



Algebra
university college

**INTERNATIONAL
SUMMER SCHOOL 2017**

**Zagreb & Zadar,
Croatia**

**GET INSPIRED
and join**

**the most INNOVATIVE
summer program
in Europe!**



Algebra
university college

19

years in digital technologies

30

career programs

10

years in higher education

140

faculty members and experts

4

undergraduate study programs

250

trainers

5

graduate (master) study programs

3000

students annually – career programs, courses, undergraduate, graduate and MBA programs

+30%

annual growth of freshmen in computer science

94%

of graduates employed six months after graduation

The best Croatian professional higher education institution

The **University College** is a part of the **Algebra education group**, the founding institution which has been operating on the Croatian market for almost **20 years** and has remained the leading educational centre in the region for computer engineering and digital technology. Today, the University College carries out four undergraduate professional programs and five graduate professional programs:

Undergraduate professional program BACHELOR	Software engineering
	System engineering
	Multimedia computing
Graduate professional program MASTER	Digital marketing
	Software engineering
	System engineering
	Multimedia computing
	Digital marketing
	e-Leadership MBA

WHAT MAKES US DIFFERENT?

- ✓ Our students acquire knowledge necessary for rapidly growing industries that are based on digital technologies
- ✓ We develop programs according to the needs of employers and technological development
- ✓ We are proud of our *Labos*, the first professional gaming studio in the Southeastern Europe



The best professional study program

CERTIFICATES



We offer professional study programs of the highest quality in Croatia according to the results of the evaluation of the quality assurance system carried out by National Agency for Science and Higher Education — ASHE.



We are the only professional study program whose quality is continuously evaluated by FER and we have met the requirements for certification ever since 2009.

Microsoft Partner
2014 Partner of the Year Winner
Learning

We are the best educational organization in the world among 3,200 organizations evaluated by Microsoft!



The "eSkills for Jobs" initiative encourages the development of ICT profession in the EU and the DigitalEurope organization has entrusted us with the implementation of their project in Croatia since 2012.



We are the only institution in Croatia that has met the quality criteria of the Dutch-Flemish accreditation agency NVAO.

OUR PARTNERS

Algebra University College cooperates with renowned higher education institutions, as well as 60 others designated on the map:



Algebra University College is a member of the most renowned academic IT initiatives:



Microsoft® IT Academy
Program Member



Introduction

At **Algebra's International Summer School**, we believe in quality and efficiency of teaching, great programs, great teachers and the best experiences in **Croatia – the greatest European country to spend your summer.**

If you want to learn about digital marketing strategies and user behavior, figure out how digital is transforming the way we live and work, how to develop mobile applications, all about data security or 3D animation and game design, maybe learn about the “dark side” of security and how to use “the force” the right way, you have come to the right place!

Welcome to the Summer School for international students in Europe!

By accepting the certification and the newest technology as our guidelines, we have consciously taken the obligation to constantly upgrade and adjust our courses and educational program with the demands of the industry. However, it is not about a race with technology, it is about identifying and predicting global technological and business trends which have shaped global labor markets and will continue to do so in the future.

All work and no play makes Jack a dull boy!

Our Summer School program is anything but boring, it's more than lectures and workshops – you'll have time to meet outstanding and ambitious colleagues as we share the magic of Croatia with you. We want to introduce you to some of Croatia's world-renowned places and its rich cultural and natural treasures. The program offers a fantastic summer experience in the cities of Zagreb and Zadar and enables the participants to explore the rich cultural and historical heritage of Croatia.

Don't worry, you will have fun while staying in Croatia. At the end of June, the INmusic Festival is taking place in Zagreb and the party capital of Croatia, Zrće Beach, is only an hour drive away from Zadar.

Make your summer 2017 unforgettable! Join us at the best summer abroad program in Europe!

Let's create digital future together!

***Algebra International
Summer School Team***

3 WEEK COURSES
6 ECTS/ 3 US credits

Digital marketing

Digital transformation

3D animation & simulation

Mobile application development

Robotics programming

Cyber security

Digital data in marketing

Game design

ADDITIONAL WEEKLY WORKSHOPS

Financing early stage startups

Smart cities

Critical thinking & creativity

Digital marketing

— NEW WAYS OF COMMUNICATION

The course will introduce students to digital marketing strategies and user behaviour, from content marketing, search, social to analytical tools used to track the success of digital campaigns.

