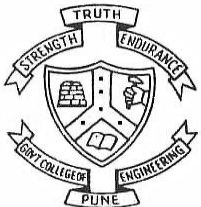


Industry-Institute-Interaction



Mechanical Engineering & Allied

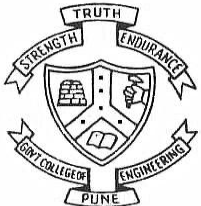


College of Engineering Pune (COEP)
Forerunners in Technical Education

Our theme for Industry Institute Interaction

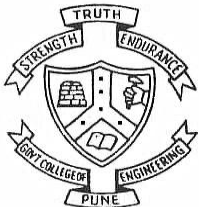


“To Inspire Innovative Engineering solutions jointly with Industry partners”



Key areas of Industry-Institute-Interaction

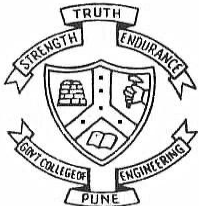
- Industry Advisory Board
- Co-teaching by industry personnel (For most courses)
- Elective courses at UG level completely Taught by industry
- Invited talks by industry personnel
- Laboratory development with the support from Industry
- Research and Development – Industry Sponsored
- UG/PG projects in the industry/by the industry (in-house)
- Industry-Internship of students during vacation
- Industry support for technical clubs by way of sponsorships
- Consultancy services provided to Industry and Research Organizations
- Technical training to Industry Personnel
- Skills training to COEP support staff
- Curriculum development with the involvement of Industry
- Industrial visits
- Faculty recognition award by Industry
- Best project award for students



Industry Advisory Board

(Mechanical Engineering)

SN	Name of member	Name of Company
1	Dr. S. Guruprasad	Director, R&DE (Engrs), DRDO, Dighi, Pune
2	Datta Kuvalekar	Head Central R & D, Forbes Marshall
3	Jabbar Ali Inamdar	Valeo Ind Pvt. Ltd.
4	Deelip Tase	Eaton Fluid Power, Pimpri
5	Ravindra Birajdar	Head Central R & D, Kirloskar Brothers Ltd.
6	Abhijit Phadke	Cummins India Ltd.
7	Dr. S. S. Thipse	General Manager, ARAI, Pune
8	Nivruti Garud	John Deere Technology Centre, Pune
9	Aushutosh Despande	Behr India Engineering Service, Chinchwad
10	B. A. N. Murthy	Eaton Technology Pvt. Ltd., Kharadi
11	Promod Khot	Fiat India Power Train Division
12	Mr. Kumatkar Raghunath	Mather Platt, Pune
13	Mr. Ajay Tanwal	SKF Technologies, (India) Pvt. Ltd.

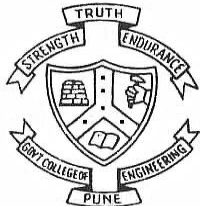


Co-teaching by persons from industry (for most courses)

- Approximately 20% of the curriculum of UG/PG course is co-taught by industry
- No. courses co-taught during 2018-19:
Mechanical: 17



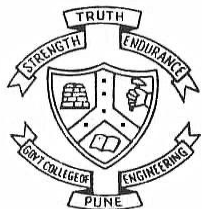
BHARAT FORGE



College of Engineering Pune (COEP)
Forerunners in Technical Education

Elective courses at UG level completely Taught by Industry

Course title	Level	Industry involved	No. of students benefitted
Driveline design for electric vehicles	Final Year B.Tech Mechanical Engg	Amol Korde, Romax Solutions	54
Machine learning for mechanical engineers	Third Year B.Tech Mechanical Engg	Yogesh Kulkarni, Data Text Analytics	30
Thermal System Design	Third Year B.Tech Mechanical Engg	Mr. R. S. Jha, Thermax India Ltd.	55
Basics of Electro Hydraulics	Third Year B.Tech Mechanical Engg	Krishna Ghadage, Eaton Fluid Power	41



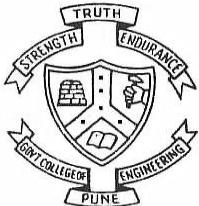
Invited talks by Industry personnel



Seminar on “Advances in Industrial Robotics – Case study & Demonstration of Collaborative Robot and Planning of Robotic Projects in Institutes” by Mr. Nassif Seif, FAE from Kinova Robotics, Canada
(17th December 2018)



Seminar on “Energy conservation in Refrigeration and Air Conditioning applications” by Mr. Rohit Bhosale, from Danfoss India Limited, Chennai
(14th October 2018, 12 pm to 1 pm)



