



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 2018-19

1. Mechanical Engineering Department

Mechanical Engineering Department of Sardar Patel College of Engineering commenced in 1962. The department has modern infrastructure with well- equipped laboratories and computational facilities with up-to-date hardware and software resources. The well qualified and experienced faculty of the department imparts knowledge to the students in the fundamental and applied aspects of Mechanical Engineering courses by adopting conventional as well as the latest teaching and assessment tools.

Each of the academic programmes includes frequent industrial visits for our students to expose them to real life engineering scenario. Students are acquainted with cutting edge technologies through industrial guest lectures, industry sponsored projects and industrial internships. Students benefit from association with professional organizations such as ASHRAE, ISHRAE, IET, MCOM, SAE and IIME. The curriculum for each programme is continuously updated to keep it in sync with needs of industry and current research developments. The department takes keen interest in inculcating an attitude and temperament for practicing ethics in the mind of students and preparing them for being part of collective efforts for nation building.

We feel proud to inform that our alumni are at top executive positions at various enterprises such as L&T, Aker Solutions, ThyssenKrupp, Reliance, Siemens, Mercedes, Coca-Cola, Infosys, Wipro and innumerable manufacturing & service organizations. Our undergraduate students regularly get admitted for higher studies in the top national and international universities.

a) **Vision:** To be a Nationally recognized Mechanical Engineering Department producing a blend of responsible & competent engineering graduates with inculcation of human values in next five years.

b) Mission

- To impart need based technical education by designing curriculum in collaboration with stakeholders
- To develop linkages with renowned industries in India & abroad for excellence in teaching & research
- To provide state of art laboratories to impart field knowledge to mechanical engineering students
- To encourage the students to participate in extracurricular activities for overall personality development and be a responsible person of the society.

c) Academic Highlights

- The B.Tech. (Mechanical Engineering) program was awarded **accreditation (tier-I) by NBA** for period of AY2017-18 up to 2019-20. The M.Tech. (Machine Design) and M.Tech. (Thermal Engineering) programs were awarded accreditation for period of AY2017-18 up to 2018-19.
- The department curriculum is aligned with Industry 4.0 technologies. Four student projects are focused in this emerging area: (i) Self-Maintenance of Lathe Machines using IOT, (ii) Application of Augmented Reality (AR) in Remote Maintenance, (iii) Intelligent Drawing Recognition based on Machine Learning and (iv) Intelligent Finite Element Analysis of Pressure Vessels using Machine Learning.
- The revised departmental curriculum offers an option to students to take online courses through SWAYAM/NPTEL portal and the record of these courses can appear on students' grade-card. Two students successfully completed the online course and exercised option to record these on their grade-card.
- Dr. R. B. Buktar has developed **Augmented Reality (AR) as an innovative teaching and learning tool** for conducting course of Engineering Graphics for 1st year C/M/E students.

d) Department Research Activities

- **DST Research Grant (continued from previous year) to Dr. K. S. Bhole:** Dr. Bhole has received a grant of Rs 20 Lakhs from Science and Engineering Research Board of

Department of Science and Technology, Government of India Currently the project is running in its completion phase.

e) Faculty Achievements

- Dr. S. B. Rane received best paper award, third position, at international conference at SOA University, Bhubaneswar, in September 2018. The paper was titled “Tool condition monitoring system in radial drilling machine by vibration analyser”.
- Dr. S. B. Rane was Key Speaker at Malaviya National Institute of Technology, MNIT Jaipur and conducted sessions from 10th to 12th December, 2018 in Short Term Course on Data Analytics For Engineers
- Prof. Kunal Bhavsar has been elected in June 2018 as ‘Young Engineers at ASHRAE Chair’ for Mumbai Chapter for year 2018-19. Prof. Kunal Bhavsar has also been elected second time in succession in April 2018 as ‘Student Activity Chair’ at ISHRAE for Mumbai Chapter.

f) Interactions with Industry and outside world by Department

- Dr. S. B. Rane was invited as Jury for the prestigious ‘Process Improvement Award’ along with senior management member from TVS by Larsen & Toubro, Powai in August 2018.
- Dr. R. B. Buktar arranged for visit of third and final year B.Tech. students to Tata Motors, Sanand Plant, Gujarat.

