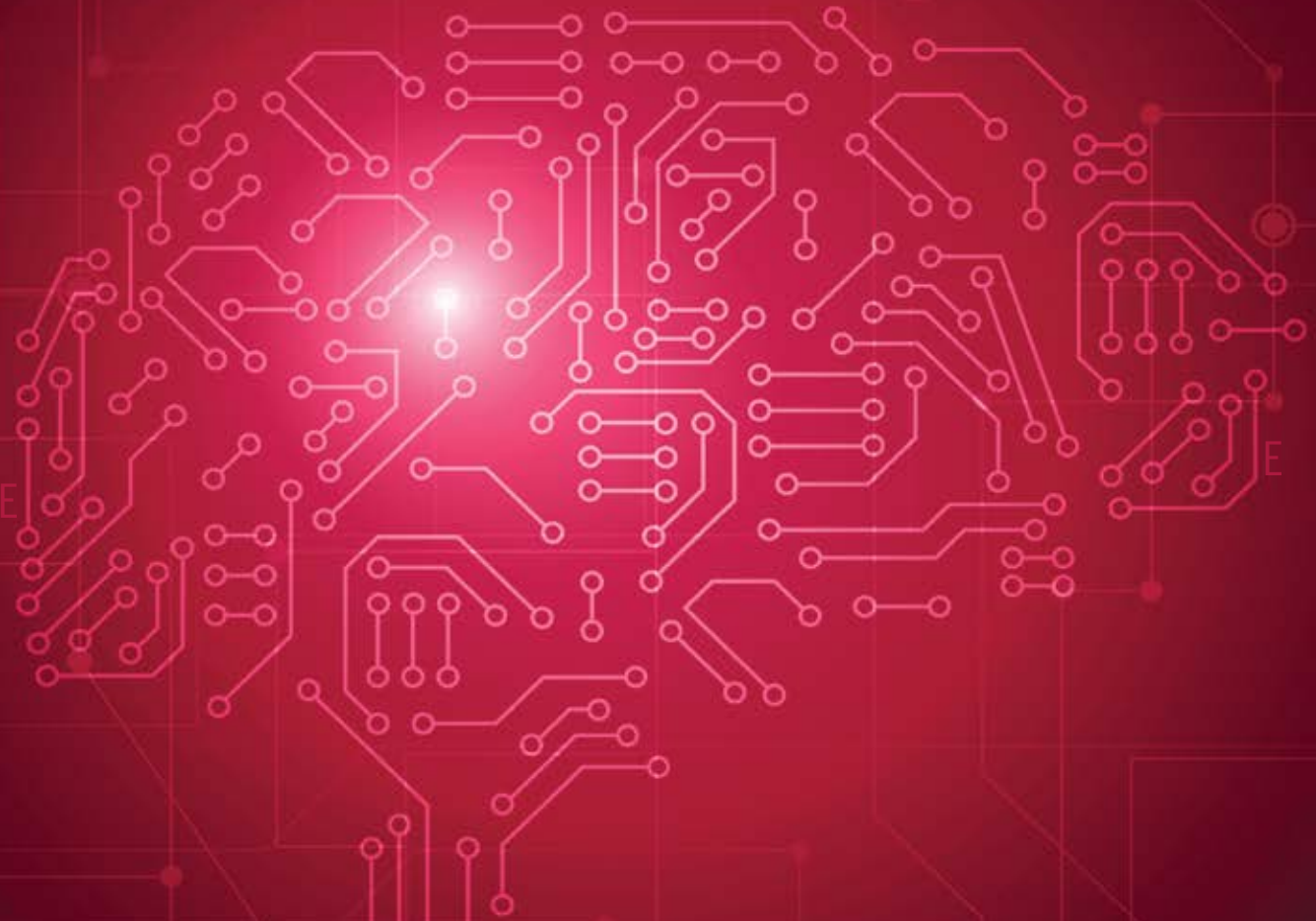


POWER THE FUTURE.
EMPOWER THE MIND.



