

Learning for life

Supporting tomorrow's factory automation engineers



Our principal activities include:

- Education programs: e-learning / training sessions
- Equipment support
- Assessment and certification
- Educational competitions



An educational initiative by Mitsubishi Electric



Developing tomorrow's engineering talent



Even as AI rapidly evolves, the ability to identify and solve problems will still remain key strengths for future engineers. Mitsubishi Electric, as part of its efforts to enhance these skills, has been providing comprehensive support for factory automation (FA) education through its "MECA" initiative. This includes offering equipment to universities and technical schools, supporting the development of teaching materials, conducting both online and offline classes, and hosting regular competitions where FA technology and ideas are showcased. By building on its global experience, Mitsubishi Electric continues to expand its support for current and future FA system engineers, while fostering the passion of students aspiring to be engineers and the educational institutions that support them.

MECA creates an environment that supports students on their journey to become tomorrow's engineering professionals.

Education programs

Equipment support

Educational competitions

Students / Educational institutions

- Cultivate task performance capabilities
- Enhance problem-solving skills
- Gain hands-on interaction
- Engage with front line engineers

What is MECA?

MECA stands for Mission, Experience, Communication, and Achievement. It is a comprehensive educational support initiative provided by Mitsubishi Electric, designed to nurture aspiring engineers and equip them with the skills to excel in the field of factory automation (FA).

Mission

Empowering future leaders by fostering collaboration between students and companies to create a better society.

Experience

Nurturing students' passion for learning by offering forward-thinking experiences that extend beyond traditional education.

Communication

Generating value through meaningful interactions among peers, businesses, and educational institutions in pursuit of a common goal.

Achievement

Facilitating growth through learning, problem-solving, and goal-setting, leading to impactful milestones for the future.

History of MECA activities

Early 2000s	The beginning of collaboration between industry and academia, including equipment support for university laboratories
2007	The first Mitsubishi Electric Cup FA competition is held in China and is later extended to India, Vietnam, and throughout Asia
2014	Education programs are launched in collaboration with learning institutions in Italy
2016	MECA is developed into a comprehensive education program in Thailand
2017	Equipment support begins for universities in Turkey
2020	Support is provided for a system to certify students who have completed a MECA program in South Korea
2023	The Mitsubishi Electric Cup FA educational competition is held for the first time in Brazil and Taiwan

China's Mitsubishi Electric Cup competition began in 2007 and will have been held 15 times by 2023.

The total number of facilities, professors and students who participated in the competition in China:

over 600 institutes



over 12,000 students



In recent years, the number of institutes and participants involved in educational programs in Italy has rapidly expanded.

In just two years, the number of facilities has increased 15 times.

2020 34



2022 507

The number of universities in Turkey that Mitsubishi Electric has supported with FA equipment continues to grow.

Working with 29 universities #1

46 lessons, 1455 attendees #2

#1 From 2017 to 2024. #2. As of July 2024



Voices from former students

"My journey as an engineer began when my university got hold of some Mitsubishi Electric FA components. I, along with a colleague, was entrusted with a project to create a system in our lab using these components. During this project, I met the manager of Mitsubishi Electric's FA Center, who came to our lab to provide training on PLCs and simple motion systems. This interaction became a key turning point for my future. The knowledge I gained about Mitsubishi Electric FA through the project and training allowed me to work efficiently from the moment I joined the company."



Alper Yavuz,

Mitsubishi Electric Turkey A.S., 2018 education program participant, and graduate of Konya Technical University.

"Participating in the MECA competition was the best decision of my university life. It improved my ability to learn independently, helped me build solid friendships with my teammates, and gave me a strong sense of accomplishment by winning against other talented university students"



Qin Feng Chao,

Mitsubishi Electric Automation (China), 14th Mitsubishi Electric Cup educational competition participant, and graduate of Tianjin University Renai College.

"Attending the Education Program and the internship gave me the opportunity to gain new technical knowledge, to improve and acquire soft skills and, most important, to experience the daily work. MECA gives all students important and useful skills for the transition from school to working life, filling the experience and knowledge gaps that school can't offer. In my experience, this opportunity helped me to become more confident towards technology and to improve my capabilities. My advice is to listen, to observe, to ask always questions, to interact and to be curious."



Niccolò Dimola

Mitsubishi Electric Italian Design Engineer - CEC(E)



Comprehensive support

We offer life long learning opportunities for factory automation (FA) system engineers.



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Education programs

As well as virtual showroom tours, webinars, and the provision of FA software, we offer several in-person and online learning programs developed jointly by educational institutions and Mitsubishi Electric.

These programs emphasize exposure to actual equipment and training sessions that reflect real onsite situations. As part of this initiative, we often host students and MECA participants in our FA service and support centers to view demo kits and machines. We are also offering support for universities looking to establish their own training rooms.

