



Herbert Wertheim
College of Engineering
UNIVERSITY of FLORIDA

Designing Global Experiential Programs to Meet Institutional Goals

University of Florida

Technion Israel Institute of Technology

Universidad Pontificia Comillas, Madrid

Presenters

- Pingchien Neo, University of Florida
- Hadas Shafir, Technion Institute of Technology
- Pedro Linares, Universidad Pontificia Comillas Madrid

University of Florida

- Public university established in 1853
- Global E3 Member since 2014
- 55,862 student enrollment in 2017
 - >5,000 international students
- Known as the Florida Gators
- College of Engineering founded in 1910
 - Renamed Herbert Wertheim College of Engineering in 2015
- Divided into 16 colleges with >100 undergraduate majors and 200 graduate degrees



UF QUEST - *Case for a Shared Academic Experience*

- University-wide initiative to implement a shared academic experience for all undergraduates
- Requires all incoming freshman starting in Fall 2019 to complete four core experiences that are aimed at:
 - **Cohort bonding** among students and **sense of belonging to a scholarly community**
 - Enhanced **awareness of the value of general education**
 - Exposure to **critical analysis, complex thinking, self-reflection, communication, decision-making**, and other foundational content inherent in general education



UF QUEST

UNIVERSITY
OF FLORIDA

UF QUEST

UF QUEST 1	UF QUEST 2	UF QUEST 3	UF QUEST 4
H, 3 CREDIT HOURS	B/P OR S, 3 CREDIT HOURS	E, 0-3 CREDIT HOURS	OPTIONAL
Engagement with Essential Questions from the Humanities <i>(Choose one course.)</i>	Engagement with Pressing Questions in the Natural and Social <i>(Choose one course.)</i>	Engagement in the World <i>(Choose one experience.)</i>	Synthesis of UF Quest Experiences within Discipline
THE EXAMINED LIFE	BIOLOGICAL AND PHYSICAL SCIENCES	INTERNSHIP OR CO-OP STUDY ABROAD COMMUNITY SERVICE RESEARCH PUBLIC SERVICE DESIGN AND COMPETITION	SENIOR CAPSTONE COURSE
IDENTITIES	CLIMATE CHANGE TBA TBA		
JUSTICE AND POWER	TBA TBA TBA		
NATURE AND CULTURE		
WAR AND PEACE	SOCIAL AND BEHAVIORAL SCIENCES		
UF QUEST 1 WILDCARD	PEOPLE AND DATA TBA TBA		
	TBA TBA TBA		
		
OPTIONAL HORIZONS COURSES			
FIRST-YEAR FLORIDA <i>(Optional, 1CH)</i>	HORIZONS COURSE 2 <i>(Optional, 1CH)</i>	HORIZONS COURSE 3 <i>(Optional, 1CH)</i>	FINAL-YEAR FLORIDA <i>(Optional, 1CH)</i>
E-PORTFOLIO			



