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# Knowledge FOR Resilient soCiEty

**STUDENT CENTERED LEARNING  
METHODOLOGY APPLICATION IN TEACHING AT MP DRM&FS**  
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## COURSES

- PROJECT PLANNING, MANAGEMENT AND COORDINATION
- RISK ANALYSIS IN DECISION MAKING PROCESS
- EVACUATION CALCULATION MODELING
- LANDSCAPE PERSPECTIVES IN DRM&FS
- STRUCTURAL FIRE SAFETY
- REINFORCED CONCRETE STRUCTURES
- DURABILITY OF CONCRETE
- FLOOD RISK ASSESSMENT



## EVACUATION CALCULATION MODELING

### **TOPIC**

*Panic, Characteristics of people movement through smoke, Human behaviour in fire theories: decision-making, response to alarm systems, information, and environmental cues, Evacuation time analysis: Components of evacuation time, Transitions, Queues, evacuation modelling*

## EVACUATION CALCULATION MODELING

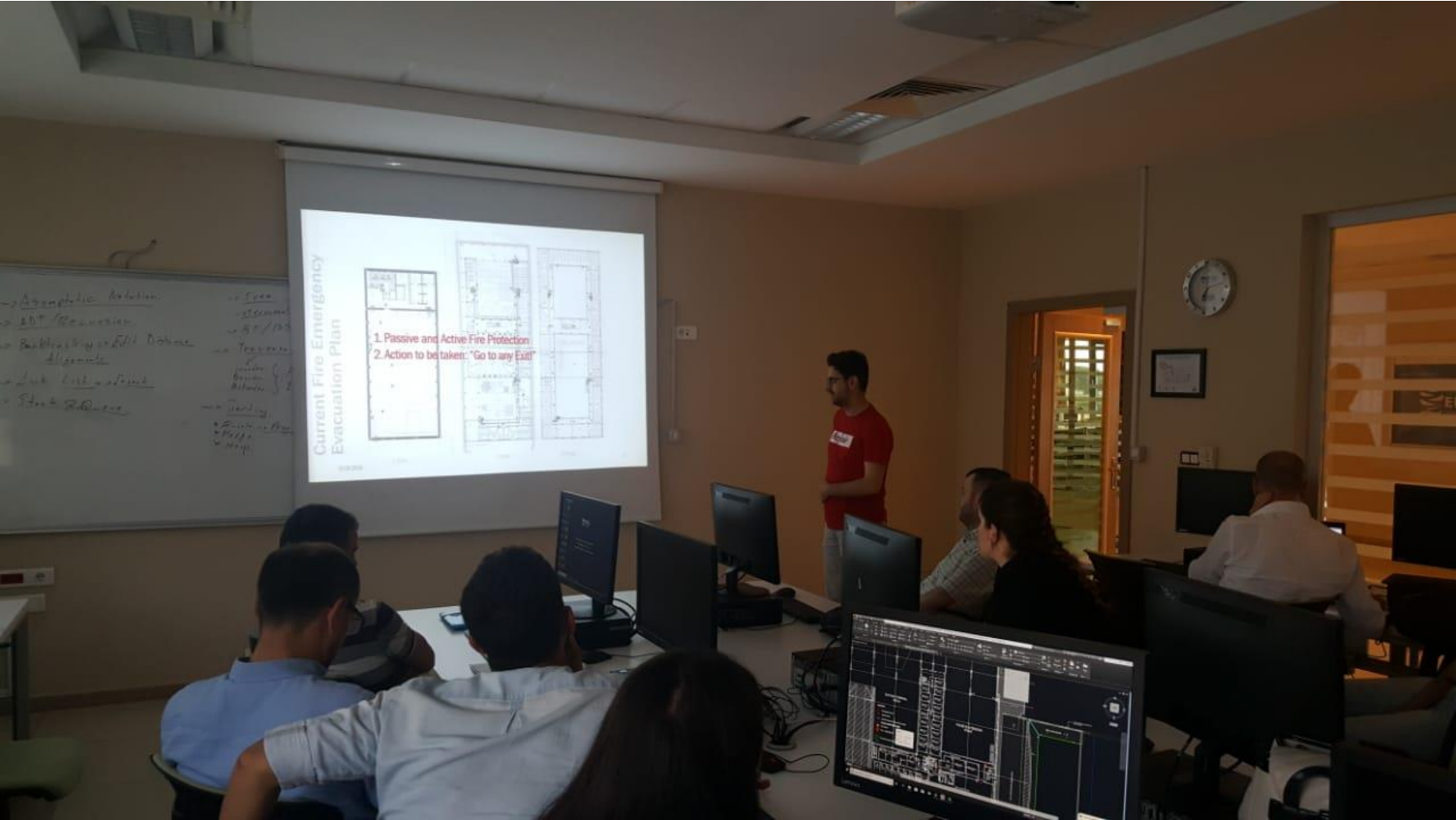
- **APPLIED SCL METHODOLOGY**
- Different teaching methods (**lectures, dialogue, group work, laboratory exercises**) are combined. The aim is to develop learning as active process and focus on student's innovation. Different forms of feedback (e.g. **oral consultancy sessions, face to face dialog; written-comments to reports in a form of track-changes, e-mail communication**) are used to communicate with the students.
- Specifically, the methodology includes: Learn the principles of fire life safety concepts,
- design the buildings with concepts of fire safety evacuation, include computational simulation methods in fire analysis, design evacuation systems in **project design integration**

