

University Process Optimisation through Smart Curriculum Design and Student Accreditation

Objectives

This pilot that will be applied in the Electrical & Computer Engineering (ECE) school of the National Technical University of Athens (NTUA) aims to optimise the university operation and curriculum design as well as facilitate the validation and verification of skills and qualifications of undergraduate and Ph.D. students.



The main goals of this pilot are the following:

- Provision of analytics and recommendations for the **redesign and update of specific courses and by extension the entire curriculum of the school.**
- **Student accreditation and lecturer validation and recognition** through a trusted, immutable and secure **Blockchain ledger.**

Stakeholders

The stakeholders involved in this pilot are the following:

- **Undergraduate Students:** Students need to be able to select the most interesting courses to them and improve their skills so that they will be better prepared to enter the job market. As of now, students do not have a structured way to complete these tasks, neither do they possess a personal education and skills profile that can help them track the evolution of their skills and make more informed decisions (e.g., for selecting courses). QualiChain will provide students of the ECE school with the necessary personalisation and analytics capabilities to help them make such decisions.
- **Ph.D. Students:** Ph.D. students, apart from research, perform various other tasks in a university, such as lectures in classes, correcting tests, etc. QualiChain will allow professors to recognise Ph.D. students for their work and award them with Smart Badges that will help them to improve their skill and knowledge profile in QualiChain, as well as prove their experience in teaching and handling other university related tasks.
- **University Professors:** Professors of the ECE school usually teach a small number of courses that belong to the same thematic area (e.g., software engineering). Given that those areas revolve around fast moving technological fields, the curriculum must evolve in parallel with the technologies that it addresses. However, professors do not have a structured way to review their courses as these compare to job market requirements and technological evolutions and rely exclusively on personal work to identify advancements in the respective scientific domains. QualiChain will provide professors with

the analytics tools and decision support that will help them make more informed decisions when updating courses.

- **ECE School:** The school of Electrical & Computer Engineering will leverage the QualiChain platform in order to modify its curriculum in a way that will not only positively impact the skillset and career path of future graduates, but also further enhance the school's prestige.

Scenario

All **students** can use the QualiChain Intelligent Profiling mechanism, which draws data from the platform's database and the web, to create their personal profile in QualiChain. Professors are able to award **undergraduate students** with Smart Badges for exceptional performance in a course, while **Ph.D. students** can be awarded Smart Badges for their work in one or more courses.

Regarding course updates, **professors** can insert into the platform's database information about their courses. The QualiChain analytics tool suite draws data from the database and the web and produces various analyses that the professors may use as input in the platform's DSS mechanism in order to receive recommendations for updating their course. The updated course is then saved in QualiChain and the recommendations that the DSS mechanism provides are also updated (based on the needs that were covered in this specific course).

Moreover, **students** can leverage the QualiChain Career Advisor functionality to receive personalised recommendations on which courses to take next. Finally, the sum of updated courses, knowledge gaps, etc. are synched with the DSS tool which will in turn produce recommendations for the school's curriculum as a whole.

More info

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Pilot conducted by:

