



Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)

Andheri (W) Mumbai – 400058

<http://www.spce.ac.in>



Mechanical Engg. Dept. Report

AY 2019-20

Department wise Achievements (April 2019 to March 2020)

Mechanical Engineering Department:

- (i) The department faculty obtained/filed following Patents/ Intellectual Property certification during the mentioned period.
 1. Design no. 328578-001, certificate of registration of design dated 24/03/2020 issued by The Patent Office, GOI, for “Smart Gear Testing Machine” in the name of Mr. Bhaveshkumar Pasi (SPCE), Dr. S.K. Mahajan (DTE) and Dr. S. B. Rane (SPCE).
 2. Design no. 325755-001, certificate of registration of design dated 09/01/2020 issued by The Patent Office, GOI, for “Smart Forging Machine” in the name of Mr. Bhaveshkumar Pasi (SPCE), Dr. S.K. Mahajan (DTE) and Dr. S. B. Rane (SPCE).
 3. Patent application no. 202021011320 dated 16/03/2020 for “A System And A Method For Performing Forging Operation” in the name of Mr. Bhaveshkumar Pasi (SPCE), Dr. S.K. Mahajan (DTE) and Dr. S. B. Rane (SPCE).
 4. Patent application no. 201921015361 dated 16/04/2019, for “A system for guiding a user to repair a machine” in the name of Mr. Akshay Khandave (SPCE) and Dr. Kiran Bhole (SPCE).
 5. Patent application no. 201921006149 dated 15/02/2019, for “Anti-Pollution Respirator” in the name of Dr. Uma Kale (SPCE), Dr. P.H. Sawant (SPCE), Dr. N.R. Raykar (SPCE), Mr. Prasanna Deshmukh (SPCE), Ms. Anruta Vatsaraj (SPCE), Mr. Aditya Bhat (SPCE) and Mr. Suraj Patil (SPCE).
- (ii) Department has signed a MOU with “Centre of Excellence in Maritime & Shipbuilding (CEMS), Mumbai” on 23 July 2019. CEMS is a skill development initiative undertaken by Ministry of Shipping along with Siemens Industry Software India Pvt Ltd & Indian Register of Shipping in line with Prime Minister's initiative of Skill India. CEMS conducted two full semester credit courses for M.Tech. students during Jul-Dec'2019 as follows: (i) OPTH131-Thermal and Flow Analysis and (ii) OPTH306-Advanced Simulation.
- (iii) Department has signed a MOU with Federal University of Crimea on 27 February 2020 for academic and research collaboration.
- (iv) Department faculty attended total 58 faculty development programs and training seminars/workshops during the period.
- (v) Dr. Sudhakar Umale delivered an expert lecture at Ram Meghe COE, Badnera, Amaravati.

- (vi) Mr. Ujjal Mavinkurve, B. Tech. (Mech) secured the prestigious Japanese Government (MEXT) Scholarship for the Research Students in 2019. He has successfully competed against meritorious students at national level to secure the scholarship and has joined Kyushu University, Japan, for doctoral studies.
- (vii) Ms. Sharada Gavade and Mr. Varad Abhyankar T.Y.B.Tech.(Mech) have won two special awards: (i) Young Researcher Award, (ii) Best Paper Award at Inter. Conf. ICNTE 2019 held at Fr. C. Rodrigues Institute of Tech., Vashi, on 4-5 Jan. 2019. Their work titled "System Development for Simultaneous Measurement and Control of pH and Moisture of Soil" was co-authored and supervised by Dr. Bhole.
- (viii) SPCE ROBOCON TEAM consisting of students from Departments of Electrical and Mechanical Engineering won "Best Idea Proposal Award" at DD ROBOCON 2019.
- (ix) SPCE Racing Team won 1st position in Design Presentation and 2nd position in Virtual Competition at Indian Karting Championship 2019.
- (x) SPCE Racing Team won 5th position in Business Plan Presentation and overall 11th position among 85 national teams at Formula Bharat 2019.
- (xi) Total 11 graduate students joined premier institutions in India and abroad for higher studies.

Highlights of AY2019-20

1

Curricular Reforms: Typical Course Credit System (AY2019-20)

Sardar Patel College of Engineering Academic Year 2019-20 Courses Offered for Final Year B.Tech. in Mechanical Engineering (Semester VIII)													
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work/Practical	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Core Courses (# Only for students graduating in AY2019-20)													
1	CAD/CAM/CIM	PC-BTM606(#)	2	0	0	2(#)	20	20	100	3	60%	0	100
Laboratory Courses (Note 3)(#Only for students graduating in AY2019-20)													
2	CAD/CAM/CIM Laboratory	PC-BTM656(#)	0	2	0	1(#)	0	0	0	0	0	50	50
Professional Elective Course - IV, V (Note 7)													
3	Professional Elective Course - IV	PE-BTM7xx	Refer Table PEC-BTECH			4	Refer Table PEC-BTECH						
4	Professional Elective Course - V	PE-BTM7xx	Refer Table PEC-BTECH			4	Refer Table PEC-BTECH						
Open Elective Course - III (Note 8,9)													
5	Open Elective Course - III	OE-BTM7xx	Refer Table OEC-BTECH			3	Refer Table OEC-BTECH						
Project Course (Note 10)													
6	Project Stage II	PR-BTM898	0	2+12\$	0	7	@	@	-	-	-	100*	100
Online Courses (Note 5)													
7	Online Course	OL-BTM88x	0	0	0	0	0	0	0	0	0	0	0
Value Added Courses (Note 6)													
8	Big Data Analytics	VA-BTM891	2	0	1	0	20	20	100	3	60%	25	125
Value Added Non-Technical Courses (Note14)													
9	Refer Table-VNT	VN-BTxxx	Refer Table-VNT										
	TOTAL					18+3#							

Elective Courses offered by MED during Term-1, AY2019-20

Sr. No.	Course Title	Semester	No. of registered students
	Professional Electives		
1	Finite Element Methods for Mech. Engineer	V and VII	25
2	Lean and Green Manufacturing	V	15
3	Hydraulic Machinery	V	27
4	Compressible Fluid Flow	V	15
5	Welding Process and Welding Technology	VII	14
6	Advance IC Engine	VII	15
7	Computational Fluid Dynamics	VII	14
8	Introduction to Cryogenics	VII	20
	Open Electives		
1	Introduction to MEMS	VII	23
2	Solar and Wind Technology	VII	14
3	Introduction to Augmented Reality	VII	13
4	Fundamentals of AI and Machine Learning	VII	11

Open Elective Course in Collaboration with Industry

Following open elective courses are offered for PG programs of MED in collaboration with Technical Courses in coordination with Industry partner Centre of Excellence in Maritime & Shipbuilding (CEMS) Mumbai.

- i. Essentials for product designer
- ii. Composite structure and Assembly
- iii. Technomatix process
- iv. Thermal Flow and Stress analysis
- v. Advanced simulation
- vi. Collaborative Engineering using Team center
- vii. Advanced Finite Element Analysis



New Testing Facility: Fatigue Fracture Testing Machine



- UTM with 25 kN tension/compression capacity
- Testing Capabilities
 - Standard Tension, Compression test
 - Low cycle fatigue under stress, strain or plastic strain control
 - Fracture toughness tests
 - CT specimen
 - 3 Point bend specimen
 - K_{Ic} , J_{Ic} and CTOD tests
 - Fatigue crack growth testing

Typical Performance Data (2019-20)

- **Placement of students:** 49 students are placed through campus recruitment
- **Training Programs attended** by faculty = 100
- **Industrial Visits** arranged for students = 4
- **Expert lectures, Workshops/Seminars** conducted for students = 8
- **Alumni meet** conducted = 1
- **MoU signed** = 02
- **ICC Meetings** conducted = 3
- **Twinning activities** with Rewa Engg. College = 4
- **Remedial coaching** = 22 for all relevant courses
- Number of **faculty registered for SWAYAM** portal for certification course = 14
- Number of **faculty obtained certification** on at least one SWAYAM course = 4
- Number of **students qualified for GATE-2019** examination = 34

