NATIONAL TECHNICAL UNIVERSITY "KHARKIV POLYTECHNIC INSTITUTE“

FACULTY OF «TRANSPORT ENGINEERING»

DEPARTMENT OF «THEORY AND COMPUTER-AIDED DESIGN OF MECHANISMS AND MACHINES»

AREA OF EDUCATION

Department of “Theory and Computer-Aided Design of Mechanisms and Machines” (TMM&CAD) trains student for bachelor and master degree in:

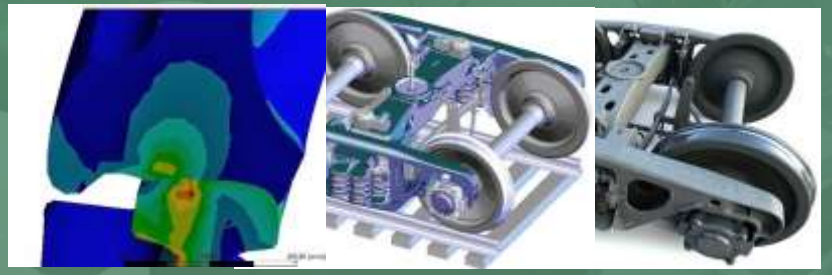
- Direction: “Computer Science”
- Specialty: “Computer science and information technologies” Specialization "Computer modeling of technical systems“ (computational mechanic)

The duration of training for:

- Bachelor degree in Computer Science – 4 years
- For Master degree in Computer Systems Analyst - 5.5 years (from start), 1.5 year (if you already have bachelor degree in Computer Science)

MAIN RESEARCH OBJECTS AND FIELDS

- Objects:
  - Mechanisms of transport vehicles
    - Automotive / Airplanes / Shipbuilding / Railway transport
  - Heavy machine building mechanisms
  - Power systems construction
  - Endoprothesis
- Fields
  - FEA for transient and dynamic process
  - Vibration effects
  - Construction strength, stiffness, buckling
  - Kinematics and dynamics of mechanisms (Rigid & Flexible)
  - Non-linear behavior
  - Complicated contact phenomena
  - CAx, PLM



EMPLOYABILITY

All companies that work in next fields:

- Product and mechanical constructions development with Cax technologies
- R&D departments which use FEA

and CFD software

- Software developers
- System (IT) administration

EDUCATION DISCIPLINES LIST (BACHELOR)

- Architecture of Computer Systems
- Algorithms and Structures for Data analysis
- System Programming and Operating Systems
- Database Fundamentals
- Cross-platform programming
- Math statistics
- Modeling of Complex Systems
- Basics of developments for Web Technologies
- The history of science and technology
- Discrete Math
- Probability Theory

EDUCATION DISCIPLINES LIST (MASTER DEGREE)

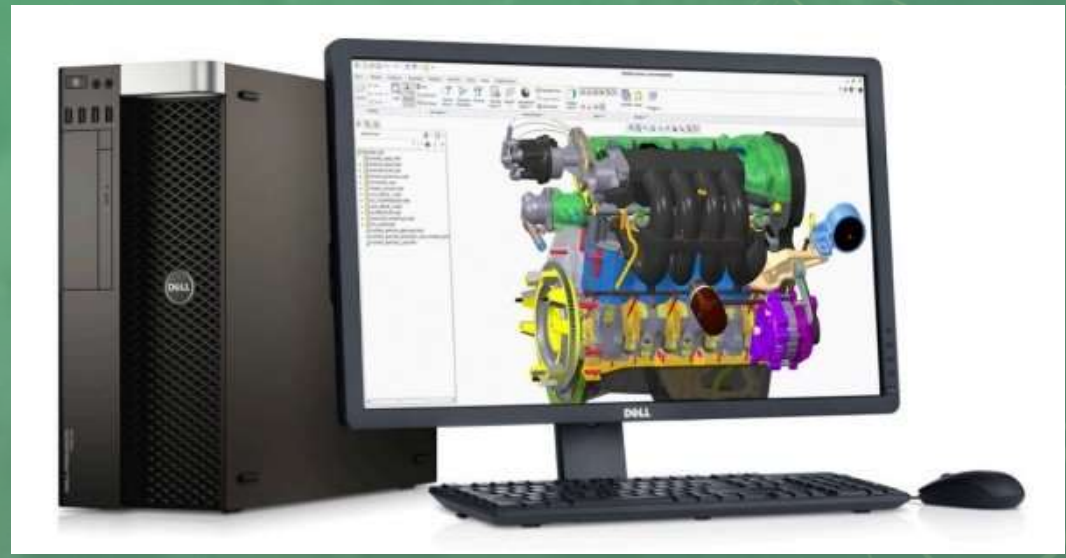
- Computer graphics (CAD)
- Object-oriented programming in integrated systems
- Fundamentals of Theoretical and Applied Mechanics
- Machine Design Fundamentals
- Technology of programming for CAx
- Software systems for analysis and design (CAD/CAE)
- Network tools and technology for CAx integration
- Fundamentals of the theory of vibrations
- Fundamentals of computer-aided design and lifecycle management
- Continuum Mechanics
- Computational Mechanics (FEA, FEM)
- Computer aided simulations for objects and process
- IT Project Management

HRADWARE

Comp Labs:

- Educational and research class-cluster “Polytechnic-125” (16 PC)
- Research lab “Tenzor” (8 PC)
- Educational class “Vector” (10 seats)
- Educational class “Scalar” (15 seats)

Mechanical Labs



HRADWARE

Educational and research class-cluster “Polytechnic-125”

- Core number – 76
- RAM – 160 GB
- LinPack test results: 0.5 Tflops

LICENSED SOFTWARE

АСКОН:

- Компас-3D v12

Autodesk:

- Autodesk Inventor Professional 2016
- Autodesk Fusion 360
- Autodesk Simulation 2016
- Autodesk CFD 2016
- Autodesk Nastran In-CAD 2016

Dassault Systemes:

- SolidWorks 2013

LSTC:

- LS-DYNA

PTC:

- Creo 3

Siemens PLM Software:

- Siemens NX 7
- Siemens Solid Edge ST5
- Siemens Femap 10.3
- Siemens Teamcenter
- Siemens Tecnomatix

EDUCATORS

- **Department educators list contain:**
  - **3 Doctors of Science and professors:**
    - Tkachuck Mykola (chief of department)
    - Zarubina Alla
    - Zolochevskiy Alexander
  - **16 Doctors of Engineering and assistant professor:**
    - Atroshenko Alexander
    - Bondarenko Alexey
    - Vasiliev Anton
    - Veretelnik Oleg
    - Grabovskiy Andriy
    - Grechko Irina
    - Kostenko Yuriy
    - Krotenko Galina
    - Martynenko Alexander
    - Serikov Vladimir
    - Skripchenko Nataliya
    - Tanchenko Andriy
    - Tkachuck Hanna
    - Tkachuck Nikolay
    - Ustinenko Alexander
    - Zinchenko Helena

CONTACTS

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