



Cracow University  
of Technology

FACULTY OF CIVIL ENGINEERING



# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

FULL-TIME STUDIES

II CYCLE



# SPECIALTY

## STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

### Graduate profile

A student of this specialization acquires extended and comprehensive knowledge and skills in the field of planning and managing the construction projects, technology of construction works, managing construction companies and designing structures with the practical use of modern computer-aided techniques. Depending on the choice of the profile within this specialization, the graduate has managerial competences in the field of designing complex building structures or is prepared to act as a manager of projects.

After gaining the experience required by relevant regulations, a graduate of this specialization may apply for the authorization to perform independent functions in the construction industry. The graduate has the ability to understand social, economic, legal and other non-technical determinants of engineering activity.

Graduates demonstrate the ability to work in a team and are aware of the need to expand their knowledge. They are prepared for creative work, requiring advanced knowledge in the field of construction, both in the field of managerial and construction issues, as well as for conducting studies and research on construction and its elements, technology, organization and management.

# SPECIALTY

## STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

### PROFILE: STRUCTURAL DESIGN

#### Diploma Projects

1. Reinforced Concrete, Prestressed Concrete and Masonry Structures
2. Bridge, Metal and Timber Structures
3. Building Design and Diagnostics
4. BIM in Structural Design

### PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

#### Diploma Projects

1. Construction Investment Process

# SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

## Subjects Related to Diploma Projects

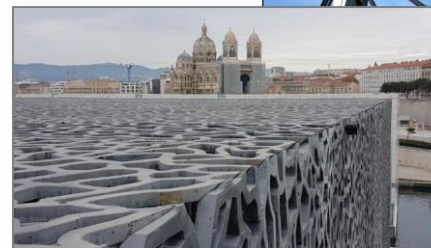
### 1. Reinforced Concrete, Prestressed Concrete and Masonry Structures

- Concrete and Masonry Structures in Fire Situations
- Opportunities for building modernisation and strengthening
- Computer Based Design of Prestressed Concrete Structures
- Computational Analysis and Design of Slabs on Ground



### 2. Bridge, Metal and Timber Structures

- Steel Bar Structures - computer aided design
- Steel Shell Structures - computer aided design
- Computer Aided Design of Bridges



## SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

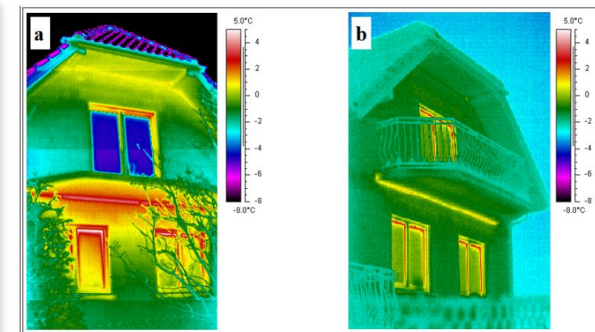
## Subjects Related to Diploma Projects

### 3. Building Design and Diagnostics

- Building Diagnostics and Revitalization
- Functional Design of Modern Buildings
- Computer Aided Design of Low Energy Building

### 4. BIM in Structural Design

- Plate and Shell Structures
- BIM in Infrastructure Modeling
- Management of BIM Systems





# SPECIALTY

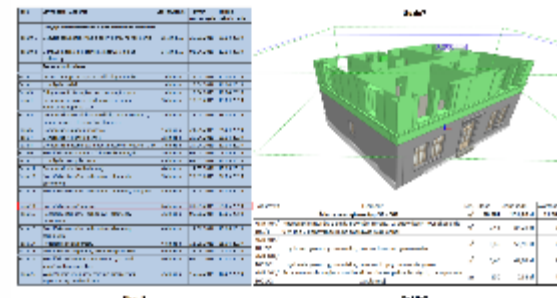
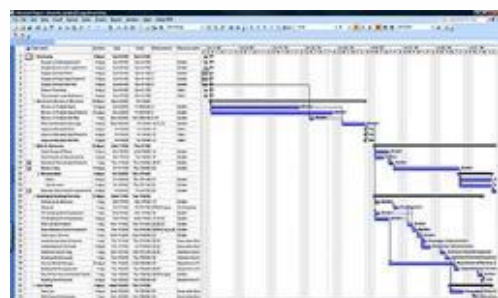
# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

