

Fr. Conceicao Rodrigues College of Engineering

TOOL BOX

PRODUCTION & MECHANICAL ENGINEERING DEPARTMENT

NEWSLETTER VOLUME - 4.0 2020-21



Our Prayers

"Dear father, please keep and carry these precious people in their sadness and loss. Cover them with your great wings of love, give their weary hearts rest and their minds sound sleep. Lord, lift their eyes so that they may catch a glimpse of eternity"

we pray through this pandemic

Thank you

To

all the college teaching and non-teaching staff for their continued support from educating our students, to conducting research, to maintaining essential business operations, during this very difficult and challenging times.

PREFACE

Beginning with an orphanage (BalBhavan) and a trade school in carpentry, the Agnel Ashram (set up in 1957 at Bandra, Mumbai) has today grown into a full-fledged Technical Complex. Bachelor in Production Engineering was the first ever field with which St. Xavier's Pillar started 'Fr. Conceicao Rodrigues College of Engineering', all the way back in 1984 with an intake capacity of 60 students. Post inauguration, other engineering disciplines such as Electronics Engineering, Computer Engineering and Information Technology entered in the frame in the year's 1987, 1991 and 2001 respectively. The college observed its first ever batch of Mechanical Engineering in the year 2019, with an intake capacity of 60 students. From the year 2020, college is offering new undergraduate programme in the emerging area of 'AI & Data Science'. The college also offers Post- graduate degree in Mechanical and Electronics Engineering with an intake capacity of 18 students. It is considered to be the best institute for Production Engineering due to its advanced and industrial training approach, facilities and infrastructure. The Institute has been consistently ranked highly in major surveys like the NIRF, TOI, INDIA TODAY to name a few. The college is ranked among the top 300 Engineering institutes of the country by NIRF 2020, conducted by MHRD. The motto "Moulding Engineers who can build the nation" does total justice to this institute on the account of its dedicated and disciplined academic approach, staff, infrastructure, research facilities, a strong alumni network and above all, outstanding campus placements. The college has various technical and non-technical teams, and councils which helps the students to showcase their innate capacities and capabilities, acquire new soft-skills and practical knowledge that are essential for life after graduating from university and allows them to integrate classroom concepts with a practical application to overcome intellectual and collaborative which compels students challenges. And hence, this newsletter is a comprehensive, cumulative and continuous effort to acknowledge the dedication and diligent efforts made by the students and the teachers as a whole.

ACKNOWLEDGEMENT

The team is grateful to Prof. S.K. Das for leading us and giving us his valuable input throughout the process of creating this newsletter. We would also like to thank our respected HOD Prof. V.S. Jorapur for supporting us and making sure we make a newsletter that could aptly project our branch. All the team members are thankful to all the students and faculties who have helped us in getting data and also all the councils and teams for cooperating with us for the same.

MISSION

- To impart quality education through stateof-art facilities and appropriate mentoring for holistic development of students matching with the changing needs of the stakeholders.
- To encourage and motivate faculty to take up research and consultancy.
- To collaborate with industries, R & D organizations, professional societies and educational institutions for excellence in teaching and research.
- To enable development of newer and cost competitive manufacturing technologies for providing better quality of products and services.

Vision

The Production and Mechanical **Engineering Department aspires** to be recognized for outstanding education and research leading to holistic development of wellqualified technocrats who are innovative, entrepreneurial and motivated for realizing manufacturing and operational excellence to achieve Indian prominence in the global arena.

FROM HOD'S DESK:



Dr. V.S Jorapur HOD Production & Mechanical

It gives me immense pleasure in releasing the newsletter for 2020-21 of Department of Mechanical and Production Engineering. This edition, highlights establishment of few start ups by our enthusiastic students. This may motivate other students to take up self employability as a means of employment. Emphasis is to reduce dependence on campus placements and urge the students to take up their own means of employment.

Assistance in this regard will be provided by the department.

Special feature of this edition is to showcase association of our department with as many as 35+ industries and still more to add. Regular features like research activities undertaken by the faculty and the achievements of technical teams in national and international competitions will be water mark of the department.