## EVACUATION CALCULATION MODELING

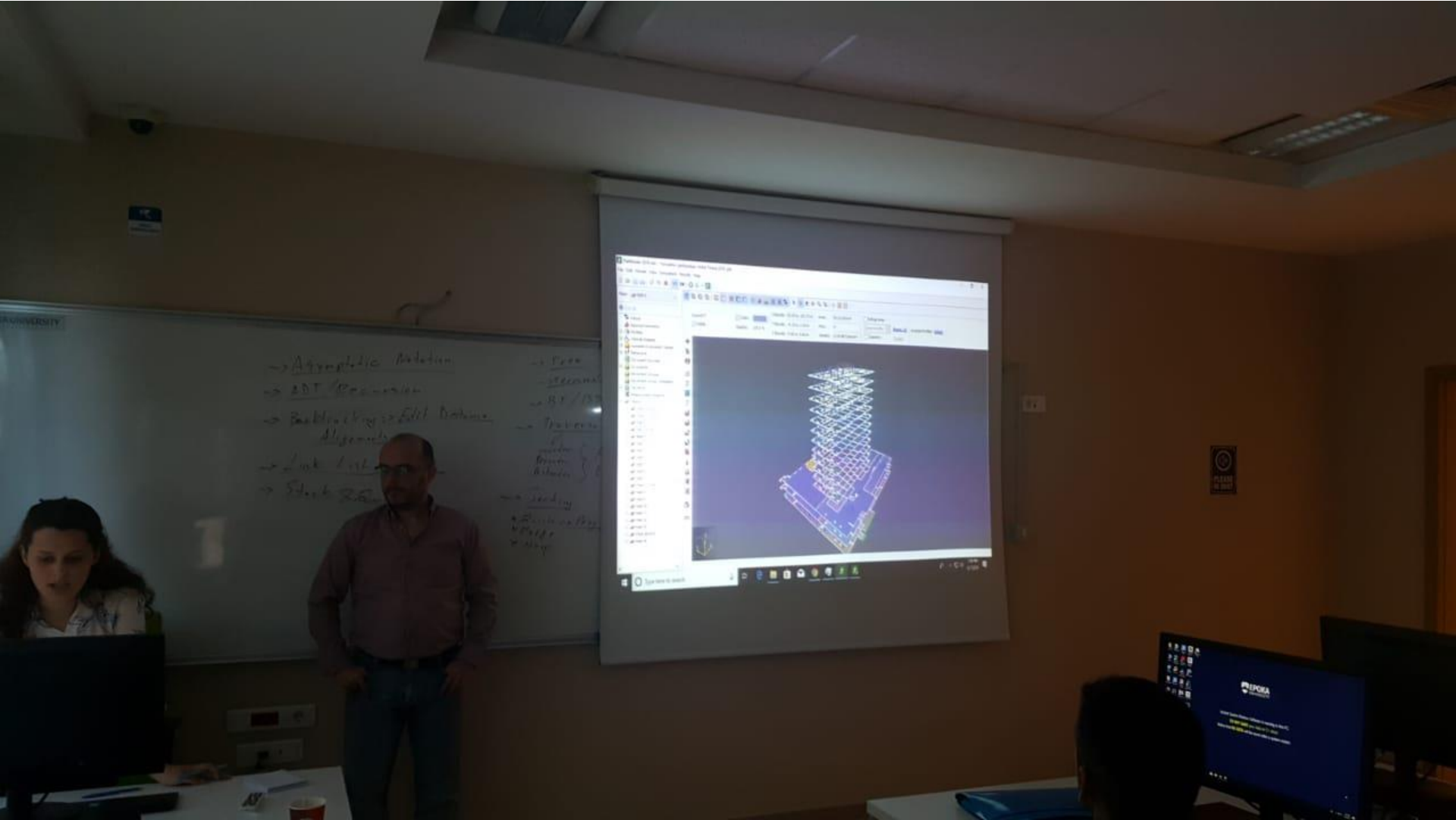
### Learning Outcomes

- **Employ a variety of teaching tools**, with the aim to stimulate interest and motivation in the students, thus boosting the learning process.
- **Develop schemes** to get students involved in learning: *Motivation to initiate learning, and to maintain engagement during learning.*
- *Work actively with course content to have a clear structure and learning objectives- students can explore and navigate the course*
- **Continuous feedback and consultancy** to students in different roles as expert, facilitator, advisor – *showing very high interest on their progress in solving the given tasks and problems as well as on their learning process.*
- Provide **students freedom** to make their **own learning-related choices**, *which is important if students are to become independent lifelong learners and select their own approach to the problem.*
- **Reflective teaching**: *Working on solutions based on case-by case situation.*

# LABORATORY



# LABORATORY



## Landscape Perspectives in DRM&FS

### **TOPIC**

GIS Applications in Wildfire and Forest fire risk assessment

### **APPLIED SCL METHODOLOGY**

- Following a Project Based Learning (PBL) and Problem Oriented Research (POR) methodology the students are introduced into an interactive working environment. Students were self-organised into **groups of 4 members**. The group divide the tasks between the members. In case of guidance they have been assisted by the instructor.
- During the practical sessions of the semester each student is responsible for practicing and producing the GIS materials. Finally **as a group** they have to prepare the **text-based paper**, the set of risk maps, the presentation, and the poster. Each member is the primary responsible person for one of the above tasks.
- The **grade** of the final term work is the same for **all the group members**. While during the semester each student is evaluated individually for individual assignments.



## Landscape Perspectives in DRM&FS

### Learning Outcomes

- To understand the **concepts** of hazard assessment, elements at risk mapping, vulnerability assessment, and risk assessment
- **Formulate** the spatial data requirements for a specific type of risk assessment
- Understanding the importance and utility of GIS technologies in DRM & FS
- Generate risk maps using qualitative and quantitative methods in GIS
- Understanding the Multi-variable and **multi-criteria** character of risk and vulnerability
- Understanding the **inter-dependency** of diverse hazards with each-other
