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Entrepreneurial teaching and learning at Algebra University College

ALGEBRA
UNIVERSITY
COLLEGE

Algebra is Croatia's single largest private educational organisation. Founded in 1998, Algebra provides courses for some 20,000 students annually throughout its University Campus in Zagreb and more than 20 outposts across the country in different educational fields: higher education, vocational education and professional training. Algebra's flagship[1], the Algebra University College (AUC), is a private, non-profit Croatian higher educational institution focusing on applied sciences education for versatile digital competences. Many of its programmes are exclusively authorised by the AUC's international academic or educational partners, like Goldsmiths (University of London, United Kingdom), EPITECH (Paris, France), MIT (Boston, USA), Pearson VUE, and global technology vendors such as Microsoft, Cisco, Oracle, Autodesk, Adobe, and others. In 2014, Microsoft acknowledged Algebra as its global "*Learning Partner of the Year*".

AUC was formally accredited as a higher educational institution in 2008, ten years after the foundation of Algebra. AUC today is home to more than 150 full-time faculty members and 600 associate academics.[2] Beside its teaching focus, AUC is also conducting applied research, mainly in the field of data science, AI, information technology, digital marketing, digital transformation and education policy. Scientists from the Algebra LAB, AUC's research and innovation hub, won the prestigious European Big Data Hackathon organised by Eurostat and the European Commission in 2017.

AUC now has around 1.700 students and enrols more than 600 new students each year into its (currently) 13 accredited **higher educational study programmes** – six bachelor and seven master programmes. The Bachelor programmes include applied computer software and system engineering, market communication design, digital marketing and multimedia computing. The Master study programmes comprise all the Bachelor level content plus data science, game development and an e-Leadership Master of Business Administration (MBA), on which this case study mostly focuses.

The **e-Leadership MBA** was accredited in 2016 as a two-year specialised professional master and master in business administration programme (120 ECTS credits[3]) in the field of digital entrepreneurship, economy and management. e-Leadership is a new paradigm proposed by the European Commission, which considers e-Leaders as people who are "both business and digitally savvy, and exhibit a capability to lead strategically". The programme is aimed at individuals who are "business professionals and talents aspiring to become leaders of corporate digital transformation or to effectively start up their own innovative and disruptive business venture in the digital world". Hence, the e-Leader represents a special type of entrepreneur, or intrapreneur, or both. According to Algebra, "e-Leadership skills include the competences which enable an individual to initiate and guide ICT-related innovation at all levels of enterprise, from the start-up to the largest of corporations,

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[1] Currently, Algebra is in the process of accreditation for a full university status, and Algebra University is expected to come into existence in 2023.

[2] See https://www.algebra.hr/visoko-uciliste/en/about-us/about-algebra/

[3] ECTS stands for European Credit Transfer and Accumulation System, the standard for higher education in the European Union.

from private to public". The e-Leadership MBA programme consists of 18 courses, a team assigned Start-up Business Project and individual master's thesis. It is designed to provide a modern educational experience, i.e. traditional MBA combined with advanced technology and strategy-oriented e-Leadership competences. In 2016 AUC's e-Leadership replaced a traditional MBA programme that had been taught by its International Graduate Business School (IgBS) since 2003.

1. Formal learning opportunities to develop entrepreneurial mindsets and skills

AUC's accredited e-Leadership MBA programme was among the first in higher education institutions in Europe. The curriculum includes three core areas: **business, digital technology and strategy**. "It's quite often that efficient and successful engineers, when promoted to corporate leadership positions, realise their lack of fundamental business competences. And vice versa, effective business-led careers often lack critical digital competences. In addition, they both require modern world leadership skills. Our programme fills these gaps", says the programme director, Goran Radman, adding that such combined competences are important for the dramatically changing business environment. "We need to integrate these three competences because everything in the *business-as-usual* world is going to be radically transformed by the power of digital technology while business decisions will have to be more and more taken on-line and independently by units or even by every employee, not by the hierarchy." Accordingly, the curriculum is structured around the three traditional MBA content competencies: core business competences, core digital technology competences and key executive leadership competences. The following table shows the courses taught in the AUC's e-Leadership MBA programme.

