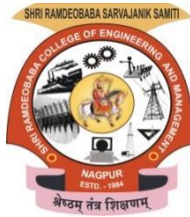


Impact Assessment Report
of
Rajiv Gandhi Science & Technology Commission (RGSTC)
Government of Maharashtra
MSME Internship Scheme

Implemented at



Shri Ramdeobaba College of Engineering and Management (RCOEM),
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Phone: 0712-2580011 Fax: 0712-2583237
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Submitted By

Dr. Rajiv Khaire
Scheme Coordinator

Executive Summary

Government of Maharashtra has set up Rajiv Gandhi Science and Technology Commission as a Statutory Body for advancement, propagation and promotion of applications of Science and Technology for benefit of the people. Shri Ramdeobaba College of Engineering and Management (RCOEM), Nagpur, that is now transformed into Ramdeobaba University, is one of Central India's premier technical institutions. RCOEM has been successfully implementing the Rajiv Gandhi Science & Technology Commission (RGSTC) – MSME Internship Scheme since 2015. The scheme creates a collaborative platform for academia and industry, where students and faculty work on real-life industrial challenges faced by Micro, Small and Medium Enterprises (MSMEs).

The benefits of the Scheme are varied. It helps in Capacity Development of Students & Faculty at one end & provides Cost effective Solutions for the Industry on the other end. The Scheme helped in terms of undertaking Internships, working on real challenges & finally Prototype that were funded by both RGSTC & RCOEM. The Scheme also helped in Publishing Papers in Quality Research Journals, Presentation in National & International Conferences, Creating Intellectual Property Rights & in Entrepreneurial Journey too.

This report gives an insight about the Impact Scheme had on various stakeholders both in Quantitative & Qualitative measures.

ABOUT RAJIV GANDHI SCIENCE AND TECHNOLOGY COMMISSION (RGSTC)

Rajiv Gandhi Science and Technology Commission (RGSTC) is an autonomous organization established by the Government of Maharashtra in 2004 with the vision of promoting science, technology, and innovation for the socio-economic development of the state. Named after the late Prime Minister Shri Rajiv Gandhi, who strongly emphasized technological progress and modernization, RGSTC serves as a bridge between research institutions, industries, government bodies, and society.

The commission undertakes initiatives to encourage scientific research, technological innovation, and entrepreneurship among students, researchers, and enterprises. It also provides financial assistance and technical guidance to projects that have the potential to solve real-world problems and contribute to sustainable development. Through its various schemes and programs, RGSTC supports research and development, incubation, intellectual property rights facilitation, and science popularization.

One of its most impactful programs is the RGSTC-MSME Internship Scheme. Through this initiative, students and faculty members from academic institutions are connected with Micro, Small, And Medium Enterprises (MSMEs) to work on live industrial problem statements. This model creates a win-win situation—industries gain access to fresh ideas and solutions, while students and faculty members acquire valuable hands-on exposure, bridging the gap between theory and practice. Over the years, the scheme has significantly contributed to strengthening industry-academia linkages and building a culture of applied research.

RGSTC also plays a vital role in promoting science education and awareness, particularly in rural and underserved areas, by supporting science clubs, exhibitions, and outreach programs. By integrating scientific knowledge with practical applications, the commission helps in strengthening Maharashtra's innovation ecosystem. Over the years, the Commission has become a driving force in Maharashtra's innovation ecosystem. By nurturing talent, funding impactful projects, and promoting collaborations, RGSTC has contributed to building an environment where entrepreneurship, applied research, and technology-led solutions can thrive.

In essence, RGSTC stands as a driving force for leveraging science and technology for inclusive growth, making research relevant to society, and nurturing a culture of innovation in the state. Through its programs, RGSTC plays a key role in building an innovation-driven ecosystem in Maharashtra, fostering entrepreneurship, and ensuring that science and technology contribute meaningfully to society.

ABOUT SHRI RAMDEOBABA COLLEGE OF ENGINEERING AND MANAGEMENT (RCOEM)

Shri Ramdeobaba College of Engineering and Management (RCOEM), Nagpur, established in 1984, is a premier institution in Central India dedicated to excellence in Technical and Management education. Managed by the Shri Ramdeobaba Sarvajanik Samiti (SRSS), the college enjoys Permanent Affiliation with Rashtrasant Tukadoji Maharaj Nagpur University, Academic Autonomy since 2011–12, and Accreditation with an A+ Grade by NAAC along with NBA-certified programs.