UF QUEST

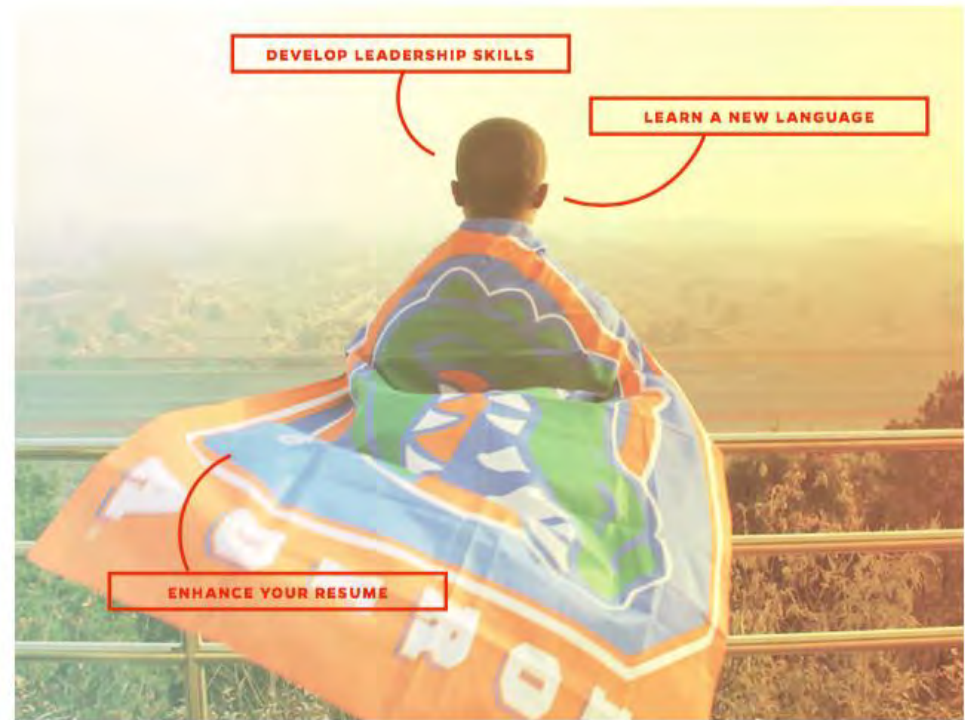
UNIVERSITY OF FLORIDA

Implementation

- Fall 2018 pilot and **Fall 2019 launch**
- Courses in UF Quest 1 and UF Quest 2 must all be **multi-disciplinary in nature.**
- All colleges must have experiences available to students in Fall 2019 for **UF Quest 3**. UF Quest 3 will be **optional for students, however, in Years 1-6** to allow phase in for all students.

Alignment of International Engineering Programs with UF QUEST

- Study abroad
- Internships abroad
- Research abroad
- Service learning abroad

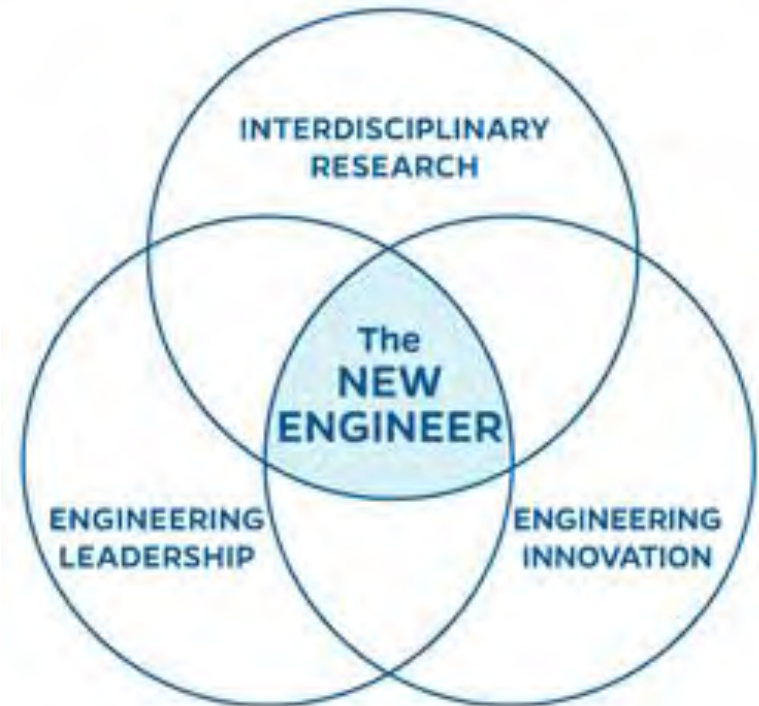


RUBEN JEAN - CIVIL ENGINEERING (OVERLOOKING THE FORBIDDEN CITY)

