

INTERNATIONAL TRAINING SCHOOL

07 – 11 October 2024
Naples - Italy



UNIVERSITY OF
NAPLES FEDERICO II



Department of
Structures for
Engineering and
Architecture



DIPARTIMENTO
DI ECCELLENZA
MUR

Within the course of the PhD program in
*Structural & Geotechnical Engineering
and Seismic Risk*

DATES

07 - 11 October 2024

40 hours (5 CFU)

LOCATION

Federico II Conference Centre
Via Partenope, 36
80121 Naples

CHAIR

Raffaele Landolfo
University of Naples Federico II

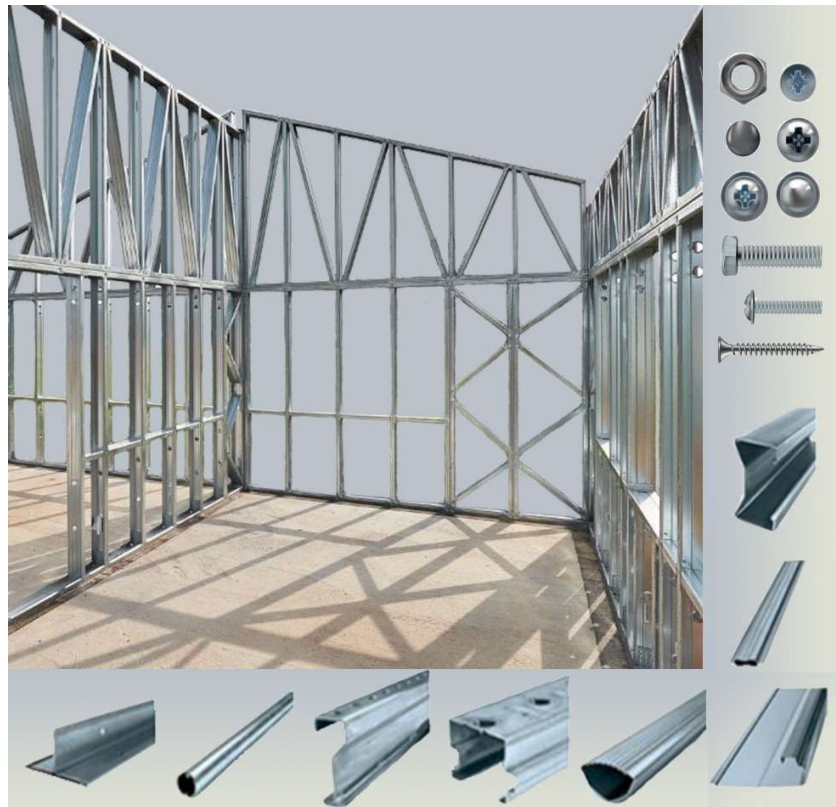
AUDIENCE

Engineers, architects, PhD students,
postdoctoral researchers

CONTACTS

Organizing issues:
landolfo@unina.it -
lfiorino@unina.it

Administrative issues:
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INTERNATIONAL TRAINING SCHOOL ON LIGHTWEIGHT STEEL FRAMED CONSTRUCTIONS

Final Program (version 18-07-2024)

AIM

In the field of solutions proposed by the construction market, the choice of technology and products to use is strongly influenced by costs and implementation times, as well as by the ability of the construction system to satisfy appropriate performance standards in terms of safety, durability and eco-friendliness. From this perspective, dry constructions that use lightweight cold-formed steel members (LightWeight Steel – LWS, Cold-Formed Steel – CFS), optimally combining high structural performance with high quality levels and reduced construction times, offer highly competitive solutions capable of satisfying extremely demanding client requirements.

Starting from this assumption, the course aims to provide the basic information that characterizes the LWS construction solutions, which are more suitable, compared to more traditional systems, for an integrated and sustainable design approach.

The aim of the course is to present the solutions for the main categories of LWS structures applied in buildings. The following types LWS solutions are concerned: stick-built constructions; panelised constructions; modular constructions; non-structural architectural elements.

