

VALID UNTIL 30 JUNE 2024

# ABB Robotics training catalogue 2024





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The objective of the robotics trainings is to increase qualifications of persons using robotised manufacturing systems. The programme is structured in such a way to meet expectations of all target groups. It contains basic trainings on operation of robots and work safety, trainings on programming of manipulators and specialized courses concerning individual system options. Furthermore, we offer trainings on subject customized to match specific needs of each customer. In addition to the robot operation, the proposal covers courses on offline programming of robots in RobotStudio. It is a very useful tool which significantly increases effectiveness of the robot operation. Training can be conducted at the ABB Robotics Training Center, virtually or at the customer's site. Do not hesitate to contact us. Our team will help you to select a proper training path or adapt it to your individual requirements so that you can fully use the potential of ABB robot systems.

ABB Robotics Training Centre Team



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## OmniCore Controller

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## IRC5 Controller

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# OmniCore Controller



# Courses by job title

## Operator

**OmniCore  
Operator**

**OmniCore SafeMove  
End User**



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## Courses by job title

### Operation maintenance engineer

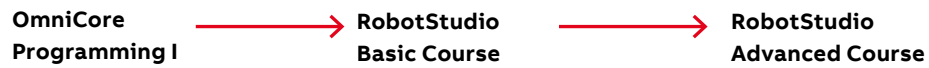
OmniCore  
Electrical  
Maintenance



OmniCore SafeMove  
End User

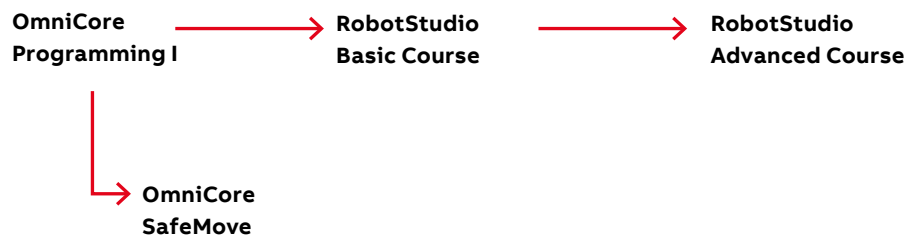
# Courses by job title

## Process Engineer



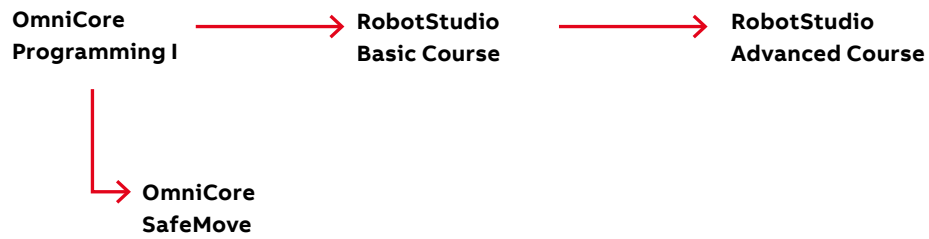
# Courses by job title

## Integrator



# Courses by job title

## Programmer



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# Courses by job title

## OHS Specialist

OmniCore  
Programming I



OmniCore  
SafeMove

# Courses by job title

## Manager

OmniCore  
Programming I



RobotStudio  
Basic Course



# General trainings

## Transition from IRC5 to OmniCore

The goal of this course is to highlight the major changes in OmniCore compared with IRC5. After completed course the student should be able to confidently operate and configure an OmniCore robot system.

### Training objectives:

- Navigate and use the OmniCore FlexPendant.
- Create paths with the Easy Programming Wizard.
- Read the values of digital inputs and manipulate digital outputs.
- Create own dashboards.
- Backup and restore data and programs in the controller.
- Restart the controller in different ways.
- Setup the User Authorization System.
- Reinstall systems and create snapshots.

### Training scope:

- Safety of work with a robot.
- Introduction to OmniCore and OmniCore FlexPendant.
- Cybersecurity.
- Handling inputs and outputs.
- Easy programming Wizard.
- Creating dashboards.
- Saving data.
- Restarts.
- User Authorization System (UAS).
- Reinstall software using RobotStudio.
- RobotWare Installation Utilities.

### Training target group:

This course is targeted to new OmniCore users with previous experience of the IRC5 robot system.

### Requirements:

A basic IRC5 training course or an equivalent level of knowledge of IRC5 is required.

### Information:

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

### Additional information:

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

### Available dates and registration:

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

The QR code directs you directly to the registration website.



# General trainings

## OmniCore Operator

The objective of the course is to provide the participants with the knowledge about using the robot and modifying paths on the operator panel.

**Training objectives:**

- Independent use of the station.
- Startup of the robot system.
- Moving a robot with a joystick.
- Loading and startup of programmes, correction of points.
- Identification of the most frequent causes of stopping and activating to resume operation (e.g. emergency stop).

**Training scope:**

- Safety of work with a robot.
- Use of FlexPendant.
- Structure and operation of the robot system.
- Types of motions in automatic and manual mode.
- Monitoring of input and output signals.
- Short RobotStudio introduction.
- Uploading and saving of modules and programmes.
- Saving and restoring of backup.
- Robot synchronization.
- Error messages and controller status report.

**Training target group:**

Operators.

**Requirements:**

None.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2 – 10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

**Available dates and registration:**

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# General trainings

## OmniCore Programming I

The objective of the course is to provide the participants with the knowledge on operation and basic programming of robots with the use of the operator panel and selected aspects of RobotStudio support software.

**Training objectives:**

- Independent use of the station.
- Startup of the robot system.
- Moving a robot with a joystick.
- Development and implementation of simple motion programmes.
- Testing and optimization of the existing software.
- Create a virtual copy of a real controller.

**Training scope:**

- Safety of work with a robot.
- Use of FlexPendant.
- Types of motions in automatic and manual mode.
- Working with RobotStudio.
- Structure of the programme in RAPID language.
- Creation of basic movement programmes.
- Basic instructions and functions in RAPID language.
- Coordinates systems of tools and object.
- Creating and saving of modules, programmes and system parameters.
- Performance of basic manipulation jobs.
- Change of state of input and output signals combined with the robot movement.
- Robot synchronization.
- Error messages and controller status report.
- Virtual robot controller.

**Training target group:**

Operation maintenance engineers, process engineers, integrators, programmers, OHS specialists, managers.

**Requirements:**

Basic computer skills.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 4 days.

Price: 7200,00 PLN net/person.

**Available dates and registration:**

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# General trainings

## OmniCore SafeMove

The objective of the course is passing the knowledge about using the robot system with SafeMove option.

**Training objectives:**

- Electrical integration of SafeMove card.
- Creation of conditions necessary for functioning of the system with the SafeMove option.
- Configuration of SafeMove controller.

**Training scope:**

- Safety of work with SafeMove option.
- Install the DSQC1015 Safety Module.
- Set up safety users.
- Configure safe I/O and safe fieldbuses.
- Set up zones and ranges.
- Configure safety functions.
- Review the ABB Safety Configuration Report.
- Validate the configuration.
- Reinstall RobotWare on a system with SafeMove.
- Backup and restore the safety configuration.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the OmniCore Programming I course. Knowledge of English.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2 – 10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 3 days.

Price: 5600,00 PLN net/person.

The training ends with an examination. Passing of the examination is confirmed by a certificate which is valid for 2 years. After this period it will be necessary to take part in the SafeMove training – recertification in order to prolong validity of the certificate for another 2 years.

Program RobotStudio is available only in English.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

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# General trainings

## OmniCore SafeMove End User

The objective of the course is passing the knowledge about using the robot system with SafeMove option.

Note: This is **NOT** a SafeMove configuration training.

**Training objectives:**

- Getting knowledge about SafeMove functionality.
- Overview of SafeMove controller limitations.
- Robot System with SafeMove option usage.

**Training scope:**

- Safety of work with SafeMove option.
- Safety Users configuration.
- Overview of the safety functions.
- SafeMove controller synchronization.
- Safety Report overview.
- Validate the configuration.
- Reinstallation of RobotWare with SafeMove option.
- Saving SafeMove configuration backup.
- Restoring SafeMove configuration backup.