Modules of Algebra University College's e-Leadership MBA Programme

Introduction to e-Leadership	Strategic Management of Technology and Innovation
Managerial Economics	Digital Transformation
Strategic Management	Information Systems in Modern Organisations
Operations Management	Business Communication and Negotiation
Financial Management	International Law, Cybersecurity and Privacy
Creativity and Problem Solving	Managing and Leading People
Marketing and Sales Management	New Products Management
Financial and Managerial Accounting	Project Management
Quantitative Methods	Start-up Business Project
Entrepreneurship and Innovation	Final Thesis

Source: MBA study Program content and structure, https://www.algebra.hr/mba/en/mbaprogram/mba-study/

Several programme courses are **directly related to entrepreneurship**: "Strategic Management", "Creativity and Problem Solving", "Marketing and Sales Management", "Entrepreneurship and Innovation" as well as "Start-up Business Project". In year 2, entrepreneurship-related modules include "Strategic Management of Technology and Innovation", "Digital Transformation" as well as "New Products Management". Some of the modules, like "Creativity and Problem Solving" (or "Creativity and critical thinking"), are introduced to the other Master's programmes at AUC, too.

Learning in the e-Leadership programme is very much **case- and practice-based**. In every module, lecturers use case studies and simulations as well as variable

frameworks and methodologies to help students learn how to solve specific real-life problems.

However, students practice the most intensive hands-on approach through the Start-up Business Project team assignment. From the very first day, students are assigned to teams for their own start-up projects. The start-up is meant to be a green-field company or enterprise spin-off, but it has to be driven by a disruptive market idea. It also has to have a digital and global economy perspective, and, essentially, it has to contain a new digital technology solution at its core. Through the first twelve months of the program, students continue developing their start-up business plan project using the e-Leadership programme faculty and AUC resources as their **entrepreneurship and technology incubator**. After a year, they become ready to expose their plan through a pitch to real life investors. AUC Investors' Conference is gathering different types of investors (e.g. institutional, corporate, angels), and student teams are getting an opportunity to sell their project to the market. "As for the academic rigour, students just need to learn how to build a competitive and sustainable business plan", explains Goran Radman, "but as for the real-life, it is a living lab test for them. We don't run it as a kind of business plan competition; since they know from the very start the market is their ultimate judge in this contest".

Student teams enjoy unlimited use of AUC's **infrastructure** and continuous support of **mentors** during the project development. There are three levels of mentoring: Firstly, there is a faculty member who is assigned as business plan project mentor and who is continually available to all student teams. Secondly, all course lecturers use student projects as real-life cases to provide on-going, segment-specific feedback to the teams, e.g. about finance and marketing. Thirdly, AUC provides special area experts required for specific business plan issues. If needed, these experts may also be hired as consultants and compensated by a project sponsor, by investors interested in seeing the project moving on, or by the student teams themselves.

The e-Leadership programme was part of AUC's initial efforts to **internationalise** and attract faculty and students from other countries. It was its first study programme taught entirely in English. The majority of programme courses are held by partnering lecturers from the Kelley School of Business, Indiana University (USA), as well as by AUC local faculty members and associates who possess both reputable academic careers and extensive professional experience.

AUC is building further organisational capacity, both quantitative and qualitative, needed in support for its goals. Some of the most critical ones are international experience and entrepreneurial teaching skills, but also remote and online teaching since the outbreak of COVID-19 pandemic. The AUC **internal teachers' academy** has been set up to deal with this task, and it has started offering support such as English language capacity skills and Erasmus+ exchange programmes to Croatian lecturers.[4] It also provides internal workshops on teaching methodology in innovation and entrepreneurship programs. Some of these workshops are run by the visiting faculty members from the Kelley School and by other international and local AUC partners.

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[4] For instance, digital transformation capacity and an international network was built via the Erasmus+ eLead Speed and DigiTransformEdu projects.