On the purpose to give students a global approach of the specific problems to given construction type, the specific lectures are organised according to the following integrated structure: specific structural typologies and detailing; loading conditions and design criteria; analysis and design checking at ULS and SLS; specific requests for execution.

Particular aspects related to stability problems, dynamics, and specific connecting design will be addressed where and when they are significant. Relevant parts of EN 1993, as well as of EN 1990, EN 1991 and EN 1998 will be employed for the calculation of such elements. The theoretical part is supplemented with practical applications by various methods: analytical and numerical analysis, design project.

REGISTRATION

The course will offer a limited number of seats for participants to attend.

Registration:

<https://shorturl.at/tZJP9>

Registration confirmation: 13-09-2024

Registration fees:

- Students/Postdoc: **350 €**
- Professionals: **450 €**

Payment deadline: 7-09-2024

Payment by **Bank transfer** to:

Dip. di Strutture per l'Ingegneria e l'Architettura - IBAN code:

IT77C0306903497100000046044

SWIFT code: **BCITITMM**

Bank: Intesa Sanpaolo S.p.A.

VENUE

The Summer School will be held in the *Federico II Conference Centre*, located at the seafront of Naples (Italy), in a central and panoramic area, adjacent to town's best hotels.



Castel dell'Ovo and Borgo Marinari, with its narrow streets full of bar and restaurants, are just opposite, along with the small tourist port.



The rectangular building dates to 1937 and once was the site of the University Faculty of Economics. Of remarkable effect are the colourful materials used for halls, columns, floors and staircases.



SKILLS

The course is conceived to give students the following skills:

- Adopting different design approaches as appropriate for the characteristic structural system
- Understanding the behaviour of different LWS structures.
- Understanding ULS and SLS conditions for different structural typologies.
- Assigning best detailing according to structural system.
- Structural analysis, structural design, and interpretation of results.

CONTENT

General introduction to LWS construction systems and their common application; Characteristics of CFS profiles: effective geometrical characteristics, design resistance and stability criteria, connecting design and technology; Design assisted by testing and design assisted by numerical models; LWS solutions for structural uses. Technology and sustainability of LWS constructions; Residential LWS buildings: specific loading, conditions for design at ULS and SLS, constructive details; Seismic design according to the 2nd generation of Eurocodes. Tutorial on the design of LWS buildings for gravity loads, horizontal loads and seismic actions.

ORGANIZERS

Raffaele Landolfo, University of Naples Federico II, Italy

Luigi Fiorino, University of Naples Federico II, Italy

Mario D'Aniello, University of Naples Federico II, Italy

LECTURERS

Alessia Campiche, University of Naples Parthenope, Italy

Mario D'Aniello, University of Naples Federico II, Italy

Dan Dubina, Polytechnic University of Timisoara, Romania

Luigi Fiorino, University of Naples Federico II, Italy

Raffaele Landolfo, University of Naples Federico II, Italy

Alessandro Prota, University of Naples Federico II, Italy

Colin Rogers, McGill University, Canada

Sergio Russo Ermolli, University of Naples Federico II, Italy

Viorel Ungureanu, Polytechnic University of Timisoara, Romania

COURSE SCHEDULE

Day 1 | October 7th, 2024

- 8:00 – 9:00 Registration of participants
- 9:00 – 10:00 **Raffaele Landolfo**: Opening of the Training School, Welcome to the University of Naples Federico II, Presentation of Lecturers
- 10:00 – 10:30 Coffee break
- 10:30 – 12:30 **Raffaele Landolfo**: *General introduction to lightweight cold-formed steel structures and their applications.*
- 12:30 – 13:30 **Viorel Ungureanu**: *Basic design rules and procedures for cross-sections (Part 1)*
- 13:30 – 14:30 Lunch
- 14:30 – 15:30 **Viorel Ungureanu**: *Basic design rules and procedures for cross-sections (Part 2)*
- 15:30-17:30 **Dan Dubina**: *Conceptual design*
- 17:30 – 18:30 Case studies

