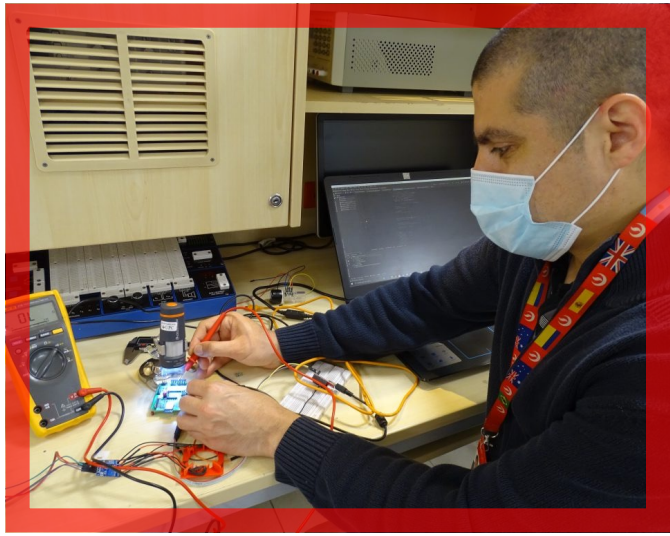
# SUSTAINABLE DEVELOPMENT GOALS

# UPC researchers create unique, low-cost digital spirometer for post-COVID-19 patients

“Phukuy” is the name of the spirometer that was created as a response to the COVID-19 pandemic.

Among the challenges that have arisen from the COVID-19 pandemic is the one faced by pulmonologists when measuring the patients’ lung capacity, since a spirometer must be used in the procedure. The danger with this tool is that aerosols are generated when blowing, which is a risky action if one seeks to avoid getting infected. Faced with this problem, the Research Department, together with UPC’s School of Engineering, developed “Phukuy,” a digital and portable spirometer that patients can acquire at low cost and use in the safety of their home without impairing the monitoring and evaluation of the treating physician. “Phukuy” is a spirometer developed in the laboratories of UPC (FabLab, Innovation Lab, Electronic Lab) and funded by Concytec, led by Carlos Raymundo Ibañez, Doctor in Software Engineering and researcher.

This unique device was created as a response to the challenges of the COVID-19 pandemic and its mission is to contribute to the treatment of patients who overcome the disease through its six features: low cost, personal use, portable, digital, integrated, and safe.



# *Samay* ventilators: A hope for life

The outstanding engineer Nikolai Vinces Ramos, professor and coordinator of the Mechatronics Engineering program, is the only academic representative in the team led by the Peruvian Navy that developed #SAMAY: the 1st Peruvian basic artificial respirator. The Government authorized the production of the first 10 machines that will be used in the treatment of critical COVID-19 patients. This is the example of teamwork between the State, the academia, and the private enterprise, which joins this development to create more ventilators, he concluded.

As is known, the Peruvian Navy presented its first basic artificial respirator that will contribute to the recovery of critical patients with coronavirus.

The design of this medical equipment was approved by the Ministry of Health and is a valuable contribution to addressing the worldwide shortage of such ventilators. A ventilator is a machine that breathes for you or helps you breathe. It is also called a breathing machine or ventilator. The ventilator is connected to a computer with knobs and buttons controlled by a respiratory therapist, nurse, or doctor. It has tubes that are connected to the person through a breathing tube. It is placed in the person's mouth or an opening through the neck into the trachea called a tracheostomy.

# *Samay* ventilators: A hope for life

The professor and coordinator of the Mechatronics Engineering program at Universidad Peruana de Ciencias Aplicadas.

Respiradores Samay: una esperanza de vida

Desarrollados por la Marina para enfrentar a la COVID-19, estos respiradores siguen salvando vidas.

El Comercio

MENU

IR AL ESPECIAL SUPLEMENTOS

La producción de los respiradores artificiales Samay cuenta con el financiamiento de la Confederación Nacional de Instituciones Empresariales Privadas (CONFIEP).

# UPC opens the doors of its fablab for the manufacturing of face shields against COVID-19

The FabLab of UPC's Monterrico Campus opened its doors to cooperate with a project of FabLab Perú, a network that brings together the most important 3D printing laboratories in the country. The project aims to produce face shields for front-line professionals taking care of patients diagnosed with COVID-19.

Thanks to UPC FabLab's cutting-edge technology and its team of volunteer teachers, the first delivery of 300 face shields has been made to the Peruvian Nursing Association. The next project being carried out is the manufacturing of 1,325 face shields, of which 125 will be delivered to the army in Lima and 1,200 will be sent to the armed forces in the city of Iquitos, one of the towns most affected by the pandemic in our country.

# UPC opens the doors of its fablab for the manufacturing of face shields against COVID-19



# UPC is at the forefront of the fight against the COVID-19 through scientific research

Through its full-time research professors, Universidad Peruana de Ciencias Aplicadas (UPC) carried out projects that aimed to be at the forefront of the battle against COVID-19 in Perú during 2020. These projects were developed by researchers from the School of Health Sciences, the School of Engineering, the School of Communications, the School of Architecture, and the School of Human Sciences, in active and supportive cooperation with other universities, companies, and government agencies.