The digital revolution completely changed the way organizations approach their core business from creating products and services, managing customers to marketing and sales. Digital platforms introduce new ways of communication with end customers allowing companies to tailor products and services to customer's needs in a more agile manner.

In a way, digital marketing changed traditional marketing, making it fast, more precise, real-time and data driven. The tools marketers use every day allow us to execute digital campaigns targeting audiences across the world much more efficiently and with smaller budgets than traditional marketing.

In this course, we're going to examine the basic concepts of Digital Strategy, starting from understanding the company business model, product, customer, market and business goals as well as how to accomplish their marketing goals on digital platforms.

The topics covered by the Summer School are:

- Buying Personas, Buyers Journey, Consumer Micro moments: understanding the consumer
- Digital Marketing Essentials: cross-platform communication, goals and metrics
- Web optimization – elements of efficient landing pages, optimizing purchase funnels, creating useful content, user research techniques SEO
- Advertising on Google AdWords – SEM, Google Display Network, Mobile Advertising
- YouTube advertising
- Measuring Success with Google Analytics
- Social Media Channels
- Digital Strategy essentials – how to position brand on digital channels

**No.1
COURSE**

**6 ECTS/3 US
CREDITS**

During the course students will acquire Google AdWords and Google Analytics Certificates



**INNOVATIVE
CROATIA**

***Inventor of PARACHUTE
Faust Vrančić
(1551–1617)***



INNOVATIVE
CROATIA

Inventor of **DOUBLE
ENTRY BOOKKEEPING**

Benedikt Kotruljević
(1416–1469)

Digital transformation

No.2
COURSE

**6 ECTS/3 US
CREDITS**

— NEW BUSINESS MODELS

In this course, you will get insights into how “digital” already transformed the way we live and work and how it will keep transforming it in the future.

Digital transformation is not about automation and digitization of existing business processes, it is rather a creation of innovative, digital processes and new business and operational models.

The course will provide insights into digital economy driven customer expectations and needs, like contextualized interactions, personalized services, seamless experience across channels (omni-channel), transparency, constant availability, peer reviews and advocacy and ways to address those with innovative digital business models.

The course will provide an overview of digital technologies like Mobile, Cloud, Analytics and Big Data, Internet of Things, blockchain, software intelligence, artificial intelligence and more importantly the way

they are being used in digital business models and the way they can improve digital business processes. The course will review the scale of changes that the digital transformation has caused in different industries on several use cases and work on anticipating changes that will come next. Several business modelling techniques will be introduced through “hands-on” approach.

The objective of the course is to provide you with basic understanding of business process modelling, detailed insights into digital business processes and digital business models, common technologies and approaches used, as well as understanding of typical obstacles.

3D animation & simulation

— FROM THE VERY BASICS TO RAW FOOTAGE VIDEO MATERIAL

In this course students will learn the very basics of animation and expand their knowledge of mechanical animation by creating dependencies and simulation.

Since animation should be viewed as a sequence of moving frames, students will grasp the basics of materials and textures, lighting and rendering in order to get the final product, ending in encoding raw footage into any video format they choose. This will enable them to quickly and easily showcase their work and once again test for any flaws and areas of change through real time playback.

The course is designed to introduce students to the field of animation by giving them a broad knowledge of key frame animation and the way it is blended together with or without user involvement. The course will continue to elaborate on certain dependencies between objects, hierarchies and links that are commonly used to relate objects to one another in order to animate just one object and influence others.

The entire process of animation will look into animation as a form to influence an object or multiple objects, but at the same time as the impact that

one or more objects make on simulated objects whether students simulate particles, any form of cloth material or rigid models that do not alter their shape within a simulation. The knowledge given will further expand on the dependencies of animation and simulation, the effects we encounter and common problems that are solved by good preparation and execution.