RCOEM's vision is to be a leading institute committed to excellence in education, research, and innovation to meet societal, national, and global needs. Its mission emphasizes providing quality education for lifelong learning, promoting research and entrepreneurship, and nurturing ethically responsible professionals who can contribute to society. Autonomy enables the institute to design industry-relevant curricula through statutory bodies such as the Board of Management, Academic Council, Board of Studies, and Finance Committee, ensuring alignment with global and industrial demands.

The institution follows a strong Quality Policy focused on continuous improvement, academic excellence, and holistic development, while integrity and professionalism remain its foundation. Its core values include:

- **Excellence** – in academics, research, and innovation.
- **Integrity** – upholding ethics, equality, and human values.
- **Transparency** – ensuring fairness in all processes.
- **Social & Moral Responsibility** – addressing national and global concerns.
- **Service to the Nation** – preparing skilled and responsible professionals.

Offering Undergraduate, Postgraduate, and Doctoral programs, RCOEM blends academics with strong industry linkages, research, and student-driven initiatives. The emphasis on innovation and entrepreneurship creates an ecosystem for academic and professional growth.

In its four-decade journey, RCOEM has established itself as a centre of excellence, producing competent engineers, managers, entrepreneurs, and leaders. Guided by its vision and values, it continues to contribute significantly to education, research, and national development.

ABOUT RGSTC MSME INTERNSHIP SCHEME

Objective of the Scheme is “Providing Technical Support to the MSMEs by Leveraging the Capabilities of Students and Faculty of Engineering & Technical Institutions”.

RGSTC-MSME Internship Scheme, facilitated by the Rajiv Gandhi Science and Technology Commission (RGSTC), aims to bridge the gap between academia and Micro, Small, and Medium Enterprises (MSMEs) by providing students with hands-on experience in addressing real-world industry challenges. The scheme fosters interaction between technical institutions and MSMEs, offering students and faculty opportunities to contribute to R&D and technical support for MSMEs. .

KEY ASPECTS OF THE SCHEME:

- **Purpose:**

To create a platform for interaction between academia and MSMEs, providing students with practical experience and nurturing an innovation ecosystem.

- **Implementation:**

The scheme involves faculty-mentored student internships at MSMEs, who work on Problem Statements of Industry in Two Phases. Both Phases receive Funding from RGSTC & in Phase 2 RCOEM also provide funding to Student over & above the students selected by RGSTC.

