

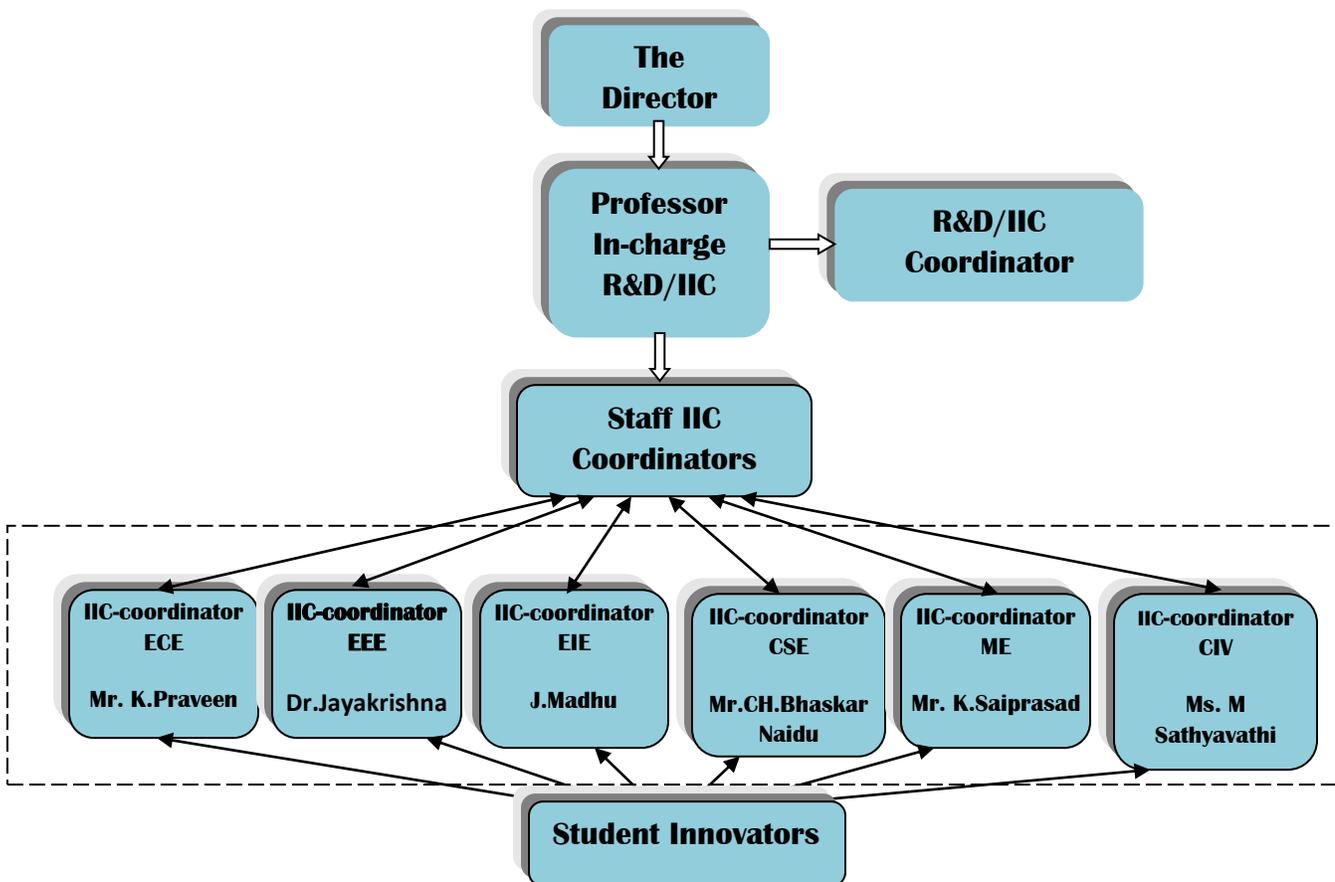


# INNOVATION AND INCUBATION CENTRE

## Genesis:

The Innovation and Incubation centre of Narayana Engineering College is established with an aim to encourage, nurture and harvest the entrepreneurial capabilities of the students and provide them with opportunities to bring their dreams of “leading a company” to fruition. This in-turn is expected to inculcate spirit of curiosity, research and innovation in both faculty and students, encouraging them to step out of their boundaries to achieve beyond their academic persuasions.

