

SWARNNIM STARTUP AND INNOVATION UNIVERSITY

SHORT TERM AND LONG TERM

INSTITUTIONAL PRESPECTIVE PLAN

1. Academic program

1.1 Academic program Short Term Strategies

1.1.1 Towards A Multidisciplinary University

Based upon its foundational vision and inherent capabilities and also in the light of the imperatives for Higher Educational Institutes as stated in the Government of India's New Education Policy 2020, Swarnnim startup and Innovation University seeks to effect a transition from all centric institution to a multi-disciplinary university in this decade. We wish to effect this transition by enhancing the interdisciplinary thrust of our academic programmes and by incorporating more diverse disciplines in both our UG and PG programmes.

Our goal is to introduce new UG and PG programmes and to increase current student strength from 2700 to 5000 in the next 5 years and to 8000 students in the next 10 years.

This will be achieved in a phased manner by introducing new multi-disciplinary and interdisciplinary programmes at both UG and PG level. We also wish to strengthen our Continuing Education programme and introduce new collaborative or Joint Certificate programmes.

To nurture the spirit of interdisciplinary and research led learning we will hire faculty who are not only accomplished in their respective disciplinary domains but who are keen to accept innovative teaching and research challenges.

In sum, SSIU seeks to build on its present academic strengths to further diversify its academic offerings and restructure its organization to sustain and nurture a vibrant multi-disciplinary and interdisciplinary teaching and research ecosystem.

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+91 - 95123 43333 | info@swarnnim.edu.in | www.swarnnim.edu.in

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1.1.2 Attracting Quality Students with A Robust Admissions Policy:

We need to advertise our strengths to the outside world. This has to be a multi-pronged effort and has to be done on a continuous basis. It should not be limited to placing advertisements during admission cycles. SSIU also seeks to provide greater opportunities and amenities on campus to attract international students.

1.1.3 International Partnerships and Student and Faculty Exchange Programmes

International partnerships between universities help students to pursue higher studies in different countries, training them better for a global job-market and for multinational companies and thus, they obtain better jobs after their studies. The number of publications in good journals also increases. One in five of the world's scientific papers are co-authored internationally. The rate of internationalization is growing rapidly, with unhindered communication channels and inexpensive travel. Universities across the world are already seeking to make the most of the possibilities this presents by forming global partnerships and fostering relationships with other institutions. Such partnerships have contributed enormously to academic and scientific progress. SSIU encourages and facilitates and would strengthen the following:

1. MOU's with leading foreign universities.
2. Faculty Visit/Exchange between SSIU and a foreign university.
3. Getting internationally reputed researchers as adjunct faculty.
4. Student Exchange at UG and PG levels between foreign universities.
5. Admission of foreign postgraduate students in various degree programs and in PhD.



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1.2. Academic Program Long Term Strategies

1.2.1 New Programme Options and Specializations- Honours And Minors

We plan to strengthen and adapt our undergraduate (UG) program, and make it diverse and multidisciplinary, so that it matches the requirements of the future. We have already introduced an Honours degree of Innovation and Entrepreneurship within our existing University various degree programmes, we now wish to extend and structure it further by introducing a more flexible degree programme with opportunities for specialization in both Honours and Minors offerings.

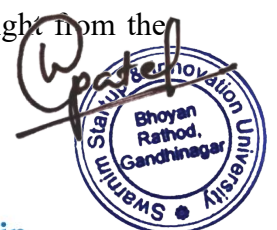
Honours will be offered in the areas such as machine learning, robotics, unmanned aerial vehicles (UAV) engineering, biomedical engineering, bitcoin and cyber currency, computational linguistics, next-generation wireless communication, etc.

At the post-graduate (PG) level, each of the major areas of UG specialization will be available as a research domain. The PG students will engage in a deeper research, greater width and depth of the knowledge in the specific discipline and will aim at generating innovative ideas and intellectual capitals. We also plan to offer interdisciplinary Master's programs that transcends the disciplinary boundaries.

At both the UG and the PG levels, the offering of the courses will be modularized. This will allow the students to not only engage in a deep study of a specific domain but also pursue broader interests such as entrepreneurial thinking, design thinking, leadership, music, art, meditation, etc.

2. Research activities at SSIU

Founding fathers of SSIU knew that the glory of an educational institution rests on the research performed and outcome of the research and innovation activities in the long. Thus, research in the cutting-edge areas of Engineering, humanities, science and Health science was emphasized in SSIU from the very beginning. Faculty members with strong research credentials were actively brought into SSIU to build infrastructure and administration of the Institute. The curriculum developed emphasized the research and innovation through projects and not just rote learning. Research based Masters and PhD programs were also initiated right from the inception.