g) Summary of AICTE/TEQIP Mandate Information during 2018-19

- Placement of students: 49 students are placed through campus recruitment
- Number of technical publications in international journals = 2
- Number of technical publications in international conferences = 9
- Number of research projects conducted in collaboration with industry = 4
- Training Programs attended by faculty = 16
- Industrial Visits arranged for students = 7
- Expert lectures, Workshops/Seminars conducted for students = 8
- Alumni meet conducted = 1
- Industry-Institute meet conducted = 1
- ICC Meetings conducted = 4 UG + 2 PG
- Twinning activities with Rewa Engg. College = 4
- Remedial coaching = 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 = 17 (out of 50 appeared)

h) Student Activities

- Mr. Ujjal Mavinkurve, final year B.Tech.(Mechanical) 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 batch) 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.
- Ms. Sharada Gavade and Mr. Varad Abhyankar (both from T.Y.B.Tech. Mechanical) have won two special awards: (i) Young Researcher Award, (ii) Best Paper Award at International Conference ICNTE 2019 held at Fr. C. Rodrigues Institute of Technology, Vashi, on 4-5 January 2019. Their work titled "System Development for Simultaneous Measurement and Control of pH and Moisture of Soil" was co-authored and supervised by Dr. Kiran Bhole.
- SPCE team with Mr. Kunal Panniker and Mr. Akash Jadhav from B.Tech.(Mech) and Mr. Ruthwik Rathod from B.Tech.(Elec) won 2nd prize at International Robotics Challenge at IIT Bombay's Techfest in December 2018.
- SPCE Racing team secured overall 11th Rank at national level for Formula Bharat 2019 competition.
- Ms. Tasneem Kabeer and Ms. Preeti Shete, Third Year B.Tech.(Mech.) and student members of TESA-SPCE, as won prize in Technical Paper Presentation at ABHIYANTRIKI-2018, K J Somaiya College of Engineering, Vidyavihar, Mumbai. Their paper titled 'Heat Exchangers in Nuclear Power Plants' was prepared under guidance of Prof. Parag Muley.
- SPCE-ISHRAE student members successfully organized installation ceremony for year 2018-19 along with expert talk on 'Interview Skills' on 22/09/2018.

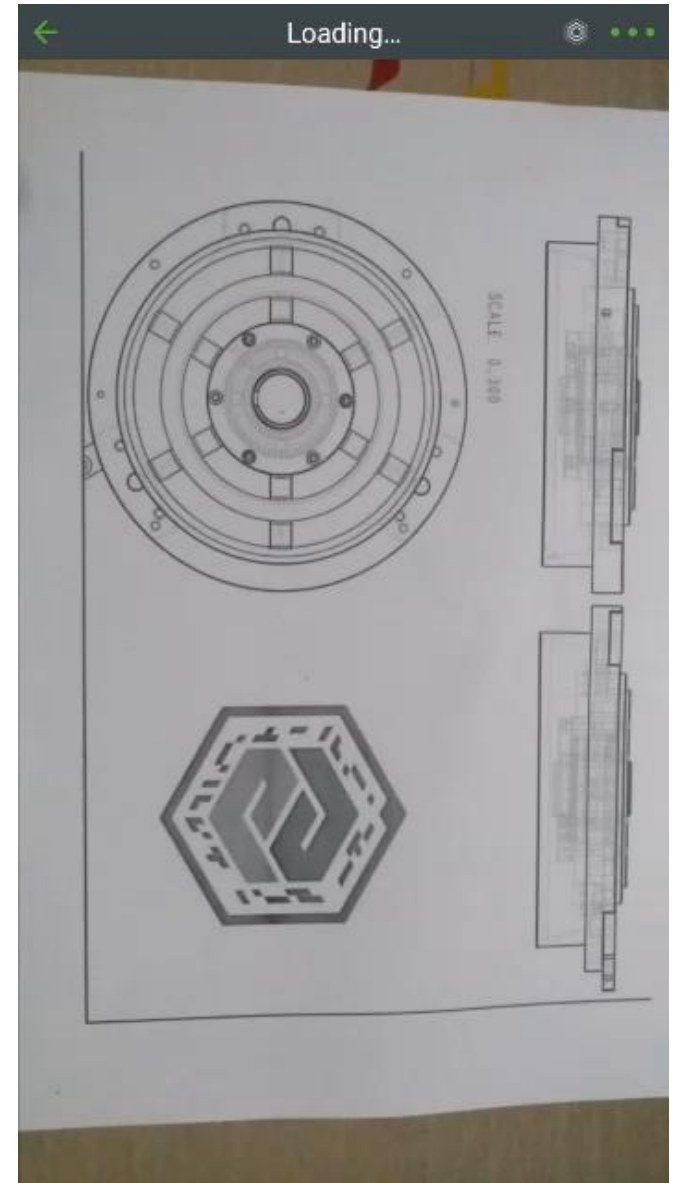
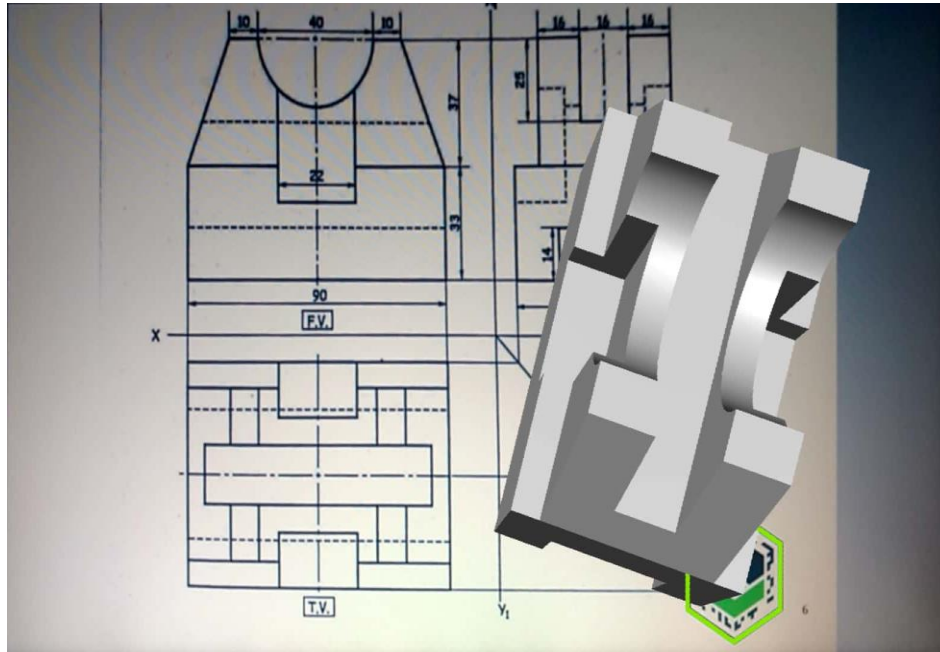
Highlights of AY2018-19

