Annexure - IV

NewGen IEDC
Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

PROFORMA FOR SUBMISSION OF PROGRESS REPORT

Name of the College/Institution hosting NewGen IEDC	SRM Institute of Science and Technology		
Year of starting NewGen IEDC	2019		
Name of the Head/Principal of the Institution/College	Dr. C. Muthamizhchelvan		
Name of NewGen IEDC Coordinator	Mr. Nikunj Panchal		
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-Mail ID	+918148606827 nikunjpr@srmist.edu.in		
Financial Details	Sanction Order No./ Date		Amount Sanctioned
Previous Sanction Order Details	1.	EDII/DST-NewGen IEDC/18-19/08 Date: 13/11/2018	60,00,000 Rs
	2.		

Initiatives/Activities Undertaken as per the Action Plan Submitted:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	**Creative Arcade (Date: 7/9 2019 Participants :50)**	A GFX and VFX workshop conducted, in association with **Perfect Shades**. It focused on the appropriate use of photo editing and video editing software.
2	**101 workshops on Lathe (Date: 7/9 2019 Participants :15)**	A series of certified workshops to give hands-on experience to efficiently use the top-of-the-line equipment at fablab.
3	**React with SRMKzilla (Date: 8/9 2019 Participants :80)**	**SRMKZILLA in collaboration with GatsbyJS** conducted an interactive web development workshop, Future O'Web. Future O' Web provided the platform for web divers to upgrade their gear. The budding developers were exposed to the promising scope of React, HTML5, CSS3 and even got to create their own blogs. The participants were ignited with new ideas to take their first step towards the Future of Web.
4	**Innovation Day (Date: 15/10 2019 Participants :60)**	This was an event held in tribute of the birth anniversary of **Dr. A P J Abdul Kalam** and his vision of innovation in India. In the same spirit it was an exhibit of all the latest innovations done by students and startups in SRM showcased at Fablab. The teams had projects ranging from unmanned aerial vehicle to 3D Printers and everything in between. The Chief Guest of this event was **Dr. Sivanandi**

		Rajadurai, Director Research, Sarada Motors Chennai.
5	**API Development Workshop with DSC SRM (Date: 2/2 2020 Participants :50)**	A workshop to teach the students advanced NodeJS concepts and use it to develop API's hands-on.
6	**MarchBytes with MSPC (Date: 14/03-15/03 2020 Participants :75)**	Workshop on Application Development using Android Studio. Day One- Participants learnt to make with their very own note-taking application. Day Two was in partnership with **Neur Industries**, workshop on Augmented & Virtual Reality.
7	**Triumph Talks- I (Date: 25-02-2019 Participants :70)**	Triumph Talks with **Prof. Sandeep Sancheti, Vice Chancellor, SRMIST** Inspiring interactive session by professor. He motivated students with stories and have given valuable suggestions to follow their passion.
8	**Triumph Talks- II (Date: 13-03-2019 Participants :90)**	Triumph Talks with **Prof. C. Muthamizhchelvan, Director E&T, SRMIST** Inspired students with his experience and his stories. Guided students to adopt best practices and shared about collaboration, teamwork & leadership.
9	**SRMKzilla Game Design Workshop (Date: 8/9 2019 Participants :60)**	A GFX and VFX workshop conducted, in association with **Perfect Shades**. It focused on the appropriate use of photo editing and video editing software.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	**Entrepreneurs Community Meetup-I (Date: 09-02-2019 Participants :60)**	First open house for entrepreneurs, we aim to connect likeminded people and create open friendly environment where ideas and about their execution discussed with others. We have Invited alumni entrepreneurs; they have shared their experience.
2	**ShowTime-I (Date: 12-04-2019 Participants :80)**	Showtime hosted for "**CREED MOTOR WORKS**" where they have launched their product "**Prelude Bike**" & shared about their journey of making Prelude bike and inspired students to follow their passion.
3	**Entrepreneurship Awareness Camp (Date: 27-06-2019 to 28-06-2019 Participants :35)**	EAC organized primarily for Faculties, it was about various opportunities, problem solving approach, writing business model canvas, doing market research, intellectual property, fund raising and various case studies.
4	**Smart India Hackathon (Date: 8/7-15/7 2019 Participants :80)**	We have hosted **SMART INDIA HACKATHON'19 -** Hardware Edition finals at Fablab. The Finalists from Universities across the nation attended this event. Every day consisted of a morning fitness routine, working hours and a cultural show in the evening. The Chief Guest was **Dr. Abhay Jere**, **the Chief Innovation Officer of MHRD**. The last day consisted of a video conference held with the MHRD and AICTE.
5	**Kingston University Bootcamp (Date: 22/7-23/7 2019 Participants :60)**	We have organized 2-day Entrepreneurship Bootcamp in collaboration with **Kingston University, London**. It was centric to

