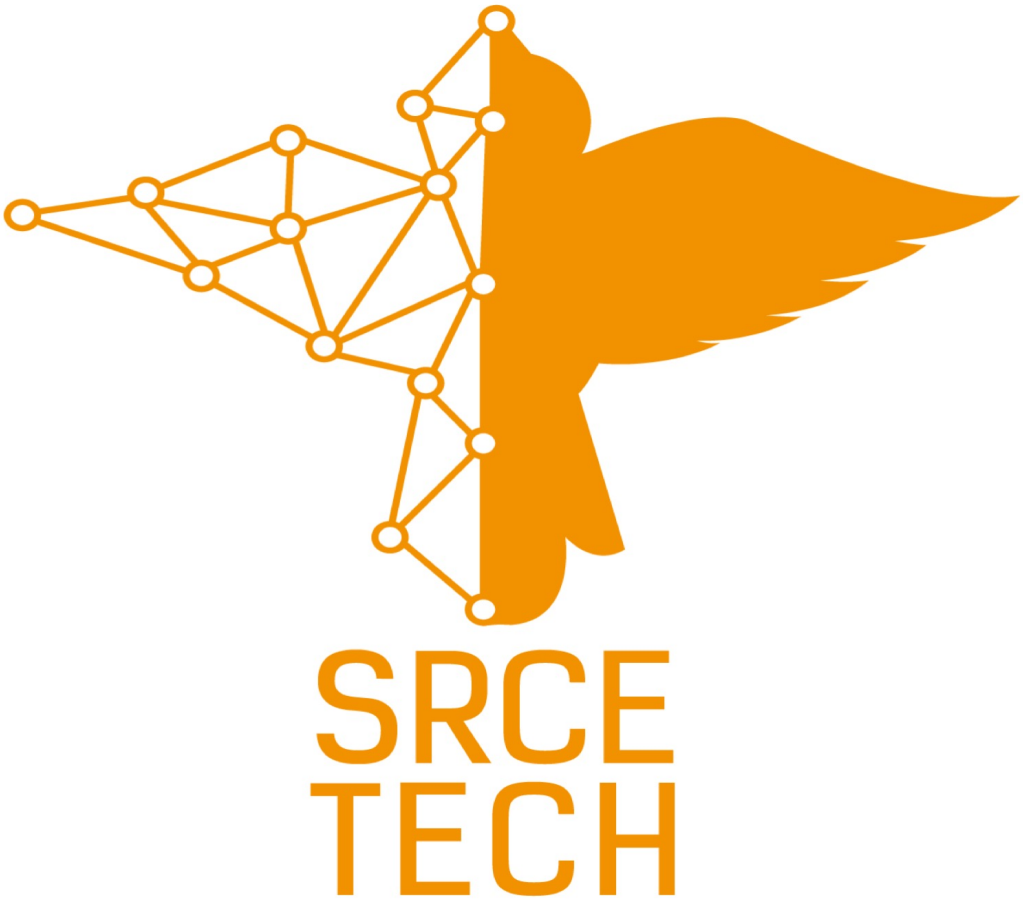

General Overview

SUMMARY

Purpose

Serçe Akademi is an educational solution designed to teach K-12 students robotics and coding from scratch. The main purpose of the system, which is designed for the use of teachers and students in schools, is to meet the content needs of the teacher and to ensure that the training process can be managed effectively.

Objectives

As Serçe Technology, we aim to increase the quality standard of robotics and coding training that you will provide in your institution with our "Serçe Academy" product. We create our content based on innovative technologies that have become a reality of our lives today and will be built on tomorrow so that you can equip your students with the skills required by the 21st century.

Solutions and Supports

- Student Guides: We offer more than 1500 original projects from 28 different courses as 70.000 pages of course documents for your use. Student guides consisting of project summaries, theoretical explanations, step-by-step design phases, step-by-step coding phases, simulations and activities eliminate the problems that students may encounter during the application phase and enable them to produce without breaking their self-confidence. Thus, teachers do not have trouble creating a fun and immersive lesson environment.

