

# RGSTC-TIFAC-MSME Internship Program

**Rajiv Gandhi Science & Technology Commission (RGSTC)**  
Government of Maharashtra

**Technology Information, Forecasting and Assessment Council (TIFAC)**  
Department of Science & Technology, Government of India

**Coordinator**  
**Dr Rupesh Pais**  
**Prof. Tanmay Gupta**



## **Shri Ramdeobaba College of Engineering and Management**

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## **1.0 Introduction**

Shri Ramdeobaba College of Engineering and Management has been selected for the implementation of the prestigious scheme of Shri Rajiv Gandhi Science and Technology Commission, Government of Maharashtra (RGSTC), and Technology Information, Forecasting and Assessment Council (TIFAC), Department of Science & Technology, Government of India for Providing Technical Support to the Micro Small and Medium Enterprises (MSMEs) by Leveraging the Capabilities of students and faculty of engineering & technical institutions.

### **1.1 Rajiv Gandhi Science & Technology Commission**

Rajiv Gandhi Science & Technology Commission was formed by Government of Maharashtra for the advancement, propagation and promotion of applications of Science and Technology to the various problems faced by the society and to the developmental work. The Commission would act as a facilitator and play a pro-active role to take science and technology to the people. Maharashtra is the only state in the country to set up such a statutory Commission and indicates its priority for Science and Technology Sector. (Source: <https://rgstc.maharashtra.gov.in/>)

### **1.2 Technology Information, Forecasting and Assessment Council (TIFAC)**

Technology Information, Forecasting and Assessment Council (TIFAC) is an autonomous organization set up in 1988 under the Department of Science & Technology to look ahead in technologies, assess the technology trajectories, and support technology innovation by network actions in select technology areas of national importance. In 1993, TIFAC embarked upon the major task of formulating a Technology Vision for the country in various emerging technology areas and prepared the Technology Vision 2020 for technology development of the country by leveraging technology innovation through sustained and concerted programmes in close association with academia and industry.

### **1.3 MSME Internship Program**

The proposed scheme has encouraged enhanced and continued involvement of students and faculty of technical institutions with industries and provides technical support to the otherwise technologically deficient MSMEs. More importantly, such processes are able to nurture an innovation ecosystem which could benefit both the MSMEs as well as the technical institutions. The objectives of the scheme are:

- creation of a platform for establishing interaction between academia and MSME industries on a mutually win-win basis;
- establishing a platform for the MSME cluster industries to access R&D and technical support leveraging the knowledge base of faculty and students from technical institutions;
- providing hands on engagement and practical experience to the students and faculty on existing technical challenges in the industry and
- Nurturing an innovation ecosystem that benefits both the industry as well as the technical institution.

## 2. Projects completed in last four years

### 2015-16: Phase I

Total number of students : 34

SN	Industry Name	Project Title
1	RF Arrays Systems Pvt. Ltd	Remote Meter Reading and Billing
2	Kratin Software Solutions Pvt. Ltd.	Gate Automation using Arduino YUN
3	Starling Education Systems	Computerized Control Distillation Unit
4	Unique Automation Pvt. Ltd.	High Resolution Voltmeter and Ammeter
5	Minar Hydrosystems Pvt. Ltd.	Design & Development of Hydraulic Continuous Torque Wrench
6	Nagpur Motors Pvt. Ltd.	Design & Development of Force and Position Monitoring System for Assembly and Testing of various subassemblies of Electric Motors
7	Onkar Furnitech	Design of Side Turning Mechanism for Hospital Bed (motorized Hospital Bed for bed ridden patient)
8	Spacewood Office Solutions Pvt. Ltd.	Design & Improvement of Workstations for Office Furniture Manufacturing Plant.
9	Dulocos Conveyors and Moulds Pvt. Ltd.	Design, Fabrication and Testing of Flux Cored Arc Welding Torch.
10	M/s Arya Paper Products Pvt. Ltd.	Development of convenient and simple methodology for assessing operating condition of electric motors, to avoid failures and improve productivity.
11	M/s. S.P.BHAVE	Development of repairing material using mineral admixture for strengthening and retrofitting of damaged structure/building
12	Sterling Electricals & Technologies	Development Of Low Cost PCB MILLING MACHINE
13	Waghmare Food Products Pvt. Ltd.	Designing of Secondary Packaging Machine for Spice Food Product.
14	Dhurvv Transport PVT LTD	Design and development of Lead Acid Battery Analyzer
15	Khosla Engineering Tools	Real Time Logging and Monitoring System for Electro-Mechanical Machines
16	Vishwashanti Udyog	To develop cost estimation system for job works of (i) Cylindrical Grinding (ii) Conventional Turning (iii) CNC Turning”
17	Nikhil Furnitures	Productivity Improvement in the Assembly Section of E-Rickshaw Manufacturing Company”