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SSIU has continued this tradition of research and innovation for the last 08 years. Several research projects in engineering, science, Health sciences, artificial intelligence, machine learning, communication technology and several other topics have been completed.

There are various sponsored projects are being executed in SSIU by various research groups. These projects are sponsored by the National Govt. agencies.

Along with these sponsored research projects several start-up business projects are running the Incubation Centre of SSIU. Based on such a strength in the domain of research SSIU wants to enhance the research capabilities in future. The short-term plans and long-term plans on research activities are presented below.

2.1 Short Term Strategies

2.1.1 Partnerships and Collaborative Research

We plan to develop national and international partnerships and develop joint programs with other institutions and industrial bodies. This will attract the international students as well as employees at the companies to engage in our continual learning and education programs (CEP). International partnerships between universities are beneficial to all faculty and students. Such partnerships bring fame and recognition both inside and outside of the country and improve ranking. With an increase of prestige and ranking, more research funding from sponsoring agencies and the industries flows to the university and better-quality students, researchers and faculty members join the university. This sets up a cycle of prosperity for the universities involved.

2.1.2 Enhancing Existing Research Infrastructure

SSIU encourages high quality research by Faculty members, students and PhD scholars by providing necessary infrastructure and resources.

SSIU would like to strengthen the research activities further by suitably rewarding the faculty members and research scholars.



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2.1.3 RESEARCH CLUSTERS AND SCHOOLS

Although we have a series of informal research clusters at SSIU, if we want to make our research count, then our existing research clusters must be formalized. We also need to invest in testbeds and other kinds of research facilities. The research clusters could subsequently be developed into Schools. SSIU's move to a multidisciplinary university could thus be envisaged through its restructuring as a confederation of schools and centres bound to a common vision of academic excellence. Discussion is taking place between the administration and the faculty members to form the following Schools:

1. Computer Science and Information Technology
2. School of business
3. Various schools of health sciences
4. School of design etc.

A Centre for Interdisciplinary Studies, would also be established by faculty committed to expanding and deepening inter-disciplinary research and teaching through collaborative projects. This Centre could help facilitate funded research projects.

2.2 Long term strategies

- SSIU strives for enhancing the research component. We target to touch 500 + research publication in peer reviewed refereed journals by 2025.
- To increase citation index and h-index of the faculty of SSIU.
- Student driven, alumni and industry mentored, faculty guided initiative to establish an ecosystem for students, alumni, faculty and staff to nurture Projects (patents, products, publications), Research, Innovation (Ideation, incubation), Design and Entrepreneurship.
- Promote inter-disciplinary projects among the students of all departments and also converting projects in to final Product.
- Focused guidance and networking of students to disseminate knowledge and support to participate in National and International level competitions.

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- Strengthen research capacities and promote student participation in research activities, incubations, start-ups.
- Establish novel initiatives and develop on-going projects to attract and retain high performing research faculty.

3. INNOVATION AND ENTREPRENEURSHIP IN SSIU

The Institute wishes to be a trendsetter in research and innovation in all degree programs. To achieve this, SSIU plans to prepare its students for a rapidly changing professional environment. The vision of our institute is to help build a knowledge-led society founded on intellectual competitiveness for global leadership. To build intellectual competitiveness in academic institutes, a comprehensive vision plan for Innovation is an important task.

Our vision, understanding and ideas to embed a strong innovation culture among various stakeholders of the institute are reflected in this section. It outlines our motivation to promote innovation on our campus. The view represented here is broad and holistic.

3.1 Why is Innovation important?

What is critical to our country achieving global leadership in the digital technology centric society is intellectual competitiveness and to build it in academic institutes, a comprehensive vision plan for innovation is an important task.

The digital revolution is accelerating every day and Universities must change at a faster pace as we embrace the tech-driven economy. While continuing to educate the next generation students, all the premier universities must also embrace its ever-expanding role in catalyzing economic development through driving innovations within the academic setting. Various institutes are well positioned to meet the challenges of the digital revolution head on and play an important role in building innovation ecosystems and economies.

There are endless examples of innovation seeded at universities which went on to become some of the largest successes of our lifetime. Facebook, Reddit, Google, Snapchat and

Dropbox - all were created by students while at universities. A right combination of expertise, structure & resources are needed to breed a culture of innovation at a Technology Institute.