- **SCHEME STRUCTURE**

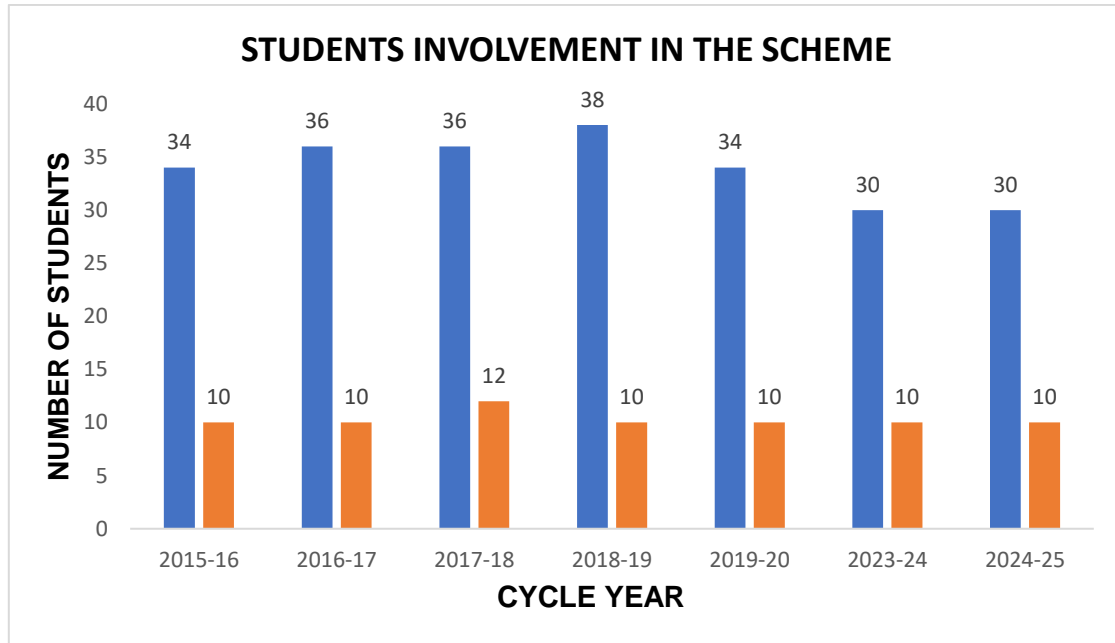
PHASE I

- Fixed Support: Rs 4.32 Lacs by RGSTC (For 15 Groups comprising 30 students)
- Duration: 2 Months for Understanding Problem Statement & identifying Probable Solution

PHASE II

- Variable Project Based Technology Development Support Max. of Rs. 2.95 Lacs for each project by RGSTC (For 3 Groups comprising 6 students)
- Project Duration: 6 months for Developing a Prototype to be implemented by MSMEs

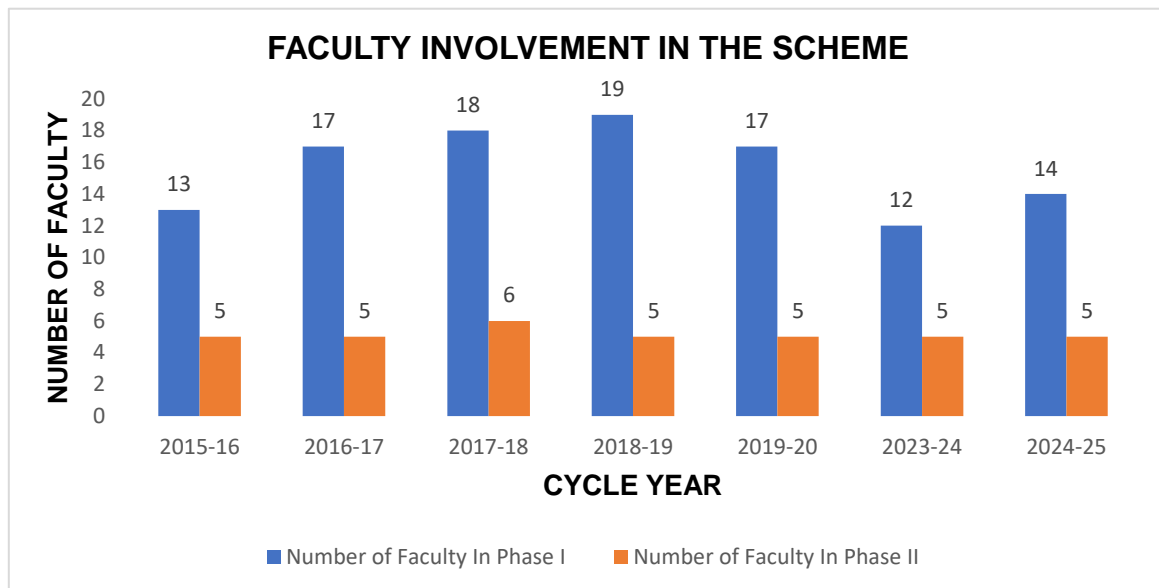
IMPACT OF RGSTC MSME INTERNSHIP SCHEME ON STUDENTS



- *Scheme was discontinued in 2021-2022 and 2022-2023 due to Covid 19

- **CAPACITY BUILDING:** Hands-on exposure to real industrial challenges that has improved problem-solving, domain expertise & core technical competencies.
- **EXPOSURE TO INDUSTRY TRENDS:** Students are informed about evolving industry trends, emerging technologies, and market demands that helped them to adapt their learning and skills to be relevant in the changing job landscape.
- **RESEARCH ORIENTATION:** Gained early exposure to applied research and intellectual property creation. Fact that can be reinforced by Number of Patents granted & filed.
- **INNOVATION & CREATIVITY:** Several projects have led to patents and couple of start-ups. One start-up has been Incubated in RCOEM TBI Foundation Section 8 Company of the Institute. Exposure to Innovation Ecosystem.
- **IMPROVED BEHAVIOURAL / COMMUNICATION SKILLS:** Preparation of Report for Phase 1 & 2 has improved Written Communication. Assessment by RGSTC Technical Screening Committee has improved Presentation Skills.
- **HIGHER EDUCATION:** Application of students who have gone for Higher studies in India & Abroad have received more weightage as they participated in the Scheme that sets them apart from their peers.
- **ENHANCED EMPLOYABILITY:**
Students gained valuable practical experience through internships, projects, and exposure to industry practices, increasing their chances of securing quality employment.