More than ever, the work of our scientific researchers is crucial to find solutions to restore people's well-being and safety in the face of the pandemic that already affects more than three and a half million people worldwide. The research team started working on the following projects: faster and cheaper molecular testing, development of laboratories for the early detection of COVID-19, drugs for the treatment of COVID-19, and working on solutions in international cooperation.

# UPC against COVID-19: UPC researchers join forces in the development Of accessible molecular tests

Universidad Peruana de Ciencias Aplicadas (UPC) has guided a lot of its scientific research toward the battle against COVID 19. It has, consequently, developed projects that seek to understand and resolve the implications and challenges that the global pandemic has brought to our country.

The detection of COVID-19 through molecular testing is one of the projects being carried out in cooperation with Dr. Edward Malaga and Dr. Cristina Guerra-Giraldez from UPCH, as well as Dr. Piere Rodriguez Aliaga from Stanford University. This initiative has the financial support of the private company (Intercorp) and the administrative support of the State (Concytec).

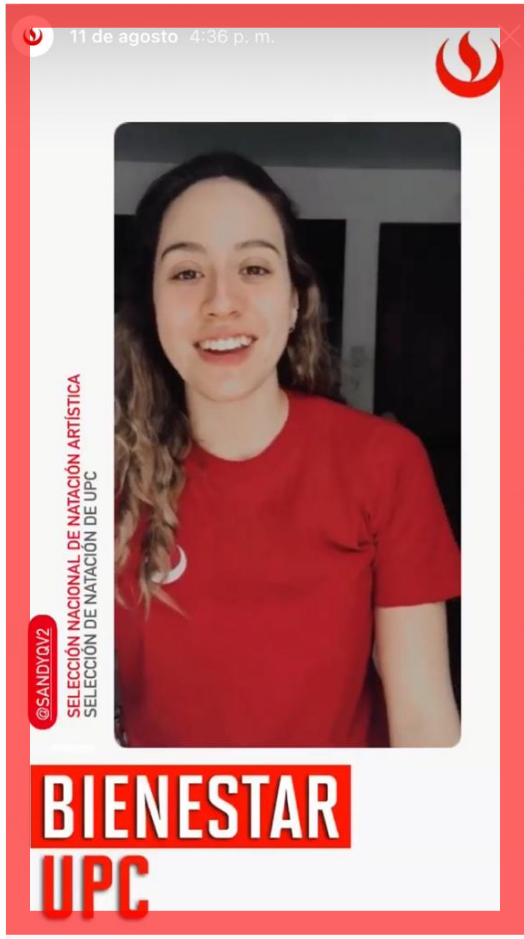
Dr. Pohl Milón, who has recently been appointed as a member of the science and technology team that advises the Ministry of Health on this issue, and Dr. Vanessa Adaui, who, after two years of postdoctoral research in Germany, was incorporated into UPC through funding from Concytec, participate on behalf of UPC. Dr. Adaui has contributed with the technology that is the basis for the development of the detection system for SARS-CoV-2, the cause of COVID-19.

# Participation in an interview with the Department of Health Promotion of the Ministry of Health (Minsa)

On Saturday, July 11, 2020, the head of the Psychoeducational Guidance Department, María Teresa Díaz Calderon, participated in an interview in which she spoke about the intervention programs provided by UPC for the prevention and promotion of mental health. The Ministry of Health of Perú (MINSA) carried out this activity to share successful experiences in the virtual context. Here, the psychological containment services and emotional development workshops provided to UPC students were presented.

Different strategies oriented to new students to help them with the adaptation process were presented as well.





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# “A Mente Abierta”

“A Mente Abierta” (Opening Your Mind) 2020 is a counseling program for university students on psychological wellbeing issues run by UPC’s School of Communications and UPC CONECTA, in consultation with UPC’s Department of Educational Quality at Campus.