2018-2023 STRATEGIC PLAN



STEVENS
INSTITUTE of TECHNOLOGY
Schaefer School of
Engineering & Science

STEVENS.EDU/SES

MESSAGE
FROM THE DEAN



2018-2023
STRATEGIC PLAN

POWER THE FUTURE.

The Charles V. Schaefer, Jr. School of Engineering and Science (SES) at Stevens Institute of Technology is known for its legacy of fostering and nurturing groundbreaking, world-class innovation. As a university on the rise, we are continually focused on growth and achieving excellence, as we have been for nearly 150 years.

As always, the landscape Stevens finds itself in is ever-evolving, and so we, too, must evolve to meet new challenges and seize new opportunities.

This is why in 2017, the SES community came together as part of our strategic planning process to plot the path forward as we pursue new heights of success. This process was all-inclusive, receiving input about the future from every department within the Schaefer School as well as its students.

Our 2023 strategic plan features a renewed commitment to student centricity, exciting new initiatives for research and innovation, and a focus on increasing collaboration across multiple fields at the school level, as well as with industry, other institutions, government, and the private sector to provide greater career development opportunities for our students. I, along with the rest of the Schaefer School leadership, am strongly committed to the resource development required for its successful implementation.

I extend my gratitude to the strategic plan steering committee and the SES community for taking an active role in shaping the future of our school, and for demonstrating the same leadership and vision that we hope to instill in all of our future graduates.

With this new vision for our future, I am confident that we will establish a new threshold for excellence. Together, we will build a world-class school of engineering and science with even more prominence on the global stage.



A handwritten signature in black ink that reads "Jean Zu".

Jean Zu, Dean

Schaefer School of Engineering and Science

EMPOWER THE MIND.

INTRODUCTION

The Charles V. Schaefer, Jr. School of Engineering and Science is steeped in a long history of educational excellence and a rich tradition of technological innovation.

In 2013, Stevens unveiled its strategic plan for the entire university, *The Future. Ours To Create. Strategic Plan for Stevens 2022*. As Stevens' flagship school, SES is aligning itself with the overall university vision and demonstrating a spirit of collaboration through commitment to a common purpose.

To carry forth our legacy of leadership and leading edge research, and further propel Stevens' ascension toward becoming a first-tier research university, the SES community has collaboratively identified five areas of strategic opportunity to further develop through 2023.

EDUCATION AND TRAINING
OF UNDERGRADUATE AND
GRADUATE STUDENTS

RESEARCH,
SCHOLARSHIP AND
INFRASTRUCTURE

FACULTY
INVESTMENT AND
DEVELOPMENT

Within these five domain areas are a defined set of goals and initiatives, revolving around our existing core strengths as well as newly developing opportunities, which will direct the Schaefer School's progress over the course of the next five years and shape a new foundation for our future.

The strategic plan outlines the strategy behind how the Schaefer School will begin to increase collaboration, enhance its reputation, foster a spirit of innovation and entrepreneurship, continuously strengthen the quality of its faculty and students, and build its research, scholarship and infrastructure over the course of the next five years and beyond.

This plan is a living document, which has the flexibility to change to meet unforeseen challenges and encompass new opportunities that may arise. As we move beyond the strategy phase, our next steps include the development and securing of the needed resources, and the creation of a synergistic academic environment to ensure a successful implementation of focused initiatives in strategic priority areas. We will closely monitor our progress utilizing key measures of success, with special emphasis on the indicators used for the *U.S. News and World Report* school rankings.

Through the support and collaboration of SES community, along with strong leadership and vision, the Charles V. Schaefer, Jr. School of Engineering and Science will be a leader in providing technological solutions with global impact.



INNOVATION
AND
ENTREPRENEURSHIP

CULTURE,
GOVERNANCE AND
REPUTATION BUILDING

2018-2023 STRATEGIC PLAN

VISION FOR 2023 AND BEYOND

The Charles V. Schaefer, Jr. School of Engineering and Science will be a first-tier student-centric research school, dedicated to educating the next generation of science and engineering leaders and innovators, and to solving problems with global impact.