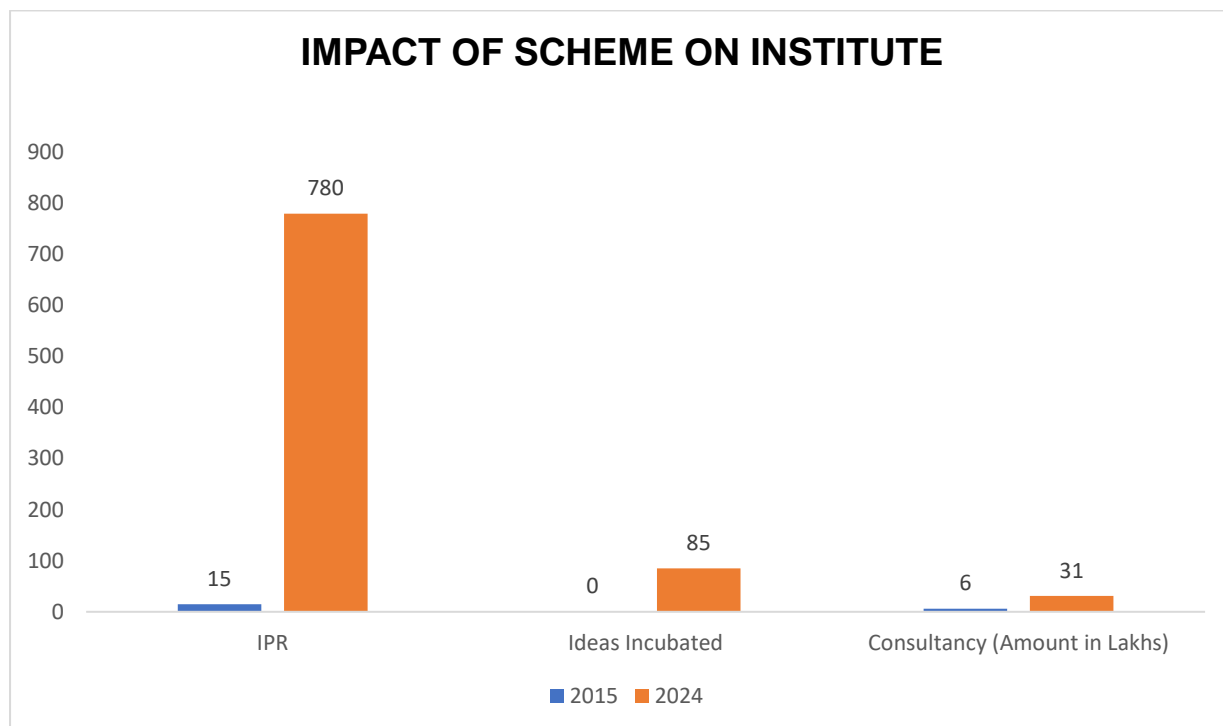
IMPACT OF RGSTC MSME INTERNSHIP SCHEME ON FACULTY



*Scheme was discontinued in 2021-2022 and 2022-2023 due to Covid 19

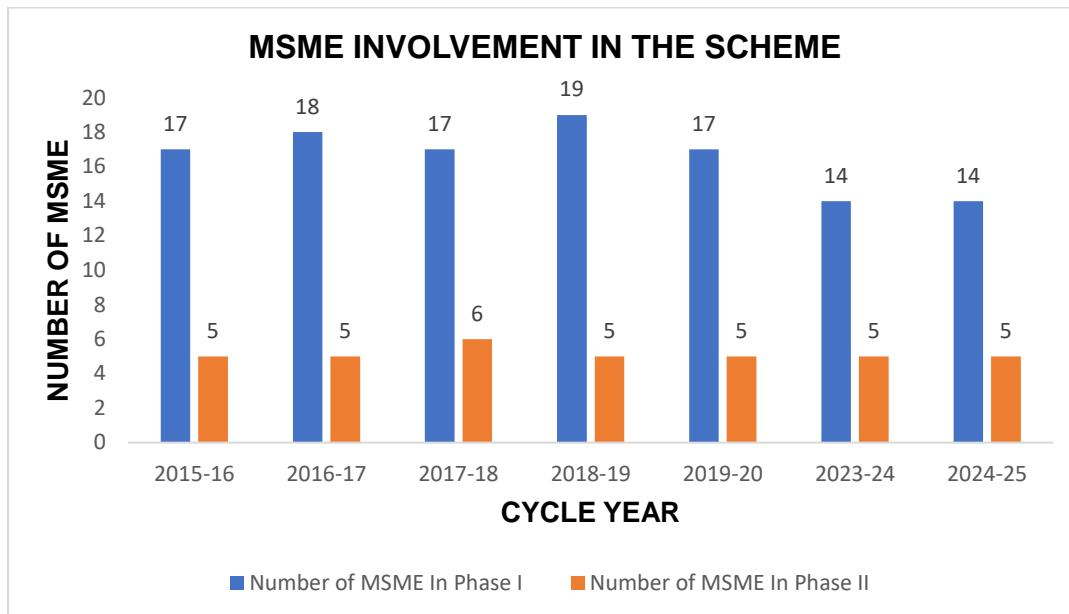
- **UPDATED KNOWLEDGE AND SKILLS:** Faculty members stay abreast of the latest industry trends, technologies, and best practices that helps them to keep their classroom delivery relevant and up-to-date.
- **APPLIED RESEARCH OPPORTUNITIES:** Collaboration with industry have opened doors for joint research projects, funding, and access to industry resources. Faculty have worked on solving real-world problems, which adds practical value to their research work.
- **PROFESSIONAL DEVELOPMENT:** Faculty got chances to present their Research Work in Workshops, Conferences, publish in Quality Journals. IPR have been Filed & Granted in collaboration with Industry.
- **IMPROVED CURRICULUM DESIGN:** Scheme has helped Faculty to Interact with industry experts that has assisted them to design industry-aligned curricula and practical learning experiences.
- **Research Proposal to Funding Agencies:** Scheme has helped Faculty to apply for Research Funding to various State & Central Agencies. Few Faculties have applied for Assistance to Collaborative Projects between Institution and Industry for Technology Development/Adoption” (CPIITA) under RGSTC.

IMPACT OF RGSTC MSME INTERNSHIP SCHEME ON INSTITUTE



- **INNOVATION & ENTREPRENEURSHIP ECOSYSTEM:** Scheme has given impetus for Establishment of RCOEM TBI- Section 8 Company in 2016 that has resulted in Ideas Incubated & Ideas commercialised.
