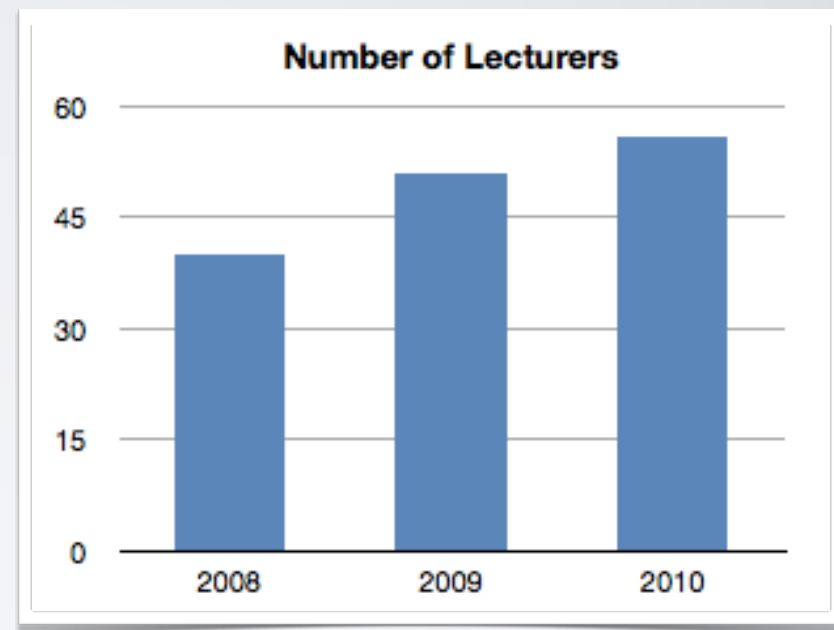
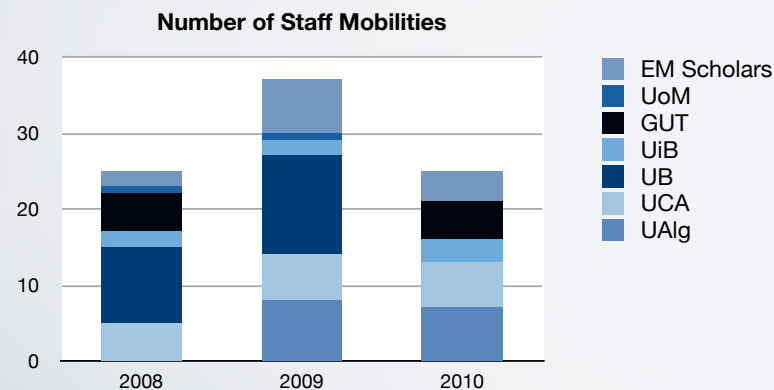
EMQAL IN FIGURES

- 60 - 80 modules per year



EMQAL IN FIGURES

- 60 - 80 modules per year
- 50 - 60 lecturers per year, coming from 5 universities;
- 18 - 25 students per year