MISSION

The Schaefer School embodies a sense of purpose to:

- Educate and empower tomorrow's technological innovators and leaders with strong fundamentals, broad-based knowledge, critical thinking skills, and global perspectives
- Create new knowledge and advance research frontiers through creativity, innovation, and collaboration
- Impact society at large through technical and leadership services in professional organizations and public/private sectors



VALUES

The ethos of the Schaefer School is underscored in our core values which support our vision of empowering, through education and research, the next generation of innovative leaders in science and engineering to effect global impact.

We hold true the following values: **WE-AIM-HIGH**

- W**orld citizenship
- E**xcellence and student centricity
- A**cademic integrity
- I**nterdisciplinarity and collaboration
- M**ulticultural inclusiveness and diversity
- H**igh academic and ethical standards
- I**nnovation and entrepreneurship
- G**oal achieving
- H**onor and respect

WE-AIM-HIGH

During the planning process, five areas of opportunity were identified and the following goals were established under each domain to make strides toward achieving our vision and embodying our mission:

EDUCATION AND TRAINING OF UNDERGRADUATE AND GRADUATE STUDENTS

Innovate and strengthen broad-based education and interdisciplinary training to enrich the learning experiences and global perspectives of our graduates for a lifelong benefit.

RESEARCH, SCHOLARSHIP AND INFRASTRUCTURE

Build a thriving research enterprise of the highest possible quality, scholarly productivity and impact enabled by a critical mass of talent, solid infrastructure and efficient administrative support.

FACULTY INVESTMENT AND DEVELOPMENT

Grow a diverse faculty at all ranks and empower them to be inspiring educators, academic research leaders and innovators.

INNOVATION AND ENTREPRENEURSHIP

Ingrain an innovative and entrepreneurial mindset in our educational and research endeavors to position SES as a global leader in training highly skilled future engineers and scientists, and in transforming societal challenges to marketplace solutions.

CULTURE, GOVERNANCE AND REPUTATION BUILDING

Create a culture of “excellence in all we do” that is further enhanced by strong and transparent governance, strategic partnerships and engagement, and effective communications.

2018-2023 STRATEGIC PLAN

STRATEGIC PRIORITY:

Improve the selectivity and demographics of master's students through high admissions standards and via collaboration with prestigious global partners.

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STRATEGIC PRIORITY:

Strengthen and innovate curricular and extra-curricular programs and activities to enrich the learning experiences of our students.

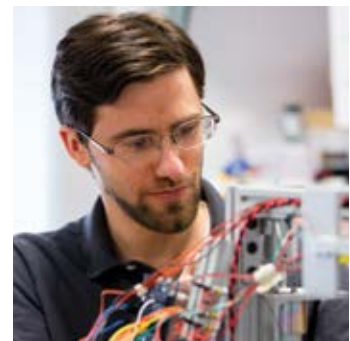
EDUCATION AND TRAINING OF UNDERGRADUATE AND GRADUATE STUDENTS

GOAL

Innovate and strengthen broad-based education and interdisciplinary training to enrich the learning experiences and global perspectives of our graduates for a lifelong benefit.

STRATEGIES & INITIATIVES

- Effectively manage SES undergraduate enrollment growth and distribution through increased selectivity, strategic new program offerings and adequate resource allocation.
- Develop versatile recruiting mechanisms for master's students of diverse demographics.
- Strengthen and expand doctoral training and nurture students' career development.
- Innovate the undergraduate and graduate curricula by leveraging internal and external resources to meet 21st century challenges.
- Upgrade teaching and research laboratories with state-of-the-art equipment and expanded capacities.
- Provide students with experiential learning opportunities on campus and through domestic and international partnerships, as well as facilitate their career placement.
- Organize activities to integrate undergraduate and graduate students into campus life and facilitate interactions with SES leadership and alumni for a lifetime SES/Stevens identity and affinity.
- Promote STEM education through effective outreach to increase the diversity of SES students.

