2nd International Conference Proceedings

for

"Recent Trends in Science, Engineering & Technology"

Held from 15th June 2021 to 17th June 2021

At

GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY
SALAI GODHANI,HUDKESHWAR ROAD,
NAGPUR

Dr. Salim Chavan
Convener,
ICRTISET-2021

Prof Avishkar Wanjari
Coordinator,
ICRTISET-2021

Govindrao Wanjari College of Engineering & Technology

Nagpur-441204

Session 2020-21

MESSAGE FROM THE PRESIDENT

The 2nd International conference on Recent Trends In Science, Engineering & Technology Organized by Govindrao Wanjari College of Engineering & Technology, Nagpur on dated 15th June 2021 to 17th June 2021 marked several exciting milestones for our organization. There were 30 presentations from scholars who participated in the conference. These highlights are important to mention because they demonstrate our contribution in the field of Engineering. The supportive and collaborative nature of the conference also builds on our mission to support learners in contexts of higher education. The contributions by the authors of the following proceedings reflect their dedication to learners in various settings and contexts. The proceedings not only build a legacy of scholarly contribution for the authors, but also for ICRTISET-2021. I would like to thank the editors for their hard work for preparing the proceeding of this conference. I would like to thank all the authors who presented their research at the conference and ultimately for print in this edition of proceedings. As we continue to grow as an organization, your participation will be increasingly important to carrying out the work we are charged with from our mission.

Dr. Suhasini G Wanjari
President
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE SECRETARY

It is with great pleasure that I acknowledge the 2ND International Conference on " Recent Trends In Science, Engineering & Technology" (ICRTISET-2021), organized by Govindrao Wanjari College of Engineering & Technology, Nagpur. I commend the organizing committee for their admirable efforts in ensuring the success of this conference and their commitment to presenting novel research findings and ideas. My best wishes to them for their ongoing efforts to disseminate knowledge.

Adv. Abhijit Wanjarri
Secretary
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE TREASURER

Govindrao Wanjari College of Engineering & Technology, takes great pride in hosting the 2nd International Conference on Recent Trends in Science, Engineering and Technology (ICRTISET-2021). I would like to appreciate the entire team at GWCET for their unwavering efforts in bringing this significant event to fruition. This conference provides an excellent platform for students and young researchers to enhance their knowledge and gain a deeper understanding of the changing ideas and innovative methods in technology. I am confident that this event will offer a valuable learning experience for all participants and provide an opportunity for them to share their expertise. I wish all the attendees a productive and fulfilling time ahead.

Dr. Smeetaa A Wanjari
Senate Member RTMNU and Treasurer
Amar Sewa Mandal
Nagpur.

MESSAGE FROM THE PRINCIPAL

It gives me great pride to announce that Govindrao Wanjari College of Engineering & Technology, is hosting the 2nd International Conference on Recent Trends in Science, Engineering and Technology (ICRTISET-2021) from 15th June 2021 to 17th Jun 2021. The conference will act as an excellent colloquium to develop a platform for the exchange of ideas towards scientific and technological innovations for the generations to come. I hope that the conference will deliberate on current issues of national and international relevance in the fields of Science and Technology, allowing academicians, researchers, and technocrats to share their thoughts and views on innovations in their respective fields. The conference will witness an unparalleled number of quality research articles being presented, paving the way for new paths to innovate in Science and Technology. I extend my heartfelt congratulations and appreciation to the entire team for their efforts in organizing this International conference and wish them great success in the successful conduct of the entire event.

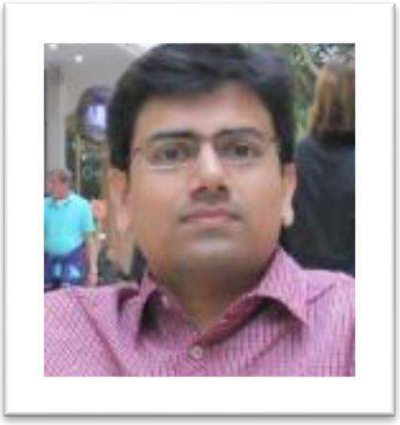
Dr. Salim Chavan
Principal
Govindrao Wanjari College of Engineering & Technology
Nagpur.

MESSAGE FROM KEYNOTE SPEAKER

It is a pleasure to note that Govindrao Wanjari College of Engineering & Technology is organizing the 2nd International Conference on Recent Trends in Science, Engineering and Technology (ICRTISET-2021) from 15th June 2021 to 17th June 2021. I would like to take this opportunity to thank you for your invitation and the excellent organized Conference. Conferences of this nature provide a platform to young researchers and faculty members to present their research and development work and get feedback and suggestions to improve their quality of work. The level of expertise and knowledge of the presenters are excellent. In addition, I appreciate their positive attitudes, willingness to explain concepts, clarity and opportunities to ask questions.

Dr. Hamidreza Gohari Darabkhani
Professor,
Mechanical Engineering
Staffordshire University, Stoke on Trent, UK.

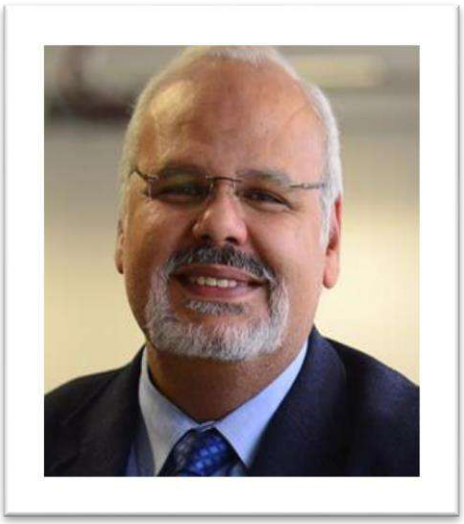
MESSAGE FROM KEYNOTE SPEAKER



I feel very honored to be associated with Govindrao Wanjari College of Engineering & Technology who have organized their 2nd International Conference on Recent Trends in Science, Engineering and Technology (ICRTISET-2021) from 15th June 2021 to 17th June 2021. This conference has surely provided a valuable platform to young researchers and faculty members to show their hidden potential. I would like to take this opportunity to thank you for your invitation and congratulate you all for the excellent Conference.

Dr. Siddhaling Urolagin
Assistant Professor, C
omputer Science & Engineering Department
BITS-Pilani, Dubai

MESSAGE FROM KEYNOTE SPEAKER



I sincerely congratulate the institute for successful conduction of 2nd International Conference on Recent Trends in Science, Engineering and Technology (ICRTISET-2021), which was well-organized, well-balanced.

I urge the organizing members of this valuable conference to remain associated with me and my university for future so that a good collaboration can be reached.

Dr. Abdel Hamid Soliman
Associate Professor, Electronics & Telecommunication Department
Staffordshire University, Stoke on Trent, UK.

MESSAGE FROM KEYNOTE SPEAKER

I do appreciate your efforts for the said conference during such difficult conditions. I know once has to be very much careful to discharge his/her professional obligations during the pandemic. Thank you very much again for giving me the opportunity and it only happened due to hard work and professional commitments of GWCET Team. My Hearty congratulations to you and the whole team of Govindrao Wanjari College of Engineering & Technology for successfully conducting the 2nd International Conference on "Recent Trends in Science, Engineering & Technology"

Dr. Mayur Parate
Assistant Professor
IIIT-Nagpur.

MESSAGE FROM KEYNOTE SPEAKER

I would like to wish you the warmest congratulations on the successful conduction of 2nd International Conference on Recent Trends in Science, Engineering & Technology. I am glad that all the things went well at the event. Entire organizing team played a vital role in handling and managing all the responsibilities during the conference. It's your team hard work and passion that has resulted in the successful completion of the event in a smooth manner.

Dr. Ashok K Singh
Professor
Electronics, Space & Atmospheric Physics,
University of Lucknow, UP, India.

ACKNOWLEDGEMENT

We present to you the proceeding for the 2nd International Conference on "**RECENT TRENDS IN SCIENCE, ENGINEERING & TECHNOLOGY"** which was held from 15th June 2021 to 17th June 2021.

We feel very much delighted in expressing sense of gratitude to our Principal and Convener for this conference **Dr. Salim Chavan,** for his timely help during the conference and for his constant encouragement and valuable guidance. The successful execution of this conference would not have been possible without the firm support of our convener.

We are very thankful to our Hon'ble Treasurer Amar Seva Mandal and Senate Member RTMNU, Nagpur **Dr. Smeetaa A Wanjari.** She guided us for this conference and gave us valuable suggestion whenever and whenever required.

We would like to express sincere thanks to Hon'ble MLC and Secretary Amar Seva Mandal **Adv. Abhijit Wanjarri** for giving the opportunity to do such international conference and providing us necessary facilities to carry out our work.

We express our sincere thanks to Hon'ble Founder of Amar Sewa Mandal and our well-wisher **Dr. Suhasini G Wanjari,** for being a source of inspiration for all of us.

We would also like to express our sincere gratitude to the Session chair In-charges **Dr. Hamidreza Darabkhani, Professor, Mechanical Engineering, Staffordshire University, UK. Dr. Siddhaling Urolagin, Assistant Professor, Computer Science & Engineering Department, BITS Pilani, Dubai, Dr. Abdel Hamid Soliman, Associate Professor, ETC Deptt., Staffordshire University ,United Kingdom, Dr. Mayur R. Parate, Assitant Professor, IIIT-Nagpur, Maharashtra, India, Dr. Ashok K Singh, Professor, Electronics, Space & Atmospheric Physics, University of Lucknow, UP, India** for being involved in this international conference and sharing their views.

We wish to express our gratitude to all our faculty members who have helped us directly or indirectly in completing this conference.

CONFERENCE-COORDINATOR

Prof. Avishkar Wanjari
Head of Department
EE Deptt, GWCET, Nagpur.

CONTENTS

1. ELECTRONICS & TELECOMMUNICATION ENGINEERING DEPARTMENT

TITLE	1.1 Home Automation Using LORA Technology
AUTHOR	Shubham Lonare, Vivek More, Rahul Thakre
ABSTRACT	In Today's World it is very Important for Humans to Adopt the New Technology and in this Predominantly Two Technologies Are Comes First Via Artificial Intelligence and IOT. The internet of things (IOT) is inter-Networking of physical device. The home and Society are surrounded by "things" which are connected to each other, either directly or indirectly via the internet of things. To have access to controlling these devices remotely with precision within the network when required is a key factor in the process of home automation. There are numerous aspects in this automation that needs to be developed to enhance it. This research gives a solution to having a precise and direct control and automatic detection of current state of devices with the use of android applications. It also gives a practical implementation of home automation using LoRa in comparison to other technologies. LoRa Technology is low power wide area wireless network (LPWAN) protocol for Internet of Things (IoTs) applications. LoRa (short for long range) is a spread spectrum modulation technique derived from chirp spread spectrum (CSS) technology. Semtech's LoRa devices and wireless radio frequency technology is a long-range, low-power wireless platform that has become the de-facto technology for Internet of Things (IoT) networks worldwide. LoRa devices and the open LoRaWAN® protocol enable smart IoT applications that solve some of the biggest challenges facing our planet: energy management, natural resource reduction, pollution control, infrastructure efficiency, disaster prevention, and more. Semtech's LoRa devices and the LoRa WAN protocol have amassed several hundred known use cases for smart cities, smart homes and buildings, smart agriculture, smart metering, smart supply chain, and logistics, and more. With over 178 million devices connected to networks in 100 countries and growing, LoRa devices are creating a Smarter Planet.

