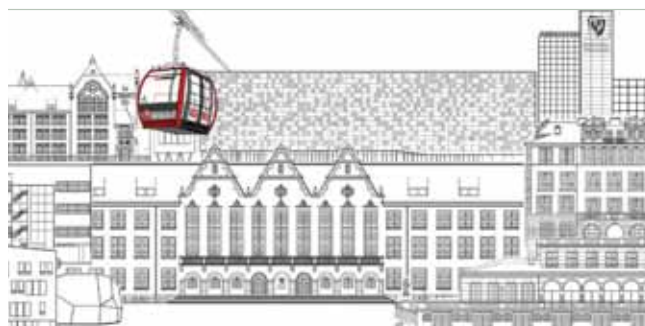


# 30+



Wrocław University  
of Science and Technology



## SUMMER SCHOOL 2022

11<sup>th</sup> of July - 29<sup>th</sup> of July 2022

## About 3E

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Our Programme offers interactive small-scale courses. Our courses are designed to provide an intensive, in-depth look at your topic of study. As **3E+ is open to applicants from all over the world** you will engage in discussions with a unique group of peers!

Apart from lessons, you will get to enjoy our fun and exciting Social Programme! We offer City sightseeing tours, sport activities and all day trips outside the City of Wrocław. We arrange a variety of social events to help you get to know your colleagues and Poland better while having fun!

### Why Wrocław?

- + one of the major academic centers in Poland
- + modern, open and dynamic city with rich history and culture
- + in the heart of Europe and in southwestern Poland, Wrocław is easily accessible from many other major cities
- + approx. 1 million residents in the greater Wrocław area.



## About 3E+

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### Why WUST?

- + one of the best technical universities in Poland
- + 22 822 students
- + 1 534 academic staff
- + 33 distinguished educational programmes, including courses taught in English and MBA programmes
- + Campus located in the city center

### Why 3E+ Summer School?

- + 60 hours of specialised courses in a friendly atmosphere
  - + 3 weeks of great experience
  - + laboratory activities
  - + 4 ECTS points
  - + trips, events social activities
  - + Polish language and culture course
  - + participants from all over the world and much more
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## 👉 Offer

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### How much does it cost?

**990 euro**

Early bird **890 euro** (application before 30.04.2022)

10% discount for students from partner institution

Application deadline 27.05.2022

### What is included?

+ tuition + accommodation + lunches on weekdays + trips, events and social activities + welcome pack

### ...and not included?

+ airfare and visa's cost (if required) + insurance

+ living expenses

### When? 11 of July to 29 of July 2022



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## 3e Offer

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CHOOSE ONE OF OUR COURSES AND EARN 4 ECTS POINTS:

+ Thermal comfort and renewable energy  
for low energy buildings

+ Introduction to Data Science with Python

+ Designing secured and reliable computer networks

+ (u)Computer-assisted scientific experiments

### **Thermal comfort and renewable energy for low energy buildings**

FACULTY OF ENVIRONMENTAL ENGINEERING

The main goal of the course is to teach students a holistic approach to the design of the low energy demand buildings with special emphasis on the utilisation of renewable energy in building installations, application of heat recovery systems and maintaining thermal comfort of users. The course focuses on thermal comfort and heat production (to supply heating and domestic hot water systems) for low energy buildings. The subject covers solutions based on sustainable design including for example solar thermal collectors, air-to-water heat pumps, energy recovery heat exchangers in air handling units, etc. Students will participate mostly in active forms like laboratory, calculus and simple project. All practical exercises will be preceded by short lectures.



## Offer

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### **Introduction to Data Science with Python** FACULTY OF PURE AND APPLIED MATHEMATICS

According to CareerCast, Data Scientist is one of the best job of recent years. It requires a unique blend of skills from three disciplines: mathematics (especially statistics), computer science (especially data analysis) and domain knowledge (in the field it will be applied), which is very attractive to many employers. Strong computer science skills and different approach to data analysis, based on scientific method, is what makes Data Scientists different from statisticians. At the same time, Python is becoming a language of choice for many data scientists, next to languages like Scala and statistical packages like R. It is also the first programming language many people learn, no matter their age. This course gives you a chance to quickly build up your Python skills, learn basics of how data scientist works and apply all this to a project on a real, large data sets. This course is highly practical.

### **Designing secured and reliable computer networks** FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

You will be introduced to the best practices of designing reliable and redundant computer network topologies. The aim will be the creation of networks resistant to various types of failures. Redundancy issues in the second and third layer will be raised. Then, various methods of computer networks management will be presented. First, the standard methods of configuration and IOS systems management. Secondly, modern methods of programming SDN networks will be practiced, during which students will train the centralized configuration of devices using Python scripts and the API of IOS systems. Second part of the course is devoted to securing networks

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## Offer

and network devices against attacks and overload. The final part will be devoted to monitoring and analyzing network traffic and detecting threats or attacks. Students, individually or in groups, will have the task



of creating a redundant network, protected against various types of attacks for a chosen case study. Classes are conducted in a physical laboratory of computer networks based on Cisco devices. A virtual environment in the form of Packet Tracer simulator, GNS3 emulator and virtual machines of the real networking operating systems will also be used for support.



### (u)Computer-assisted scientific experiments

FACULTY OF FUNDAMENTAL PROBLEMS OF TECHNOLOGY

The development of new, sophisticated experimental setups requires the integration of many independent components into one, complex device. This task could be easily done with the use of so-called virtual instruments, that control all hardware devices from one software platform. Virtual instruments could be additionally assisted with electronic appliances, composed of components that nowadays are often available in a form of evaluation boards and modules. Unlike commercial laboratory equipment, custom-built devices provide unique features, that allow for exploration of unknown areas of natural sciences. In this course, we present the concept of virtual instruments and provide basic knowledge on electronics and electrical measurements. We focus on the practical application, demonstrating building blocks that could be easily implemented in laboratory practice. The course will be divided into three parts: lectures, hands-on laboratories, and group projects.



BE A PART OF AN UNFORGETTABLE EXPERIENCE  
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- WROCLAW UNIVERSITY OF SCIENCE AND TECHNOLOGY  
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ENVIRONMENT + ENERGY + ELECTRONICS



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[www.summerschools.pwr.edu.pl](http://www.summerschools.pwr.edu.pl)



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