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

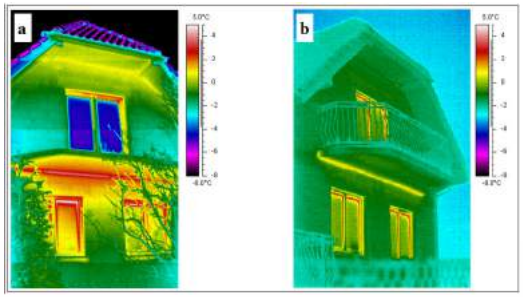
PROFILE: STRUCTURAL DESIGN

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



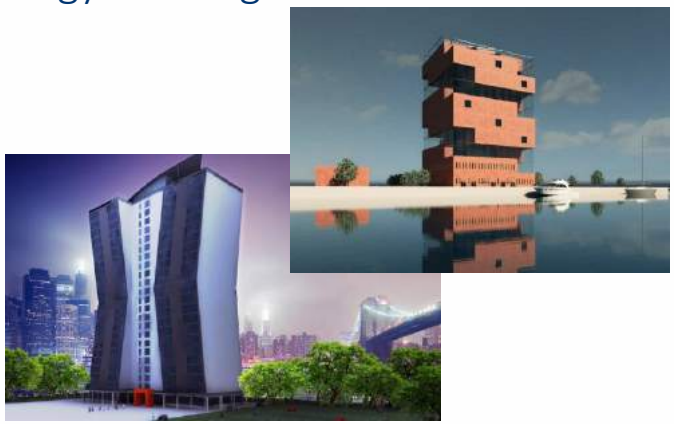
Subjects Related to Diploma Projects

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

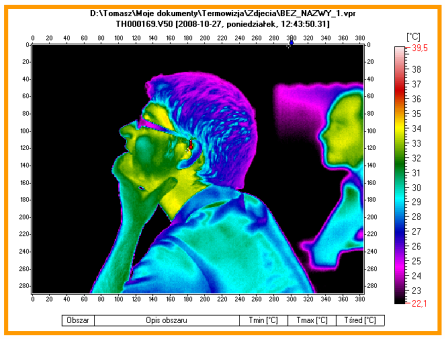


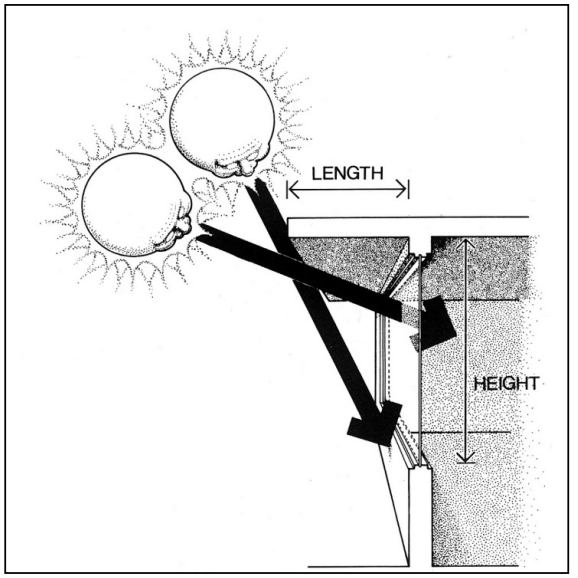
SPECIALTY
STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

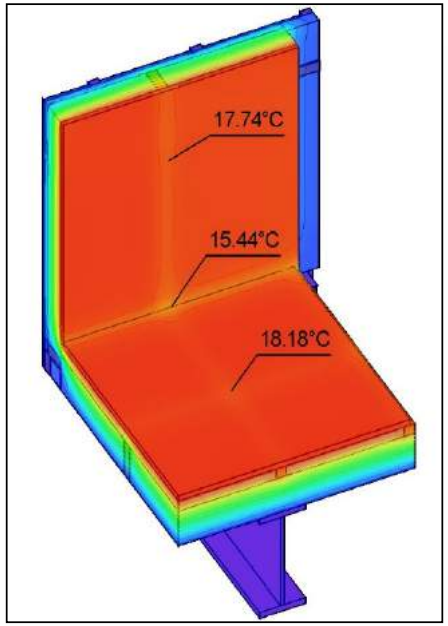
PROFILE: STRUCTURAL DESIGN

SUBJECT: Principles of Low Energy Building

This subject is devoted to the basic issues of a rational building planning, enabling to minimize heat losses and maximize heat (solar) gains, while maintaining thermal comfort in building interior.