Sincerely yours, V. S. Jorapur PhD

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(A) RESEARCH PUBLICATIONS

- Joshi K. N., Patil B. T. (2020) Multivariate statistical process monitoring and control of machining process using principal components-based Hotelling T2 charts: a machine vision approach, International Journal of Productivity and Quality Management, (In Press) (Scopus Indexed)
- Arun Rane (2020). Low-cost CNC Machine by Using Microcontroller. Open Journal of Mechanical Engineering, 5(1): 01-04.
- Arun Rane (2020). Simulation of A Manufacturing System to Improve Business. Advances In Industrial Engineering And Management, 9(2): 27–32.
- Singraur, D. S., Patil, B. T., & Shaikh, V. A. (2021).
 Defect Minimization of an Injection Molded Plastic
 Component Using Conformal Cooling Channels. In Materials Science Forum (Vol. 1019, pp. 205–210).
 Trans Tech Publications Ltd.

- Bhise, D. K., Patil, B. T., & Shaikh, V. A. (2021). Air Assisted Atomization Characterization of Biodegradable Fluid Using Microlubrication Technique. In Materials Science Forum (Vol. 1019, pp. 211–217). Trans Tech Publications Ltd.
- Veerabhadrarao, M., Patil, B. T., Shaikh, V. A., & Sudhakar, D. S. S. (2021). Contribution of Factors such as Machining Parameters, MQL Nozzle Orientation (Angle & Distance) and MQL Nano-Fluid Type on Surface Finish of Turned Steel Work-Pieces Using DOE Approach. In Materials Science Forum (Vol. 1019, pp. 181–193). Trans Tech Publications Ltd.
- Joshi, K., & Patil, B. (2020). Measurement of Spur Gear Parameters Using Machine Vision. In Proceedings of International Conference on Intelligent Manufacturing and Automation (pp. 31-37). Springer, Singapore. DOI https://doi.org/10.1007/978-981-15-4485-9-4 (Scopus Indexed)
- Meera B. Kokate., Bhushan T. Patil, & Geetha Subramanian (2020). Machine Learning as a Smart Manufacturing Tool. In Proceedings of International Conference on Intelligent Manufacturing and Automation (pp. 359–366). Springer, Singapore. DOI https://doi.org/10.1007/978-981-15-4485-9 37 (Scopus Indexed)

- Dabreo, P. W., Joshi, K. N., Patil, B. T., & Kokate, M. B. (2020, June). Machine vision based interferometry for measurement of flatness error in micro and nano manufacturing. In IOP Conference Series: Materials Science and Engineering (Vol. 872, No. 1, p. 012066). IOP Publishing. DOI: 10.1088/1757-899X/872/1/012066 (Scopus Indexed)
- Pashte, S., Wagle, K., Agrawal, S., Sudhakar, D.S.S., Patil, B. and Singraur, D.S., 2020, June. Simulation and optimization for a plastic component. In IOP Conference Series: Materials Science and Engineering (Vol. 872, No. 1, p. 012072). DOI:10.1088/1757-899X/872/1/012072 (Scopus Indexed)
- Sikdar, H. N., Rao, M. V., Patil, B. T., Shaikh, V. A., & Sudhakar, D. S. S. (2020, June). Turned AISI 4340
 Heat-Treated Steel Surface Quality Investigations in Dry and MQL Cooling Conditions. In IOP
 Conference Series: Materials Science and Engineering (Vol. 872, No. 1, p. 012090). IOP
 Publishing. (Scopus Indexed)
- Suryawanshi, A. T., Sudhakar, D. S. S., & Patil, B. T. (2020, June). Low cost and open source software-based CNC router for machining contours. In IOP Conference Series: Materials Science and Engineering (Vol. 872, No. 1, p. 012084). IOP Publishing. (Scopus Indexed)

- Bhopi, S. C., Miriyala, V. B. R., Parab, S. V., Haldankar, A. S., & Pandey, S. P. (2020, June). Study on rectification of issues faced by ultrasonic welding of medical "e-stethoscope" by adhesive bonding technique. In IOP Conference Series: Materials Science and Engineering (Vol. 872, No. 1, p. 012088). IOP Publishing. (Scopus Indexed)
- Khushi M. Mehta, Shray Kumar Pandey, Vasim A.
 Shaikh
 Topic: Unconventional Machining of ceramic matrix
 Composites A review
 Journal: Materials Today: Proceedings ELSEVIER
 Scopus Indexed Journal (In Press)
 Year of Publication: 2021 (February)
- Advait Chetan Purav
 Topic:Investigations into performance of conventional and conformal cooling channels of a plastic injection mould
 Journal:Intitute of Physics Web of Science Scopus Indexed Journal