Further efforts will be focused towards animating the modelling process as a way of showing how things are made or created, and to further provide animation solutions to models in scenes. Following the model animation, students will be guided to break things apart simulating real life scenarios and the way things are destroyed as a visual effect. Advanced techniques and parameters, trajectories and deflection, collisions and morphing will also play a high role within the course but with a simplistic approach and goal oriented work. Results will show the ease of use even in complex areas such as animation and simulation.

No.3
COURSE

6 ECTS/3 US
CREDITS



INNOVATIVE
CROATIA

Father of DACTILOSCOPY
— fingerprinting as a method
of identification

Ivan Vučetić (1858–1925)

Mobile application development

No.4
COURSE

**— FROM IDEA
TO CREATION**

6 ECTS/3 US
CREDITS

The use of mobile technology is an opportunity to expand customer relationships. Mobile phone is always on, always at hand and knows where you are. Mobile phones are a useful tool that adds value. The industry of mobile applications definitely has a prosperous future.

The course is focused on preparing participants for independent work and further learning. After successful completion of the course, participants will be able to implement applications that use dialogs, menus, user preferences, background services, sqlite database, google maps and location services, web services, phone and SMS features.

Android application development course is performed in Java programming language and is carried out in Android Studio integrated development environment using Android emulator. Hence, its requirement is basic knowledge of programming

and Object-oriented paradigm (Encapsulation, Inheritance, Polymorphism, Abstraction), but it is not restricted to Java programming language.

The course starts with the presentation of the Android architecture through Android Software Stack, basics of Android Operating System and Virtual machine used in emulator. Further, it is concentrated on basic components to implement scalable Android applications (Activity, Service, Broadcast Receiver, Content Provider and Intent). All the building blocks are covered in great detail with many examples and variations in layout presentations.



**INNOVATIVE
CROATIA**

m-Parking
— 1st global mobile parking
payment system

Infoart group

Robotics programming

— LEARN TO PROGRAM ROBOTS ON ARDUINO PLATFORM

The aim of the course is to train students so they are able to independently program automatic robot actions like approaching, recognizing and avoiding obstacles, as well as program Arduino platform for autonomous movements like following drawn line on the floor.

Robotics is an interdisciplinary branch of engineering and science that includes mechanical engineering, electrical engineering, computer science, and others. Robotics deals with the design, construction, operation, and use of robots, as well as computer systems for their control, sensory feedback, and information processing.

Robotics programming course on the Arduino platform is performed using Arduino robotics kit. The robot consists of two DC motors, batteries, infrared and ultrasonic sensors and Arduino Mega platform. Programming is done within Arduino development environment Arduino IDE using programming language which is very similar to C++ programming language.

Prerequisite is basic knowledge of programming in the C or C++ programming language.

Since the robot is a set of electronic parts, in the introductory part of the course, students learn basic knowledge of electrical engineering, which is later needed to connect certain components of the robot (motors, sensors) to the Arduino platform.

Students will learn how to program Arduino platform in order to control robot engines, read the value of the collected infrared or ultrasonic sensors and control the robot via wireless (RF or Bluetooth) communication.

No.5
COURSE

6 ECTS/3 US
CREDITS



INNOVATIVE
CROATIA

Farmeron

Running US Dairy Farms
on Croatian Software



INNOVATIVE
CROATIA

*Precursor of atomic
theory and contributor
to astronomy*

Ruđer Bošković
(1711–1787)

Cyber security

No.6
COURSE

6 ECTS/3 US
CREDITS

— THE FORC3 IS STRONG WITH THIS ONE

**Get to know the “dark side” of security and how
to use “the force” the right way.**

***In this course, the students will learn how to use their computer without exposing
it to most of the threats lurking outside, whether this is simple Internet browsing,
“innocent” usage of publicly available Wi-Fi, or usage of “secure” corporate network.***

Cyber security is an ever-evolving field with opportunities waiting for everyone with the interest to learn more and develop their skills in this interesting and demanding topic. This course will show the basic steps most of the hackers would go through while compromising the victim's computers and it will define some interesting known and less known attack vectors and protections against them.

Students will not only have a chance to compromise many vulnerable machines by using different attack vectors, they will also gain knowledge that will help them protect their computers and networks against

the attacks covered in this course. The course will also cover some of the latest attacks and methods used in the wild.