**Training target group:**

Operation, process engineers, OHS specialists, managers.

**Requirements:**

Basic computer skills, completion of the OmniCore Operator course.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2 – 10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

**Available dates and registration:**

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# Collaborative Safety

## Collaborative Safety & Risk Assessment

After this course the student should be able to help with the safety design for collaborative robot applications and ensure that it is in accordance with relevant standards and regulations.

**Training objectives:**

- Determine which standards are applicable to different applications.
- Tell what safety aspects to think about when designing a collaborative application.
- Set up SafeMove zones and supervisions with the FlexPendant.
- Perform a risk assessment in accordance with relevant standards.
- Set up required documentation.

**Training scope:**

- Human-Robot Collaboration.
- Standards, Rules & Regulations.
- Designing an HRC\* Application.
- HRC – Risk Assessment.
- SafeMove Setup.
- Validation and Safety Report.

\* Human-Robot Collaboration

**Training target group:**

This training is targeted to first time collaborative robot users.

**Requirements:**

None.

**Information:**

Course duration: 1 day.

Price: 2300,00 PLN net/person.

Number of participants: 2 – 4 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

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# Collaborative Safety

## Collaborative User

The goal of the course is to learn about ABB's collaborative robot family and the specific tools and features that separate them from the standard industrial robots.

**Training objectives:**

- Move the robot using lead-through and the joystick.
- Use Wizard to create programs.
- Use Skill Creator to create custom blocks for Wizard.

**Training scope:**

- Health & Safety.
- Introduction to OmniCore and ABB robots.
- Introduction to Collaborative Robots.
- Lead-through (moving the robot by hand).
- Wizard Introduction.
- Skill Creator.
- Arm Side Interface.

**Training target group:**

This course is for robot programmers that want to learn more about ABB's collaborative robots and tools.

**Requirements:**

Participants should have completed the Basic Programming course, or have corresponding knowledge.

**Information:**

Course duration: 1 day.

Price: 2300,00 PLN net/person.

Number of participants: 2 – 4 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

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# Operation maintenance

## OmniCore Electrical Maintenance

The objective of the course is to provide the participants with the knowledge about identification of failures and basic servicing of electric components of the robot system.

**Training objectives:**

- Work systematically when troubleshooting.
- Troubleshoot based on fault symptoms/units.
- Use practices that is safe for both equipment and personnel.
- Update revolution counters.
- Calibrate the robot.
- Reinstall RW7 systems.
- Configure ABB IO units.

**Training scope:**

- Health and safety.
- Safety: Electrical Troubleshooting.
- Electrostatic Discharge.
- OmniCore Overview: Electrical Units & Components.
- Introduction to troubleshooting.
- Troubleshooting by fault symptoms.
- Troubleshooting by unit.
- Troubleshooting Exercises:
  - Power, Run chain, Drive system/Mechanical unit
- Revolution Counters.
- Calibration.
- Overview of system parameters.
- Backup/Restore.
- Reinstall Software.
- IO Configuration of ABB Units.

**Training target group:**

Operation maintenance engineers.

**Requirements:**

Completion of the Omnicore Operator course.

**Information:**

Course duration: 5 days.

Price: 9900,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

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## Robotics training catalog 2023

List of courses offered

OmniCore

### General trainings

Item	Training type	days	Net PLN price
1	Transition from IRC5 to OmniCore	2	4500
2	OmniCore Operator	2	4500
3	OmniCore Programming I	4	8100
4	OmniCore SafeMove	3	6200
5	OmniCore SafeMove End User	2	4500

### Collaborative Robots

Item	Training type	days	Net PLN price
6	Collaborative Robots - Collaborative Safety & Risk Assessment	1	2300
7	Collaborative User	1	2300

### Operation maintenance

Item	Training type	days	Net PLN price
8	OmniCore Electrical Maintenance	5	9900

### Online courses

Item	Training type	days	Net PLN price
9	Transition from IRC5 to OmniCore	2	4200
10	OmniCore Operator	2	4200
11	OmniCore Programming I	4	7200