- Experiencing a **Problem Oriented Research** (POR) process
- Being able to **work in group** and contribute to **a common research**
- Being able to prepare the term research work into at least a conference paper

## PROJECT PLANNING, MANAGEMENT AND COORDINATION

### TOPIC

*Tools and knowledge necessary to plan network schedules and budgets for construction project. Work Breakdown structure, Critical path scheduling, Stochastic scheduling, Resource levelling, and project costs. Project planning with emphasis on legal aspects of various types of delivery methods and contract types.*

*(3 projects+ Achievement tests)*

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*(3 projects+ Achievement tests)*

## PROJECT PLANNING, MANAGEMENT AND COORDINATION

### APPLIED SCL METHODOLOGY

- Students are working in **groups** of 3, they select the group members. The group divide the tasks between the members.
- Each group prepares the paper and the **presentation** which will be discussed with other students and teacher.
- Teachers provide the **case study** and literature, theoretic basics and regular consultations, beside the regular lectures. Students are **working independently on teamwork- bases**.
- Tasks:
- Competitive bidding Contracts, Types of FIDIC form of construction contract, Output based maintenance contracts, PPP Agreements, Project planning and management with PERT/CPM, Cost Plan, Project Time- Cost Trade-off. Achievement Test: used multiple-choice, true/false, and short answer format questions.

## RISK ANALYSIS IN DECISION MAKING PROCESS

### TOPIC

*Nature, typology and dynamics of risk & risk management, apply them to strategic and tactical problems and illustrate their tools and techniques (4 projects+ Achievement tests)*

## **RISK ANALYSIS IN DECISION MAKING PROCESS**

### **APPLIED SCL METHODOLOGY**

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- Each group prepares the paper and the presentation which will be discussed with other students and teacher.
- Teachers provide the case study and literature, theoretic basics and regular consultations, beside the regular lectures. Students are working independently on teamwork- bases.
- Tasks:
- Disaster Risks and impact on society, Risk Identification Tools, Qualitative and Quantitative Risk Analysis Tools, Multi hazard risk assessment and decision making, Risk Response Planning, Risk Monitoring and Controlling

## **PROJECT PLANNING, MANAGEMENT AND COORDINATION RISK ANALYSIS IN DECISION MAKING PROCESS**

### **Learning Outcomes**

Mastering academic content;

Learning how to think critically and solve problems;

Working collaboratively;