		Entrepreneurship Awareness for student entrepreneurs of SRM. Both the days, activity-based learning session by **Prof. Phil Hudson.** It also had a Pitch fest included within it to bring out the best business plans ideas from the attendees.
6	**Techmux Hackathon (Date: 23/8 2019 Participants :40)**	In association with Aakaash Research Labs we have hosted Hackathon **Techmux 3.0 at FABLAB, to** solve real world issues ranging from rural development to environment. Students have to come up with a viable solution in a continuous stretch of 24 hours.
7	**Gen Y Inception 4.0 (Date: 7/9 2019 Participants :150)**	Gen-Y Inception 4.0, an ensemble of impactful workshops consisting of Android App Development, Web Development, Machine Learning and UI/UX.
8	**ShowTime-II (Date: 7/9 2019 Participants :50)**	#Showtime, **UAV SCRO and Team Spars** technical teams of SRM showcase their latest projects and prototypes. It serves as an inspiration for other students to pick up newer skill sets, projects and try something out of the ordinary.
9	**Entrepreneurship Bootcamp based on BMOE (Date: 13/9-15/9 2019 Participants :80)**	An **Entrepreneurship Boot Camp in association with Sutardja Center of Entrepreneurship and Technology, UC Berkeley.** based on the Berkeley Method of Entrepreneurship to understand general concepts through practice, observation, and critical thinking. It combines the key approaches of Inductive and Journey based Learning to help & discover the next milestone on entrepreneurship journey to becoming a successful entrepreneur.
10	**Design Bootcamp (Date: 11/10-13/10 2019 Participants :40)**	Design Bootcamp is to experience Design thinking to develop a creative process where one can build empathy for users or customers, define a problem so that one can know what one's working towards, ideate to come up with possibilities, prototype and test the best ideas. It revisits steps throughout the process, learning and iterating as one go.
11	**POC Funding Screening Session (Date: 43719 Participants :80)**	A PitchFest for innovators and makers, Students from various disciplines have applied for support to develop POC of their ideas. With the help of expert panel all projects got reviewed and best projects were recommended for further support.
12	**SIH Internal Hackathon (Date: 19/01-21/01 2020 Participants :150)**	The SRM SIH Internal Hackathon for both, the software and hardware edition were conducted simultaneously and was open to all students of SRMIST. The aim was to shortlist teams that will be attending the national rounds.
13	**Demo Day of Open Projects (Date: 1/2 2020 Participants :45)**	An exhibition, as well as the judging of all the finalists of the Open Projects taken up by students and startups in SRM, showcased at Fablab.