Invited talks by Industry personnel

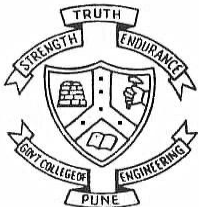


Talk on “Computational Fluid Dynamics applications in Refrigeration and Air Conditioning” by Mr. varun Potti, from Danfoss India Limited, Chennai
(14th October 2018, 10 am to 11 am)

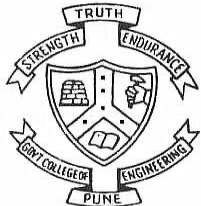


Talk on “Electronic controllers in Refrigeration and Air Conditioning” by Sanyogita Thakur from Danfoss India Limited, Chennai
(14th October 2018, 11 am to 12 pm)

Talk on "piston design“ by Mr Alvekar (8th March 2019, 2 pm to 4 pm)



Laboratory Development with the help of industry



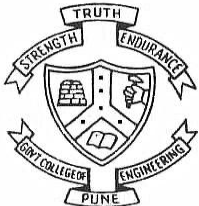
College of Engineering Pune (COEP)
Forerunners in Technical Education

Danfoss Center of Excellence RAC Laboratory



- Mechanical Department of COEP has MOU with Danfoss India Ltd. Chennai
- Danfoss setups Center of Excellence in Refrigeration and Air conditioning Laboratory at COEP

- Danfoss funded the laboratory with Rs. 45 lakhs financial support
- Danfoss India Ltd. Chennai offers Placement, summer internship, technical sessions, training program, visit to Danfoss, scholarship, research projects, expert lectures and workshop etc.



College of Engineering Pune (COEP)
Forerunners in Technical Education

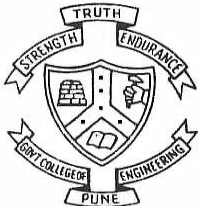
Forbes Marshall Steam Engineering Laboratory



- ❑ Major Equipments:
 - Packaged Type Boiler (Forbes Marshall)
 - Spiral Heat Exchanger
 - Plate Heat Exchanger
 - Shell Heat Exchanger
 - Tube Type Heat Exchanger

- ❑ Projects undertaken
 - Determination of dryness fraction using vortex flow meter guided by Dr. P. R. Dhamangaonkar and Dr. Shrinivasan Dattarajan from Forbes Marshall, Pune done (by Samrat Shalgar)

 - Forbes Marshall funded the laboratory with Rs. 40 lakhs financial support



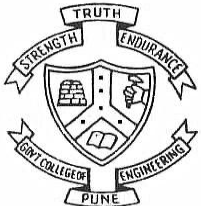
College of Engineering Pune (COEP)
Forerunners in Technical Education

Eaton Fluid Power Laboratory



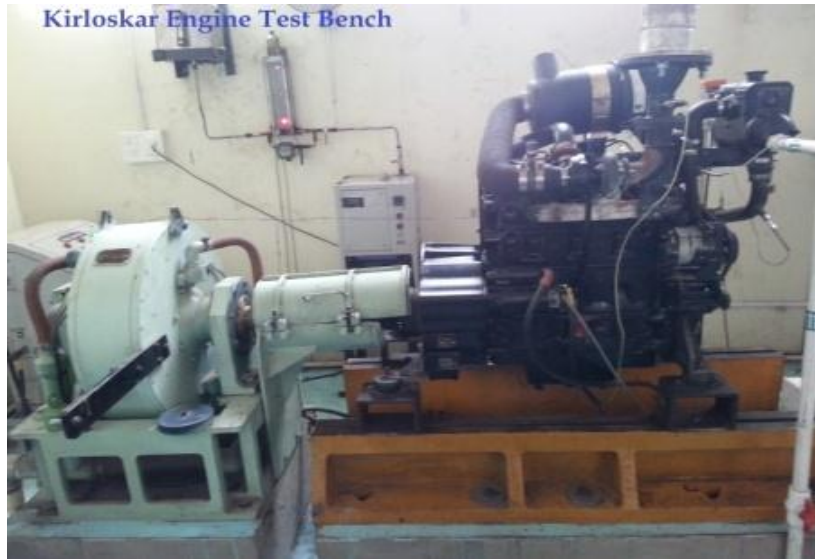
❑ Major Equipments:

- Hydraulic Trainer/Pneumatic Trainers (27.00 lakhs)
- Cut Section models
- Filtration Test Rig (Proposed)
- Eaton Fluid Power Pvt. Ltd funded the laboratory with Rs. 45 lakhs financial support
- The industry is well involved in the curriculum development



College of Engineering Pune (COEP)
Forerunners in Technical Education

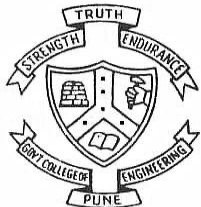
Kirloskar I.C. Engine Laboratory



- ❑ Major Equipments
 - Kirloskar diesel engine
 - Emission test setup

- ❑ Projects undertaken

- Experimental investigation of operating parameters on performance & emission of single cylinder gasoline direct injection engine (Lalit katkar)
- Investigation of piston bowl geometry effects on emissions of D. I. diesel engine (Aniket Rode)
- Design and development of an ECU for two stroke S. I. Engine (Durgesh Borse)
- Implementation and Validation of After Treatment system on 3.24 litre Kirloskar Diesel Engine (Anirudh Dharmadhikari)
- Design of free piston linear generator with support of MTU Pune guided by Dr. P. R. Dhamangaonkar (Mr. Aditya Purkar)



College of Engineering Pune (COEP)
Forerunners in Technical Education

Robotics & Automation Laboratory

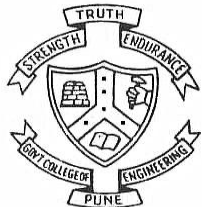


❑ Major Equipments

- ABB 400irb, Yakasawa Motoman Series, Mistubishi Move Master, SCORBOT ER4u
- Trainer Set up: Transducer Instrumentation Trainer kit
- Trainer Robots: Hex Crawler, Peddler and BOE-BOT
- Toy Robots: Robosepian, Gaming Robot, Genibo, Hex-bug
- CRU Soldering Station

❑ Projects undertaken

- Fish Robot
- UAV-Quad Rotor
- Multi and Finger
- Robotic Gripper



Rapid Prototyping Laboratory (Geometric Software Ltd)

❑ Major Equipments

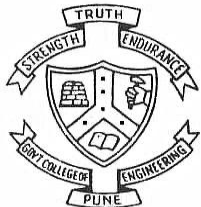
- Well equipped with systems which generate prototypes
- 3D scanners to acquire point cloud data



College of Engineering Pune (COEP)
Forerunners in Technical Education

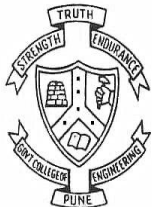
Industries involved in the lab development by providing the support through their software

Name of the industry	Software provided	Description
AutoDesk	AutoCAD, Fusion 360	Design
Romax Solutions	Romax Designer	Transmission system design for vehicles
AVL (India) Pvt Ltd	AVL BOOST and AVL FIRE	Engine Simulation
Altair	Hypermesh	Design and analysis
GT-SUITE	Engine Simulation software	Real Time Engine Modeling Software



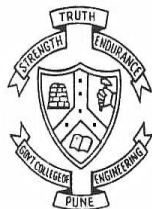
Research and Development – Industry Sponsored

Project Title	Coordinator	Sponsoring Industry	Sponsoring Amount (Rs)
Development of Active Ankle Foot Joint	Dr. N. K. Chougule	Autodesk	1 lakh
Design and development of a portable air conditioner using new refrigerant R290	Prof. S. N. Sapali	ISHRAE Pune Chapter	1 lakh



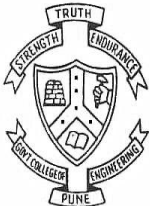
R & D Projects supported by the Industry

Industry/ Organization	Area of research	Persons involved	Amount provided
Bajaj Auto Ltd, Pune	Development of two stroke GDI petrol engine	Mr. A. Joseph, Chief Technology officer Dr. C. M. Sewatkar	Support in facility development approximately Rs. 10.00 lakhs
Eaton Corporation, Pune	Closed loop Thermosyphon system	Mr. Manoj Gokhale and Dr. C. M. Sewatkar	Rs. 10.00 lakhs



List of MoUs with the Industry

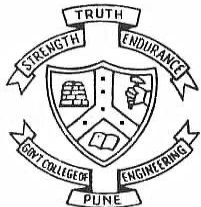
Sr. No.	Laboratory	Name of sponsored company	Amount Donated (Rs. In Lakhs)
(Department of Mechanical Engineering)			
1	Modern Steam Lab	Forbes Marshall	50
2	I C Engine Lab	Kirloskar Oil Engine & Cummins	100
3	Computational Lab for Automotive Technology	AVL India	25
4	Mechanical Laboratory Renovation	Bajaj Auto Ltd	450
5	Danfoss Refrigeration & Air conditioning (RAC) Laboratory, A Centre of Excellence	Danfoss Industries Pvt. Ltd	45
6	Eaton Fluid Power Lab	Eaton India Ltd.	45
Total			715



