



VELAMMAL ENGINEERING COLLEGE

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Ambattur – Redhills Road, Surapet, Chennai – 600066

AQAR 2021-22

1. Title of the practice:

Promoting Innovation in Education

2. Objective

Innovation in education leads to better outcomes in college environment. Innovation refers to the introduction of new or improved products, processes, or services. Entrepreneurs and startups are key drivers of innovation and economic growth. The main goal is to a) Organize conferences, workshops, seminar and training to promote innovation. b) encourage students to do more innovative projects that led to increase productivity, competitiveness, brand recognition, turn over, profit and economic growth.

3. Context

Innovation plays a key role in introducing novelty to existing product lines or processes, leading to increased market share, revenue, and customer satisfaction. Start-ups are centre of novel innovations, they generate jobs, which implies more career opportunities. To increase the innovation projects, Innovation policy was adopted in our institute.

4. The practice

College has an active innovation council, E-cell, Coders club, advanced labs, IPR cell and centre of excellence in the focus of promoting innovation and entrepreneurship. Innovation council organizes many guest lectures, workshops, etc for empowering skills, encouraging innovative ideas. College motivates students to participate in various competition to demonstrate their innovation. Institution initiated the formulation of E-cell involving students to inculcate entrepreneurship and innovation amongst student community. College organizes competition for the students to portray their innovation to expert members.

5. Evidence of success

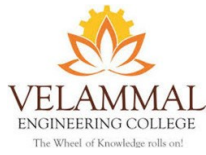
During this year the Number of Workshops/Seminars conducted on Intellectual Property Rights (IPR), Research Methodology, Entrepreneurship and Skill Development organized are around 90 that paved a way for enhancing their skills and interest towards innovation. Institute Innovation Council got **four-star rating** appreciation from Ministry of Education for the innovation activities conducted during the year 2021-22.

6. Problem encountered and resources required

The problem encountered to promote innovation is Lack of awareness of doing innovative projects among faculty and students. More workshops are organized from Innovation cell to create awareness to do their innovative projects. Specialized mentors from industries are available for students to assist their projects.



Fig.1 Four Star Rated Appreciation Certificate from Ministry of Education for IIC cell/VEC

**VELAMMAL ENGINEERING COLLEGE***(An Autonomous Institution, Affiliated to Anna University, Chennai)*

Ambattur – Redhills Road, Surapet, Chennai – 600066

1. Title of the practice:**Promoting Patent, Entrepreneur, and Start up****2. Objective**

Intellectual property rights protect the rights of creators and inventors to their creations and inventions. It includes patents, trademarks, and copyrights. The main objective is to a) motivate the students to do more funded projects and develop products/ideas with innovations that lead to brand recognition, patent, and profit b) motivate the students and faculty members to file patent for preservation of innovation, which is essential for better planning and commercialization c) enable student and faculty to establish a start up to market their innovative funded projects.

3. Context

Innovation means using novel ideas and methods to solve existing problems. Choosing innovative idea and developing products are essential for startup. Patent grants the developer property rights for the unique and useful invention of their developed products. To increase the innovative funded projects, patents filed and new start up, Innovation and start up policy was implemented in our institute.

4. The practice

Institution initiated the formulation of E-cell involving students to inculcate entrepreneurship and innovation amongst student community. The College has an active Institute innovation council, E-cell, Coders club, advanced labs, IPR cell and centre of excellence in the focus of promoting innovation and entrepreneurship. College encourages students to participate in various project competitions to depict their developed products. College involves alumni in promoting innovation and entrepreneurship. IEDC New Gen

Park is established to work toward innovation and entrepreneurship. This Pre-incubation unit is available for students and faculty to develop products. NewGen IEDC supports fund to build prototype/product; to file patent; and to do commercialization.

5. Evidence of success

NewGen IEDC provided funds to develop twenty innovative projects based on the innovative ideas in each project such as Tidy water purifier for domestic purposes, rainwater harvesting using readymade permeable kit, Integrated solid waste management, asphyxiator using acoustic waves, AR glasses with AI virtual assistance, PPE implementation using open CV and AI, smart IoR – security device, battery operated electric kettle, edible fish audio lure system, palliative nutrient feed, dynamo and power supply management for electric vehicle, variable compression engine attachment, design and performance analysis of a novel energy efficient water dispenser unit, development of bio-degradable plastic containers alternate to HDPE containers, design and fabrication of a luxurious air conditioned dog cage, automatic grain collecting and bagging weighing machine, hmi controller for converting older machines to adapt newer technologies, pneuflow, nature inspired solar panel, nano filters for pesticide and fertilizer – NPK for the academic year 2021-22.

The number of patents filed was increased as compared to previous year

The following Patents were filed during the academic year 2021-22.