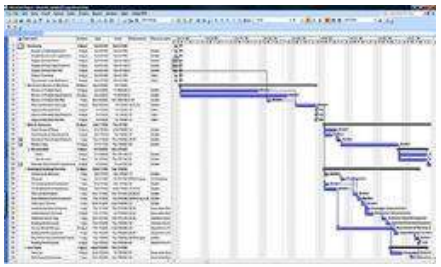
SPECIALTY

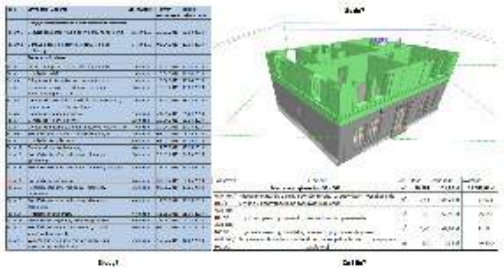
STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

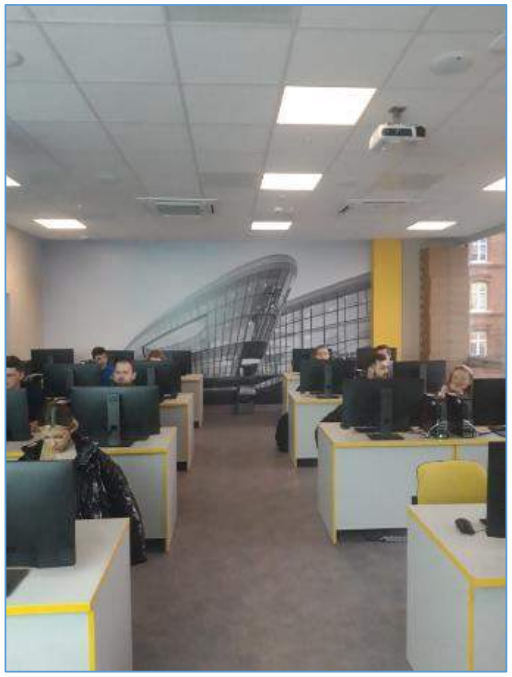
Subjects Related to Diploma Projects

1. Construction Investment Process
   - Management of construction investment process
   - FIDIC contracts
   - Risk management in construction process





MODERN COMPUTER 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.

MOTA-ENGIL
RE-Bau
GP-PROJEKT KONSTRUKCJE SPRĘŻONE
ŁĘGPRZEM
STRABAG
PORR
SKANSKA
PERI
warbud
KELLER
PFEIFER
budimex
CHEMOBUDOWA
HOCHTIEF POLSKA
ERBUD

Cracow University of Technology

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

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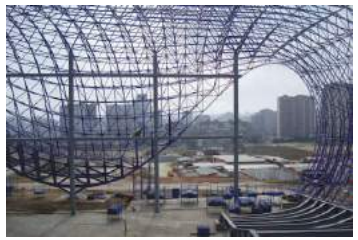
STRUCTURAL DESIGN AND MANAGEMENT IN CIVIL ENGINEERING

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

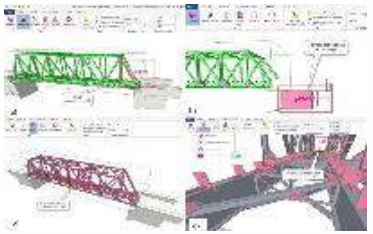
PROFILE: CONSTRUCTION TECHNOLOGY AND MANAGEMENT

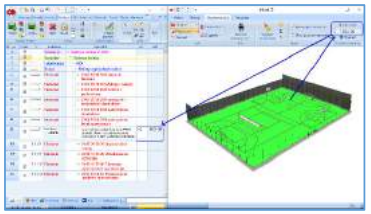
Example scope of master's theses:

- 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 inż. Michał Juszczyk
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





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