 Year of Publication:2021(January)

(B) ACADEMICS

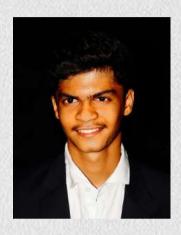
TE PROD



AMIT DUBEY
CGPA - 9.75



SHRENIK OSTWAL CGPA - 9.18



SHUBHAM NAR CGPA - 8.92

SE PROD



SIDDHANT JATALE CGPA - 9.04



RANEN FERNANDES CGPA - 9.03



MADHVENDRA SINGH CGPA - 8.8

SE MECH



SHRAVANI TARI CGPA - 10



DEEGANT KHARIVALE CGPA - 10



ATHARVA BELNEKAR CGPA - 9.9



CHARIT SAVE CGPA - 9.9



DDHAIRYA GANDHI CGPA - 9.48



DURVANKUR NAIK CGPA - 9.21



RAUL GONSALVES CGPA - 9.18



KEVIN MATHEW CGPA - 9.05



ABEL DAVID CGPA - 8.87

PRODUCTION DEPARTMENT

Recent startups





BE PROD 2019-20



ENGINEERS TWEAKING SUPPLYCHAIN IN DRY FRUITS MARKET WITH THEIR INOVATIVE IDEAS.



About Us: Cheenikum was an idea born from the lack of healthy and appealing food options for Diabetic patients. Diabetes is one of the fastest growing ailments thanks to or urban lifestyles and the lack of easily available food options for individuals suffering from diabetes is shocking. The main selling point of this idea was to provide affordable and quality sugar free products delivered promptly and fresh to your doorstep.

Cheenikum was formally started in the summer of 2020 with a team of 8 students. we have a mission to provide diabetic people with suitable sugar free health foods and snacks and it's something we hope to be doing for years to come. But we offer more than just high-quality, sugar free products. We are a full-service Health Food Store with plans to expand into other categories of specialty foods to support the rapidly growing health revolution in the country. we also aim to create a local community of suppliers and consumers as a stepping stone to a sustainable supply chain that would eventually lead to growth of all the stakeholders and become an important part of the local community.

Our Team:



Saif Nagyi

Product Development



Varad Keni

Sales and Business Development



Shounak Bhise

Quality and Inventory Management



Chinmay Kulkarni

Marketing and Branding



Shantanu Bhandare

Product Development



Raul Murray

Logistics and Packaging



Soumil Mahajan

Operations and IT



Darshan Bhavsar

Legal and Finance

Know more: www.cheenikumstore.com



TE PRODUCTION

Rohit Madke



REFORMING TEACHING - LEARNING PROCESS UNCONVENTIONALLY

OCF

OCF EDUCATION WORKS AS A TEAM WHICH GUIDES, COUNSEL, HELP STUDENTS THROUGH EVERY DIRECTION AS WELL AS AN INDIRECT WAY TO MAKE THEM CHOOSE THEIR CAREER WISELY. ALONG WITH THIS, WE PROVIDE THEM FINANCIAL HELP IN ADDITION TO MANY NON-FINANCIAL THINGS LIKE LIBRARY, COUNSELLING SESSIONS, CAREER GUIDANCE AND MANY MORE FOR ZERO COST.

IN COMPANY WITH THIS, OCF EDUCATION CONDUCTS A SCHOLARSHIP TEST IN ITS WORKING REGION TO SELECT STUDENTS FOR FINANCIAL HELP AND SCHOLARSHIPS FOR THEIR EDUCATION: THESE SCHOLARSHIPS ARE PROVIDED TO STUDENTS AT VARIOUS COACHING CENTRES WHERE STUDENTS WANT TO LEARN THROUGH THE NUMBER OF SCHOLARSHIPS IS DEPENDENT ON MARKS OBTAINED BY THEM IN THE SCHOLARSHIP TEST.

ON TOP OF THIS, WE CONDUCT CODING AND PROGRAMMING CLASSES WHERE STUDENTS ALL OVER THE WORLD LEARN AT MINIMUM FEES. OUR BEST COURSES ARE PYTHON FOR DATA SCIENCE AND GAME DEVELOPMENT WITH PYTHON.

