



**Technical University of Varna**

# ***COOPERATION BETWEEN EDUCATION, BUSINESS AND CENTERS OF EXCELLENCE***

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## *Department of Automation, Business and Centers of Excellence*

*The Department of Automation was established in September 1970*



*Establishment, development and approval of the department*

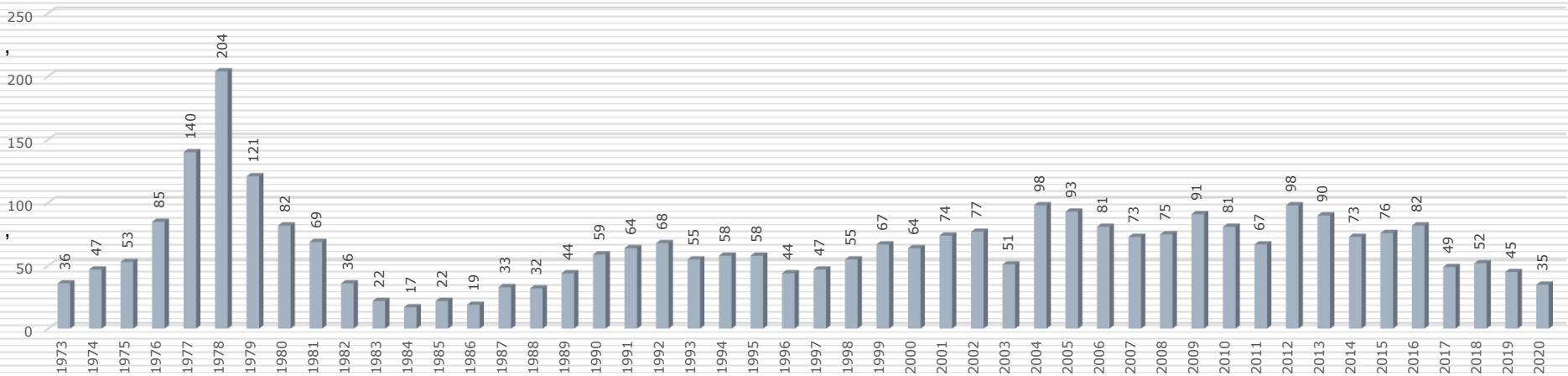


**52**  
**YEARS LATER**  
**THE**  
**COMPOSITION OF**  
**THE DEPARTMENT**  
**LOOKS LIKE THIS**



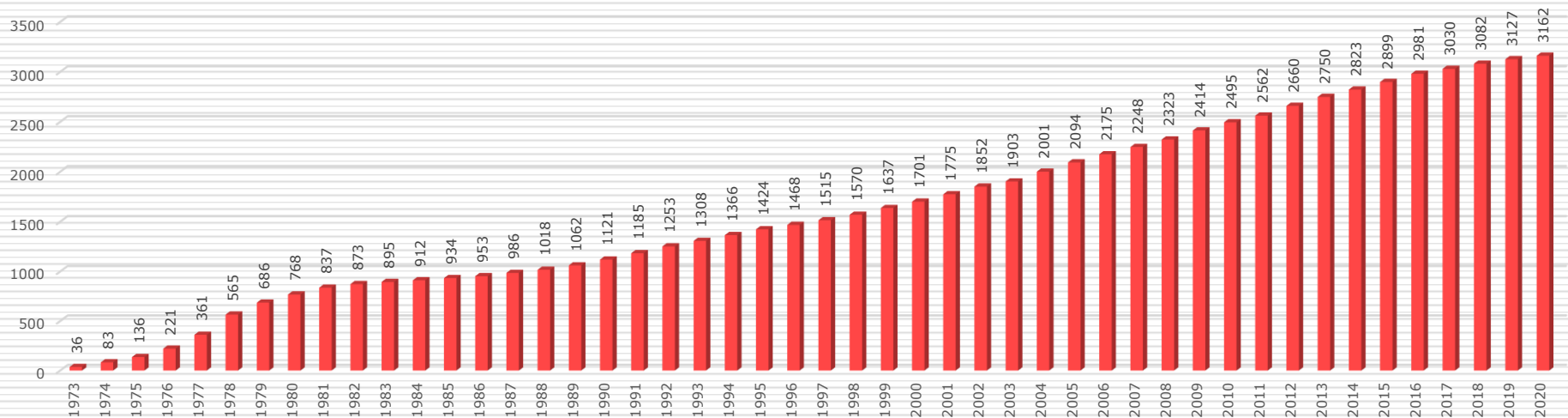


## Number of graduate engineers in the department during the respective year





## Total number of graduate engineers in the department





**Today our department provides training for students in the following specialties:**

- ✓ **Automation, information and control computer systems - Bachelor's degree;**
- ✓ **Robotics and mechatronics - Bachelor's degree;**
- ✓ **Siemens PLC - control technologies - Master's degree;**
- ✓ **Building automation systems - Master's degree;**
- ✓ **Industrial robotic systems and automation - Master's degree.**