2. ELECTRICAL ENGINEERING DEPARTMENT

TITLE	2.1 Solar Powered Mobile Operated Farmer Friendly Multifunctional Agribot
AUTHOR	Shubham Bante, Pradip Burde, Shreekant Bobate, Pratik Meshram, Nilesh Katre, Sunil Pandey
ABSTRACT	Many advances in technology have made agribusiness very labour intensive to be a part of the industry. As we spoke only 50 years ago, farmers began to incorporate methods into their farming practices. Those involved in the agricultural industry are said to be less likely to change. They were very firm in the ways that came before them. Now when we examine the agricultural industry, we can see that it is changing rapidly. Farmers are looking for new ways to implement technology to reduce costs and reduce working hours. Farmers have come up with an autonomous robot as a way to explore new technology in agriculture. Solar-powered mobile-powered robots are new to the agricultural industry, but are rapidly gaining popularity from agricultural research institutes across the United States. These tractors are described by Farm Industry News as a tractor that drives its solution with a computer under control. Despite being in the research stage of development, autonomous robots are becoming more of an idea than a reality. When the robot is moving on the surface, it is controlled by a Bluetooth technology based mobile remote.

TITLE	2.2 Solar based drip irrigation system for farming application with GSM modem.
AUTHOR	Khushabrao Chanekar, Niketan Dandhare
ABSTRACT	Most of the Indian people are dependent on agriculture and for this reason our country's economy is mainly dependent on agriculture, so efficient agriculture requires proper irrigation and can improve our country's economy accordingly. We can achieve this with the help of various electronic devices and through its use we can get proper irrigation in this field in an automated manner. Project Irrigation and Water Level Control using AT89S52 designed to address agricultural sector issues related to irrigation and water monitoring systems with available water resources. Prolonged periods of dry weather conditions due to fluctuations in annual rainfall can significantly reduce agricultural yields. Profiteering companies need an efficient irrigation system as their intolerance to the cost and drought of establishing these crops. On this project we're the usage of AT89s52 (8051 microcontroller), humidity sensor, dc water pump, relay driving force, level sensor, gsm modem, sun panel, battery etc. A sprinkler turns on / off depending on soil moisture condition and condition. The motor can be displayed in text messages via the GSM model on a 16X2 LCD. Also, the water level can be monitored by level sensors. It helps to know the availability of water at the input source.

TITLE	2.3 Solar Based robotic arm using Microcontroller.
AUTHOR	Vaibhav Kirnapure, Sukeshini Waghmare
ABSTRACT	Integration of robotic arms into working tasks has currently increased magnificently in performing the very repetitive, dangerous or difficult tasks. Typically, a robotic arm is a mechanical arm that is programmable to mimic the behaviour of a human arm in terms of how it functions. Computers and microcontrollers have widely been used in the control of robotic arms with the help of sensors, levers, buttons, wireless devices, just to mention but a few. More advanced technology has lately revolutionized their control, ranging from the haptic technology using accelerometers to human-brain control through non invasive technology. This research focused on the design, implementation and control of a robotic arm with five degree of freedom (DOF) using servo motors. It was designed to entirely operate by itself in a repetitive routine. A control circuit based on a PIC18F4550 microcontroller interfaced with a servo motor was built and a suitable software for the control of the rotation of motor developed. The control circuitry was used to send appropriate pulse width modulation signals. The materials were assembled and joined to construct the robotic arm which was tested in the University laboratory to demonstrate repetitive picking, lifting and dropping of objects of specific weight from one place to another without the influence of the operator.

TITLE	2.4 Solar Powered Electric Vehicle.
AUTHOR	Shailesh Patle, Aniket Deshpande, Shoeb Khan
ABSTRACT	Electric vehicle is a single seated vehicle powered by 750 W BLDC hub motor. Undergraduate students of Govindrao wanjari College of Engineering and Technology collaborated to design and fabricate a safe, high performance, cost effective electric solar vehicle. Electric vehicle with more advantages of no noise, no pollution, saving energy and reduce carbon dioxide emissions is to power-driven vehicle with a motor drive wheels moving. All advantages of solar electric vehicle make research and application of solar electric vehicle and the trend of future cars. Solar electric vehicle is made of PV panels, battery, electric motor, vehicle controller and vehicle body. Solar electric vehicle can achieve low-carbon, energy saving, environmental protection and true zero-emissions for the future of human life. Solar energy is a renewable energy which would exist for even billions of years more. In 2015, COP21 known as the 2015 Paris Climate Conference took place in Paris with the aim of keeping global warming below 2℃. In this conference many condition were imparted on developing nation like India to reduce carbon monoxide emission, which ultimately effect the transportation by road and their development. Thus, the use of renewable energy, like solar energy has to be use in transportation to reduce the carbon monoxide emission without any lag in development. Solar electric vehicle can make to reduce our greenhouse gas emissions and other pollution. We are going to use four set of batteries ;which will get the electrical energy from the panel to drive the motor and same power source will provide required power to other electrical devices being used in vehicle. The motor uses that energy to drive the wheels.