Internship of students during vacation in the industry

- Number of students who completed 7 weeks internship: 115
- Major industries which offered internship

Bajaj Auto Ltd., L & T, Forbes marshal, Bharat Forge, Eaton Corporation, Kirloskar Pneumatics, SKF Bearings, Romax Technology etc



Students' achievement in technical competitions

Name of the club	Support provided
Team Nemesis Racing	<ul style="list-style-type: none">• Bajaj Auto sponsored the event Rs. 8.00 lakhs• Teijin Aramid provided Kevlar fabric (composites) free of cost• Vinarc enterprises provided free of cost welding

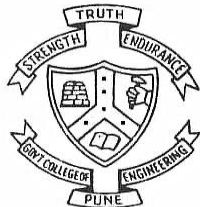
Achievements in year 2018-2019

BAJA SAE India Jan 2019 :

- Overall First
- Rock Crawl Overall Second
- Raftar Second
- CAE Overall First
- Innovation First
- Endurance First
- Overall prize money: Rs. 4.7 lakhs

BAJA USA Tennessee event April 2019:

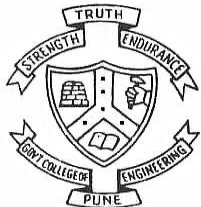
- Overall Seventh
- Acceleration Second
- Design Finalist
- Overall prize money: 500 Dollars



Team Nemesis Racing



BAJA SAE International Tennessee Tech 2019 7th Rank (11 to 14 April 2019)



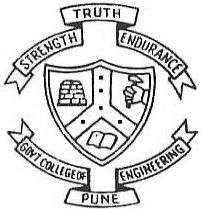
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Team Nemesis Racing



National winners at SAE BAJA held at Pithampur, Indore (28th Jan 2019)



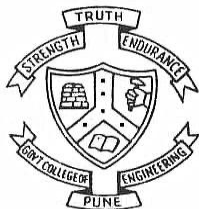
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Industrial support for Technical Clubs

Name of the club	Industry involved	Support provided
Team Octane Racing (SUPRA)	Bajaj Auto Ltd Pune; Bosch, TE connectivity, Texas instrument, Parker, HYT , Henkel,	Total amount Rs. 9 Lakhs Tools and kits, driver suits, connectors, sensors, instrumentation

Achievements in 2019 event

- Overall 1st on National level Electric Vehicle design challenge
- Overall 2nd price among 80 teams
- 1st place in Skidpad Race
- 1st place in Autocross Race
- 2nd place in the final Endurance Race
- Cost and Manufacturing Finalists
- Asia's 1st team to successfully complete the event with Turbocharged KTM 390 powertrain
- Overall prize money: Rs. 70,000/-

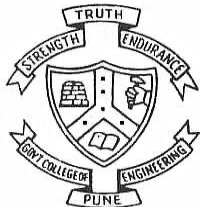


Industrial support for Technical Clubs

Name of the club	Industry involved	Support provided
Team Velociracers	ACE Academy FCG Hi-Tech	Total amount Rs.75,000/-

Achievements in year 2018-2019

- Overall Second Runner Ups
- 1st in Design
- 1st in Marketing Presentation
- 2nd in Build Quality
- Overall prize money: Rs. 2.00 lakhs

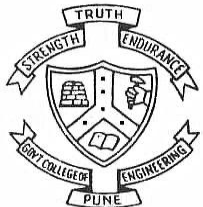




Team Velociracers



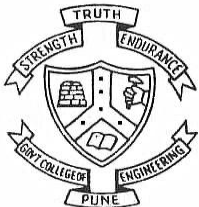
Overall Second Runner Ups and won Rs. 02.00 lakhs



**College of Engineering Pune (COEP)
Forerunners in Technical Education**

Team Sunrisers at Electric solar vehicle championship 2019

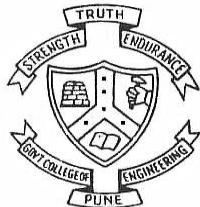
- Best Innovation for Hybrid Carbon Fibre Monocoque chassis
- Customized 3 speed Gearbox and Electronics Gear Shifting
- Best Hill Climb
- Overall 2nd Prize in Professional Class
- Total Prize - Rs 80,000/-