### 2015-16: Phase II

Period of Project : 6 month (December 2015 – June 2016)

SN	Industry Name	Project Title
1	Spacewood Office Solutions Pvt.ltd.	Design & Improvement of Workstations for Office Furniture Manufacturing Plant.
2	M/s. S.P.BHAVE	Development of repairing material using mineral admixture for strengthening and retrofitting of damaged structure/building
3	Sterling Electricals & Technologies	Development of Low Cost PCB Milling Machine
4	RF Arrays Systems Pvt. Ltd	Remote Meter Reading and Billing
5	Minar Hydrosystems Pvt. Ltd.	Design & Development of Hydraulic Continuous Torque Wrench

**2016-17: Phase I****Total number of students : 36**

<b>SN</b>	<b>Industry Name</b>	<b>Project Title</b>
1	M/s. D. Datta Designers Tiles and Pavers	Cost curtailment and mix design of paver block
2	Ankur Seeds Pvt. Ltd.	To produce the quality of crop and to save the resources (Water & electricity.)
3	Purti Agrotech. Ltd.	Agriculture Automation
4	Techwalnut Automation and Software Solutions Pvt. Ltd.	Analysis of RFID antennas
5	Promax Digital Pvt. Ltd.	Innovative Robotics Learning kit
6	AISYS Engineering Products and Services	Design and development of Efficient solar charge controller
7	V. V. Associates	1. Design Solar based inverter for 400 W. 2. Performance evaluation of batteries
8	Unique Electronic Solutions Pvt. Ltd.	Design and development of solar charge controller
9	Sensors and Systems	Design of BMI (Body Mass Index ) machine
10	Beta Computronics Pvt.Ltd.	Design and development of LED driver circuit
11	Shri Bricks	Automation in cement brick industry
12	Onkar Furnitech	Productivity Improvement through Modern Industrial Engineering Techniques
13	Kinetic Gears	Productivity Improvement through Modern Industrial Engineering Techniques
14	Kratin Software Solutions	Internet of Things
15	Tsecond Generation technology Pvt. Ltd.	Embedded System
16	Navratna Industries	Design and Development of Climb Assist System
17	Rama Pins Pvt. Ltd	Identification of rejected parts and development of in-line correction station
18	CodeGreen Energy Private Limited	PCB designing / LED Drivers

**2016-17: Phase II****Period of Project : 6 month (December 2016 – June 2017)**

<b>SN</b>	<b>Industry Name</b>	<b>Project Title</b>
1	M/s. D. Datta Designers Tiles and Pavers	Production of new profile of building blocks by utilizing cost optimizing paving mix
2	Tsecond Generation technology Pvt. Ltd.	FCA E-Funnel (Fuel Cost Analyzer)
3	Rama Pins Pvt. Ltd	Design and development of Inline Pin straightening station
4	Beta Computronics Pvt.Ltd.	Variable Intensity LED lighting system
5	Kinetic Gears	Productivity Improvement through time study and OEE technique at a gear manufacturing industry