## *Department of Automation, Business and Centers of Excellence*



### **Technological Process Control Laboratory**



## *Department of Automation, Business and Centers of Excellence*



**Laboratory "Design of automation systems" - equipped by Siemens**

*Laboratories of the department*



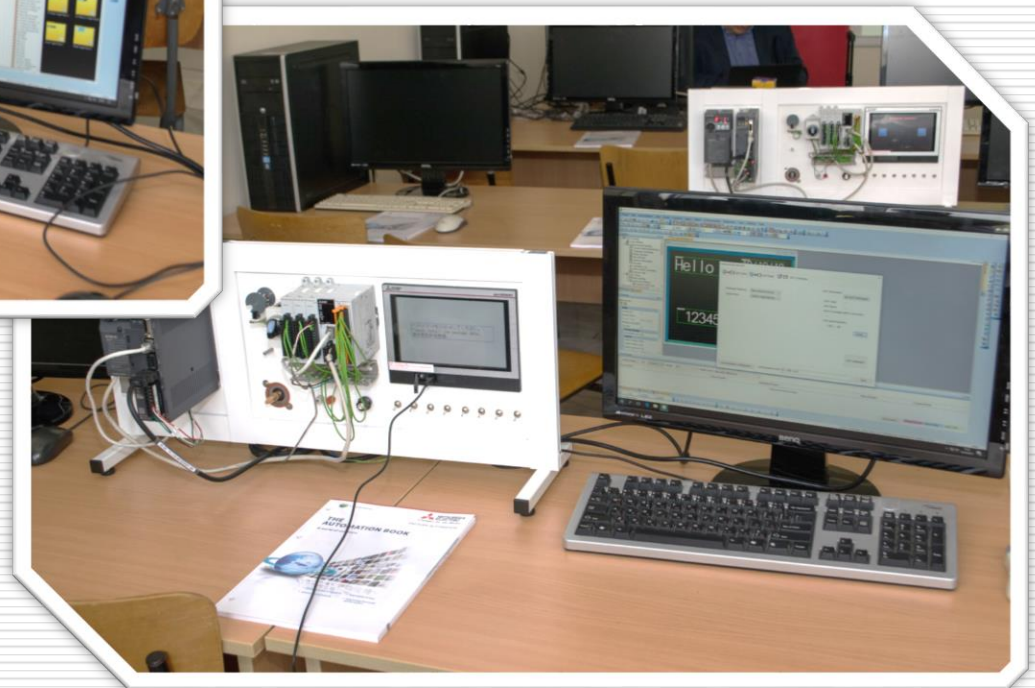
## *Department of Automation, Business and Centers of Excellence*



