SAINT LOUIS UNIVERSITY

PARKS COLLEGE
of ENGINEERING, AVIATION AND TECHNOLOGY

STRATEGIC PLAN FOR ACADEMIC YEARS 2015 - 2021
MESSAGE FROM THE DEAN

Dear friends of Parks College,

We started the development of our College Strategic Plan with a series of faculty retreats during 2013 and 2014. In the 2014-15 academic year we assigned a College Strategic Plan Committee and a faculty ad hoc committee to finalize the plan. Over the past three years the vast majority of our faculty, staff, students, alumni and friends of the College contributed time, effort and energy to the development of this plan. I am grateful for their dedication and determination to bring this plan to adoption by the Parks Faculty Assembly on April 29th, 2015. On behalf of the College I thank all our stakeholders and constituents who contributed and provided much useful input to this document.

This document presents a strategic plan for Parks College of Engineering, Aviation and Technology. It is a rolling and dynamic 5-year strategic plan, which the College intends to revise as needed annually.

The document was developed in order to guide the College growth and direction for the next five years, and to integrate our efforts with the strategic plan for Saint Louis University. The College level goals reflect the themes articulated in the University’s strategic plan. The guiding principles for the strategic plan are:

- It is aspirational, considering our benchmark institutions and our key competitive advantages;
- It has clear, achievable performance targets;
- It galvanizes the key stakeholder groups (students, faculty, staff, alumni, and industry) toward a shared vision; and
- It makes a solid case for the resources we need, and concurrently positions Parks College in a sustainable fiscal state for the foreseeable future.

Parks College must play a key role in research-inspired education and in preparing the workforce needed to address the challenges facing humanity. Parks College must strive to increase diversity in its students, faculty and staff.

The ambitious goals set forth in this document will only be possible by the collective effort of all our constituents. We will continue to hire and retain outstanding faculty and staff. We will continue to recruit and train a high caliber student body that is not only focused on excelling in academics but also has a penchant for entrepreneurship, service, and social change based on ethical values in the Jesuit tradition.

Our goals are rather ambitious, but attainable with your partnership.

With kinder regards,

Theodosios Alexander, Sc.D.
Dean and Professor
Parks College of Engineering, Aviation and Technology

“\textit{It is an honor and a privilege for me to be part of this combined and noble effort.}”

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Parks (Air) College was founded in 1927 by Oliver L. Parks, an aviation pioneer, as an independent institution that trained pilots and airplane mechanics. Mr. Parks was determined to raise the standards of aviation education: Parks College became the first federally approved school of aeronautics, receiving Air Agency Certificate Number 1 in 1929, thus becoming the first College allowed by the Federal government to certify pilots. (We have held the certificate number continuously to date). Mr. Parks used the umbrella name Parks Air Lines Inc. for the flight school and for aircraft manufacturing operations. By 1934, Parks College was also training aeronautical engineers. Parks College Airlines was founded as part of Parks College in 1935, using College aircraft, newly trained pilots and maintenance students. The Airline operated from Curtiss-Steinberg Airport in Cahokia, Illinois (later called Parks Metropolitan Airport and today called St. Louis Downtown Airport), with flights to Chicago, Indianapolis, Memphis, Sioux City and Kansas City. Ozark Airlines lost its operating certificate in 1950 and purchased Parks Airlines in order to use its certificate and continue its operations. Ozark Airlines eventually merged with Trans World Airlines in 1986; and in turn with American Airlines in 2001 and US Airways in 2013. Following a series of first-achievements in aviation the College also awarded the first Ph.D. in Aviation in the world in May 2013.

In 1946 Mr. Parks donated the College to Saint Louis University. Since then, the College has grown significantly by adding new degree programs in engineering and aviation, and by broadening its mission to include research and service components in addition to teaching. Today the College offers undergraduate aviation programs in flight science (professional pilot degree and certification) and aviation management as well as Master’s and Doctoral programs in aviation. In engineering, the undergraduate programs include aerospace, mechanical, civil, biomedical, electrical, computer, interdisciplinary, and engineering physics. Master’s and Doctoral programs in engineering are also offered. Most of the graduate programs in the College were started in 2009 and have enjoyed steady growth since. Over the past four years, the College has established a positive trajectory of growth in enrollment, research and scholarly productivity, research funding, and donations.