14	**Showtime - IV (Date: 7/2 2020 Participants :80)**	Showtime hosted for "**KREATOR 3D**" where they have launched their product "Kreator A1 3D Printer & Mini CNC" & shared about their journey of making it and inspired students to follow their passion.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	**Workshop on "Resident Mentors in Innovation and Incubation Centre" (Date: 14-3-2019 to 17-03-2019 Participants :25)**	Hosted workshop for Resident Mentors in association with School of Design Thinking, Design Intellect. Dr. Anbu and Mr. Ramakrishnan had trained mentors. Workshop has helped mentors to learn designing thinking tools and how they could help students to ideated and help them to solve problem as an Entrepreneur.
2	**Tech Talks -I (Date: 02-04-2019 Participants :35)**	Tech Talks with **Mr. Kannan Doss, Director, Food for Life India Pvt Ltd** interacted with the students and faculty on the Food and agriculture related opportunities that require technology to innovate current practices.
3	**Triumph Talks- III (Date: 04-04-2019 Participants :45)**	Triumph Talks with **Mrs. Vandhana Ramanathan, CEO WSquare** Inspiring and an interactive session with the students and the speaker shared her entrepreneurial journey, the challenges and the ways to sustain in the business world.
4	**Triumph Talks - IV (Date: 22-04-2019 Participants :90)**	Triumph Talks with **Dr. Ikhlaq Sidhu, Founder and Director of Sutardja Centre of Entrepreneurship and Technology, UC Berkeley,** He shared his experience and about Silicon Valley startup ecosystem.
5	**Tech Expo (Date: 29/9 2019 Participants :150)**	An exhibition of the latest and greatest achievements and projects of all the technical teams in the campus of SRM IST. **The Chief Guest was Dr. Ramesh Pokhriyal, MHRD Minister.**
6	**Tech Talk - II (Date: 30/9 2019 Participants :40)**	Tech Talks with **Mr. Sameer Rawal - Social Innovation Evangelist DISQ**, has inspired students and shared his experience about innovative thinking and encouraged students to solve complex societal challenges
7	**Five Day FDP on " Flexible and RF Printed Electronics" (Date: 9-10-2019 to 13-10-2019 Participants :40)**	FDP has attracted Industry innovators and academic researchers who are working in Flexible electronics devices. This workshop has given overview about Flexible Displays, Flexible Antennas and sensors on surfaces such as glass, Plastic, paper, cloth etc.
8	**ML/AI Workshop by DSC (Date: 12/10-13/10 2019 Participants :100)**	An event conducted in collaboration with Google by its AI/ML facilitator, to give students a hands-on experience in understanding machine learning models.
9	**DSC-X (Date: 17/10 2019 Participants :80)**	DSC X is DSC SRM's flagship event where proficient speakers are invited to share their expertise in certain fields as well as to conduct activities that indulge the students to pick up new, relevant skills. The speakers were Muthu Ramakrishnan Viswanathan(Google), Akshay Saini (Uber) and Nikhil Raichur(Google).
10	**Tech Talks - III (Date: 19/10 2019 Participants :50)**	Tech Talks with **Dr.Ramesh Kandadai,** he has shared his experience of Unmanned aerial systems and discussed few topics in depth. And guided students to practice industrial way of managing