~ ROHIT MADKE

TEAM CFR CRCE



Team CRCE Formula Racing is Fr. Conceicao Rodrigues College of Engineering's Formula SAE team. A mutual passion for automobiles and a zeal to learn formed the essence of CRCE Formula Racing. 35 Fr. CRCE students from a variety of engineering disciplines made up the 2020-21 CRCE Formula Racing team. Each student brought instrumental skills to the team, and like every year the union between diverse skills and strong teamwork formed the core of the team. The team strives to design and build the best prototype formula-style race car, with the best engineering practices employed.

Just like every year, CRCE Formula Racing planned on participating in SAE Supra 2020 held at Buddh International Circuit, New Delhi, and Formula Bharat which is held at Kari Motor Speedway, Coimbatore. But due to the unforeseen circumstances of the COVID-19 pandemic, SAE Supra 2020 was cancelled, and the team's focus was shifted entirely towards Formula Bharat 2021.

The team had started recruiting in March 2020, who were part of the team as volunteers. They were taught the basics of the design and manufacture of a formula-style race car. Their selection into the team was done by taking online interviews, after which the members were allotted to their respective departments. The team secured 16th place in the Formula Bharat rulebook test, which is mandatory to clear, to qualify for the competition, and this was the best rank that the team had achieved, to date. Soon after this, Formula Bharat announced the shift of the competition to a virtual platform. The team had to make the necessary changes in their plans and started to prepare for the virtual event, as this shift was a new challenge for the team.

The team had to burn the midnight oil and spend long hours in front of laptops and phones for conference calls and online meetings. After having done numerous designs and simulations, the team was confident and ready with the best car they had created to date.

The team participated in Formula Bharat virtuals 2021, held in January-February 2021, and managed to achieve 9th position in business plan presentation event, 24th rank in engineering design presentation and an overall rank of 19th all over India, which is the best rank the team has achieved in all its history. The team looks forward to gaining more and more experience by participating in many more competitions and competing with Indian teams as well as international teams at the highest level in the near future.



TEAM VAAYUSHASHTRA CRCE



Team Vaayushastra is a premier Indian aeromodelling team based out of Fr. Conceicao Rodrigues College of Engineering, Bandra. This year they participated in the SAE Aero Design East competition held in Lakeland, FL USA. The objective of the competition was designing, building and flying a model RC Aircraft that is built to fulfil a unique problem statement decided every year. This year, the team was required to design an aircraft that could simulate a human colonisation of Mars. For this, the Team had to create a Primary Aircraft that could carry within it, a smaller self-piloted aircraft to be dropped onto a designated landing spot. For this, the team of undergraduate students came up with a truly remarkable design that incorporated several ingenious ideas involving top of the line technologies such as artificial intelligence, machine learning, composite materials etc.

The final aircraft "Black Darter" proved every bit worthy of its name performing spectacularly in all stages of the competition allowing Team Vaayushastra to be placed 14th internationally among top ranked foreign universities. The team also finished 14th in the design report stage and 11th in the Technical Presentation judging along with receiving praise from both the judges as well as the fellow competitors.

Yashovardhan Kheman Captain Team Vaayushastra



TEAM ROBOCON CRCE





Team Robocon CRCE is facilitated by a group of dedicated undergraduate students working towards the common goals of developing ingenious technology by the aid of robotic systems. It has also been renowned for its history of sheer hard work and dedication towards the ABU Robocon competition which resulted in great rankings for several years consecutively. But Team Robocon has now also ventured into different domains, apart from the Robocon competition. By manifesting the power of teamwork, we envision to utilize our knowledge and hands-on experience in robotics to provide futuristic solutions for societal problems.

Learning from our mistakes and growing is something that Team Robocon radiates. This year we dived into the work of Computer Vision, Speech recognition, Path planning, Raspberry PI for our fascinating projects- Humanoid Bot, Assistance bot for visually impaired, Surface sanitizing system, home automation using voice assistance in python, warehouse bot, etc, each of which was our way of giving back to the society. Not only did our relentless efforts stand out in our projects, but we also emerged as National Winners in MIT AOE's Brainwreck Competition and got awarded for Best Circuit Design. "You have power over your mindnot outside events"- With the world going virtual due to this pandemic, Team Robocon CRCE instead of being limited, went a step ahead to go digital and use the social media platforms to spread knowledge about robotics with Roboblogs, Robofacts and Robotalks. Nothing can break Team Robocon's strong will, sincerity and discipline, and we hope to emerge even stronger in the upcoming years.