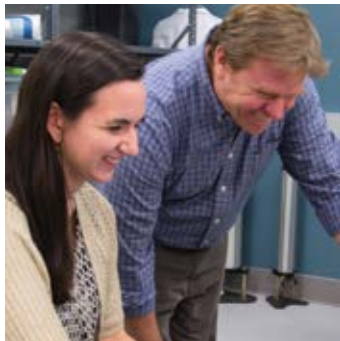


GOAL

RESEARCH, SCHOLARSHIP AND INFRASTRUCTURE

GOAL

Build a thriving research enterprise of the highest possible quality, scholarly productivity and impact, enabled by a critical mass of talent, solid infrastructure and efficient administrative support.



STRATEGIES & INITIATIVES

- Build and sustain a critical mass of faculty clusters in foundational pillars through cross-disciplinary hiring and appointment, strategic investments and valuing and supporting scholarship and research success in all areas.
- Invest in and provide sustained support for shared research facilities with a significant user base.
- Foster major multi-investigator, interdisciplinary grant proposal activities with seed funding.
- Strengthen pre and post-award research administration support, and manage the investigator teaching load to ensure funding success and research productivity.



RESEARCH

STRATEGIC PRIORITY:

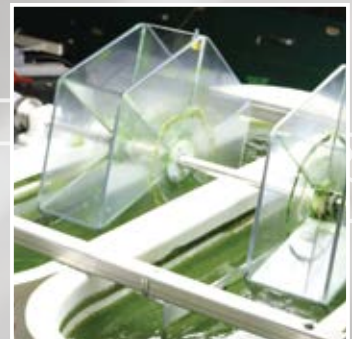
Increase the number of high-quality doctoral students enrolled and graduated with targeted recruitment and multi-year offers of scholarship support.

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STRATEGIC PRIORITY:

Increase the output and the amount of funding of scholarly research via faculty-initiated single and multi-PI efforts, as well as investment in research infrastructure.

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STRATEGIC PRIORITY:

Strengthen the faculty at all ranks through strategic hiring for major net growth, effective mentorship for career success and timely recognition for retention.

FACULTY INVESTMENT AND DEVELOPMENT

GOAL

Grow a diverse faculty at all ranks and empower them to be inspiring educators, academic research leaders and innovators.

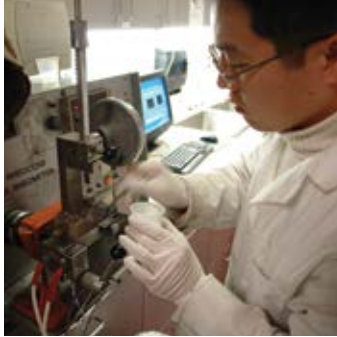
STRATEGIES & INITIATIVES

- Recruit stellar faculty in foundational pillar areas to build a critical mass, cutting across disciplines.
- Strategize hiring of high-quality teaching stream faculty in line with our core educational mission and pedagogical innovation.
- Formalize a school-wide faculty mentorship program and seed innovative teaching and research initiatives.
- Provide a platform for cross-pollination of interdisciplinary and interdepartmental education and research ideas, and a mechanism to seed them.
- Reward major faculty successes in both teaching and research, and promote external recognition of faculty.



FACULTY

INNOVATION AND ENTREPRENEURSHIP



GOAL

Ingrain an innovative and entrepreneurial mindset in our educational and research endeavors to position SES as a global leader in training highly skilled future engineers and scientists, and in transforming societal challenges to marketplace solutions.

STRATEGIES & INITIATIVES

- Inculcate the innovative and entrepreneurial mindset as an integral part of student learning experiences.
- Create an SES I&E Hub to promote and support faculty and student-led entrepreneurial activities and facilitate revenue generation from such activities.
- Institutionalize I&E support with coordinated policies, procedures and recognition.



INNOVATION

CULTURE, GOVERNANCE AND REPUTATION BUILDING

GOAL

Create a culture of “excellence in all we do” that is further enhanced by strong and transparent governance, strategic partnerships and engagement, and effective communications.