Highlights of Curriculum (B.Tech. program)

- Student Centric - Choice Based Credit System
- Aligned to Industry 4.0 needs
- Types of Curricular Courses
 - Basic Science
 - Professional Core
 - Laboratory
 - Professional Elective
 - Open Elective
 - Project courses
 - Mandatory courses
 - Online (SWAYAM/NPTEL) courses
 - Value Added Technical
 - Value Added Non-Technical



Augmented reality assisted Engineering Graphics book



Google Classroom

Design of Machines and Mechanical Systems(PC-BTM7...)
Class code: 42n4me

Upcoming
Due tomorrow
Assignment 1: Spur gear f...
View all

Share something with your class...

Nilesh Raykar posted a new assignment: Assignment 2: Spur gear - design calculations
11:34

Material: S03 Spur gear design calculations

Fundamentals of AI and Machine Learning (...)

Return

10 points

Missing

Handed in	Assigned	Marked
Marked		
Jay Saini		10
Mrunal Chavan		10
Suparno Ghosh "Thank you sir"		10
Tanisha Namaware "I resubmitted the code after co..."		10 Done late
Vaidehi Patil "good"		10

Design of Machines and Mechanical...

General Information

Course Contents

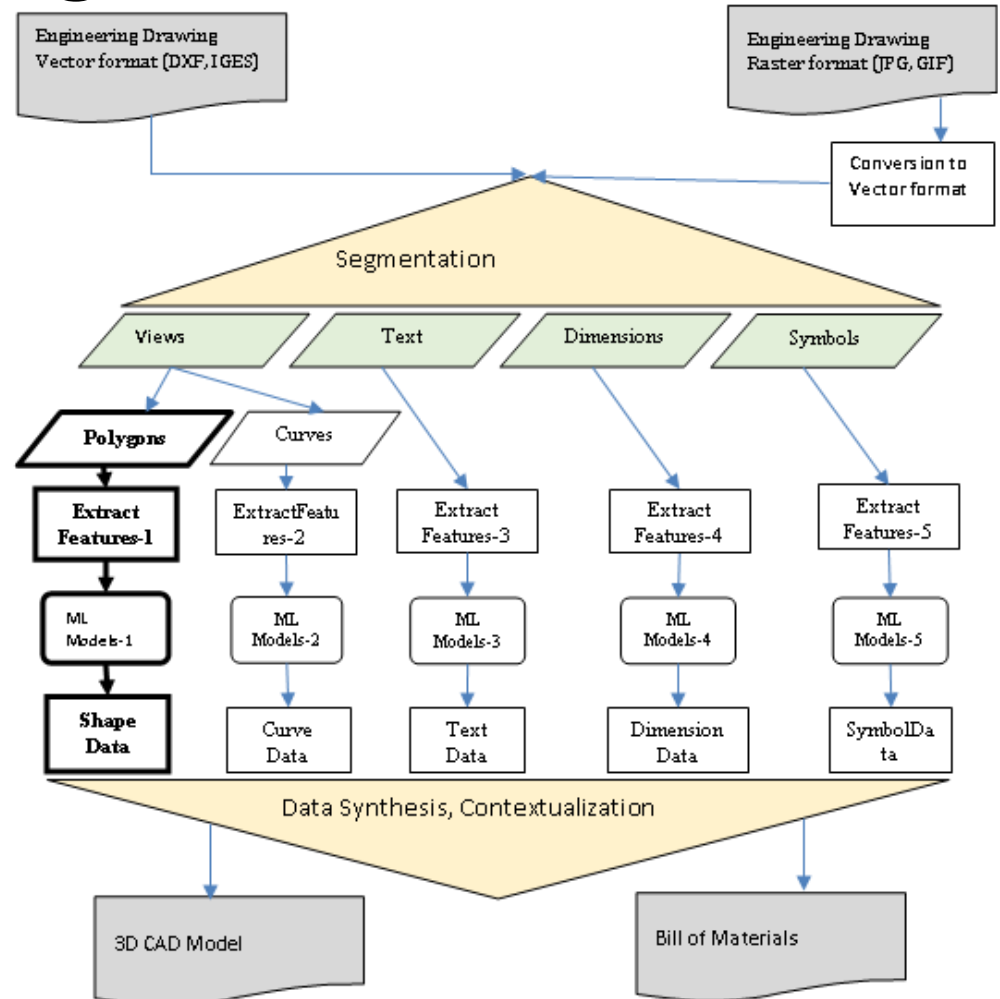
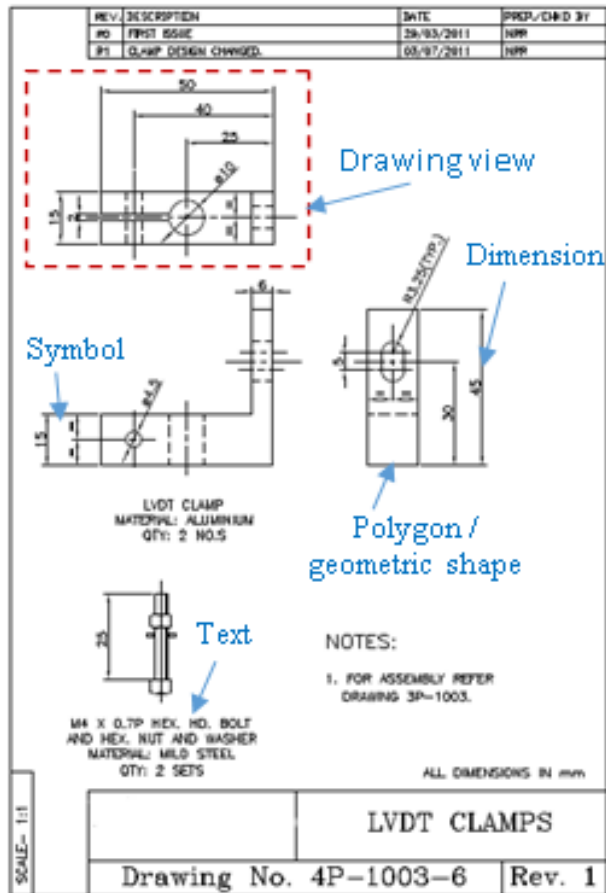
Module 1: Gear Design

- Assignment 2: Spur gear - design calculation... Due 5 Aug
- S03 Spur gear design calculations Posted 25 Jul
- S02 Spur gear geometry and force analysis Posted 24 Jul
- Practice Questions on Gear Design Due 9 Aug

