

CAMPUS PRAKTIKUM: HOW TO BRING THE UPV CLOSER TO THE FUTURE STUDENTS IN AN IMMERSIVE WAY

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Abstract

The paper presents the programme designed at the Universitat Politècnica de València (UPV) to attract the best baccalaureate and vocational studies students from the Valencian Community called Campus Praktikum. The first Campus Praktikum took place in 2010.

This activity has two objectives: on the one hand, to publicise the different degrees that can be taken at the UPV and to bring the main contents closer to them, and on the other, to win over students and make this the University of their choice for their university studies.

The communication describes the selection process carried out to choose the best students, how the workshops are designed and assigned, and how the preferences of the workshops are based on gender (at the UPV, there is still a low number of female students in certain degrees) and if the implementation of this activity will have an impact on the selection process of university studies. The organisers intend to make participation in the programme a kind of "reward" and to make all participants feel proud of their participation.

On the other hand, the different activities that will take place during the week-long Praktikum Campus will be explained. Generally, in the morning, students will carry out activities related to some of the degrees they are interested in (33 different workshops have been developed in the Campus Praktikum 2022, oriented to make known the 40-degree courses taught at the UPV). Moreover, the afternoon is reserved for more recreational activities to make known all the services that the UPV offers to its students (sports activities and health classroom, tours around the campus with geocaching activity, sessions with the UPV design factory, etc.).

Finally, the feedback from the participants will be presented. The students completed a survey in which different information was collected, ranging from their assessment of the activity to their intentions related to their university studies.

With all this information, conclusions will be drawn with the positive aspects, and those that need to be improved to continue with this activity and bring the University closer to future students will be pointed out.

Keywords: High school students, baccalaureate, vocational studies, talent attraction, university connection.

1 INTRODUCTION

The evolution of the number of universities where official studies can be carried out in Spain has been growing over time. If we look back at the year of creation of the Universitat Politècnica de València (UPV), 1968, there were only 18 universities in Spain. This number grew to 40 universities in 1990, and from there, it has grown to 84 in the 2020-21 academic year. Of these, 50 are public, and 34 are private [1,2].

This implies that the offer of degrees and the places where they can be studied are overwhelming, and universities must carry out actions to publicise their centres and degrees to attract the best students.

In this context, in June 2010, the Campus Praktikum UPV was started as a pilot experience at the Higher Technical School of Industrial Engineering. Subsequently, the programme has been extended to all schools, faculties, and campuses of the UPV.

The Praktikum Campus is aimed at excellent students who are studying the first year of the Baccalaureate or Higher Degree Format Cycle, who will have the opportunity to attend workshops and activities organised by teachers and researchers of the UPV, and know first-hand the campus and university life.

The objective is that for a few days, students participate in a program in a School or Faculty which awakens or reinforces their vocation for the different Bachelor's degrees. This participation should allow

students to show the rest of their high school classmates the contents and topics addressed in the program, as well as to be able to tell in person their experience at the Universitat Politècnica de València.

2 METHODOLOGY

Since its inception, the Praktikum Campus has been growing in offering projects, staff, and students, with the participation of a single school with a single project in 2010 to the 33 projects offered in its 2022 edition in eleven schools and two faculties.

This section will explain all the aspects taken into account to develop Campus Praktikum 2022.

2.1 Praktikum Campus offer and diffusion

In May, the projects that will be part of the Praktikum Campus are published on the UPV website, and the opening of registration for students in the first year of a baccalaureate or vocational training cycle is publicised.

In addition, all secondary education institutes and training cycles are contacted by email, explaining what the Campus consists of and encouraging the centres to invite the best students.



Fig 1 Poster advertising Campus Praktikum 2022

The Praktikum website [3] hosts all the necessary information to know and register at the Praktikum Campus. This is; the bases of the call, the list of the projects in which you can participate, and the critical dates (date of registration, date of selection of candidates, and date of the Campus celebration).

2.2 Requirements for participation

For participation in the program, the student and the high school to which he belongs must take into account the following recommendations and requirements:

Student Requirements

- For admission:
 - Be studying the first year of a baccalaureate or a vocational training cycle in the 2021-22 school year.
 - Have successfully passed all areas and subjects of the school year.
 - Deliver an academic certificate issued by the high school where the average is indicated in the first and second evaluations of the subjects included in the curricular itinerary.