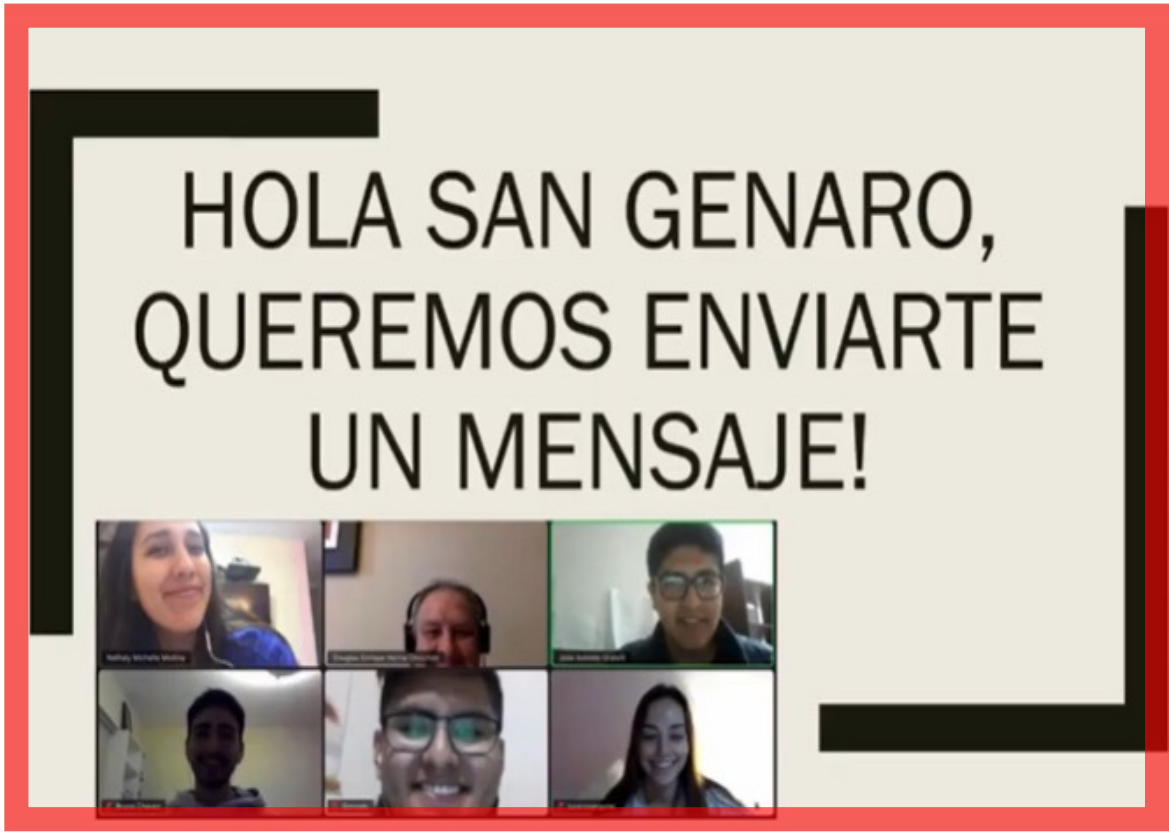
It presents a series of short informative programs about adaptation to university life, stress, study and concentration, healthy lifestyle, vocational aspects, among other topics related to mental health and the learning process. It also provides intervention guidelines for dealing with situations related to the topics presented.

Access is open and any university student or parent can access this valuable information developed by specialists in the field.


# Intervention at **San Genaro de Villa Health Center**

Students from UPC's School of Medicine developed a situation room as a management tool for the prevention of COVID-19 in San Genaro de Villa Health Center. In total, 82 students participated in four health facilities in high-risk areas of the district of Chorrillos.

Students prepared educational materials and addressed issues such as obesity, associated diseases, physical exercise, and healthy eating habits. In addition, informative talks were given about health care in the context of COVID-19, signs and symptoms, prevention, and assistance seeking.



# Talk open to the public: Smart eating

On December 3, 2020, the Nutrition and Dietetics program held a healthy webinar on “Smart Eating.” In this talk, recommendations were given regarding healthy nutrition to be able to perform our daily tasks.

Among other topics, it was mentioned that, within healthy foods, some have more advantages than others in favoring the cure or prevention of diseases. So, knowing about food is as important as eating it. This helps us to choose, discard, modify, and update our way of nourishing ourselves.

# Validation to digitize the Food Guide into an interactive tool

## National Food and Nutrition Center (CENAN-MINSA)

From Monday 17 to Friday 21 August 2020, validation was carried out to digitize the Food Guide into an interactive tool.

Claudia Ontaneda, Director of the Nutrition program, and Ruth Palomino, professor of the program, participated on behalf of UPC. The goal of their participation was to review the script of the core axis and the first sublevel to determine if the technical content presented was clear, adequate, and sufficient to inform and motivate future users.

The purpose was to validate the use of the web-based interactive tool that would allow bringing the food chart to Peruvian families during quarantine.

# Community Nutrition

Within the framework of the Community Nutrition course of the Nutrition and Dietetics program, interventions were carried out to make a situational and nutritional diagnosis of the target population and then intervene based on the findings. This project was developed in coordination with the National Institute of Family Welfare (INABIF).

Thus, a development project was proposed and it contributed to improving the nutritional situation found. The project "Un gol contra la anemia" (A Goal Against Anemia) was developed in the Center for Family Comprehensive Development (CEDIF), located in Villa Hermosa—Annex to CMI Juan Pablo II—district of Villa El Salvador, in person during January and February; and virtually from March to June.

A total of 107 children between the ages of 2 and 5 who attend the Villa Hermosa CEDIF participated, and training was provided to mothers and educational promoters to improve their knowledge of anemia prevention and treatment.