Two Patents Received and Three Applied

1. Smart Forging Machine: Prof. Bhaveshkumar Pashi, Dr. S. K. Mahajan, Dr. S. B. Rane Dated 9 Jan. 2020
2. Smart Gear Testing Machine: Prof. Bhaveshkumar Pashi, Dr. S. K. Mahajan, Dr. S. B. Rane Dated 24 March 2020
3. Three patents are applied by Dr. S. B. Rane and Dr. Nilesh Raykar
4. Methods And Systems For Identifying A Defected Work-Piece
5. "A System And A Method For Performing Forging Operation"
6. "Anti-pollution Respirator"



ORIGINAL

No. 93902

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE

CERTIFICATE OF REGISTRATION OF DESIGN

Design No. 328578-001
Date 24/03/2020 18:31:24
Reciprocity Date*
Country

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 10-05 in respect of the application of such design to SMART GEAR TESTING MACHINE in the name of 1. BHAVESHKUMAR N. PASI, BHARTIYA VIDYA BHAVAN'S SARDAR PATEL COLLEGE OF ENGINEERING, BHAVAN'S CAMPUS, MUNSHI NAGAR, ANDHERI (WEST), MUMBAI-400058, MAHARASHTRA, INDIA 2. SUBHASH K. MAHAJAN, DIRECTORATE OF TECHNICAL EDUCATION, 3. MAHAPALIKA MARG, DHOBI TALAO, CHHATRAPATI SHIVAJI TERMINUS AREA, FORT, MUMBAI-400001, MAHARASHTRA, INDIA 3. SANTOSH B. RANE, BHARTIYA VIDYA BHAVAN'S SARDAR PATEL COLLEGE OF ENGINEERING, BHAVAN'S CAMPUS, MUNSHI NAGAR, ANDHERI (WEST), MUMBAI-400058, MAHARASHTRA, INDIA

in pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

INTELLECTUAL

Controller General of Patents, Designs and Trade Marks

PROPERTY INDIA

*The reciprocity date (if any) which has been allowed and the name of the country.
Copyright in the design will subsist for ten years from the date of Registration, and may under the terms of the Act and Rules, be extended for a further period of five years.
This Certificate is not for use in legal proceedings or for obtaining registration abroad

MANISHA SINGH,
M/S. LEXORBIS 709/710, TOLSTOY HOUSE 15 - 17,
TOLSTOY MARG NEW DELHI - 110 001

Date of Issue 17/12/2020 17:14:07



सत्यमेव जयते

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE

ORIGINAL

No. 86335

CERTIFICATE OF REGISTRATION OF DESIGN

Design No. 325755-001
Date 09/01/2020 18:20:39
Reciprocity Date*
Country

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 15-09 in respect of the application of such design to SMART FORGING MACHINE in the name of L.BHAVESHKUMAR N. PASI, BHARTIYA VIDYA BHAVAN'S SARDAR PATEL COLLEGE OF ENGINEERING, BHAVAN'S CAMPUS, MUNSHI NAGAR, ANDHERI (WEST), MUMBAI-400058, MAHARASHTRA, INDIA. 2. SUBHASH K. MAHAJAN, DIRECTORATE OF TECHNICAL EDUCATION, 3. MAHAPALIKA MARG, DHOBI TALAO, CHHATRAPATI SHIVAJI TERMINUS AREA, FORT, MUMBAI, 400001, MAHARASHTRA INDIA. 3. SANTOSH B. RANE, BHARTIYA VIDYA BHAVAN'S SARDAR PATEL COLLEGE OF ENGINEERING, BHAVAN'S CAMPUS, MUNSHI NAGAR, ANDHERI (WEST), MUMBAI - 400058, MAHARASHTRA, INDIA.

in pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

OKupls
INTELLECTUAL

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MANISHA SINGH,
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TOLSTOY MARG NEW DELHI - 110 001

Date of Issue 19/02/2020 12:04:12

MoU with Federal University of Crimea- 27 February 2020



Expert Talks by **Prof. David Taylor**, Professor of Materials Engineering at University of Dublin on Bio-Medical Engineering, 26 February 2020.





