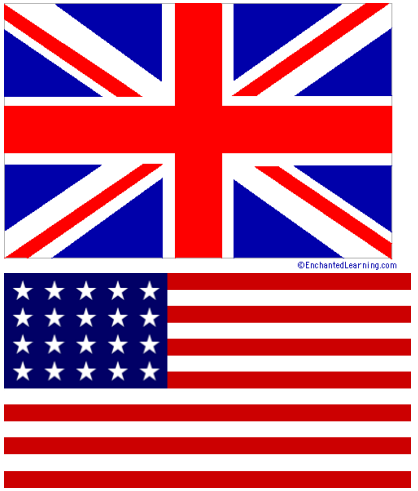
Projeto em Engenharia Eletrotécnica

Introductory notes

- **Preliminary Notes - Language**
  - Expositive lessons or presentations will be in **English**
  - All student **reporting, documentation and presentations** will be in **English**
  - Templates will be provided for the different types of reports
    - All reports should **preferably follow the templates**



Can also be globish (Global or International English)

The team

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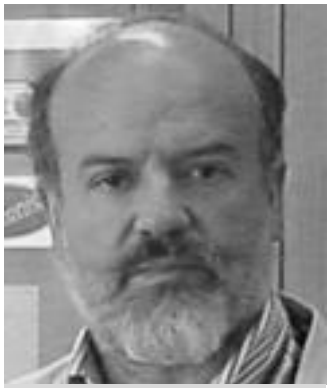

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What is a project? I

- Many definitions, e,g.:
  - "……..and endeavour in which human (or machine), material and financial resources are organised in a novel way, to undertake a unique scope of work, or given specification, within constraints of cost and time, so as to deliver beneficial change by quantitative and qualitative objectives"

    Turner (1998) The handbook of project-based management: Improving the Process for Achieving Strategic Objectives.

  - "Unique processes, consisting of a set of coordinated & controlled activities with start & finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources".

    ISO 10006 Standard

What is a project? II

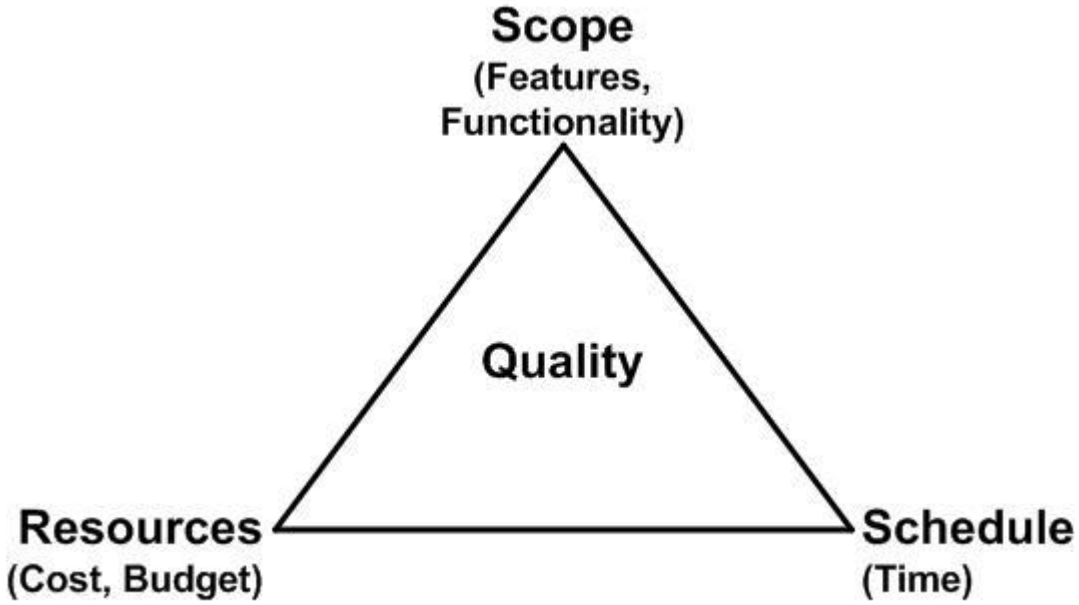
- Key aspects
  - A group of activities to be undertaken to yield specific objectives
  - Constrained in times and costs

  - Thus projects are different from operational activities which are performed regularly over time

Projects have a start, a middle and an end

Project Management

- Goal of project management is to manage so-called triple contsraint



The Iron Triangle

Project management II

Good planning and management is essential

'Give me six hours to chop down a tree and I will spend the first four sharpening the axe'

(Abraham Lincoln)