-Richa Tripathi (Captain)

TEAM ABADHA CRCE



TEAM ABADHA CRCE is a cadre of ardent & assiduous students from Fr. Conceicao Rodrigues College of Engineering.

We build a One-Manned Electric-All Terrain Vehicle which is capable of keeping its ground in the roughest of terrain and in the most challenging conditions.

The team was founded in the year 2012 and is the oldest team in our college. It was initiated by inquisitive coterie of students under the guidance of Prof. D.S. Sudhakar.

Living up to its name (Abadha means Unstoppable in Sanskrit) the team every year overcomes all the impediments and is achieving greater heights.

We participate in SAE E-Baja Competition. Every year the team makes a fresh start and sedulous to achieve its goal. The performance graph over the years is improving at an remarkable rate.

The team has come a long way from being Overall AIR 78 in its very first attempt to being Overall AIR 5 in 2020. The team also secured AIR 1 in Sales Presentation. With a set of stalwart individuals, the team this year aims to be in Top 3.





IIIEXCRCE



IIIExCRCE

IIIE stands for Indian Institute Of Industrial Engineering. The council was formed on 1st November 2017 and has been active under the guidance of Prof. S.K. Das, Prof M.V.B. Rao, and Dr. Bhushan Patil. Under the leadership of Chairperson Khushi Mehta and Vice-Chairperson Girish Chawla IIIEXCRCE had a great feat in the year 2020-2021. This feat could not have been accomplished without the determination, aspiration and a belief to work towards something beneficial that helps the students and community as a whole by all the team members. The council had a great start in 2020 by organizing an industrial visit in January at Central Railway Workshop, Matunga wherein the students were shown different machineries required to build a train. For Innovation Day, the council came up with an equally innovative event of "Best Design Creator". A Certificate Of Appreciation of an "outstanding innovative activity" was awarded to the IIIExCRCE council (secured third price) : Even In the midst of an unprecedented crisis, the council organized various events such as workshops, webinars, learning sessions that help engage the audience, was effective and a great success. The basic idea was to help students learn online from industry experts and don't miss on the opportunity of having to clear their academic related doubts and gain knowledge related to modern industrial subjects and practices from the comfort of their homes. Because of these activities the council members as well as the participants were able to showcase and prove their capabilities with innate capacities. Altogether the year 2020-21 emerged as an eventful and victorious year for the council.

Kevin Mathew
Joint Secretary, IIIExCRCE 2020-21



SAE



SAE CRCE 2020-21 Society of Automotive Engineers, Fr. CRCE is a Collegiate Club which is a part of SAE India which aims to impart knowledge to its members, to inspire them in learning the technological advancements in the field, and to introduce them to the international arena. SAE CRCE gives its members a chance to enhance their skills by conducting Certified workshops and Industrial Visits held in manufacturing and R&D Plants which give the members exposure to the Industry. Also, our members have the chance to participate in national and international events by working on projects as a team and representing the chapter and the University. The Technical Knowledge and Practical Skills gained along with team working skills that progress over the years are incomparable to any standard textbook courses taught, making them the most soughtafter engineers by the Industry. Despite the prevailing situation due to COVID-19 SAE CRCE managed to conduct 3 engaging webinars via Google Meet with keen and curious students. We covered topics like Industrial Design & Project Management, Pitching workshop & linkage of innovators with Innovation Ambassadors and Business Model Canvas. We hope to reach out to more diverse disciplines in our college and build up an engaging and active community within the institute as we look forward to bringing more such speakers and organizing more interactive sessions. Overall, the year 2020-21 was a great success with several quality discussions on multiple topics and plenty of questions asked and answered. The students as well as our SAE CRCE team are immensely satisfied with the success.

Mareena Fernandes
Secretary, SAE CRCE 2020-21



CLASS OF BE 2021

















Ruben

































INFRASTRUCTURE & FACILITIES

PLC IN AUTOMATION LAB.

BMW TWIN POWER TURBO 4-CYLINDER DIESEL ENGINE.

DELL WORKSTATIONS IN ALL CAD & CAM LABS.

3D PRINTING MACHINE BASED ON FDM TECHONOLOGY.