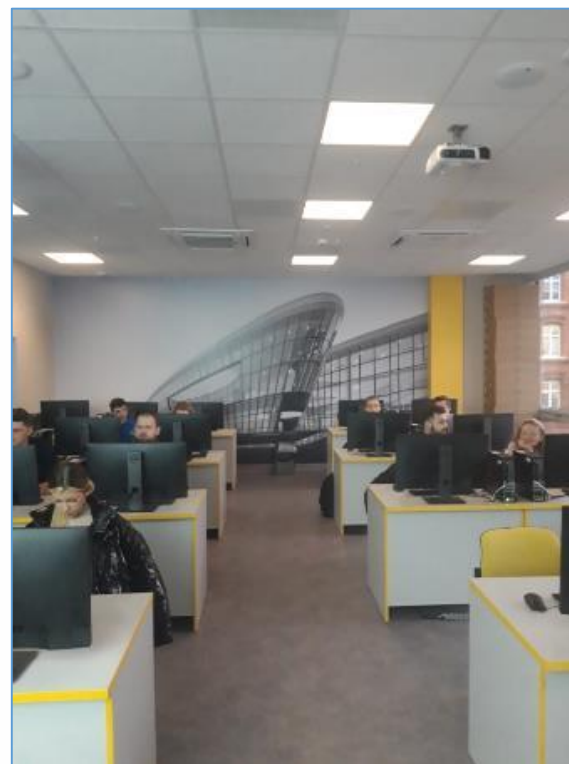
## Subjects Related to Diploma Projects

### 1. Construction Investment Process

- Management of construction investment process
- FIDIC contracts
- Risk management in construction process



# MODERN COMPUTERS LABORATORIES AND SOFTWARES



 **BIMestimate**

**metriCAD**



**BIMvision**

 **Trimble**

 **Tekla**



## SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

### Employment possibilities:

- construction companies - managing and supervising construction works
- investor supervision teams
- national and international design offices
- construction supervision authorities
- building materials industry
- state and local government administration authorities
- running own business in the field of construction
- conducting scientific work in the field of civil engineering (in structural design and management sphere)
- performing other activities in which knowledge in the field of construction is used – e.g. as cost estimators, consultants, etc.





# SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

## Example scope of master's theses:

- Design of reinforced concrete, prestressed concrete or masonry structures
- Practical cases of existing structures strengthening
- Analysis of local problems in concrete structures
- Conceptual designs of steel frame structures, sports and entertainment halls, high-rise buildings, structural covers and large-span covers.
- Conceptual designs of steel, reinforced concrete, prestressed concrete or composite road or railway bridges and footbridges.
- Architectural and structural design for buildings
- Renovation projects of existing buildings (including historical buildings)
- Design of low-energy buildings
- Thermal and humidity analysis of buildings
- Project and acoustic analysis of buildings

## Thesis supervisors:

dr inż. Piotr Gwoździewicz  
dr hab. inż. Wit Derkowski, prof. PK  
dr hab. inż. Rafał Szydłowski, prof. PK  
prof. dr hab. inż. Andrzej Winnicki  
dr hab. inż. Krzysztof Chudyba, prof. PK  
dr inż. Łukasz Hojdys  
dr inż. Piotr Krajewski  
dr inż. Szymon Seręga  
dr inż. Tomasz Michałowski  
dr inż. Krzysztof Ostrowski  
dr inż. Marek Pańtak  
dr inż. Wojciech Średniawa  
dr hab. inż. Tomasz Kisilewicz, prof. PK  
dr hab. inż. arch. Andrzej Kłosak  
dr inż. arch. Łukasz Łukaszewski  
dr inż. Krzysztof Nering  
dr inż. Marcin Radoń