Parks College moved from Cahokia, Illinois to the Frost Campus in 1997. Today Parks College is housed in four different buildings. Three of the buildings are located on the main Frost campus, and one building (hangar facilities and offices associated with the flight line) is located at St. Louis Downtown Airport in Cahokia.

The College is characterized and widely recognized by its DNA of entrepreneurship and leadership. In the past five years, the College has established a positive trajectory of growth in enrollment, alumni donations, scholarly productivity, and research funding. Moving forward, the college plans to continue its rich tradition of forming tomorrow’s leaders while strategically exploring new opportunities. Building on our legacy, this document is prepared by the stakeholders of Parks College in order to assist the college and its constituent groups to plan and enhance our future.
During fall 2014, under the leadership of Dr. Fred Pestello, a strategic plan for Saint Louis University was initiated. The strategic planning steering committee, seeking input from all constituencies of the university, defined four imperatives and eight visions for the strategic plan of the university.

The four imperatives are:
- A Commitment to Reinforcing Mission & Identity
- A Commitment to Enhancing Diversity & Inclusion
- A Commitment to Deepening Interdisciplinary Collaboration
- A Commitment to Advancing Institutional Distinctiveness & Excellence

The eight underpinning visions for the future of Saint Louis University are:
- SLU as a Source of Academic Excellence Rooted in Values-Based Learning
- SLU as a Center of Research & Disseminator of New Knowledge
- SLU as a Health Promoter & Provider
- SLU as a Leader in Student Access & Success
- SLU as a Discerning Steward of Resource
- SLU as an Entrepreneur for Social Justice and Responsibility
- SLU as an Advocate for St. Louis
- SLU as a Global Citizen

The proposed strategic plan for the college clearly emulates the imperatives and visions of the university.

Pursuant to the strategic planning initiatives at the university, Dr. Theodosios Alexander, dean of Parks College, in consultation with the Parks College Faculty Assembly, formed a College Strategic Planning Committee (CSPC) to develop a College Strategic Plan (CSP). His vision for the CSP, like the one at the university, will be mission-driven, inclusive of all stakeholders, transparent, aspirational, dynamic and responsive.

The College Strategic Planning Committee (CSPC) sought input from all faculty and staff for the strategic plan through a survey. In addition, input was sought from students, alumni, and board members (Industry Advisory Boards of all programs and Executive Advisory Board). The results of these surveys were reviewed by the CSPC. A sub-committee of the CSPC then worked on the broad goals of the strategic plan and presented it to the CSPC. CSPC then arrived at four strategic goals. The faculty and staff of college, along with a representative of Association of Parks College Students (APCS), held a mini-retreat on December 9, 2014 to discuss the four goals stated below and deliberated on possible objectives, strategies, actions, and measures needed to achieve the goals. Subsequently, four sub groups of the CSPC were assigned the task of streamlining these strategies, actions, and measures.

Implementation

Implementation of the plan will begin immediately. During the budget cycle beginning fall 2015, budget requests will reflect relevant information from the strategic plan. At the end of every spring semester, a select faculty committee appointed by the dean in consultation with the faculty assembly will review the efficacy of strategic plan and report its findings to the faculty assembly along with any course corrections needed in the strategic plan. The same report will also be presented at the joint board meeting held annually in the month of August.

“Faculty, Staff and Students are our greatest asset.”
Objective 1.1: Increase quality, diversity and retention of undergraduate and graduate students.

Actions

1.1.1. Increase the pool of undergraduate scholarships.
1.1.2. Increase the course offerings to provide adequate graduate programs in select disciplines.
1.1.3. Expand on the set of interdisciplinary technical electives for undergraduates.
1.1.4. Increase engagement with area high school students that represent diverse student body and focused engagements such as Project Lead The Way (PLTW) and First Robotics.
1.1.5. Improve collaboration between Faculty Mentors and Academic Advisors to better refer and assist at-risk students.
1.1.6. Enhance first-year experiences across departments and Parks.
1.1.7. Develop metrics for quality that measure the “value added” of a Parks education.
1.1.8. Develop metrics for retention.