The prerequisite for this course is the understanding of the basics of operating systems, network and web applications. Nevertheless, the important concepts will be delivered during the class as a refresher. Everyone brave enough to step into this class will be rewarded with knowledge that is heavily sought after not only in military/government sector, but also in any security aware corporation/company.

Digital data in marketing

— DEFINING AND UNDERSTANDING DATA-DRIVEN MARKETING STRATEGY

Course participants will use selected popular API's and understand how to use this kind of data/service in marketing focusing on defining and understanding data-driven marketing strategy.

Today's market activities are permeated with various technology services. Although companies are becoming more and more ready to adopt all those service researches still point out that: almost half of companies do not use centralised database to track and analyse their marketing campaigns, almost two-thirds do not use analytics to guide marketing campaign selection, almost two-thirds do not use enterprise data warehousing to track customer interactions with marketing campaigns, almost two-thirds do not use integrated data source to guide automated event-driven marketing or almost two-thirds do not track-back marketing campaigns to calculate ROI.

In order to better understand (and be able to create) a data-driven marketing strategy, several digital data metrics will be introduced through this course grouped in several topic groups for better understanding. Analyzing steps from strategic objectives

definition, understanding “yourself” and “customers”, segmenting customers, executing marketing campaigns, building trust and keeping score, participants will walk through digital marketing cases and success stories.

As a special part of modern marketing, the session will also introduce available technology upgrades by using different techniques for analyzing unstructured data. Various capabilities today enable us to upgrade the end user interaction with different surrounding and devices, and securely provide comprehensive user data to market participants. Between other capabilities, as the most interesting ones, we can point out: gesture recognition, user awareness, facial analysis and action recognition. Those capabilities are/can be applied in different industries like: smart home, automotive, consumer electronics VR&AR or robotics. With the ability to analyze unstructured data, new service level can be unlocked.

In this course we will discuss several API's with special focus on Google Cloud Vision API and Microsoft Computer Vision API. Those services can provide insights like image analysis, celebrity recognition, analyze videos in near real-time, read texts from images, generate photo thumbnails, detect inappropriate content, provide image sentiment analysis, logo/brand detection, landmark detection, etc.

**No.7
COURSE**

**6 ECTS/3 US
CREDITS**



**INNOVATIVE
CROATIA**

**Inventor of MECHANICAL
PENCIL AND FOUNTAIN PEN**

**Slavoljub Penkala
(1871–1922)**



Game design

— CYCLICAL APPROACH TO DESIGN DEVELOPMENT

No.8
COURSE

6 ECTS/3 US
CREDITS

The course will tackle common challenges, obstacles, use best practices and solutions for designing games from a visual standpoint, while keeping focus on in-depth insights where color represents emotion, word becomes story and we become characters.

Whether we started gaming with Pong or Nokia snake, as technology progressed and platforms evolved, the design impact in games provided a brand new and wide canvas with a new palette of colors, choices and emotions.

The course starts by designing a narrative for a game, which is one of the main key points in the entire process from the main storyline, secondary and tertiary storyline, scripts and emotional context, choices between guidance and exploration, tailored pacing or endless freedom, emersion through details and impact, to genre, flare and connection.

Defining a direction in a creative and artistic sense, along with product placement, audience, media of play, platforms, rewards/achievements, genre considerations, player challenges and gameplay

difficulty, presents a unique approach to solutions that often seem simple in the eyes of the player. We differentiate the design of the word, mechanics, content, characters and level design, along with the user interface and user experience as a whole, together with the audio design and its look and feel.

When continuing to discuss game design, we can't shy away from the business side of things, which is often connected with design when requests for change and room for improvement appear as market and strategy demands. In the end, from its early adoptions, iterations and merchandising, the design must be ready to respond in a manner suitable to sustain a game narrative, direction and connection with players.



INNOVATIVE
CROATIA

SERIOUSO SAM

Award winning game
developed in Croatia by
CROTEAM

Additional **FREE** WEEKLY WORKSHOPS

Financing early stage startups

*How startup funding
and investing works*

Early stage startups often risk falling into the funding gap. Learn to understand and prepare yourself for if and when the time comes for pitching your project to funders (friends&family, venture capital, business angels, crowdfunding, banks, public funds, co-founders, employees) and have much better chance of success in securing the funding of your startup.