MANAGEMENT STRUCTURES



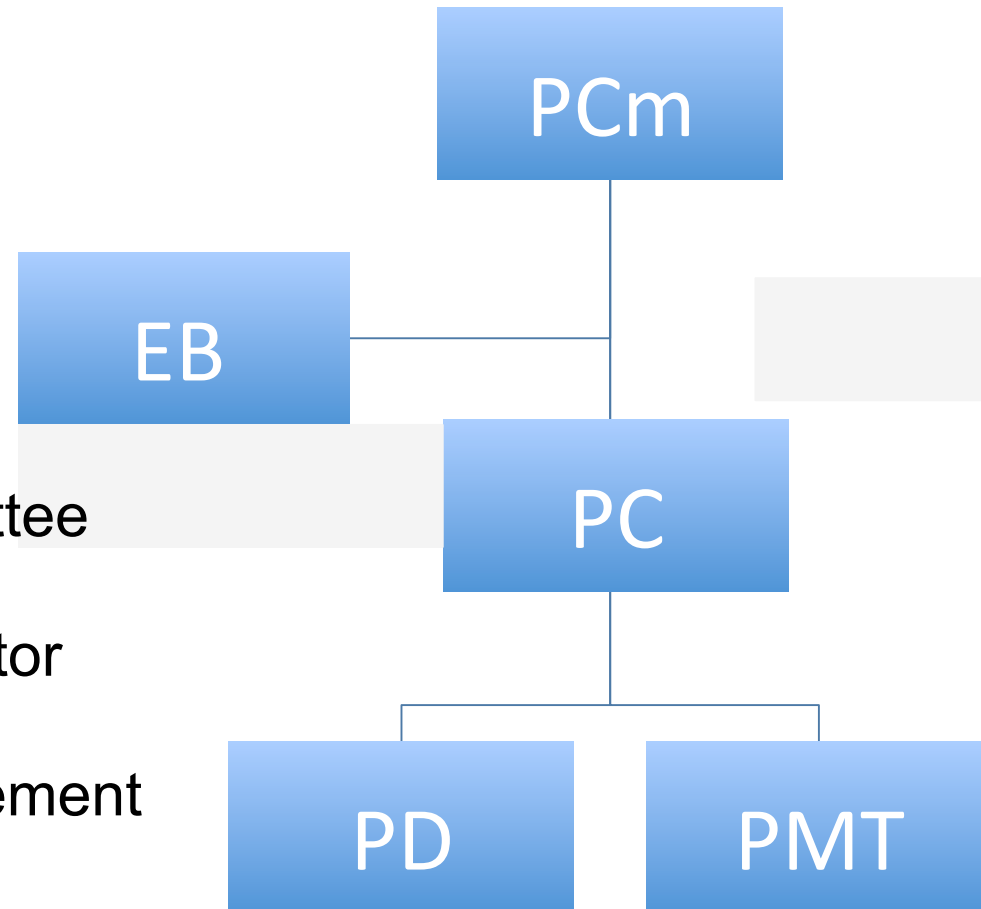


Management Structures

- within EMQAL

- (PQ01)

PCm - Programme Committee
EB - Examiners Board
PC - Programme Coordinator
PD - Programme Director
PMT - Programme Management Team





Management Structures

PCm - Programme Committee

Makes the Decisions in EMQAL

EB - Examiners Board

Checks if the decisions are being followed and evaluates the quality of the course. The EXTERNAL EXAMINER attends EB meetings.

PC - Programme Coordinator

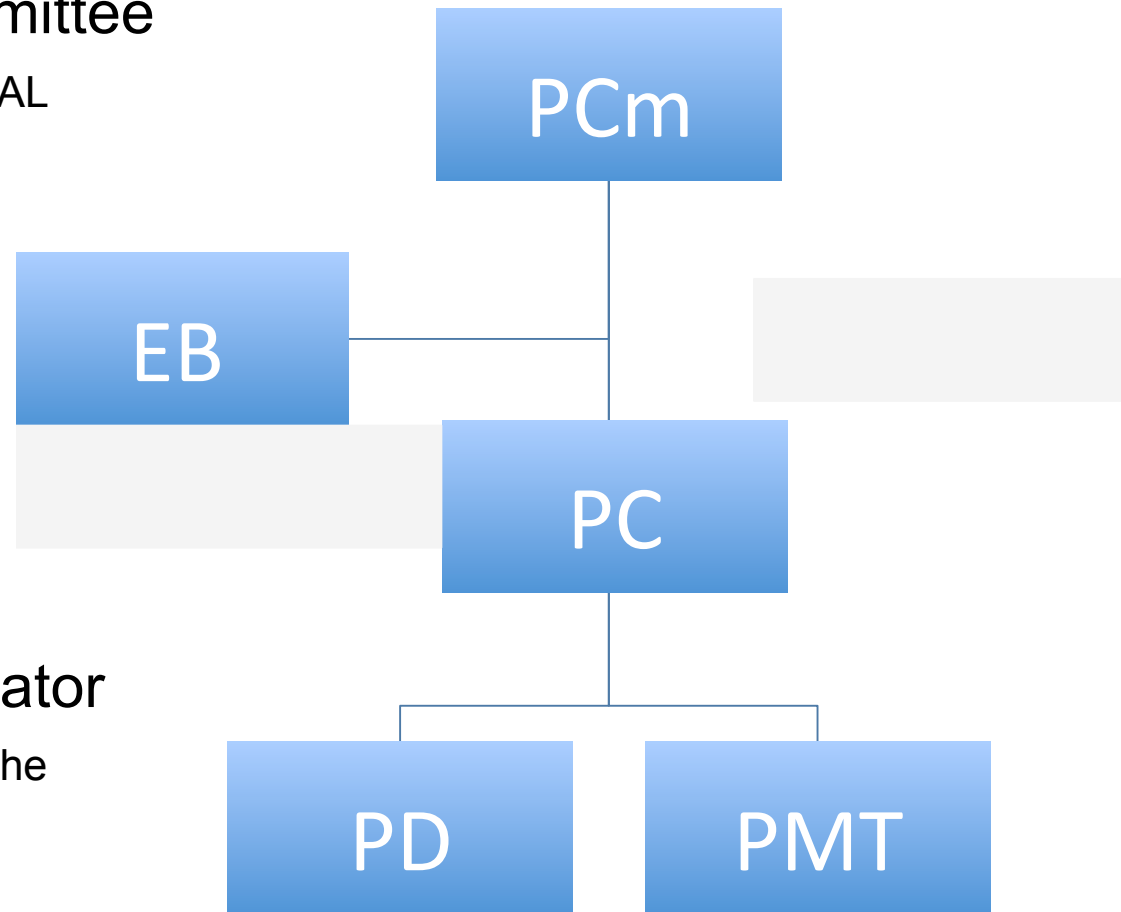
has overall responsibility for the programme.

