Offer of studies and courses in English for Academic Year 2015/2016
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Cracow University of Technology - general description:

OFFICIAL NAME IN POLISH: POLITECHNIKA KRAKOWSKA

Official name in English: Cracow University of Technology (CUT)

Address: 24 Warszawska Street, 31-155 Cracow, Poland

Webpage: www.pk.edu.pl and International Relations Offices

Faculties:
- Faculty of Architecture
- Faculty of Physics, Mathematics and Computer Science
- Faculty of Electrical and Computer Engineering
- Faculty of Civil Engineering
- Faculty of Environmental Engineering
- Faculty of Chemical Engineering and Technology
- Faculty of Mechanical Engineering

Cracow University of Technology has been successfully educating engineers for over 60 years. Total number of alumni that graduated from our University exceeds 62000. In May 2008 Cracow University of Technology was rated by the magazine Newsweek Poland as the best university in Poland according to employers who eagerly hire our alumni due to their high qualifications. In October 2010 our prestige was confirmed by honorary title „the University friendly for employers”. Such a recognition proves that Cracow University of Technology offers attractive, high quality and tailor-made programmes of study responding to market needs. Our alumni find jobs at public and private companies, national and international enterprises, national and regional government administration, in design offices and also at universities and research institutes. Our Faculty of Architecture earned accreditation of the Royal Institute of British Architects, as well as it was claimed to be the best Faculty of Architecture in Poland. The Faculty of Civil Engineering educates future engineers at the top level and The Faculty of Mechanical Engineering is the second largest faculty of its kind in Poland. Different faculty members cooperate with the European Commission serving as experts and also with various companies and research institutes around the world. Cracow University of Technology signed 87 bilateral agreements and 265 Erasmus agreements that allow its students to experience studies abroad not only in countries of the European Union but also in the USA, Canada, Mexico and places as distant as Australia, Japan, Taiwan, Singapore or South Korea. International students are very welcome to our university.

www.en.bwm.pk.edu.pl
Academic calendar:
**Fall Semester:** October 1 - end of January; **Spring Semester:** mid-February – end of June;

**Exam Sessions:** first two weeks of February and last two weeks of June

Registration procedure:
The **Pole’s Card** (Karta Polaka) holders and **EU citizens** can apply for studies:

- according to the rules other than applicable to Polish citizens (studies on a tuition fee basis) - recruitment is conducted by International Relations office, please refer to our website and send all necessary documents to adebska@pk.edu.pl; www.en.bwm.pk.edu.pl

- **according to the rules applicable to Polish citizens** (tuition fee is waived) - recruitment is conducted by DSS at CUT, please refer to website: rekrutacja.pk.edu.pl and contact: rekrutacja@pk.edu.pl; phone number: +48 12 632 86 44

Health insurance:
Basic medical care is available at a reduced charge at the CUT Medical Centre in Warszawska Street. Responsibility, full insurance lies with the student.

Accommodation:
The Cracow University of Technology has at its disposal about 2200 places in 4 student dormitories in Cracow.

Sport facilities:
The Physical Education and Recreational Centre at the Cracow University of Technology has its own sports facilities: two gyms, three body building clubs, an aerobics room, sport fields and tennis courts. Besides, the Centre has access to a skating rink and a swimming pool.

Leisure activities:
Students of CUT have a number of possibilities of spending their leisure time actively. The facilities within the university are: Students' Sport Association - University Club, Student Cultural Centre "Kwadrat", "Cantata" Academic Choir of the Cracow University of Technology, "Bawinek" Student Dancing Club, "Gil" Gallery, and "1 Kanonicza Street" Art Gallery and Dependent Theatre.

City description:
Cracow is situated about 190 miles south of Warsaw, the capital of Poland, and about 70 miles north of the major skiing resort of Poland - Zakopane. Cracow is the city of culture and tradition, with numerous historic monuments. Its historic City Centre has been included in the UNESCO World
Heritage List. The wealth of architectural monuments such as Wawel Castle, St. Mary's Basilica and Wit Stwosz Altar, the biggest Market Place (Rynek Główny) in Europe, the Cloth Hall (Sukiennice), works of art, charm of medieval streets, nooks and corners create the unforgettable, unique atmosphere of the Old Town. Cracow is one of the most important cultural cities in Europe with its famous theatres: the Słowacki Theatre and the Stary Theatre and museums such as the National Museum with great collection of Polish paintings, the Czartoryski Museum with The Lady with the Ermine by Leonardo da Vinci, and many others. Cracow is also one of the oldest academic centres in Europe with over 190,000 students studying at twenty six universities and colleges.

