

RCOEM

Shri Ramdeobaba College of
Engineering and Management, Nagpur



INSTITUTION'S
INNOVATION
COUNCIL
(Ministry of Education Initiative)

ANNUAL REPORT 2021-22

Shri Ramdeobaba College of Engineering and Management
Randeo Tekdi, Katol Road, Nagpur 440013
www.rk nec.edu

Dr. D S Adane
President IIC, RCOEM

About RCOEM

Shri Ramdeobaba College of Engineering and Management (RCOEM), Nagpur was established in 1984 by Shri Ramdeobaba Sarvajanik Samiti. An Autonomous Institute affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, accredited by NAAC with “A + ” Grade, the Institute has been continuously achieving major milestones. It is one of the most sought-after educational institutes, liked and preferred by students, parents and employers. It offers 11 UG Programs and 10 PG programs and has more than 4500 students. There are more than 450 well-trained employees with expertise in different fields. The college has been continuously featuring in the nationwide rankings and has been ranked 146th in 2022 as per National Institutional Ranking Framework, Ministry of Human Resource Development, Government of India.

IIC Mission and Objectives

- Setting direction for the Institute towards streamlining and establishing a strong start-up ecosystem in the campus and region
- Measuring Innovation & Start-up ecosystem based on Input, Process, Output, and Outcome-based parameters
- Focusing on both quantity and more on quality aspects of the Start-up Eco-System available at the Institute
- Also, to measure the impact created by these innovations and Start-ups in society and the market

IIC Constitution

As per the guidelines given by the Innovation Cell of Ministry of Education and AICTE, Institute Innovation & Entrepreneurship Council (IIEC) is hereby constituted, consisting of the following members.

SN	Faculty Representation:	Name of Faculty	Department
1	President	Dr. D. S. Adane	Research & Innovation Cell
2	Vice President	Dr. Vishal V. Shukla	Mechanical Engineering
3	Convenor	Dr. Rupesh Pais	RCOEM TBI
4	Innovation Activity Coordinator	Prof. Prashant B. Shiwalkar	Industrial Engineering
5	Start-up Activity Coordinator	Ms. Shubhangi Gadhwe	RCOEM TBI
6	Internship Coordinator	Dr. Parag Jawarkar	Electronics Engineering
7	IPR activity Coordinator	Dr. B. M. Hardas	Electronics Engineering
8	Social Media Coordinator	Dr. Vandana Gandhi	Business Management
9	ARIIA Coordinator	Prof. Bhushan C. Bissa	Mechanical Engineering
10	NIRF Coordinator	Dr. A. S. Chatpalliwar	Industrial Engineering

11	Members	Mr. Sumit S. Geete	Civil Engineering
12		Dr. Rashmi Welekar	Computer Sci. & Engineering
13		Prof. P. A. Dwaramwar	Electronics Engineering
14		Prof. N. M. Borkar	Electronics & Comm. Engi.
15		Mr. Jitendra B. Zalke	Bio-Medical Engineering
16		Dr. Uday Majumdar	Electrical Engineering
17		Prof. P. J. Assudani	Information Technology
18		Mr. Ganesh S. Shetiye	Industrial Engineering
19		Mr. Satyajit S. Uparkar	Master of Compt. Applications
20		Dr. Sunita Dhote	Business Management
21		Dr. Y. M. Sonkhaskar	Mechanical Engineering
22		Dr. Pankaj D. Belsare	Physics
Expert Representation			
23	IP Expert/ Patent Expert	Mr. Sunit Sable	BRAINIAC IP Solutions, Pune
24	Startup / Alumni Entrepreneur	Mr. Ketan Paithankar	Co-founder at Konverge. AI
25	Expert from nearby Industry	Mr. Nikunj Dayma	FerroMonk Steel Structures Pvt. Ltd. Nagpur
26	FI/Bank/Investor /Angel Investor/VC		
27	Nearby Incubation Centre	RCOEM TBI Foundation	
Student Representation			
28	Innovation Coordinator	Mr. Siddhant Binani	Industrial Engineering
29		Mr. Atul Pandey	Computer Sci. & Engi.
30		Mr. Yash Wankhedkar	Computer Sci. & Engi.
31		Ms. Zoya Charaniya	Computer Sci. & Engi.
32		Ms. Narayani Singh	Computer Sci. & Engi.
33		Mr. Abhishek Singh	Computer Sci. & Engi.
34		Ms. Ketaki Tank	Computer Sci. & Engi.
35		Ms. Nidhi Misra	Computer Sci. & Engi.
36		Mr. Akshat Surana	Computer Sci. & Engi.
37		Ms. Dhriti Khatri	Electrical Engineering

38		Ms. Anjali Singh	Electrical Engineering
39	Startup Coordinator	Mr. Prajwal Randiwe	Civil Engineering
40		Mr. Pratik Thakur	Civil Engineering
41		Ms. Abha Soni	Electronics and Comm. Engi.
42		Mr. Rishab Thadani	Electronics Engineering
43	Internship Coordinator	Mr. Pratham Choubey	Civil Engineering
44		Mr. Sujesh Gathe	EDT
45	IPR Coordinator	Ms. Aditi Ashtikar	Electronics Engineering
46	Social Media Coordinator	Mr. Ayush Balpande	Electronics Engineering
47		Ms. Saniya Firdaus	Business Management
48		Mr. Anish Garg	Electronics Engineering
49		Mr. Suraj Verma	Computer Sci. & Engi.
50		Ms. Upasana Ambhorkar	Industrial Engineering
51		Mr. Rutuj Runwal	Computer Sci. & Engi.
52	General Members	Mr. Aryan Gupta	Computer Sci. & Engi.
53		Mr. Viraj Phulsunge	Civil Engineering

Innovation Ambassadors

The following faculty members are appointed as the Innovation Ambassador for the calendar year, and they have completed the basic and advanced training on MIC portal.