## ORGANIZATIONAL STRUCTURE



The centre is headed by Professor In-Charge Mr.M.Muralidhar with ample of Industry experience and also the Principal Dr.G.Srinivasulu along with the Director Dr. A.V.S. Prasad as stakeholders.

**VISION:**

To develop and produce handful of budding entrepreneurs from NECN & develop socially relevant products and services solution

**MISSION:**

Identify the students with passion for innovation

Identify the Students with fire in the belly to start their own firms and provide employment to others

Educate the identified students with Incubation and Innovation tasks

Facilitate the student community with time to time interaction with Industry and business leaders

Create an awareness about the financial opportunity through VCs, Angel Funds Bank loans etc

**ROLES & RESPONSIBILITIES OF IIC**

Though the ultimate expected outcome from the IIC is the establishment of registered and successful companies by the student entrepreneurs, the IIC is currently working towards creating the spirit of innovation in the minds of students who have enthusiasm, critical thinking and passion to do something pioneering .Towards that goal a registration process has been implemented to find the students who are interested .We are conducting talks by external speakers ,workshops and interactive sessions to educate them on the idea of entrepreneurship, IPR, funding options for entrepreneurs, managerial decisions and attitudes involved etc..We encourage the students to approach the IIC for provision of space, support and guidance in their endeavor.

A detailed well researched, write-up on their ideas and their implementation process has been requested to pick-out the implementable, innovative and novel ideas. The staff coordinators and advisors from various departments are then involved to help out with the analysis and guide the student/students towards optimization and improvement of the product. After establishing the production methodology, feasibility and reproducibility, the team charts down the selling points of the product and make any improvements to improve its applications, finish and optimize price in order to attract the customer base, investors and/or stake holders. Later the innovation would be tested by collaborating industry expert to see if it fares well in real world situations.

The final step is for the student team to present the innovation in front of director and all advisors and defend the idea, such that when they are forwarded to any funding options, they might be able to stand-up to the expectations of the stake holders and investors when the opportunity presents itself.

### **Broader Activities planning for the IIC**

- The students interested were asked to submit a write-up of about 2 pages explaining the idea, logic behind the mechanism with documents or links supporting the argument such that a batch of about 60 students with feasible ideas can be considered for further process.
- These students shall be given the space and guidance to work on their idea and bring about an initial prototype. In case, if they encounter any issues, the panel shall gather they are directed towards the relevant advisor in the college that they may troubleshoot.
- Meanwhile few talks on innovation, funding options, management, patenting and intellectual property rights shall be arranged to equip them with the knowledge required to understand and manage the entrepreneurial establishment.
- An interactive session with the In-charge IIC, coordinators and advisors shall be arranged for each group, where the students will get an opportunity to present his idea and its implementation and explain his ideas on its applications and why he/they think that it is a worthy to be established as a company.
- The panel reviews and provides suggestions, changes, inclusions in the design or applications that had to be made to enhance the customer desirability of the product, efficiency, reproducibility etc...
- The IIC plans to establish MoUs with relevant industry experts to test and make suggestions to the product for its performance in the real working environment.

### **The Incubation and Innovation Eco system @ NECN**

In order to enhance and proliferate Innovation among the Students and Staff member of the Institution the NECN-IIC propose to devise the following methods and Systems as part of its activities at the center:

- Identify, attract and develop People for Innovation and incubation Tasks

Discuss the importance of “innovation and entrepreneurship” in today’s job scenario of the country through class visits by the IIC faculty and IIC Staff coordinators from respective departments at the beginning of every academic year.

Collect, process and identify the budding innovators through a list of opted students for Innovation and entrepreneurship endeavors.