TUITION & FEES FOR NON EU STUDENTS - AY 2015/2016

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<tr>
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<td>BSc (7 semesters)</td>
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<tr>
<td>MSc (3-4 semesters)</td>
<td>MSc (3-4 semesters)</td>
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**Diploma studies (BCs, MSc, PhD) - AY 2015/2016**

The Cracow University of Technology offers many variants of study. Current educational offer of CUT covers 25 graduate studies of I and II degree among 7 faculties. At 4 faculties studies are available in English language.

We kindly inform candidates from abroad, who apply for the studies to the rules other than applicable to Polish national*, that application process (Bachelor programme - AY 2015/2016) has already begun.

We would like to remain you that it is obligatory to send required documents (Application Form, Passport and other required documents) on the e-mail: adebska@pk.edu.pl

* Please note that we do not conduct recruitment for candidates who apply for studies to the rules applicable to Polish and EU citizens. Please contact DSS at CUT rekrutacja@pk.edu.pl phone number: +48 12 632 86 44 and refer to website: rekrutacja.pk.edu.pl

**OFFER OF DIPLOMA STUDIES IN English AY 2015/2016**

**Faculty of Architecture**
Architecture (MSc) - programme starts in February 2016

**Faculty of Physics, Mathematics and Computer Science**
Computer Science (MSc) - programme starts in October 2015

**Faculty of Civil Engineering**
Civil Engineering (BSc) - programme starts in October 2015
Civil Engineering (MSc) - programme starts in February 2016

**Faculty of Chemical Engineering and Technology**
Chemical Engineering (MSc) - programme starts in February 2016

**Faculty of Mechanical Engineering - Mechanics and machine design**
Advanced computational Mechanics (BSc) - regular - programme starts in October 2015
Advanced Computational Mechanics (MSc) - regular - starts in February 2016
Advanced Computational Mechanics (MSc) - for foreign students - starts in February 2016

More information about study programmes and schedules can be found on our website:
www.en.bwm.pk.edu.pl
International Exchange students – courses taught in English

Detailed information can be found on our website: www.en.bwm.pk.edu.pl

FALL SEMESTER

Faculty of Architecture - fall

LECTURES
Contemporary Urban Design Theories
History of Polish Architecture
Urban Revitalization

RESEARCH
Building Construction Systems (individual research)
Building Surveying (individual research)
Building Structures (individual research)
Cad Techniques I – CAD Modeling
Cad Techniques II – CAD BIM
Ecology And Environmental Protection (seminars)
Preservation of Monuments And Revalorization I (seminars)
Places - non Places (seminars)
Regional Planning

ARTISTIC SUBJECTS
Photography
Freehand Drawing and Painting
Freehand Drawing - Architectural Perspective Drawings
Sculpture

PROJECTS/ DESIGNING - ARCHITECTURAL & URBAN DESIGN

www.en.bwm.pk.edu.pl
Architectural Design of Service Buildings – Naturally Shaped Architecture – NSA 1

Architecture Design of Public Buildings - Naturally Shaped Architecture (NSA 4) – Master Degree Advanced Design

Architecture and Planning in the Countryside

Design for Conservation

Industrial Architectural Design

Public Use Building Design I (advanced design)

Public Use Building Design II (Master Degree - advanced design)

Residential Buildings I – single family housing**

Residential Buildings II – multifamily housing**

Regional Planning

Spatial Planning**

Special Topics Design**

Urban Design of City Centers

**LANDSCAPE ARCHITECTURE DESIGN – INTEGRATED DESIGN STUDIOS**

IDS 3 - Urban Public Space (street & square)