- Once the student is selected, he undertakes to:
 - Actively participate in the different activities organised at the Campus Praktikum 2022 UPV (it is estimated that the time spent at the UPV will be 25 hours).
 - Complete the evaluation and satisfaction survey at the end of the program.

Recommendations for the school to which the student belongs

- For dissemination and selection:
 - Each high school will disseminate the information on Praktikum taking into account that the average grade of access to the Campus in previous editions is around 8.5 out of 10 and the adequacy of the baccalaureate modality taken by the student according to the chosen project. The centre will complete the academic certification of the notes and incorporate it into the registration process or provide it to the student to make his registration himself.
 - It should be borne in mind that in the Praktikum 2022 program, three students from the same Center will be selected, although as many candidates as deemed appropriate may be submitted.

Any student who wants to participate on campus must indicate in order of preference the projects in which they would like to participate and include a certificate with the qualifications obtained during the first and second evaluations.

The allocation of places will be made based on the grades and the project selected by the student.

2.3 Description of the activities to be held at the Praktikum Campus 2022

During the week of the celebration of the Praktikum Campus (in its 2022 edition, it was from June 20 to 24), high school students and training cycles are on one of the UPV campuses from 9:30 a.m. to 5:30 p.m., carrying out different activities in the morning and afternoon, as reflected in the schedule shown in Figure 2.

<p style="text-align: center;">Monday 20th June</p> <p>8:30-9:30 Pick up of credentials (Auditorium)</p> <p>9:30-10:00 Presentation of the Praktikum Campus</p> <p>10:30-13:30 Workshops in the Schools</p> <p>13:45-15:45 Lunch and break</p> <p>16:00-17:30 Sports, Factory Design, ACOM workshops, and visit UPV</p>	<p style="text-align: center;">Tuesday 21st June</p> <p>9:30-13:30 Conducting Workshops in Schools</p> <p>13:45-15:45 Lunch and break</p> <p>16:00-17:30 Sports, Factory Design, ACOM workshops, and visit UPV</p>
<p style="text-align: center;">Wednesday 22nd June</p> <p>9:30-13:30 Conducting Workshops in the Schools</p> <p>13:45-15:45 Lunch and break</p> <p>16:00-17:30 Sports Workshops, GE and ACOM, and visit UPV</p>	<p style="text-align: center;">Thursday 23rd June</p> <p>9:30-12:30 p.m. Conducting Workshops in Schools</p> <p>13:00 Closing of Praktikum 2022</p> <p>13:30 Aperitif and Goodbye</p>

Fig 2. Example of a schedule of a student participating in the Praktikum campus 2022

The objective is that the student not only knows the activities related to the degrees taught at the UPV but also has a broader experience and knows other aspects of university life.

2.3.1 Projects related to Bachelor's Degree studies

In the 2022 call, a total of 33 projects were offered, linked to 40 degrees of the UPV, between the three campuses of the UPV (Vera, Gandía and Alcoy).

Figure 3 shows the list of each of the projects offered. In each project, workshops were held in the mornings where teachers, researchers, and other UPV staff proposed activities. Most of the activities to be carried out take place in laboratories, and it is intended that learning is Learning by doing.