PD - Programme Director

has overall responsibility for the current year of the taught course.

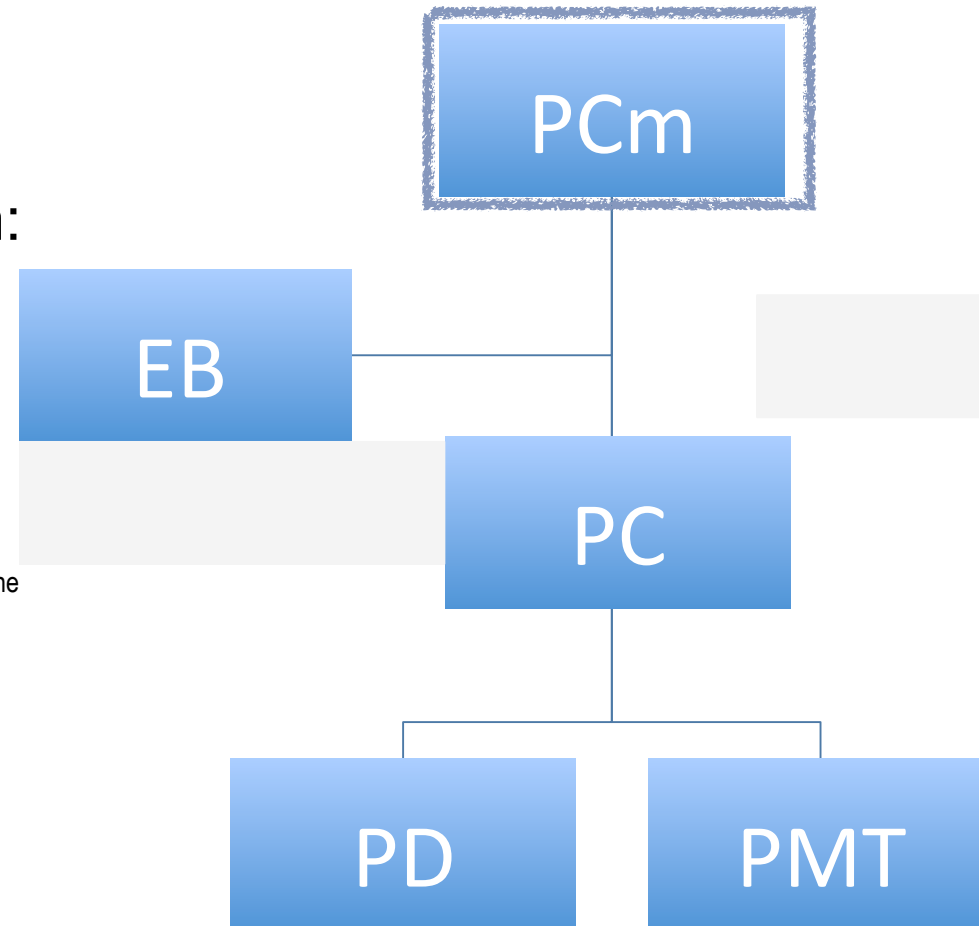
PMT - Programme Management Team

Assists the PC and PD with academic administration of the course.