- Design system of monitoring and alert management of spy tracker using artificial intelligence, Dr.P.Visu Dr.Smitha.P.S, 202241005729A, Filed: 03/02/2022. (Granted)
- A Novel method- Crop Health Monitoring System Using IoT and Machine Learning, Dr.P.Visu, 2021107439, Filed: 25/08/2021. (Granted)
- A smart application for Multi-Food Recognition using Machine learning, Dr.P.Visu, 202141033281A, Filed:23/07/2021. (Granted)
- IoT based remote Intelligent healthcare system for the detection and prevention of a patient health monitoring, Dr.P.Visu, 202141031885A, Filed: 15/07/2021.
- IOT based Agriculture crop monitoring system using sensors, Dr.P.Visu 202141015523A, Filed:15/07/2021.
- Autonomous Gesture Controlled Surveillance Drone System and Methods Providing Safety Thereof, Dr.S.GunaSundari, 202141025773, Filed:10/06/2021 (Published)

- Agry-Drone : A Dynamic web based drone driven crop yield estimation model for agriculture farms, Dr.J.Sathya Priya & Mr.S.Rajkumar, Application Number: 202241001415, Status: Published on 28.01.2022, Filing Date: 11.01.2022.
- A smart application for Multi-Food recognition using Machine learning, Dr.Jeevaa Katiravan, Application Number: 202141033281, Status: Published on 30.07.2021, Filing Date: 23.07.2021. 3. A System and method for predicting Seismic Event using ML & AI Interfaces, Mrs.C.M.Nalayini, Application Number: 202141030433, Status: Published on 16.07.2021. Filing Date: 07.07.2021.
- Water Consumption control system for irrigation based on IoT, Dr.Jeevaa Katiravan, Application Number: 202041028459, Status: Published on 17.07.2020, Filing Date: 03.07.2020
- Electronics watch Dog based Burglary alert system: application number by Mr.V.Rengarajan, Dr.A.Praveen Renold -202141030030, Status: Published on 6.01.2023, Filing Date: 05.07.2021
- Sustainable Package Container And Methods Of Improving Shelf-Time Of Food Items Thereof, Dr.S.Mary Joans, 202141055321, Filed: 30.11. 2021
- Design system of digital and robust control for sugar refinery using machine learning, Dr.J.S.Leena Jasmine, 202241004380 , Filed: 26.1.2022 , 25/2/2022 (Published)
- Autonomous Accident Alert System And Methods Of Informing, Dr.K.Thilagam, 202141024852, Filed: 4.6.2021, 9.12.2022 (Published)
- Automatic Retrieval Of Electronic Products Using Artificial Intelligence System Dr.N.Hemavathy , 202241044571 , Filed: 31.01.2022
- Retinal Image Classification By Self-supervised Fuzzy Clustering Network For Diabetic Retinopathy, Dr.N.Hemavathy, 202141043592, Filed: 26.09.2021
- Autonomous Bike Monitoring System And Methods Of Confirming Safety To Rider And Bike Mrs.R.Shankari , 202141027476 , Filed: 19.06.2021
- Three-dimensional Obstacle Avoidance And Automatic Maneuvering system Mr.P.Vinayagam , Mr.E.Gangadurai , 202141030104 , Filed: 05.07.2021
- Hand-Held Braille device Mr. M.Yuvaraj, Application No. : 202141034861, Filed on : 03.08.2021
- Intelligent head protecting safety helmet, Mr. M.Yuvaraj, Application No. : 202141034855, Filed on : 03.08.2021
- Energy Efficient Cooking Device, Dr.S. Baskarathupathy, Application No/: 202041017257, Filed on 22.4.2020, Published on 29.10.2021

Students and faculty have initiated start up such as Heptre Technology, Elakknatum Engineering P. Ltd. Heptre Tech works is owned by Ragavendiran Balasubramania N and it is a well-established company with a reputation for delivering top-notch services. It is a part of multiple cohorts of Entrepreneurship Development and also a part of IIT-M preincubation.

The products developed by Elakknatum Engineering P. Ltd are Solar Desalination, Smart Helmet, Karthavya, Vaccum Suspension, Handicap Vehicle, Braille Phablet, Electronic Watch Dog based home safe system etc.

Table 1. New Start up Details

S.No	Start-Up Name	Name of the Directors	Faculty / Student	Date of Registration	Corporate Identity Number	Udyam Number
1	IP EVER LLP	Dr.A.Balajiganesh	Faculty	16.07.2021	AAX-8010	UDYAM-TN-02-0116060
2	Emsensing Technology Private Limited	Dr.A.Balajiganesh	Faculty	18.08.2021	U72900TN2021P TC145576	UDYAM-TN-02-0116070
3	VBIND innovation Private Limited	Pradeep kumar Praveen kumar Murali Krishanan	Student	10.09.2021	U73100TN2021P TC146111	UDYAM-TN-02-0115772
4	Ilakkanam Private Limited	M.Yuvaraj P.Thennarasu	Faculty	11.03.2022	U29308TN2022P TC150501	UDYAM-TN-24-0034950

6. Problem encountered and resources required

The problem encountered to promote product development, patent and Entrepreneurship is Lack of awareness of filing patents, commercialization exists among faculty and students. Institution has a well-established IPR cell with an IP expert for managing patent filing. More workshops are organized from IPR cell to create awareness of filing patents, and to do commercialization of their innovative projects. Domain experts from industries are available to the faculty and students to assist them for their innovative products, filing patents and to promote start up.