Expert lecture delivered by Dr. S S Umale at Ram Meghe COE, Badnera - AMARAVATI

Dr. S.S. Umale elected on SAEINDIA Governing Body

- Dr. Sudhakar Umale is elected as member of governing body of SAEINDIA, western section consecutively for second term from June -2020 to June-2022.





Governing Body Meeting of SAEINDIA WS at John Deere (Tractor Company), Pune attended by Dr. S. S. Umale with Mr. Paul Mascarenas (SAE International President USA)

Student Achievements

- Mayank Bhalerao B. Tech. Mech got selected in the conference of Harvard College named Harvard College Project for Asian and International Relations (HPAIR) and would be representing as HPAIR (10 Jan. 2021)
- **SPCE Racing team secured overall 11th Rank at national level for Formula Bharat 2019 competition.**
- **Mr. Ujjal Mavinkurve**, B. Tech. (Mech) has secured the prestigious **Japanese Government (MEXT) Scholarship for the Research Students 2019**. He has successfully competed against meritorious students at national level to secure the scholarship. He plans to pursue his academic/research career in Japan.
- Our alumnus **Mr. Niket Shah** (2018) secured **All India 6th Rank** at Joint Admission Test for M.Sc. (**JAM 2019**) in Physics stream. Niket aspires to make career in core Physics discipline.

SPCE Racing Team Success

- Indian Karting Championship 2017 : 2nd in Virtual Round.
- SUPRA SAE India 2017 : 3rd in Autocross event.
- Formula Bharat 2018 : 8th in Design Event.
- Indian Karting Championship 2019 : 1st in Design Presentation & 2nd in Virtual
- **Formula Bharat 2019 :**
 - 1st team in Mumbai to clear Technical Inspection.
 - 5th in Business Plan Presentation.
 - 4th in Autocross event.
 - 7th in Skidpad event.
 - 11th rank overall among 85 teams.
 - FabHeads Composites Award Finalist.

SPCE Racing Team Success

- We also got qualified for two international competitions in 2019 :
 - Formula Student Czech
 - Formula Student East
- In 2020, We qualified for : Formula Student East
- **Formula Bharat 2020 :**
 - 1st team in Mumbai to clear Technical Inspection.
 - 4th in Design Event
 - 5th in Business Plan Presentation.
 - 6th in Acceleration event.
 - 6th rank overall among 85 teams.
 - FabHeads Composites Award Finalist.



Team SPCE-Wave has secured 2nd Rank Overall at Aero Racing Competition held at IIT Bombay Tech Fest 2020.



International Conference on Evolution in Manufacturing
ICEM - 2020
(December 10-12, 2020)



Department of Mechanical Engineering
Malaviya National Institute of Technology Jaipur
In association with
NIT Uttarakhand & NIT Warangal

Certificate of Best Thesis Presentation

This is to certify
Shivangi Viral Thakker
Sardar Patel College of Engineering, Mumbai
presented and awarded with best research contribution entitled
Modelling Green Supply Chain Management using Multi-criteria Decision Making Approach
Under the Guidance of Dr. Santosh B. Rane

