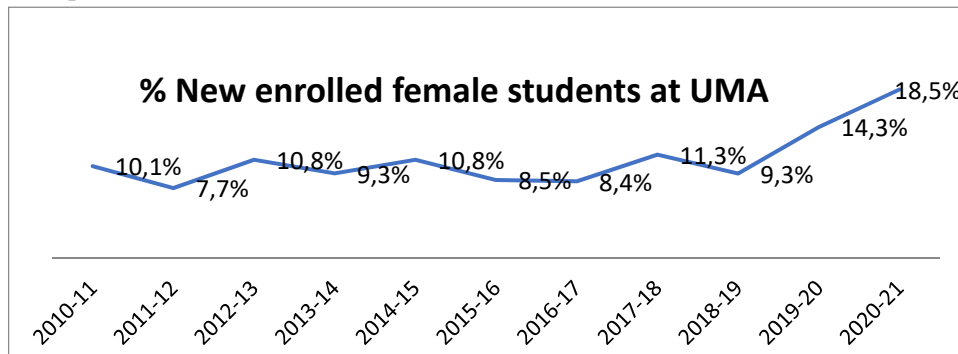# DESCRIPTION CAMPUS TECH CHICAS UMA – INFORMATICA
campuschicas.informatica.uma.es

Motivation:

Engineering and Computer Science studies have been suffering in the last decade in Spain a decrease in the number of vocations that has particularly affected the presence of women in these studies. The number of women enrolled in technological degrees has decreased in almost all public universities for more than ten years. For example, in Informatics degrees the percentage of women enrolled last decade in Spain does not reach 14% [1] and the figures remain similar for recent academic years [2]. More specifically, in the University of Málaga (UMA) the percentage of new enrolled female students has been around 10% during the last decade (see figure) undergoing a slight rise these last two years [3].

% New enrolled female students at UMA

2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
10,1%	7,7%	10,8%	9,3%	10,8%	8,5%	8,4%	11,3%	9,3%	14,3%	18,5%

We believe that the UMA must commit to an ambitious plan able to address the different aspects of this problem with the overarching goal of changing the trend and eventually reaching healthy female enrollment levels. This would avoid the current panorama of the very low presence of undergraduate and master female students. Even more, taking into account that the demand for professional profiles in Computer Science is increasing, it becomes essential to bring on board female talent that, for sure, can add and must participate in the design and development of future digital technologies.

For this reason, in 2018 the initiative Campus Tech Chicas UMA-Informática [4] was born with the goal of attracting young female students to the Informatics degrees of the UMA. This initiative is two-fold. On the one hand, it seeks to awaken vocations for Computer Science studies among girls at the Compulsory Secondary Education level (CSE) (between the ages of 12 and 16) [5]. On the second hand, it seeks to promote skills and empower female students in the last courses of bachelor's and master's degrees in Computer Science. For this, we have proposed the organization of a technological campus called Campus Tech Chicas UMA - Informática, which will be offered regularly by the University of Málaga every summer.

The format of this campus consists of a series of training and divulgation activities aimed at CSE girls and supported by university female students who act as mentors. The role of the female mentors is fundamental in this proposal: it seeks to make visible young women who are already studying in Computer Science programmes and who interact directly with the CSE girls. In this way, the CSE girls can identify themselves more easily with these young female students (peer relationships) seeing that this kind of degrees are achievable and nothing to do with gender.
 The campus lasts for two weeks, taking place in July while the CSE girls are on holidays. The campus also counts on the participation of

young female engineers who are already working in technological companies in the nearby corporate environment, who tell the CSE girls about their own career path and their work experiences. In addition, the young female mentors have the opportunity to interact and apply for internships in some of the companies collaborating with the initiative.

The aim of all the activities organized in the campus is to emphasize the role of women in Computer Science and try to discard stereotypes about engineering and related studies and careers. Moreover, it seeks to encourage computational thinking and the use of computer tools, especially programming, and other technologies, in a daily or creative context, while using different professional contexts as an example.

Specific actions:

Campus Tech Girls UMA -Informática has the following format:

• During the first week, workshops are held combined with group dynamics and collaborative work activities in which different technologies are introduced to the CSE girls. For this, agile methodologies and open source collaboration tools are used. The female young mentors will be the ones who give the workshops and direct the group dynamics.
• In addition, in this first week one of the organizers gives a talk about the different profiles and career paths that can be developed for the Informatics degrees that can be studied at the UMA.
• In the second week, the CSE girls develop a technological-based project in a team, project that they will present and defend in a final day open to the public. The mentors will act as advisors in this phase.
• In this second week, the girls will also receive the visit of engineers and young professional women who work in companies in the nearby environment, who will tell their experience and help to give visibility and demonstrate that there are women working in technological fields. In addition to telling them about their experience, they will explain the new career opportunities that are emerging in these sectors.
• In addition, during this week the CSE girls will participate in a co-education seminar in which inclusive language will be addressed, the memory of women who broke barriers in access to higher education will be exposed, and reflections on the values that break sexist stereotypes will be conducted.

Administrative stages:

The campus is free and offers 30 places in each edition. The call for inscriptions in the campus is launched in May in secondary schools. During the first week of June, the organizers and mentors perform the selection of the CSE girls that will attend the campus, following a blind peer-review process (each application is reviewed by at least two people). After that, a list with the selected girls is published in the campus web page.

Support:

Although the campus is free for the CSE attending girls, every year the organization ask for funding in order to gratify the work done by the mentors along with the material needed for some of the activities carried out in the campus. The minimum amount of money needed for it is around 3000€.

EVIDENCES OF IMPACT: CAMPUS TECH CHICAS UMA - INFORMATICA

<u>Evidence of its impact:</u>

The initiative of Campus Tech Chicas UMA –Informática is relatively recent, but it has made some impact in these years:

- It started in 2018, but the initiative was so rewarding that the Higher Technical School of Telecomunications and Industrial Engineering (suffering the same problem of a low percentage of female students enrolling each year) along with the Faculty of Science- Mathematics joined the next year (2019) and the initiative grew up to allow the celebration of 4 campus [6]. Unfortunately, this year the Mathematics campus cannot be held due to Covid-19 restrictions.

- All participant mentors have received offers for an internship from companies that collaborate with the campus. In most cases, it is the first professional internship for the mentors. Some of them have already graduated and are working in companies of their choice, such as IBM, Freepick or Deloitte.

- One of the young mentors is an European PhD Candidate in Robotics and Artificial Intelligence. The experience in the campus has helped her to broaden her skills managing a project.

- And last but not least, in every edition the organization presents two surveys to the CSE girls, one at the beginning of the campus and the other at the end. Among other questions, we ask the following:
  - At the beginning of the campus: thoughts about what kind of studies they plan to do in a future. The answers show that between 58-61% are unsure about what to do in the future.
  - After finishing the campus: thoughts about if they plan to study an Informatics degree: the answers show that between 63-75% plan to enroll one of the Informatics degrees after taking part in the campus.
  - After finishing the campus: recommendation for attending the campus to other female friends and schoolmates. The answers show that between 82-100% will recommend the experience to other mates. In fact, between 28-47% of the participants heard about the campus through other female friends.

BIBLIOGRAPHY: CAMPUS TECH CHICAS UMA - INFORMATICA

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INDICATION:

The proposal can be considered as a runner up (if it does not win the award) and be included as an exemplar of best practice in future Informatics Europe publications.