



LEARN BEYOND

KPR Institute of Engineering
and Technology

(Autonomous)

Avinashi Road, Arasur, Coimbatore - 641 407



**INSTITUTION'S
INNOVATION
COUNCIL**

(Ministry of Education Initiative)

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COUNCIL**

ANNUAL REPORT
ACADEMIC YEAR 2023-24

INSTITUTION'S INNOVATION COUNCIL

2023 – 2024

A. ABOUT IIC

Ministry of Education (MoE), Govt. of India has established 'MoE's Innovation Cell (MIC)' to systematically foster the culture of Innovation among all Higher Education Institutions (HEIs). The primary mandate of MIC is to encourage, inspire and nurture young students by supporting them to work with new ideas and transform them into prototypes while they are informative years.

MIC has envisioned encouraging creation of 'Institution's Innovation Council (IICs) across selected HEIs. A **network of IICs** is established to promote innovation and entrepreneurship in the Institution through multitudinous modes leading to an innovation promotion ecosystem in the campuses. MIC has established Institution's Innovation Council in more than 2200 Institution's till November 2020.

Vision and Mission of IIC established at the Institute

To create a vibrant local innovation ecosystem.

Start-up supporting mechanism in HEIs.

Prepare institute for Atal Ranking of institutions on innovation achievements framework. Establish function ecosystem for scouting ideas and pre-incubation of ideas.

Develop better cognitive ability among students.

Functions of IIC

To conduct various Innovation, IPR and entrepreneurship-related activities prescribed by MIC in time bound fashion.

Identify and reward innovations and share success stories.

Organize periodic workshops/ seminars/ interactions with entrepreneurs, investors, professionals and create a mentor pool for student innovators.

Network with peers and national entrepreneurship development organizations.

Create an Institution's Innovation portal to highlight innovative projects carried out by institution's faculty and students.

Organize Hackathons, idea competition, mini-challenges etc. with the involvement of industries.

Diversified representation in the IIC established at the Institute from Industry, Interdisciplinary and Departments / Units etc.

The aim of this Centre is to achieve excellence in R&D using latest technology at the global level and produce trained professional manpower for the industry. In addition to many of the core engineering and science departments several state-of-the-art research units of the Institute carry out research under the academic umbrella of KPR.

B. Brief mention of Key functionaries at the IIC Institute

KPR- IIC -ID : IC201810247
KPR-IIC-PRESIDENT : Dr.D.SARAVANAN, PRINCIPAL, KPRIET
KPR-IIC-VICE PRESIDENT : Dr.K.RAVI KUMAR, PROFESSOR / MECH
KPR-IIC-CONVENOR : Dr.P.SREELATHA, PROFESSOR / BME

MEMBERS

COUNCIL MEMBERS – INTERNAL

Sl.No.	Name & Details	Department	Designation	Role in IIC
1.	Dr.D.Saravanan	Principal	Professor	President
2.	Dr.K.Ravi Kumar	Mech	Professor	Vice President
3.	Dr.P.Sreelatha	BME	Professor	Convenor, ARIIA Coordinator
4.	Dr.R.Kiruba Shankar	ECE	Professor	Internship Activity Coordinator
5.	Dr.M.Kathirvelu	ECE	Professor	NIRF Coordinator
6.	Mr.D.Balaji	Mech	AP (Sl.Gr)	IPR Activity Coordinator
7.	Dr.R.Dharmaraj	Civil	AsP	Startup Activity Coordinator
8.	Dr.Nisha Soms	CSE	AsP	Social Media Coordinator
9.	Ms. B Vishnupriya	CSE	AP (Sr.Gr)	Member
10.	Ms. A. Punitha	AD	AP (Sr.Gr)	Member
11.	Mr. S. Nandhagopal	AIML	AP (Sr.Gr)	Member
12.	Dr. P. Arunkumar	BME	AP (Sr.Gr)	Member

13.	Dr. T. Rajasekaran	CSBS	AP (Sl.G)	Member
14.	Dr. S. Karunakaran	Chemical	AsP	Member
15.	Ms. M. Janani	CSE	AP	Member
16.	Mr. S. Satheesh Kumar	ECE	AP (Sr.Gr)	Member
17.	Ms. M. D. Saranya	ECE	AP	Member
18.	Dr. A. Karthick	EEE	AsP	Member
19.	Dr. S. Malathy	IT	AP (Sl.G)	Member
20.	Mr. N. Udhaya Kumar	Mech	AP (Sr.Gr)	Member
21.	Dr. Arpit Anil Panwar	Mechatronics	AP	Member
22.	Dr. K. Prabakaran	Physics	AP (Sl.G)	Member
23.	Dr. P. Suriyakumar	Maths	AP (Sr.Gr)	Member