- **ACADEMIC ECOSYSTEM:** Introduction of Full Semester Internships to Students in the Scheme. Full Course delivery & evaluation by Industry expert in addition to Co-Teaching by Industry Person has been introduced.
- **RESEARCH AND IPR:** Research ecosystem has been benefitted through Number of Patents Filed & Granted. There has been significant Improvement in Quality Publication by the Institute
- **Strengthened industry linkages:** Institution has signed multiple MoUs with individual MSMEs along with Local Industries Association. It has resulted in enhanced Revenue Generation Consultancy & Industry Projects.
- **Funding for Infrastructure Development:** RGSTC funding has been used to extend internships to other students not selected for Phase 2. It has also helped to buy small test equipment, and seed longer projects — building capacity in labs and incubation centre.
- **Enhanced Academic Reputation** Institutes gained prestige and recognition of being Partner with leading industries & RGSTC. Institute takes pride in being the Only Private Institute across Maharashtra when the Scheme was implemented in 2015.
- **Community and Societal Impact:** Institutes has contributed to local development by addressing industry challenges and their specific needs. This has enhanced the institute's social relevance and community engagement.





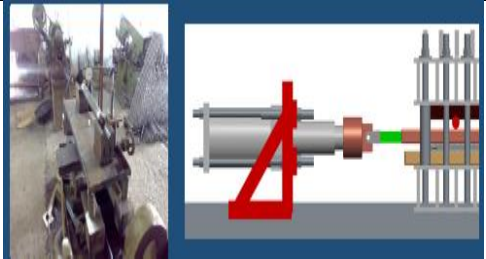
IMPACT OF RGSTC MSME INTERNSHIP SCHEME ON MSMEs

