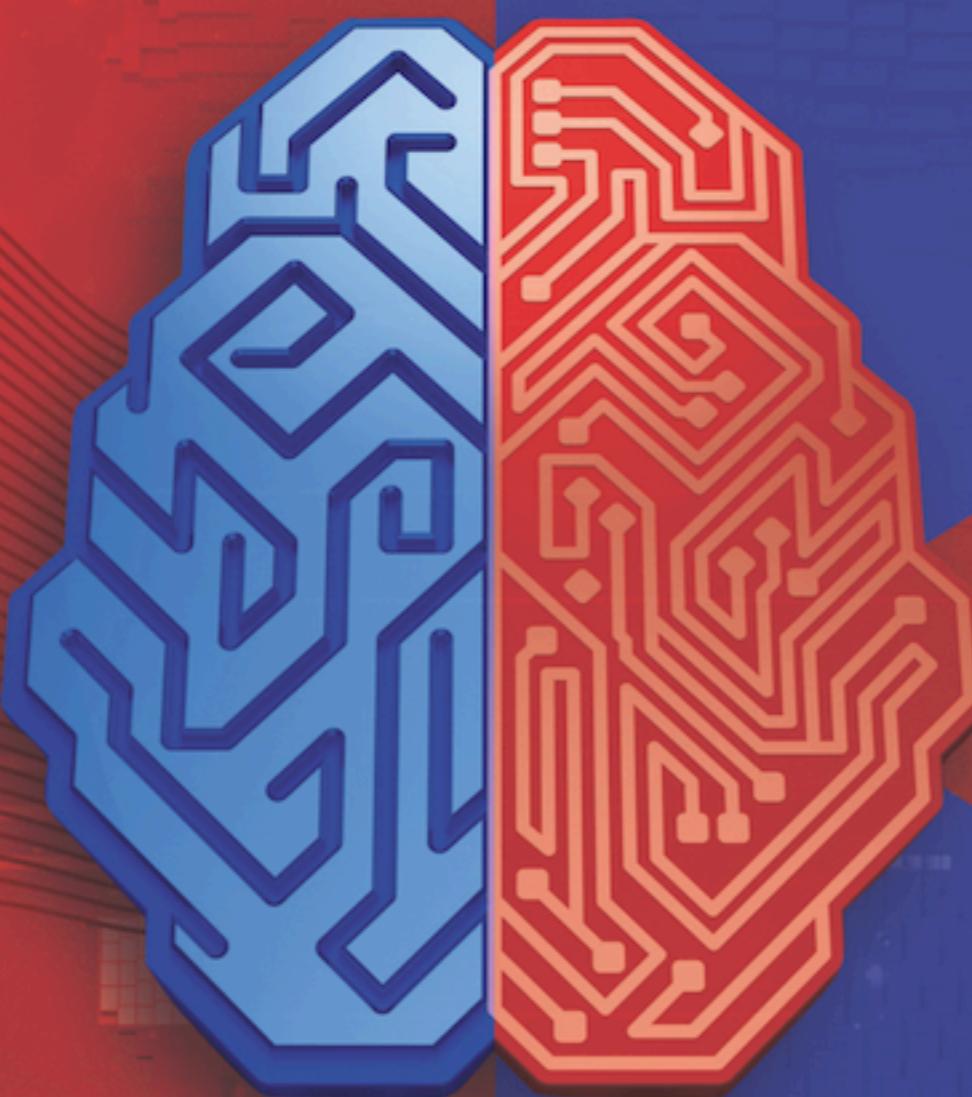


**BAHCESEHIR COLLEGE ARTIFICAL
INTELLIGENCE LITERACY EDUCATION**
“A NEW ERA IN DIGITAL EDUCATION”





BAHÇEŞEHİR COLLEGE

IS THE FIRST K-12 EDUCATIONAL INSTITUTION IN TURKEY
TO HAVE INCORPORATED ARTIFICIAL INTELLIGENCE
LITERACY INTO ITS CURRICULUM

Increasingly becoming more pervasive in our lives, artificial intelligence constitutes the core of Industry 4.0. According to World Economic Forum data, the growth of artificial intelligence is expected to create 58 million net new jobs in the next few years, and economic modeling experts project that STEM jobs will grow by 13% by 2027. Currently, there are approximately 300,000 artificial intelligence professionals worldwide. In the years to come, experts expect there to be a need for millions of highly educated people with skills in this field.