Measures

- Percentage of SLU tuition available for undergraduate scholarships
- Number of courses offered; Graduate/advisor survey that identifies whether course needs are met
- Number of courses offered; Student/alumni survey that identifies whether course needs are met
- Number of high-school students engaged; number of PLTW students that apply to Parks
- Retention rate of all Parks students; Retention rate of students identified as at-risk
- Credit-hours of first-year students enrolled in Parks courses; Number of first-year students engaged in Parks student groups
- The metric itself and its use
- The metric itself and its use

Objective 1.2: Provide an educational experience that is current, engaging, and that encourages teamwork, entrepreneurial mindset, global experience and collaborative learning.

Actions

- Enhance students’ opportunities to promote Parks and themselves in national professional activities, such as: Engaging local and national professional engineering and aviation societies, Creating a fund to send students to present at conferences, Creating a fund to send students to national competitions, Seek recommendations on improving efficiency and visibility for student-led activities
- Expand professional/training opportunities for students: Create courses of study that accommodate students missing a semester due to a co-op, Expand engineering- and aviation-based student services to better connect Parks students with potential employers, Create travel funds for students attending conferences/competitions, Identify new methods to engage students and employers
- Create ePortfolios (or analogous system) to formally capture and promote students’ in-class experiences, research/project activities, professional training and extracurricular experiences.
- Enhance and promote study abroad through strategic partnerships in two-way exchange programs.
- Modernize Parks facilities to improve the delivery of undergraduate and graduate education: The Center for Aviation Science, Engineering laboratories (e.g., an Oliver Hall Annex), Cross-disciplinary labs (e.g., structural mechanics), The Center for Additive Manufacturing, Modernize classrooms to promote teaching innovation
- Develop interdisciplinary programs with the goal of creating undergraduate/graduate degrees in: Robotics Engineering, Medical Product Design, Unmanned Aerial Systems
- Pursue collaboration with other Universities to create an online graduate course exchange program.

Measures

- Percentage of students: Participating in competitions and/or receiving regional, national, or international awards; In honors program, GCSP, SGA and APCS; Belonging to learning communities; Belonging to one or more professional organizations such as ASME, IEEE, BMES, AHP, ASCE, SWE, AIAA, SAE.
- Percentage of students on summer internships and co-ops.
- Percentage of students with ePortfolios; Traffic to ePortfolios
- Percentage of students who engage in study abroad.
- Funds pledged
- Number of program-related courses created
- Number of faculty identified/hire with a role in these programs
- Whether the programs are approved by the Faculty Assembly
- Number of agreements signed
- Number of pilot/test courses run
- Student-credit-hours enrolled in cross-campus courses
Objective 1.3
+ Play a major role in the STEM initiatives at the university.

**Actions**

1.3.1. Engage Parks faculty in STEM-related committees and activities on-campus.
1.3.2. Increase interdisciplinary collaboration of Parks faculty with other units of the university.
1.3.3. Increase engagement of Parks students and faculty with area middle schools and high schools to promote career opportunities in STEM.
1.3.4. Host STEM teacher training on campus to provide “technology and engineering” experience to science and mathematics teachers.
1.3.5. Use the resources developed under the KEEN program to enhance the STEM activities and enrich by entrepreneurial learning.

**Measures**

- Fraction of committees with Parks faculty;
- Fraction of committees led by Parks faculty
- Papers written; Grants submitted;
- Students co-advised
- Student-contact-hours
- Teacher-contact-hours
- Pre/post surveys to assess enrichment

Goal 2: Research, Innovation and Scholarly Activity

Parks College of Engineering, Aviation and Technology will pursue innovations, research and scholarship in support of its undergraduate and graduate educational mission and to advance knowledge and discovery. The college will engage both undergraduate and graduate students in discovering, developing and disseminating quality fundamental and applied research, and innovative pedagogy that have enduring value.