**Laboratory "Industrial Automated Systems" - equipped by Mitsubishi Electric**



## *Department of Automation, Business and Centers of Excellence*

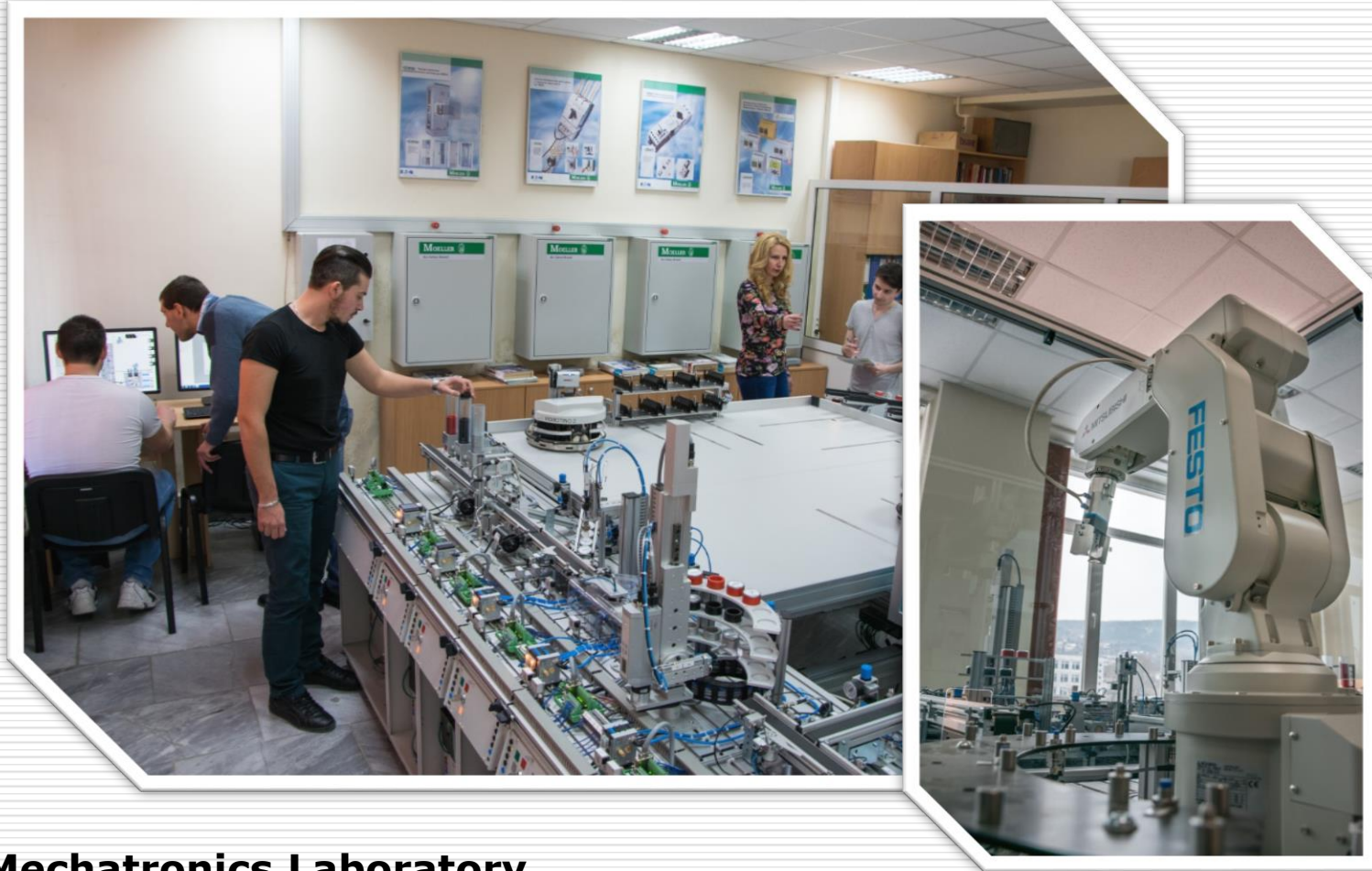


**Laboratory "Industrial Automated Systems" - equipped by Mitsubishi Electric**

*Laboratories of the department*



## *Department of Automation, Business and Centers of Excellence*



**Mechatronics Laboratory  
is equipped with a robotic complex and a logistics field**



## *Department of Automation, Business and Centers of Excellence*



**Mechatronics Laboratory  
is equipped with a robotic complex and a logistics field**

*Laboratories of the department*



### **Siemens Company:**

- Fully equips one of the laboratories of the department;
- Participates in the preparation of curricula and programs;
- A Siemens representative is a member of the graduation examination board;
- Every graduate engineer in Siemens PLC Control Technologies receives a Siemens certificate;
- Organizes teacher training.



## Department of Automation, Business and Centers of Excellence



**Siemens Automotive  
Engineering Hub – Varna  
Projects, People, Perspectives**

**Five graduates of the department are the core in the creation of the engineering hub of Siemens in Varna**

*Cooperation with business*



**KASI Automation company is located in one of the university buildings and develops control systems for technological processes, robots and manipulators.**