- Create, enhance, develop and sustain the Innovation & Entrepreneurship attitude and spirit among the Students and Staff

Innovation being a broad and quite involved human ability/activity and hence it requires interaction and knowledge sharing from professionals with wide range of capabilities, attitude and Societal responsibilities

Action Plans: Time to time addressing and brainstorming sessions with the Industry experts, subject matter experts, Management Gurus and successful young and established entrepreneurs with different Business models – such as service oriented innovative business, Product oriented business, ideation and Conceptualization services, niche and current hot business initiatives like AI, machine learning, Autonomous Systems, Block chain and Quantum computing etc. Also facilitate willing entrepreneurs with learning on legal and mitigation issues, funding opportunities through Venture capitalists, Seed funds, design partners

To inculcate the habit of Innovative thinking and enhancement -Communicate opportunities for design challenge contests, hackathons & Ideathons, Research idea brainstorming and publication through conference meets at other institutions, online contests. Arrange and facilitate the student visits for Product design and development houses, manufacturing industries.

For the sustenance of innovation at NECN, periodic meetings with all the student and staff stakeholders through brainstorming sessions, critical thinking exercises and product developmental idea meets such as Six hats thinking, Pugh Matrix will be carried out. Current societal needs will be addressed for conversion to services and products. Show case and discuss about the ideas being taken for innovative development and current status to opted and new incubators for motivation. Students best projects will be exhibited and discussed for further development. Hands on practical trainings on special purpose equipment at the IIC will be conducted. Irrespective of the discipline & department, programming and analytical skills for the Incubators will be developed. Students involved will be developed through systematic presentation skills, analytical skills, awareness about the funding opportunities will be communicated.

- Provide and support Innovation and Incubation activities through a minimal but appropriate infrastructure and equipments

Provide a dedicated center as working place for Innovation having necessary furniture & Internet backed Computing facilities, Printers & Scanners, presentation and brainstorming facilities

Provide the center with equipment catering to today's industry and developmental needs that are not part of regular curriculum such as Spectrum Analyzers, 3-D printers, High performance Embedded System Evaluation boards, Sensor modules and Robotic modules, AI & machine learning development facilities. Material classification and testing facilities.

## A Glimpse of .IIC activities to boost the Morale of Incubators

### **Activity 1:** Workshop on “How to be an entrepreneur than Job Hunter”

**Workshop objective:** The Innovation and Incubation Cell(IIC) with a view to inspire and push forward its budding and student entrepreneurs in making with their endeavors, envisaged to conduct a workshop by their peer from similar student background but who is already a seasoned business man. Mr. A Gopi Raja, the student entrepreneur and a final year Electrical Engineering student from KLU University, Vijayawada, AP was chosen to address and share his stepping stones in becoming an entrepreneur from his sophomore days. The event well planned was conducted in the Visweswraya Auditorium at the college on 17<sup>th</sup> Aug. 2018.

**The Session(Overall):** It started with a grand inauguration by chairing of the **College Principal, Office bearers from NECN incubation Cell(IIC) and the Entrepreneur cum guest.** Department wise IIC Cordinators and all the Department Heads were present to boost the morals of Student Innovators and Incubators of the institution, the later were being the primary audience and around 200 pre-registered students were enthralled to present in the workshop.



The majority of students being from 2<sup>nd</sup> and 3<sup>rd</sup> year streams of all the faculty of Engineering streams, there were few final year students were present who wanted to seek their future goals with their own firms. The inauguration session was followed by a marathon demo cum talk by Gopi Raja and with many queries being raised by the audiences.

The afternoon session was utilized for Real time flying of Drones of different applications in the Grass field in front of the college.

**The Session(Finer Details):** The inaugural talk was delivered by the office bearers of Innovation and Incubation cell. Mr.Leela Mohan, IIC Coordinator cum event organizer shared the importance of the IIC center at NECN and highlighted the activities & facilities being provided today.



Speaking on the occasion Mr.Muralidhar, Professor in charge of the center emphasized the Industry ecosystem of the country and the need for young minds to involve in the development process of the same. He shared the facilities in the form of HW/SW tools present for developing proof of concept of the product or service idea, at the cell. He also shared few snippets about the goals of the IIC and wished that at least few entrepreneurs will be incubated down the time line of two years.