Dr. Rajeev Agrawal
Organizing Secretary, MNITJ

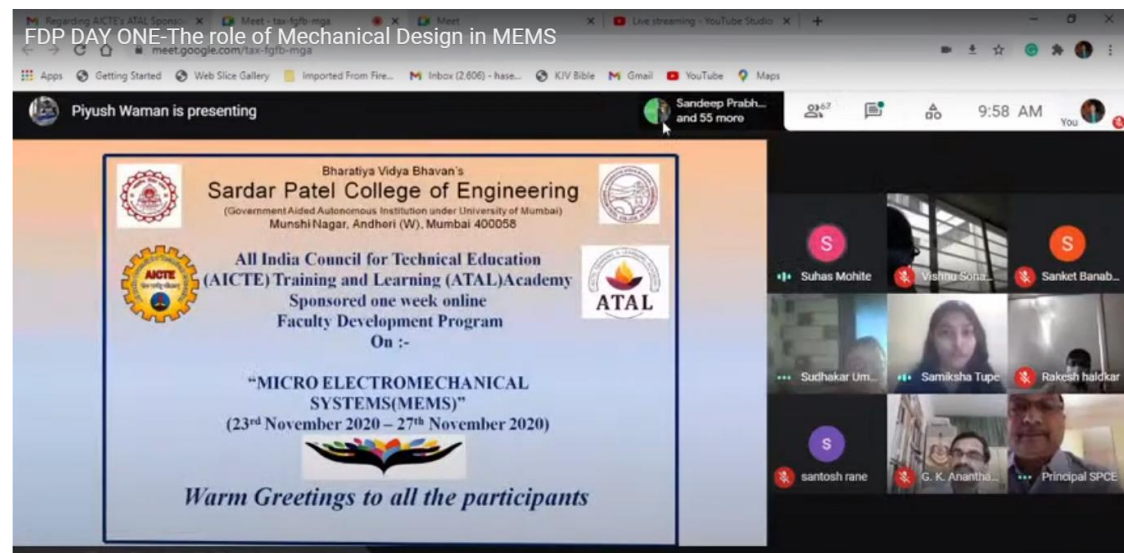
Dr. M. Vijaya Kumar
Organizing Secretary, NITW

Dr. Vinod S. Yadav
Organizing Chairman, NIT Uk.

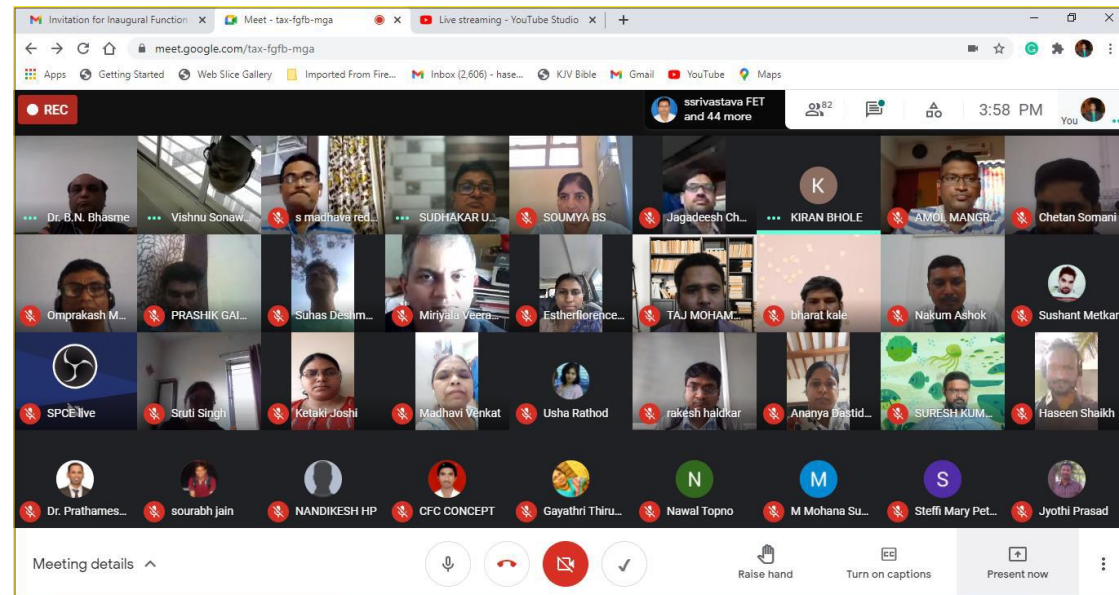
Dr. Jinesh K Jain
Organizing Secretary, MNITJ