- Project Videos: In order to support the student guide of all projects within the Serçe Academy and to create an alternative in the narration, there are video narratives, starting with theoretical, intellectual information and history, explaining the production stages of the whole project in detail, accompanied by expert voice-actors and theater actors.

- Teacher Guides: These are the documents prepared for the teacher to use the lesson time in the most effective way and to get the highest efficiency from the classroom. Readiness, learning outcome, skills and suggestions are presented to the teacher with these documents.

- Annual Flow Plans: Serçe Academy has annual plans for each grade level and each course. With these 32-week plans, the events are scheduled and the learning outcomes are presented in cascading. With annual flow plans, every step you take in the training process is planned in advance and any problems that may occur are prevented. Teachers can also create personalized plans through the system.

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- Measurement and Evaluation: Serçe Academy contains 100+ badges and 12 different levels. Students who develop projects earn badges and increase their level with the points they get from the badges. With this system, which is capable of evaluating a 12-year academic process, a fun and motivating measurement is made. In addition to the achievement system, students are evaluated through midterm exams and exams and are entitled to receive certificates. Thanks to the smart student profile, students can print their performance analysis, which we call "report card", on the system whenever they want.

- Training Management Features: With Serçe Academy, you can view and edit the status of each class and each student in the annual flow, exam successes, activities and tasks. With the interactive classroom management system, you can conduct your lessons interactively, ask questions through the system and check the progress of your students on the documents. You can also upload your own training contents to the system and use them locally.

- Cloud-Based Structure: You can access the cloud-based Serçe Academy from anywhere at any time and continue learning without interruption.

- Equipment Support: As Serçe Technology, we keep all the equipments you will need during the year in our stocks, we make them into sets according to the training you will give and offer them to your use..

- Report Card: Students who have completed their training in Serçe Academy are given a report card approved by Serçe Technology and Istanbul Gelişim University, showing the training process and its results.

- Certificates and Plaques: A free certificate and a plaque approved by Serçe Technology and Istanbul Gelişim University are given to all teachers who have received instructional training by expert educators within the body of Serçe Teknoloji and who have completed the two-year process together with their students..

- Consultancy and In-Process Support: We regularly meet with our customers during the process, provide fast feedback and do not leave them alone. We provide consultancy services to the competition teams formed by teachers and share their excitement.

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Our Trainings

We divide our trainings into 7 main categories: Physical Programming, Programming, Web Design, 3D Modeling, Artificial Intelligence, Early Coding and Informatics. Under these categories, we keep the rich course content in our system, consisting of a total of 1582 projects from 28 different courses.

	Pre-School	Elementary School	Secondary School	High School
Physical Programming	●	●	●	●
3D Modelling	●	●	●	●
Programming	●	●	●	●
Web Design	●	●	●	●
Artificial Intelligence	●	●	●	●
Early Coding	●	●	●	●
Informatics	●	●	●	●
Art	●	●	●	●

- **Physical Programming**: Physical programming, which combines computer science with electronics, is a unique field for students to creatively explore digital thinking skills with the method of learning by living. Physical programming refers to communicating with physical systems and objects in the physical world using programming capabilities. Students explore how electronic equipment can be controlled by a microcontroller. With physical programming, educators can integrate activities that will increase knowledge and skills in many disciplines into their lessons. Courses offered in this category:

  - Makey Makey: Fun interactive activities are planned by establishing circuits with items used in daily life, creating various programs.
    - Recommended Age: 6+
    - Training Content: 1 Course

  - Lego Education WeDo: With Lego's ergonomic structure and easy-to-use graphical programming interface, the first step is taken towards robotics.
    - Recommended Age: 7+
    - Training Content: 3 Courses

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- Microbit: With the microbit mini computer that can be stored in a pocket, fun activities that combine many disciplines and hand skills are performed.
  - Recommended Age: 7+
  - Training Content: 3 Courses

- Arduino mBlock: The control of electronic circuits is established by block-based coding with the Scratch-based mBlock application.
  - Recommended Age: 10+
  - Training Content: 4 Courses

- Lego Mindstorms EV3: Using cognitive skills and design skills, many robot designs are made from basic to professional work.
  - Recommended Age: 10+
  - Training Content:: 4 Courses