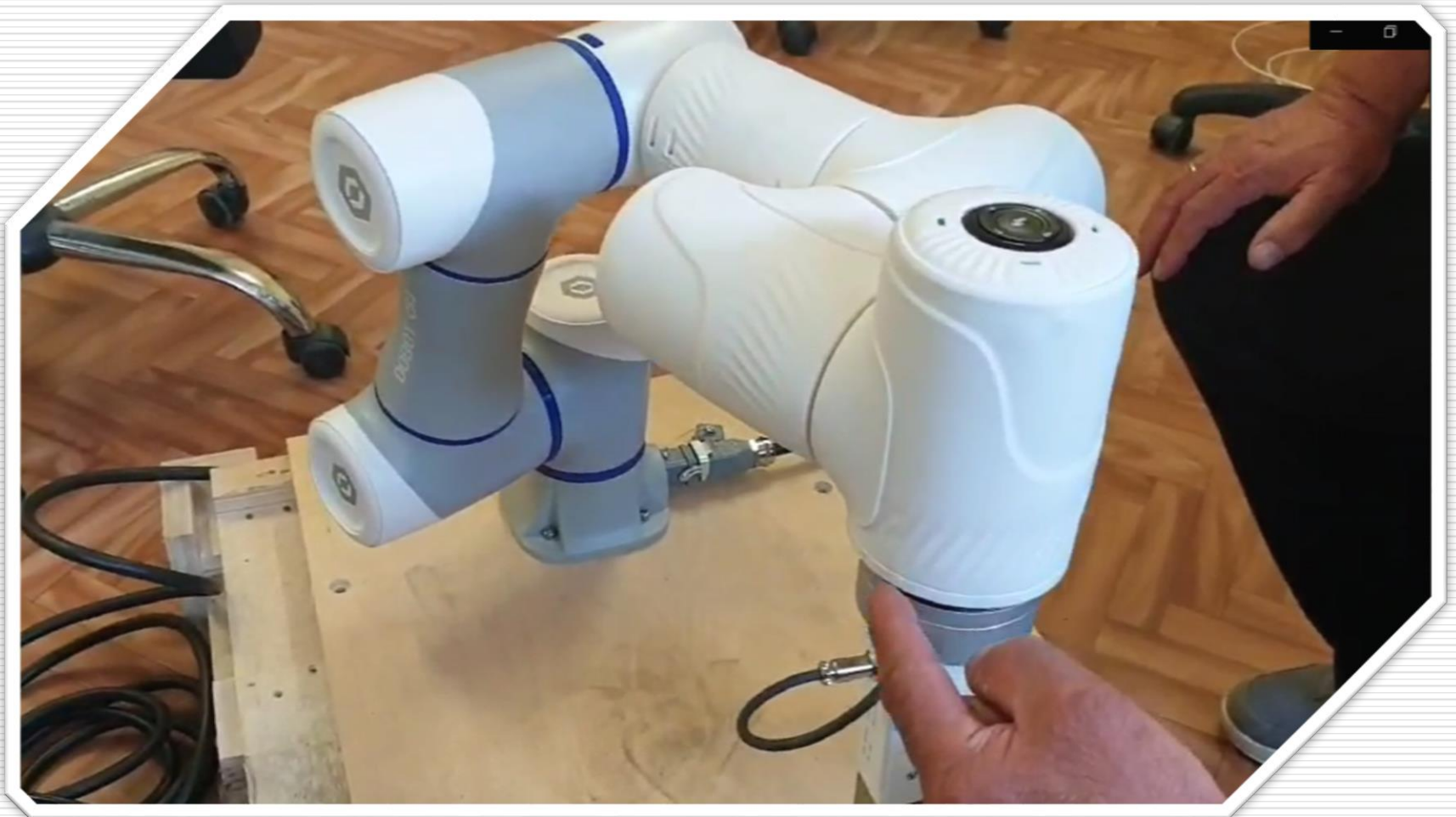
**The department works in cooperation with this company:**

- ✓ **KASI Automation provides its base for laboratory exercises;**
- ✓ **KASI Automation provides topics for diploma projects;**
- ✓ **KASI Automation participates in the preparation of curricula**