S.No.	Name of Faculty Member	Department	IA Training Completed
1	Dr. Y. M. Sonkhaskar	Mechanical	Basic + Advance
2	Prof. Prashant B. Shiwalkar	Industrial Engineering	Basic + Advance
3	Dr. B. M. Hardas	Electronics	Basic + Advance
4	Prof. Bhushan C. Bissa	Mechanical	Basic + Advance
5	Prof. Sumit S. Geete	Civil	Basic + Advance
6	Dr. Rashmi Welekar	Computer Science	Basic + Advance
7	Prof. Vipul Lande	Electronics & Communication	Basic + Advance
8	Prof. P. J. Assudani	Information Technology	Basic + Advance
9	Prof. Vishal R. Rathee	Electronics	Basic + Advance
10	Dr. Satyajit S. Uparkar	MCA	Basic + Advance

Incubation Centres

1. RCOEM Technology Business Incubators Foundation
2. RCOEM TATA CIIIT Center for Invention, Innovation, Incubation and Training
3. ASPIRE MSME Technology Business Incubation Center

IPR Cell/TTO Centre Details:

1. IPR CELL
2. RCOEM Technology Business Incubators (TBI) Foundation

Pre-Incubation Centers

Sr. No.	Type of the Unit	Name of Unit
1	Innovation Cell	Research Laboratory (Electrical Engineering)
2	Innovation Cell	Project Laboratory (Electrical Engineering)
3	Innovation Cell	Electrical Workshop (Electrical Engineering)
4	Tinkering Lab	Project Lab (Electronics Engineering)
5	Innovation Cell	Electronic Product/CMOS VLSI Design
6	Innovation Cell	Research Lab (Electronics Engineering)
7	Innovation Cell	Center For Microsystems (Electronics Engineering)
8	Tinkering Lab	Printed Circuit Board Design Lab.
9	Tinkering Lab	Workshop (Electronics and Communication Engineering)
10	Innovation Cell	Projects (Electronics and Communication Engineering)
11	Tinkering Lab	Workshop (Industrial Engineering)
12	Innovation Cell	Research Lab (Industrial Engineering)
13	Tinkering Lab	Network And Project Lab (Information Technology)
14	Tinkering Lab	Project Lab (Mechanical Engineering)
15	Tinkering Lab	Workshop (Mechanical Engineering)
16	Innovation Cell	NVIDIA Centre Of Excellence in Artificial Intelligence and Deep Learning (AI & DL)
17	Innovation Cell	Intellisense Centre For Microsystems
18	Innovation Cell	Energy Research Centre

Student bodies/clubs engaged in promotion of Innovation and Entrepreneurship in the campus

1. Technical Club
2. Robotics Club
3. Sae-India Club
4. Embedded Club
5. Code Breakers Club

List of Activities

The following activities were conducted during the year and relevant documents and reports have been uploaded on the MIC portal.

S.No.	Name of Activity	Quarter	Activity
1	Image Building for Career Development	I	Self-driven Activity
2	Image Building for Career Development	I	Self-driven Activity

3	Achieving Fluency in Spoken English	I	Self-driven Activity
4	Dynamics of Group Discussion	I	Self-driven Activity
5	Entrepreneurship opportunities in Electronics and Communication Engineering	I	Self-driven Activity
6	Entrepreneurship opportunities in Electronics and Communication Engineering	I	Self-driven Activity
7	Basics of Radiation and Antenna	I	Self-driven Activity
8	Session for GATE 2021 under AICTE Prerana Scheme	I	Self-driven Activity
9	Role of Additive Manufacturing in Industry 4.0	I	Self-driven Activity
10	“Career in Business Intelligence”	I	Self-driven Activity
11	Profile/Resume building	I	Self-driven Activity
12	How to start Up	I	Self-driven Activity
13	Scope and Opportunity in CAE	I	Self-driven Activity
14	Live Coding Workshop	I	Self-driven Activity
15	Acing the Placement Saga	I	Self-driven Activity
16	Multi-Scale Methods for Spatial Data Analysis	I	Self-driven Activity
17	The making of Future Ready IT Professionals	I	Self-driven Activity
18	Workshop on Intel OpenVino Toolkit by Intel Student Developer Club	I	Self-driven Activity
19	Scope in Data Science	I	Self-driven Activity
20	Instruments for Aircraft Design.”	I	Self-driven Activity
21	Social hackathon	I	Self-driven Activity
22	Social hackathon	I	Self-driven Activity
23	“A Walk through GSoC and Open Source” by Google DSC	I	Self-driven Activity
24	Career Options after Engineering - Entrepreneurship	II	Self-driven Activity
25	Fire Safety Awareness	II	Self-driven Activity
26	Graphic Design - Manzar	II	Self-driven Activity
27	My Story of Success-1	II	Self-driven Activity
28	My Story of Success - 2	II	Self-driven Activity
29	Stepping into Business World	II	Self-driven Activity
30	Process Monitoring and Automation	II	Self-driven Activity
31	Interview and interpersonal Skill	II	Self-driven Activity
32	Workshop on Additive Manufacturing	II	Self-driven Activity
33	Workshop on MES	II	Self-driven Activity