TITLE	2.5 IOT Based Home Automation System
AUTHOR	Ms. Pranali Bhilkar, Ms.Yamuna Maskare, Ms. Vishakha Samarth, Prof Y.S Bias
ABSTRACT	Home automation has achieved a lot of popularity in recent years, as day-to-day life is getting simpler due to the rapid growth of technology. Almost everything has become digitalized and automatic. In this paper, a system for interconnecting sensors, actuators, and other data sources with the purpose of multiple home automations is proposed. The project aims at achieving automation using the widely used mobile operating system Node MCU i.e. android Operating system. The electrical and home appliances can be controlled using the android mobile phones even if you are out of your house and you forgot to switch off the appliances. Many electrical and home appliances like light, fan etc. can be controlled using the android operating system. This can also be implemented at work place. Home automation is the residential extension of building automation. It is automation of home, housework or household activity. Home automation may include centralized control of lighting, HVAC (heating, ventilation and air conditioning) appliances, security locks of gates and doors and other systems, to provide improved convenience, comfort, energy efficiency and security. Home automation for the Elderly and disabled can provide increased quality of life for persons who might otherwise require caregivers or institutional care.

3. CIVIL ENGINEERING DEPARTMENT

TITLE	3.1 Biodegradable waste reduced in GWCET Nagpur by The Process of Vermicomposting.
AUTHOR	Rani D. Nagpure, Kajal P. Patle, Rupali D. Nagpure, Pragati B. Raut, Lalchand H. Chiram, Jayesh R. Chichulkar, Tushar B. Shambarkar
ABSTRACT	There has been significant increase in Solid Waste generation in GWCET Nagpur in the last few decades. This is largely because of requirement of large landscape area in the GWCET Nagpur. Solid waste management has become a major environmental issue in this GWCET Nagpur. The per capita solid waste generated daily is about 40 to 50 grams per day in this GWCET Nagpur. Although there is no data is available for solid waste generation it is proposed to study the collection, disposal and increase in solid waste generation, over the years for the GWCET Nagpur. Nowadays there is considerable increase in the solid waste in this college such as vegetable waste, canteen waste, landscape area waste, garden area waste, street waste and other types of garbage. This is so because of our changing lifestyle, food habits and change in living standards. Though there is the college council, it is not doing the solid waste management up to the mark due to the reason within and beyond its control. Hence, there is an imperative need to improve the solid waste management in this college. Solid waste in this college is collected by the local authority and transported to the designated disposal sites, which is normally low laying area on the outskirt of the Nagpur. Here the local authority is ill equipped to provide high costs involved in the collection, storage, treatment and proper disposal of solid waste earns the limited revenue. As a result, a substantial part of the solid waste generated remains unattended and grows in the heaps at poorly maintained collection centers. Also the choice of a disposal site is more a matter of what is available than what is suitable. The collection efficiency for solid waste in the college is about 40% hence, there is the need to improve the efficiency through proper management of the solid waste and the poorly maintained landfill sites are prone to groundwater contamination because of

	the leachate production. Open dumping of garbage facilitates the breeding of disease vectors such as flies, mosquitoes, rats and other pests. Hence, in order to avoid these problems in this college, the solid waste management is very essential. Hence, an ardent attempt shall be made in this study to develop an effective and comprehensive solid waste management model for the GWCET Nagpur.

TITLE	3.2 Study of Construction Methodology of Conventional R.C.C. Arch Bridge, LITHELYARCH Bridge and Preparation of Bridge Project
AUTHOR	Shubham Sorte, Snehal Shimpi, Akash Bambal, Parag Dekate, Sandip Bopche, Swapnil Shende
ABSTRACT	In this Project, it is intended to present the construction Methodology of Precast PCC arch bridges i.e LITHELYARCH arch Bridge by using Pre-Casting techniques. The arch bridges have been there since many centuries. Construction of stone arch bridge is time consuming process. It requires precise stone cutting and heavy formwork due to which stone arch bridges have been obsolete and replaced with R.C.C bridges. At that time construction of R.C.C bridges was fast process than the stone arch bridges and was adopted widely. This R.C.C bridges were needed to be replaced before its design life due to its corrosion problems. This project deals with the construction methodology of LITHELYARCH@ bridge constructed under the Public Works Division, Maharashtra. As pre-casting is involved in the construction process of LITHELYARCH@ bridge hence resulting in speedy construction. Precast unreinforced LITHELYARCH@ bridges are same as stone arch bridge with advancement in construction methodology. For construction of LITHELYARCH@ bridges flexible arch strip is prepared by casting individual PCC blocks connected with wire ropes which is only for lifting of arch strip. This flexible arch strip is then transported from casting yard to construction site with the help of trailers. This arch strip is then placed on sockets above pier/abutment or foundation. As LITHELYARCH@ load transfers mechanism is in Pure compression there is no requirement of structural steel. The maintenance cost required during life cycle of LITHELYARCH@ bridge is less than conventional R.C.C bridges. The design life span of LITHELYARCH@ arch bridges is 120 years has there is no structural steel used which causes corrosion and decrease design life of bridges. LITHELYARCH@ bridges gives pleasant view and aesthetic appearance to surrounding.

TITLE	3.3 Soil Stabilization Using different Stabilizers
AUTHOR	Yash P. Chavan , Nisha N. Parate, Yamini L. Nimje , Shalini K. Ambade, Pallavi S. Kirikar, Rahul Arghode
ABSTRACT	soils exhibit generally undesirable engineering properties. Stabilization can increase the shear of a soil and control the shrink-swell properties of a soil, thus improving the load bearing capacity of a sub-grade to support pavements and foundations. Among the several modes of and widely used medium. Since the ancient time for transportation of goods travelling purpose, we used roads special care and attention during construction phase so that they can bear maximum load. Some of the soil having sufficient load bearing capacity but some having poor.This research work mainly focuses on soil stabilization using different stabilizers to improve cal proper, Compressive Strength of the studied soil. Soil stabilization required when the soil available for construction is not suitable to carry structural load.Black cotton soils are boon to agriculture but are proved to be serious threat to construction founded on it These soils have the property of high swelling due to imbibing of water in monsoon and shrinkage due to evaporation of water in summer seasons. Over the past few decades, stabilization is found to be the best technique for reducing the swelling and shrinkage nature of black cotton soil. Soil stabilization is a process that improves physical soil characters such as increased shear resistance; load capacity etc...can be done by compacting or adding appropriate additives such as cement, lime, and waste materials there are various materials in utilization for the stabilization of black cotton soils. Depending on the internal factor which describes the bonding between the soil and the stabilizer utilized. In this study, to find out the effect of addition of stabilizers such as bagasse, lime and crushed demolished Concrete on the behavior of black cotton soil. The various stabilizers used were Lame, fly ash and cement. Lime was added as constant percentage of 5%. Fly ash and cement was added in varying tags of 10%, 20%, 30%