The path to increasing the number of professional employees skilled in the field of artificial intelligence begins by creating generations of learners trained in artificial intelligence literacy at the K-12 level. Bahçeşehir College believes that artificial intelligence literacy education, which is currently largely the domain of universities in our country, should actually start at a young age just like coding and robotics. Thus, Bahçeşehir College is once more breaking new ground in the field of education by providing artificial intelligence literacy education through a curriculum and lesson plans developed in cooperation with a number of international stakeholders. By being the first and only educational institution to offer artificial intelligence literacy education at the K-12 level in Turkey, Bahçeşehir College is committed to raising generations who will produce, design, and make a difference in tomorrow's world.

"Bahçeşehir College is a partner in the "AI for K-12" initiative, which is supported by the Computer Science Teachers Association (CSTA) and the Association for the Advancement of Artificial Intelligence."



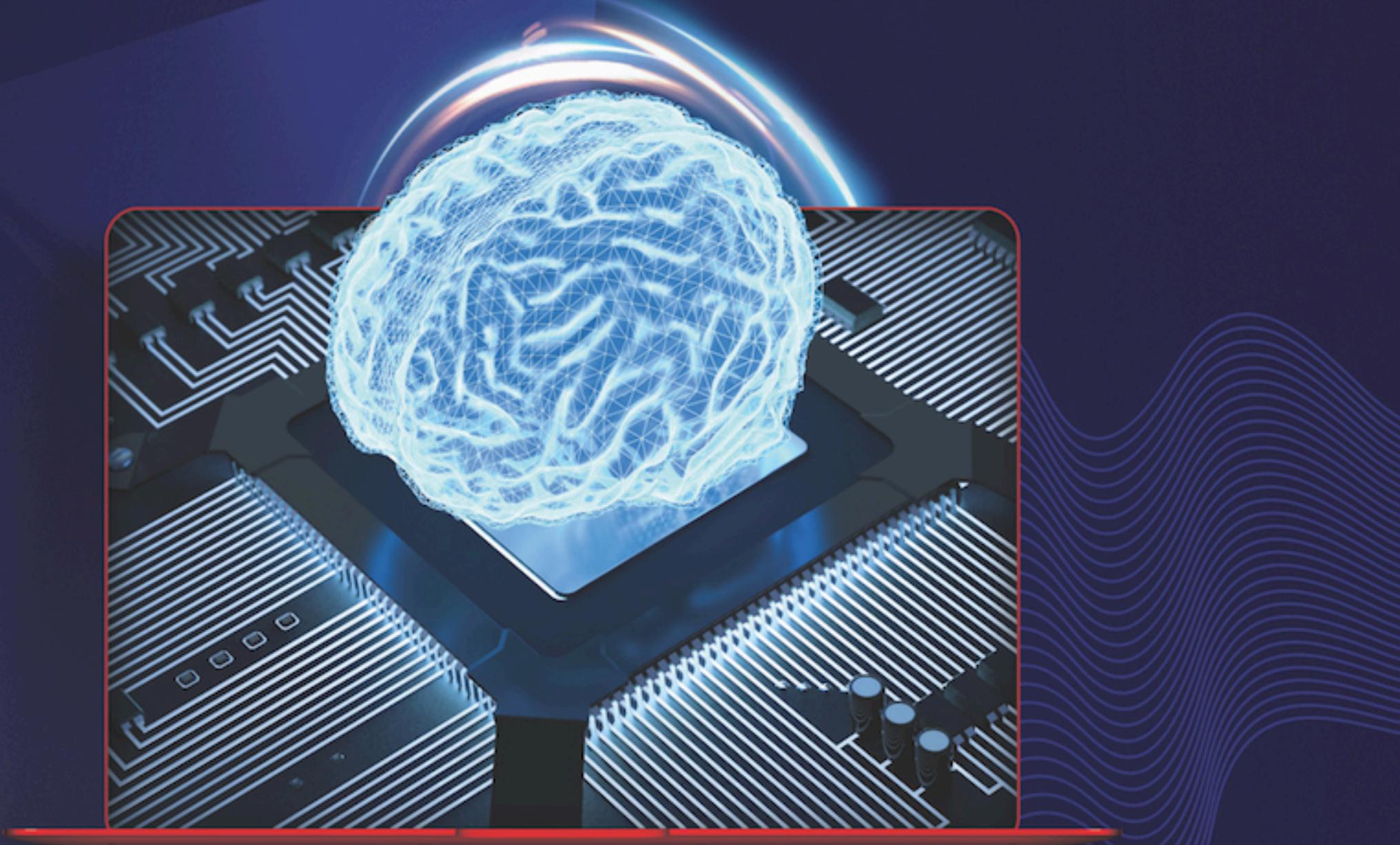
HOW IS ARTIFICIAL INTELLIGENCE LITERACY EDUCATION DELIVERED AT BAHÇEŞEHİR COLLEGE?