# SPECIALTY

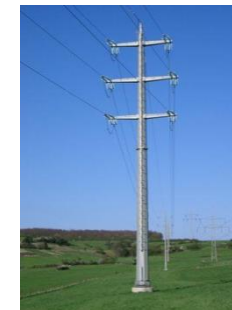
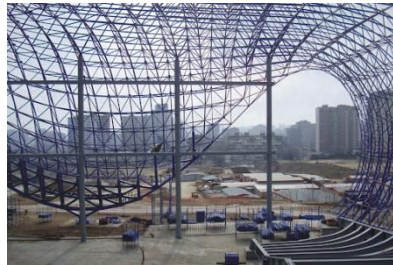
# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

## Bridge, Metal and Timber Structures

Example scope of master's theses:

- High-rise building
- Structural cover
- Large-span cover
- Tension structure
- Telecommunication mast
- Electro-energetic tower
- Steel tank
- Steel silo
- Steel chimney



Thesis supervisors:

dr inż. Tomasz Michałowski (L3)  
dr inż. Maciej Suchodoła (L3)  
dr inż. Izabela Tylek (L3)  
dr inż. Paweł Żwirek (L3)

# SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: STRUCTURAL DESIGN

## BIM in Structural Design

### Example scope of master's theses:

- Parametric modeling in Revit
- Interoperability between Revit and Robot
- BIM in structural design



### Thesis supervisors:

dr inż. Marcin Tekieli (L10)  
dr hab. inż. Adam Wosatko (L10)  
dr hab. inż. Marek Słoński (L10)  
dr inż. Piotr Pluciński (L10)  
dr inż. Piotr Mika (L10)  
dr inż. Michał Pazdanowski (L10)

# SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

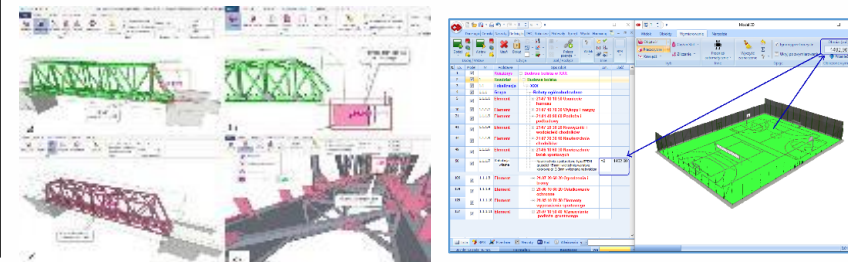
PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

## Example scope of master's theses:

- Planning and organization of construction projects
- Modern materials and technologies – technical, technological and cost analyses
- Health and safety management
- Cost management in a construction project
- Life cycle costs of a building object
- Construction contracts, including FIDIC conditions
- Tender procedures and strategies
- Management of construction company
- Organization of the investment process in construction
- The use of BIM technology in the management of construction projects
- Risk management in construction process

## Thesis supervisors:

dr hab. inż. Michał Juszczyk, prof. PK  
 dr inż. Renata Kozik, prof. PK  
 dr hab. inż. Agnieszka Leśniak, prof. PK  
 dr inż. Jarosław Malara  
 prof. dr hab. inż. Edyta Plebankiewicz  
 dr inż. Bartłomiej Szewczyk  
 dr inż. Damian Wieczorek  
 dr hab. inż. Krzysztof Zima, prof. PK





# SPECIALTY

# STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE:  
STRUCTURAL DESIGN

PROFILE:  
CONSTRUCTION TECHNOLOGY AND MANAGEMENT

[www.syllbus.pk.edu.pl](http://www.syllbus.pk.edu.pl)

FEEL INVITED!