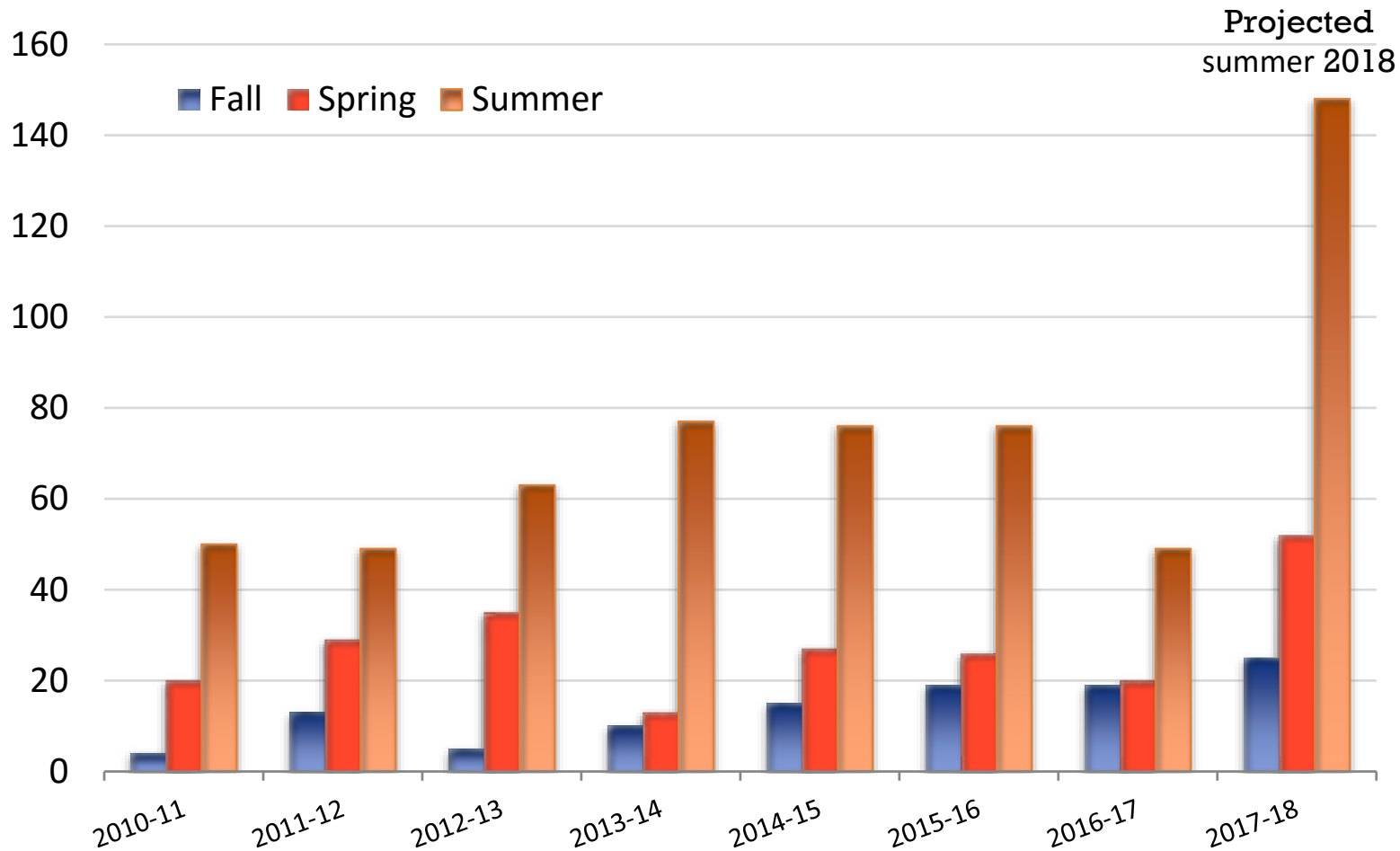
The New Engineer

The New Engineer is:

- A leader
- Ethical and principled
- Creative
- Grounded in a human-centered approach
- Focused on innovation and discovery
- Interdisciplinary
- Dynamic
- A contributor to the economy
- A contributor to the global community.



International Engineering Programs Outbound Students



Goal in 2025:
2000 students

UF in Haifa: Engineering Entrepreneurship and Internship

- Joint summer program between UF Engineering Innovation Institute and Technion that combines study and internship training
- Piloting in Summer 2018
- UF provides the academic content for Engineering Entrepreneurship – 3 UF Credits
- Technion coordinates the internship placement and supervises the internship progress – 3 UF Credits
- More by Hadas Shafir, Technion Israel Institute of Technology

UF in Madrid: Undergraduate Research

- Summer undergraduate research program at Universidad Pontificia Comillas Madrid
- Research experience in 4 or 8 weeks summer program
- Open to all engineering majors
- Students can also take classes in
 - Sustainable Engineering Principles
 - Internet of Things
 - Introduction to Entrepreneurship
 - Spanish Culture and Language
- More by Pedro Linares, Universidad Pontificia Comillas, Madrid