The vision of our university as a being startup university is to follow the strategy of leading through innovation so that we can maintain a competitive edge in the current education sector. Creativity is the heart and soul of innovation; design is one of the prime catalysts of the process. To create an innovation culture in the campus, we need to inspire and navigate students to become potential 'Makers'. Makers in turn can create Makers' movement to generate new ideas, designs and products.

Based on our experience and research, we believe that the innovation culture, mindset and ecosystem should be embedded in the academic framework so that it is addressed coherently.

3.2 Innovation at SSIU

SSIU, through multiple labs available across its campus, provides students with software and other hardware equipment support experimentation. The labs have become a place for students to experiment, learn and get hand-on experience on making and innovating. The labs have become an innovation hub on SSIU campus.

Since its inception in 2017, SSIU's incubation centre has provided breadth of support to students and faculty interested in building innovative technological solutions to solve real world problems. Incubation space, technology labs and seed funds are made available to support their journey. Moreover, the incubation centre runs multiple workshops throughout the year to provide practical training to student innovators.

The SSIU also provides financial support through government schemes such as SSIP & give shape to student and faculty innovations.



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3.3 Proposed initiatives to strengthen Aptitude for Innovation at SSIU

SSIU is aggressively promoting innovation culture in the campus. However, there is a potential to do much more. We started by pondering over a few fundamental questions such as:

- How to motivate students to become makers, innovators?
- How to create makers' movement within our institute?
- What changes to be incorporated in our academic structure to accelerate this shift?
- What cultural changes need to be implemented in order to achieve desired results?
- What more training & support to the Makers is required to ease their journey of innovation and commercialization?
- And lastly, how to scale up our efforts?

3.3.1. Building Innovation Culture

Our first objective is to build an innovation culture, mindset, environment & attitude on our campus, among our community of students & faculty. The idea is to expose students to this new way of thinking through coursework and projects; to teach them to explore the nexus of innovation and other verticals to not just understand it but also to understand their application in various fields; to teach them the importance of leadership, teamwork and collaboration.

Our belief is that the following strategies will help us to reach there:

3.3.1.1 Lab-Space to Maker-Space

Ideating and prototyping innovative ideas requires creativity and work space that fulfils the ever changing needs of multidisciplinary teams for collaboration. Just providing space with software and equipment is no longer sufficient or relevant. To create a space where innovation can thrive, there is a need to upgrade these spaces to accommodate special needs of innovators.

One of the key changes that we propose is to align Maker Space timing with students' academic schedule to promote usage.

Moreover, it is also important to staff these spaces with experienced personnel who can provide training and guidance to innovators. To increase the success rate of innovation, welcoming collaborators from fields such as design & business would be initiated. Regularly organizing events such as hackathon, design-thinking workshops, business modelling workshops would help innovators in building cohesive skill sets to succeed. And in the process, also create a vibrant and active community of innovators on campus.

3.3.1.2 Changes in academic structure to accommodate innovation

Innovation does not happen within a constraint time schedule. In contrast, it requires time & mind space to ignite & thrive. Keeping students overly busy with academic responsibilities generally do not help in building innovation culture on campus. Students perform best when they are inspired and encouraged to question the norm and think outside the box. But students cannot do this when they hardly have any free time on their hands. They need to have the freedom to pursue the ideas they are passionate about. We propose that students are given one to two hours of time each day for tinkering and innovating.

Moreover, it is also important to expose students to innovation & entrepreneurship through structured training in the form of course work. Making this course project-based would help students a great deal in getting practical training along with theoretical knowledge. This type of structured environment gives students an opportunity to take risks and deal with uncertainties usually associated with innovation & entrepreneurship. It is important to make this a compulsory credit course to gain serious attention from younger students. In our opinion, as students mature during their life on campus, it becomes difficult to mould them to become innovators. Therefore, it is important to start this process early in their student life. Considering this, we propose to make this coursework available for all year students on campus.

This way they get exposure to innovation and entrepreneurship early on and would have more time to pursue it during their college life if they choose this path.

The deliverables for the Startup Track are divided into two parts 1. Innovation and 2. Entrepreneurship.

Innovation refers to the process of:

1. Empathizing with the user
2. Defining the need
3. Ideating the solution
4. Prototyping the technology and
5. Testing

Students will have a maximum of four years to achieve this objective. After the successful completion of this phase, students will be awarded a “Degree of Innovation” to mark their achievement.