- Lego Mindstorms EV3 Micropython: With Python-based coding, many robot designs are made using the LEGO EV3 set, from basic to professional work.
  - Recommended Age: 12+
  - Training Content: 2 Courses

- Arduino IDE: By using C,C++ based Arduino Integrated Development Interface, coding is done via syntax and control of electronic circuits is established.
  - Recommended Age: 14+
  - Training Content: 2 Courses

- Raspberry Pi: Coding is done with Python-based syntax and control of electronic circuits is established. In the studies, it is aimed to conduct advanced robotic studies using the IoT concept and ROS software framework.
  - Recommended Age:: 14+
  - Training Content: 2 Courses

- Mechatronics Projects: Products that require long-term work are produced with interdisciplinary studies that combine design, electronic and computer skills. The works are based on Solidworks, Arduino and Raspberry Pi..
  - Recommended Age: 14+
  - Training Content: 1 Course

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- **3D Modeling**: Developing additive manufacturing technologies require 3D design and simulation skills. In parallel with developing technologies, it is very important for 21st century people to strengthen design perceptions and learn the basics of 3D design. We convey to our students how to use the most functional applications of our age so that they can easily prototype and transform their ideas into tangible their products and make simulations..

  - TinkerCAD: With an easy-to-understand interface and simple tools, you can work on 3D design basics, create models and learn how to print.
    - Recommended Age: 7+
    - Training Content: 1 Course

  - Sketchup: With Sketchup 3D modeling software which has a simple interface, projects are carried out in areas such as architecture, engineering and game development that require modeling.
    - Recommended Age: 12+
    - Training Content: 1 Course

  - Solidworks: Static and moving 3D models are designed with Solidworks, which is a professional designand simulation application.
    - Recommended Age:: 14+
    - Training Content: 1 Course

- **Programming:** Coding is the whole of the commands that make a computer do what we want. When children learn to code, they learn not only cognitive skills but also problem solving steps. Learning coding, which is the literacy of our age, allows us to understand how technology is controlled instead of just consuming technology. In order to compete in the current global economy, individuals must have extensive skill sets. Courses offered in this category:

  - Scratch: Stories,animationsandgamesareprogrammedbyintroducingalgorithmlogicandcodingwithblocks with Scratch.
    - Recommended Age: 8+
    - Training Content: 3 Courses

  - Kodu Game Lab: Games are created with visual programming. Game-based learning processes are operated in all projects related to the course.
    - Recommended Age: 8+
    - Training Content: 3 Courses

- MS Small Basic: Introduction to simplified textual coding with Small Basic programming and associated IDEs.
  - Recommended Age: 10+
  - Training Content: 1 Course

- Python: Pre-artificial intelligence application development basics are learned with the easy-to-read and easy- to-write Python language, which will build the future of artificial intelligence and machine learning.
  - Recommended Age: 12+
  - Training Content: 1 Course

- MIT App Inventor:Mobile programming is done with MIT App Inventor, which allows you to easily develop android applications thanks to its drag and drop structure and libraries.
  - Recommended Age: 12+
  - Training Content: 1 Course

- **Web Design:** All studies ranging from textual websites to complex internet applications and social media applications are the whole of web design and development. Today, the earnings of digital and social media applications are expressed in billions of dollars. In the 21st century, where the main theme is to make a difference, we provide our students with web development and design skills to express themselves with products that they will develop in the digital environment. Courses offered in this category:

  - HTML & CSS: Web development is started by learning HTML and CSS, which are used to create and format the visual framework of a website.
    - Recommended Age: 12+
    - Training Content: 1 Course

  - JavaScript: Web development continues with the use of Javascript language, which has a very wide range of competence and usage, interactions and new capabilities.
    - Recommended Age: 12+
    - Training Content: 1 Course

- **Artificial Intelligence**: Students keep up with the great changes in the world with artificial intelligence content blended with machine learning and deep learning. They can model the system of their dreams and experience the technologies they encounter in their daily lives with projects such as image processing, which is the most basic example, and create original projects.