The professor in-charge also emphasized the importance of making of their own firms by the students rather than hunting for a job. In particular the message of innovation and entrepreneurship in the context of “Make in INDIA” policy of Government of India was voiced out fearfully.

The Principal of the collage duly communicated the recognition and support given to the IIC center and its activities by the College Management also the financial commitment towards the center development was highlighted. The Pricipal also shared the current challenges faced by the students in the Job market and settling with a true and final Job offer from the Prospective employers.



He communicated the importance of entrepreneurship that would generate new job opportunities besides being bringing out innovative and Socially important Projects.

**Workshop:** Gopi started his workshop speech with a note on a moral story from Indian legend that communicated the importance of hardwork and seeking one’s own goals. The students were enthralled listening to the story and shared their own points. Gopi Raja went on with his speech on his initial ambitions of making of few of his ideas into products and also discussed what made him to dump those ideas, because of non feasibility in productizing and also cost effectiveness of the same and hence the market acceptance.

Gopi went on saying about how he boiled down to making of the drones by the identifying farmers Grievances in Labor management and shared the views what made him to conceive low cost Agriculture dispensing Drones, their testing and initial failure in powerering of the drones. He also shared how he has overcome the Battery problems, weight reduction and other stability issues in the drone in the due course of time.



The students raised lots of queries and enquired why particular options of solutions were not considered, Gopi reciprocated by saying the reasons being technical and cost factors. The entrepreneur shared his excitement of selling the first drone to Vice-President of the Country and the recognition he received. He also emphasized the qualities one should build and cherish to be an entrepreneur. In particular the perseverance and guts required to be an entrepreneur were duly shared by him. He concluded his speech by sharing how he managed to mobilize funds for his business endeavors being from not well to do Agriculture background of Krishna

District. He shared few orders he secured for selling the drones and the current Government policies on making and selling of drones.

The afternoon session continued with the live demo of assembly and flying of the drones with the college students involvement. Drones of various sizes catering to different applications such as water dispensing, seeding and pesticide dispensing drones were shown flying in the field.



Also few prototype drones for reassembly and remodeling were shown for research and development purpose. The students have enquired about the pricing of the same and typical applications that can be build. The session concluded around 5PM with a felicitation to Gopi for coming forward to sharing his experiences with the student community at NECN.

**Concluding Remarks:** The workshop served the purpose of show-casing of a student entrepreneur from humble background of middleclass agriculture background.

This was an eye-opener for students skeptical of entrepreneurship due to financial constrains. The motivational speech has caused a huz & buz among the students about entrepreneurship and innovating goals. Gopi's inputs on few ideas from students on business goals were duly analyzed and moderated and few valuable suggestions were shared



## Activity 2: Productive and Inspiring Interaction Session With Alumni Entrepreneur

**Preamble:** NECN's Innovation and Incubation Cell(IIC) has organized the above event(titled) for prospective and inspired innovator students and staff with a view to expose a true scenario of making of an entrepreneur and the challenges in it. The entrepreneur identified is an Alumnus of the institution, namely Mr.Sashi, Director, Innoswift Solutions, Nellore and was a student during the period 2002-2006 in the department of Electronics and Communication department. The event was conducted on 13<sup>th</sup> March, 2019 in Visweswaraya Auditorium of the institution. A presentation followed by interactive session with the students was the main theme of the



Session. Also couple of entrepreneurs in making, duly shared their business case and also inquired about advise on and gearing up working capital for the business. The Principal of the Institution and IIC office bearers have participated in the event and highlighted the importance of such interactive sessions. The principal has brought out the importance of the establishment of IIC and its role in facilitating innovation and incubation activities.

**Session:** The young entrepreneur and also the chief guest of the event gave a glimpse of his career progress after passing the Degree program from the college and specifically highlighted the adversities he has undergone during his stay in USA during his MS program. He shared his premature dreams of becoming an entrepreneur during his student days and his perseverance to achieve the same.

The students have had a prolific and enchanting interaction with the Alumnus specifically regarding the selection of an innovative idea for converting into a business opportunity. The guest responded by conveying that socially impact creating products and opportunities in unorganized sectors such as classified scrap collection for recycling could be envisaged rather than niche products design and development.