TITLE	3.4 Sustainable Building Material-Bamboo
AUTHOR	Anuja S. Kothekar, Devyani D. Dhapudkar, Devyani N. Borekar, Gayatri D. Dhapudkar, Nandini N. Raut, Sumatee D. Nalhe
ABSTRACT	Bamboo is a highly renewable material that is used in some countries as a viable building construction material; however, it is not yet widely used in the since it is not included in building codes/safety standards. To develop standards, the mechanical properties of bamboo must be understood and documented. Studies have been independently conducted by different researchers in different languages all over the world which have not yet been aggregated or compared. Therefore, 43 publications (in English, Portuguese, and Spanish) presenting mechanical properties of bamboo were compiled and analyzed. The five mechanical properties reviewed were: shear strength, compressive strength, tensile strength, bending strength / modulus of rupture (MOR), and modulus of elasticity (MOE). Properties were found to have a large range, so the major variables were investigated: age, bamboo species, density, moisture content, post-harvest treatment, and testing standard employed. The findings suggest no strong correlations exist with external factors and the inherent variability in mechanical properties should be statistically embraced via use of appropriate safety factors. Bamboo is the fastest growing plant in the world having growth up to 60 cm or more in a day. Bamboo has social, economic and cultural significance and is used extensively for building materials along with thousands of uses. It is highly versatile raw material for different works. The bamboo is light weight, flexible, tough, high tensile, cheap material than the other building materials like steel. Bamboo can be used in various building works. Bamboo structures are flexible, earthquake resistant, light weight and cheap. Bamboo can be used as reinforcement in various structural members. Bamboo is a green material for sustainable development and has various advantages. Use of bamboo may be promoted for green buildings and sustainable development.

There are various species of bamboo found all over the world. Dendrocalmus Strictusis the predominant specie found in India. Male Bamboo or Dendrocalmus Strictus occupies total 53 percent of total bamboo area in India. Various mechanical properties of bamboo are required for its use as a structural material. Various physical and mechanical tests are conducted by the author on the specie. This paper investigates the various properties of Dendrocalmus Strictus which will be useful for the engineers in design of structural components.

This study investigated the chemical, physical, and mechanical properties of the bamboo species Phyllostachys pubescens and its utilization potential to manufacture medium density fiberboard (MDF). The result showed holocellulose and alpha- cellulose content increased from the base to the top portion. There was no significant variation in Klason lignin content or ash content from the base to the top portion of the bamboo. The outer layer had the highest holocellulose, alpha cellulose. and Klason lignin contents and the lowest extractive and ash contents. The epidermis had the highest extractive and ash contents and the holocellulose and alpha-cellulose content, Specific gravity (SG) and bending of bamboo varied with age and vertical height location as well as horizontal layer. All mechanical properties increased from one year old to five year old bamboo. The outer layer had significantly higher SG and bending properties than the inner layer. The SG varied along the culm height. The top portions had consistently higher SG than the base.

Bending strength had a strong positive correlation with SG. In order to industrially use bamboo strips efficiently, it is advisable to remove minimal surface material to produce high strength bamboo composites. Compression properties parallel to the longitudinal direction was significantly higher than perpendicular to the longitudinal direction. As expected, at the same panel density level, the strength properties of the fiberboard increased with the increasing of resin content. Age had a significant effect on panel properties. Fiberboard made with one year old bamboo at 8% resin content level had the highest modulus of rupture (MOR).

TITLE	3.5 Analysis And Design Of Multistory Building Subjected To Seismic Load Using Staad Pro
AUTHOR	Taha A.Rahman, Harshal M. Sonare, Sonali S. Kalpe, Neha D. Rathod, Mrunali P.Shivankar, Yash G.Dhole
ABSTRACT	Earthquake is a natural hazard that causes severe damages and losses. One of the important reasons for the failure of RC multi-story structures is its irregularity is plan. The response of buildings under seismic load as per IS codes of practice is studied. Seismic analysis of the building is as per IS 1893(Part l):2002 code. The building is modelled in 3D wing Staad Pro software. Structures have turned out to be overall engineering wonder. From past earthquakes, it is demonstrated that a significant number of structure are absolutely/somewhat harmed because of earthquake and now-a days it has turned out to be important to decide seismic reactions over such structures Structural analysis is a branch which includes in the assurance of structures with a specific end goal to foresee the reactions of genuine structures, for example, structures, spans, trusses and so on. Basic outlining requires basic investigation and seismic examination o of any structure before development. All together satisfy the prerequisite of this expanded populace in the constrained territory: the stature of building has turned out to be medium to tall structure. In this way, to guarantee wellbeing against seismic powers of multi-storied working, there is need of seismic examination study and planning quake protection structures. Amid earthquake, disappointment of structure begins from the purposes of a shortcoming and large, shortcoming happens because of geometry, mass brokenness and solidness of structure. That is the reason structures fizzle amid earthquakes generally, because of vertical abnormality. The principle target this thesis is to think about the seismic investigation of structure for static and dynamic examination in standard minute opposing casing. We have thought about the private building a G+3 storied structure for the seismic investigation and it is situated in Zone Il district in India. The base necessities relating to the basic security of structures are being secured by the method for

	setting out the base plan toads which must be accepted for dead loads, forced burdens, and other outside loadings. Total structure was analyzed by computer with using Staad. Pro software.