Department organized various AICTE and TEQIP Sponsored Faculty Development Programs. The titles of partial list of FDP is as follows:

- Micro-electromechanical Systems (MEMS)
- Strategic Issues in IPR and Innovation
- Analysis of Composite Structures
- Dynamic and Vibration Analysis of Engineering System Using ANSYS
- Industrial Automation



AICTE's ATAL Sponsored Faculty Development Program on Micro-electromechanical System (MEMS)




CEC/ICMC-2019, HARTFORD, USA



Ongoing Ph.D. Research work of Prof. Parag K. Muley at IIT Bombay , ***'Development of a Helium Re-condensing Cryostat'*** was presented at the prestigious ***Cryogenic Engineering Conference and International Cryogenic Materials Conference (CEC/ICMC-2019)***, 21-25 July 2019, ***Hartford, USA*** by his Co-Guide ***Prof. S.L. Bapat***, IIT Bombay, at ***Connecticut Convention Centre, Hartford, USA*** on ***23rd July 2019***.

Journal Publication: 2020 IOP Conference Series: Materials Science and Engineering, Vol. 755

DOI: 10.1088/1757-899X/755/1/012040



CEC/ICMC 2019
CRYOGENIC ENGINEERING CONFERENCE &
INTERNATIONAL CRYOGENIC MATERIALS CONFERENCE
Connecticut Convention Center • Hartford, Connecticut, USA
July 21 – 25, 2019
<http://www.cec-icmc.org>
Tuesday, May 28, 2019

Prof. Parag Kamalakar Muley
B-405 Divya Apartment
Near Western Express Highway
Triveni Nagar, Malad (East)
Mumbai, Maharashtra 400097
India

RE: Invitation to Attend the 2019 Cryogenic Engineering Conference & International Cryogenic Materials Conference (CEC/ICMC 2019)

Dear Professor Muley:

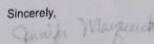
You are cordially invited to participate in the 2019 Cryogenic Engineering Conference & International Cryogenic Materials Conference held at the Connecticut Convention Center in Hartford, Connecticut, USA.

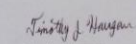
Thank you for submitting your abstract, entitled: "Development of a Helium recondensing cryostat". Your abstract has been reviewed by the program chairs and is accepted as a contributed oral presentation.

The technical program of the conferences features the latest research and state-of-the-art developments in all cryogenics areas, including superconductivity, cryocoolers, cryogenic materials, and applications. Hartford provides an inspiring environment for lively discussions, shared experiences, and collaboration development. Your participation is invaluable and we look forward to your attendance.


Conference Registration and Hotel Reservations are accepted. The early registration fee deadline is June 5. The deadline to receive the discounted hotel rate is June 13, 2019. Detailed Conference Program & Agenda will be available by the end of April. All relevant Conference information can be found on the CEC/ICMC 2019 website at <http://www.cec-icmc.org>. Please be sure to check the website often.

We look forward to your participation at CEC/ICMC 2019. Should you have any questions or need additional information, please be sure to let us know.

Sincerely,

Jennifer Marquardt
CEC Conference Chair


Timothy Haugan
ICMC Conference Chair

CONFERENCE MANAGEMENT
Centennial Conferences
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Phone: (001) 303-499-2299 | Fax: (001) 303-499-2599 | Email: cecicmc@centennialconferences.com



CEC/ICMC 2019
JULY 21-25
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Paper Details Corresponding Author Co-authors Submitted Papers

Current Files

C00r18-01 Development of a Helium Recondensing Cryostat Abstract ID 885.pdf [Download](#) | [View](#)

<https://cecicmc2019.iopconferenceservices.rivervalleytechnologies.com/thank-you/?id=68>



CEC/ICMC 2019
JULY 21-25
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Thank You

Dear Parag

Thank you for submitting the Full Paper titled "Development of a helium recondensing cryostat". The paper number of your submission is CECICMC2019-00049. Your submission will now be passed to the editor.