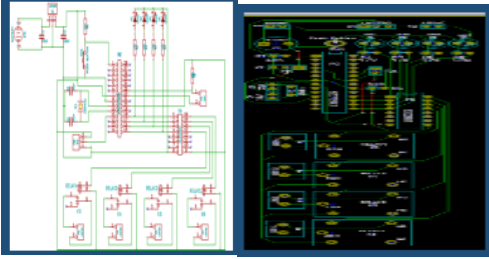
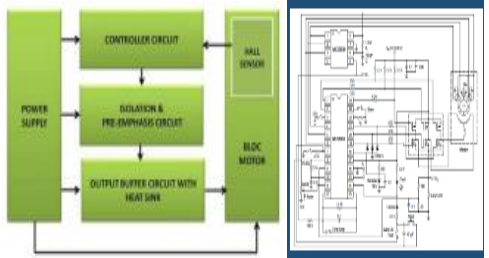
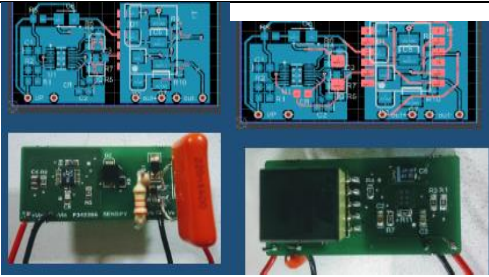

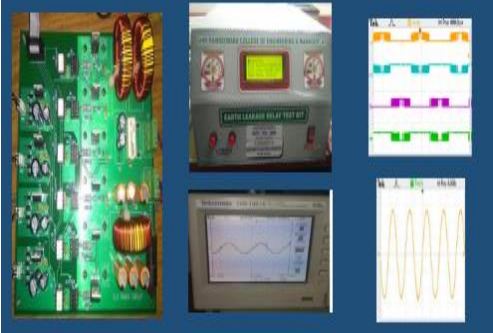





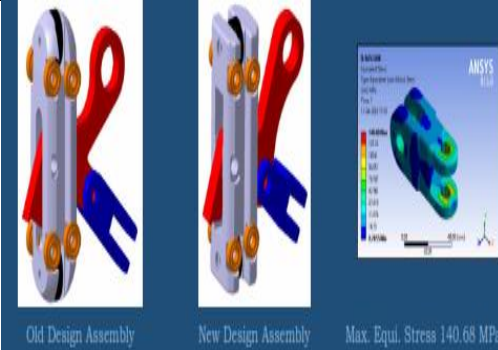
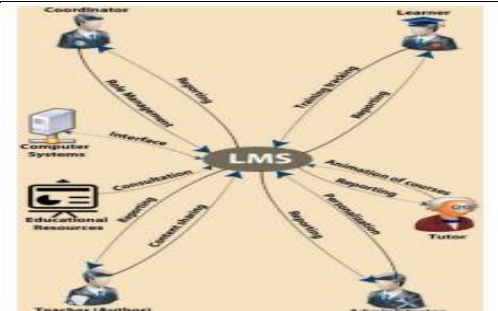
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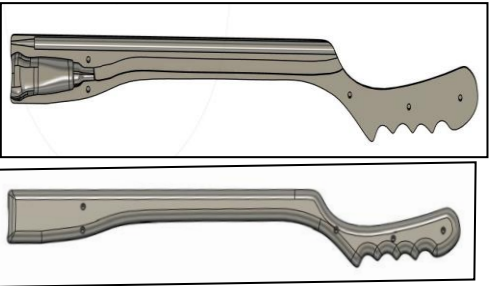

- **PROBLEM RESOLUTION & LOW-COST SOLUTION:** MSMEs received feasible technical solutions (automation, process improvement, testing rigs, UI/firmware, materials tests) at no or minimal cost. This has accelerated product/ process upgrades.
- **ACCESS TO TALENT & R&D:** The scheme created a pipeline for MSMEs to evaluate potential hires and to access faculty expertise for the Challenges. Institution-led activities helped in Prototyping.
- **RESEARCH COLLABORATION:** Partnerships with academic institute facilitated joint research projects that lead to new products, processes & technologies. Industries benefited from fresh ideas, cutting-edge research, and access to academic expertise.
- **Knowledge Transfer:** Interaction facilitated the transfer of knowledge and expertise between industry professionals and academic staff, leading to a more dynamic and informed learning environment.