Objectives of the course

- Enhance the student's knowledge and skills in **managing and developing engineering projects to solve problems**, namely:
  - Get familiar with general **project management** concepts when managing a project
  - Acquire a methodology to **work in a team** to solve marketable problem
  - Contextualize and acquire **disciplinary objectives through solving a project**
  - Acquire sensitivity to **entrepreneurship** actions
  - Acquire the capability to deliver or present the project findings in in a **rigorous technical language** both in oral and written form

The classes I

	Anf IV ou outro	4.1.23	4.1.23	4.1.28
9:00-11:00		T1 (AG)	T4 (MOD	T2(NBC)
11:00-13:00		T6 (AG)	T3(MOD)	T5(PM)
13:00-15:00				

Will be used for expositive lessons and presentations

Will be used for the project execution

The Classes II

T1	Manuel O. Duarte
T2	Nuno B. Carvalho
T3	Manuel O. Duarte
T4	Manuel O. Duarte
T5	Paulo Monteiro
T6	Atílio Gameiro

Supervision in the technical developments

The course implementation – Global aspects I

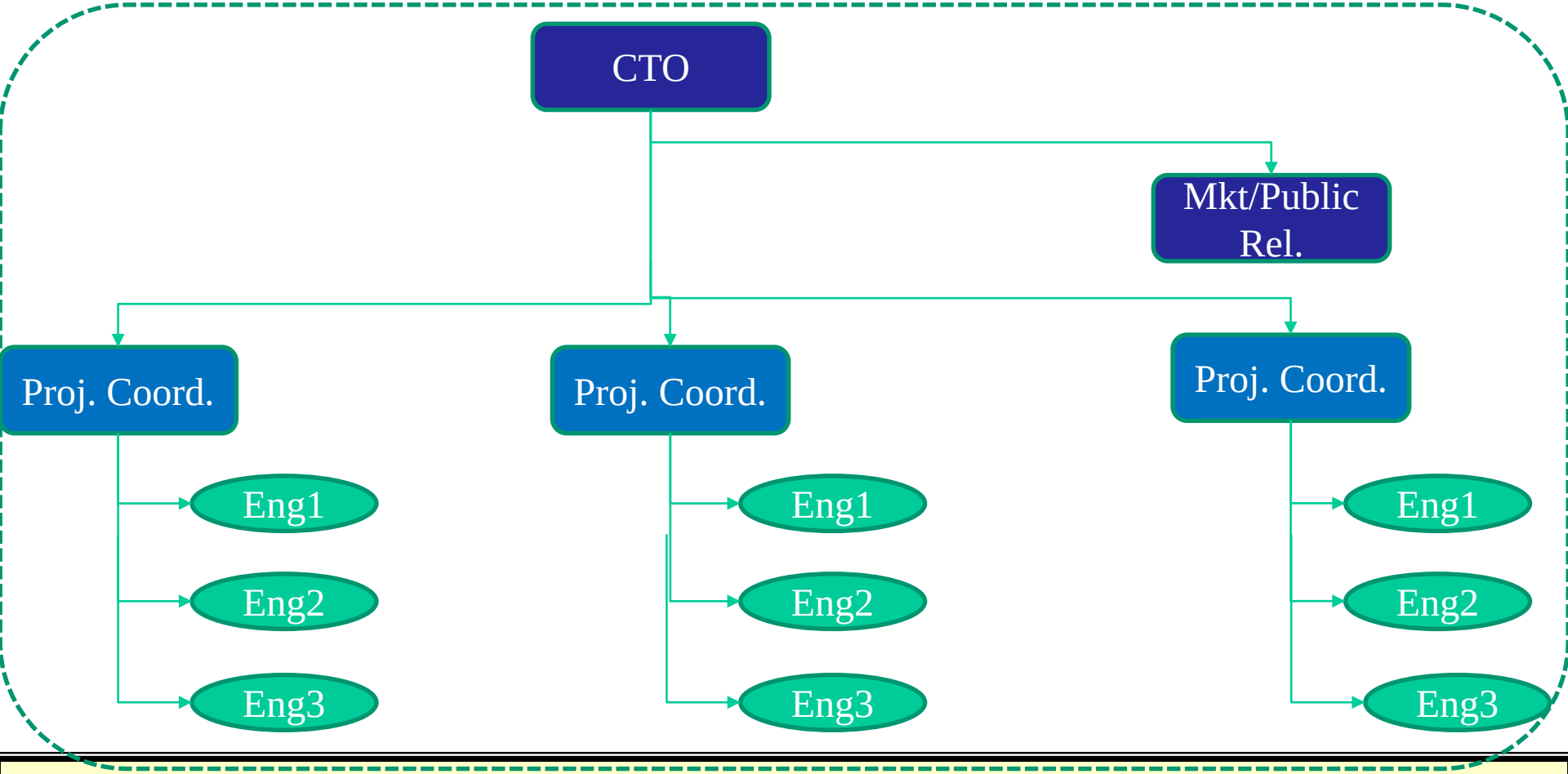
- To understand through practice the fundamentals of project management, team work, entrepreneurship action together with technical development
  - **Each class emulates a company**
  - Company has a mission and its activities are supported by a portfolio of products or services