		project and team for efficient output.
11	**Triumph Talks - V (Date: 11/1 2020 Participants :80)**	Triumph Talks with **Mr. Chandran Krishnan**, angel investor and CEO of The Chennai Angels, interacted with the students and our incubatees to motivate them and shared the perspective of investors.
12	**Big Data Analytics Workshop with MSPC (Date: 1/2 2020 Participants :65)**	A workshop to teach the students the basics of Big Data and how to use it in effective product modelling as well as data analytics.
13	**Startup Story by SRMKZILLA (Date: 8/2 2020 Participants :60)**	3 eminent startup personalities namely **Mr. Balaji S, cofounder of Chai Kings, Mr.Arun P, cofounder of Guvi and Mr Abheek T**, **Head of engineering at Commutatus**, had shared their journey story and interacted with the students on the fundamentals and challenges of their startups.
14	**Engaging for Excellence: Embracing Health Innovation (Date: 43954 Participants :40)**	In collaboration with Energica we have hosted "Engaging for Excellence: Embracing Health Innovation", Panel members were Mr. Ramesh Somasundaram, Mrs. Devakshi Dhawan, Dr Biju Jacob, Mr. Nikhil Chandwadkar & Mr. Vikram Viswanathan.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: No

3. Other important highlights (new initiatives), if any:

1. **Maker Space-FabLab**
2. **Tech – Entrepreneurship courses**
3. **Design Centre in collaboration with Design Intellect**
4. **Institute Ambassador Program**
5. **Institute Innovation Council (IIC)**

4. Student Projects (Please provide the following details for each student project)

Sr.No.	Team/Project Name	Description	Project Status Beginning of the year	Interventions Made	Current Status
1	**NIS0001 Monkwish**	A platform for employers to improve the organization performance and capabilities by identifying employee skill gap and help them to become more competent.	Proof of Concept Stage	Application developed and have successfully run first pilot with Swiggy for product validation.	Currently they have developed the final products with all interactions. They have adopted subscription-based model. Currently they have 5 Paid users.

2	**NIS0002 Rizel**	Developing Electric Vehicle Powertrain	Digital Cad designs and simulations were ready.	For First prototype to test their technology, they had retrofit KTM bike, made electric version with integration of Motor, BMS, Drive etc. To understand the performance and efficiency. After learning, they have successfully completed digital design of battery pack and Motor, and also started working on first prototype.	They have completed 2nd prototype of Motor with all iterations, currently its in testing phase.
3	**NIS0005 Smart Attendance System**	A platform to provide access to premises by Face Recognition	Ideation Stage	They had created a desktop application to run the test, Which was able to do face detection and recognition in milliseconds, easily it could detect 5 faces at a time, but needed more computation power to detect more faces and also the system was not easily expandable.	Currently they are working to make stand-alone system by moving on to Jetson platform or through Cloud server.
4	**NIS0006 Development of EV retrofitting kits**	EV retrofit kit for converting existing gasoline vehicle to electric.	Digital Cad designs and simulations were ready.	To make first prototype they have converted one auto-rickshaw into electric and made test run to understand performance and efficiency. Based on that learning they have made second prototype with standard industrial grade components and connected over internet to wirelessly control and study the performance.	Currently they have completed final version of prototype with all possible iterations and its on pilot run. Its study is going on to see performance and efficiency.
5	**NIS0008 Bio 3D printer**	Desktop model BIO 3D Printer.	Ideation Stage	They have fabricated first prototype to test and learn the properties of biomaterial while printing. For its first run they have used Aloe Vera gel as it has similar viscosity as another biomaterial.	Currently based on learning they had created 2nd prototype of extruder. They will be doing further test with Alginate biomaterial.
6	**NIS0007 Metal 3D Printer**	Desktop model of Metal 3D printer	Ideation Stage	They have tried using different composition to test sintering process to make first metal printed model they had used existing furnace to get output. They have planned to create an extruder to bring all process at single place.	Currently they have bought new furnace to do deep research on different composition and based on that they will be making second version of metal extruder prototype.