# IRC5 Controller



# Courses by job title

## Operator

### Robot operator

IRC5  
Operator

### Welding robot operator

IRC5  
Operator

→ IRC5 Programming I  
for Arc Welding

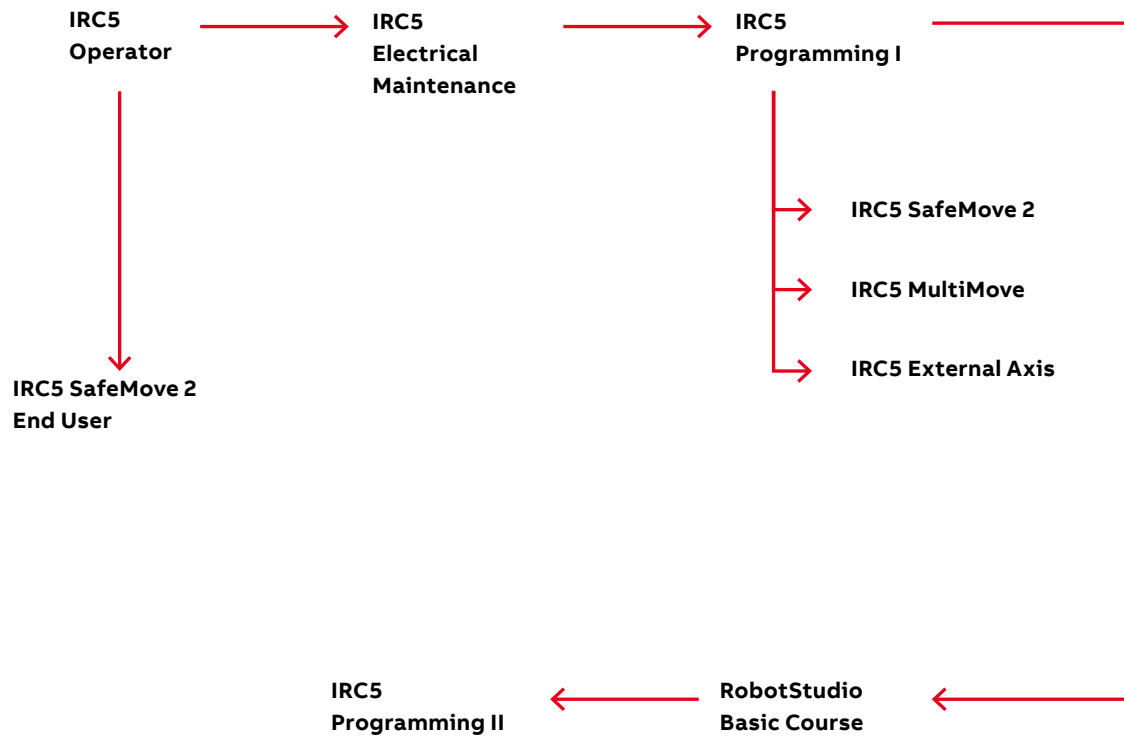
### Painting robot operator

IRC5P  
Operator

SafeMove 2  
End User

# Courses by job title

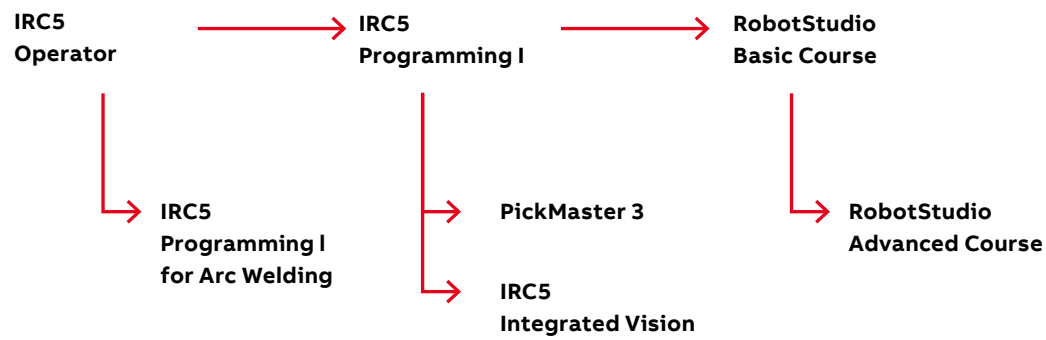
## Operation maintenance engineer





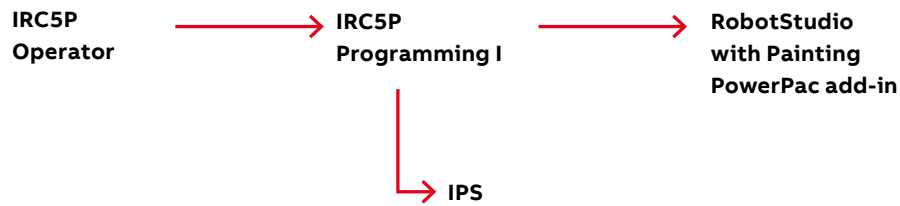
# Courses by job title

## Process Engineer



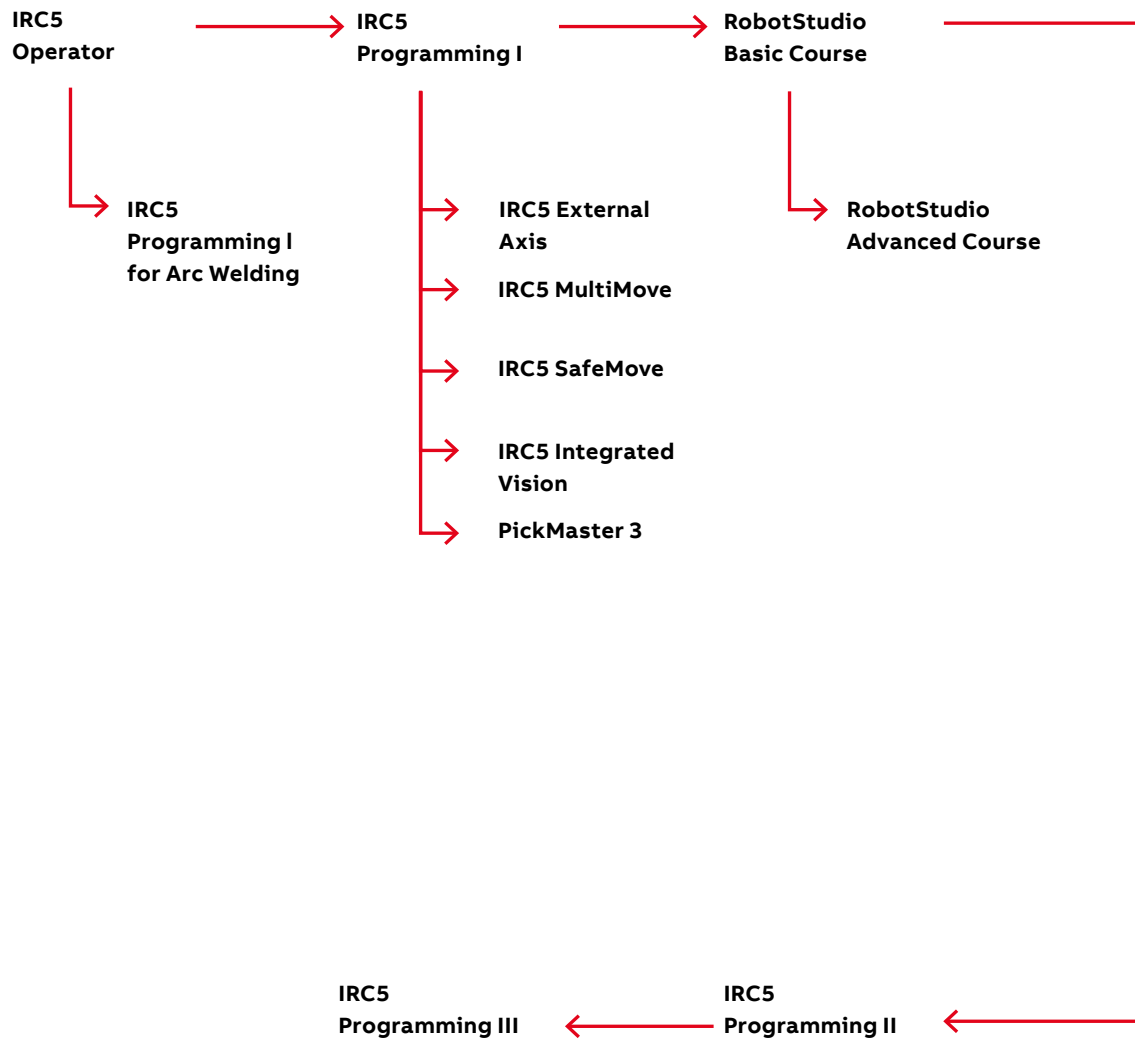
## Courses by job title

### Process Engineer – Painting process



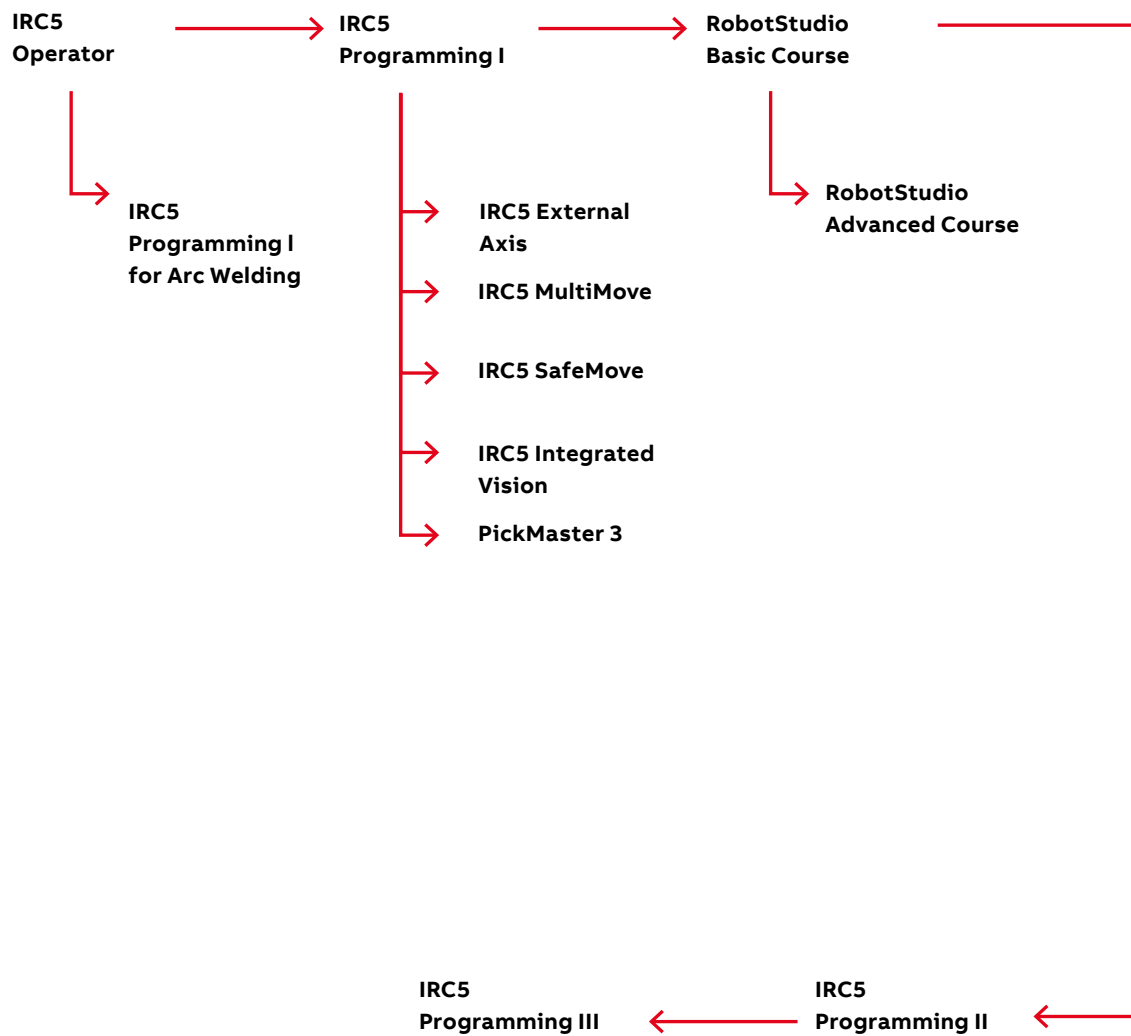
# Courses by job title

## Integrator



# Courses by job title

## Programmer



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## Courses by job title

### OHS Specialist



# Courses by job title

## Manager

IRC5  
Operator



IRC5  
Programming I



RobotStudio  
Basic Course

# General trainings

## IRC5 Operator

The objective of the course is to provide the participants with the knowledge about using the robot and modifying paths on the operator panel.