IDS 5 - Public Park

IDS 7 - Composition in Open Landscape

**- multiplied classed – different tutors, different problems

**Faculty of Physics Mathematics and Computer Science - fall**

Parallel and Distributed Programming

Computer Systems Administration

Elements of Artificial Intelligence

Cryptography

Software Engineering

www.en.bwm.pk.edu.pl
Information Systems in Management
Object Oriented Programming
Computer Graphics
Abstract Algebra
Applied Statistics for Engineers
Calculus of Variations
Combinatorics
Graph theory
Introduction to Number Theory
Logic for Mathematics and Computer Science
Mathematical Finance
Operations and production process management for engineers
Probability and statistics
Probability theory
Signal Processing with Applications in Mechanical Engineering
Stochastic Modeling
Theoretical Foundations of Computer Science

Faculty of Electrical and Computer Engineering - fall

COURSES IN ENGLISH LANGUAGE

MICROPROCESSORS AND MICROCONTROLLERS
MATLAB PROGRAMMING
Software Engineering
Object Oriented Programming and UML
JAVA PROGRAMMING
POWER ELECTRONICS FOR POWER QUALITY IMPROVEMENT

www.en.bwm.pk.edu.pl
Object Oriented Programming and UML

Computer Graphics

Data acquisition and methods of signal analysis with LabVIEW

Introduction to database systems, (SQL, Oracle)

Distributed monitoring and control systems (SCADA) Electric Drives Systems and Control

Electrical machines and drives.

Graphical programming in LabVIEW

Methods for monitoring and diagnostics of electrical machines

Microprocessors and Microcontrollers

Modern Web Application Programming with Dynamic Language

Numerical Methods

Power distribution Systems

Power Electronics

Programmable Logic Controllers

Software engineering (UML)

The dynamic of power distribution system

**COURSES IN GERMAN LANGUAGE**

Grundlagen der Elektrotechnik

Leistungselektronik

Grundlagen der elektrischen Antriebe

Moderne Traktionsantriebe

**Faculty of Civil Engineering - fall**

Information Technology

Introduction to Civil Engineering

Ecology

[www.en.bwm.pk.edu.pl](http://www.en.bwm.pk.edu.pl)
Applied Mathematics and Numerical Methods
Descriptive Geometry
Computer Graphics for Engineers
Geodesy
Building Materials
Technology of Concrete
Strength of Materials
Timber Structures
Industrial Structures
Foundations
Concrete Structures
Metal Structures
Energy-efficient Building Systems
Economics and Project Management
Cost Estimation
Company Management and Basics of Law
Introduction to Transportation Planning
Road Design
Rail Road

Faculty of Chemical Engineering and Technology - fall

1. Core courses for students specializing in Chemical Engineering

   Process Simulation and Optimization
   Process Design
   Calculation Methods in Chemical Engineering II
   Kinetics of Heterogeneous Processes
Adsorption Process

2. Specialty courses: Engineering of Technological Processes
   Modeling of Dispersed Systems

3. New or Selectable Optional Courses:
   Modern Polymeric Materials
   Industrial pollution prevention
   Environmental impacts of selected renewable energy technologies

* courses were selected in 2014/2015, but the students' choice may change

SUPPLEMENTARY COURSES: ALL SPECIALTIES (FALL AND SPRING SEMESTER):
   English Technical Terminology II - Selected Topics in Advanced Organic Chemistry (fall only)
   English Technical Terminology II - Selected Topics in Inorganic Technology (spring and fall)
   English Technical Terminology II - Selected Topics in Polymer Chemistry (spring and fall)
   English Technical Terminology II - Selected Topics in Cosmetics Chemistry (spring and fall)
   English Technical Terminology II - Selected Topics in Oil and Gas Chemistry (spring and fall)

OPTIONAL COURSES (selectable):
   Applications of Neural Networks
   Basics of Bioengineering (fall semester only)
   Basics of Biotechnology
   Engineering Graphics
   Fluid Flow Processes
   Liquids - Molecular Structure and Physicochemical Properties
   Novel Media for Chemical Processing
   Photovoltaic
   Process Control and Industrial Measurements
SPRING/ Summer SEMESTER