STRATEGIES & INITIATIVES

- Relentlessly pursue excellence in teaching, research, entrepreneurship and service.
- Strengthen the academic leadership team and empower them to lead with a shared vision, openness, accountability and effectiveness.
- Strengthen collaborations among academic departments and with other schools at Stevens, build strategic partnerships with prestigious institutions and organizations, engage academic leadership counterparts of other universities, and broadly publicize major faculty and student accomplishments to raise the SES profile and reputation.

STRATEGIC PRIORITY:

Enhance the reputation of SES and its departments through effective external communications of our successes, close interactions with leadership counterparts in other institutions and partnership building with major employers and recruiters.

STRATEGIC PRIORITY:

Strengthen collaborations among different departments in SES, with other schools at Stevens and with other institutions outside Stevens.



2018-2023 STRATEGIC PLAN

IMPLEMENTATION PLANS AND ASSESSMENT: 2018-2023

The steering committee recognizes that the success of the SES strategic plan can only be determined by the success of its implementation. The strategic plan itself is focused on *what* the Schaefer School should be striving for, rather than how to achieve it.

Now that we have identified what we believe to be a clear direction for the growth and evolution of SES, a detailed implementation planning process will follow. The details of implementation are essential and must be carefully developed and revisited each year to continually incorporate what we've learned.

Dean Jean Zu has already begun the implementation process in many ways through recruiting high quality faculty, revamping faculty mentorship programs, strengthening departmental leadership and building strong connections with our alumni and other prestigious universities.

The members of the Schaefer School leadership team responsible for each goal, in collaboration with the SES department chairs, will now take ownership of respective pieces of the strategic plan and begin the development of a synergistic roadmap for implementation and assessment of our successes. These individual implementation plans will provide the detailed and customized implementation approaches and targets relevant to each area outlined in the strategic plan.

The leadership team will continue to update the SES community on implementation planning, progress and successes in the coming months. The results of implementation efforts will be closely monitored, along with outside factors, and goals and tactics will be adjusted accordingly.

Ultimately, the successful implementation of the strategic plan rests upon a strong and committed Schaefer School leadership and a fully engaged and devoted faculty. Working together under a shared vision and with a common purpose, we will rise to be amongst the top engineering and science schools in the country and around the world.





APPENDIX

THE PLANNING PROCESS

August 20 - 22, 2017

SES faculty strategic planning retreat held with significant success

September 15, 2017

The steering committee was officially constituted

September 20 - November 9, 2017

Weekly committee meetings and completion of SES strategic plan framework version 1.0

November 13 - December 10, 2017

SES faculty and student input and committee deliberations with framework version 2.0

December 10, 2017 - January 8, 2018

SES leadership feedback and committee iterations, leading to current version of the SES strategic plan

January 17, 2018

SES town hall meeting on the strategic plan

February 9, 2018

SES strategic plan finalized

SES STRATEGIC PLAN STEERING COMMITTEE

Christos Christodoulatos - Professor & Director of the Center for Environmental Systems

Civil, Environmental and Ocean Engineering

Henry Du - Professor & Committee Chair

Chemical Engineering and Materials Science

Hamid Hadim - Professor

Mechanical Engineering

Samantha Kleinberg - Assistant Professor

Computer Science

Rainer Martini - Associate Professor & Associate Dean for Graduate Studies

Charles V. Schaefer, Jr. School of Engineering and Science

Alexei Miasnikov - Professor & Department Chair

Mathematical Sciences

Patricia Muisener - Teaching Associate Professor

Chemistry and Chemical Biology

John Raziano - Undergraduate Student

Mechanical Engineering

Ashley Riley - Senior Communications Manager

Charles V. Schaefer, Jr. School of Engineering and Science

Patrick Rehain - Ph.D. Student

Physics

Stefan Strauf - Associate Professor

Physics

Koduvayur Subbalakshmi - Professor & Committee Vice Chair

Electrical and Computer Engineering

Paul Sunda - Assistant Dean

Charles V. Schaefer, Jr. School of Engineering and Science

Hongjun Wang - Professor & Department Chair

Biomedical Engineering

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