VICKERS HARDNESS TEST AND DYNAMOMETER.

METROLOGY LAB, INDUSTRIAL ENGG. & OPERATIONS MANAGEMENT LAB.

DIGITAL MICROSCOPE

SOFTWARE

SIEMENS NX 11 SOLIDWORKS ARENA ANSYS

WORKSHOP

Hands on experience on:

CNC MACHINE

20+ LATHE MACHINES

SHAPING MACHINE

DECKLE MACHINE

(UNIVERSAL MILLING MACHINE, USED IN MAKING PARTS OF 'ARYABHATTA' WAS DORMANT FOR MANY YEARS AND NOW USED FOR INSTRUCTIONAL PURPOSE)

16 TON SENSOR MECHANICAL PRESS WITH SAFETY.

SUBMERGED ARC WELDING MACHINE.

GRINDING MACHINE.

<u>Internship 2020-2021 Records</u>

Sr.	no.
JI.	HU.

Company Name

- 1.
- LARSEN & TOUBRO
- 2.
- ZEAL MEDICAL PVT. LTD.
- 3.
- MARUTI SUZUKI INDIA LIMITED
- 4.
- REYCHEM RPG LTD
- 5.
- **DECATHLON SPORTS PRIVATE LIMITED**
- 6.
- **ABHIJEET DIES AND TOOLS**
- 7.
- **INSTEEL ENGINEERS PVT. LTD.**
- 8.
- INDIAN PNEUMATIC AND HYDRAULIC CO. PVT. LTD.
- 9.
- SUNITA TOOLS PVT. LTD.
- 10.
- **GEMSONS PRECISION ENGINEERING**
- 11.
- PRECIHOLE MACHINE TOOLS PRIVATE LIMITED
- *12*.
- STELLAR VALUE CHAIN SOLUTIONS PVT LTD.
- 13.
- **MERCEDES BENZ INDIA LIMITED**

Sr. no.	Company Name
14.	ACG CAPSULES PVT. LTD.
15.	MERCEDES BENZ INDIA LIMITED
16.	PROTEUS TECHNOLOGIES
17.	BOSCH INDIA LTD.
18.	AUTOFORMS
19.	KRUPA CONTAINERS PVT. LTD.
20.	SIEMENS
21.	PETROCIL ENGINEERS AND CONSULTANTS
22.	TATA STEEL BSL
23.	KANSAI NEROLAC PAINTS LIMITED
24.	SINEX PRIMEMOVERS
25.	PRECIHOLE SPORTS PVT. LTD.
26.	TRIARO
27.	REDWING AEROSPACE LABS
28.	RALTECH PRECISION ENGINEERING PVT. LTD.
29.	HILDEN MANUFACTURING PVT. LTD.

Sr. no. Company Name

30. ABBOTT

31. TRESMOTO

32. BENNINGER

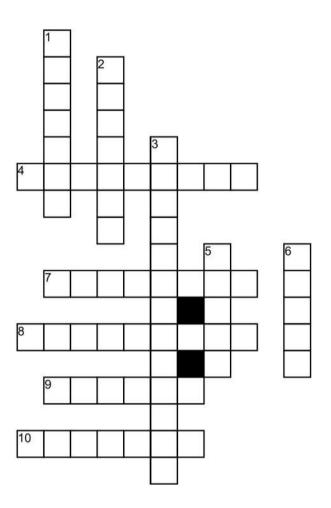
33. HARSH PRECIOUS METAL PVT. LTD.

PLACEMENT RECORDS 2020-2021

- L&T
- GODREJ
- TCS
- DECATHLON
- 99YEARS
- CRIMSON
- ROOP TELSONIC

CROSSWORP

Mechanical Energy



Across

- 4. This is a type of chemical energy.
- 7. When two sustances act upon each other.
- 8. What is the energy that can be stored and be used at a later time? motion?
- 9. The action or process of moving or being moved.
- 10. What is the engery produced by heat?

Down

- 1. What is the energy released during fission or fusion?
- 2. What is the name of energy that a body possesses by being in motion?
- **3.** What is the potential energy held by an object because of it's high position compared to a lower position?
- 5. What type of energy is radiant energy produced by the sun?
- 6. What is the energy produced by vibrations/waves?

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PRODUCTION & MECHANICAL ENGINEERING
DEPARTMENT

TOOL BOX

NEWSLETTER

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