Online courses

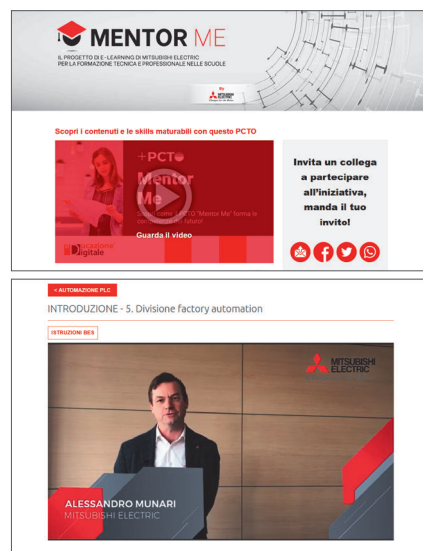
Online lessons help students to build the basic skills and knowledge required in onsite settings while working remotely. Workshops can help them apply what they have learned to real-life projects.

Offline courses

Technical training is provided globally through the widespread distribution of demo lecture kits and the establishment of regional training centers. The program, designed to enhance professional task performance, includes hands-on exercises to gain expertise in the use of Mitsubishi Electric FA components such as PLCs, inverters, human-machine interfaces (HMIs), robots, and servo/ simple motion systems.

Case study: Italy

A lifecycle-based education support program called AcadeMy is offered to high school and university students, as well as professionals. Students also receive free access to the MENTOR ME online e-learning platform, accredited by the Italian Ministry of Education (MIUR), which provides high-quality online learning content and tests.



In Italy, since 2021, the number of institutes participating in e-learning and industrial automation training, as well as the number of enrolled students, are as follows:

526 Institutes
11,966 Students

MENTOR ME e-learning program (Italy)

Educational equipment support

We offer special deals for FA components used for research and training by universities and technical colleges. By supporting educational institutes to develop engineers who can confidently use FA components, such as those from Mitsubishi Electric, we are contributing to the development of regional manufacturing industries.



Professors play an important role in the educational program

Case study: Turkey

In the Republic of Turkey, we have on average, added four universities and technical colleges to our educational program every year since the region's Mitsubishi Electric FA Center opened in 2017. Today, the facility supports 30 universities in 21 cities across the country.



Example of an FA training kit

Mitsubishi Electric has been actively working with educational facilities in Turkey.

Working with
29 universities #1
46 lessons,
1455 attendees #2

#1 From 2017 to 2024. #2. As of July 2024

Assessment and certification

A certificate is awarded to individuals who have successfully completed a MECA education program or passed a relevant examination. This verifies that they possess the relevant engineering skills needed to work with Mitsubishi Electric FA components.



Case study: South Korea

We are constantly working to ensure that certification is not only recognized within Mitsubishi Electric but also more widely in society. Lessons are regularly upgraded and examinations are held twice a year. In addition to the Basic Certificate for students, we also plan to provide Advanced Certificates for instructors and Expert Certificates for professionals.



The estimated annual participation (2024) in the Korean certification program

Examination for students:
Twice annually, 17 institutes, 200 individuals



◎ Educational competitions

Educational competitions are held in a wide range of countries around the world, from China and Indonesia to Brazil and Vietnam. The aim of the competitions is to challenge participants to demonstrate their skills and capabilities in working with FA components and concepts. Prominent engineering universities and automation associations in each country are often involved in organizing, sponsoring, and judging the event, while many local governments also offer their support.

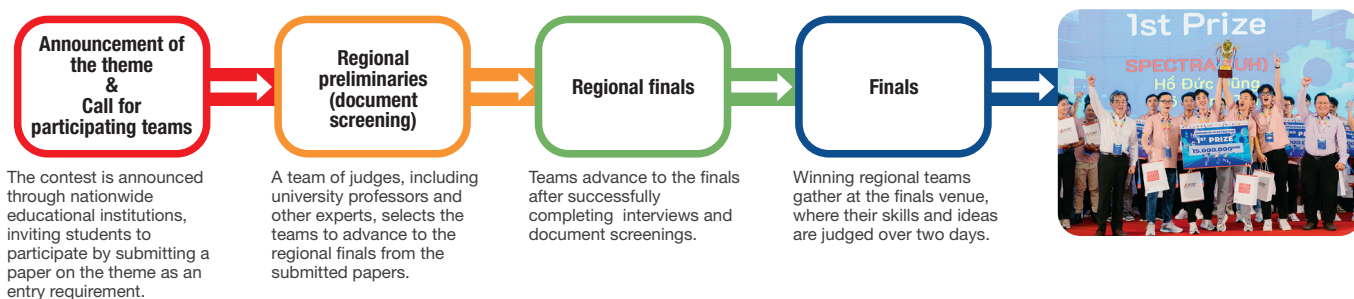
Case study: China

In China, the Mitsubishi Electric Cup educational competition has taken place 15 times since its launch in 2007. Owing to the scale of student participation, the quality of entries, and the expert skills showcased, the finals of the competition have attracted significant attention from local governments, media, and companies looking for engineers.