COUNCIL MEMBERS – EXTERNAL

Sl.No.	Name	Email	Contact	Organization
1.	Mr.P.S.Kannan	tbi.kongu@gmail.com	994392727	TBI- Kongu Engineering College
2.	Mr.R.Ravikumar	rk@roots.co.in	9894683045	Roots Multicle
3.	Mr.D.Balaji	balaji.d@kpriet.ac.in	7338714790	KPR Institute of Engineering and Technology
4.	Mr.Ramprathap	mrprathap1027@gmail.com	9840698799	L&T
5.	Mr. Karthikeyan. S	sk@arktechautomation.co.in	9731905826	M/S-ARKTECH Automation Solutions (P) Ltd
6.	Dr. V.S.Saravanan	saravananvs@indoshellcast.com	9344411099	Indo Shell Cast Private Limited
7.	Mr. Moses Sam Paul	growthondemand@gmail.com	8870164289	GrowthOnDemand LLP

COUNCIL MEMBERS -STUDENTS

S.no	Name	Department	Mail - ID	Role	Association
1.	S. Aswin	ECE	21ec020@kpriet.ac.in	Innovation Coordinator	Innovation cell
2.	Ms.M.Archana	CHEMICAL	21ch006@kpriet.ac.in	Startup Coordinator	New gen IEDC
3.	R. R. Girithar	EEE	21ee030@kpriet.ac.in	Internship Coordinator	Design Centre/Maker's space art and Craft making design
4.	M. Muthukumaran	MECH	21me072@kpriet.ac.in	Social Media Coordinator	EDE
5.	R. Jeyasundar	CSE	21cs069@kpriet.ac.in	IPR Coordinator	Innovation & Entrepreneurship development Cell (IEDC)
6.	M. Tamilvanan	CIVIL	22ce066@kpriet.ac.in	Member	Research Park
7.	B. Hema Varshini	BME	21bm012@kpriet.ac.in	Member	Incubation and pre-incubation unit
8.	S. V. Vishal	AD	21ad061@kpriet.ac.in	Member	Innovation & Entrepreneurship development Cell (IEDC)
9.	S. Suryaprakash	AIML	22am062@kpriet.ac.in	Member	EDE
10.	P. Kavın	CSBS	22cb023@kpriet.ac.in	Member	Design Centre/Maker's space art and Craft making design
11.	P. A. Varshini	IT	22it063@kpriet.ac.in	Member	Innovation cell
12.	Ms. R. Swetha	MI	22mi057@kpriet.ac.in	Member	Incubation and pre-incubation unit

**C. Portfolio / Graphical /Tabular Representation of Resource strength
(Human capital and Physical Capital) of the IIC Institution**

Sl.No.	Data	Volume
1	Total Number of IIC Members	42
2	Total Number of IAs	20
3	Total Number of Faculty Members from Portal	45
4	Pre-Incubation Units , if any	7
5	Incubation Units, if any	1
6	IPR & TTO Centers	2

D. Higher Facilities, Infrastructure of Pre-Incubation and Incubation kind and Student bodies / Clubs engaged in promotion of Innovation and Entrepreneurship in the campus

In the promotion of Innovation and Entrepreneurship in the campus, **Centre for Innovation Incubation and Entrepreneurship Development cell (CIIED)** is initiated. Students can utilize this cell for the purpose to establish startup, utilization of pre-incubation unit to promote innovative ideas to prototype with further evaluation by industry experts it is converted to product.

E. Highlight Achievement (Narrative / Graphical /Tabular Representation)

Sl. No.	Highlight Achievement	
1	Number and Different types of I&E and IPR activities Conducted	170
2	Number of students and faculty ideas generated	330
3	Number of student's faculty innovation / prototype developed	56
4	Number of IPs generated, published and granted	158
5	Number of Student & Faculty startup/ ventures established	4
6	Number of Copyright Registered	2
7	Number of Industrial Designs obtained	16
9	Number of Technology transfer and Commercialization happened	10
10	Amount spent on promotion and awareness generation on Innovation Entrepreneurship in the campus	Rs.3,00,000
11	Amount grant or fund supported to student & faculty lead, Innovations, startups and IPR	Rs.16,50,000

F: Highlight selected best Innovations with mention of inventor/innovation name**1. 3D Kinesthetic Learning Module for Visually Impaired**

- To provide education in an effective manner to visually impaired people, a mobile application that works along with a learning module consists of 3D printed kinesthetic diagrams and braille notations.
- The motive is to provide a well-balanced learning and understanding system for those people with vision impairments. Development of a complete learning effective one.
- The mobile app will offer interactive, audio-based educational content, while the 3D-printed models provide tactile representations of complex concepts. Combined with Braille labels for supplementary information, this system is designed to deliver a comprehensive, accessible learning experience that enhances understanding and engagement for visually impaired learners.