As information technologies progress, students at Bahçeşehir College are offered the opportunity to do all their schoolwork and explore new learning methods through innovative technologies. Through an artificial neural network technology based on artificial intelligence literacy education, parallel and distributed computing structures are included in lessons. These structures are connected to each other through networks inspired by the human brain and are composed of computing elements, each with its own memory; in other words, they are computer programs imitating biological neural networks.

Bahçeşehir College's Artificial Intelligence Literacy program, which has been developed simultaneously with other similar initiatives around the world, includes five modules, which are "Coding," "Robotics," "Design," "Game," and "Artificial Intelligence." These five areas not only provide students with elementary technical knowledge of artificial intelligence applications, but also aim to make them think and gain awareness about the ethical and social dimensions of artificial intelligence.

Artificial Intelligence Literacy education helps students;

- Improve their computer competencies,
- Acquire knowledge of perception, reasoning, psychology, and animal behavior while building perceptual robots and applications,
- Acquire knowledge of cloud services, machine learning, artificial intelligence, and other advanced technologies transforming our world,
- Realize how Artificial Intelligence can be employed to help people (by developing applications that will improve living standards for people with disabilities by coming up with new medications, intervening in emergencies, etc.), and learn about potential risks,
- Build in depth the skills of hearing, seeing, and properly responding .



DIGITAL EDUCATION AT BAHÇEŞEHİR COLLEGE

Bahçeşehir College implements digital education extensively, due to its being one of the most critical elements of the new generation of education. The learning processes and academic achievements of students are supported without time and space restrictions. Digital education is developed through in- and out-of-class applications. The goal is to improve academic and social success through rich educational content and applications that are integrated into monitoring and measurement and evaluation systems.