34	Mechatronics and IoT	II	Self-driven Activity
35	VMC - Vertical Machining centre and CNC	II	Self-driven Activity
36	MSC Adams	II	Self-driven Activity
37	Yaskawa Arc Welding Robot	II	Self-driven Activity
38	Catia V6	II	Self-driven Activity
39	Gyanodaya	II	Self-driven Activity
40	Drishiti	II	Self-driven Activity
41	Webinar on Careers in Management.”	II	Self-driven Activity
42	Writing an Effective Resume	II	Self-driven Activity
43	Introduction about RCOEM Technology Business Incubation Center	II	Self-driven Activity
44	HOSPITAL VISIT AND TRAINING SESSION ON CT SCAN MACHINE	II	Self-driven Activity
45	Workshop on Building Portfolio Website using React JS	II	Self-driven Activity
46	Algorithm Unlock	II	Self-driven Activity
47	Stability Analysis of Drive Systems	II	Self-driven Activity
48	Workshop on Prototype/Process Design and Development - Prototyping	III	IIC Calendar Activity
49	Creation of e-Repository of e-Learning Sessions on I&E at IIC Institute	III	MIC driven Activity
50	AGRESAR-2021	III	Self-driven Activity
51	Workshop on Intellectual Property Rights (IPRs) and IP management for start up	III	IIC Calendar Activity
52	Session/ Workshop on Business Model Canvas (BMC)	III	IIC Calendar Activity
53	Session on “How to plan for Start-up and legal & Ethical Steps”	III	IIC Calendar Activity
54	Trinings on 3-D Printing and IoT	III	Self-driven Activity
55	Training on 3D Printing and IoT4.0	III	Self-driven Activity
56	World Earth Day	III	Celebrations
57	Patent searching, drafting, and filing for Computer Science and Engineering	III	Self-driven Activity
58	Field/Exposure Visit to Incubation Unit/Patent Facilitation Centre/Technology Transfer Centre	III	IIC Calendar Activity
59	Participation of IIC Institutions in IIC Regional Meets	IV	MIC driven Activity
60	Building Institute Level YUKTI - National Innovation Repository (NIR)	IV	MIC driven Activity

61	World Environment Day	IV	Celebrations
62	Session on Angel Investment/VC Funding Opportunity for Early Stage Entrepreneurs.	IV	IIC Calendar Activity
63	Session on Innovation/Prototype Validation – Converting Innovation into a Start-up or Session on Achieving “Value Proposition Fit” & “Business Fit”	IV	IIC Calendar Activity
64	Developing Online Repository of Start-ups Developed/incubated and Way forward plan	IV	IIC Calendar Activity
65	IIC Annual Report 2021-22	IV	MIC driven Activity
66	Session/ Panel discussion with innovation and Start-up Ecosystem Enablers from the region/state/national level	IV	IIC Calendar Activity
67	We Can, We CAN	IV	Self-driven Activity
68	Entrepreneurship awareness and Sensitization	IV	Self-driven Activity
69	Smart India hackathon	IV	Self-driven Activity

Faculty Achievements

S N	Name of the Awardee	Designation	Name of the activity	Title of the Award / Recognition	Name of the Awarding government/ recognized bodies with contact details	Academic Session
1	Dr. (Mrs.) Jayu Kalambe	Associate Professor	Swadeshi Microprocessor Challenge.	4th Position and Rs 20 Lakh for Incubation	The Ministry of Electronics and Information Technology (MeitY) , GOI	2021-22
2	Dr. Meenal V. Joshi	Assistant Professor	Research	Research Excellence Award	Indian Society for Analytical Scientists (ISAS) Headquarters, BARC, Mumbai During an International Conference on New Horizons and trends in Chemical Sciences	2021-22

Students Achievements

No. of student's participation in Hackathon / Other Competition: **762**

Students winners: **57**

Atal School Linkages

The Institute has accepted the mentoring of the following schools with Atal Tinkering Lab.

S.No.	School Code	School Name	Address	Email
1	b56a11879	New English High School and Junior College	Congress Nagar, Nagpur-440012	nehscnngp@gmail.com
2	14105683	Pandit Bachharaj Vyas Vidyalaya	Rajabaxa, Post-Ajni, Nagpur	pbvvkm@gmail.com
3	197511362	R S Mundle English School and Junior College	Hindustan Colony, Nagpur	rsmes.sec@gmail.com

e- Resources

The following e-resources have been developed by the institute:

S.No.	Title	Tags	Video URL
1	Application of Software's in Civil Engineering	Civil Engineering Softwares	https://youtu.be/rCzXO656cTE
2	Introduction to STAAD pro-CONNECT Edition	STAAD.pro	https://youtu.be/GNSibP8YFtI
3	The similarity of documents: Shingles, Min Hashing and Jaccard Similarity	min hashing, Jaccard similarity	https://www.youtube.com/watch?v=cfluhb84hGw
4	Merge Sort	sorting, algorithm	https://www.youtube.com/watch?v=CZQgr8UvVoY
5	For Loop Programs	for loop, loops	https://www.youtube.com/watch?v=2hsawn1ljbJA
6	Introduction to Compiler Design	SLR Parser, Regular expression, compiler, phases	https://www.youtube.com/playlist?list=PLJshpq0JUT2B68UteQvzdEHwzox9EJbJb
7	Advanced Object Oriented Programming	servlet, java server side programming, servlet lifecycle, request response	https://www.youtube.com/watch?v=7EwG6tHtTUo&list=PLAaYDWYyjdSMVIG75iZvaJwFBoFT6gQVh