Day 2 | October 8th, 2024

- 9:00 – 11:00 **Viorel Ungureanu**: *Basic design rules and procedures for members and connections*
- 11:00 – 11:30 Coffee break
- 11:30 – 13:30 **Dan Dubina**: *Design assisted by testing*
- 13:30 – 14:30 Lunch
- 14:30 – 16:30 **Luigi Fiorino**: *Design of lightweight steel buildings for gravity and horizontal loads*
- 16:30-17:30 **Alessandro Prota**: *Tutorial: Design of lightweight steel buildings for gravity and horizontal loads (Part 1)*
- 17:30 – 18:30 Case studies

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DETAILS

Please periodically check the dedicated webpage through QRcode:



or <https://www.dist.unina.it/-/57464403-lightweight-steel-framed-constructions>

Day 3 | October 9th, 2024

- 9:00 – 11:00 **Colin Rogers**: *Design assisted by numerical models and Design of diaphragms*
- 11:00 – 11:30 Coffee break
- 11:30 – 13:30 **Raffaele Landolfo**: *General principles of seismic design according to the 2nd generation of Eurocodes, Research and development at UNINA*
- 13:30 – 14:30 Lunch
- 14:30 – 16:30 **Mario D'Aniello**: *Design in seismic areas - General rules, seismic action, modelling and structural analysis*
- 16:30 – 17:30 **Alessia Campiche** Tutorial: *Design of lightweight steel buildings for gravity and horizontal loads (Part 2)*
- 17:30 – 18:30 Case studies

Day 4 | October 10th, 2024

- 9:00 – 11:00 **Colin Rogers**: *Research and development in North America*
- 11:00 – 11:30 Coffee break
- 11:30 – 12:30 **Mario D'Aniello**: *Design in seismic areas - Verification to limits states and general rules for steel buildings*
- 12:30 – 13:30 **Luigi Fiorino**: *Design in seismic areas - Specific rules for lightweight steel buildings*
- 13:30 – 14:30 Lunch
- 14:30 – 15:30 **Luigi Fiorino**: *Tutorial: Design in seismic areas - Specific rules for lightweight steel buildings*
- 15:30-17:30 **Sergio Russo Ermolli**: *Technology and sustainability*
- 20:00– 24:00 Social dinner

Day 5 | October 11th, 2024

- 9:00 – 13:00 Technical visit
- 13:00 – 14:00 Lunch
- 14:00 – 18:00 Private tour of town historic centre led by two archaeological guides

BOOK

A printed copy of the book "Design of Cold-formed Steel Structures" by Dan Dubina, Viorel Ungureanu and Raffaele Landolfo, ECCS – European Convention for Constructional Steelwork will be distributed to all participants (the cost of the book will be included in the Training School fee).

SOCIAL EVENTS

We are pleased to organize for all Training school participants and included in the registration fee the following social events:

- Social dinner on Thursday, October 10th (day 4).
- 3-hours private guided tour in downtown Naples on Friday, October 11th (day 5) departing from the Venue.

SUGGESTED ACCOMMODATIONS

The following list includes some suggested accommodations in Naples. Applicants are encouraged to book their accommodation as soon as possible.

B&B/Hotel	Website	Mobile
At home Lettieri	https://bnbathomelettieri.wixsite.com/athomelettieri	+39.347.6533386
Bed in Naples	https://beb.it/bedinnaples/it/	+39.348.7556557
Casetta partenopea	https://www.airbnb.com/h/casettapartenopea	+39.389.8842803
Hotel Cimarosa	https://www.hotelcimarosa.it/	+39.331.4464424
Hotel Royal	https://www.royalgroup.it/royalcontinental/	
La Maisonnette	http://www.lamaisonnettebb.it/	+39.329.7483282
Luna Vomere	https://abnb.me/weSRTh5BiS	+39.329.2948894
Villino Manina	https://beb.it/villinomanina/it/	+39.335.498412
Casa e Studio Gravina	https://abnb.me/aXduwgi93Eb	+39.333.4112510
Casa Valparaiso	https://air.tl/NEGiJWrz	+39.328.1569936
Charming Naples	https://www.charmingnaples.it/	+39.335.5874052