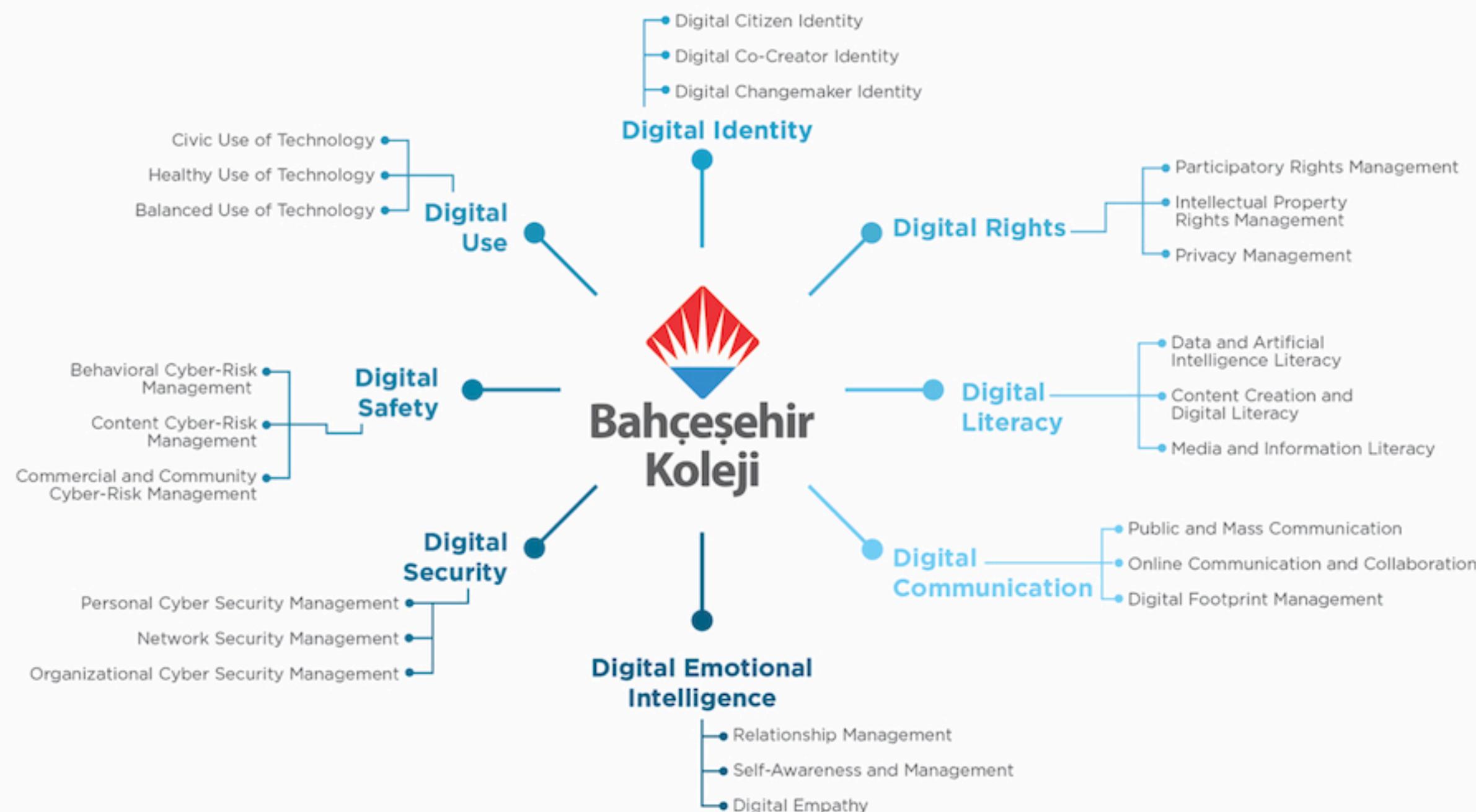
Bahçeşehir College has designed the content of its digital education programs based on the 2030 Digital Intelligence Standards by the OECD, United Nations, and World Bank, which our children urgently need to acquire moving forward. Our schools are committed to helping them gain the skills that these standards require.

BAHÇEŞEHİR COLLEGE DIGITAL STUDENT PROFILE

Bahçeşehir College students acquire the following skills through digital education that is designed to target digital literacy, skills, and readiness:



2030 DIGITAL INTELLIGENCE STANDARDS BY THE OECD, UNITED NATIONS, AND WORLD BANK





BAHÇEŞEHİR COLLEGE'S DIGITAL INTELLIGENCE GOALS:

The digital education goals at Bahçeşehir College are developed based on the United Nations 2030 Sustainable Development Goals and OECD Well-Being Indicators. The content of digital education is designed in line with the goals set for sustainable development and living standards in the 2030s. Bahçeşehir College digital education content enables students to acquire the skill of using technology in line with sustainable development goals.