8	Advanced Object-Oriented Programming	Java server pages, demo, actions, directives	https://www.youtube.com/watch?v=Ur-LgxtUF4g&list=PLAaYDWYyjdSMMcpGEL6ClvaPMSP E3XZYT
9	Advanced Object Oriented Programming	Spring, Java, Dependency injection, auto wiring	https://www.youtube.com/watch?v=svck1tr1bqE&list=PLAaYDWYyjdSNqhGmw mcm4qW2GmnlqQYhI
10	Advanced Object Oriented Programming	Hibernate, hibernate states, embedded objects, proxy object	https://www.youtube.com/watch?v=osCKbxKVKXs&list=PLAaYDWYyjdSNXmyg 0wbZVBHnxSpXIIkYV
11	Construction of Long Span Bridge	Bridge Construction	https://youtu.be/U9KRUV ZEYPM
12	Ground Improvement using Stone Columns	Ground Improvement, Stone Columns	https://youtu.be/OhNqi8 OvMgw
13	Application of AI in AEC Industry	AI in Civil Engineering	https://youtu.be/XQ29lAs aV74
14	Structural Audit & Repair Methodologies	Structural Audit	https://youtu.be/sVlpxZd a-fY
15	Awareness Programme on Know Yoga, Know Life	Yoga, Awareness, Stress Relief, meditation	https://www.youtube.com/watch?v=FPIZ8NyPl8k&t=9s
16	Time to Meet Your Best Version	Personality, time	https://youtu.be/h1481IQ qlcA
17	Introduction to Embedded Linux Systems	Embedded, linux	https://www.youtube.com/watch?v=Z4yN6F39xo8
18	Writing a research article: advice to beginners	research, publication	https://www.youtube.com/watch?v=kCmuP8yBBj4
19	Digital Transformation through Cloud	digital, cloud	https://www.youtube.com/watch?v=9_AdZBbHCcM
20	Role of Embedded Systems, IoT towards	embedded, iot	https://youtu.be/gmhoIm F8LzM
21	Personal Branding for Faculty/Students	personality, brand	https://youtu.be/G1Io0gk Qxm4

22	Free Education and Job Opportunities in Germany	education, free, germany	https://youtu.be/5Y3ka5bIrTY
23	Career Day Higher studies & Job opportunities in the United States of America	education, usa, opportunity	https://www.youtube.com/watch?v=u_GNFbtaLSo&t=8s
24	HOW TO PREPARE FOR CAT AND GET IIM CALLS	CAT, IIM, preparation	https://youtu.be/aZR4AgsMjSE
25	Prospects for Engineers in Defence Force	engineers, defence-forces	https://youtu.be/-g5F8H9WtZw
26	Advanced Concepts in Circuit Simulation and Compact Modelling	circuit, simulation, concept	https://youtu.be/VBCUVHYkLcM
27	Module on Differential Amplifiers	E-Learning	https://www.youtube.com/channel/UCASPICLy_6rWSCqygE04bcA
28	Entrepreneurship opportunities in Electronics & Communication Engineering	Entrepreneur, Core, Electronics and communication	https://drive.google.com/file/d/1EhCEjXuIXOmKcrF6P0wKqtDtupuZ4Hw/view
29	Concept of Radiation & Antenna	Radiation, Antenna, Fields, Radiation	https://drive.google.com/file/d/1Ezvf33S9UE0Q7p2LYBwGI2gH3CpNKrkv/view
30	Learning Computer Communication Networking	Routing, network configuration	Learning Computer Communication and Networking Fundamentals
31	Basics of Wireless Communication	Evolution, Multiplexing, Multiple Access, 4G	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F9&context=library%3Acontent.library~0~0
32	Synchronization of Spread Spectrum	Evolution, Multiplexing, Multiple Access, 4G	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F10&context=library%3Acontent.library~0~1

33	Wireless Transmission and Media Access	Evolution, Multiplexing, Multiple Access, 4G	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F12&context=library%3Acontent.library~0~3
34	Evolution of Wireless Systems	Evolution, 3G, 4G	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F17&context=library%3Acontent.library~2~0
35	Antenna Systems	antennas, radiation	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F18&context=library%3Acontent.library~2~1
36	Spread Spectrum Communication	secure communication	http://172.16.176.22:32400/web/index.html#!/server/446e23f2abeb0476ed8d468cea1e613df9f20d4f/details?key=%2Flibrary%2Fmetadata%2F19&context=library%3Acontent.library~2~2
37	Big Data and Cloud Computing Technologies	big data, cloud computing	https://drive.google.com/file/d/1OZ8X7qshGKQbMjMwBQDNKKqGhw8gwFu7/view
38	HFSS: Complex Antenna Design Techniques for 5G	5G Antenna Design	https://drive.google.com/file/d/10ParDKj7g32fJdO7C6YVt8XTktPEy7hg/view
39	Coding Techniques	Coding Techniques	https://drive.google.com/file/d/1f3eETXOd0oBDu3LD7tENF2UFpMbwnz8h/view?usp=sharing
40	Coding Techniques	Coding Techniques	https://drive.google.com/file/d/1PQWl_YtVyOJza55ebmCj77fZVslFY5ZL/view?usp=sharing

41	Coding Techniques	Coding Techniques	https://drive.google.com/file/d/1EysYFAMOMNIxvb1T-m7Y0Fzvqo0WHQWB/view?usp=sharing
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Ideas/Prototypes/Start-ups Initiated

The IIC is constantly encouraging its students and faculty members to participate and upload their innovations on the YUKTI portal. The following Innovations have been submitted to the YUKTI portal.