Objective 2.1
+ Increase investment in graduate student recruitment and development

**Actions**

2.1.1. Create an array of dedicated research and teaching assistantships, such as:
   - 1-year bridge fellowships
   - 2-year entry
   - 5-year merit/recruiting
2.1.2. Define roles for teaching and research assistants.
2.1.3. Define success criteria for the graduate program that reflect the true costs/benefits of Parks research programs and capacity of the college.
2.1.4. Dedicate resources for targeted recruitment of graduate students (e.g., travel supplements for a Parks booth at a technical conference).
2.1.5. Build a supportive culture for graduate education
   - Create gathering spaces for graduate students
   - Increase support for graduate seminar (e.g., food, travel funds, dedicate time, expectations on attendance)
2.1.6. Identify efficiencies for graduate education
   - Create a sustainable set of graduate courses
   - Create/merge cross-disciplinary graduate courses
   - Pursue collaboration with other Universities to create an online graduate course exchange program

**Measures**

- Overall value of assistantships;
- Total number of assistantships in each category
- Job descriptions approved by necessary parties and on file
- Existence of these criteria and their use
- Annual expenditure for targeted recruitment
- Applications submitted by students met through these events
- Number of seminars organized
- Average number of students attending a seminar
- Average number of faculty attending a seminar
- Number of space dedicated for graduate student use
- Number of graduate courses with interdisciplinary enrollment; Number of students per graduate course
Objective 2.2

Develop infrastructure for research and innovation.

Actions

2.2.1. Increase collaboration with local agencies, other colleges within university.

2.2.2. Attract and retain successful research faculty
- Increase the pool of startup funds
- Create endowed chairs in:
  - Biomedical Engineering (Tissue Engineering)
  - Aerospace Engineering
  - Electrical and Computer Engineering (Robotics)
  - Aviation (aviation security/safety)
  - Civil Engineering (Clean water)
  - Innovation and Entrepreneurship
  - Medical Product Engineering and Entrepreneurship
  - Resilient Infrastructure Engineering

Strategically hire new faculty and provide support for existing faculty for professional development and research.

2.2.3 Develop interdisciplinary research initiatives in:
- Resilient and Smart Civil Infrastructure for Extreme Events
- Water Sustainability

2.2.4 Develop bridge/sead research funding

2.2.5 Create an Associate Dean for research, with the role of advocating for and mentoring researchers
- Improve funding opportunity recognition
- Provide grant-writing support staff

Measures

- Number of industry sponsored projects
- Number of interdisciplinary research proposals submitted
- Climate survey:
  - Proportion of faculty members promoted
  - Average length of faculty employment
  - Average startup package value
- Number of endowed chairs in college

Objective 2.3

Expand and leverage undergraduate research engagement.

Actions

2.3.1. Expand the SURE program to increase faculty and student participation.

2.3.2. Formalize the five-year BS-MS program in all programs and leverage it to attract high caliber undergraduate freshman, and formally integrate undergraduate research with BS-MS program.

2.3.3 Leverage success stories for growth.

Measures

- Number of faculty participating
- Number of student applicants
- Number of students awarded
- Total monetary allocation
- Number of abstracts/publications coming from SURE projects

Objective 2.4

Create a culture of balanced scholarly productivity and teaching excellence.

Actions

2.4.1. Create workload policies consistent with teaching and research expectations.

2.4.2. Create tenure & promotion policies that are consistent with the workload policy, and allow faculty to be evaluated relative to their specific workload agreements.

2.4.3 Create annual review process consistent with the workload & tenure/promotion policies.

Measures

- Number of research-active faculty
- Average faculty research workload allocation
- Average faculty teaching workload allocation
- Percentage of eligible faculty who achieve tenure
- Amount of time spent in annual reviews
- Percentage of eligible faculty who achieve tenure
Objective 3.3
+Cultivate an atmosphere of collegiality, collaboration and support.