Exchange coordinator at FA - Ms. Justyna Tarajko, PhD, erasmus_wa@hotmail.com

Faculty of Architecture - spring

LECTURES
Urban Design Of City Centers – Theory
History of Polish Architecture
Urban Transport - Theory

RESEARCH
Preservation of Monuments And Revalorization II - Architecture
Building Construction Systems (individual research)
Building Surveying (individual research)
Building Structures (individual research)
Cad Techniques I – CAD Modeling
Cad Techniques II – CAD BIM
Eco City Concept (seminars)

ARTISTIC SUBJECTS
Photography
Freehand Drawing – Painting and Composition
Sculpture

PROJECTS/ DESIGNING ARCHITECTURAL & URBAN DESIGN
Residential Buildings I – single family housing**
Multi – family housing Design** (advanced design)
Urban Design**
Architectural and Urban Design of Service Complexes II

www.en.bwm.pk.edu.pl
Architectural Design of Service Buildings – Naturally Shaped Architecture - NSA 2

Design for Conservation

Architecture & Planning in the Countryside

Regional Planning

Special Topics Design** - 6 ECTD

Diploma Design – Final Project** - 20 ECTS

**LANDSCAPE ARCHITECTURE DESIGN – INTEGRATED DESIGN STUDIOS

Revalorization of Historic Gardens

Post – industrial areas

Composition in Open Landscape

**- multiplied classed – different tutors, different problems

Faculty of Physics Mathematics and Computer Science - spring

High Performance Computing

C++ Programming

Neural Networks

Discrete Mathematics

Approximation Theory with Applications

Numerical Analysis

Computer Image Processing

Mathlab Programming

Mobile Technologies and Programming

Abstract Algebra

Applied Statistics for Engineers

Calculus of Variations

www.en.bwm.pk.edu.pl
Combinatorics
Graph theory
Introduction to Number Theory
Logic for Mathematics and Computer Science
Mathematical Finance
Operations and production process management for engineers
Probability and statistics
Probability theory
Signal Processing with Applications in Mechanical Engineering
Stochastic Modelling
Theoretical Foundations of Computer Science
Engineering Ethics
Principles of Macroeconomics (the Current European context)
Macroeconomic Foundations of Economic Policy (Modern Challenges)

Faculty of Civil Engineering – s pring

Geology
Theoretical Mathematics
Computational Methods
Technical Drawing
Structural Mechanics
Fundamentals of Civil Engineering
Masonry Structures
Architecture and Urban Design
Soil Mechanics
Prestressed and Precast Concrete Structures

www.en.bwm.pk.edu.pl
Bridge Structures
Building Installations and Municipal Systems
Physics of Building Structures
Hydraulics and Hydrology
Hydraulic Engineering
Construction Supervision, Occupational Safety and Health
Technology of Construction Works
Road Surfaces and Technology of Road
Construction
Fire Safety Measures in Civil Engineering

Faculty of Environmental Engineering - spring

Alternative water treatment
Computer methods in river engineering
Computer methods in water and geotechnical engineering
Environmental management
Environmental decision-making
Sewerage real-time Modeling
Introduction to energy analysis
Municipal solid waste management
On-site Wastewater Treatment
Sustainable wastewater treatment
Urban surface runoff control
Water and Wastewater Process Tech

Faculty of Chemical Engineering and Technology

www.en.bwm.pk.edu.pl
Core courses for students specializing in Chemical Engineering

Process Dynamics
Modeling of Energy, Mass and Momentum Transport
Multiphase Flows
Calculation Methods in Chemical Engineering I
Non-conventional Methods of Liquid Mixture Separation
Chemical Technology II

Specialty Courses: Engineering of Technological Processes:

Biochemical Reactors Engineering
Mixture in Technological Processes
Pumps and Fans
High-efficiency Heat and Mass Exchangers

SUPPLEMENTARY COURSES: ALL SPECIALTIES

English Technical Terminology II - Selected Topics in Applied Organic and Plastic Chemistry (spring)
English Technical Terminology II - Selected Topics in Inorganic Technology (spring and fall)
English Technical Terminology II - Selected Topics in Polymer Chemistry (spring and fall)
English Technical Terminology II - Selected Topics in Cosmetics Chemistry (spring and fall)
English Technical Terminology II - Selected Topics in Oil and Gas Chemistry (spring and fall)