The course implementation – Global aspects II

- Within PEE the objectives for each team emulating a company are
  1. Define mission, scope and plans for the company
  2. Identify **marketable products / services** that will address the scope
  3. Define, plan and develop the projects that will lead to the product / service creation, enabling operation of the company
  4. Define and implement a communication strategy with stakeholders

The company structure I

- **The company (class) structure**



The company structure II

- 77 students attending 6 practical classes (companies)
  - 13-5 students for each company
    - Appoint one CTO
    - Appoint one Marketing and Communication Manager
    - Define 3 groups (project teams)
      - Each project team will develop the project aiming to a product / service for the company
      - Each project team should have 4-5 students (minimum 3) and **one of them will act as project coordinator**

The steps to go forward I

- **Each company (class) will have to**
  - Propose a group of 3 coherent creative ideas **with marketable potential**
  - The mission / profile and project ideas will be presented and rated
  - The criteria and constraints for selection and support are
    - **Coherency** among the proposals inside one company so that it is possible to unambiguously identify a scope for the company
    - The project proposals must be **aligned with MIEET scope**
    - The project proposals must be likely achievable under the following constraints
      - **Cost**: Material for the development under **100€**
      - **Time**: realistic to anticipate the proposal will be achievable until **June 5th 2017**

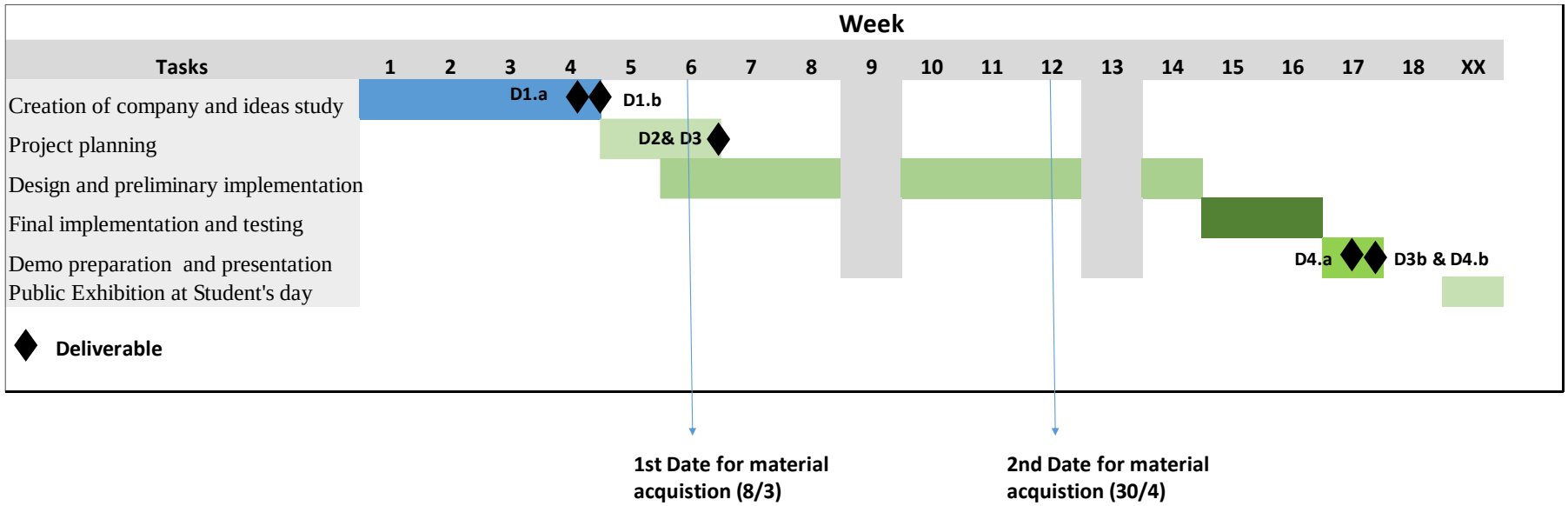
The steps to go forward II

In the case the ideas do not appear or are not selected, what happens?