College of Engineering Pune (COEP)
Forerunners in Technical Education

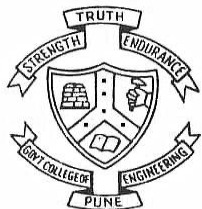
Consultancy provided to Industry during 2018-19

Sr. No.	Name Of Consultancy	Department Name	Date	Name of Faculty	Amount (in lakhs)
1	John-Deere India Pvt. Ltd, Technology Center	Engine Division	07.01.2019	Dr. P. S. Shinde	3.00
2	Shri Martand Engineer & Fabricators MIDC Jejuri, Pune	Mechanical	16.10.2018	Dr. S. B. Patil	0.10
3	AL-BRA Foundry Bibwewadi, Pune	Mechanical	16.10.2018	Dr. S. B. Patil	0.10
4	DEV Motors, Katraj-Ambegaon road, Pune	Mechanical	16.10.2018	Dr. S. B. Patil	0.10
5	Ashish Surgical & Sc. Co, Krishana Nagar, New Delhi	Mechanical	03.09.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.10
6	Chief Executive Officer, Solapur City Development Corporation Limited, Solapur	Mechanical	07.09.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	2.00



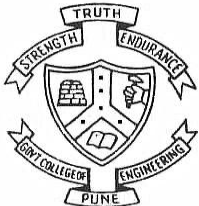
Consultancy provided to Industry during 2018-19

Sr. No.	Name Of Consultancy	Department Name	Date	Name of Faculty	Amount (in lakhs)
7	Sparvy Fitness Equipments Pvt. Ltd. Satara	Mechanical	14.08.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.25
8	Beacon Industries, MIDC, Satara	Mechanical	14.08.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.25
9	Summit Sports Pvt. Ltd., Bhosari, Pune	Mechanical	14.08.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.25
10	Kaleshwari Sports, Pimple Gurav, Pune	Mechanical	14.08.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.25
11	D. S. Design Engineering Body Master, Pune	Mechanical	14.08.2018	Dr. M. P. Khond, Dr. C. M. Sewatkar	0.25
12	Vidyyut Musicals, Ganesh peth, Pune	Mechanical	21.08.2018	Dr. M. P. Khond, Dr. V. K. Haribhakt	1.00
13	Tirupati trade Link, Nagpur	Mechanical	24.07.2018	Prof. S. N. Sapali	1.00



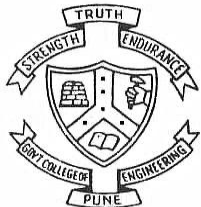
Consultancy provided to Industry during 2018-19

Sr. No.	Name Of Consultancy	Department Name	Date	Name of Faculty	Amount (in lakhs)
14	Maharashtra Natural Gas Ltd, Narveer Tanajiwadi, Shivajinagar, Pune	Mechanical	24.07.2018	Prof. S. N. Sapali	0.10
15	Pace Global, Malad (W), Mumbai	Mechanical	19.07.2018	Prof. S. N. Sapali	0.10
16	T. S. Surgicare & Co., Gokul Road, Hubli	Mechanical	19.07.2018	Prof. S. N. Sapali	0.10
17	Swastek Appliancez, Pisoli	Mechanical	02.07.2018	Prof. S. N. Sapali	0.10
Total					9.5 lakhs



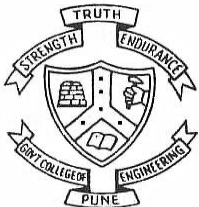
Special Technical Training for John Deere (India) Engineers

Training area	Name of the trainer	No of hours
Strength of Materials	Prof. D. W. Pande	10
Welded Joints	Dr. P. S. Shinde	10
Engine Cooling	Dr. P. R. Dhamangaonkar	16
Bolted Joints	Dr. R. N. Ladhawe	06
Tribology	Dr. B.U. Sonawane/ Dr. Mrs. M.G. Karnik	10
Vibrations and Vehicle Dynamics	Dr. S. G. Pawar	38



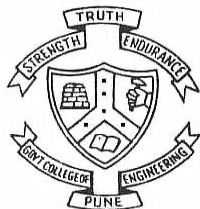
Skills training to COEP support staff

Name of support staff	Benefit	Name of company
Mrs. Yogita Korekar	AutoCAD training	Autodesk
Mrs. Yogita Korekar & Mr. Vipul Wandhade	Hypermesh training	Altair
Mr. Ganesh Pawar	Engine test setup	Apex Innovation