OPTIONAL COURSES (selectable)*:

Applications of Neural Networks
Basics of Biotechnology (spring semester only)
Basics of Biotechnology
Bioprocess modeling (spring semester only)
Designing of Functional Molecular Systems (spring semester only)
Engineering Graphics
Fluid Flow Processes
Liquids - Molecular Structure and Physicochemical Properties
Novel Media for Chemical Processing

Photovoltaic

Process Control and Industrial Measurements

* These courses will be run only if selected by an entire group of students. The optional courses that have been selected, can be added to the Learning Agreement within the first two weeks of each semester.

Faculty of Mechanical Engineering

Institute of Applied Mechanics (http://riad.usk.pk.edu.pl/~m-1/)

Biomechanics

Theory of Elasticity

Theory of Plasticity

Constitutive Modeling of Materials

Solid State Mechanics

Linear and Nonlinear Mechanics of Materials

Vector Matrix and Tensor Calculus in Computational Mechanics

Strength of Materials

General Mechanics

Analytical Mechanics

Engineering vibration

Rheology

Introduction to engineering application of the Finite Element Method

Experimental methods in mechanics

High dynamic measurement and data analyzing

Damage mechanics

Mechanics of constitutive modeling

www.en.bwm.pk.edu.pl
Institute of Materials Engineering (http://iim.mech.pk.edu.pl/)

Manufacturing of structural components by powder metallurgy technology.
Fundamentals of Materials Science.
Microstructure and mechanical properties of alloys.
Structural aspects of fracture.
Application of Scanning Electron Microscopy in Materials Science.
Small Punch Test (SPT) – unconventional method of testing mechanical properties.

Institute of Machine Design (http://graf.mech.pk.edu.pl/)

Theory and engineering application of FEM
Mechanics of composite materials
Hydraulic and pneumatic drive and control system
Nanostructures and nanocomposites
Plastics and composites
Technical droving and AutoCad
Machine desing

Institute of Automobiles and Internal Combustion Engines (http://riad.usk.pk.edu.pl/~m-4/)

Optimization of car chassis
Combustion engines
Automotive Structures

Institute of Production Engineering (http://m6.mech.pk.edu.pl/)

Additive Manufacturing
Application of Internet Technologies in Manufacturing Control
CNC machine tool programming with CAD/CAM system
Fundamentals of machining
Industrial robots
Interpersonal communication
Manufacturing process planning and organization with PLM
Modern trends in machining
New developments in manufacturing technology
Production and Operation Management
Project management
Simulation and CNC technology
Surface geometric structure - measurement and analysis
Unconventional and Hybrid Manufacturing Processes
Virtual manufacturing with DELMIA
Work safety and ergonomics

**Institute of Computing Science (http://m7.mech.pk.edu.pl/)**

Computer Graphics
Computation Method Rusing Maple
Fundamentals C++ and Java
Computer networks
CAD Desing
Image Processing

**Institute of Rail Vehicles (http://m8.mech.pk.edu.pl/)**

Inventories and Warehousing
Regional and International Transport Systems
Reverse Logistics
Sustainable Urban Mobility Management
Virtual Prototyping of Rail Vehicles
Active Systems of Vehicle Ride Comfort

**Institute of Industrial Apparatus and Power Engineering (http://kmiue.mech.pk.edu.pl/)**

Heat Transfer
Thermal Power Engineering
Steam Boilers

[www.en.bwm.pk.edu.pl](http://www.en.bwm.pk.edu.pl)
Steam and Gas Turbines
Hydraulic and Wind Turbines
Renewable Energy Sources
Solar Systems
Central Heating Systems
Fuel Combustion
Ansys Workbench (CFD) for Heat Transfer and Fluid Flow
Computer Methods for Engineers
Matlab for Engineers
Energy Problems
Energy Management
Environmental Protection

Laboratory for Coordinate Metrology (http://lmw.mech.pk.edu.pl/web/)

Coordinate metrology
Metrology