1. BIOTECHNOLOGY: ADDRESSING BIG NEEDS WITH SMALL TOOLS	20. COMMUNICATING WORLDS: NANOSCIENCE AND MATERIALITY AT THE SCHOOL OF TELECOMS
2. SCIENCE AND TECHNOLOGIES FOR BETTER AND SAFE FOOD	21. KNOW HOW TO ACHIEVE ENTREPRENEURIAL SUCCESS
3. AGRI-FOOD ENGINEERING: FROM THE FIELD TO THE TABLE	22. ART AND DESIGN: PRACTICAL EXPERIENCES
4. TECHNOLOGIES THAT TRANSFORM THE NATURAL ENVIRONMENT	23. ART SURGERY
5. LEARNING TO FLY	24. NEW CHALLENGES IN TOURISM
6. ROBOT DESIGN AND PROGRAMMING	25. SUSTAINABILITY AND THE ENVIRONMENT
7. MICROELECTRONICS AT YOUR SERVICE	26. THE AUDIOVISUAL WORLD: TECHNOLOGY AND COMMUNICATION
8. OBJECTS: DEVISING, VISUALISING AND MANUFACTURING	27. INTERACTIVITY AND TELECOMMUNICATION
9. ENGINEERING HIGH-PERFORMANCE VEHICLES	28. DEVELOPMENT OF MATERIALS FOR ELECTROCHEMICAL APPLICATIONS
10. LIVING SPACES: ARCHITECTURE AND DESIGN	29. CHEMICAL ENGINEERING AS AN ANSWER TO WATER PROBLEMS: DESIGN OF A DIRECT OSMOSIS PROCESS
11. ARQUITEKNICA 2.0 BUILDING INGENUITY	30. CHEMICAL ENGINEERING IN THE ELIMINATION OF PERSISTENT CONTAMINANTS: DESIGN OF AN ADSORPTION COLUMN
12. GEOPRAKTIKUM: YOUR MAP OF THE WORLD	31. TECHNOLOGIES TRANSFORMING THE NATURAL ENVIRONMENT
13. INFORMATICS FOR THE SOCIETY OF THE FUTURE	32. RECYCLING AND RE-USE OF WASTE
14. BIG DATA: Applications To Artificial Intelligence, Cybersecurity And Knowledge Discovery	33. INTRODUCTION TO CHROMATOGRAPHY AS A METHOD OF ANALYSIS
15. ROBOTICS AND COMPUTATIONAL THINKING	
16. WALK WITH US	
17. TEKNO-INDUSTRIALISE	
18. ENERGY ENGINEERING	
19. CHEMICAL ENGINEERING	

Fig 3. List of projects that can be carried out during the Praktikum Campus (each student chooses one project)

Figure 4 shows two pictures of students participating in the projects "Microelectronics at your service" (left) and "Biotechnology: addressing big needs with small tools" (right).



Fig 4. Students participating in workshops.

2.3.2 Activities to know University life.

At 13:30, the morning activities end, and the break is made for the lunch they make in one of the cafeterias on the campus and accompanied by students of the last years of the UPV. It is a good time for Praktikum participants to ask and resolve doubts or concerns in a relaxed atmosphere and obtain first-hand information.

After the lunch break, the afternoon activities are launched.

For the afternoons, three types of activities have been prepared. The first aims to publicise the entire UPV campus. To this end, the communication area of the UPV has designed a Geocaching activity, and simulating a "treasure hunt," they move around the campus and realise all the facilities offered by the campus.

The second activity aims to get to know all the sports and activities offered by the sports area of the UPV. In this edition, participants could choose between a laughter therapy workshop, a Latin dance class, or a CrossFit session.



Fig 5. Activities organised by the sports area

Moreover, the last activity aims to publicise the Factory Design of the UPV (figure 6), a program in which UPV students from various schools or faculties come together to launch a shared project [4].



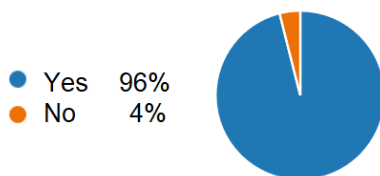
Fig 6. Factory Desing Formula Student UPV team

3 RESULTS

The Praktikum Campus 2022 has been a success. All the people who participated in it were satisfied, and the students finished the week very happy.

To quantify the degree of satisfaction and the aspects to improve the program, the students completed a survey of 8 questions by 203 students. In this questionnaire, questions related to the organisation of the campus were asked, such as the dates of celebration or the duration of the campus, and questions directly related to the projects in which it participated, such as the degree of satisfaction (Figure 7) or the influence of participation in the project on the choice of university studies (Figure 8).

Are you satisfied with the project you have been involved in?



Do you think that your participation in Campus Praktikum will influence your choice of studies?