Actions | Measures
---|---
3.3.1 Provide opportunities/platforms for open dialogue | Conduct an annual College-wide Climate Survey
  * Encourage and provide collaborative engagements/opportunities

Goal 4: Increase Institutional Effectiveness
Parks College of Engineering, Aviation and Technology will support its education and research missions through continuous improvement and effective, sustainable utilization of resources and facilities.

Actions | Measures
---|---
4.0.1 Improve the sharing of courses across programs. | Student-credit-hours in shared courses
4.02 Explore the use of new technologies for classroom effectiveness (e.g. online coursework). | Reports and actions taken
4.03 Vigorously work with other entities within SLU to improve procurement, travel and other administrative policies. | Changes to policies

Goal 3: Excellence in Faculty and Staff
Parks College of Engineering, Aviation and Technology will recruit, nurture and retain excellent diverse faculty and staff. The college will promote an atmosphere of excellence through collaborative opportunities for continuous sustained professional development, advancement, and participation.

Objective 3.1
+Increase quality and diversity of faculty and staff.

Actions | Measures
---|---
3.1.1 Recruit and retain faculty/staff who reflect the diversity of our student population. | Annual college level diversity assessment of faculty and staff

Objective 3.2
+Create and nurture an environment and resources for professional development and retention.

Actions | Measures
---|---
3.2.1 Develop a welcoming and flexible mentoring system for faculty. | Retention of faculty (percentage of those who apply for tenure; percentage that earn tenure; average career length at Parks); Faculty performance (teaching evaluations; scholarly output)
3.2.2 Develop a welcoming and flexible mentoring system for staff. | Retention of staff; Participation of staff in external events (conference presentations, etc)
3.2.3 Create a Parks Staff Advisory Group or equivalent, formal organization to provide pathways for staff input into the operation of the College and to the Parks Faculty Assembly. This Group should also help identify changes to improve staff retention. | Annual Climate Survey
**Goal 5: Expand on internal and external partnerships**

Parks College of Engineering, Aviation and Technology will enhance its relevance and extend its contributions through partnerships with internal (e.g., colleges and centers) and external (e.g., Universities and companies) entities, the greater Saint Louis community, alumni and friends.

### Actions

- **5.0.1** Improve college marketing and brand identity
  - Utilize off site major activities as a marketing tool
  - Market faculty research activities regionally/nationally

- **5.0.2** Identify curricular and co-curricular activities that align with mission values, and improve awareness and participation.

- **5.0.3** Create mechanisms for encouraging and recognizing faculty that take leadership positions in the profession (e.g., annual awards, inclusion in the annual review).

- **5.0.4** Organize and host community outreach events that increase involvement of alumni and friends in the life of Parks.

- **5.0.5** Create mechanisms for encouraging and recognizing faculty that actively interact with industry (e.g., guest speakers for classes, field trips for students, small scale material/equipment donations, etc.).

- **5.0.6** Encourage the building of interdisciplinary relationships with other programs within SLU and with other institutions.

### Measures

- Number of events/year, number of marketing bulletins.

- Assess how mission values are met with senior exit surveys.

- Number of leadership positions held by faculty (e.g., senior or fellow level membership in professional societies; membership in journal editorial boards; service as a program manager to a federal research agency; etc.)

- Participation of industry leaders in advisory boards.

- Number of alumni and friends involved in college activities (e.g., assist in recruiting undergraduate students, present talks to students, serve on industrial advisory boards, serve as adjuncts, senior design reviewers etc.)

- Number of contacts with alumni and friends (e.g., letters, newsletter, holiday cards, Alumni Day recognition, ABET alumni surveys, etc.)

- Number of faculty engaged in discipline-specific public service activities and interdisciplinary activities.
Acknowledgements

Parks College of Engineering, Aviation and Technology would like to thank the members of the College Strategic Planning Committee.

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The college would also like to thank members of the Executive Advisory Board, Industrial Advisory Boards, Parks College Alumni Board, faculty, staff and students who participated in various meetings and surveys and provided valuable feedback for the strategic plan.

* Denotes members of the faculty ad hoc committee.