1st
WEEK

**All students can participate in
additional free workshops and earn
up to 3 ECTS/1.5 US credits.**

Smart cities

*Interactive education about the Smart city
phenomenon from the technology perspective*

Get to know the ICT market in general, focus on major players in the Smart city business and discuss key roles in the ecosystem. Smart city concept is going to be presented in detail, describing starting point, technical foundations, project architecture and deliverables. Best practice review will follow as an answer to all questions, based on real-life examples and known ongoing cases for future study.

2nd
WEEK

Critical thinking & creativity

*How to apply creative analytical
techniques aimed at raising the
level of creativity and innovation
in marketing*

Apart from generating a pool of innovative ideas, creative analytical techniques will help students solve business problems in a new and constructive way. They will enable students to apply basic concepts of critical thinking and logical reasoning aimed at reducing the impact of irrational and subjective reasoning, biases, fallacies, and heuristics in making inferences and business decisions.

3rd
WEEK

Quick facts — APPLICATION

APPLICATION

The Summer School application process is carried out online. Applications are reviewed on a rolling basis, once you submit your application the admissions team will contact you to schedule an online interview. Applications must be submitted before June 2nd 2017. Places are limited, so make sure to apply on time.

STUDENTS PROFILE

Highly enthusiastic and motivated students interested in the field of technology, applied science, social sciences and humanities as well as students who aspire to personal growth and effective start of their career.

DATES

June 18th – July 8th 2017

LANGUAGE OF DELIVERY *English.*

The Summer School Program is intended for students with at least a pre-intermediate level of English and is not suitable for beginners or students with elementary level of English.

APPLY FOR SCHOLARSHIP

Check out all of the scholarship opportunities @:
summer.algebra.university

TUITION FEES

	One course	Additional course
Full Tuition Fee	1500 €	600 €
Early bird Tuition Fee*	1275 €	500 €

** for students enrolling before April 30th 2017*

- Students will be awarded 6 ECTS/3 US credits per course.
- You can take additional course from the list, but be aware of a possible time consumption. If you are eager to learn more you can benefit up to 12 ECTS/6 US credits.
- Ask for information about special prices for groups and partner universities.

summer.algebra.university



The Tuition Fee also includes:

SOCIAL PROGRAM

Zagreb & Zadar day trips and historical sightseeing, InMusic festival in Zagreb; Zrće Beach (Island of Pag)

CULTURAL VISITS

Memorial Nikola Tesla, Smiljan; National park Paklenica; Museum of Illusions, Zagreb

3 ADDITIONAL WEEKLY WORKSHOPS

(Financing early stage startups, Smart cities, Critical thinking & creativity)

ACCOMMODATION

**Recommended
price = 500 €**

Accommodation is NOT INCLUDED in the tuition fee. The price for accommodation during a three-week Summer School course is approximately **500 EUR** if you stay at **Chillout Hostel Downtown Zagreb** and **Boutique Hostel Forum in Zadar**. All spaces facilitate student life to the fullest and allow students to live a unique experience. Both hostels are modern with urban design and are located in the heart of Zagreb and Zadar.

We recommend you book your accommodation before April 15th.



**BOUTIQUE
HOSTEL
FORUM**

chillout
hostel zagreb downtown

If you do not wish to stay at the hostel, you can alternatively look for private accommodation on your own. The University College will be happy to assist you in the process of finding a flat by providing helpful links to various rental agencies that offer short-term apartment rental.

The University College holds no responsibility in finding and/or arranging private accommodation. This is solely up to you.

Prices of private accommodation in Zagreb vary depending of the city area, size and amenities that apartments include.

The Algebra University College cooperates with **HomeinZagreb Agency**. You are welcomed to send your inquiry through **www.homeinzagreb.com**, or any other accommodation provider.

Home
in ZAGREB

Croatia – your live and learn summer destination

Croatia is one of the sunniest spots in Europe

You should expect 12 hours of sunshine a day in June and 13 in July. More than 10 million people choose Croatia for their holidays.