2. Informal learning opportunities to develop entrepreneurial mindsets and skills

As regards informal learning opportunities, AUC holds different **networking events** to facilitate immediate communication between students and entrepreneurs. For example, at "Talks@Algebra", "HR Breakfast" or "FinTech Bruch" events students can meet with, hear from and get in touch with business leaders from different sectors. Very often, this is an opportunity for students to find a career opportunity, professional apprenticeship or mentorship "in vivo". Furthermore, courses in the e-Leadership programme involve guest business speakers on a regular basis.

In order to further develop students' competences and have them certified, AUC encourages students to acquire **industry certificates** while in a regular programme study. AUC seeks designing courses as to make them compliant with industry standards as much as possible, for example in project (PMI®) or services (ITIL®) management. AUC is accredited, and certified or authorised by distinguished industry programmes and academies, including for example the Microsoft Developer Network Academic Alliance, the IBM Academic Initiative, CISCO Networking Academy, and Oracle Education Centre.

AUC also seeks to match formal and informal elements of learning. Many of the AUC students experience **real job opportunities** alongside their study. AUC does not require students to start up their own business based on the business plan incubated within the programme. However, AUC encourages students to seek and foster real business opportunities with the investors or sponsoring company. Students are also encouraged to apply their practical knowledge and skills in their final thesis, for example by designing it around the segment of their start-up business plan in which they are most interested in – whether it be the financial, managerial or marketing.

3. Validating entrepreneurial learning outcomes

As regards **feedback** mechanisms, students regularly evaluate different elements of programme quality and their education experience. AUC is continuously collecting and analysing student feedback forms to see whether for example, content is well structured, lecturers meet their expectations, and overall organisation, resources and delivery of courses is in line with the designed learning outcomes. Furthermore, student representatives are members of the AUC Academic Council, allowing them to participate in and influence the curriculum design very early in its inception and throughout the education process.

AUC also recognises entrepreneurial learning outcomes in the students' diploma supplement **records of achievements**: e.g. feedback from investors will be included in the overall evaluation of students' start-up project efforts.

4. Involving external stakeholders in teaching entrepreneurship

AUC involves external stakeholders in teaching entrepreneurship in several ways. First, AUC continuously invites business practitioners and external experts to take part in the classes as **guest speakers**. Second, members of the alumni community are involved in many different regular or extraordinary **events** and happenings related to entrepreneurship, for example in organising the investors' conference for students' start-up business plan pitches.

Furthermore, AUC **Business Council** is a permanent advisory with around 30 distinguished individuals from the academia, technology and business community.

They provide continuuous feedback on AUC strategy and execution plans, they discuss market demand and supply dynamics, and launch various initiatives related to collaboration between business and academia. Additionally, Algebra is in constant contact with business organisations by providing them with in-house, off-the-shelf or tailor-made trainings and workshops.

5. Integrating results of entrepreneurship research into entrepreneurship education

The Algebra LAB contributes in many ways to entrepreneurship education. Business projects that LAB has pioneered are further analysed by students and, vice versa, some students' pilot projects are turned into real business projects with industry. Most tangibly, the three LAB data-scientists who won the European Commission's 2017 Hackathon have become AUC permanent faculty members while also teaching the e-Leadership MBA and other master programme courses. Therefore, students may also become directly involved in research assignments with industry, developing learning outcomes into concrete business ideas.

Since Algebra also offers different learning courses to children in elementary and grammar schools, AUC seeks to vertically integrate some of its expertise across formal education levels, from primary to tertiary. Specifically, in its "Digital Agenda for Kids" or "Digital Ninja Academy", Algebra seeks to make science, technology, engineering and mathematics (STEAM) more attractive to children and other young talents.

Source

This case study was prepared by Dr. Stefan Lilischkis from empirica Gesellschaft für Kommunikations- und Technologieforschung mbH, Bonn, Germany, through collection and analysis of broad documentation about Algebra University College and an interview with Goran Radman, Vice Dean for International Cooperation and e-Leadership MBA Programme Director, on 15 January 2018. It was updated by Maria Stalla from Technopolis Group, Germany through a follow up interview with Goran Radman.
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Algebra University College: www.algebra.university
Algebra University College eLeadership MBA: www.eleadership.mba