  - Mathematical Modeling: Works on a range of statistical and modeling skills required by artificial intelligence, machine learning and deep learning.
    - Recommended Age: 14+
    - Training Content: 1 Course

- Artificial Intelligence: Artificial Intelligence studies aiming the development of machines that think like humans are carried out.
  - Recommended Age: 14+
  - Training Content: 1 Course

- Machine Learning & Deep Learning: It is ensured that the computer processes and interprets this data by working on large data sets in a layered manner. Then, studies are carried out on Deep Learning, which is a subset of machine learning and differentiates in terms of requiring less intervention.
  - Recommended Age: 14+
  - Training Content: 2 Courses

- **Early Coding:** The basic logic of coding is transferred to primary school students by using or not using physical hardware, taking the algorithm logic to the forefront.

  - Twin: The student enters the fun world of basic robotics, coding, and the arts in order to grasp basic electrical circuits, improve manual skills, increase productivity and develop skills to make original designs.
    - Recommended Age: 7+
    - Training Content: 4 Courses

  - Scratch: With Scratch, stories, animations and games are programmed by introducing algorithm logic and coding with blocks.
    - Recommended Age: 8+
    - Training Content: 3 Courses

  - Kodu Game Lab: Games are created with visual programming. Game-based learning processes are operated in all projects related to the course.
    - Recommended Age: 8+
    - Training Content: 3 Courses

- **Informatics:** The use of basic Microsoft programs, which have become indispensable for all companies and institutions today, is handled with basic computer skills. Courses offered in this category:

  - Computer Usage: Basic computer usage are explained by explaining software, hardware, how computers work and the relationship between software and hardware, the student's sitting in front of the computer as opposed to the infrastructure, and frequently used programs are introduced.
    - Recommended Age: 7+
    - Training Content: 1 Course

- Microsoft Office Programs: The use of basic Microsoft programs (Microsoft Word, Microsoft Powerpoint, Microsoft Excel), which have become indispensable for all companies and institutions today, are handled with basic computer skills.
  - Recommended Age: 10+
  - Training Content: 3 Courses

- Computer Science: The way computers work, software, hardware, and the relationship between software and hardware are studied and the infrastructure is created.
  - Recommended Age: 12+
  - Training Content: 1 Course

- Safe Web: Based on the logic of the use of websites and social media, the rules that determine the correct and moral behaviors and the wrong and immoral behaviors are transferred while communicating on the harmful and useful internet. Within the framework of these rules, students protect themselves, their identities and personal information from harmful practices while learning about moral internet ethics.
  - Recommended Age: 7+
  - Training Content: 1 Course

- **Art**: In order to prevent empathy and responsibility problems with the development of skills in data analysis, algorithmic development process and scientific thinking in general, ethics and empathy teachings are carried out through arts and humanities. In addition to the methods followed in all projects, art branches are also included as separate lessons..

  - Origami: These are algorithm-based design studies, each of which is planned according to a problem solution and all based on a general story, in order to improve the basic origami art, hand skills, increase productivity and develop the skills of making original designs.
    - Recommended Age: 6+
    - Training Content: 2 Courses

  - Algorithm Based Painting: By going beyond the basic drawing rules, the student is provided to perform eye- hand coordination and creativity in a way to express himself/herself with algorithmic thinking based on problem solving.
    - Recommended Age: 6+
    - Training Content: 2 Courses

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Our Education Model

All of the content we offer is project based. With the method of learning by doing and experiencing, we aim for students to get to know the world they live in and to become a stakeholder in technology not only by consuming but also by producing. We combine our comprehensive training content with our measurement and evaluation studies. In addition to the midterm exams and exams in the system, we follow the academic development of the students with our smart assessment and evaluation system. In the model we call the Sparrow Model, we match the students with 4 metaphorical elements: Fledgling, flying bird, inventor bird and wise bird.