SOLUTION PROPOSED & IMPLEMENTED BY MSME SINCE 2015

SN	Photo	Project Title	Name of MSME	Year
1	 <p>BEFORE</p> <p>AFTER</p> <p>Aluminium Section at Spacewood Office Solutions Pvt. Ltd.</p>	Design & Improvement of Workstations for Office Furniture Manufacturing Plant.	Spacewood Office Solutions Pvt.ltd.	2015-16
2		Development of repairing material using mineral admixture for strengthening and retrofitting of damaged structure/building	M/s.S.P.BH AVE	2015-16
3		Design & Development of Hydraulic Continuous Torque Wrench	Minar Hydrosystems Pvt	2015-16
4	 <p>e-Funnel App Generated Report Product Installation Developed Product</p>	FCA E -Funnel (Fuel Cost Analyser)	Tsecond Generation technology Pvt. Ltd.	2016-17
5		Design and development of Inline Pin straightening station	Rama Pins Pvt. Ltd	2016-17

6		Variable Intensity LED lighting system	Beta Computronics Pvt.Ltd.	2016-17
7		E-Rickshaw Controller : Green Revolution	United Electricals	2017-18
8		Low cost DC-DC convertor for length sensor applications	Sensify Technologies Pvt.Ltd.	2017-18
9		Low cost DC-DC convertor for length sensor applications	Zeal Pavers and Tiles, Nagpur	2018-19
10		Development of Earth leakage relay test kit using current injection system	M/S. Automation Controls	2018-19

11		Designing advanced and effective control panel with feedback system in fixed form Paver Machine	J. V. Engineering works Nagpur	2018-19
12		Design and Development of BLDC Motor Controller	V. V. Associates, Nagpur	2019-20
13		Design of Continuous Rotating Hydraulic Torque Wrench	Minar Hydrosystems Pvt. Ltd.	2019-20
14		Design, Development and Manufacturing of Fall Arrester	Navratna Industries	2019-20
15		Development of Cost Efficient and Effective Learning Management System (LMS)	Zeal Micro Mac Pvt.Ltd.	2023-24

16		Manufacturing of Sustainable Interlocking Building Components.	Bhagat Bricks	2023-24
17	 <p>Machine Cycle time Final Product</p>	Design and Development of Bio-Degradable Spacer.	Anand Industries	2023-24
18		Human Breadth Simulator	Hum Aspen Wellness Private Limited	2024-25
19		Design & Development of Indigenous Economical Ovum Pick Up (OPU) for Veterinary Applications	Advon Technologies Private Limited.	2024-25
20		Voice controlled Movement of Electric Wheelchair for Differently Abled Needy System	Altior Healthcare (OPC) Private Limited	2024-25

OUTCOMES AT GLANCE



YEAR-WISE SUMMARY

S N	Year	No. of Students Selected for internship (For stage 1)	No. of Interns selected for projects (For stage 2)	No. of Projects / Technologies supported		Industry response to the technology developed by the students		No. of Patents applied / filled/ granted (if any)
				RGSTC	RCOEM	Adopted	Patents	
1	2015-16	34	10	3	2	3	1	1
2	2016-17	36	10	3	2	3	1	1
3	2017-18	36	12	4	2	2	3	3
4	2018-19	38	10	3	2	3	3	3
5	2019-20	34	10	3	2	3	2	2
6	2023-24	30	10	3	2	3		2
7	2024-25	30	10	3	2	3	1	7
	Total	238	72	22	14	20	11	19

Patents Granted :11

S.N	Title	Application No.
1	"Use of Metakaolin in cement based innovative repairing material"	Application No: 201721000076
2	C-Shape Interconnecting Concrete blocks	Application No: 201721038784
3	Low cost and high strength paver block made of proportioning ingredient materials	Application No: 201721038785
4	Low cost method and system for Grain sorting	Application No: 201721046624
5	"Effectual driver circuit for E- Rickshaw	Application No: 201821027929
6	Plasma Arc Cutter for Parting Metal Rod Under Preheated Condition	Application No: 201921021264
7	Electronic Assistive Device for Bottom Dead Center Adjustment for Mechanical Power Press	Application No: 201921029158
8	Solid State Devices Based Secondary Current Injection Technique for Testing of Earth Leakage Relay	Application No: 201921021939
9	A Wrench	Application No. 202121005050
10	Remote Meter Reading and Billing.	Application No: 201921035549
11	Earbud Disinfecting Case	Design No- 434991-001