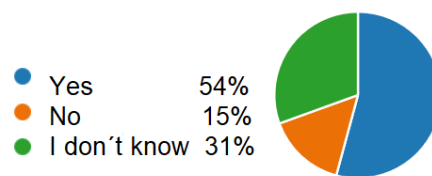


Fig 7 and Fig 8. Students' opinions about Campus Praktikum

A Likert-scale question was also asked about the particular project in which each student participated (Figure 9).

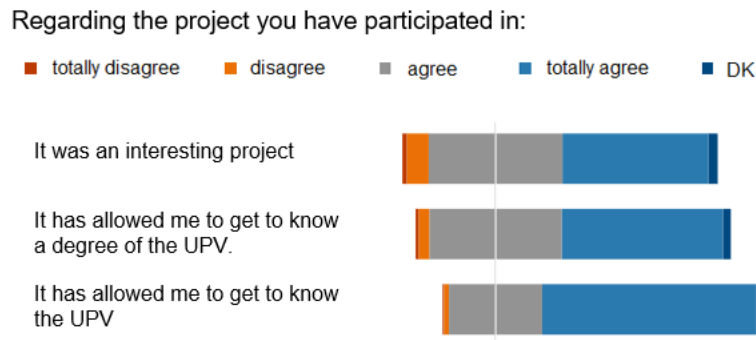


Fig 9. Students' opinions about the project they have participated in

On the other hand, participation in the workshops, if we look at gender reasons, has been very irregular. In the most demanded workshop, 1 Biotechnology, all the selected students are identified with the female gender. In this workshop, the lowest average grade with which it was accessed to do it was 9.5 out of 10. However, in others related to computer science (workshops 13 and 14), more than 90% of the selected students identified with the male gender. In this case, it is a trend that is subsequently perceived in the classrooms of undergraduate studies.

Of all the workshops, only a majority of students identified with the female gender in workshops 1, 10, 22, and 23, with majorities ranging from 100% in workshop 1 to 65% in workshop 10. In the rest of the workshops, most students identified with the male gender, with 100% of students of this gender in workshops 6, 15, and 9.

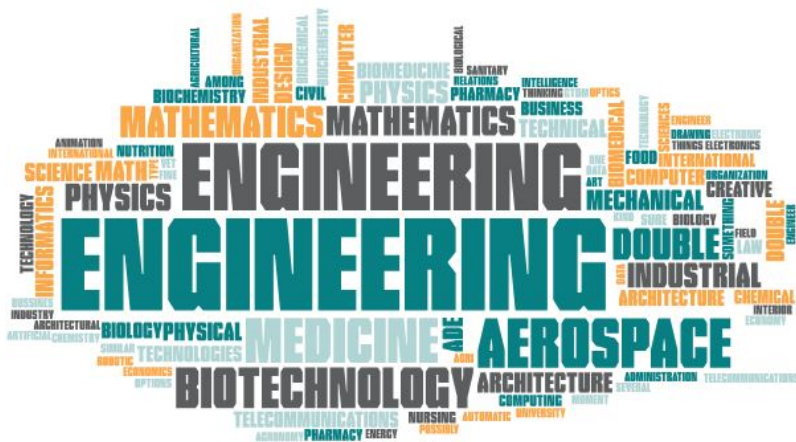


Fig 10. Words that appeared most frequently when asked about the intention of the university studies to be taken

Moreover, finally, there were two open-ended questions where students indicated the studies they intended to pursue and highlighted positive and negative aspects of the Campus. The figure 10 shows in a word cloud the most common answers when asked about their intentions regarding their choice of studies.

4 CONCLUSIONS

Participation in the Praktikum Campus positively impacts students, and 74% express their total satisfaction with their participation.

It should be noted that all the personnel involved in the preparation and delivery of the workshops of the projects do so voluntarily, without receiving any financial compensation.

However, the most remarkable result is that 54% of the participants have indicated that their participation in the Praktikum Campus will influence something as important as the selection of their university studies, and only 31% indicate that this activity does not affect this decision.

Primary and secondary schools must continue to work to motivate girls to become interested in STEAM studies. It is essential to show models of women who have followed this type of study and not lose the talent of half of the population, which for some reason prefers not to follow this type of study.

It is essential to carry out this type of action to bring universities closer to their future students so that they get to know each other and help them choose the studies that will bring them closer to the professionals they will be in the future.

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