UF in Brazil: Sustainable Engineering and Service Learning

- Focused on Sustainable Engineering and Service Learning
- Partner:
 - Campus Brasil – local custom program provider in Brazil
 - Litro de Luz, local NGO in Sao Paulo
- Aims to introduce students to the nature of sustainable engineering principles in a global context as it relates to civil and environmental engineering
- Study tour in Sao Paulo and Rio de Janeiro



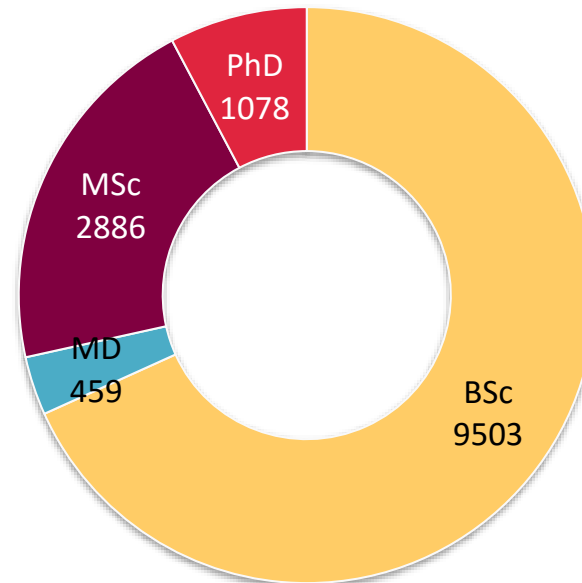
Designing Global
Experiential Programs to
Meet Institutional Goals
The Neubauer program

Technion in numbers

→ Fast facts



→ Student population in 2017



A World Leading Technological University

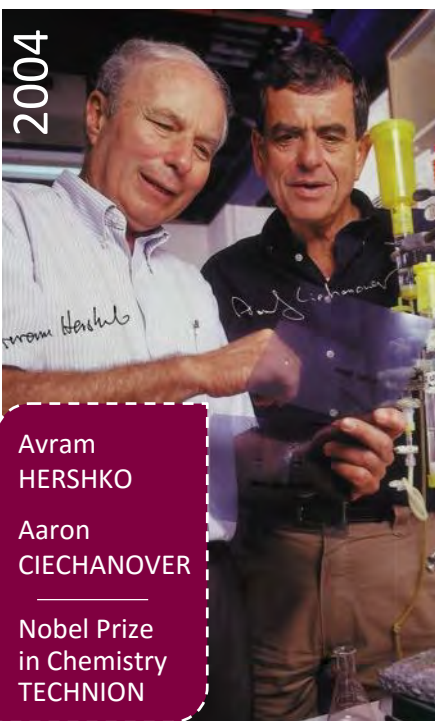
FIELD	RANKING
Entrepreneurship & Innovation*	No. 6
Educating CEOs of Companies with a Market Value over \$1 Billion**	No.7
Computer Science	No. 18
Science	No. 44
Overall	No. 93

* Survey conducted in April 2013 MIT survey in collaboration with Skolkovo Innovation Center

** Bloomberg ranking

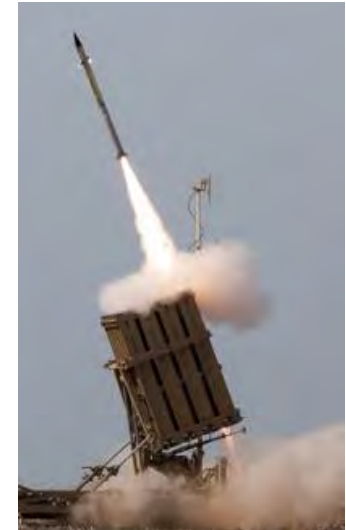
→ One of the top 50 universities in the world in Science

Nobel Prizes



Technion Alumni Achievements

- ExAblate (InSightec)
- USB Flash Drive (SanDisk)
- PillCam (Given Imaging)
- Ivy Bridge processor (Intel Israel)
- Iron Dome (Rafael)
- ReWalk (Argo)
- Cyber Protection (Trusteer)
- Arrow (IAI)