Croatia is the home of the tie, automatic pencil, parachute and other inventions which have transformed human existence, several of which are used in everyday life... Croatia is also the birthplace of Marko Polo, Nikola Tesla, and many more outstanding individuals.

Beautiful nature
Spectacular beaches and soaring mountains
Amazing historical sites

Incredible summer festivals
Quirky museums



Croatia – a small country of World's Greatest Technological Innovators

Aside from the beautiful coast and great cultural and historical heritage, Croatia has been recognized for innovation, global reference projects, export of the best business-technological practices, as well as great professionals recognized for their skills and expertise all over the world.



INNOVATIVE CROATIA

Nikola Tesla (1856–1943)
THE MAN WHO INVENTED THE FUTURE

Inventor, electrical engineer, mechanical engineer, physicist and futurist best known for his contributions to the design of the modern alternating current (AC) electricity supply system and alternating current motor.



City of ZAGREB

Zagreb, one of the oldest European cities, is not only administrative, but also economic, diplomatic and cultural capital of Croatia, with a population of almost one million.

It is also a university center with forty higher education schools and over 40,000 students, a city that is proud of its long history of education: the first secular city school was built in the middle of the 14th century, the first secondary school was founded at the beginning of the 16th century and in the second half of the 16th century, Zagreb had its first university.

Zagreb is a city of science and culture. The city has approximately fifty museums and galleries, as well as private art collections and about twenty theatres and music venues. Many open-air events and exhibitions are organized from spring to autumn. While walking down the streets of Zagreb, you can admire the architecture, which mostly dates back to the Austro-Hungarian Empire.

Even though Zagreb is a Central European city, in many ways, it has a Mediterranean way of life.

Great atmosphere and friendly local people are the biggest values of Zagreb.

INmusic Festival, ZAGREB

INmusic is hailed as one of the best festivals in Europe and features performances by numerous music legends from around the globe. INmusic festival #12 will be held from June 19th to June 21st 2017 in Zagreb at the well-known and beautiful location - the islands of the Jarun Lake.



City of ZADAR

Those who respect and admire historical monuments and cultural heritage, artists, tourists and its citizens find the city irresistible. Zadar is a city monument, surrounded by historical ramparts, a treasury of the archaeological and monumental riches of ancient and medieval times, Renaissance and many contemporary architectural achievements such as the first sea organ in the world.

It was created around the Roman forum, a city inside well-kept walls and a city of old Croatian monuments. Full of archives, museums and libraries, it is the keeper of literary and musical treasures and the city with the oldest University in Croatia (1396).

Zadar, a city with over 3,000 years of history, is the administrative, economic, cultural and political centre of northern Dalmatia with 75,000 inhabitants, situated in the heart of the Adriatic.

Zrće beach, ISLAND OF PAG

Zrće Beach is a stunning beach sandwiched between mountains and the sea. It is one of the world's famous destinations for party people, hosting the greatest summer music festivals in Europe.

Zadar region is known for its crystal-clear waters, a multitude of small islands and beautiful natural beaches.

Enjoy listening to concerts, visit theatres, museums, and exhibitions. Enjoy the city of Zadar, a city of exceptional history and rich cultural heritage, a city of tourism.





ZAGREB
Algebra Campus

Smiljan
Birthplace house
of **Nikola Tesla**

Zrće
Beach

Paklenica
National Park

ZADAR
Impact center

International Office

Ilica 242, 10000 Zagreb
Croatia – Europe

E-mail summerschool@algebra.university

Phone +385 1 5809 312

Fax +385 1 2222 183



Algebra
university college

More information:

summer.algebra.university

[www.facebook.com/
AlgebraUniversitySummerSchool/](https://www.facebook.com/AlgebraUniversitySummerSchool/)

Every effort has been made to ensure that the information in this brochure is accurate and up-to-date. However, some changes, for example to programs, courses, facilities or fees, may become necessary due to legitimate staffing, financial, regulatory and academic reasons. In such circumstances, Algebra will: (i) endeavour to keep any changes to a minimum; (ii) take all reasonable steps to minimize disruption to students; and (iii) keep students informed appropriately by e-mail advising where to seek further information if required. If you require further information or confirmation of any matter, please contact us at summer-school@algebra.university.