**Training objectives:**

- Independent use of the station.
- Startup of the robot system.
- Moving a robot with a joystick.
- Loading and startup of programmes, correction of points.
- Identification of the most frequent causes of stopping and activating to resume operation (e.g. emergency stop).

**Training scope:**

- Safety of work with a robot.
- Use of FlexPendant.
- Moving the robot in manual mode.
- Basic movement instructions.
- Basic instructions for operating digital signals.
- Monitoring of input and output signals.
- Uploading and saving of modules and programmes.
- Saving and restoring of backup.
- Robot synchronization.
- Review of the event log.

**Training target group:**

Operators, operation maintenance engineers, process engineers, integrators, programmers, OHS specialists, managers.

**Requirements:**

None.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

**Available dates and registration:**

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# General trainings

## IRC5 Programming I

The objective of the course is to provide the participants with the knowledge on operation and basic programming of robots with the use of the operator panel and selected aspects of RobotStudio support software.

**Training objectives:**

- Independent use of the station.
- Development and implementation of simple motion programmes.
- Testing and optimization of the existing software.

**Training scope:**

- Safety of work with a robot.
- Modifying a program using RobotStudio.
- Structure of the programme in RAPID language.
- Creation of basic movement programmes.
- Basic instructions and functions in RAPID language.
- Coordinates systems of tools and object.
- Creating and saving of modules, programmes and system parameters.
- Signal Instructions.
- Basic instructions and functions in RAPID language:
  - Offset, RelTool.
  - TEST, IF.
  - FOR, WHILE.
  - TP library.
  - CLK library.

**Training target group:**

Operation maintenance engineers, process engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Operator course.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 4 days.

Price: 7200,00 PLN net/person.

**Available dates and registration:**

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# General trainings

## IRC5 Programming II

The objective of the course is to provide the participants with the knowledge about programming of robots with the use of the operator panel.

**Training objectives:**

- Development and implementation of advanced movement programmes.
- Testing and optimization of the existing software.
- Operation, monitoring, change of signal status with advanced instructions.
- Monitoring of current robot position.

**Training scope:**

- Recap of safety rules for working with the system.
- Recap of basic information about RobotStudio.
- Creation and installation of robot system.
- Defining stationary tools.
- Declarations of programme data.
- Adding modules and signals.
- Programme handling of interrupts and events.
- Programme error handling.
- Programme offset of path.
- World Zones.
- Advanced instructions in RAPID language:
  - AccSet, VelSet.
  - SoftAct, SoftDeact.
  - Trigg.
  - ConfJ, ConfL.
  - SignArea.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Programming I course.

**Information:**

Course duration: 5 days.

Price: 9900,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 5 days.

Price: 8900,00 PLN net/person.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

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# General trainings

## IRC5 Programming III

The objective of the course is to provide the participants with the knowledge about advanced programming of robots with the use of the operator panel and RobotStudio.

**Training objectives:**

- Development, implementation, testing and optimization of advanced functions of the robot system.
- Modification of advanced controller configuration parameters.

**Training scope:**

- User authorization system.
- Automatic tool weighting.
- Creation of the user's own instructions, functions and data types.
- SoftMove option.
- Event Routines.
- System Inputs and Outputs.
- Cross Connection.
- Automatic loading of modules.
- Multitasking.
- Socket messaging/OPC server.
- Advanced relocation of programmed paths.
- File structure management.

**Training target group:**

Integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Programming II course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

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# General trainings

## IRC5 SafeMove 2

The objective of the course is passing the knowledge about using the robot system with SafeMove option.

**Training objectives:**

- Electrical integration of SafeMove card.
- Creation of conditions necessary for functioning of the system with the SafeMove option.
- Configuration of SafeMove controller.

**Training scope:**

- Safety of work with SafeMove option.
- Install the DSQC1015 Safety Module.
- Set up safety users.
- Creation and use safety signals.
- Set up zones and ranges.
- Configure safety functions.
- Review the ABB Safety Configuration Report.
- Validate the configuration.
- Reinstall RobotWare on a system with SafeMove.
- Backup and restore the safety configuration.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Programming I course. Knowledge of English.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 3 days.

Price: 5600,00 PLN net/person.

The training ends with an examination. Passing of the examination is confirmed by a certificate which is valid for 2 years. After this period it will be necessary to take part in the IRC5 SafeMove 2 Recertification training in order to prolong validity of the certificate for another 2 years.

Program RobotStudio is available only in English.

**Available dates and registration:**

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# General trainings

## IRC5 SafeMove 2 Recertyfication

The objective of the course is to refresh, update and verify the knowledge on the connection and configuration of the SafeMove option.

**Training objectives:**

- Reminding of the information on the design and configuration of SafeMove controller.
- Discussing of changes and current status of the SafeMove option and safety requirements for working with robots.

**Training scope:**

- Safety of work with SafeMove option.
- Discussing changes in the SafeMove option and safety requirements.

**Reminder:**

- Set up safety users.
- Creation and use safety signals.
- Set up zones and ranges.
- Configure safety functions.
- Review the ABB Safety Configuration Report.
- Validate the configuration.
- Reinstall RobotWare on a system with SafeMove.
- Backup and restore the safety configuration.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 SafeMove 2.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

The training ends with an examination. Passing of the examination is confirmed by a certificate which is valid for 2 years. After this period it will be necessary to take part in the SafeMove training – recertification in order to prolong validity of the certificate for another 2 years.

Program RobotStudio is available only in English.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

The QR code directs you directly to the registration website.



# General trainings

## IRC5 SafeMove 2 End User

The objective of the course is passing the knowledge about using the robot system with SafeMove option.

Note: This is **NOT** a SafeMove configuration training.

**Training objectives:**

- Getting knowledge about SafeMove functionality.
- Overview of SafeMove controller limitations.
- Robot System with SafeMove option usage.

**Training scope:**

- Safety of work with SafeMove option.
- Safety Users configuration.
- Overview of the safety functions.
- Safety Report overview.
- Validate the configuration.
- Reinstallation of RobotWare with SafeMove option.
- Saving SafeMove configuration backup.
- Restoring SafeMove configuration backup.

**Training target group:**

Operation, process engineers, OHS specialists, managers.

**Requirements:**

Basic computer skills, completion of the IRC5 Operator course.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Additional information:**

Online course available.

Course duration: 2 days.

Price: 4200,00 PLN net/person.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

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# General trainings

## IRC5 Integrated Vision

The objective of the course is to provide the participants with the information about connection, configuration and programming of the 2D vision system interoperating with a robot.

**Training objectives:**

- Ability to connect a camera to the robot system.
- Configuration of Integrated Vision option.
- Programming of the station with a camera placed on the robot and a stationary camera.