Product Done by:

B.E. Biomedical Engineering students:

1. Lakshitha Shankar
2. Prithika RR
3. Kanika Sabari R
4. Rishikesh Ragunath MP
5. Hari Priyankaa R

Guided by:

Dr. Arunkumar P, AP/ BME

2. Harnessing the potential of Eichhornia crassipes

- This project focuses on leveraging the unique properties of Eichhornia crassipes, commonly known as water hyacinth, to address various environmental and industrial challenges. s.
- The scope of the project encompasses improving environmental management by enhancing water quality and preventing erosion, developing sustainable biomass solutions such as bioenergy and compost, and exploring industrial applications including paper manufacturing, textiles.
- This includes studying its effects on water quality and its capacity for biomass conversion. Following this, pilot projects will be conducted to test and refine techniques for utilizing water hyacinth in water purification, bioenergy production, and industrial applications.

Product Done by:

B.E. Chemical Engineering students:

1. Rohithkumar S
2. Harshini J
3. Karthika S
4. Tivith C
5. Vidula S

Guided by:

Dr.S.Karunakaran AP/CE

3. Piezo Electrical Tyre

- The scope of a “piezoelectric tyre” involves designing, implementing, and evaluating a system where piezoelectric material sensors are integrated into electric vehicle tyre to harness energy from the pressure created during the rotation of tyre.
- Developing an energy harvesting system is a crucial aspect, necessitating the design of circuits, converters, and storage systems to efficiently capture and store the generated electrical energy. Here the tyres are used for the production of electric energy from the mechanical pressure created during the movement of the tyre.
- The methodology section outlines the systematic approach employed in the design, implementation and evaluation of a piezoelectric tyre system aimed at harvesting energy from tyre pressure created during the movement of the vehicle.

Product Done by:

B.E. Civil Engineering students:

1. Kavin KM
2. Keerthiga G
3. Naveen Kumar SS
4. Swathika M
5. Soma Sudhan M

Guided by:

Dr.Saravanakumar R, AP/CE

4. Detection of Malware /Trojan IoT Devices

- The scope and social relevance of a project focused on detecting malware or trojans in IoT devices are extensive and impactful. Here are some key points highlighting its IoT devices often collect and transmit sensitive data, making them attractive targets for cybercriminals
- By enhancing the security of IoT devices through malware detection, the project safeguards user privacy and prevents unauthorized access to personal information. IoT devices are increasingly being leveraged in large-scale cyber attacks, including distributed denial-of-service(DDoS) attacks and botnet activities.
- By implementing robust malware detection mechanisms, the project contributes to mitigating the risk associated with such attacks and enhancing overall cybersecurity resilience.

Product Done by:

B.E. Electrical and Electronics Engineering students:

1. Jeeva Kharthik N
2. Gowtham S
3. Jagadeeshwaran M
4. Ahil Mozhi GT
5. Varshini Ayyandurai

Guided by:

Mr. Saravanan G , AP (Sr.G)/EEE

5. AI Integrated Workspace Safety Monitoring System

- The AI-integrated computer Vision-Based Safety Monitoring System enhances workplace safety using advanced imaging and AI technology. It features high-resolution, thermal, and 3D cameras, along with edge computing for real-time analysis.
- The system detects and classifies safety equipment, hazardous materials, and unusual behaviors, and optionally uses facial recognition for access control. It provides real-time alerts and automated responses to potential hazards, ensuring compliance with safety regulations.
- The project scope includes hardware and software installation, AI model development, system integration, user training, and ongoing maintenance, aiming to improve safety accuracy, reduce manual oversight, and address privacy and integration challenges.