Composition of the PCm:

- PC
- Director of Postgraduate Programmes (in the Chair in the Host institution);
- all members of the PMT;
- representatives and observers from collaborating organizations to ensure the courses retain relevance to the “world of work”;
- Student representatives
(1 representative for every 10 full-time students);
- a representative module lecturer
- a project supervisor





3.1 - QUALITY ASSURANCE

Quality Assessment is only part of Quality Assurance...



Quality Assessment

Lectured modules - assessed by students and lecturers after each taught module (SEEQ questionnaire)

Study programme - assessed at least once per year by students (general questionnaire)

Host institution facilities - assessed by lecturers after each taught module and by students at least once per year.



Quality Assessment

- All questionnaires are anonymous.
- questionnaires should be filled online after each module takes place, and before grades are published.

- Module questionnaires - based on Marsh's SEEQ - Student Evaluation of Educational Quality
- quality of lecturers evaluated from the point of view of:
 - Learning
 - Enthusiasm
 - Organization
 - Group Interaction
 - Individual Rapport
 - Breadth
 - Examinations
 - Assignments
- *48 questions per module (per week)*
- *70 modules ...*

Questionnaire

Student Evaluation of Educational Quality

Module Code:

Lecturer:

Dear student, this questionnaire is part of the Quality Assessment of EMQAL. Your answers will help us understand and improve the quality of the course. Please read each question very carefully. Make sure you understand what is being asked. Report how you feel about this module, honestly and as objectively as possible.

Completely disagree / Very Poor
Strongly disagree / Poor
Disagree / Weak
Agree / Reasonable
Strongly Agree / Good
Completely agree / Very Good
no opinion

A. LEARNING:

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . You found this module interesting and you find this module intellectually challenging and stimulating | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . You have learned something which you consider valuable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Your interest in the subject has increased as a consequence of this module | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . You have learned and understood the subject materials in this module | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments about the LEARNING ENVIRONMENT of the module?

B. ENTHUSIASM:

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Instructor is enthusiastic about teaching the module | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Instructor is dynamic and energetic in conducting the module | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Instructor enhances presentations with the use of humor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . Instructor's style of presentation holds your interest during class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the ENTHUSIASM of the instructor?

C. ORGANIZATION:

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Instructor's explanations are clear | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Module materials are well prepared and carefully explained | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Proposed objectives agree with those actually taught so you know where the module is going. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . Instructor gives lectures that facilitate taking notes. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the ORGANIZATION of the instructor?

D. GROUP INTERACTION

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Students are encouraged to participate in class discussions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Students are invited to share their ideas and knowledge | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Students are encouraged to ask questions and are given meaningful answers. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . Students are encouraged to express their own ideas and/or question the instructor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the GROUP INTERACTION of the instructor?

E. INDIVIDUAL RAPPORT:

- | | | | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Instructor is friendly towards individual students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Instructor makes students feel welcome in seeking help/advice in or outside of class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Instructor has a genuine interest in individual students | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . Instructor is adequately accessible to students during office hours of after class. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the INDIVIDUAL RAPPORT of the instructor?

F. BREADTH:

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Instructor contrasts the implications of various theories | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Instructor presents the background or origin of ideas/concepts developed in class | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Instructor presents points of view other than his/her own when appropriate | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4 . Instructor adequately discusses current developments in field. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the BREADTH of the module?

G. EXAMINATIONS:

- | | | | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Feedback on examinations/graded materials is valuable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Methods of evaluating student work are fair and appropriate | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3 . Examinations/graded materials test module content as emphasized by instructor. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the EXAMINATIONS in the module?

H. ASSIGNMENTS:

- | | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 . Required readings/texts are valuable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2 . Readings, homeworks, etc., contribute to appreciation and understanding of the subject. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Do you have any comments to add about the ASSIGNMENTS in the module?

I. OVERALL:

- How does this module compare with other modules you have had in EMQAL?
- 1 . ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
- How does instructor compare with other instructors you have had in EMQAL?
- 2 . ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Do you have any comments to add about your OVERALL EVALUATION of the module?