DIGITAL INTELLIGENCE COMPETENCIES



| | | |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | Ending poverty around the world through the use and application of technology with digital intelligence. | |
| | Ending hunger, achieving food security and improved nutrition, and promoting sustainable agriculture through the use of technology with digital intelligence. | |
| | Ensuring healthy living and promoting well-being in one's use of technology with digital intelligence. | |
| | Achieving gender equality by empowering all women and girls to confidently and competently use technology and digital intelligence. | |
| | Ensuring inclusive and equal-quality digital intelligence education and promoting lifelong learning opportunities that adapt to an everchanging digital landscape. | |
| | Promoting technological innovations through digital intelligence to address and ensure the availability of sustainable water and sanitation management for all. | |

Using technology with digital intelligence to ensure access to affordable, reliable, and sustainable energy for all.



Applying digital intelligence to make cities and human settlements safer, more inclusive, and more resilient through the use of clean and sustainable technology.



Guiding one's use of technology with digital intelligence to take urgent action to combat climate change and its impacts.



Using technology with digital intelligence to conserve and sustainably use oceans, seas, and marine resources for sustainable development.



Using technology with digital intelligence to protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss.



Promoting peaceful and inclusive societies for sustainable development, providing access to justice for all, and building effective, accountable, and inclusive institutions at all levels by empowering communities with digital intelligence to mitigate evolving cyber-risks and threats.



Strengthening technology by implementing digital intelligence and revitalizing global partnerships for sustainable development.





DIGITAL EDUCATION OUTCOMES

The digital education program at Bahçeşehir College aims to help students develop the required age-appropriate skills. From early childhood onward, students gain a command on every aspects of digital education that is appropriate for their age group.

Computer Systems and IT Outcomes

Students learn about IT Systems, the rules of computer labs and how to follow them, ergonomic sitting positions, hardware units and their functions, how to use a mouse and keyboard, and things they should pay attention to while using technology. Once they develop the habit of following technological developments closely in elementary school, students start learning about IT Systems and digital citizenship rights and gain awareness about respecting others' rights in middle school. Also, their awareness of the measures that they should take against cyber scams is raised in middle school.



DIGITAL EDUCATION OUTCOMES

Robotics Education Outcomes

In Early Childhood Education: Students build models by following instructions using the Lego Education Early Simple Machines set. They form cause-and-effect relationships and grasp the logic behind the model they are building. They fully understand the working principles of robotic sensor and motor blocks in the Lego WeDo set, and then build and program their own models.

In Elementary School: Using the Simple Machines set, students become familiar with simple machines such as pulleys, wheel, axles, levers and grasp how they work by building four main models and working on four problem-solving activities. They fully understand how robotic sensor and motor blocks in the Lego WeDo 2.0 set work, and then build and program their own models.

In Middle School: Using the Lego Mindstorm EV3 set and exercising their imagination and creativity, students gain command of robotic systems and build their own models. Students are able to practice their algorithmic thinking skills and program the models they built by forming cause-and-effect relationships. As students prepare for the engineering process, they do several STEM activities such as building electrical and electronic circuits with Arduino and learning how motors and sensors work.