Ideas:

Sr. No.	Innovation ID	Innovation Title	FY of Development	TR Level	Team Lead Details
1	IR2022-792809	THE WATCH-KEEPER: A SECURITY SYSTEM TO PREVENT GAS EXPLOSIONS	2019-20	TRL 3	Aarti Karandikar aartikarandikar@gmail.com 9766008513 Faculty CS004 View & Verify ID
2	IR2022-792579	Remote Bike Access System	2020-21	TRL 3	rashmi welekar rashmi.welekar@gmail.com 9850396030 Faculty
3	IR2022-792570	REMOTE METER READING AND BILLING	2019-20	TRL 3	rashmi welekar rashmi.welekar@gmail.com 9850396030 Faculty
4	IR2022-791997	Forecasting Yield and Prices of Rice for Farmers in India	2021-22	TRL 2	Aarti Karandikar aartikarandikar@gmail.com 9766008513 Faculty CS004
5	IR2022-790846	Mental Health Portal	2021-22	TRL 3	Jereen Valsson jereenv2@gmail.com 9423110133 Student
6	IR2022-790669	Smart City Waste Management System through ICT and IOT driven Solution	2021-22	TRL 1	Neeraj Dwivedi dwivedinr@rknec.edu 7741945024 Student

7	IR2022-771750	IOT based Smart Crate Weighing Machine for Agriculture System	2020-21	TRL 3	Pravinkumar Mahadeorao Sonsare sonsarep@rk nec.edu 9422731370 Faculty
8	IR2022-771728	Gesture based I/O system	2021-22	TRL 3	Aryan Gupta itsmyid57@gmail.com 9096484057 Student
9	IR2022-771626	Static PEMFC Model Simulation to Demonstrate the Working with Converter	2021-22	TRL 2	Shraddha Meshram meshramsk@rk nec.edu 8830694697 Alumni
10	IR2022-771580	Survey And Analysis Of Different Transformer Models For Abstractive Text Summarization	2021-22	TRL 3	Shubham Saboo sabooshubham2000@gmail.com 9405320787 Alumni
11	IR2022-771579	E-learning Platform application	2021-22	TRL 3	Navya Verma vermanm@rk nec.edu 9823049376 Student
12	IR2022-771555	CMOS-NAND Based Gate Driver Card of IGBT for Fault Diagnosis in VSI	2020-21	TRL 2	gunwanti shende shendegunwanti21@gmail.com 9168026014 Alumni
13	IR2022-771553	Modelling and Speed Control of Permanent Magnet Brushless DC Motor using PID	2019-20	TRL 2	gunwanti shende shendegunwanti21@gmail.com 9168026014 Alumni
14	IR2022-771545	Predictive Text Generation using Deep Learning Approaches	2021-22	TRL 3	Himani Manoj Dighorikar dighorikarhm@rk nec.edu 9423412051 Student
15	IR2022-771539	Reactive Power Compensation of the Grid Connected PV System	2019-20	TRL 2	Pratik Shyam Manusmare psmanusmare@gmail.com 8857837863 Alumni

16	IR2022-771538	An Approach to Paperless Administration of Offices in India using Blockchain	2021-22	TRL 3	Atharva Paramsukh Paliwal app.paliwal@gmail.com 7020396354 Student
17	IR2022-771324	Interface Design and Performance Analysis of Proton Exchange Membrane Fuel Cell using Python	2021-22	TRL 3	Siddhi Chauhan chauhansa@rk nec.edu 8788655758 Student
18	IR2022-770151	Effect of suction on shear strength of unsaturated soil.	2019-20	TRL 1	Aashish A Mehta mehtaaa@rk nec.edu 9623212557 Faculty
19	IR2022-770029	Slope Stability Analysis by GeoSlope	2019-20	TRL 1	Prasad Prakashrao Dahale dahalepp@rk nec.edu 9975497487 Faculty
20	IR2022-769279	Wireless Boardless Drawing Tablet	2021-22	TRL 1	Rohit Patil patilrp@rk nec.edu 9156777887 Student
21	IR2022-768922	Plant layout optimization using meta-heuristic approach CRAFT and mCRAFT	2021-22	TRL 3	Ayush Agrawal ayush123ngp@gmail.com 8793537156 Alumni
22	IR2022-768882	Continuous Automatic Variable Transmission (CAVT) for Bicycle	2021-22	TRL 2	Ram Laxmikant Bhute bhuterl@rk nec.edu 9730512981 Student
23	IR2022-768709	Water Wastage Control & Monitoring System for Railway Coaches using IoT.	2021-22	TRL 2	Anish Garg anishgarg877@gmail.com 9799123337 Student
24	IR2022-768654	Wind Mill Fall Arrester	2021-22	TRL 2	Ojas Maywade ojasmaywade16@gmail.com 8275777866 Alumni

25	IR2022-768605	Development of Bamboo-Epoxy Matrix	2021-22	TRL 3	Bhavesh Verma vermabp@rknec.edu 9021491829 Alumni
26	IR2022-768258	Fabrication Of Extended Voltage Symmetric Supercapacitor Device And Method For Fabricating Same	2019-20	TRL 3	Mrunali D Wagh mrunaliwagh66@gmail.com 7038046596 Alumni
27	IR2022-768193	IoT Based Conveyor Belt System For Remote Monitoring	2021-22	TRL 3	RAKSHAL AGRAWAL rakshalagrawal@gmail.com 9960876158 Faculty
28	IR2022-768186	Establishment of modified Minimum Quantity Lubrication (MQL) system for machinability improvement	2021-22	TRL 3	Yogesh V Deshpande deshpandeyv@rknec.edu 9096192751 Faculty
29	IR2022-768035	Development of Triboelectric Blue Energy Harvester	2019-20	TRL 3	Pranjali chakole pranjalicakole@gmail.com 8149610400 Alumni
30	IR2022-767977	Multi tool Universal CNC machine	2021-22	TRL 1	Nagesh Udasi nageshudasi123@gmail.com 7774009869 Student
31	IR2022-767920	Early Disease Detection using Android Application based on Nail's Image	2020-21	TRL 3	Pranav Sanjay Wazarkar wazarkar3108@gmail.com 9370490116 Alumni
32	IR2022-767918	Challenges in maturity of OEE Software in MSMEs of Central India	2021-22	TRL 3	KARTIK kartikfadnavis100@gmail.com 9462424090 Student
33	IR2022-767893	Contactless Voting Machine for Covid Patients	2021-22	TRL 1	Atharv Parker atharv.parker@gmail.com 8793587185 Student