Product Done by:

B.E. Mechanical Engineering students:

1. Yuvarajan M
2. Siva Visagan RK
3. Ravishankar PM

Guided by:

Dr M.Makeshkumar, AP(SL.G)/ME

6. Solider Strap

- Develop an advanced wearable device for military use, integrating IoT, GPS, and Pulse Sensors, with customizable features and rigorous testing to enhance safety, situational awareness, and operational efficiency.
- Ensure quality, scalability, and maintenance through manufacturing partnerships, aiming to optimize mission success and safeguard lives in high-risk environments. Program Arduino boards using the Arduino IDE to interface with GPS and Pulse Sensor modules, and develop code to collect GPS coordinates and pulse data.
- Establish communication protocols to transmit data to a central monitoring system, conduct rigorous testing to ensure accuracy and reliability, and integrate the Arduino-based system into the Soldier Strap design for effective use in military environments.

Product Done by:

B.E. Computer Science Engineering students:

1. Sudharsshini S
2. Sneka kiruthika K
3. Bhavadharshini
4. Swetha S

Guided by:

Ms. Kiruthika J K, AP/ CSE

7. Virtual Reality Zoo

- Our VR education revolutionizes traditional learning by immersing students in lifelike habitats, enhancing engagement and understanding through interactive and realistic simulations.
- This approach addresses challenges with traditional methods, such as student disengagement and limited real-world experiences, by providing accessible and impactful educational content on wildlife.
- Define the goals of the VR zoo, design a realistic virtual environment, develop detailed 3D animal models, and incorporate educational elements like narration or information points.
- Conduct thorough testing, optimize for performance (especially on mobile VR platforms), and consider integrating additional technologies like augmented reality (AR) to enhance the mixed-reality experience.

Product Done by:

B.E. Computer Science and Business systems

1. Vetrivel
2. Aakash
3. Agash
4. Shrutti
5. Hiren

Guided by:

Dr. T.Shanmuga priya,AP/ CSBS

8. Enhancing the Supply Chain by Unleashing the Potential of Blockchain Technology

- Blockchain technology enhances supply chain efficiency and transparency by providing real-time tracking and traceability of goods, reducing the risk of fraud and errors.
- Smart contracts on the blockchain automate and secure transactions, ensuring compliance with contractual terms, reducing risks, and maintaining quality assurance throughout the supply chain.
- The decentralized and immutable nature of blockchain fosters trust among supply chain participants, offering a single source of truth that enhances data transparency and supports better decision-making across various industries.
- The decentralized and immutable nature of blockchain builds trust among supply chain participants, providing a single source of truth that enhances data transparency and supports better decision-making across industries like manufacturing, retail, healthcare, logistics, and agriculture.

Product Done by:

B.E. Electronic and communication students:

1. Udaya V
2. Sanjai Sree N
3. Sri Sundar M K
4. Karthick S

Guided by:

Dr. Karunakaran S, AP/CE

9. Integrated Defense and Agriculture Rover

- The project aims to develop a versatile autonomous vehicle that enhances both security and agricultural operations.
- The project includes designing and building the rover, integrating hardware and software, and conducting extensive testing. Deployment involves user training and ongoing maintenance. The result is improved security and farming efficiency, cost savings through automation, and a multifunctional rover adaptable to diverse needs.
- The methodology encompasses requirements analysis, design and development, prototype construction, field testing, deployment, and continuous evaluation to ensure the rover meets performance standards and user expectations.

Product Done by:

Science and Humanities students:

1. Ramkumar V
2. Sathish T
3. Nandha Kishore KB
4. Naresh AK

Guided by:

Dr. Aprit Anil Panwar ,AP/ S&H

10. Ultrasonic Based Non-Destructive Testing using Machine Learning for Flaw Detection and Localization

- The project is designed to develop an advanced system that combines ultrasonic technology with machine learning to enhance the precision and efficiency of flaw detection in materials. The project involves designing ultrasonic sensors to capture high-resolution internal images.
- The scope includes collecting and preprocessing ultrasonic data, training machine learning models to recognize different types of flaws, and validating these models to ensure accuracy.
- The expected results include improved accuracy in detecting and locating flaws, increased inspection efficiency, and a versatile tool adaptable to various materials and applications.