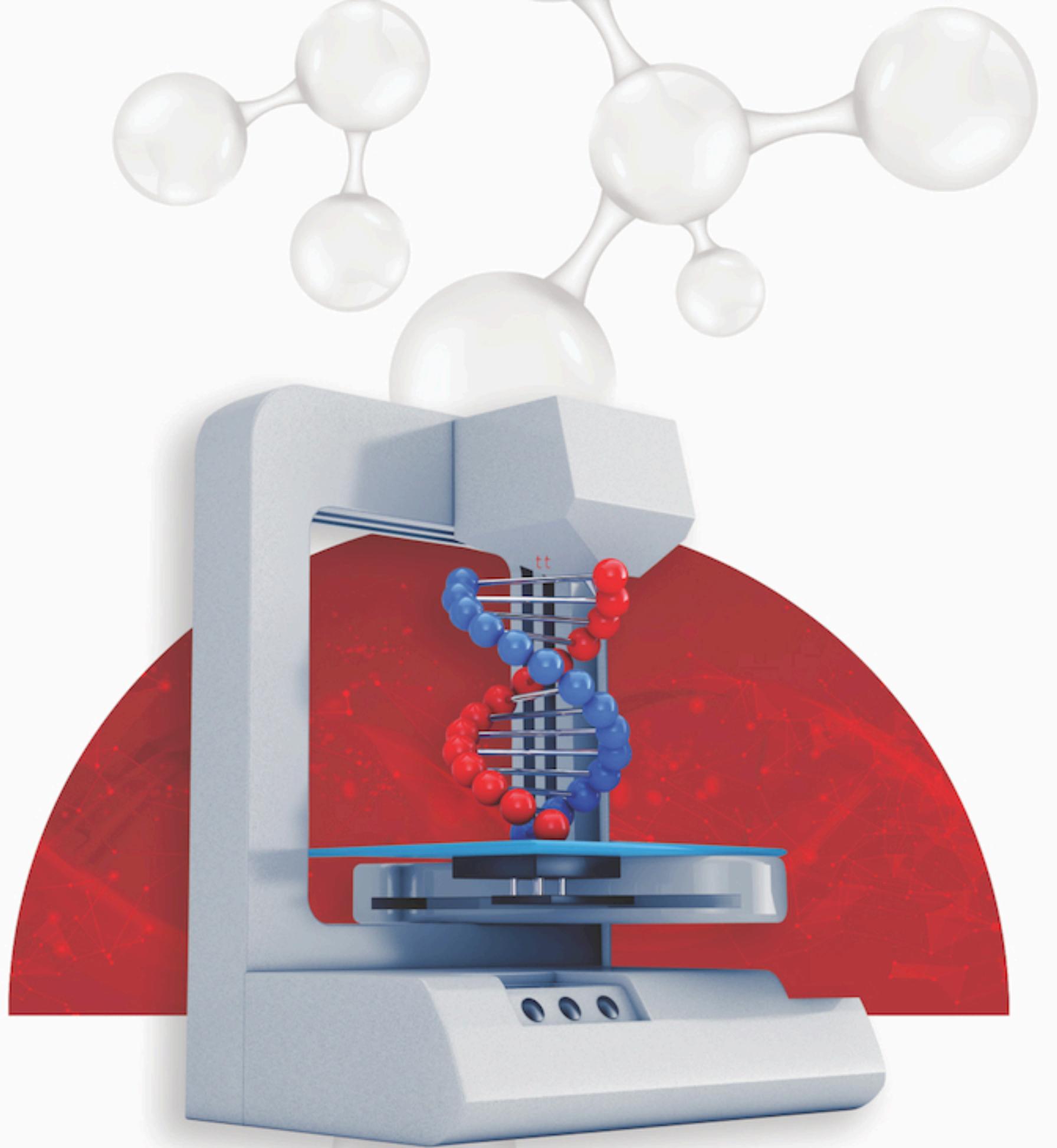
DIGITAL EDUCATION OUTCOMES

Coding Education Outcomes

In Early Childhood Education: Through coding education, students start acquiring algorithmic thinking and coding skills from an early age. They learn about action and directional commands and attain analytical thinking skills while using educational coding programs such as Code.org, Kodable, and Scratch Jr. Due to this coding education, they acquire skills in algorithmic thinking, sorting, forming cause-and-effect relationships, and moving from part to whole.

In Elementary School: With unplugged coding activities, students engage in role-playing games and improve their sorting skills through bodily learning. They learn about action and directional commands and attain analytical thinking skills using educational coding programs such as Code.org, Kodis, and Scratch. Thanks to coding education, they acquire skills of algorithmic thinking, sorting, forming cause-and-effect relationships, and moving from part to whole.

In Middle School: Students acquire algorithmic thinking and coding skills and grasp the foundations of programming. They form cause-and-effect relationships to solve problems and produce solutions by combining proper command structures. Using Microsoft Small Basic, they merge code texts to create their own programs.