34	IR2022-767797	Influencer Marketing Counsel Module Development	2020-21	TRL 1	Sudarshan Sunil Ahir ahirsudarshan794@gmail.com 9422126766 Student
35	IR2022-767527	Power Generator with Health Monitoring IOT Framework	2021-22	TRL 3	Mandar Mukund Pimparkar mandarmpimparkar@gmail.com 9112394508 Alumni
36	IR2022-767493	Digitized IV Infusion Bottle Monitoring and Alerting System	2021-22	TRL 3	Vedanti Ravish Deshmukh vedantideshmukh30@gmail.com 7397856088 Alumni
37	IR2022-767405	Swarm Robots for Construction	2021-22	TRL 2	Uwais Ahmed uwaisahmed41@gmail.com 7030863543 Alumni
38	IR2022-767371	To ergonomically design examination answer book for enhancing the efficiency of evaluation process	2021-22	TRL 1	Mitali Jagdish Agrawal mitaliagrwal9168@gmail.com 7264048049 Alumni
39	IR2022-767370	Productivity improvement of supermarket by reducing customer waiting time	2021-22	TRL 1	Mitali Jagdish Agrawal mitaliagrwal9168@gmail.com 7264048049 Alumni
40	IR2022-767363	Covid-19 norms checker for face mask detection and social distancing violation detection	2021-22	TRL 3	Shivani Agrawal agrwal_s_1@rknc.edu 9096866453 Alumni
41	IR2022-767090	Smart Vacubin with Contactless Waste Collection	2021-22	TRL 3	Ananya Timande timandea_1@rknc.edu 9960752350 Alumni

42	IR2022-767030	Approximation analysis of metaheuristic approach CRAFT and mCRAFT in plant layout optimization	2021-22	TRL 3	Mitali Jagdish Agrawal mitaliagrwal9168@gmail.com 7264048049 Alumni
43	IR2022-767016	Design of Bamboo Splitter Using Ergonomic Intervention	2021-22	TRL 2	Upasana Ambhorkar upasana0811@gmail.com 9673050049 Student
44	IR2022-765691	Portable Fingerprint Sensor based "Classroom Attendance Logger" for Teachers/Administrators to ease the process of marking attendance of the Students	2021-22	TRL 2	Sumit Dandekar sumit809.sd@gmail.com 9970000104 Alumni
45	IR2022-76535220	StudieBuddy	2021-22	TRL 2	Vinay Arun Dhawad vinaydhawad17@gmail.com 9172194317 Student
46	IR2022-764993	CineVibes	2019-20	TRL 1	Mandar Mohite mandarymohite@gmail.com 9518731969 Alumni

Prototypes

Sr. No.	Innovation ID	Innovation Title	TR Level	Team Lead Details
1	IR2022-802135	Detecting Disaster from text data using machine learning	TRL 4	Soham Mundhada soham.mundhada@gmail.com 8668322731 Student 20201000917538
2	IR2022-799830	Development of electric all terrain vehicle	TRL 7	Hrushikesh Pawar pawarhr@rk nec.edu 9766975290 Student 19MEU1029MEU1

3	IR2022-796361	Development of Integrated Test Set for SoC-SoH Estimation of Lithium-Ion Battery	TRL 4	Ujwal Narendra Jibhkate ujwaljibhkate@gmail.com 9146785018 Alumni
4	IR2022-796353	Development of Integrated Test Set for SoC-SoH Estimation of Lithium-Ion Battery	TRL 4	Ujwal Narendra Jibhkate ujwaljibhkate@gmail.com 9146785018 Alumni
5	IR2022-790968	Multilingual Meet Summarizer	TRL 4	Vasundhara Rathod rathodv1@rknec.edu 8055225407 Faculty rathodv1@rknec.edu
6	IR2022-782299	PlagCheck: A plagiarism detection tool	TRL 4	Abhiyant gwalani gwalanian@rknec.edu 8208339346 Student
7	IR2022-772124	FAKE NEWS DETECTION USING MACHINE LEARNING	TRL 6	Anuragini Paunikar arpaunikar05@gmail.com 9075260902 Student
8	IR2022-771796	Prediction of assembly line stoppages at Mahindra Tractor Plant Nagpur	TRL 4	Priyanshu Sawarkar priyanshu.sawarkar@gmail.com 9422803598 Student
9	IR2022-771733	Fault detection in manufactured products (steel surfaces)	TRL 4	Shubham joshi joshishubham0301@gmail.com 8459953964 Student
10	IR2022-771584	Krytominters	TRL 4	Atharva Paramsukh Paliwal app.paliwal@gmail.com 7020396354 Student
11	IR2022-771345	DockIT	TRL 4	Rishikesh Kale rvk.rishikeshkale@gmail.com 9834774612 Student
16	IR2022-771152	A Question Answering System (Multilingual)	TRL 4	Krishna Rathi krishna.rathi222@gmail.com 8975018146 Student
17	IR2022-771068	Adsorptive treatment of dye bearing waste water by using low cost adsorbent TRL Title - TRL 9	TRL 4	TRIPTI GUPTA guptatb@rknec.edu 9923433407 Faculty
18	IR2022-771065	Smart Speed Control Device for Mopeds	TRL 4	Mrugank Joshi mrugankjoshi123@gmail.com 9881059180 Alumni