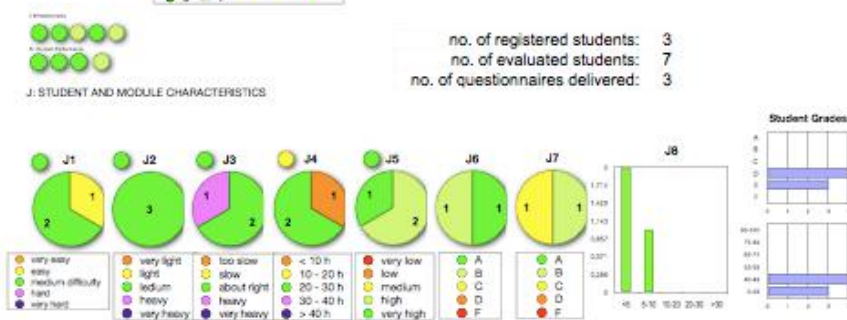
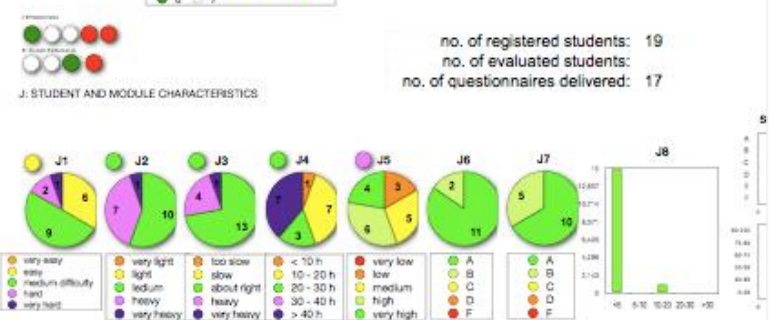
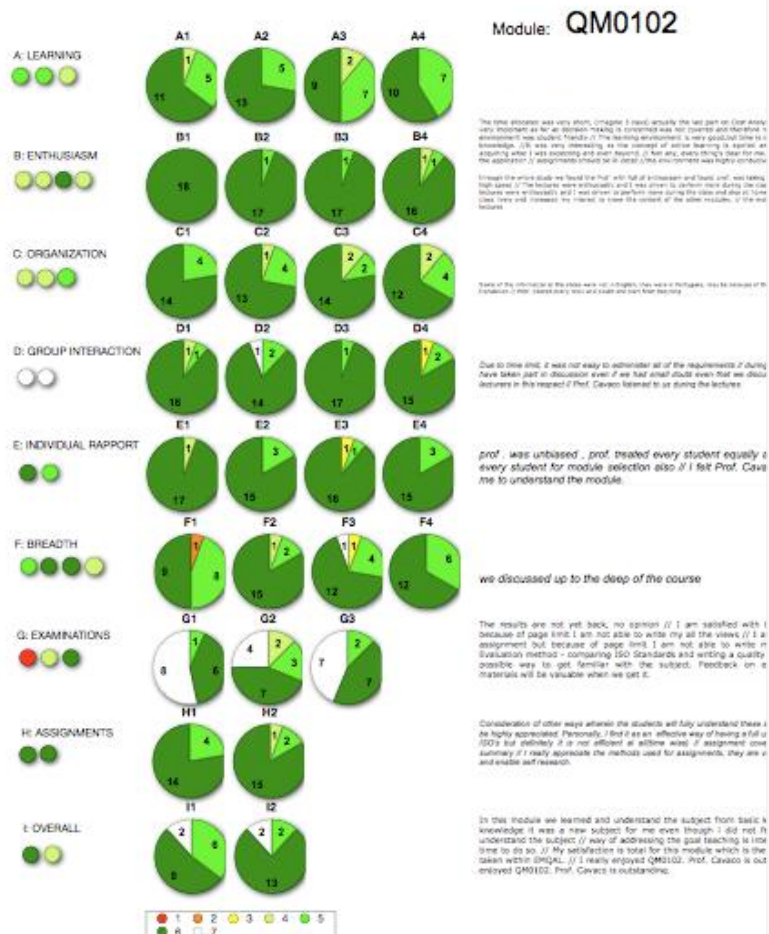
J. STUDENT AND MODULE CHARACTERISTICS:

Please answer each question

- 1 . Module difficulty, relative to other modules, is:
- ☐ very easy ☐ easy ☐ medium difficulty ☐ hard ☐ very hard
- 2 . Module workload, relative to other modules, is:
- ☐ very light ☐ Light ☐ medium ☐ heavy ☐ very heavy
- 3 . Module pace, relative to other modules, is:
- ☐ too slow ☐ slow ☐ about right ☐ fast ☐ too fast
- 4 . Hours per week required outside of class:
- ☐ less than 10 ☐ 10 - 20 ☐ 20 - 30 ☐ 30 - 40 ☐ over 40
- 5 . Your level of interest in the subject prior to this module:
- ☐ very low ☐ low ☐ medium ☐ high ☐ very high
- 6 . Your average grade point:
- ☐ A ☐ B ☐ C ☐ D ☐ F
- 7 . Your expected grade in the module:
- ☐ A ☐ B ☐ C ☐ D ☐ F
- 8 . How many modules did you take before this one?
- ☐ less than 5 ☐ 5-10 ☐ 10-20 ☐ 20 - 30 ☐ over 30

Thank you for your collaboration!

- Analysis of module questionnaires:
 - questionnaires are viewed as *flags* to indicate problems that need to be looked into
 - *visual indicators* make analysis much faster.



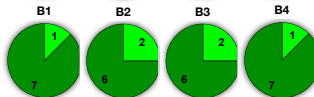
Module: QM0503

Ac. Year 2010/2011

A: LEARNING



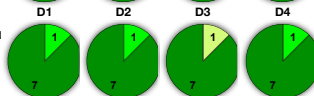
B: ENTHUSIASM



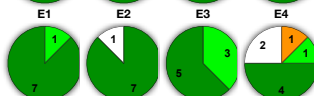
C: ORGANIZATION



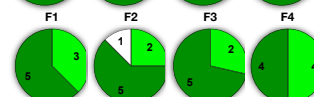
D: GROUP INTERACTION



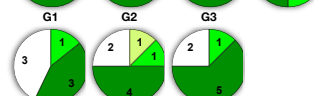
E: INDIVIDUAL RAPPORT



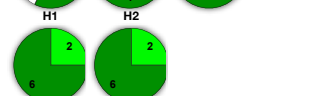
F: BREADTH



G: EXAMINATIONS



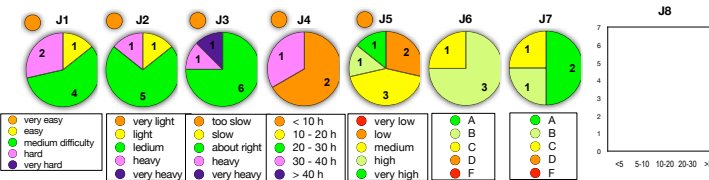
H: ASSIGNMENTS



I: OVERALL



J: STUDENT AND MODULE CHARACTERISTICS



Was good / it was the most enjoyable class.

The instructor was very enthusiastic / very good professor and very useful class.

It was very good / the only weak point is that he gave us a lot of photocopies.

The group discussions were very well structured.

the evaluation of our assignments was hard.

no. of registered students: 21
no. of evaluated students: 19
no. of questionnaires delivered: 8