The second part, Entrepreneurship refers to commercialization of the innovation made in the first phase. It is clearly understood that not all innovation can be commercialized. So, at this point, student & faculty mentor will have to make a decision whether to pursue this innovation further to commercialize it.

It is critical to acknowledge here that the successful completion of the Startup Track is not tied to success of innovation or commercialization. But rather with the amount and quality of work put in by the student.

3.3.1.3 Forge Collaborations with Industry

Synergistic collaboration with leading companies and foundations could help the institute in transferring innovation from the lab to practice. While such collaborations may provide funding to talented students, the bigger advantage is establishing links to exchange ideas with the industry experts and in turn prepare students with critical skills required to survive a rapidly changing work environment.

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These collaborations are highly beneficial for both the sides. Companies gain access to scientific talent and latest research and Universities gain access to industry understanding and financial support.

3.3.1.4 On-campus activities to build innovation momentum

Dialogues on Innovation & Entrepreneurship- should be an ongoing activity on campus. One possible step to do so is to set up an Innovation & Technology Entrepreneurship Club on campus. The club should independently run by students with an agenda to promote awareness about innovation and entrepreneurship among students.

Moreover, successful (and not so successful) innovators and entrepreneurs can be invited on campus to share their experiences and perspective on the subject. Interested students can interact with these speakers. This could potentially work as a catalyst for student inspiration.

Practical training through Project Work

It is important that we provide a “safe place to try” for serious innovators. Hence, we came up with a few project work ideas that can be integrated as part of academic work. Since this is academic work, students can continue to work on their innovation and simultaneously get credits for graduation requirements. Currently students, who are innovators, have to find free time over and above their academics to work on their project.

Workshops & Boot camps

In the last decade, enough research has been done to identify the best framework and tools for managing innovation. One such framework is called design thinking - which works on the concept of user centric design and follows a five steps process of innovation - empathise, define, ideate, prototype & test. We plan to conduct workshops to teach design-thinking to our students every semester/year. This, we believe, would prove very useful to our student innovators to systematically manage their innovation process and reduce time & resource wastage.



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Incubation Support

SSIU, the Incubation centre at SSIU, currently supports student innovation through mentoring, providing office space and financial support. However, this support needs to be scaled up. The most important aspect that needs to be added is helping students in evaluating the commercial viability of their innovation and helping them achieve it. Periphery services such as company incorporation, patent filing etc. should also be included as part of support provided by the incubation centre.

4. RECRUITING AND RETAINING QUALITY FACULTY AND RESEARCHERS

4.1 Short-term strategy

The short-term strategy of the institute is to move towards a multidisciplinary University. To achieve this goal, we need to recruit

- 5-10 faculty per year with outstanding academic credentials and committed to the values of innovation, collaboration and interdisciplinary scholarship
- Fellowship to conduct cutting edge research jointly with regular faculty members.

In order to enhance the research power of the institute, we need to offer a good balance between teaching and research load

4.2 Long- term strategy

For the Institute to grow we need diverse faculty in terms of specializations, experience, age, gender and national and international profiles. This will be critical for the Institute's academic networking with other institutions of higher learning and research.

SSIU will continue to encourage and facilitate Faculty Visit/Exchange with both national and foreign universities of repute.



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5. GROWTH IN INFRASTRUCTURE

SSIU wants to continue its excellence in interdisciplinary & multi-disciplinary teaching and cutting-edge research. The university aspires to become a locally and globally recognized institute by i) offering undergraduate and postgraduate programmes to meet the quality human resource needs of the Industry and Research Institutes, ii) creating a vibrant campus and a collaborative learning environment that continuously adapts to the changing landscape of different programs related areas.

5.1 Short Term Strategy

The current student enrollment is around 2100. We would like to increase enrollment to 2600 in the next two years. We wish to attract non-traditional students through an Online Distance Learning (ODL) programme. These include students taking professional education/ advanced academic courses/ certificate program, participants in continuing education and lifelong learning. We wish to have online students' registration for ODL around 500 in next two years. We wish to cater primarily to these categories of students and provide a "Virtual Campus-Digital campus" for instruction and daily operations. We would like to have a well-designed Digital Campus in the long run.

The UG programme is fully residential however, we wish to make our campus residential for all UG & PG students in near future. This enables students and research scholars to use laboratories/ computational facilities more effectively. To fulfill this goal, we need to build additional hostels for boys and girls. In addition, we need to construct smart classrooms for on campus lecture sessions and online content delivery for ODL programmes.