**Training scope:**

- Safety rules for using a robot with the Integrated Vision option.
- Use of a camera and cell adjustment (lighting).
- Installation and configuration.
- Recap of basics on RobotStudio.
- Creation and uploading of a new robot system.
- Customer interface of RobotStudio and FlexPendant.
- Camera calibration.
- Vision tools and instructions in Rapid language.
- Functions and data types used during work with vision system.
- Programming of a station with Integrated Vision option.

**Training target group:**

Process engineers, integrators, programmers.

**Requirements:**

Basic computer skills, knowledge of English, completion of IRC5 Programming I training.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

Training materials and RobotStudio software available in English only.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

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# General trainings

## IRC5 MultiMove

The objective of the course is to provide the participants with the information about connection, configuration and programming of robots with a common control unit.

**Training objectives:**

- Ability to perform electric connection of two robots under one system.
- Robot configuration in the MultiMove system.
- Robot programming in the MultiMove system – movement synchronization.

**Training scope:**

- Safety rules for working with robots.
- Description of MultiMove functionality.
- Structure of connection by controller type.
- Creation and uploading of new MultiMove system.
- Jogging robots in MultiMove system.
- System calibration.
- System parameters, creation and restoration of backups.
- Multitasking.
- Programming of robots in Independent/ Semi-Independent, Synchronized and Coordinated modes.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Programming I course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

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# General trainings

## IRC5 External Axis

The objective of the course is to provide the participants with the information about connection, configuration and programming of external axes cooperating with a robot.

**Training objectives:**

- Configuration of external axes.
- Programming of robot with external axes.

**Training scope:**

- Principles of safe work at stations with external axes.
- Installation of a system with external axes.
- Calibration and synchronization of external axes.
- Defining the length and orientation of the runway.
- Declaration of the BaseFrame layout of the positioner.
- Declaration of wobj layout on the positioner.
- Declaration of additional load on the positioner.
- Creating a robot program with an external axis.
- Supporting the Independent Axis option.

**Training target group:**

Operation maintenance engineers, integrators, programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Programming I course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

The QR code directs you directly to the registration website.





# General trainings

## Modular Training

The objective of the course is to provide the participants with the information about self-composed themes by the client.

**Training description:**

The course includes customer-specified training modules selected from the list prepared by the Robotics Training Center.

The list of available training modules can be found on the following pages of the catalog.

After selecting interesting modules, ABB representative will contact you in order to provide details such as price and duration of the training and to set a convenient date.

If you have not found any interesting topics, please contact the Robotics Training Center in order to find a suitable topic.

**Training target group:**

Integrators, programmers.

**Requirements:**

Basic knowledge of the functioning of the robot system, and skills in operating and programming industrial robots.

**Information:**

Course duration: determined individually, no less than 4h.

Price: determined individually.

Minimum number of participants: 2 people.

Training materials and RobotStudio are available only in English.

**Available dates and registration:**

Determined individually, please contact us [robotyka.szkolenia@pl.abb.com](mailto:robotyka.szkolenia@pl.abb.com)

### 1. Topics related to programming in RAPID language:

I.p.	Subject area	Scope
1.1	Defining tools and work objects	Defining tools and work objects using the manual method. Defining tools and work objects using RAPID language. Automatic tool and work piece weight measurement and definition of additional load on robot axes.
1.2	Moving and movement management	Overview of the movement instructions. Robot motion management - speed, accelerations, loads, configuration of the arm, singularities. Offset and RelTool functions.
1.3	Program and executed path displacement	PDispOn/PDispSet instructions. Defining work objects by the program (DefFrame). Correction generator.
1.4	Communication with the user	TP library. UI library.
1.5	Interrupts handling	Defining and handling of interrupts (Trap routines).
1.6	Error handling	Adding an error handler and error handling.
1.7	Movement with event handling	Movement with event handling - Trigg instructions.
1.8	Work space limitation	Defining and using WorldZones. Limiting the range of individual robot axes. Implementing Collision Avoidance.
1.9	Softening robot path	MotionSup instruction. Implementing SoftAct option. Implementing SoftMove option.
1.10	Multitasking	Creating and configuring new Tasks.
1.11	Communication	Socket Messaging. OPC Server.
1.12	RobotWare AddIns	Creating own data types. Creating own instructions and functions. Creating own logs. Encryption/hiding of modules/tasks. Automatic loading of modules.
1.13	File handling	Working on folders and files with RAPID instructions.

### 2. Topics related to the configuration of the robot:

I.p.	Subject area	Scope
2.1	System installation	Recovery disk and system installation. Backup recovery - IRC5 and Safety Controller. Robot synchronization. Synchronization of the Safety Controller. Calibration offsets. Robot memory. Defining Base Frame.
2.2	Moving and movement management	General RAPID tab. Event Routines. Path return region. Auto Condition Reset. Automatic switching Jog Unit. Block IO in motors Off. Creating a group of instructions. Defining gravity. Defining Base Frame. Production Permission. Adding signals. Defining Access Level. Defining Cross Connection. Defining System Signals. AliasIO instruction.
2.3	Operation of Industrial Network	Configuration and operation of Profinet network, including ProfiSafe, or DeviceNet network configuration and operation, or Profibus network configuration and operation, or EtherNet/IP configuration and operation, including CIP.

—  
**3. Topics related to RobotStudio:**

<b>I.p.</b>	<b>Subject area</b>	<b>Scope</b>
3.1	RobotStudio - cooperation with the real controller	Overview of CONTROLLER, RAPID tabs. Overview of Jobs, Signal Analyzer.
3.2	Creating a simple simulation	Creating robotic cells in RobotStudio with simple simulation.
3.3	Graphic programming	Creating a robot path based on a curve, a detail. Creating an obstacle avoidance path.
3.4	Creating own mechanisms, Implementing Smart Components	Overview of the procedure for creating mechanisms. Adding and programming Smart Components. Station Logic and Event Manager settings.
3.5	MultiMove station	Creating station with MultiMove option.
3.6	Conveyor Tracking station	Creating station with Conveyor Tracking option.
3.7	Implementing physics elements into simulations	Adding wire simulation and physical properties to stations.
3.8	Creating customised screens on FlexPendant	Operating ScreenMaker and Production Screen.

# Operation maintenance

## IRC5 Electrical Maintenance

The objective of the course is to provide the participants with the knowledge about identification of failures and basic servicing of electric components of the robot system.

**Training objectives:**

- Learning about the detailed design and working principles of the controller and the robot.
- Identification of causes of failures based on information about events.
- Ability to eliminate failures by replacing individual modules of the controller.
- Robot calibration and synchronization.

**Training scope:**

- Detailed controller design.
- ESD – electrostatic discharge.
- Detailed design of the main computer.
- Restart procedures.
- Recap of basics on RobotStudio.
- Creation and uploading of a new robot system.
- File Management - FlexPendant.
- Power supply scheme.
- Safe circuits.
- Robot drive system.
- Resolvers.
- Calibration using pins.
- Controller input/output system.

**Training target group:**

Operation maintenance engineers.

**Requirements:**

Completion of the IRC5 Operator course.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

**The QR code directs you directly to the registration website.**



# Painting applications

## IRC5P Operator

The objective of the course is to provide the participants with the knowledge about using the robot and modifying paths on the operator panel.

**Training objectives:**

- Independent use of the station.
- Startup of the robot system.
- Moving a robot with a joystick.
- Loading and startup of programmes, correction of points.
- Identification of the most frequent causes of stopping and activating to resume operation (e.g. emergency stop).

**Training scope:**

- Safety of work with a robot.
- Operation of the FlexPaint panel.
- Structure and operation of the robot system.
- Types of motions in automatic and manual mode.
- Monitoring of input and output signals.
- Uploading and saving of modules and programmes.
- Saving and restoring of backup.
- Error messages and controller status report.

**Training target group:**

Paint process operators, operation maintenance engineers, process engineers, integrators, programmers, OHS specialists, managers.

**Requirements:**

None.

**Information:**

Course duration: 2 days.

Price: 4500,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

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# Painting applications

## IRC5P Programming I

The objective of the course is to provide the participants with the knowledge on operation and programming of robots with the use of the operator panel and support software.

