Interview: John Fernández van Cleve – Chancellor, University of Puerto Rico Mayagüez (UPRM), Puerto Rico



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John Fernández van Cleve, Chancellor of UPRM, highlights the institution's strong expertise in engineering and its application in the pharmaceutical and medical device fields.

What are some of UPRM's main assets?

We are very blessed to have the best students in Puerto Rico. UPRM's admission index is the highest on the island, especially for engineering. On average, our students achieve 322 out of 398 points on the College Entrance Examination. Our staff is also excellent; for example, almost every professor in the engineering school has a PhD and most of these are from well-reputed universities in the US and abroad.

Could you outline some of the key programs that you run in the College of Engineering?

UPRM runs four faculties: engineering, arts and sciences (including biotechnology), agricultural sciences and business administration. Our engineering programs include Masters and PhDs in electrical, mechanical, civil, chemical and industrial engineering. One of the school's best programs is called the Industry Partnership in which undergraduates do research with private industry, mainly pharmaceutical and manufacturing companies. There are also Capstone courses in which, once students have completed their university career, they enter a multidisciplinary group in companies like Fresenius to solve problems and then submit a report. We have had excellent

feedback from these courses and many companies have been applying to participate.

We also run an outstanding and highly supported program in a pharmaceutical lab as part of the chemical engineering faculty. The program is primarily supported by local industry in which they have their own building and facilities for conducting research on pharmaceuticals. There is also a bio-engineering program which, unlike the previous course which focuses on processes, does medical device research.

In terms of upcoming projects, we have just had two new Masters and PHDs programs for bio-engineering approved by the Council of Superior Education in Puerto Rico. We are also working with Ivan Lugo from INDUNIV and Lucy Crespo from the Puerto Rico Science, Technology and Research Trust on a combined pharmaceutical engineering PhD program with the medical sciences campus. The discussions have gone well so this industry initiative is going to be submitted to the pipeline and we are going to get that program ready as soon as possible so that both students and the industry can benefit.

What is the next step for most of your engineering graduates once they leave here?

We graduate 400 engineers a year from every area in engineering and around 120 companies come to our annual job fair to recruit our students; roughly 60 percent of those companies are from the US. These companies want to employ our students because they are bilingual and have an excellent performance track-record: we start with good students who, in turn, become excellent professionals. There are more and more companies coming every year to recruit our students. We have about 200 students in Microsoft, about 300 engineers in Boeing and around 200 in NASA. Although many stay here and work in the pharmaceutical industry, a lot of graduates go to the US.

In the last five or ten years our population has decreased because professionals in particular are emigrating. They are leaving the island because their prospects are better elsewhere and, our students get aggressively recruited through very attractive job offers. Our students are all over the world and the feedback that I get from recruiters is that they perform really well.

In that sense, you could say that your graduates are creating a good image internationally for Puerto Rico by being in various locations around the world.

Exactly, they have done remarkably well. Even in Washington we have many graduates in key places in government agencies. I go to Washington a couple times of the year and I meet with these employees. Before I started this post I was mainly focused on agriculture; while I knew a lot about the other faculties, I was unaware of this hidden gem. Our graduates are not oriented

towards saying they are the best but they do have an impact within the industry. My job has been to publicize these achievements. In terms of metrics, we receive a lot of support from the industry because when we go to them for help they know that we make a difference to their industry. Now Lufthansa is opening operations in Aguadilla and we are hopefully going to be supplying most of the engineers; this represents another opportunity in Puerto Rico for engineers.

What steps is the university taking to stimulate growth in terms of business and employment opportunities now and for the future?

There is a new university-wide initiative to increase our activities in innovation and entrepreneurship. Our number one priority has been to create an entrepreneurial environment for the students and the faculty. We want to create opportunities for the incoming freshman class to incubate good ideas and get involved in projects throughout their career at the university so that, when they graduate and enter the job market, they will create jobs and be entrepreneurs. I think this is the best way that we can help the island in all areas because we will be creating 2,000 entrepreneurs in agriculture, biotechnology, the arts and sciences and engineering and if we can increase this every year we will be doing a good job.

We also have several initiatives for our faculty and staff to promote the patenting of their work and now we have our first professor with a patent. She discovered a protein for early cancer diagnosis and with the patent she can create her own company from which she gets 51 percent of the profits and the university receives 49 percent. So we are trying to encourage staff to start their own businesses from their research as this is an important source of revenue for us.

How can you apply that entrepreneurship idea to a more global context in terms of promoting what UPRM has to offer?

We have a lot of top-notch projects across various disciplines which have the potential to be patented and, therefore, go global. There was, for example, a project with newly developed technology to quickly test for several diseases which will be of high-impact worldwide. Software engineering is another good example as there a lot of patentable ideas that can be developed in relation to applications and programs. Here at Mayaguez we have the CRD (Research and Development Center) and we receive $20 million a year from various sources for numerous research projects. We believe that if we get those marketable patents it will be of high-impact nationally and internationally and we may also be able to sell the patent.

In this way, research is imperative and our graduate and particularly PhD programs are really important. At the moment most of our PhD programs are in engineering and chemistry. We have a

lot of support and interest from Latin America for bio-engineering with many students coming from Colombia and the Dominican Republic. For the majority of our programs between 20 and 25 percent of the students come from Latin America but we need to increase our capacity because we are currently full. Part of our vision is to become a Caribbean hub and an international institution as well as being one of the best universities for graduate programs. However, by law, the university is created for the people and the government invests a lot of money in the institution so we have to give priority to Puerto Rican students. In fact, we receive 9.6 percent of the total revenue of Puerto Rico, which accounts for around 90 percent of our budget, and this means we charge only $50 per credit hour to local students, which is much lower than any other institution in the US with such excellent academics.

What is your vision for the future of the university? What do you hope to achieve as Chancellor over the next five years?

Innovation in the university is something that everyone needs to work on and we need to produce a much greater number of entrepreneurs here and grow our academic programs. So we are going to be putting all our efforts into these two areas because Puerto Rico is undergoing a recession and the university has to be a part of the solution to that problem. I think the best solution is to have more and better qualified students and entrepreneurs who create jobs. They can be significant contributors to the industry both locally and abroad. I have my staff involved and behind this initiative so I think that, by coming together, we can make a real difference.

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