- The lecturers will step in and propose additional
- The remaining groups should select an idea from a pool given by the lecturers
- Furthermore
  - DETI has also specific needs to improve teaching conditions, accessibility. , organization, rtc. Thie could be the basis of a company (class)
    - ***Help us so that we can help you.*** *(*Looks like a politician slogan but nobody is running for elections ☺)
  - Lecturers may also propose activities in specific areas
  - Some projects may coordinate with PEI

The Project schedule

- Gantt chart



List of deliverables I

- **D1.a:** *Company description and proposals*
  - Type: report. Deadline 6/3
- **D1.b**: *Company description and proposals*
  - Type: presentation. Deadline 8/3

Component 1 of grading

- **D2**: *Project specifications*
  - Type: report. Deadline 28/3

Component 2 of grading

- **D3.a**: *Basic version of website*
  - Type: other. Deadline 28/3
- **D3.b**: *Final Website*
  - Type: other. Deadline 8/6

Component 3 of grading

List of deliverables II

- **D4.a**: *Company and product final description (includes user manual, developer manual)*
  - Type: report. Deadline 5/6
- **D4.b**: Company and project final presentation
  - Type: report. Deadline 7/6
- **D4.c**: Product delivery
  - Type: other. Deadline: Student's day (date

Component 4 of grading

Grading I

- **Grading**
  - **Type**: Discrete
  - **Grading components**
    - **D1** – Company profile and plans
      - Common to the whole company
    - **D2** – Specifications and planning
      - Common part + dedicated project sections
    - **D3** – Website and /or other tools
      - Responsibility of the Marketing and Com. Manager
    - **D4** Final prototypes
      - Common part + dedicated project sections

Grading II

- Weights of the different grading components

Component		Grading weight (%)		
Name	Description	CTO	Mark & Com. Manager	Project Team
Deliverable 1	Company description, scope, plans and proposals	30	15	20
Deliverable 2	Specifications [1]	30	5	20
Deliverable 3	Communication and marketing strategy and instruments	20	60	20
Deliverable 4	Final report and prototypes [1]	20	20	40

[1] Includes Common Part + dedicated project part that will haveseparate grades (50% each)

The grading for the CTO will be the average of all groups

Grading III

Special Examination

- If within a class a student underperforms and fails, he (she) can require the special examination ("Exame de Recurso") at an individual level
- Requirements for the special examination
  1. The lecturers will define a topic involving implementation
  2. The student will have one afternoon / morning (5hours), to implement the system and produce a deliverable
  3. The grading will be assessed based on the level to which the implementation was achieved and the respective report

Grading IV

Special Examination

- Deadlines
  - Indication to exercise the right to the special examination: 17/6
  - Date for the assessment: to be defined by the lecturers

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Overall Schedule

	Expositive lessons and external presentation	Practical project development (4.1.23 & 4.1.28)
Date	Contents	Contents
15-fev	Global presentation, team formation	
22-fev	Project management key concepts	Discussion of the ideas
01-mar	Technical reporting	Discussion of the ideas
08-mar	Company and proposal presentation from students	Discussion of the ideas and preparation
15-mar	UA tools for the creation of companies (Incubadora UA) [1]	Preparation
22-mar	Intelectual Property management and patents (UATEC) [1]	Preparation / Design
29-mar	Company startups, motivation and challenges: a use case [1]	Design
05-abr	Standardiztion in the development of products (IEP) [1]	Design
12-abr		
19-abr	Techno--economic project analysis	Design [2]
26-abr		Implementation
03-mai		Implementation
10-mai		
17-mai		Implemnetation
24-mai		Implementation
31-mai		Testing
07-jun	Final presentation	
Student Day	Public exhibition [3]	

[1] Dates still not fixed. To be defined according to the convenience of invited speakers

[2] Can be mix of adesign and implementation

[3] Compulsory

Procedures

- **Deliverables**
  - Deliverable that consist in reports need to be uploaded by the deadline in moodle
    - Templates will be provided and advised to follow them
- **Cost constraints and acquisition procedures**
  - The cost (in material) for each project **is constrained to 100€**
    - The 100€ is the funding from the department. Components existing at DETI are not included in this value although they should be counted in the final report so that we have a realistic evaluation of the product For components not available at DETI, the CTO should get the price and request the lecturer to order it
      - **This request must be made only after the team has verified the non-existence of such component (or an equivalent) at DETI**

AND THE FIRST STEP TO ENSURE SUCCESS IS TO CONVINCE YOURSELVES THAT