Product Done by:

Science and Humanities students:

1. Abhivanth R
2. Dhamodharan T
3. Sivakarthish B
4. Aadithya Y
5. Pravin P

Guided by:

Mr. G Pandiya Rajan, AP/S&H

G. Highlight selected best Innovations with Images





H. Highlight selected start-ups established by students/faculties with mention of founder/co-founder name

LIST OF STARTUPS INCUBATED BY KIC

Name of the Startup	Name and contact details of the founders	About Startup	Kind of support by KIC
KPRIET INCUBATION CENTRE	Dr.K.Ravi Kumar ravikumar.k@kpriet.ac 9994157654 https://www.kpriet.ac.in/student-services/ciied	Access to knowledge report, E-Library and Library at Institute	Mentoring Support, Seed Grant support, Pre-Incubation facility Support, Incubation Support
Lurkhs power systems	Ms.U Ramya, M.S. Kawin	SMPS Battery charger	Mentoring Support, Seed Grant support, Pre-Incubation facility Support, Incubation Support
Macro Loop Tech Pvt Ltd	D Akash	IoT Learner Kit	Mentoring Support, Seed Grant support, Pre-Incubation facility Support, Incubation Support
Escape Rat Race Media	Mr.K.K Thitheashwar	Local brand to global presence	Mentoring Support, Seed Grant support, Pre-Incubation facility Support, Incubation Support
Dream Infra	Mr.S.Vinoth	Building plan approval support	Mentoring Support, Seed Grant support, Pre-Incubation facility Support, Incubation Support

Sigma Creations	Mr.P.R.Shanjai	Encompassing branding and Marketing	Mentoring Support, Seed Grant support, Pre- Incubation facility Support, Incubation Support
Do So	Ms.B.Samyuktha B	Deals with parking in overcrowded area	Mentoring Support, Seed Grant support, Pre- Incubation facility Support, Incubation Support
CRAE	Ms.S.Suwetha	Invites people to immerse themselves in serene environment	Mentoring Support, Seed Grant support, Pre- Incubation facility Support, Incubation Support

I. Break through Innovations / Technology Developed at the institute

1. Innovative start up ID IR2022-78745 dated 11/09/2022 titled MYCOBLOOMS MUSHROOMERY in TRL Title - TRL 5 was registered as a startup for Academic Research Assignment under Industry Sponsored Project by a faculty Lt Dr A K Priya with a funding.

2. 30 days training program was conducted on **Manufacturing household chemical and herbal products** under the Entrepreneurship Skill Development programme in association with the MSME, Government of India. The Orientation program was conducted on 13.12.2023 for rural people from various villages. The objective of the programme is to motivate the rural people to consider self employment or entrepreneurship as one of their career options. 25 women participants were benefited from this Entrepreneurship Skill Development programme.

J. Participation of IIC-institute in various programs of Central and stage Govt. Highlighting specially for the schemes or programs

- ARIIA – participation and Rank : **Innovation ranking 51-100**
- NISP Adoption status - Trained Faculty, Policy Formulation, Policy Implementation : **Implemented**
- Smart India Hackathon etc. : **Conducted**

K. Detail of social media & Connections of IIC institute


- Facebook : <https://www.facebook.com/KPRIETonline>
- Instagram : <https://www.instagram.com/kprietonline>
- Twitter : <https://twitter.com/KPRIETonline>

L. Testimonials from IIC members and external about IIC institute and IIC of MoE's Innovation Cell

The collage features a profile picture of a man, a certificate of appreciation from KPR Institute of Engineering and Technology, a poster for the InnoSense 24 Project Expo, and several photos of students and faculty members interacting and displaying projects.

[illegible]

The image shows a sample certificate of achievement from NPT Institute of Engineering and Technology. The certificate is awarded to Shubham Chaurasiya for securing 92% marks in the B.Tech. 3rd Sem. exam in Mechanical Engineering. The certificate is signed by the Head of the Institute and the Principal. The certificate is dated 27/03/2024 and is awarded by NPT Institute of Engineering and Technology.



with Raja Ramesh and 2 others

Ravindran Logpalan · (30/08/2019) · 100

My first time at #hackingGala

Reflecting on an incredible experience at the Bharatiya Amrit Mahotsav hackathon 2019, held on August 28th and 29th at the National Remote Sensing Centre, Hyderabad. Our team was honored to be one of the 50 teams selected for the finals from across India, competing in a challenging problem statement focused on feature extraction from remote sensing satellite imagery.

We were warmly received and on providing a prompt, the 90-hour hackathon provided us with invaluable learning and growth opportunities, and the event itself was immensely enjoyable and enriched. The skills and insights we gained will certainly contribute to our future endeavors.

Adopting for the delayed post—it's been a busy few weeks since the event, but the experience is one worth sharing!

Team Future Eyes:
Ravi Kumar
Raja Ramesh
RABUL BAKAR MURSAN
Rishabh Logpalan

Hackathon #BharatiyaAmritMahotsav2019 Experience

100% Positive feedback and 28 others

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M.Images



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