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# Knowledge FOR Resilient soCiEty

Training professional staff at Lund  
University

*Enrico Ronchi, Ph.D.  
Lund University*

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LUND UNIVERSITY

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# Outline

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- 1) Areas in which LLL courses are provided by LU
- 2) Modalities employed for LLL courses  
*Lund University Commissioned Education*  
*Distance, on-site, etc.*
- 3) Examples of LLL courses



# Areas in which LLL courses are provided at Lund University

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## Fire Safety Engineering

Long history of delivering courses in simulation areas e.g.

CFD Simulation Fires and Enclosures

e.g. Fire Evacuation Design

## Risk Management and Societal Safety

e.g. Risk assessment and risk evaluation (in Swedish)

Entire MSc Programme

MSc in Human Factors and Systems Safety



# Modalities employed for LLL courses

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## Lund University Commissioned Education (LUCE)

LUCE provides commissioned courses and programmes that are usually **tailored after the customers needs**. Courses and programmes are conducted by lecturers and researchers from Lund University to ensure a broad and deep scientific content as well as modern pedagogy.

### Tailor-made education

Tailor-made courses, training programmes, seminars and conferences to suit professional development needs. Education and professional training is available **on campus, online or in the workplace** (internationally or in Sweden).



# Modalities employed for LLL courses

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## Lund University Commissioned Education

### **Open Admission courses – no formal qualifications needed**

Experience is valuable and therefore there is no need to show any school certificates or other qualifications to be admitted to a commissioned open admission course.

### **Assessment, certificates and academic credits**

Open admission courses may lead to academic credits if passed. The assessment on these courses is as demanding as on other university courses and course certificate and credits have the same status as they would on an ordinary university course.

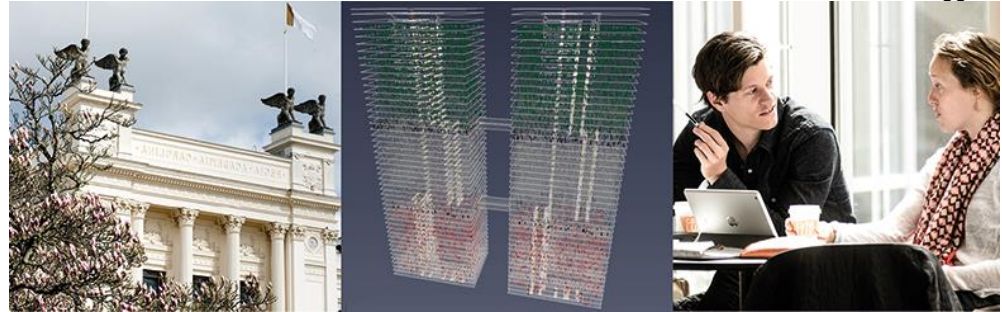


# Examples of LLL courses



## Fire Evacuation Design

It includes an overview of different **behavioural theories** and concepts concerning fire evacuation, and the **evacuation models** available on the market (from an impartial point of view). It focuses on understanding their main modelling assumptions, strengths and limitations. Attendees learn how to set up an evacuation scenario using an evacuation model



### Flexible module choice

1. Human behaviour in Fire
2. Evacuation Modelling

Course responsible: Enrico Ronchi



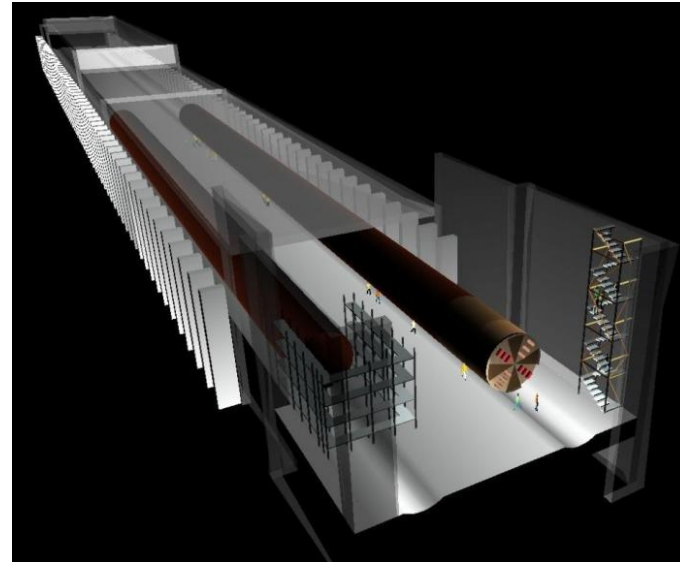
# Examples of LLL courses



## Fire Evacuation Design

### Target groups

- Fire protection engineers
- Consultants,
- Civil/transportation engineers,
- Regulatory authorities,
- Architects
- Scientists,
- Building inspectors
- Fire investigators.



### Course features

- Course in English
- Students from all over the world (Australia, New Zealand, Europe, China, etc.)
- Combination of software tutorials and distance lectures
- Assessment based on assignments



# Examples of LLL courses



## CFD Simulation of Fires in Enclosures

- To provide knowledge of how the spread of fire and combustion gases is simulated using "Computational Fluid Dynamics" (CFD), various methods for modelling in fire safety design and fire investigations.
- Limitations of numerical and physical models and an awareness of the most common sources of error.

### Contents

- Introduction to CFD
- Time and length-scales in fires
- Turbulence models
- Numerical methods
- Large eddy simulation (LES)
- Combustion models
- Radiation models
- Soot models
- Heat transfer models
- Creation and processing of CFD models

Course responsible: Jonathan Wahlqvist





# Examples of LLL courses



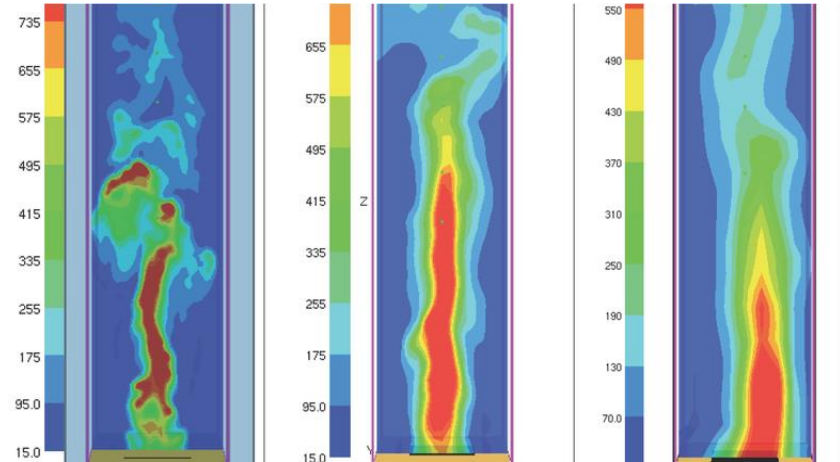
## CFD - Simulation of Fires in Enclosures

### Target groups

- Fire Safety Consultants
- Employees of private companies
- Employees of rescue services
- Researchers
- Engineering students

### Course features

- Course in English
- Running for 20 years!
- Students from all over the world
- Internet tool containing the CFD models
- Combination of seminars on site and distance
- Assessment based on assignments and exam (also distance)





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Thank you  
for your attention

*enrico.ronchi@brand.lth.se*

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