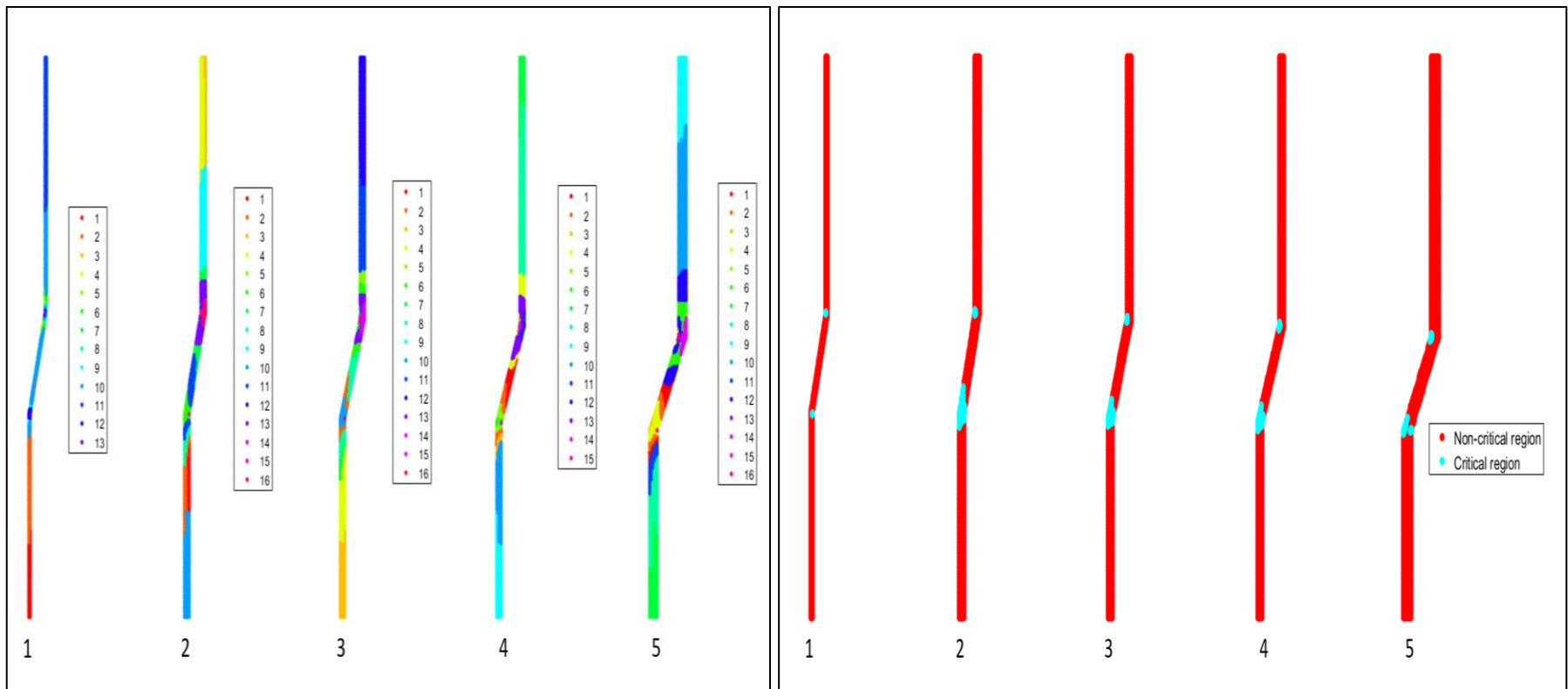
Industry 4.0 Aligned Research Projects

- Self-Maintenance of Lathe Machines using IOT
- Application of Augmented Reality (AR) in Remote Maintenance
- Intelligent Drawing Recognition based on Machine Learning
- Intelligent Finite Element Analysis of Pressure Vessels using Machine Learning

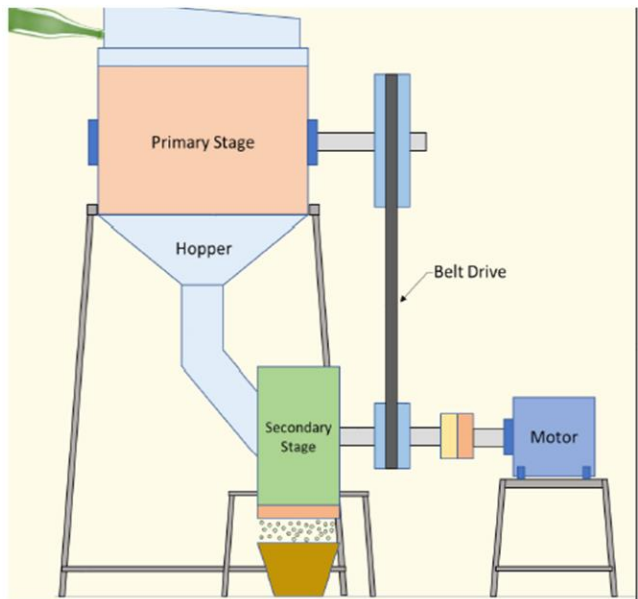
Intelligent Drawing Recognition using Machine Learning



Intelligent Finite Element Analysis of Pressure Vessels using Machine Learning

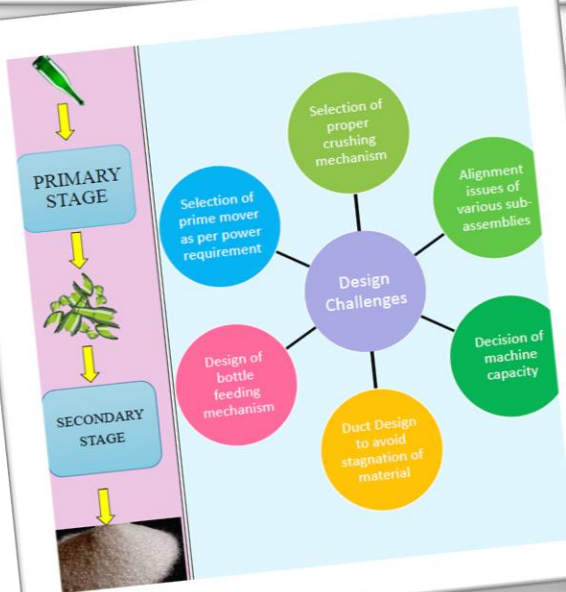


Waste Glass Bottle Recycling Unit



Objectives:

- Waste glass bottle conversion into usable sand.
- To use the output of the machine i.e. crushed glass as a substitute to sand in concrete.
- Replacement of cement with the output of machine i.e. sand in the concrete mixture.