Strategic Alliances – JTCII

Joan & Irwin Jacobs
Technion-Cornell
Innovation Institute
New York City, USA
2011



Technion-Cornell Partnership

- ❖ To spin off 600 startups
- ❖ 8,000 permanent jobs
- ❖ 20,000 construction jobs
- ❖ 280 faculty
- ❖ \$100M grant from NYC
- ❖ Will generate \$23B in economic activity over 3 decades



Strategic Alliances – GTIIT



Guangdong-Technion Israel Institute
of Technology with Shantou
University Guangdong, China
2013



Technion International



→ Technion International is the home of the international community at Technion. It serves all international students and scientists and supports all international initiatives

→ Technion International promotes interaction and integration into the Technion community at large

Technion International Programs

→ Undergraduate Programs

- ❖ BSc in Civil Engineering
- ❖ BSc in Mechanical Engineering

→ Gap Year Program

- ❖ For High School Graduates

→ Graduate Programs

- ❖ MSc/PhD (in Chemistry, Physics and Chemical Eng.)
- ❖ Technion American Medical School
- ❖ Postdoctoral Studies

→ Semester & Summer Programs

- ❖ Engineering & Science
- ❖ Neubauer entrepreneurship & Innovation
- ❖ Neubauer Internships/Co-op Programs
- ❖ Research Internships
- ❖ Faculty led program
- ❖ Engineering & Science Summer School



Study Abroad

Neubauer Semester in Engineering and Science – The Challenge!!

- Undergraduate Engineering students
- A wide selection of Engineering and Science, Civil Engineering, Chemical Engineering, Mechanical Engineering and Aerospace Engineering.



- Engineering students DO NOT attend to “go abroad”
- Matching Syllabi

What have we done?

- Added Entrepreneurships courses
- Added Internships
- Extended the time period to Summer
- Added Internship opportunities in start-up companies/ cooperates/labs
- Added faculty led programs





Opening undergraduate research opportunities to exchange students

Pedro Linares

Hong Kong, 7th April 2018

Comillas P. University

- University of the Church, est. 1890
- Founding member of GE3
- 12,000 students
 - 1,900 international
- 550 international MOUs
- 7 schools, 6 institutes
- Located in Madrid
 - Two campuses