**2017-18: Phase I****Total number of students : 36**

SN	Industry Name	Project Title
1	Techwalnut Pvt Ltd	Building management system
2	United Electricals	E-Rickshaw controller: Green Revolution
3	Bizsense Solutions Pvt Ltd	Online exhibition system
4	De Asra pvt ltd	The watch keeper: A security system to prevent gas explosions
5	M/S. Harmony AAC Pvt. Ltd	Use of AAC block waste in development of new construction material
6	M/S. Meera Bricks	Replacement of natural sand with fly ash for cost optimization of fly ash bricks
7	M/S. Taj Industries	Optimum fly ash brick
8	Savita Auto Industries	Introduction to Lean Manufacturing tool (SMED) in SSI
9	Spacewood Office solutions Pvt. Ltd.	Development of sheet metal bending tool with dimensional flexibility
10	Renuka Equipment	Design and development of Mechanism to improve process in casting unit
11	Khosla Engineering Industries	Design and development of Plasma Arc cutter for parting metal under pre heated condition
12	S&M induction	Tine & Weight optimization of formwork and staging for an underpass
13	Ameya Mechanical & Fabrication Works	Development of optimal production scheduling system
14	Sensify Technologies Pvt Ltd.	Low cost DC-DC converter for length sensor applications
15	Spacewood furnitures	Automatic plank sorting system for furniture industry
16	Rathi Chemicals	Automatic packaging machine using pneumatics & solar panel
17	Anand Projects and Engg. Consultancy Pvt. Ltd.	Smart Machines
18	Devshakti dal mill	Low cost grain sorting system

**2017-18: Phase II****Period of Project : 6 month (December 2017 – June 2018)**

SN	Industry Name	Project Title
1	United Electricals	E-Rickshaw Controller: Green Revolution
2	Khosla Engineering Industries	Design & Development of Plasma Arc cutter for parting metal under pre heated conditions
3	Sensify Technologies Pvt Ltd.	Low cost DC-DC convertor for length sensor applications
4	Ameya Mechanical & Fabrication Works	Development of optimal production scheduling system
5	Techwalnut Pvt Ltd	Building management system
6	Spacewood Office solutions Pvt. Ltd.	Development of sheet metal bending tool with dimensional flexibility

**2018-19: Phase I****Total number of students : 38**

SN	Industry Name	Project Title
1	Zeal pavers and tiles	Design & Development of Low cost Precast Toliet Block
2	Harmony AAC	Minimization of craking in AAC block walls
3	Sanket Plants & Equipment	Boiler Automation System
4	Web Beta Pvt. Ltd	Electricity theft detection system
5	M/S. Automation Controls	Development of Earth leakage relay test kit using current injection system
6	B Algo Solar	Designing of Solar air cooler
7	J.V. Engineering Works	Designing advanced and effective control panel with feedback system in fixed form paver machine
8	Zoom Renewable Pivate Limited	Autonomous Solar Panel Cleaning Robots
9	Techwalnut Innovation LLP	IoT based smart lock system for courier services
10	Janki Electromech	Automatic bus bar bending machine
11	SSG Embedded Solutions	GOUBOT : An autonomous robot for cow dung collection
12	Energize Sustainable Solutions Pvt. Ltd.	Solar pump controller
13	ITNetowrkz Pvt. Ltd.	Smart Pain relief system : using acupressure therapy
14	Riva Labs Pvt. Ltd.	Indoor air quality monitoring system
15	vishwashanti udyog	Tool life prediction and improvement in machining parameters
16	Akar Industry	Design and development of electronic assistive device for BDC adjustment on Mechanical Press
17	Heat Treat Well	Integrated quenching medium handling & processing system
18	Hrishikesh Engineering Pvt Ltd.	Plant layout improvement through systematic layout planning
19	Onkar Furitech	Design of Flat plate solar thermal collector system for industrial process heating

**2018-19: Phase II****Period of Project : 6 month (December 2018 – June 2019)**

SN	Industry Name	Project Title
1	Zeal pavers and tiles	Design & Development of Low cost Precast Toliet Block
2	M/S. Automation Controls	Development of Earth leakage relay test kit using current injection system
3	J.V. Engineering Works	Designing advanced and effective control panel with feedback system in fixed form paver machine
4	Heat Treat Well	Integrated quenching medium handling & processing system
5	Riva Labs Pvt. Ltd.	Indoor air quality monitoring system