**and programs**

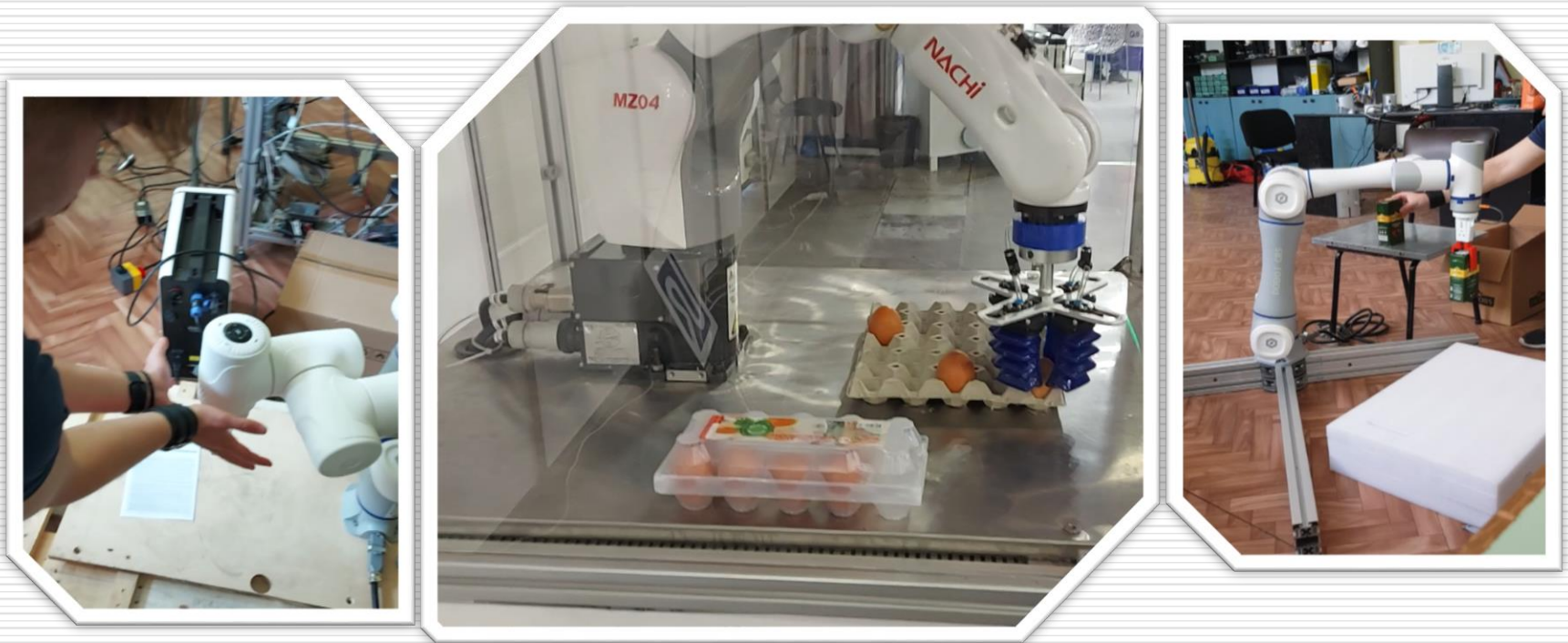


- ✓ **Our students conduct their internship at KASI Automation;**





- ✓ **Over 50% of KASI Automation engineers are graduates of the department.**





ЕВРОПЕЙСКИ СЪЮЗ  
ЕВРОПЕЙСКИ СТРУКТУРНИ И  
ИНВЕСТИЦИОННИ ФОНДОВЕ



## **NATIONAL CENTER FOR MECHATRONICS AND CLEAN TECHNOLOGIES**

### **LABORATORY L11: Robotic mechatronic technologies**

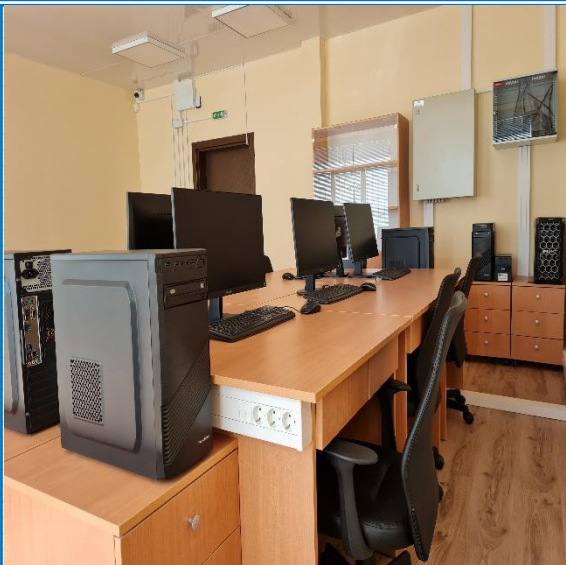
#### **SECTION L11\_S3: Marine robotics**

**The Department of Automation is a major participant in the creation of the Marine Robotics Section at the Laboratory of Robotic Mechatronic Technologies of the National Center for Mechatronics and Clean Technologies. Now the department is working on the construction and development of a marine robotic complex.**



## **LABORATORY L11: Robotic mechatronic technologies**

### **SECTION L11\_S3: Marine robotics**



**Data center.  
L11\_S3\_N105**



**Surface platform.  
L11\_S3\_N96**



**Underwater robot.  
L11\_S3\_N96**



## **LABORATORY L11: Robotic mechatronic technologies**

### **SECTION L11\_S3: Marine robotics**



**Подводен робот. L11\_S3\_N96**



**Underwater location system, acoustic modem, intelligent underwater drone.**



## **Practical application of the achieved research results:**

- ✓ **Mapping the bottom of the Black Sea.**
- ✓ **Preservation of the cultural and historical heritage in the shelf zone of the Bulgarian sector of the Black Sea (geoarchaeology).**
- ✓ **Supplementing the electronic card register with new data.**
- ✓ **Inspection of the underwater port structure and hulls of vessels.**
- ✓ **Detection and response to oil spills and extreme environmental events.**



**THANKS FOR YOUR**

**ATTENTION**