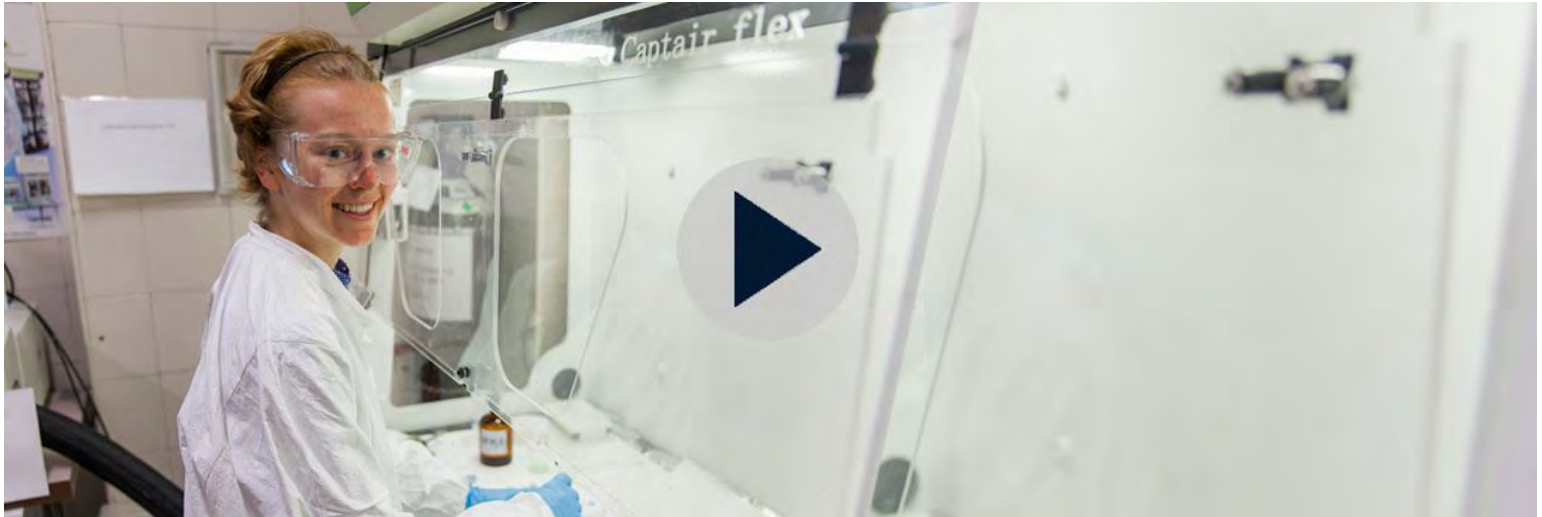


ICAI School of Engineering

- Est. 1908
- 1,200 students
- Mechanical, Electrical, Electronic, Computer Eng.
- Double degrees with BA, Business Analytics
- Masters in:
 - Industrial Eng
 - Computer Eng.
 - Power Systems
 - Railway Systems
 - Connected Industry
 - Big Data