TITLE	3.6 Developing Fire Safety System For Gwcet, Nagpur
AUTHOR	Mr. Akshay Shende, Dashrath Urkude, Devendra Narule Kunal Funde, Kuntal Ashtankar, Piyush Ramtake, Prajyot Rakhade, Mr. Rajat Donode, Mr. Samir Dhore.
ABSTRACT	Quite often if not always, it is the occupant for no mistake of their own who fall victim to fire. Fire in any occupancy has potential to cause harm to people and severe damages to property. Fire Safety management is found to be the effective tool for assessing fire safety standards of an organization. It helps the people to identify the areas for improvement and evolve an action plan. In addition to technical risk control measures like fire prevention and fire protection the insurance protection against the property damage is also required. Fire outbreak occur as a result of "human factor", such as carelessness, negligence or simply lack of fire safety awareness. This study presents the result of investigation on fire safety management in educational buildings. The objectives of study are to identify the aspect of fire safety management that influence fire safety of high-rise building users; to establish the most critical of these aspects; and to identify methods to improve fire safety of high-rise building users. The methodology for conducting the study involved literature review, data collection and analysis of results. From this study, it is determined that the four most critical aspects of fire safety management are The High rise Building according to National Building Code, the education and training of high-rise Building users in fire safety, implementation of fire and evacuation drill procedures; and to provide clear signage indicating exit routes and location of fire safety equipment The three best methods to improve fire safety of high rise building users are to ensure that flammable materials are stored in a safe area; to conduct more educational and training programs for users; and to ensure that there are clear or "glow in the dark" signage indicating exit routes and location of fire safety equipment. It is hoped that this study will provide some useful insight on the important aspects of fire safety management and thus, help guide high-rise building users to safeguard both their life and property.

TITLE	3.7 An Experimental Investigation of replacement of course Aggregate by plastic Waste in concrete
AUTHOR	Chetan kawale,Suraj Yengalwar, Chetan Gandait,Shivani Balbudhe, Swapnil Shivawanshi, Pranaykumar Wasnik, Akash Pipare,S.V. Pathare
ABSTRACT	Due to increase in population the demand of plastic material is also increased if plastic material is formed then the plastic waste also generated. And the construction Of buildings also increased so the shortage of natural aggregate is a serious problem. To reduce both the problems of disposing of plastic waste and saving the natural aggregates we can use the generated plastic waste in construction of buildings by partially substituting the natural aggregate by plastic waste. As 100% replacement of natural coarse aggregate (NCA) with plastic coarse aggregate (PCA) is not feasible, partial replacement at various percentage were examined. Natural coarse aggregates are replaced by 5%, 10% and 15% with plastic coarse aggregates. Compressive strength of these concrete prepared with plastic coarse aggregates are tested.

TITLE	3.8 Planning of Eco friendly & Sustainable Model City
AUTHOR	Krishnaprasad Nalguntawar, Sanket kamde, Diksha Gharat, Ashwini Tapase, Pratiksha Akre, Prachi Pangekar, Aditi Barde, B.V. Deshpande
ABSTRACT	The purpose of this study is to shed light on the importance of sustainable urban planning development for communities and give a comprehensive review of key issues in terms of underpinning concepts, principles and challenges. The study will focus on a number of aspects related to the built environment, neighbourhoods and services, including the infrastructure, and public transport. Moreover, it aims to critically evaluate the most common and established frameworks of sustainable urban communities. Limitations of these frameworks are discussed, including regional variations. These are factored in a new approach for sustainable communities. The contribution of this research is to propose a scalable framework for an effective sustainable urban planning development for communities that address the gaps and the limitations of the existing models. This takes into account the core issues of urban communities including environmental, social, economic and planning perspectives. Keywords: Smart City, Sustainability, Strategic Sustainable Development, Citizen Participation, ICT, Strategic Planning Process

TITLE	3.9 Rainwater Harvesting for GWCET
AUTHOR	Vijaysingh katroliya, Pooja R. Sahare, Akshaykumar V Shende, Pragati karamkar, Tushar Yerawar ,Vipul Dongre, R.S. Arghode
ABSTRACT	As the world population increases, the demand increases for quality drinking water. Surface and groundwater resources are being utilized faster than they can be recharged. Rainwater harvesting is an old practice that is being adopted by many nations as a viable decentralized water source. Vidarbha is water scarce region. The rainfall is irregular in nature. Ground water is major source of water and that's why ground water is declining day by day. It has resulted in the alarming depletion of water level & drastic deterioration in ground water quality. In Nagpur average rainfall is below normal rainfall. This project describes a collaborative & development of affordable technologies for capturing & retaining runoff including that from roof tops and roads using this as a valuable sources of water and artificially recharge the percolation well and ultimately increase the ground water level. This can be helpful as a valuable water source in future. Development relies heavily on the availability of fresh water resources. Insufficient water supply hinders economical development as low grade water supply restricts efforts to improve the health sector and sanitation. Rainwater is available in many regions, but often it is only discharged into drainage systems or the nearest river instead of being utilized. Especially in cities, where the fresh water demand is steadily increasing, rainwater management becomes a crucial parameter for sustainable urban development. Rainwater, if discharged into the drainage systems, interacts with solid and liquid wastes and consequently becomes a liquid waste itself and an additional burden for human health, settlements and the environment. However, the negative effects of area sealing and rainwater drainage, especially decreased ground water recharge and increasing flood risks in expanding urban environments, are not understood or underestimated.