19	IR2022-770298	The Imperial Lubricants TRL Title - TRL 9	TRL 4	Apurv Sanjay Dey apurvdey4@gmail.com 8329082456 Alumni
20	IR2022-770240	Development of Integrated Test Set for SoC-SoH Estimation of Lithium-Ion Battery	TRL 4	Ujwal Narendra Jibhkate ujwaljibhkate@gmail.com 9146785018 Alumni
21	IR2022-769516	Development of Integrated Test Set for SoC-SoH Estimation of Lithium-Ion Battery	TRL 9	Ujwal Narendra Jibhkate ujwaljibhkate@gmail.com 9146785018 Alumni
22	IR2022-768785	Design, Development and Manufacturing of Accidental Fall Protection Device for High Elevation Ladders of Windmill Towers	TRL 4	Vinayak Sood vinayaksood23@gmail.com 8982720534 Alumni
23	IR2022-768592	Battery Thermal Management Systems with improved cooling	TRL 9	Pranjali Tete pranjalitete@gmail.com 8237462436 Student
24	IR2022-768550	Self cooled solar photovoltaic system	TRL 4	Shubham Vinod Deshmukh deshmukhsv3@gmail.com 9096159803 Alumni
25	IR2022-768440	Design and development of CAM operated in-pipe robot	TRL 4	Prajawal Khandelwal prajawalkhandelwal@gmail.com 8888865203 Alumni
26	IR2022-768232	ALPHA-COMP, Learning braille with fun! (Interactive Learning Game for Visually Impaired)	TRL 4	Swaraj Rathi swarajrathisbr@gmail.com 8237868050 Alumni
27	IR2022-768215	A SYSTEM AND A METHOD FOR LOCKING AND UNLOCKING A VEHICLE	TRL 4	Prasheel Thakre thakrepn2@rknec.edu 7387681310 Faculty
28	IR2022-768200	A Device for Rolling and Unrolling a Roller Shutter	TRL 4	Sumit Nandkishor Patil patil.sushant99@gmail.com 8087641063 Alumni
29	IR2022-768004	Qualitative detection of Algae using RGB Based indices from drone images	TRL 4	Shubh Agrawal agrawalsn_2@rknec.edu 8208110800 Student
30	IR2022-767852	A Device for Fuel Adulteration Detection	TRL 4	Ankita Harkare harkareah@rknec.edu 9850395338 Faculty
31	IR2022-767848	E-VEHICLE FOR AGRICULTURE ACTIVITIES	TRL 4	Jagdish Deorao Kene kenejd@rknec.edu 9423407300 Faculty

32	IR2022-767728	SMART AAKASHWANI: THE DIGITIZED SPEAKING CLOCK	TRL 4	Tejas Raghunath Sathawane sathawanetr@rknec.edu 8446443496 Student
33	IR2022-767664	AN IOT BASED ANTI-COLLISION SYSTEM FOR FISHING VESSEL	TRL 4	Pranav Sanjay Wazarkar wazarkar3108@gmail.com 9370490116 Alumni
34	IR2022-767640	Optimized cross-section of profile for endodontic files	TRL 4	Vinay Mehta vinaymt28@gmail.com 8830048891 Alumni
35	IR2022-767552	A Solar Panel for generating Solar energy	TRL 4	Dr. SANJAY B. POKLE poklesb@rknec.edu 9021688628 Faculty
36	IR2022-767535	A Machine for Performing Exercise	TRL 4	Pallavi Keshavrao Parlewar parlewarpk@rknec.edu 9665446151 Faculty
37	IR2022-767467	DESIGN AND DEVELOPMENT OF A SYSTEM FOR NADI PARIKSHAN (PULSE RATE ANALYSIS) AS PER AYURVEDIC THEORY	TRL 4	Ameya Bidwai ameya.bidwai@gmail.com 9503004388 Alumni
39	IR2022-767467	DESIGN AND DEVELOPMENT OF A SYSTEM FOR NADI PARIKSHAN (PULSE RATE ANALYSIS) AS PER AYURVEDIC THEORY	TRL 4	Ameya Bidwai ameya.bidwai@gmail.com 9503004388 Alumni
40	IR2022-767295	A DEVICE FOR CLEANING CEILING FAN	TRL 4	Vipul Sureshrao Lande landevs@rknec.edu 9823803210 Faculty
41	IR2022-767253	Transfer of data between devices using Li-Fi	TRL 4	Anushka Rajesh Khadatkar khatatkarar@rknec.edu 9822019209 Student
42	IR2022-767055	APPLICATION OF NMT&NATM SYSTEM FOR UNDERGROUND EXCAVATION SUPPORT OF HAULAGE ROAD & CROSS-CUT AT MUNSAR MINE OF MOIL LIMITED TRL Title - TRL 5	TRL 4	Vishal Meshram vishalmmeshram@gmail.com 8007864730 Alumni
43	IR2022-767052	An Anchorage Plate for Post Tensioning of a Prestressed Concrete	TRL 4	Monika Jain mnkjain26@gmail.com 9764707808 Student

STARTUPS:

Sr. No.	Startup ID	Startup Title	Startup Registration Type	GST/CIN No	Team Lead Details
1	IR2022-770294	The Imperial Lubricants	SME Registered Unit (Valid GST No.)	27COFPD3568H1ZV	Apurv Sanjay Dey apurvdey4@gmail.com 8329082456 Alumni
2	IR2022-770184	Empowr Club	Private Limited Firm (Pvt. Ltd.)	U74999MH2021PTC367956	Mehr Kohli kohlimehr@gmail.com 8450940001 Entrepreneur
3	IR2022-766162	UFF	Private Limited Firm (Pvt. Ltd.)	U74999MH2020PTC337971	Piyush Chhawsaria chhawsariapiyush@gmail.com 8329969733 Alumni
4	IR2022-765917	Agrodia Enterprises LLP	Limited Liability Partnership Firm (LLP)	AAT-6447	Harshal Thakare hthakare9@gmail.com 9545897705 Entrepreneur
5	IR2022-764965	Foster Reads	Private Limited Firm (Pvt. Ltd.)	U74999MH2021PTC366341	Varun Chopra varun@fosterreads.com 9881167575 Alumni
6	IR2022-764960	ALENTAR ELECTRIC LLP	Limited Liability Partnership Firm (LLP)	AAP-9182	Ayush Mishra aayush9xm@gmail.com 7745843649 Entrepreneur
7	IR2022-764914	Somebuddy Technologies LLP	Limited Liability Partnership Firm (LLP)	AAJ-8105	Vaibhav Kaushik vaibhav3521@gmail.com 7083873376 Entrepreneur
8	IR2022-764680	Sigmatronics Innovation Pvt Ltd	Private Limited Firm (Pvt. Ltd.)	U72900MH2021PTC362954	Siddharth Mishra siddharth@sigmatronics.co.in 9890455177 Alumni

Institute Innovation & Start-up Policy

The institute has adopted the National Institutional Startup Policy as per the guidelines of MIC, AICTE. The same has been uploaded on the NISP portal and has been disseminated to the students and faculty members.

Objectives:

- Setting direction for the Institute towards streamlining and establishing a strong startup ecosystem in the campus and region.
- Measuring Innovation & Startup ecosystem based on Input, Process, Output, and Outcome-based parameters.
- Focusing on both quantity and more on quality aspects of the Startup Eco-System available at the Institute.
- Also, to measure the impact created by these innovations and Startups in society and the market.

Key Result Areas (KRA):

- The following KRAs are identified for achieving our objectives:
- Programs and Activities on IPR, Innovation, Start-up Organized & Participated
- Annual Budget Spent on Innovation & Start-up funding, income, and Expenditure
- Innovation, Pre-Incubation & Incubation & Infrastructure Facilities Established
- Awards & Recognition of Students and Faculty Innovations/Start-ups in Various Contests/Events
- Courses on IPR, Innovation & Start-up Offered by Institute
- IP Granted and Published
- Successful Innovations Supported, Produced & Startups Established
- Seed Fund, Angel & Venture Fund Support Raised by Above Start-ups and Innovations
- Tech Transferred & Commercialized

Benchmarking and Goal Setting for I&E Ecosystem Development Initiatives as per ARIIA ranking Framework

SN	Parameter Name	KPIs	Desirable Value in (%)	Achieved Value in (%) 2020-21	Target Value in (%) 2021-22
1	Developing an Innovative and Entrepreneurial Mindset through Series of Activities by the HEI: Events/Programs/Activities on IPR, Innovation and Entrepreneurship Promotion and Startup among Students, Faculties and Staff (FY 2019-20)	No. of I&E Programs conducted, No. of Programs Attended, No. of Awards received	75	75	75
2	Teaching and Learning: Academic Programmes related to Innovation & Entrepreneurship (I & E) & IPR offered by the HEI (AY 2019-20)	Teaching and Learning on Innovation/IPR/Entrepreneurship No. of Full-time Programs No. of Short time & Elective/Core Credit No. of MDP, EDP, FDP Programs	67	75	75
3	Dedicated Infrastructure & Facilities Related to Pre-Incubation, Incubation etc. exist in campus to Promote Innovation & Entrepreneurship at HEI (FY 2019-20)	I&E Infrastructures & Facilities	62	85	85
4	Generation of Innovations/ ideas with the support of HEI and recognition received (FY 2019-20)	Innovations Supported by HEI (Technology Readiness Level) No of Faculty as Founder & Co-Founder with DIN:	55	18	25

5	Ventures Established with the support of the HEI & Recognitions Received (FY 2019-20)	No. of Startups with CIN: No. of Startups with an Annual Turnover of Rs 50 Lakhs or 10 employees	58	16	20
6	Collaboration & Investment Facilitations to Promote and Support Innovation & Startups at HEI	Angel and Venture Capital Funding/ Investor Linkage Facilitated by HEI/Incubator Total Angel/VC Fund Amount raised by Innovation Total Angel/VC Fund Amount raised by Startups	71	30	36
7	Intellectual Property (IP), Generation and Commercialization (AY 2019)	Patent Granted Patent Published Incubated Start-up holds Patents No. of IP Commercialized /Technology Transferred	56	25	30
8	Annual budget spent on promoting and supporting I & E activities (FY 2019-20)	Total Expense on Program Conducted and participated, Incubation Infra. (Capital Expenditure + Operational Expenditure) Total Seed Fund/Grant Disbursed to Innovations Total Seed Fund/Grant Disbursed to Start-ups	100	54	65
9	Participation of HEI in I & E Initiative of MOE (FY 2019-20 and FY 2020-21)	Participation of HEI in I&E Initiatives of MOE	100	55	65

ARIIA Participation:



Social Media Links:

Facebook Link

<https://www.facebook.com/RCOEM.Official/>

Instagram Link

https://www.instagram.com/rcoem__official/

Twitter Link

https://twitter.com/RCOEM_Official

(Dr. D. S. Adane)
President, IIC RCOEM, Nagpur