The competition features two categories: System Application and Creative Design. In System Application, students race to assemble a machine using Mitsubishi Electric FA components, matching the accuracy of a provided sample within a set time.

In Creative Design, students showcase innovative ideas for next-generation manufacturing, including green and intelligent solutions. Teams advancing from the preliminaries proceed to the finals, where prizes are awarded for exceptional entries.

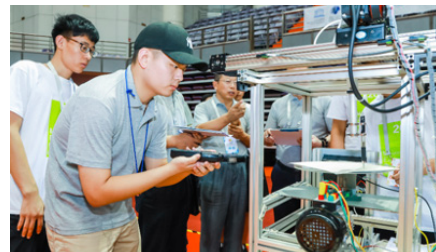
■ Flow of the contest



Example themes from previous competitions
 China : 智青春·創未來 (Intelligent Youths Creating the Future)
 Vietnam : Smart Factory
 India : Visualizing IoT Solutions for Smart Automation

■ Empowering students through engineering competitions

In 2003, before the term "smart factory" was even coined, Mitsubishi Electric introduced its e-F@ctory concept, an integrated FA and IT solution. Less than four years later, China held its first engineering competition for students to showcase their abilities in developing smart factory solutions using Mitsubishi Electric's FA products.



■ Gaining the recognition they deserve

The efforts of both the students taking part and the organizers of the competitions have justifiably attracted popular media interest, recognizing both the skill and achievements of these talented individuals.



The total number of education facilities, professors and students who participated in the competition in China:



Following the announcement of the contest and call for participants, a finals round is held after six to ten months.



1 A commemorative photo of 400 students taken before the 2023 finals in China.

2 A scene from the Systems Application finals, where teams race against time to assemble a machine with the required operational accuracy.

3 Students concentrating on their task at hand



Participant feedback

"I learned that a 'hands-on approach' is the best way to learn. The competition was challenging but also fun. If there is another opportunity, I will recommend it to other students!"

"This competition has given us a platform for producing, sharing and displaying concepts as well as competing. I am grateful for the exposure to state-of-the-art technologies and products and the opportunity to turn our innovative ideas into reality."

Feedback from a sponsor - Suzhou municipal government, China

"Mitsubishi Electric's business policy and our city development concept have some things in common, so I hope we can continue our cooperation as partners. As we support innovators and businesses on an ongoing basis, we hope future entrepreneurs will consider launching a startup in our city."

Feedback from an organizer

"I am pleased with the high standard of the competition and the variety of solutions that were proposed. In this competition of new ideas, innovative concepts were developed and many 'firsts' were achieved, with each team carefully considering how to maximize the features of our products. This marks an excellent milestone for both our company and the participants. Everyone who took part is a winner; I applaud all of you."

Detailed round-ups of two of the competitions can be found below:

Mitsubishi Electric Cup educational competition in Brazil

<https://www.mitsubishielectric.com/fa/the-art-of-manufacturing/focus/world-roundup19/index.html>



Mitsubishi Electric Cup educational competition in China

<https://www.mitsubishielectric.com/fa/the-art-of-manufacturing/focus/world-roundup18/index.html>



The global footprint of MECA



Italy

The AcadeMy Education Program provides training courses for high school and university students. In addition, MentorME e-learning platform offers high school students experience with real-world projects that helps them to acquire the fundamental skills and knowledge needed in the professional environment.

Turkey

Since 2017, Mitsubishi Electric has supported 29 universities, engineering universities, and technical colleges with FA components. Over the past four years, 4,932 students at these educational institutions have attended 122 classes that use Mitsubishi Electric FA components.

Vietnam

The Mitsubishi Electric Cup educational competition has been held every year since 2020. Out of approximately 120 teams in the preliminary round, 20 advance to the finals, where they compete against each other using a physical model and a technical paper for their entries.

Thailand

In Thailand, Mitsubishi Electric has supported the formation of various training networks and provides e-learning programs, practical trial lessons, and more. Additionally, when the Mitsubishi Electric Cup educational competition is held a dedicated knowledge-sharing community is established for participating students to promote their sustainable development.

China

The first Mitsubishi Electric Cup educational competition was held in China in 2007. This established the format of the event and a framework for it to be held in further regions.

South Korea

The Mitsubishi Electric Engineer Certification (MFEC) system is being promoted at the same level as general qualification certifications, and the Mitsubishi Electric Cup educational competition is planned to be held after 2025.

Taiwan

In 2023, the Mitsubishi Electric Cup educational competition was held for the first time in Taipei, with entries from 40 teams from universities and higher technical institutes.

Brazil

The Mitsubishi Electric Cup educational competition took place in São Paulo in 2023 for the first time. More than 60 teams applied, and 14 competed in the finals.

www.mitsubishielectric.com/fa

Mitsubishi Electric FA's Official Social Media Accounts

Providing tips to solve manufacturing issues and news on the latest trends in Mitsubishi Electric Factory Automation.

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