7	**NIS0013 MetaWear**	A miniature device to monitor remotely body temperature, heartbeat & Glucose.	Digital Cad designs and simulations were ready.	They have tested first prototype on Breadboard, to test heartbeat and temperature. After testing they have finalized components, made first prototype of pcb board for measuring heartbeat, and run test again. Also made an online portal where device push all data over internet to server, which could be seen at Mobile/Web App.	After successful testing of heartbeat over PCB board, team have started working on Glucometer to test Glucose level by sweat. They have ordered required chemicals and accessories to test it.
8	**NIS0014 Conversion of plastic waste to fuel oil via enhanced pyrolysis with hydrogenation**	Conversion of plastic waste to fuel oil via enhanced pyrolysis with hydrogenation	Ideation Stage	To test their theoretical assumptions, they have made first prototype to test the characteristics of output oil/gas from processed waste plastics. They have studied output and its falling in category of petrol/diesel.	Currently, they are working on refining output by adding catalyst in process. And doing research for efficient output.
9	**NIS0015 Fabrication and parametric evaluation of modified cooling scheme in a bench scale OTEC system.**	Design and development of a bench scale Ocean Thermal Energy Conversion facility which co-generates power and desalinated water at the same time. This system has a wide scale application in industries and can also be used for desalination of seawater to meet the water demands.	Ideation Stage	A first prototype of this project was developed, which helped as a proof of concept. After that they have fabricated second prototype which is highly precise system, able to get satisfactory result.	Currently, they are ready with second Prototype, and further research, analysis & optimization work is going on.
10	**NIS0019 Tactical Smart Scope Using Encoder Decoder Based Scene Segmentation**	Design and development of Tactical Smart Scope based on Scene Segmentation. Their aim is to display over the scope human body map, and surrounding environment and object.	Ideation Stage	To test their concept first they have integrated all major components camera, screen, lens, tried experiment. There were able to do human face recognition, creating dynamic map of human body, able to recognize surrounding objects and environment.	Currently they have started working on second prototype, where they are designing stand-alone board system, which could be installed directly above the gun.
11	**NIS0020 Light weight concrete Canoe**	A lightweight concrete canoe of 6-meter span	Proof of Concept Stage	They have prepared first prototype by using concrete of density 855kg/m3 and the reinforcement carbon fiber. The mold for construction is prepared using Styrofoam which is engraved using a CNC machine. First prototype was unsuccessful, it got vertical crack after drying up.	Currently they have started to prepare second prototype, they have prepared the reinforcement and completed 70% of the mold construction, they are only left with final construction.

12	**NIS0021 Self Reconfigurable Modular Mobile Robots for Uneven Terrains**	The project aims to develop shape-shifting modular reconfigurable robots that undergo autonomous morphogenesis i.e. structure formation based on current environmental situation and task assigned to the robot. The quintessential modular robots are not designed to do any particular task but are a versatile system that develops into various forms to execute a variety of tasks.	Digital Cad designs and simulations were ready.	Followed by a comprehensive CAD and PCB design, a 3D printed prototype of the modular robot was made to test and verify its economic feasibility, technical viability, and real-world deploy ability. Preliminary testing exhibiting locomotion, magnetic docking, and lifting of a module was carried subsequently.	Currently, they plan to work on the self-reconfiguration section, which would result in broadening the deploy ability of such modules in remote, hostile, and human inaccessible environments. The novel modular robots are equipped with sufficient exteroceptive as well as proprioceptive sensors, required for complete autonomy.
13	**NIS0022 Design and Development of system module to measure the variation in micrographia and speech for Parkinson's Disease.**	Design and Development of system module to measure the variation in micrographia and speech for Parkinson's Disease.	Ideation Stage	They have made first prototype by using WACOM and studied the output by drawing various shape. They have run pilot with 3 patients, based on feedback, they have modified application.	Currently, they have completed second prototype and software to do testing with more patients
14	**NIS0023 Non-Invasive Bilirubin Sensor for Continuous Monitoring and Automatic Control of Phototherapy for Infant Jaundice Treatment**	To design a compact size Non-Invasive Bilirubin sensor which continuously monitors bilirubin level of jaundice in neonates and to automatically start the phototherapy treatment process using Iot technology	Ideation Stage	They did Testing with colour chart (diff yellow colour chart) - to prove that designed sensor shows variation among diff level of colour charts. Measured with 75 adults with three different skin tone such as fair, dark and brownish skin tones - To prove how far the designed sensor shows variation among diff skin tones at diff location such as Forehead, ventral palm, ventral wrist, dorsal palm and dorsal wrist. Testing with 10 volunteering neonates - found 50% correlation with existing jaundice meter.	Currently, Second Prototype designed and fabricated of non-invasive bilirubin sensor and phototherapy set up is ready. They will be starting pilot run.