Ability to develop hierarchical work breakdown structures, as well as the physical preparation of each of these components for an actual project

Ability to develop CPM schedules and PERT analysis

Ability to prepare cost and resource loaded schedules to measure and forecast project cost performance

Ability to interpret planning with emphasis on legal aspects of various types of delivery methods and contract types

Communication creativity and effectively

Relationship Skills;

Responsibility to work and to the co-workers

Responsible decision-making

# Structural fire safety

## **TOPIC**

Design of structural for fire safety

## **APPLIED SCL METHODOLOGY**

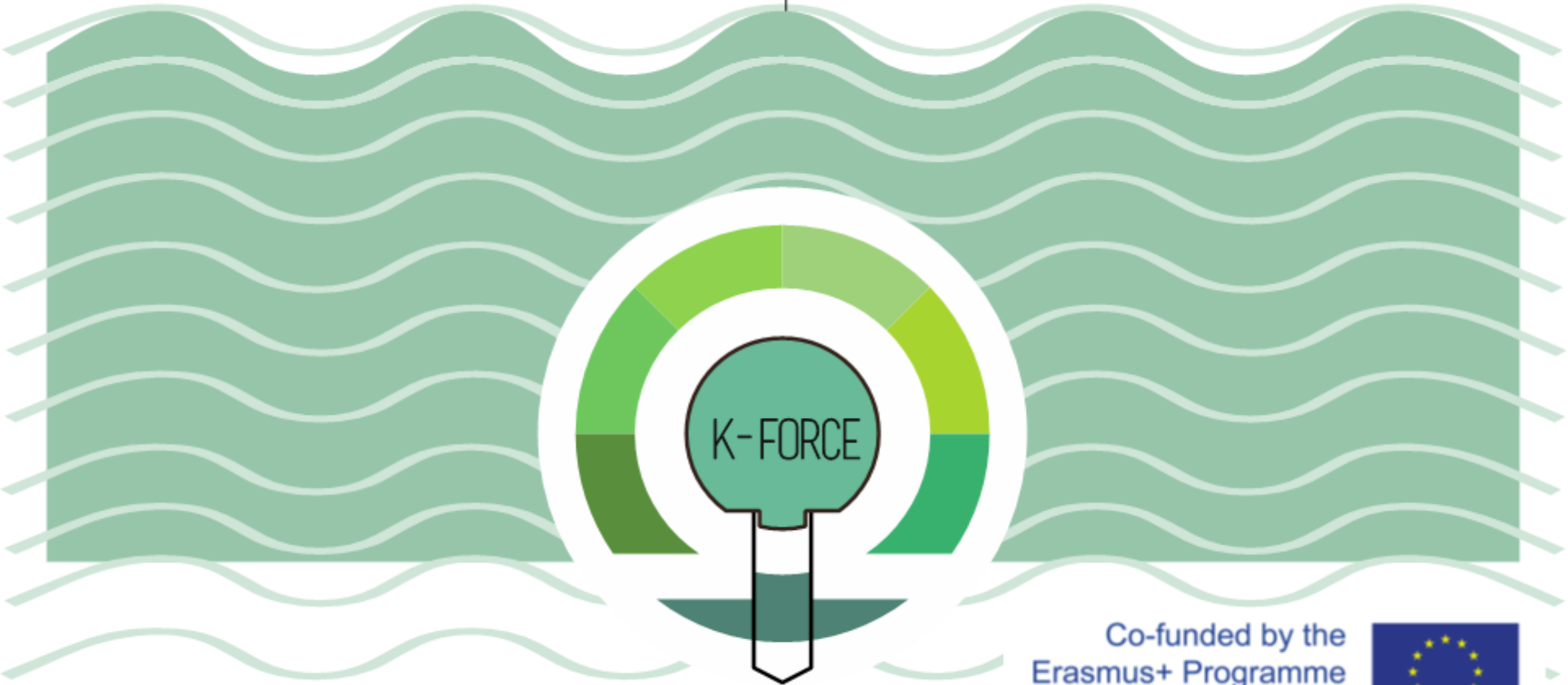
- Lectures on how to analyse the structures for fire safety
- Seminars are presented cases studies.
- These knowledges are evaluated thought midterm and final exam.
- While active and passive strategies of protection of structures from fire have been presented by students in form of projects.



# STRUCTURAL FIRE SAFETY

## Learning Outcomes : *evaluate*

- fire development in a compartment
- protected and unprotected steel structures
- protected and unprotected reinforced concrete structures
- protected and unprotected composite structures
- protected and unprotected timber structures
- protected and unprotected masonry structures
- protected and unprotected aluminium structures



Thank you  
for your attention

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