Curriculum development with the involvement of Industry

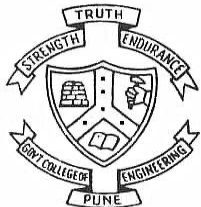
SN	Name of member	Name of Company
1	Dr. Bhalchandra Deshmukh	Kirloskar Oil Engine Ltd.
2	Mr. R. S. Jha	Thermax
3	Dr. Yogesh Kulkarni	Principal Architect at ICERTIS
4	Mr Krishna Ghadage	Eaton Technology Pvt. Ltd., Kharadi
5	Mr. Amol Korde	Romax
6	Ravindra Birajdar	Head Central R & D, Kirloskar Brothers Ltd.
7	Abhijit Phadke	Cummins India Ltd.
8	Nivruti Garud	John Deere Technology Centre, Pune
9	Datta Kuvalekar	Head Central R & D, Forbes Marshall
10	B. A. N. Murthy	Eaton Technology Pvt. Ltd., Kharadi
11	Promod Khot	Fiat India Power Train Division
12	Mr. Kumatkar Raghunath	Mather Platt, Pune
13	Mr. Ajay Tanwal	SKF Technologies, (India) Pvt. Ltd.



Industrial Visits during 2018-19

Company Name	Date From	No Of Students
Auto Expo	10-01-2019	20
Whirlpool	01-12-2019	20
Radheya Machining Ltd	01-08-2018	43
Accurate Gauges Pvt. Ltd	03-06-2018	18
Whirlpool	01-12-2019	20
Kisanveer Sugar Industry Satara	04-06-2018	160
Kisanveer Sugar Industry Satara	04-07-2018	60
Kisanveer Sugar Industry Satara	05-06-2018	160
512 Army Base Wksp	04-07-2018	40
Emerson Climate	01-03-2018	39

Total number of students benefitted: 580



Placements

No. of jobs offered: 416 from among 462 students

3D PLM

L & T

Ashok Leyland

Mahindra and Mahindra

AVL

Rolls Royce

Bajaj Auto

Siemens

Cummins

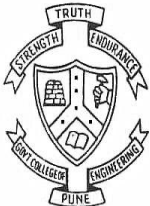
Suzuki

Ebara

Tata Motors

HPCL

VOLVO



College of Engineering Pune (COEP)

Forerunners in Technical Education 35

Start ups incubated/pre-incubated in 2018-19

Startup Name: MediAsha Technologies Pvt. Ltd.

Name: Mayur Sanas [M.Tech-Mech]

Info: This is a Healthcare start-up focusing on solving the unmet needs and bringing forth novel medical devices. Development of innovative medical devices with high impact on society at affordable cost is aspiration of MediAsha. DST big saction Rs. 50.00 lakhs

Current Status: Virtual Incubation

Startup Name: Agile Energy

Name: Yogesh Bhangale [M.E.-Mech]

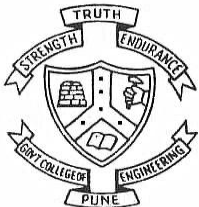
Info: To provide Indigenous, economical & sustainable energy storage solution to electric mobility & stationary power back up needs.

Current Status: Virtual Incubation



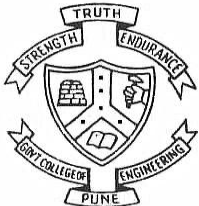
Industry-Institute Interaction: Honours and Awards

- ❑ **Dr. M. R. Nandagaonkar**
'Forbes Marshall Outstanding project Award' in Academic Year 2018-2019 for "Design, Development & Analysis of a Single Cylinder KTM 390 Engine"
- ❑ **Dr. P. R. Dhamangaonkar**
Appointed as 'State Co-ordinator of Mechanical & automobile Dyanmandal', for Marathi Vishvakosh
- ❑ **Dr. N. K. Chougule**
Received special appreciation at AutoDesk University, Bangalore

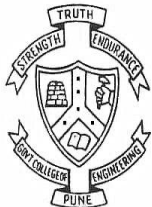


Best project award for students

- ❑ **Danfoss offers UG and PG Danfoss Innovator Project award every year:**
 - Rajwardhan Nalawade (UG)
 - Amey Rane (PG)
- ❑ **Forbes Marshall Outstanding projectAward 2018 in "Design, development & analysis of a single cylinder KTM 390 engine"**
 - Alok Apte, Asif Shaikh, Vijay Kadam



Thank you



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