DIGITAL EDUCATION OUTCOMES

Design Modeling Outcomes

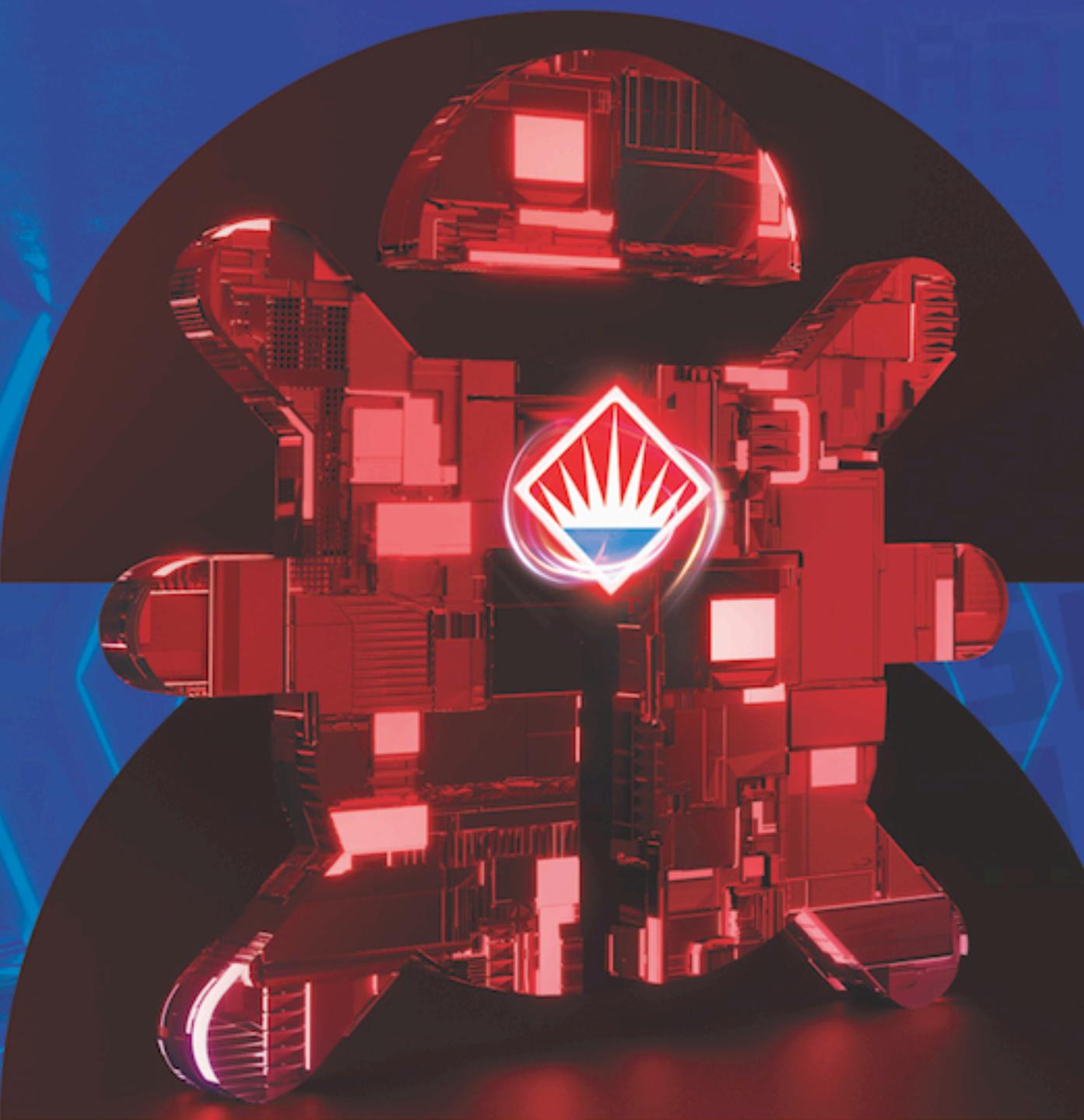
In Early Childhood Education: Through Design Modeling, students improve their imagination and creativity and create their own original designs. They produce two-dimensional designs using programs that help them develop designs in a digital environment, such as Thisissand, Abcya, Paint, and Little Painter. They have a good command of drawing and modeling.