4. COMPUTER SCIENCE & ENGINEERING DEPARTMENT

TITLE	4.1 Offline Handwritten Character and Digit Recognition Using Machine Learning
AUTHOR	Prof. N.I. Jagtap, Ms. Ruchika S. Aglawe, Ms. Namrata S. Nimje, Ms. Pritika J. Shahu, Miss. Kiran H. Shillar.
ABSTRACT	Now a day Handwritten character Recognition (HCR) is major remarkable and difficult research domain in the area of Image Processing. Recognition of Handwritten English alphabets have been broadly studied in the previous years. Presently various recognition methodologies are in well-known utilizes for recognition of Handwritten English alphabets(character). Application Domain of HCI is digital document processing such as mining information from data entry, cheque, application for loans, credit cards, tax, health insurance forms etc. During this survey we present an outline of current research work conducted for recognition of Handwritten English alphabets. In handwritten manuscript there is no restriction on the written technique, different in size and shape of letters, angle. A variety of recognition methodologies for handwritten English alphabets are conferred here alongside with their performance. in this project, an impact of machine learning in the domain of character identification. Traditional machine learning techniques like a neural network, support vector machine, random forest, etc. have been used as classification techniques. Now with the advancement in the field of computer hardware and efficient research in AI have given emergence to deep learning algorithm. Recent article is using deep learning for character identification. They also depict how various function improve the performance in the field of pattern recognition over time. Deep learning algorithm are used to model high level abstraction in data. Character and deep recognition are a combination of deep learning and neutral network algorithm which uses Tensor Flow tool as an interface to develop a model. This project describes the recolonization of handwritten scanned digit where the input is given by the user and display the output as a digital and referring as the input providing according by using Machine Learning methods with the help of TensorFlow, MNIST/EMNIST database, Python thus the image may be

	sensed by the system as the user provides bare handed input to it and then the system shows the respective recognition accordingly

TITLE	4.2 Cars and Pedestrian Detection
AUTHOR	Mr. Akshay Deshmukh, Mr. Sanchit Gupta, Mr. Piyush Katolkar, Ms. Ambalika Donge, Mr. Abhishekh Tipre
ABSTRACT	Cars and Pedestrian Detection are widely applied to intelligent video surveillance, intelligent transportation, automotive driving or driving assistance system. We select Open CV as the development tools for implementation of cars and pedestrian detection in a video segment. This application will develop in Python using Open CV. Vehicle Tracking is process of locating a moving vehicle using a camera. Capture vehicle in video sequence from surveillance camera is demanding application to improve tracking performance. This technology increasing the number of applications such as traffic control, traffic monitoring, traffic flow, security etc. The estimated cost using this technology will be very less. Video and images have been used for traffic surveillance, analysis and monitoring of traffic condition in many cities and urban areas. Various methods for speed estimation are proposed in recent years. All approaches attempt to increase accuracy and decrease cost of hardware implementation. The aim is to build an automatic system that can accurately localize and track the speed of any vehicle that appear in the aerial video frames. The main aim of object tracking is to relate the target object as well as the shape or features, location of the project in successive video sequences. Subsequently, the classification of object and its detection is essential for object tracking in computer vision application.

TITLE	4.3 Development of smart driving system to optimize traffic flow
AUTHOR	Ms. Mrunmayee Gaikwad, Ms. Bharti Meshram, Ms Triveni Mundharikar, Ms Bhumika Mendhe
ABSTRACT	Traffic management on road network is an emerging research field in control engineering due to strong demand to alleviate congestion on express ways. Framework for smart driving system using traffic measurement those are likely to be available from vehicle infrastructure integration system, in which vehicle and infrastructure devices communicate to improve mobility and safety. In the proposed system, the model predictive control will be used to optimize the traffic flow. Automotive control, connected vehicles environment, model predictive control, co- operative adaptive cruise control system and beacons messages for warning signals will be used to achieve the smart driving system. Intelligent system will take optimal decision based on information as current vehicles, velocity, acceleration, time stamp and unique identifier of the vehicle for flow and density. The proposed system may support the smart driving assistance functionality provided the vehicle are equipped with smart driving system. Positive contribution is to develop a system of multiple vehicles or a vehicle platoon for further improvement of traffic.

TITLE	4.4 Credit card Fraud Detection Using Machine Learning
AUTHOR	Ms. Poonam Tandon, Ms. Shivani Bawankule, Ms. Vaishnavi Bhaik, Mr. Kishor Sisodiya
ABSTRACT	Fraud in credit card transactions is unauthorized usage of an account by someone other the owner of that account Necessary prevention measures can be taken to stop this abuse and the behaviour of such fraudulent practices can be studied to minimize it and protect against similar occurrences in the future. In other words, Credit Card Fraud can be defined as a case where a person uses someone credit card for personal reasons while the owner and the card issuing authorities are unaware of the fact that the card is being used. It's critical for credit card firms to be able to spot fraudulent credit card transactions so that customers aren't charged for things they didn't buy. Such issues can be solved with Data Science, which, together with Machine Learning, cannot be underestimated. With Credit Card Fraud Detection, this project demonstrates the modelling of a data collection using machine learning. Modelling prior credit card transactions with data from those that turned out to be fraudulent is part of the Credit Card Fraud Detection Problem. The model is then used to determine whether or not a new transaction is fraudulent. Our goal is to detect 100% of fraudulent transactions while reducing the number of inaccurate fraud classifications. Credit Card Fraud Detection is an example of a common classification sample. On the PCA converted Credit Card Transaction data, we concentrated on evaluating and pre-processing data sets, as well as deploying different anomaly detection techniques such as the Local Outlier Factor and Isolation Forest method. Fraud detection involves monitoring the activities of populations of users in order to estimate, perceive or avoid objectionable behaviour, which consist of fraud, intrusion, and defaulting. This is a very relevant problem that demands the attention of communities such as machine learning and data science where the solution to this problem can be automated. This problem is particularly challenging from the perspective of learning, as it is characterized by various factors such as class

	imbalance. The number of valid transactions far out number fraudulent ones. Also, the transaction patterns often change their statistical properties over the course of time. These are not the only challenges in the implementation of a Real-world fraud detection system, however. In real world examples, the massive stream of payment requests is quickly scanned by automatic tools that determine which transactions to authorize.