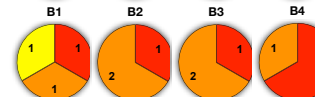
Module: AM0907

Ac. Year 2010/2011

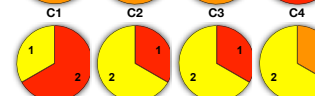
A: LEARNING



B: ENTHUSIASM



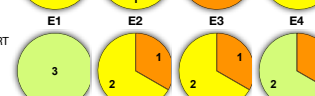
C: ORGANIZATION



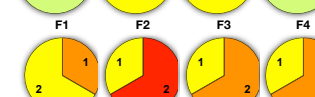
D: GROUP INTERACTION



E: INDIVIDUAL RAPPORT



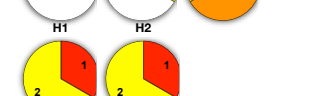
F: BREADTH



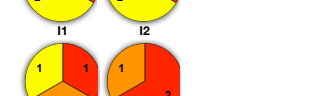
G: EXAMINATIONS



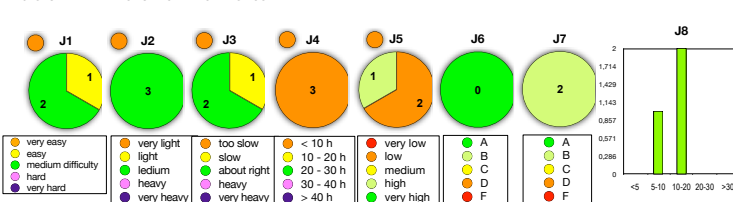
H: ASSIGNMENTS



I: OVERALL



J: STUDENT AND MODULE CHARACTERISTICS

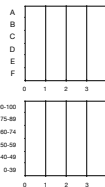


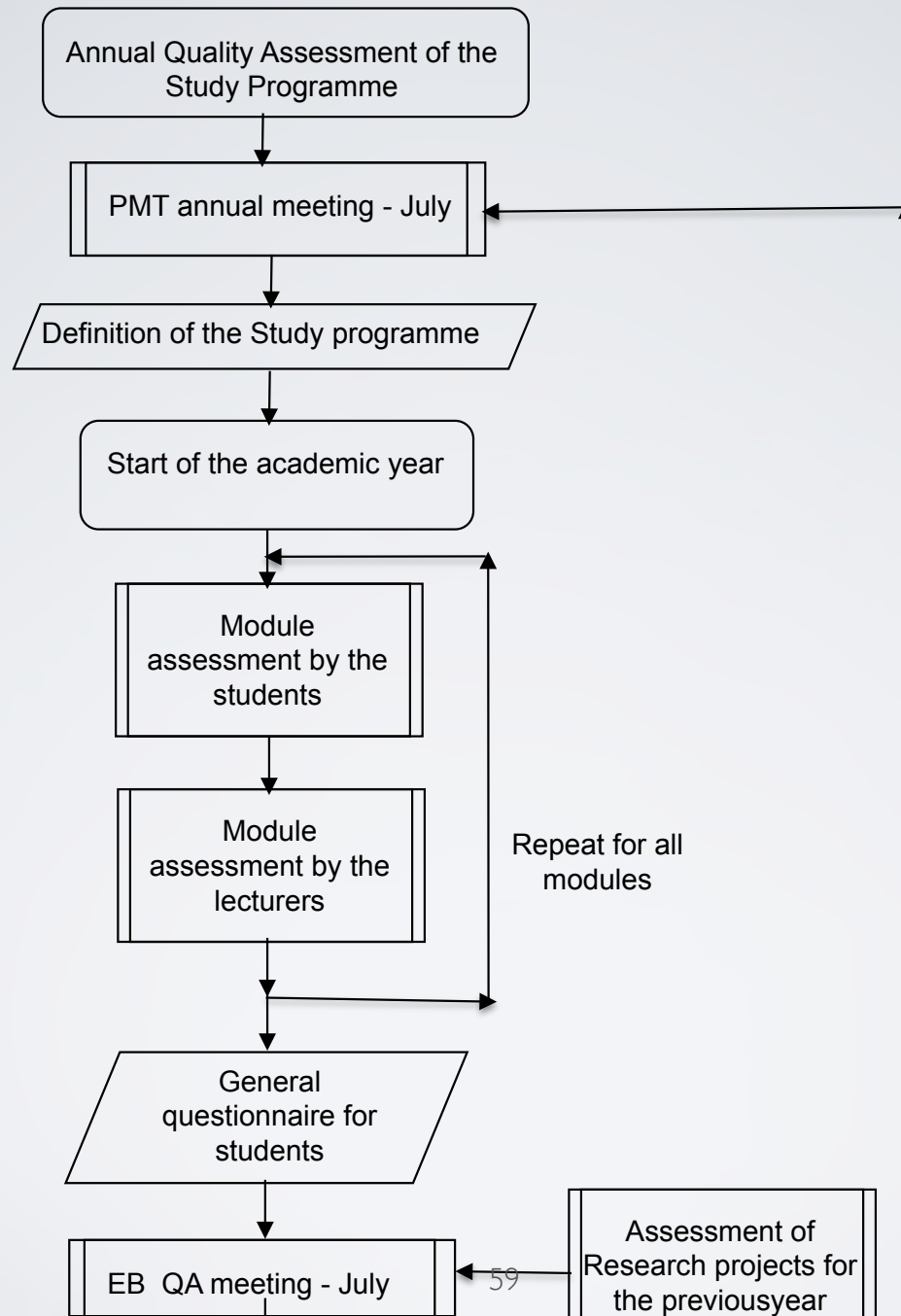
Both instructors did not know how to speak in English. They could even hardly read the texts in their powerpoint presentation. This is the worst module I have. / It was not good at all.