**Training objectives:**

- Independent use of the station.
- Development and implementation of simple movement programmes using the operator panel and RobotStudio.
- Testing and optimization of the existing software.
- Robot following an object moving on conveyor.

**Training scope:**

- Safety of work with a robot.
- Coordinates systems of tools and detail.
- Rules for creating programmes and process variables.
- Programme modification methods.
- Basic use of RobotStudio.
- Production management from the operator panel.
- Creation of basic movement programmes.
- Readout and change of input and output signal status.
- Loading and saving of modules, programmes and system parameters.
- Cooperation of the robot with conveyor.

**Training target group:**

Process engineers and programmers of painting processes.

**Requirements:**

Basic computer skills, completion of the IRC5P Operator course.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**The training is organized exclusively at the customer's site using his equipment.**

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

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# Painting applications

## Integrated Paint System (IPS)

The objective of the course is to provide the participants with the knowledge about using and troubleshooting the IPS interface.

**Training objectives:**

- Independent use of the station with IPS interface.
- Equipment identification and providing information about operation of the applicator and the painting system.
- Making changes in the painting system to avoid delayed operation of the adjustment system.

**Training scope:**

- Safety measures applied when making changes in parameters of fluid control.
- Information on the paint gun control, configuration of signals in open and closed control loop.
- Structure of ips.cfg and eio.cfg files.
- Use and configuration of the software and monitoring of robot configuration via network.

**Training target group:**

Painting process engineers.

**Requirements:**

Basic computer skills, completion of the IRC5P Programming I course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

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# Painting applications

## RobotStudio with Painting PowerPac add-ins

The objective of the course is to provide the participants with the knowledge about using RobotStudio with Painting PowerPac add-in.

**Training objectives:**

- Learning about the design of offline painting stations.
- Writing programmes in offline mode and simulation of operation of the station with conveyor.
- Connection and edition of the real system.
- Simulation of painting process.
- Use of Painting PowerPac module.

**Training scope:**

- Introduction to RobotStudio.
- Basic - menu, windows.
- Graphical Programming.
- Signal Analyzer.
- Modeling.
- Programming and Simulating IO Signals.
- Transfer.
- Configuration of conveyors.
- Configuration of the painting application station with Painting PowerPac module.

**Training target group:**

Process engineers and programmers of painting processes.

**Requirements:**

Process engineers and programmers of painting processes.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**The training is organized exclusively at the customer's site using his equipment.**

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

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# Arc welding

## IRC5 Programming I for Arc Welding

The objective of the course is to provide the participants with the knowledge on operation and basic programming of welding robots with the use of the operator panel and selected aspects of RobotStudio support software.

**Training objectives:**

- Independent use of the station.
- Development and implementation of simple motion programmes.
- Modification of welding parameters.
- Testing and optimization of the existing software.

**Training scope:**

- Safety of work with a robot and welding equipment.
- Basics of arc welding technology:
  - MIG/MAG,
  - TIG.
- Basic robot welding equipment.
- Production Manager Setup, Service, Parthandling support.
- Defining TCP BullEye.
- TSC support.
- Defining Advpartdata.
- Welding instructions ArcLStart, ArcL, ArcC, ArcLEnd, ArcCEnd.
- Arguments of welding instructions.
- Smartac/Touch sensing - operating principle and instructions.
- Weldguide/Seam tracking - operating principle and instructions.

**Training target group:**

Operation maintenance engineers, process engineers, integrators, arc welding process programmers.

**Requirements:**

Basic computer skills, completion of the IRC5 Operator course.

**Information:**

Course duration: 4 days.

Price: 8100,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

**The training is organized exclusively at the customer's site using his equipment.**

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

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# Palletization

## PickMaster 3

The objective of the course is to provide the participants with the knowledge on operation and programming of FlexPicker robot with vision system with the use of the operator panel and support software.

**Training objectives:**

- Learning about the design and connection of elements of PickMaster 3 option.
- Acquiring the ability of modelling, parametrization, configuration and calibration of the vision system.
- Learning about basic programming of a robot with PickMaster 3 option.
- Conveyor tracking.
- Learning about possibilities of PickMaster 3 option.

**Training scope:**

- Introduction to PickMaster 3.
- Scope of basic PickMaster 3 options.
- Configuration.
- Calibration of the vision system, modelling and parametrization.
- Production panel.
- PickMaster – programming in RAPID.
- PickMaster – conveyor tracking.
- Hardware – components and connections.
- Efficiency and limitations.

**Training target group:**

Process engineers, integrators, programmers.

**Requirements:**

Completion of the IRC5 Programming I course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

Training materials and PickMaster program available in English only.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

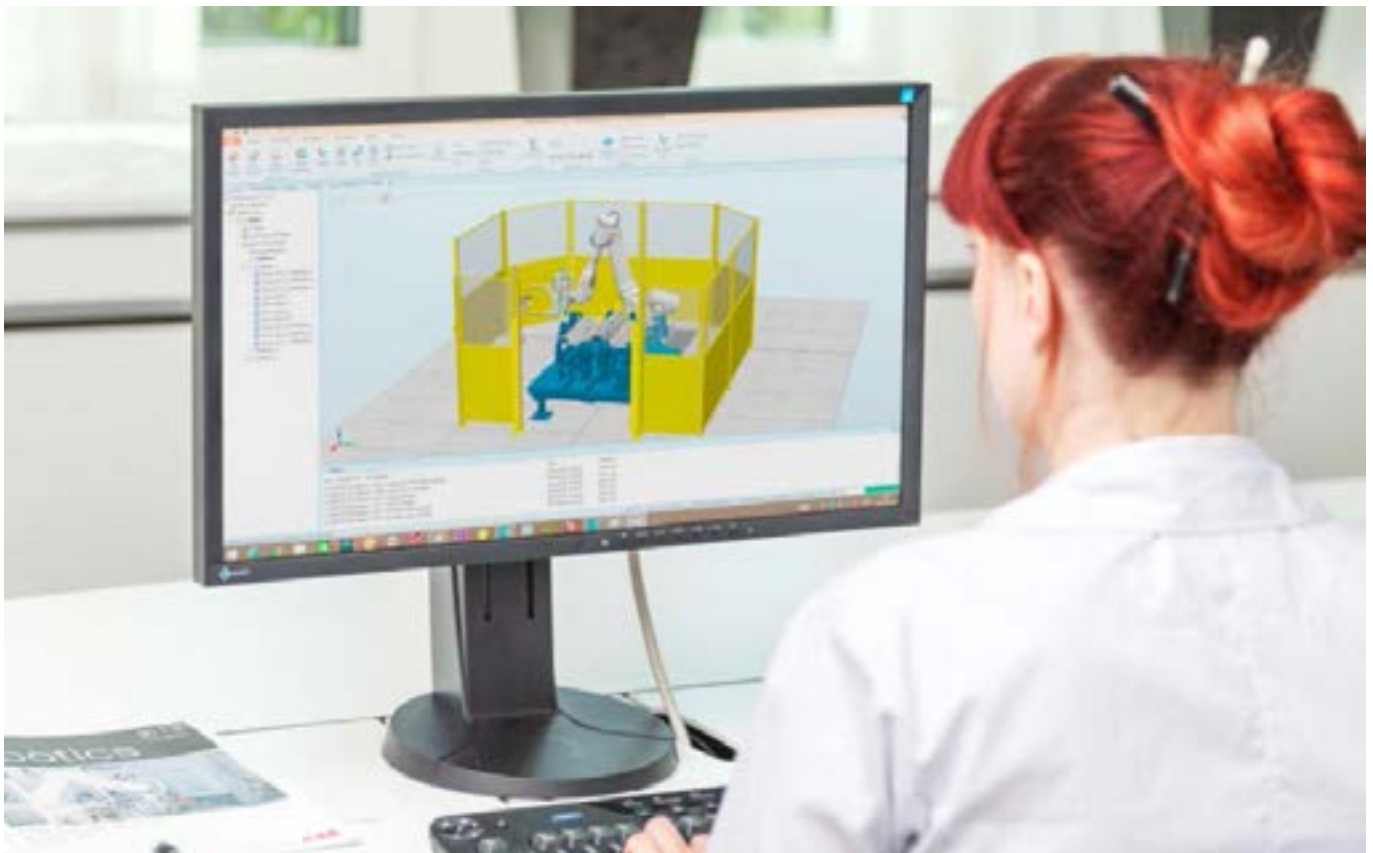
The website contains the schedule of courses available at the Robotics Training Center in Warsaw.

