



# **VIU SUMMER SCHOOL critical InFrAstructure resILIENCE**

**Critical Infrastructure Resilience  
July 20 - 24, 2020  
Venice International University  
Isola di San Servolo, Venice**

# VIU Summer School

## Critical Infrastructure Resilience

### Venice International University

July 20 – 24, 2020

#### Scientific Coordinator:

Erdem Ergin,  
University of Rome  
Tor Vergata

In its fourth edition, the summer school on Critical Infrastructure Resilience (CIR) offers a scientific approach to prioritize risk and a pragmatic framework to develop resilience solutions.

Academics and professionals come together to offer this course because resilience is a key feature, whether we work at city, business or sector scale. We believe that:

- The hazards are evolving fast, ranging from terrorism and cyber threat to natural disasters and climate change. The course takes an impact base approach rather than developing specific scenarios.
- The exposure and vulnerability are increasing, both in quantitative and qualitative terms. The course discusses various methods of assessing risk based on available information, even if not perfect.
- The decision-making mechanism may be biased, due to the complexity of models and inter-connectivity of systems. The course discusses decision-making alternatives from real business cases.

Many of us experience more connectivity in the way we work and more complexity in our products and services. The same is true for many of our infrastructure, cities and economies. Although this allows us to be more productive and efficient, when there is a failure in a key location, the impact is also shared throughout the system. The notion of critical infrastructure (CI) come very handy to support efforts for a resilient society. It is a pragmatic tool to deal with the inter-connected and complex society we live in as it allows us to (i) see the dependencies, (ii) deal with the uncertainties, and (iii) understand the impacts and effects within and beyond our system.

The course consists of a mix of theoretical knowledge, case studies/projects and hands-on exercises. The beautiful city of Venice is an ideal place that participants can use to identify a critical infrastructure, assess its risk and develop resilience strategies. This course will discuss the concept of CI and aims to provide the participants (i) a clear understanding of what resilience means for their work, (ii) methods to assess risk and priorities, and (iii) an overview of tools and solutions from recent applications.

### **Who is it for?**

Professionals, officials and graduate students already working on the topic or thinking their work may benefit from it. Ability to read and write fluently in English is a must.

### **Faculty**

Erdem Ergin, University of Rome Tor Vergata/UNDP  
Louis Boutaud de la Combe, Business Coach  
Carlo Giupponi, Università Ca' Foscari Venezia  
Carlo Papa, Enel Foundation  
Federico Carturan, RiskApp  
Jonas Johansson, Lund University

### **Topics**

#### **Critical infrastructure**

A critical infrastructure is “An asset, system or part thereof which is essential for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the disruption or destruction of which would have a significant impact”.

#### **Cascading Impact and ranking criticality**

The course will use concrete case studies to discuss how to measure impact (whether social, economic, environmental or political), how to assess the transfer/propagation of impact (whether through a supply-chain, the global aviation system or between countries), and how to assess the importance (ranking) of criticality.

#### **Resilience**

Resilience is “the capacity of a system to absorb disturbance and re-organize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks.” This definition means that we consider 2 types of impact: (i) an extreme event that can affect the physical integrity of a CI and/or disrupt its core function and (ii) a change in operating conditions that can affect the performance of the CI.

### **Course outline**

The 5-day course consists of 10 modules:

- M1 – Definition & role of critical infrastructure
- M2 – Applied work – Define CI
- M3 – Cascading impacts & ranking criticality
- M4 – Applied work – Measure impact
- M5 – Risk Assessment techniques
- M6 – Applied work – Understand risk
- M7 – Decision-making under uncertainty
- M8 – Applied work – Prioritize decisions
- M9 – Business case of Enel Group
- M10 – Course wrap-up

### **Application procedure and cost**

The Program will admit up to 25 student participants.

#### **Fees:**

Participants of VIU member universities:  
€ 300 incl. VAT.

Participants of other universities/professionals:  
€ 600 incl. VAT

The fees will cover tuition, course materials, lunches in the VIU cafeteria and social events. Participants will be responsible for covering their own travel expenses to and from Venice and local transportation.

VIU Alumni are eligible for a reduced fee. PhD Students in EU universities may be eligible for Erasmus+ funding. Refer to international offices in home universities or contact VIU Erasmus office: [erasmus@univiu.org](mailto:erasmus@univiu.org).

#### **Accommodation costs on campus**

The costs of accommodation on campus in shared room with other participants (triple or quadruple) is 290 € for 6 nights. Further information will be available in the Application form.

#### **On-line application**

**Available from March 3 to May 15, 2020 on the VIU website.**

Applicants must submit the application form, a letter of motivation – which should include a brief description of the candidate’s research interests, a curriculum vitae and a photo.

#### **Credits**

Number of ECTS credits allocated: 2.

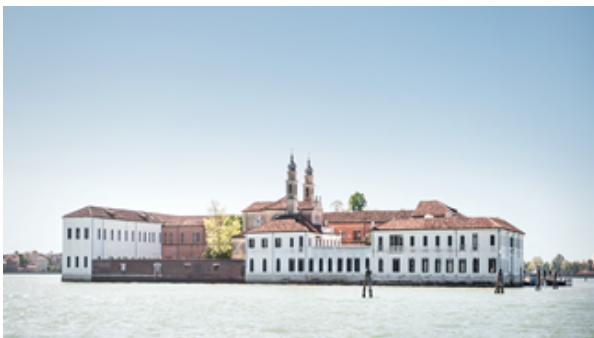
A certificate of attendance will be issued at the end of the course.

*Due to the ongoing and evolving COVID-19 emergency in Italy and worldwide, VIU will communicate to the participants on June 20, 2020 whether this Summer School is confirmed.*

*The Scientific Coordinators have decided that the Summer School is suitable for a virtual edition. Should it be necessary to organise this program as a virtual Summer School, the participants will pay a reduced fee.*

*In the event that the situation in Italy improves, virtual access will be offered to participants whose home country or home institution have issued travel advisories preventing travel to Italy.*

## **Location**



## **Venice International University**

Isola di San Servolo

30133 Venice, Italy

T +39 041 2719511

F +39 041 2719510

E [summerschools@univiu.org](mailto:summerschools@univiu.org)

[www.univiu.org](http://www.univiu.org)