The laboratory session was so unorganized. They did not organize the lab activity well. They also did not have clear instructions regarding the requirements/evaluation of the module.

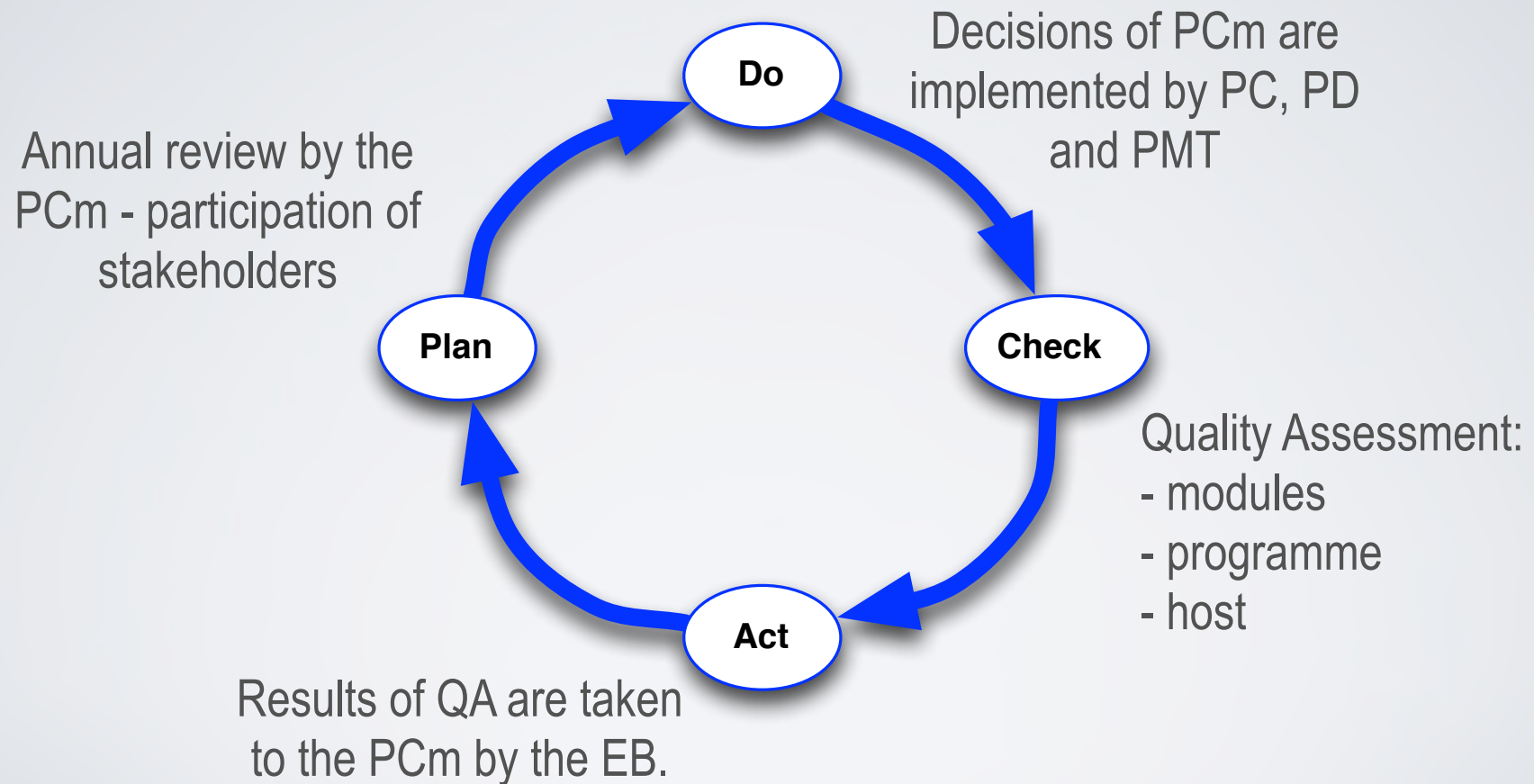
no. of registered students: 12
no. of evaluated students: 3
no. of questionnaires delivered: 3

Student Grades





EMQAL QUALITY ASSURANCE



THANK YOU!