**2019-20: Phase I****Total number of students: 34**

Sr No	Industry name	Title of the Project
1	D. A. Power Solutions	To design and fabricate versatile uninterrupted power supply and evaluate its performance
2	Empower Plus Energy Labs Pvt Ltd	IoT based Battery Monitoring System and Prediction of Remaining useful life (RUL) of a battery
3	Alkurn Technologies	IOT Platform for Industry Resource Management
4	Sensors & Systems Industrial Solution Pvt Ltd	Design of High Accuracy Automatic Electromagnetic Feeder
5	Y. R. K Controls	Smart Crate System for Fruit Monitoring
6	Aerocom Automotives Pvt Ltd.	Modification of Traditional Lthe for precision work
7	Aquades Structural Consultants Pvt Ltd, Nagpur	Quantification of Steel Reinforcement of Infrastructural Projects Through New Approach Of BBS and Drawings
8	Navratna Industries	Design, Development and Manufacturing of fall Arrester
9	Konverge. Ai	Logo detection service
10	Techwalnut Automation and Software Solutions Pvt. Ltd.	Building a Real Time Bib Verification and Selfie KIOSK
11	ZSoftware Pvt Ltd	Meditation Accuract System
12	Business Algorithm Solar Pvt Ltd	Development of Solar Photovoltaic Thermal and Photovoltaic Cooling System for Commercial use
13	Tecxtra Technologies Pvt Ltd	Design and Development of Articulated Robotic Arm based on Computer Vision
14	V V Associates	Design of control circuitry for BLDC motor
15	Bajrang Forge Pvt. Ltd	Automation in Furnace and other manual machines
16	Minar Hydrosystems pvt ltd	Design of Continuously Rotating Hydraulic Torque Wrench
17	Amey Mechanical and Fabrication Works	Development and Implementation of Optimum Production Scheduling System: Pplanner

**2019-20: Phase II****Period of Project: 6 months**

Sr No	Industry name	Title of the Project
1	Empower Plus Energy Labs Pvt Ltd	IoT based Battery Monitoring System and Prediction of Remaining useful life (RUL) of a battery
2	Sensors & Systems Industrial Solution Pvt Ltd	Design of High Accuracy Automatic Electromagnetic Feeder
3	Navratna Industries	Design, Development and Manufacturing of fall Arrester
4	V V Associates	Design of control circuitry for BLDC motor
5	Minar Hydrosystems pvt ltd	Design of Continuously Rotating Hydraulic Torque Wrench

**Patents generated: 9**

S.No	Patent ID	Title	Application No.
1	IPR/P-16	“Use of Metakaolin in cement based innovative repairing material”	Application No: 201721000076
2	IPR/P-23	C-Shape Interconnecting Concrete blocks	Application No: 201721038784
3	IPR/P-24	Low cost and high strength paver block made of proportioning ingredient materials	Application No: 201721038785
4	IPR/P-26	Low cost method and system for Grain sorting	Application No: 201721046624
5	IPR/P-33	“Effectual driver circuit for E-Rickshaw	Application No: 201821027929
6	IPR/P-47	PLASMA ARC CUTTER FOR PARTING METAL ROD UNDER PREHEATED CONDITION	Application No: 201921021264
7	IPR/P-64	ELECTRONIC ASSISTIVE DEVICE FOR BOTTOM DEAD CENTER ADJUSTMENT FOR MECHANICAL POWER PRESS	Application No: 201921029158
8	IPR/P-38	Solid State Devices Based Secondary Current Injection Technique for Testing of Earth Leakage Relay	Application No: 201921021939
9	IPR/P-101	A Wrench	Application No: 202121005050

**4. Project successfully incubated at RCOEM Technology Business Incubators (TBI) Foundation, at Shri Ramdeobaba College of Engineering & Management: 1**

	Title	Status	Entrepreneur
1	Production of new profile of building blocks by utilizing cost optimizing paving mix	<ul style="list-style-type: none"> <li>• Student has started the startup</li> <li>• the college has provided 2 lakhs seed funding &amp; set up is at the college incubation centre</li> </ul>	Mr Akshay Shirpurkar (Civil, RCOEM)



## 5. Research Papers Published

SN	Authors	Title of the Paper	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 DCEESC, 19 <sup>th</sup> -20 <sup>th</sup> February 2016, Nagpur
2	Prof . P. P. Tambe	Productivity Improvement in the Assembly Section of E-Rickshaw Manufacturing Company	3rd International Conference on Industrial Engineering (ICIE-2015), November 26 - 28, 2015, SVNIT, Surat
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, 20-21 Feb, 2016, Nagpur
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, 20-21 Feb, 2016, Nagpur
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 Quality Progress, 17-18 June 2017, Nagpur

## 6. Sanctioned Grant

Sr No	Cycle year	Sanctioned Amount
1	2015-16	1107750
2	2016-17	1132050
3	2017-18	1261000
4	2018-19	1221555
5	2019-20	1197300
Total		5919655