	Design	Programming	Physical Programming	Production	Social Skills
Fledgling	Creates simple 2D and 3D models.	Creates simple programs with basic programming techniques.	Uses basic digital, analog and electromechanical components.	Prototypes their projects with simple tools.	Interacts with friends and shares projects.
Flying Bird	Creates projects by combining 2D and 3D models.	Solves problems using basic programming techniques.	Creates projects and solves problems using sensors and activators.	Uses production techniques and creates prototypes.	Develops his/her projects by collaborating with friends.
Inventor Bird	Completes products and models using multiple models	Solves more complex problems with the advanced techniques he/she has learned.	Processes analog and digital data and provides feedback to the user.	Uses production techniques and tools to produce completed projects.	Supports the design & construction processes of his/her friends.
Wise Bird	Completes more complex projects with multiple and integrated assets and creates real world models.	Solves real world problems using high level programming techniques.	Designs automation systems to solve real world problems.	Uses standalone fabrication systems to produce complex projects.	Shares his/her knowledge with his/her environment and educates people about maker culture.

References

Some of our references are listed below.

Açı Eğitim Kurumları

Nesibe Aydın Eğitim Kurumları

Başkent Üniversitesi Özel AyşeAbla Okulları

Yükseliş Okulları

Adana ERAL Okulları

Eskişehir Şehir Koleji

Bil Eğitim Kurumları

Aşiyan Eğitim Kurumları

Büyük Kolej

Solution Partners

Some of our solution partners are listed below for reference.

Kodris

Ozaria

CodeCombat

Twin Science

Colido

3D4E

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Expert Opinions

Prof. Dr. Massoud Latifi Navid
CEO / Tulpar R&D Defense and Engineering Technologies

Teaching coding in schools enabled students to get acquainted with computer programming in younger age groups. Studies have demonstrated that this idea, which has received unprecedented worldwide attention, is of critical importance in educational and social terms. This idea will enable a pool of talented programmers to meet the needs of the labor market in the coming years, but the aim is not only to meet the needs of the labor market. Learning to code and living in computer science enables children to use digital technology to showcase their creativity. With all these planned trainings, Serçe Teknoloji aims to support the transformation of individuals from the "consumer" role to the "creative" role.

Prof. Dr. Hüsnü Dirikoğlu
Istanbul University Faculty of Engineering

Advantages commonly attributed to automation include higher production rates and increased productivity, efficient material use, better product quality, improved safety and reduced factory lead times. In the 1900s, the total working hours per working week were about 70 hours, gradually reduced to a standard of about 40 hours. Mechanization and automation played an important role in this reduction. Developing technologies directly affect production technologies and industry. The developments and changes that come with the development of technology, on the one hand, create new professions, on the other hand, they change the skills that existing professions should have. While living with concepts such as programming, automation, internet of things, artificial intelligence, and deep learning, I think that the individuals of tomorrow should definitely master these concepts and their contents. The way to achieve this is through schools where tomorrow's individuals are trained. Serçe Academy is a supportive and beneficial system for educating individuals in schools who produce and use technology correctly.

Mustafa İhsan AYBAKAR
Msc Mechanical Engineer / Aybakar A.Ş Company Manager

There is a concept that has been in our language for the last 5 years, but nobody has a clear idea about its application: Industry 4.0. In the following years, we anticipate that those who do the work will be automated systems, not people. I think the first thing we need to give to the generation that will manage these systems is to make them able to speak the same language with machines, or to teach them what can be expected from them by explaining what machines can do. In this way, I believe in the importance of robotics and coding education, especially at early ages, and I direct my 7-year-old daughter in this direction. Rather than knowing which language to use or which functions to use in coding, it is important and difficult to design the algorithm to be used. I think early coding training is a good foundation in this direction.

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Mehmet Burak Önal
Instructor / Başkent University Faculty of Engineering

Coding and robotics have become such a frequent use as "Robotic Coding"; But while the algorithmic structure called coding can be named as a new language that can match all kinds of objects; We should think of robots as a system that we use to reduce loads on humans and living things. In order to understand and communicate effectively with robots, we need to understand their language and start speaking with coding. Both are concepts that are important on their own and are shaped by the demands of the industry day by day. The science of coding and robotics, which support each other like a bird that cannot fly with a single wing, is among the things that need to be learned from a young age in order to transform the existing potential into kinetics. Young inventors should also take their place in the adventure-filled science journey in order to be familiar with this language and behavior that are intertwined at every moment of life. We need to teach the little sparrows who want to fly higher in their journey to the future, how to use their wings ... A start to the interpretation power of small engineers who want to make their curiosity research, learn by applying and discover new horizons into a joyful state, will develop with their coded robotic friends and guide the future.