**The QR code directs you directly to the registration website.**



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# Online/offline programming



# Online/offline programming

## RobotStudio Basic Course

The objective of the course is to provide the participants with the basic information about the design of the station, offline and online programming of robots in RobotStudio environment.

**Training objectives:**

- Design of a basic offline station.
- Writing programmes in offline mode and simulation of operation of the station.
- Connection and edition of the real system.

**Training scope:**

- Introduction to RobotStudio.
- Basic - menu, windows.
- Zone Visualization.
- Graphical Programming.
- Signal Analyzer.
- Modeling.
- Programming and Simulating IO Signals.
- Transfer.
- External Axis.
- Sales Tools.

**Training target group:**

Operation maintenance engineers, process engineers, integrators, programmers, managers.

**Requirements:**

Basic computer skills, basic command of English, recommended completion of the IRC5 Programming I course.

**Information:**

Course duration: 4 days.  
Price: 8100,00 PLN net/person.  
Number of participants: 2–10 people.  
Maximum: 2 people per training robot.  
Training materials and RobotStudio are available only in English.

**Additional information:**

Online course available.  
Course duration: 4 days.  
Price: 7200,00 PLN net/person.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:  
<https://app1.edoobox.com/pl/ABBPL/>

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# Online/offline programming

## RobotStudio Advanced Course

The objective of the course is to provide the participants with the information about the design of the station and advanced offline programming of robots in RobotStudio environment.

**Training objectives:**

- Design of advanced offline stations.
- Creation of Smart Components and use of Simulation Setup.
- Using additional system options.
- Creation of Screen Maker application.

**Training scope:**

- Recap of basics on RobotStudio.
- Event Manager.
- Smart Components.
- MultiMove.
- Mechanisms.
- Conveyor Tracking.
- ScreenMaker.
- Layout Tools.
- Physics.

**Training target group:**

Integrators, programmers.

**Requirements:**

Basic computer skills, basic command of English, completion of the basic RobotStudio course.

**Information:**

Course duration: 3 days.

Price: 6200,00 PLN net/person.

Number of participants: 2–10 people.

Maximum: 2 people per training robot.

Training materials and RobotStudio are available only in English.

**Available dates and registration:**

The Robotics Training Center allows you to register for training via the website:

<https://app1.edoobox.com/pl/ABBPL/>

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## Robotics training catalogue 2023

### List of proposed courses

#### General trainings

Item	Training type	days	Net PLN price
1	IRC5 Operator	2	4500
2	IRC5 Programming I	4	8100
3	IRC5 Programming II	5	9900
4	IRC5 Programming III	3	6200
5	IRC5 SafeMove 2	3	6200
6	IRC5 SafeMove 2 Recertification	2	4500
7	IRC5 SafeMove 2 End User	2	4500
8	IRC5 Integrated Vision	4	8100
9	IRC5 MultiMove	3	6200
10	IRC5 External Axis	3	6200
11	Modular Training	determined individually	determined individually

#### Operation maintenance

Item	Training type	days	Net PLN price
12	IRC5 Electrical Maintenance	4	8100

#### Online/offline programming

Item	Training type	days	Net PLN price
13	RobotStudio Basic Course	4	8100
14	RobotStudio Advanced Course	3	6200

#### Palletization

Item	Training type	days	Net PLN price
15	PickMaster 3	3	6200

#### Painting applications

Item	Training type	days	Net PLN price
16	IRC5P Operator	2	4500
17	IRC5P Programming I	4	8100
18	Integrated Paint System IPS	3	6200
19	RobotStudio with Painting PowerPac add-in	3	6200

#### Welding applications

Item	Training type	days	Net PLN price
20	IRC5 Programming I for Arc Welding	4	8100

#### Online courses

Item	Training type	days	Net PLN price
21	IRC5 Programming I online	4	7200
22	IRC5 Programming II online	5	8900
23	IRC5 SafeMove 2 online	3	5600
24	IRC5 SafeMove 2 Recertification online	2	4200
25	IRC5 SafeMove 2 End User online	2	4200
26	RobotStudio Basic Course online	4	7200

# Organizational information

## General information

The objective of our trainings is to provide the participants with knowledge and skills necessary for proper operation and full use of the possibilities offered by the ABB robots. The ABB robotics training programme is to be held in the ABB Robotics Training Centre. The trainings are universal which means that they are not focussed on any specific technology. Also a model of robot to be used by the participants in their own plants is of little importance. The exception is the painting process and robots used in this process, either robots of Scara and YuMi type. Upon prior agreement the training programmes may be modified and supplemented to match the scope of the knowledge provided to needs and expectations of customers. The language used during the trainings is Polish or English. We also organize trainings conducted in any language with simultaneous interpretation. The trainings are held for groups of minimum two persons and maximum ten persons. During the practical part one robot is used by no more than three participants. During the training the participants are provided with a set of training materials in Polish or English.

## Location

The trainings are conducted in the ABB Robotics Training Centre in Warsaw, at Zeganska 1 street. The trainings may also be held at the employer's location on our or the employer's equipment.

## Dates

The trainings are held all year round. If there are two or more applicants, it is possible to set individual dates of the training. Applications of individual persons are added to the already scheduled dates of the trainings.

ABB reserves the right to cancel the training date. In such a case, the participants will be provided with a different date.

## Training schedule

The courses begin at 9:00 am on the first day and end at 3:00 pm on the last day of the training. On other days the training sessions begin at 8:30 am and end at 4:00 pm. Lunch break is at 12:00 (included in the price of the training).

## Applications

In order to register participants for the training, please register online via the website <https://app1.edoobox.com/pl/ABBPL/> or send it as a completed scan and signed application form. Please enter in the application form details of the company registering its employees for the training, course code, total amount of payment for the training (for all the participants) and suggested or scheduled dates of the training. Participation in the trainings shall be reserved on a first-come- first-served basis. In order to facilitate planning please specify alternative dates of the courses.

## Order cancellation

If the Employer resigns from the ordered training at least 7 days before the beginning of the training, it shall be charged with the payment amounting to 50% of the total value of the order. If the resignation was filed after this date, the Employer shall bear all the costs of the training.

## Certifications

At the end of the training the participants receive training completion certificates. At the Employer's request the training may end with an examination. SafeMove - certification and SafeMove - recertification trainings end with an examination. The certificate is awarded only to participants who passed the examination. The certificate is valid for two years as of the date of its issuance.