In Elementary School: Through Design Modeling, students improve their imagination and creativity and create their own original designs. They produce two-dimensional designs using programs that help them develop designs in a digital environment, such as Paint and Little Painter. They have a good command of drawing and modeling.

In Middle School: 3D modeling allows three-dimensional visualization and alteration of objects in a virtual environment. Students improve their imagination and creativity and come up with original designs in a digital environment, thanks to assistive software such as Tinkercad, Autodesk Fusion 360, and Sketchup. They can print out their designs with 3D printers to give them physical form.

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1PLAYER
2PLAYER



DIGITAL EDUCATION OUTCOMES

Game Design Outcomes

In Elementary School: From the elementary school level onward, Game Design outcomes help students improve their imagination and creativity in a digital environment and create their own games. Students design digital games with their own rules by writing code in line with their readiness level, using the Game Lab and Minecraft Education programs. According to the requirements of the games they designed with Minecraft Education, they do programming using MakeCode blocks and develop their games.

In Middle School: Game Design helps students improve their imagination and creativity in a digital environment and create their own games. Students design digital games with their own rules in line with their readiness level, using the Minecraft Education program. According to the requirements of the games they designed with Minecraft Education, they do programming using MakeCode blocks and develop their games.



CODING AND ROBOTICS EDUCATION

CODING LESSONS LAY THE FOUNDATION OF COMPUTATIONAL THINKING STARTING FROM AGE 5

Bahçeşehir College equips digital natives of the current generation with digital skills and prepares them for tomorrow's world. Bahçeşehir College students acquire the skill to develop methods to solve problems, which not only computer engineers but all of us encounter in our daily lives. Thanks to their computational thinking skills, students have the opportunity to learn how to

- Formulate problems in a way that allows for computer-assisted solutions,
- Organize and analyze data logically,
- Represent data through abstractions such as models or simulations,
- Automate responses through algorithmic thinking,
- Identify, analyze, and implement potential solutions by achieving the most efficient and effective combination of steps and resources, and
- Generalize and transfer the problem-solving process to various other problems.

At Bahçeşehir College, Coding and Robotics Education, which aims to familiarize students with coding—the language of the future—at an early age, is designed as a part of the Computational Thinking project. The Coding and Robotics course has been developed by Bahçeşehir University professors, preschool teachers, education technologists, and computer teachers and is offered from age 5. At Bahçeşehir College, this coding course includes the modules of proper and healthy use of digital technologies, operating principles of technological devices, coding, robotics, game design, and design modeling.



CODING AND ROBOTICS EDUCATION AT BAHÇEŞEHİR COLLEGE HIGH SCHOOLS

Bahçeşehir College, which leads the development of digital education in Turkey in parallel with the education systems of leading developed countries around the world, offers courses featuring rich, state-of-the-art content and materials.

At Bahçeşehir College, Coding and Robotics Education helps students improve their computational and algorithmic thinking skills and aims to enhance their imagination, creativity, and analytical and three-dimensional thinking. To this end, 3D modeling and game design education is implemented at Bahçeşehir College high schools. At Bahçeşehir College high schools, during coding and robotics courses, students get to study in the Mechatronics/Robotics Lab, Distance Learning Computer Lab, Hyper-Class Computer Lab, Computer Networks Lab, Software Lab, Computer Hardware Lab, and Net Lab.

Robotics and Coding courses help Bahçeşehir College high school students improve their skills of

- Problem-solving,
- Bilingualism,
- Mathematical operations,
- Group work,
- Play-based learning,
- Trial-and-error learning,
- Project-based learning,
- Analytical thinking,
- Audio-visual and kinesthetic learning,
- Concrete experience,
- Abstract conceptualization, and
- Moving from part to whole/from whole to part.