The later has shared importance of Market study, Competition study and pricing of the product volume levels of product marketing from time to time have been discussed. The students in particular enquired about the funding mobilization for startups, whereas the entrepreneur in particular shared his ways of saving money and partnerships he had for startup.

Speaking in the event the office bearers of IIC, shared the current activities of IIC and show cased the entrepreneurs in making at NECN with their business case this is to motivate students to pursue entrepreneurship as an alternate option to job hunting as inevitable goal. The facilities being provided and the support extended to the student communicated were duly communicated by IIC professor in-charge Muralidhar



It was unusual to note that some of the female students have queried with deep issues involved in entrepreneurship. The facilitator was not only excited to answer the queries but also shared some unique opportunities for Women entrepreneurs by Government support. Shasi in particular shared about the guts and intuition has a dealing in business endeavor.



**Outcome:** The interested few students has an opportunity to interact and learn real life experiences of an young entrepreneur, who had his humble background of being from a normal middle family, whose father was a salaried bank employee. The entrepreneurs experiences were a real eye opener for many skeptical students about making of their own firms. The students have learned uniqueness IIC at NECN and its importance in their future goals.

### Activity 3: A Path to Innovation through Project Exhibition cum demonstration @ NECN

**Exhibition purpose:** The Innovation and Incubation Cell(IIC) with a view to inspire the young minds for demonstrating their project development and other innovation persuasions, has organized an enthralling event at NECN premises. The project exhibition conducted on 30-03-2019 for a day also been extended to the participation to other engineering college students for demonstration and the general public were invited as audience to the event. Ample of space in various department Laboratories and in the walk around space were dedicated for the event. There were around ~200 exhibits by NECN and other College students. School students were the major count of audience.

**Session:** The final B.Tech Project works by outgoing students as well as socially important innovative projects were brought into focus, for example the drain desilting equipment developed by the Mechanical Engineering department were exhibited. The project was ideated and sponsored by the corporation of Nellore but was conceived and built by the staff and students of Mechanical Engineering faculty. There were couple of energy harvesting projects through solar panels and Water conservation model using Rain water Harvesting by Civil engineering students was unique for demonstration. A low cost noiseless road and Building premises cleaning mechanism using easily maintainable solution was built and live demo was performed. The equipment could be manually operated thus avoiding any energy source requirements, otherwise could be a comfortably assembled accessory to a vehicle for saving human effort of cleaning larger areas.

Some of the academically oriented projects have had unique innovative and social significance. A project from final year ECE dept. was about automation of Garbage collection by the municipal staff. The main project theme was to optimize the Garbage collecting vehicle movement, so as to avoid movement of vehicle towards empty/ partially filled bins. This would reduce the turn around time for Garbage collection and will ensure totally filled bins are emptied without any overflow, thus maintaining hygiene in the society. The project in particular exploited the IoT technology in garbage collection by incorporating Sensors to detect the bin garbage level. The communication link established between the garbage bins and the municipal office will have a database being maintained at finger tips on a mobile phone and thus facilitating prioritizing of garbage collection. This in spite of optimizing Bin collection will save fuel consumed by the vehicle and reduce fatigue on corporation personnel, besides keeping the city clean and tidy..



Event Impact: The best project from each of the department was selected by panel of judges and the respective student teams were felicitated by offering a prize money. Delegates Prof.Pulapa subbarao,Vice chancellor ,June Bay Friday,

Dean of Millenium university, from South Africa were entices see the project demonstration by the students. The event attracted good publicity and the school children were excited to see the working models on the projects. It was unusual to note that some of the female students have queried with deep issues invloved in entrepreneurship. The facilitator was not only excited to answer the queries but also shared some unique opportunities for Women entrepreneurs by Government





**Outcome:** The final B.Tech and other aspiring innovators had an opportunity to showcase their designs during the expo. Few exhibits from other Engineering colleges in and around Nellore were also showcased in the event. The delegates along with the College management had a glimpse of project developments and motivated the students for their efforts. The top best selected projects were entrusted with Prize money. Many school students participated with lots of technical interaction being happened. There was feedback to conduct such events in future from the visitors.