5.2 Long term strategy

The University wishes to attract foreign students on campus by introducing new attractive UG programmes and joint research programmes with foreign institutes. We may need to build international students hostels as separate. As we increase the number of students, we need to

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build a bigger auditorium for placement and to conduct the Convocation ceremony of the institute.

Plan to introduce new academic programs with

- Greater flexibility
- No hard separations.
- Multidisciplinary and holistic education across science, social sciences, humanities, and arts to ensure the unity & integrity of all knowledge.
- Emphasis on conceptual understanding.
- Outstanding research is a prerequisite for outstanding education and development.

SSIU aspire to grow in the following directions

1. Scientific collaboration with premiere institutes in India and abroad.
2. Replicating this joint program with other institute in India and abroad.
3. Introduce more undergraduate and post graduate programs which are the need of the hour.
4. Incorporating foreign nationals as adjunct faculty.
5. Institute is also planning to build up a strong relationship with related industries.
6. Institute would like to include industry as partner to a couple of academic programs.
7. Including industry personnel and distinguished alumnus as professor of practice.

Long Term Strategy

- Increase Academic and Research collaboration with premier National and International Institutes for starting new PG level joint programs by 2025. New collaborative program with industry.
- Increasing the student strength to 5000 by next 5 years.
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- Incorporating at least 10 foreign nationals as adjunct faculty and including more industry personnel and distinguished alumnus as professor of practice by 2027.
- Increasing the infrastructure two folds to facilitate teaching, learning and research by 2030.
- Increase the student strength to 5000+ by 2029.
- Introducing new UG Programs from the next academic year;
- Plans to accommodate on campus 3000+ students strength.
- Significant enhancement of infrastructure to facilitate teaching, learning and research.
- Smart Class rooms, Labs, Computing Facilities.
- Significant enhancement of the Hostels to accommodate students on campus.

6. DIGITAL CAMPUS

This is an important element of the overall infrastructure. It should not be limited to creating Smartboard enabled classrooms. We need to modernize internal systems and procedures. The students of the current generation are “digital natives” brought up in the world of smartphones, high speed Wi-Fi and “technology on demand”. Students are increasingly dependent on both the traditional physical space - the Campus and non-traditional elements – digital environments, like digital library, e-learning and e-commerce. To stay relevant to the student community and deliver quality educational experiences, it's essential that Higher Education University/ Institutes (HEIs) that are respected across the globe, maintain their reputations and join in its journey of digital transformation. Today, it is crucial for any HEI to have a mobile, digital and social media presence, if the University/ Institute wishes to maintain its position in ranking and appeal to incoming students.

6.1 Short term strategy

Digital campus as discussed above is based on the basic premise that “Digital is Personal” and “Digital safety and Data Security are assured”. The first proactive step an institute needs to

take before designing a Digital Campus is to create an awareness among all staff members and to empower the student community by doing the following:

1. Introduce Hardship scheme to ensure all students have suitable technology to support their studies.
2. Encourage all staff members to use a mobile as their primary device e.g. Laptop, phone, tablet for official transactions.
3. Enhance the Digital literacy rates across the staff members and student community through training and uptake of the digital literacy online skills course.
4. Impart complete data protection training to all staff members and Postgraduate research scholars on appointment and annually thereafter.
5. Create a secured data archival and retrieval system to remove data breaches.

6.2 Long Term Strategy

The Digital Campus design includes ubiquitous access via different types of devices, hence pan-campus security issues get more complex. A secure system for a browser-based desktop environment may not be adequate for newly added environments, such as wireless device access. Similarly, the security requirements for a specific user have to be defined for the context in which they are accessing the digital campus. For example, a student's profile will likely change each semester or academic year, based on the student's coursework and his/her activities at the campus. Protection of intellectual property, as opposed to confidential data, poses some added challenges in setting up of a Digital Campus in a University. Funded academic projects are focused on delivery and collaborations not on digitizing the content. Protecting the content developed adds a dimension that injects at a minimum new practice, and possibly new people into the academic workflow. Overtime, the "Digital Rights Management" (DRM)- a meta tagging technique that can further control access and use of information within the Digital Campus environment, will become a normal component of developing new intellectual content



which is not common in the current ecosystem. We need to design a robust Digital Campus which will be i) secured, ii) expandable, and iii) will protect intellectual property rights for the academic and sponsored projects. This will call for deliberations among different stakeholders and work out a comprehensive user specification before being implemented in the campus. The institute is committed to set up a Digital Campus.



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