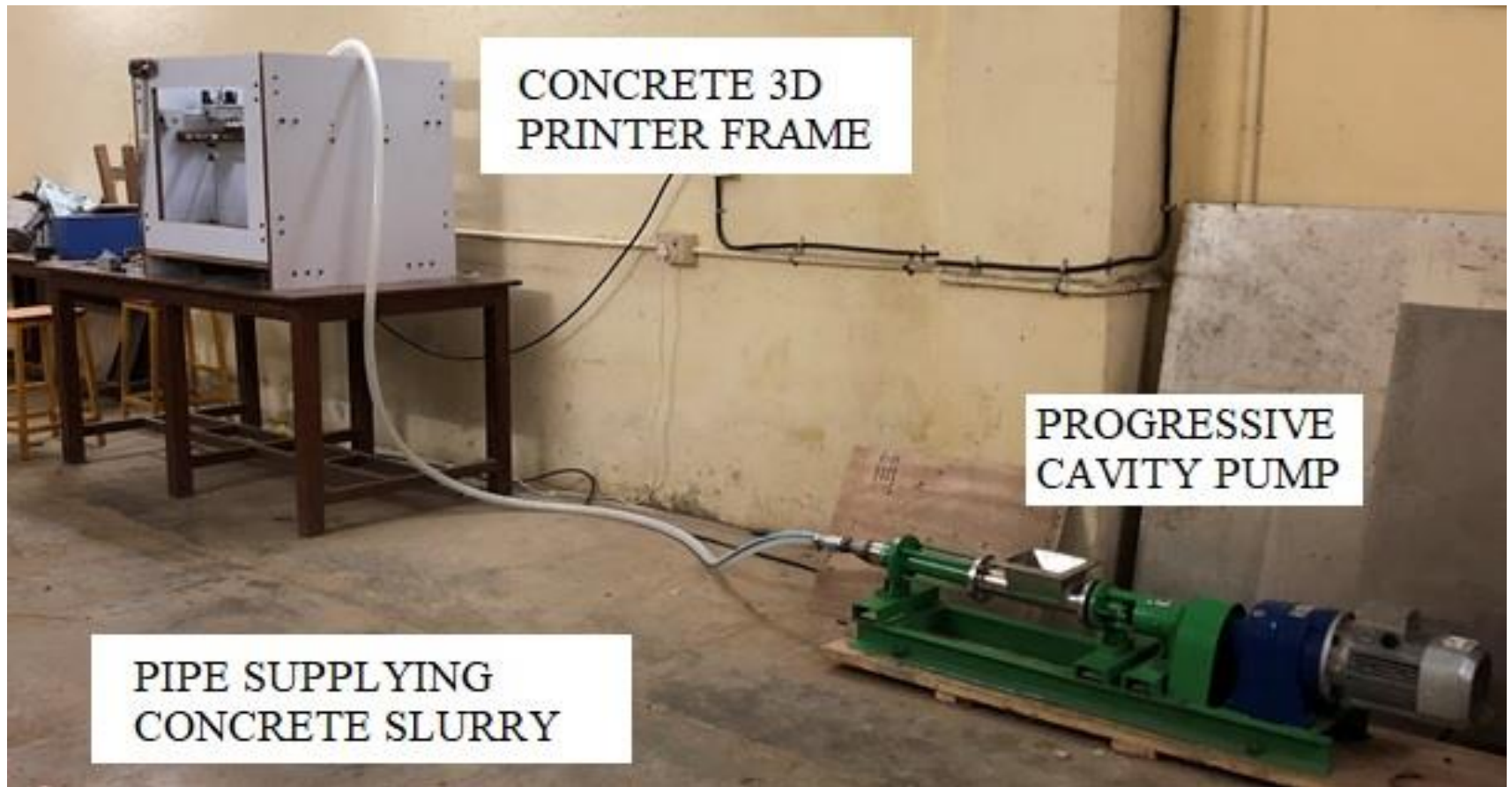


Team Glass Crusher

Soham
Prathamesh
Sharada
Shivani
Kunal
Shreeswaraj



3D Printer for Cementitious Materials



Highlights of Research Work

- DST Research Grant of Rs. 20L (continued from previous year) to Dr. K. S. Bhole.
- Dr. R. S Maurya has received grant for Rs. 15.34 Lakhs from RGSTC, Govt. of Maharashtra.
- Dr. R. S. Maurya, Dr. Kiran Bhole and Prof. Haseen Shaikh received Minor Research Grant from Mumbai University for Rs. 30,000/-, Rs. 35,000/- and Rs. 40,000/- respectively