The SAPIENS program

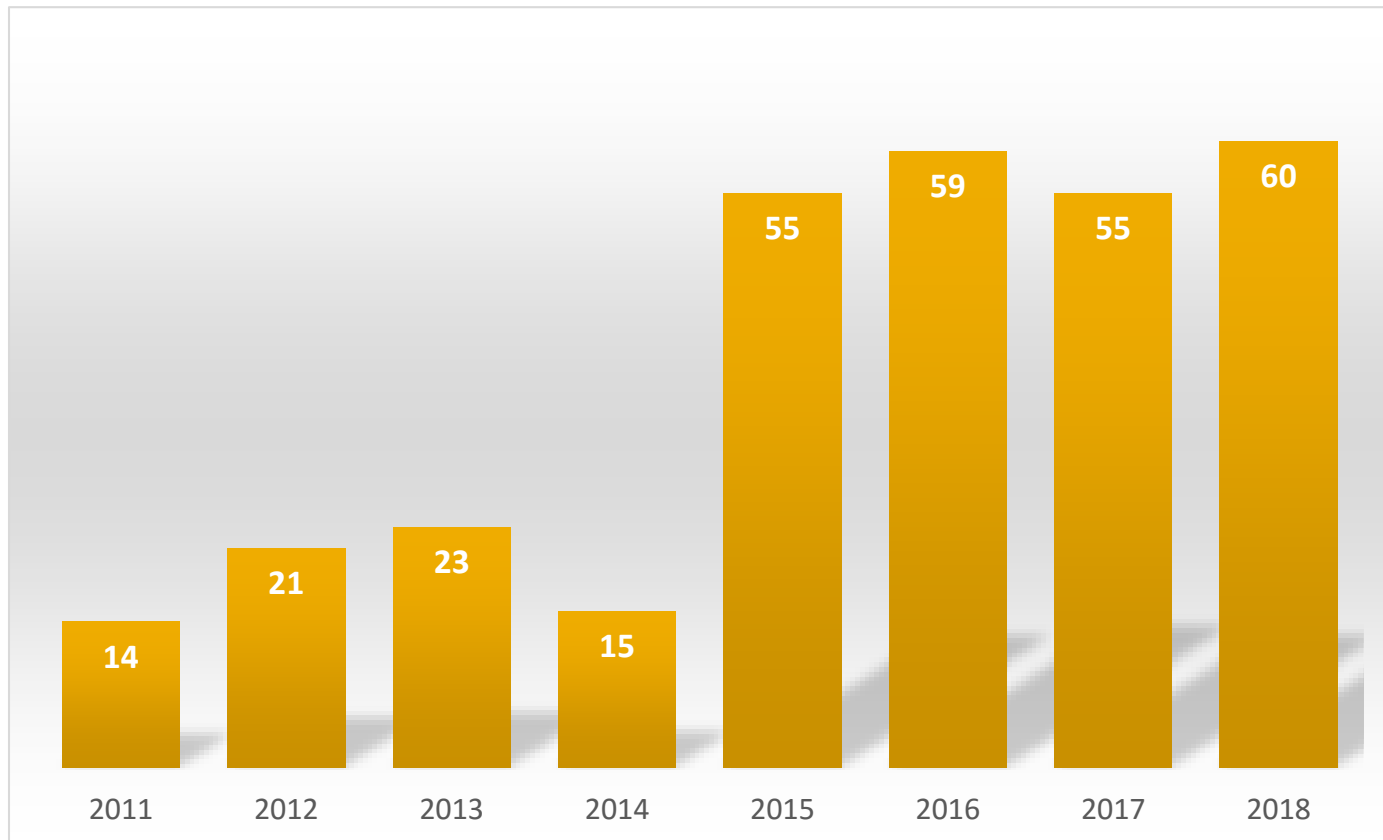


Paula Limberg. Sophomore University of Illinois Urbana-Champaign. ICAI Summer-SAPIENS 2016
"The quality of this program is exceptional. I enjoyed my time in Spain so much that when my program ended, I was already considering how I could come back again".

www.youtube.com/watch?v=g7ugYHaqtjk

www.icaicomillas.edu/sapiens

Research opportunities for exchange students





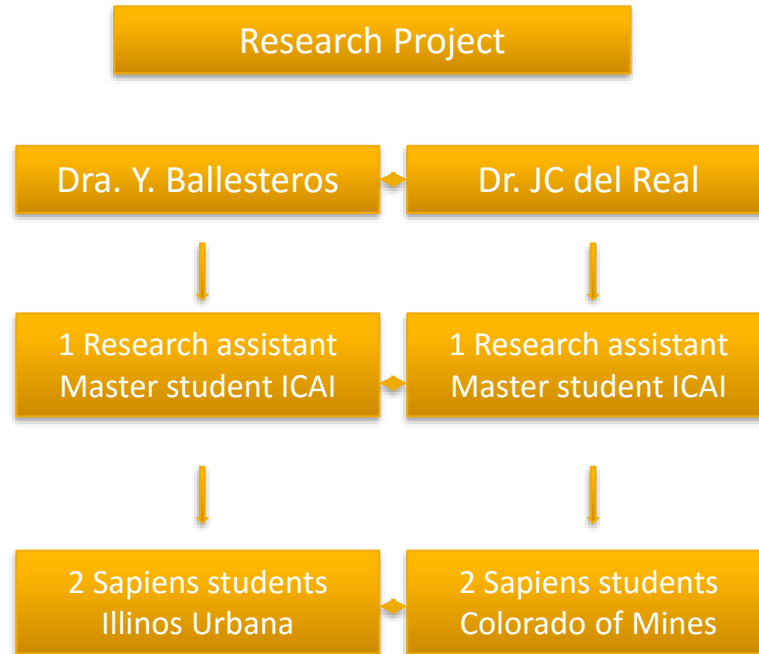
Why?

- Increase flexibility, to increase international mobility
- Improve the experience of our students
- Promote an interest for research
- Develop group working and multidisciplinary skills

Structure of research projects



Structure of research projects (a real case)



INFLUENCE OF GRAPHENE NANOPATELETS ON MECHANICAL PROPERTIES OF EPOXY ADHESIVE JOINTS

In this project the influence of graphene nanoplatelets on the mechanical properties of the structural adhesive will be studied. Adhesive joints will be tested to evaluate the strength and toughness.



Thanks for your attention

www.comillas.edu/personal/pedrol



UF in Brazil: Sustainability Engineering and Service Learning

- Tried to run for 2 years but lack student participation and interest
- Lack engineering programs in service learning
- How to engage engineering students in service learning?
- Is Brazil an attractive destination?
- Program cost for Brazil is more expensive than Germany for same duration