Patents Filed: 08

1	A Method for Manufacturing Sustainable Interlocking Paver Blocks	202421043073
2	Design & Development of Biodegradable spacer	202421035035
3	A System for Disinfecting Earbuds	202421076479
4	Voice Enabled Movement Control for Electric Wheel Chair System with Interactive Audio Feedback	202521013012
5	Rubber Gasket Cutting Device	440876-001
6	Uni-Directional Step-Driven Piston Pump Actuator	458334-001
7	Ultrasound Guided Ovum Pick-Up Handle for Cow	458339-001
8	Step-Driven Piston Pump Actuator	458333-001

NUMBER OF PAPERS PUBLISHED

SN	Authors	Title of the Paper	Name of the Conference/ Journals
1	V A Dakwale, V. J. Rajurkar, Shubham Mahesh, Dimpanshu Namdeo	Effect of metakaoline on concrete used for repair and strengthening	National conference on DCESC
2	Prof . P. P. Tambe	Productivity Improvement in the Assembly Section of E-Rickshaw Manufacturing Company	3rd International Conference on Industrial Engineering (ICIE-2015)
3	Dr. V. S. Deshpande, Miss.Sushmita Deshpande, Mr.Nityam karn	Reorganization of layout in a furniture manufacturing industry through a systematic layout planning	All India Seminar on Quality Progress
4	Dr. V. S. Deshpande, Manish Pakhrani, Rashabh Prasad	Improvement in Nozzle Utilization of Flux Cored Arc Welding Torch in Medium Scale Fabrication Industry.	All India Seminar on Quality Progress
5	Jagdish D. Kene, Akshay S. Bayas, Saurabh Y. Shah	Efficacious driver circuit for e-rickshaw: the current state-of-the-art	International Journal Of Latest Trends In Engineering And Technology
6	Ashish Chandak	Real Time Logging and Monitoring of Electro mechanical Devices	International Journal of Advanced Research in Computer Science
7	P.B.Shiwalkar, V.V.Shukla ,Rohan Dekate ,Prabhat Rajput	On the Measurement of Cylindrical Forms by Bent Shaft Survey Map	All India Seminar Qulaity Progress, 17-18 June 2017, Nagpur
8.	Ashish Mehta,Dhruv Kacha, Naina Sharma	Compressive Strength of Fly Ash Based Geopolymer: A Review	International Conference on - Civil, Environment and Construction Technology, 17-18 May, 2024, Graphic Era Demmed to be University, Dehradun
9.	Vineet P. Bhoyar, Muskan R. Tekchandani, T. A. Madankar, Rajiv B. Khaire, Yogesh V. Deshpande	Replacement of plastic spacer for tyre industry with biodegradable spacer- A suggestive approach	International Conference on Sustainability and Management Strategy (ICSMS) on December 15-16, 2023, IMT Nagpur

Sanctioned Grant By RGSTC

SN	Cycle Year	Sanctioned Amount
1	2024-25	13,17,000
2	2023-24	13,04,175
3	2019-20	11,97,300
4	2018-19	12,21,555
5	2017-18	12,61,000
6	2016-17	11,32,050
7	2015-16	11,07,750
	Total	85,40,830

CONCLUSION

RGSTC–MSME Internship Scheme has been implemented at RCOEM since 2015. Since its inception in 2015, the **RGSTC–MSME Internship Scheme at RCOEM** has delivered measurable and sustainable impact. With **238 students engaged** in internships, of which **72 advanced to technology development projects**, the scheme has created a talent pipeline equipped with real-world skills. It has successfully supported **22 projects under RGSTC** and **14 projects under RCOEM**, leading to the **adoption of 16 technologies by industries**.

On the innovation front, the scheme has contributed to **19 patents filed/granted**, out of which **11 technologies are patented**, showcasing the culture of intellectual property creation. It has also led to the incubation of **1 startup** and attracted **₹85.40 lakhs in sanctioned grants** since inception.

These achievements underline the scheme's role in **enhancing student employability**, providing **cost-effective technical solutions to MSMEs**, and positioning RCOEM as a **hub of innovation-driven industry–academia collaboration**. Going forward, with expanded MSME cluster partnerships, increased patent commercialization, and scaled incubation support, the scheme will continue to empower students, strengthen MSMEs, and contribute to **Maharashtra's innovation-led economic growth and societal development**.