Best Paper Award to Dr. S. B. Rane

- Dr. S. B. Rane received best paper award, third position, at international conference at SOA University, Bhubaneswar. The paper was titled “Tool condition monitoring system in radial drilling machine by vibration analyser” (Sep. 2018)



Dr. Rane invited as Jury member by L&T

Dr Santosh Rane was invited by esteemed Organization Larsen and Toubro (L&T) as Jury member for its PI award on 3rd Aug 2018



Dr Santosh Rane, Mr Yogi Shriram, Sr VP Corporate HR ; Dr Kovil Director Institute of Quality TVS and dignitaries unveils the book for the top 12 Projects selected from 240 projects for PI awards.

Dr. Rane as Key Speaker at STC, MNIT Jaipur

- Dr. S. B. Rane was Key Speaker at Malaviya National Institute of Technology, MNIT Jaipur and conducted sessions from 10th to 12th December, 2018 in Short Term Course on Data Analytics For Engineers (10th to 14th December, 2018)



Prof. Kunal Bhavsar and ISHRAE

- Prof. Kunal Bhavsar received ISHRAE Society Service Award as Youth Chair and Student Activity Chair of ISHRAE MUMBAI CHAPTER for year 2017-18.
- Prof. Kunal Bhavsar has been elected in June 2018 as 'Young Engineers at ASHRAE Chair' for Mumbai Chapter for year 2018-19.
- Prof. Kunal Bhavsar has also been elected second time in succession in April 2018 as 'Student Activity Chair' at ISHRAE for Mumbai Chapter.



Students enrolled for Higher Studies after Graduation (AY2018-19)

Sr. No.	Name	Institute	Post-Graduate Program
1	Bhavik Shah	Clemson University	Ms in Automotive Engineering
2	Ganesh Shankar Nale	IIM Indore	MBA
3	Kavan Shah	Virginia Tech	MS in Mechanical Engineering
4	Kavit Nilesh Shah	Worcester Polytechnic Institute	Ms in Robotics
5	Noble Yohannan	TU Bergakademie Freiberg, Germany	Masters in Mechanical and Process Engineering
6	Raoul Chandnani	Texas A&M University	MS in Mechanical Engineering
7	Riddhi Ramesh Adhikari	Texas A&M University	MEng in Mechanical Engineering
8	Sushil Dilip Savla	Clemson University	MS in Automotive Engineering
9	Ujjal Mavinkurve	Kyushu University	MS + Doctor of Engineering in Mechanical engineering
10	Varad Maitra	University of Cincinnati	MS in mechanical engineering
11	Vishwanath Nagnath Pai	Eindhoven Univ. of Tech., Netherlands	MSc in Automotive Technology



Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING
(Government Aided Autonomous Institute under Mumbai University)
Andheri, Mumbai 400058