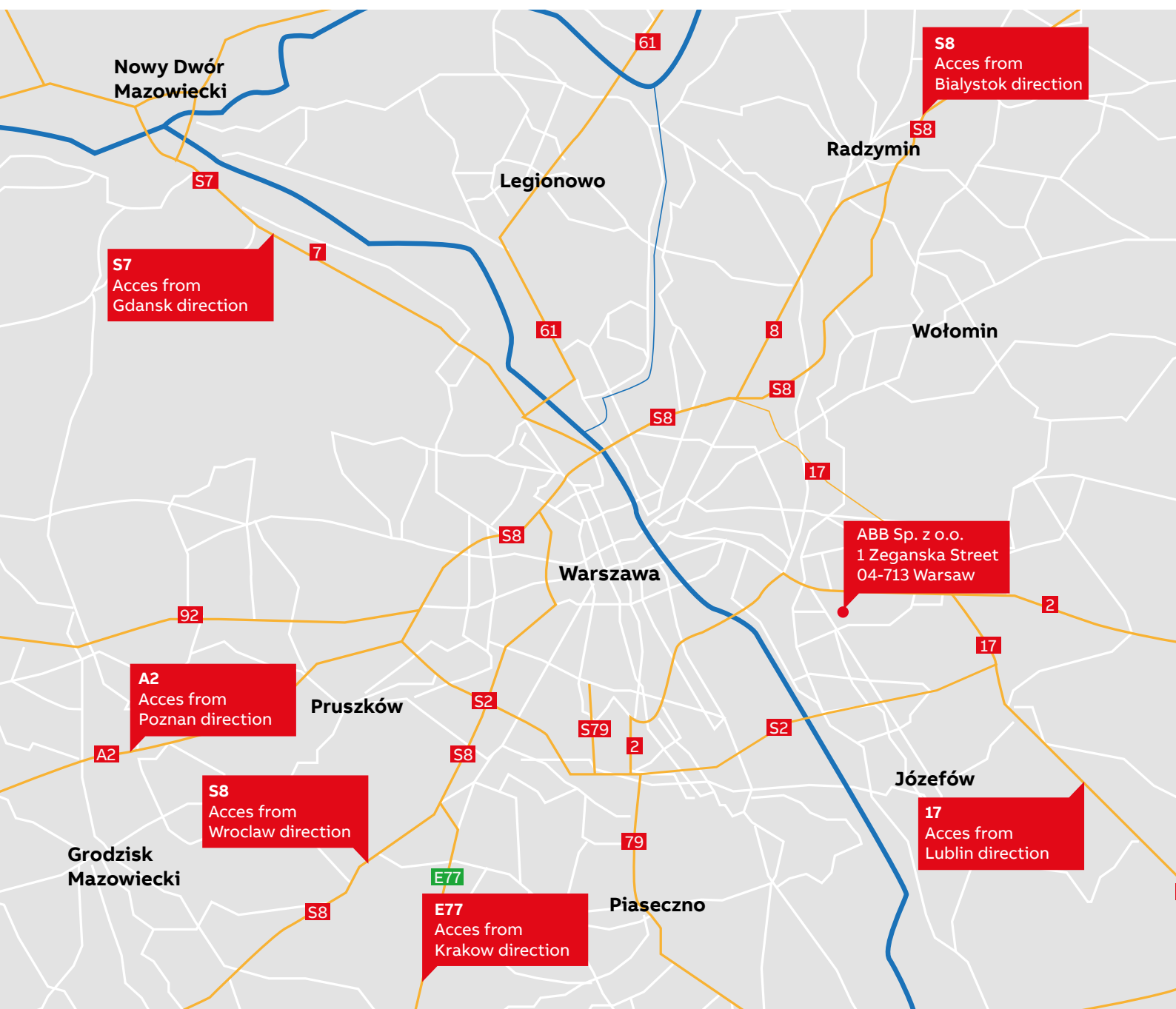
## Quotation

This information shall not be regarded as a proposal within the meaning of the Civil code. The aforementioned information may be used to fill in the training application. Detailed information concerning the price, payment terms, dates and scope of the training is included in the individual proposal addressed to a person interested.

## ABB's responsibility

ABB shall not be responsible for any personal belongings of the participants left in the ABB head office. In case of trainings conducted on the Employer's equipment ABB shall not be held responsible for the equipment used during the training.

# Travelling





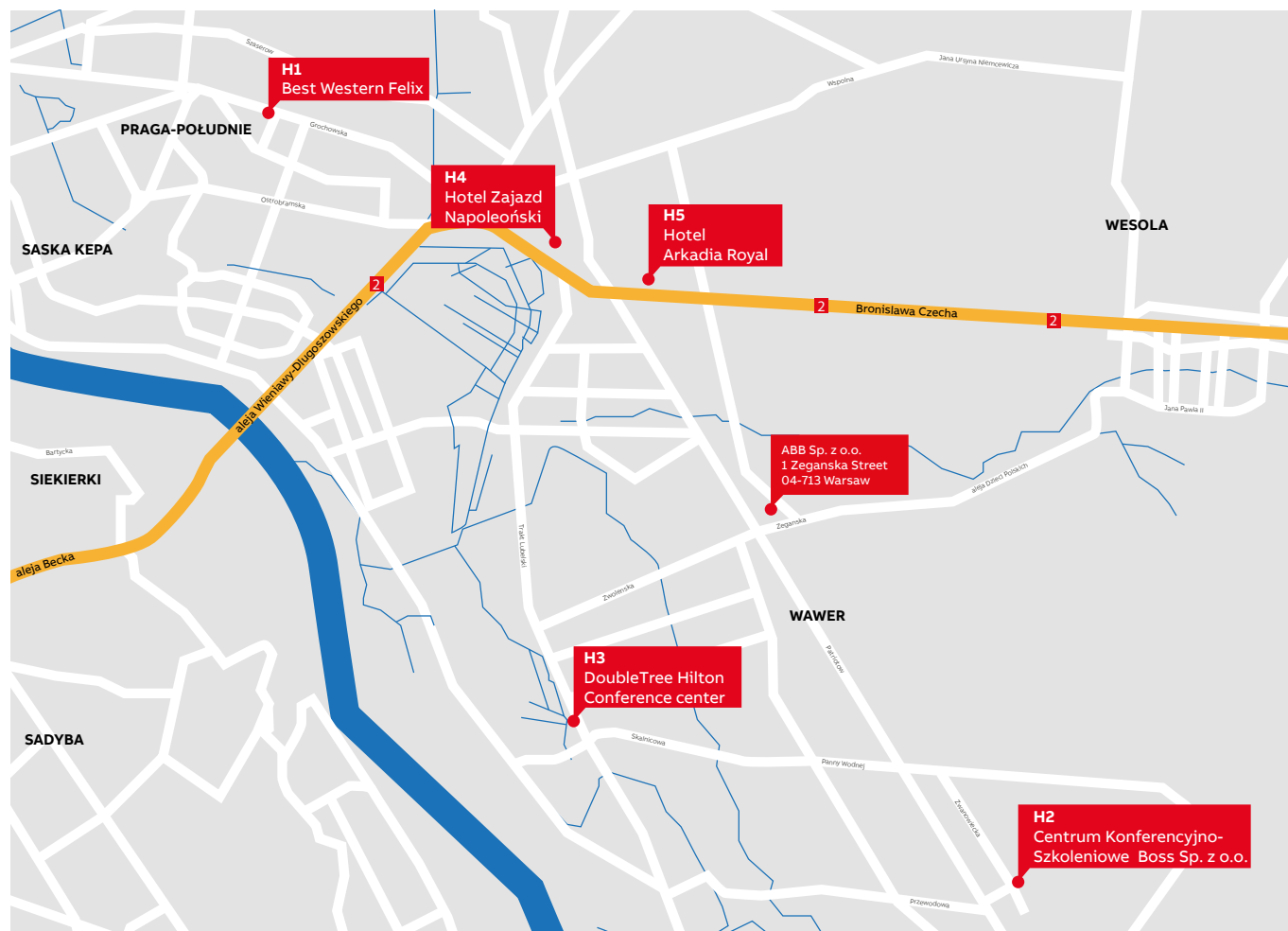
# Accommodation

## Travelling:

We invite you to the ABB head quarter in Warsaw, at 1 Zeganska street. Please register at the headquarter next to the gate and inform the security guards about the purpose of your visit. Roadmap with the location of the nearest hotels is placed below.

## Accommodation:

For your convenience we provide telephone numbers and addresses of hotels of various standards located in the vicinity of the ABB head quarter in Warsaw, at 1 Zeganska street. Participants will be responsible for booking the hotels.



Best Western Hotel Felix,  
24 Omulewska Street,  
04-128 Warsaw  
Phone: 22 210 71 50  
Mail: [repcja@bwfelix.pl](mailto:repcja@bwfelix.pl)

Centrum Konferencyjno-  
Szkoleniowe Boss Sp. Z o.o.  
20 Zwanowiecka Street,  
04-849 Warsaw  
Phone: 22 516 61 00  
Mail: [hotelboss@hotelboss.pl](mailto:hotelboss@hotelboss.pl)

DoubleTree by Hilton Hotel &  
Conference Centre Warsaw  
21 Skalnica Street,  
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