Ulaş KIZILTUĞ
Education Specialist

In the last quarter century in which we have experienced a large scale industrial revolution, the necessity of education to structure itself accordingly is of great importance. I find SERCE TECH's work very correct and appropriate for our students to develop themselves and gain different perspectives on "robotic systems", "artificial intelligence" and "entrepreneurship" in a way to keep up with the spirit of the age. From this point of view, the most important benefit they offer is a structure that includes students, teachers and parents' sharers in the process in coordination and their focus on creativity while presenting this structure.

Umur DARBAZ
On-Chip System Architect / NVIDIA

The new paradigms that came with the software led to the change of traditional methods. In this process, autonomous systems established with robotic and artificial intelligence affect the world order. In order to be competitive, it is important that young people encounter these areas with entertainment and practical methods. Serçe Technology is an important step for Turkey and the future.

Tamer YILMAZ
Art Educator / Sanat Üretim Topluluğu(SÜT)

Art is discovering and creating ways to solve problems. Adding art elements to STEM-based thinking enables the use of the creative side as well as the analytical side of the brain. Thus, with this educational approach, we can train the best thinkers of tomorrow. Serçe Academy is an innovative platform that blends basic engineering skills with artistic elements.

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Tamer İNCE
Civil Engineer MSc / İncekaya Construction Board Chairman

Civil engineering; It is a profession that directly affects individuals and institutions at all levels of society. For this reason, civil engineers, like many professions, should follow the requirements of the era and always have a vision plan. When we look at the developments in the world, we see that a 600 square meter house can be produced with a cost of approximately $ 4,000 with developing printing technologies. The 2025 report of ASCE (ASCE; the American Society of Civil Engineers) also examines the developments in the 20th century and clearly reveals that the training we will receive will change with the skills we need to have in the 21st century. I think it is very important to raise individuals who constantly develop and update themselves and have problem- solving skills in order to realize this vision.

Çağatay PARLAK
Security Analyst / Barikat Cyber Securit

In our age, technology is as important as it takes up a lot of space in our lives. Especially mobile phones and computers have become parts of us that do not leave us. Therefore, wired / wireless internet access is very important for these vital devices to be functional products. Internet is today's most important communication and storage area. People often meet all kinds of social interactions through applications on the internet. They can perform all kinds of account movements with their banking applications. Security has become an indispensable issue on a network with so much data. Being a conscious user in these platforms, where all age groups are active, starting with children in their development period, should be supported by education from the youngest age and instilled into everyone. Therefore, such a useful system has very harmful aspects. Therefore, we are open to all kinds of threats in the cyber environment and we are not prepared for the exploits of these malicious users. At this point, Serçe Academy has become a very important platform for security in an applied and theoretical based cyber environment in order to raise awareness of technology age children. Thanks to the trainings of the Sparrow Academy, our children of primary and secondary school age, which are especially important age groups, will be able to become conscious about what they should not do in this vulnerable environment and how they can be protected.

Zekeriya BENGİER
International Scout Leader Trainer / Scouting and Guiding Federation of Turkey

"Learning by Doing and Living", which is the most basic principle of scouting, is an educational approach based on first-hand experience of the action result. In this approach, individuals reinforce the teachings with applications. A problem or activity is presented instead of completely telling or showing. Scouting is based on the Oba (Nomad Group) system. The Oba system is a teamwork model that enables individuals to work with their peers under adult supervision. Serçe Academy has managed to base its problem-solving structure on teamwork.

Academic Support

Within the scope of the protocol between Istanbul Gelişim University Continuing Education Application and Research Center Directorate and Serçe Teknoloji Eğitim Danışmanlık Export Limited Company, there is a cooperation regarding the Certified Training Program, Consultancy and Supervision services. The training topics and contents available on the Serçe Academy platform have been approved by the academicians working within IGÜSEM and IGU. Serçe Academy trainers' trainings are carried out jointly with IGU and joint certification is made at the end of the training.

İSTANBUL GELİŞİM ÜNİVERSİTESİ

KVKK

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