15	**NIS0024 Design and development of a Crop Quality Monitoring and Classification System using IoT and Blockchain**	Design and development of a crop quality monitoring system with aim to a) Sensing the various parameters on-field and warehouse to determine the crop quality. b) To update this data into the blockchain. c) To enable a secured transaction between the distributor and the farmer.	Ideation Stage	The sensors were calibrated to obtain better accuracy and first implemented in the horticulture department for testing purposes. For real-time data, 6 bags were taken, and seeds sown with the soil containing fertilizers as well. The crop was monitored throughout the growing stage and tomatoes were obtained. The sensor data was recorded and stored in the database for classification of quality. The private Ethereum blockchain network was built initially to visualize the working efficiently.	Currently they are working on second prototype for big area of agriculture land and setting up their device at various location to understand characteristics of soil at various position, accordingly they will notify to farmer through mobile/web app.
16	**NIS0025 Design of wearable full duplex Digital Transceiver for underwater optical wireless communication**	A wearable full-duplex digital transceiver based on blue LED for high speed data communication such as audio/video Under working condition.	Ideation Stage	They have created digital model to test their all ideas, all the simulations have been completed and the results have been verified, analyzed and tabulated.	Currently they have procured all the required resources for development of their first prototype to experiment and check the results in real systems.
17	**NIS0028 Faby**	A mobile robot, which could autonomously move around premises. Which should be able to supervise and control premises over the network.	Digital Cad designs and simulations were ready.	They have fabricated first prototype with the features of controlling premises over the network and do autonomous movement around. and added feature to talk back, to give tour to guests.	Currently they are working on second prototype improvising, autonomous mode of robot, and adding with feature to control over web and mobile application.
18	**NIS0029 Fablab UGV**	An Unmanned Ground Vehicle	Proof of Concept Stage	First prototype, they mainly work on movement of UGV based on geolocation and also sensor integration to avoid obstacles.	Currently, they are developing second version of their prototype with integration of industrial grade components for better performance.
19	**NIS0033 Design Development and Implementation of parallel drivetrain for 3 wheelers**	Design Development and Implementation of parallel drivetrain for 3 wheelers	Digital Cad designs and simulations were ready.	To test their concept, they had created digital model and run all the simulation to study the performance. Results were convincing based on that they have finalized all components for their first prototype.	Currently, they have procured all the required components and have finished all CAD designs of mechanical parts and PCB board designs.

- **Please Submit three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/product along with the students and their mentor.**
    - **Link:** *https://drive.google.com/drive/folders/1IOEgs1kphZCaKTSE_EvLztiUM0oB_m_X?usp=sharing*

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

- Student team details (with contact information)
- Brief description about the student start-up
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs
- Contribution of NewGen IEDC in the same
- Future plan

Link: Project 1: *https://docs.google.com/document/d/1nAQimqAVdYZHuQ3yfLEdk1raey9B6QV_ATEH58igLPM/edit?usp=sharing*

Project 2: *https://docs.google.com/document/d/18sW_eJbRklkFYleLxrnjRwuuQLtqwE0qN3rs20Rt9AE/edit?usp=sharing*

6. Minutes of the Advisory Board Meetings (held twice a year):

Link: First Board meeting : *https://drive.google.com/open?id=1SCL27Hkwi3UO1YDIZ-8EfgH9oF2XKa-b*

7. Progress Summary:

1.	**Total number of Student Projects supported**	**19**
2.	**Total fund provided towards supporting Student Projects**	**25,00,000 Rs**
3.	**No. of Patents filed by students**	**7**
4.	**No. of Patents Granted**	**0**
5.	**No. of companies/Starts up Set up by Students**	**4**
6.	**Social Impact Made, If any**	**2**