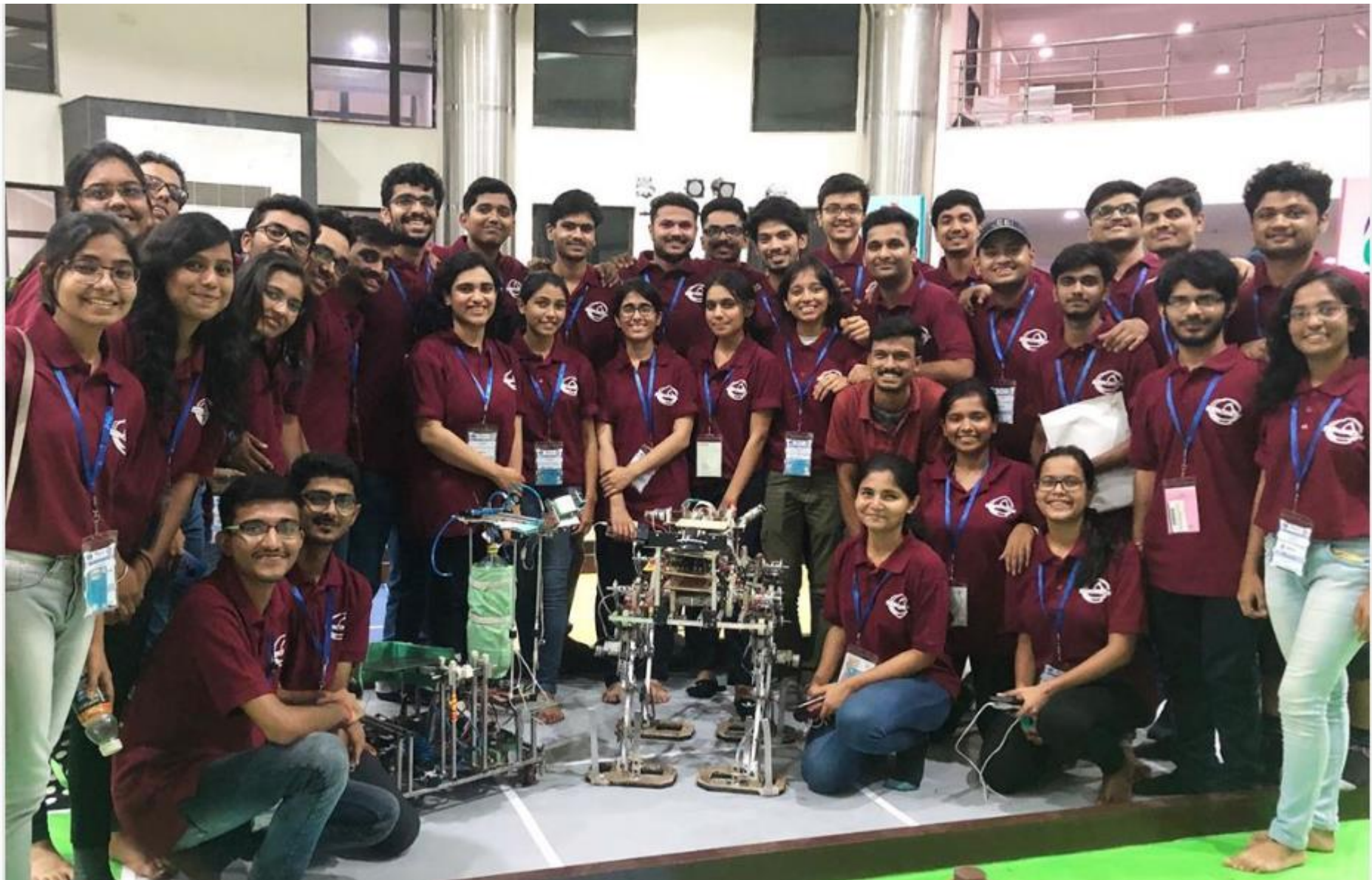
Lieutenant Rohit after commissioning

Lt. Rohit Patwardhan
(B.Tech., Mech., SPCE, 2017)

Awarded the prestigious
SILVER MEDAL

as the

Best Technical Graduate Cadet
by Indian Army
In June 2018



SPCE ROBOCON TEAM won “Best Idea Proposal Award” at DD ROBOCON 2019

MoU with Industries and Academia

Sr. No.	Institute/Industry Name	Date of MOU
1	Kingston University Higher Education Corporation	21.6.2012
2	RIT Sakharale	18.7.2013
3	SVNIT	12.9.2013
4	Larsen and Turbo – Heavy Engineering	24.10.2013
5	Dr. Fixit Institute of Structural protection and rehabilitation	6.11.2013
6	COE, Pune	10.01.2014
7	SGGSJET, Nanded	10.1.2014
8	Aker Powergas Private Ltd	27.1.2014
9	ICT	01.04.2015
10	Walchand College of Engineering	11.12.2014
11	Environmental Policy Research Institute	27.2.2014
12	Board of Apprenticeship Training (Western Region)	9.4.2015
13	D- Espat Private Limited, Chennai	10.3.2015
14	Wright University	12.3.2015
15	BATU Lonere	22.5.2015
16	Emersion Climate Technologies	07.07.2015
17	Christaini Sharpline	13.01.2016
18	Badve Group	13.01.2016
19	Reliance Infrastructure Ltd	05.11.2015
20	Godrej Electricals & Electronics	01.01.2016
21	Larsen & Turbo - Electrical & Automation	21.04.2016
22	CADD Center, Mumbai	23.05.2016
23	Imaginarium, Mumbai	08.08.2016
24	FESTO, India	06.12.2017
25	Emerson Climate Technologies, India	30.01.2018
26	Western Regional Load Despatch Centre (WRLDC), POSCO	23.04.2018
27	Larsen & Turbo - Electrical & Automation	12.07.2019
28	Center of Excellence in Maritime and Shipbuilding (CEMS)	23.07.2019

Alumni Meeting



Alumni Meet 2018 was organized by Mechanical Engineering Department, Sardar Patel College of Engineering under Industry-Institute Interaction, TEQIP III on 27.11.2018. About 45 alumni attended.