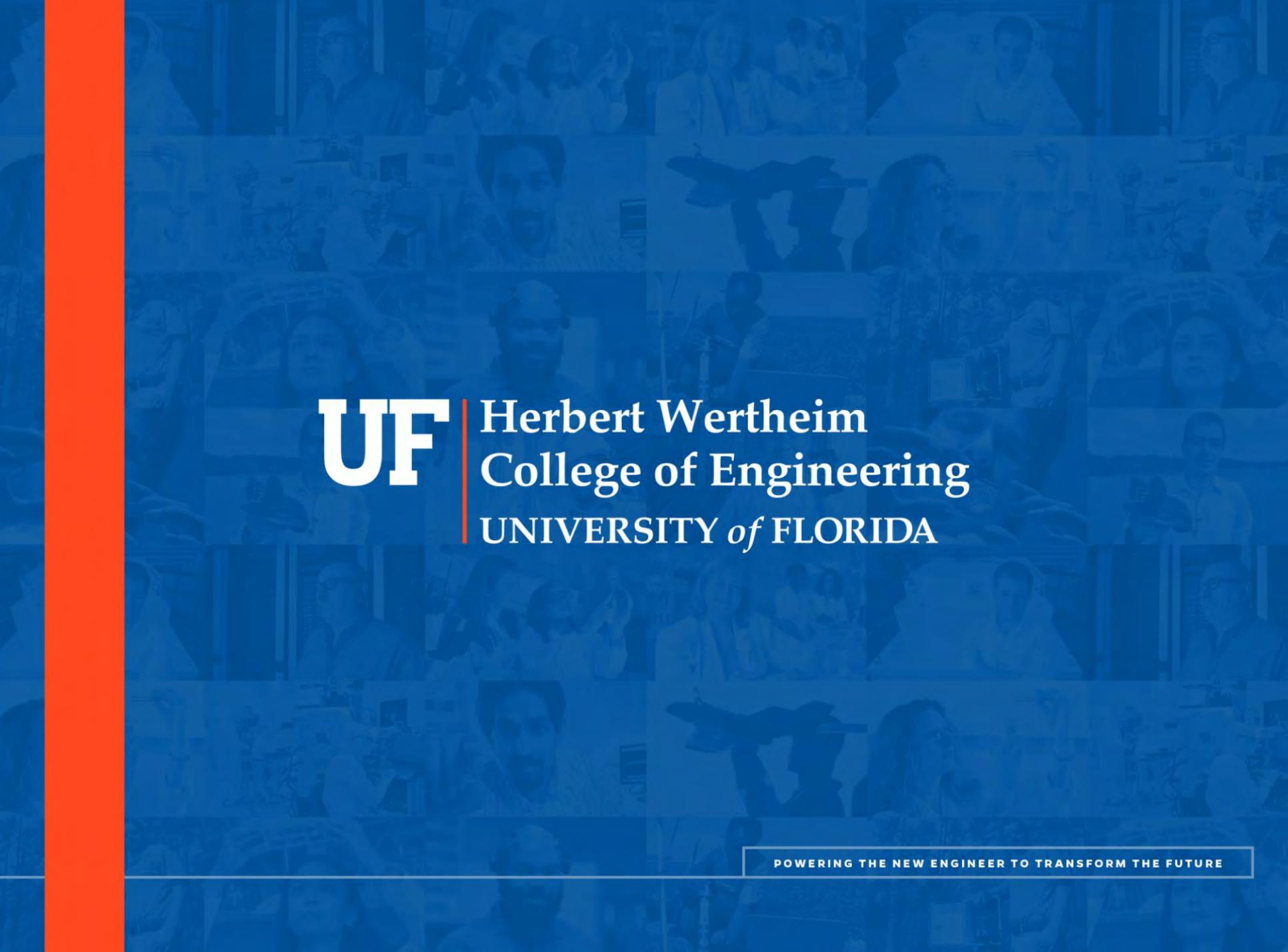
Success and Challenges at UF

Success

- Students are keen on programs that offer research and internship experiences
- Students drawn to European locations for summer
- Bright Futures (financial aid) available for summer for the first time in 2018
- Scholarships available for UF in Haifa program

Challenges

- Students have other obligations in the summer
- Domestic summer internships are paid
- Students wait to hear back from domestic internships before applying for summer programs
- Students not as keen on non-European locations
- Students not as keen on service learning experiences

The background of the slide is a blue-tinted collage of various images showing students and faculty members in different settings, including classrooms, labs, and group discussions. A solid orange vertical bar is positioned on the left side of the slide.

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POWERING THE NEW ENGINEER TO TRANSFORM THE FUTURE