Practical Approach to the Development of Programs Handbook

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Modules Description

Module 1 **Title**	**Xxxxxx xxxxxxxxxx xxxxxxxxxx xxxxxxxx xxx**
Credits	X ECTS credits, XXX academic hours
Module leader **and assistant (if any)**	
Study terms	Year X, semester Y. Year Z, semester W
Aim of the module [not more than 500 characters including spaces].	
Lectures	XX hours
Laboratory works	XX hours
Individual work	XXX hours
Learning outcomes **Knowledge and understanding:** • …….. • …….. • [not more than 350 characters including spaces]. • …….. **Practical skills** • …….. • …….. • [not more than 350 characters including spaces]. • …….. **Graduate (or Transferable) skills** • …….. • [not more than 150 characters including spaces]. • ……..	

How to fill course description

Module 1 **Title**	**Xxxxxxx xxxxxxxxxxxxx xxxxxxxxxxxxx xxxxxxxxxx xxxx**
Credits	X ECTS credits, XXX academic hours
Module leader **and assistant (if any)**	
Study terms	Year X, semester Y. Year Z, semester W

Module 1
Title

Title of the teaching module. It must be as clear as possible. Professors are invited to keep it as concise as possible. It would be better to use an *international standard* name (i.e. Heat Transfer and not Study of Heat Propagation)

Credits

They are a "unit of measure" of the strength required by the student (and by the lecturer!!!) to attend the course. Each academic year a maximum of 60 Credits can be delivered. Each credit is 25-30 hours of work per week (i.e. individual study + courses + laboratory)

Module leader
and assistant (if any)

Study terms

Organizational information

How to fill course description

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Aim of the module [not more than 500 characters including spaces].	
Lectures	XX hours
Laboratory works	XX hours
Individual work	XXX hours

Describe the contents of your course. Keep in mind the number of ECTS you have been assigned and balance the contents with the required strength. It is important to be clear, because the student must know which are the content delivered with your course.
Specify how the course is structured:

- How many hours?
- Any laboratory (i.e. experiments, computations, etc.)?
- How much individual study is required?

How to fill course description

Learning outcomes

What will the students learn?

- Theoretical and cultural outcomes
- Practical skills (i.e. engineering approach)
- General skills applicable to different fields and situation

How to fill course description

Knowledge and understanding:

Which are the main concepts and notions the students will learn will your module?
Make a list of the main knowledge the students should get after passing your exam.

Practical skills

How is practically applied the theoretical knowledge the students get after your course?
What are they able to do after your courses?

Graduate (or Transferable) skills

Please, highlight which are the general skills the students get during your course.
These are skills applicable also in other contexts (i.e. public speaking, team working, etc.)

Practical Example

Module 1 **Title**	**Heat Transfer**
Credits	6 ECTS credits, 180 academic hours
Module leader **and assistant (if any)**	Assistant Professor Vincenzo Bianco Dr. Mario Rossi (computer exercises)
Study terms	Year 3, semester 2.

Practical Example

Aim of the module

The course presents the three modes of heat transfer: conduction, convection, and radiation. One-dimensional steady and transient conduction is studied for planar, cylindrical, and spherical geometries. The lumped capacitance analysis is used for transient conduction when appropriate. Convection heat transfer is studied in both internal and external geometries and under laminar and turbulent flow regimes. Free convection is also considered where heat transfer is due to flow induced by fluid buoyancy. Radiation heat transfer is studied by considering both the general characteristics of radiation as well as the properties of radiating surfaces and radiation heat transfer between surfaces.

Practical Example

Lectures	60 hours
Laboratory works	5 hours
Individual work	115 hours

Practical Example

Learning outcomes

Knowledge and understanding:

- Acquire knowledge and understanding of the basic laws of heat transfer;
- Ability to solve conduction equation in different systems of coordinates;
- Capacity to describe complex convection problems
- Capability to solve combined problems with the contemporary presence of conduction, convection and radiation

Practical skills

- Ability to apply heat transfer in real life situations (i.e. design of insulation for pipes);
- Capability to understand international standards related to heat transfer (i.e. SAE and ASME guidelines);
- Analyse and interpret results of computer simulations;

Graduate (or Transferable) skills

- Team work skills developed during the preparation of course case studies;
- Public speaking skills developed during the presentation of course case studies;
- Realization of individual reasearches