TITLE	4.5 QR Based Attendance Monitoring Application
AUTHOR	Ms. Poonam Tandon, Ms. Shivani Bawankule, Ms. Vaishnavi Bhaik, Mr. Kishor Sisodiya
ABSTRACT	In this era of technology smartphones play a significant role in our day-to-day life. Nowadays smartphones can solve most of the problem very quickly and easily. Smartphones are becoming more preferred companies to users than desktops or notebooks. It has made life of every person simple and easier with different social app, commercial app, problem solving app, app for education and marketing etc. Followed by the technology the project purposed a smart android application that will handle a problem for recording the attendance. The proposed app is a couple of two applications, one for generating the QR Code by entering the student details and second application for taking the attendance and generating the attendance in CSV or XLS format. The teacher will need to scan the QR code of the particular student in order to confirm their attendance. The project discusses how the system verifies student identity to eliminate false registrations. This android app deals with the management and evaluation of attendance of all students. The student QR code will be provided to professor for taking their attendance. The professor handling the subjects is responsible to mark the attendance for all students of the group or class. The attendance will be marked as 0 and 1, 0 for absent and I for present in the database of the particular student row in the table. The student attendance reports will be generated in CSV and XLS sheet for further use. This system helps to update daily attendance according the lecture schedule with smart technology. It will also generate daily and monthly report of attendance of students. Using this technique to speed up the process of taking attendance by any institute instructor would save lecturing time and hence enhance the educational process. This system is also used when the events and forums in our colleges. That means whenever the any type of event or forum was organized in the college then this system is help for us.

TITLE	4.6 Women Security Using Android App
AUTHOR	Ms. Shivani Deshkar, Ms. Shraddha Laxane, Ms. Payal Lendhare, Ms. Poonam khade
ABSTRACT	Now-a-days women harassment is increasing and women and children safety is a big question mark. To overcome this problem, this paper explores the IOT concepts such as measuring the body temperatures, heart beat rates pulse rates by sensors to monitor their conditions and alerts nearby location police station or relatives. Since, there are some web or mobile applications for women safety and emergencies, it does not work at all situations. The lady cannot stay on the gadget at all the time. Instead, she could be monitored by wearing smart watches, etc. It could be accessed by wireless technologies like GPS, GSM, GPRS, and Wi-Fi and monitored by nearby devices.

5. MECHANICAL ENGINEERING DEPARTMENT

TITLE	5.1 Design and Implementation of Automatic Crimping Machine
AUTHOR	Mr. Ankit Khade, Mr. Hemant Wanjari, Mr. Hemant Shrivas, Prof. Shubham Khorgade
ABSTRACT	Crimping work is the most popular worldwide among all the devices of joining metals and even some non-metals. The great importance of crimping is the proper design of crimping machines, in order to increase their performance and productivity proper design is very essential. The main aim of the paper is to design and develop a crimping machine working condition. The crimping machine has various parts involved such as hydraulic cylinder, hand pump, tool holing blocks, ferrule crimping component, and base plate hose, and the end fitting coupling. As we know that time and human power are the important concern in the industries so there is a requirement to design and develop a crimping machine which will reduce the required human effort and make their task easy. This paper proposes an automatic machine that can be used for the crimping operation of a wire. The idea is to develop a machine that can perform the crimping operations on one setup thus reducing the space and labor cost. Presently these operations are performed manually at a small-scale level which can be performed automatically using this machine. Individual machine setup for crimping is not required thus, saving the cost and maintenance issue. The automatic mode of operation reduces human effort and manufacturing time while increasing the manufacturing rate of the wires. Keywords: Crimping Machine, Crimping Component.

TITLE	5.2 Design and Development of Shredder Machine for Waste Recycling and Management
AUTHOR	Mr. Mayur S. Chafle, Mr.Shubham D.Tandulkar, Mr.Shubham K.Damahe, Mr.Sumed M.Tembhurkar, Mr.Tejendra U.Mule
ABSTRACT	The conservation of energy and sustaining clean environment had been a focus for attention. Waste material releases hazardous substances into the environment. The shredding machine had played considerable role in the waste recycling process towards solving the problem associated with waste and the harvesting of the much energy that the waste material could provide for human need. In this project a 4Kg processing shredding machine for waste plastics was designed and fabricated. The drive mechanism for the machine combined the direct transmission system in which the rotation from machine shaft has been supplied through rigid coupling to driven shaft. This leads to minimize the power loss. The data obtained from the design analysis of the shredder machine was used to fabricate the machine for improve energy utilization of the prime mover through optimizing the design parameters of the drive mechanisms. Keywords: Plastic, shredder, shaft, frame, cutting blade , Design and fabrication

TITLE	5.3 Design and Fabrication of Autoloader for Center less Grinder
AUTHOR	Mr. Panay V. Ukunde, Mr. Amolsingh Gour, Mr. Rajesh Thakur, Mr. Sharique Sheikh
ABSTRACT	In-feed center less grinding technique offers a major contribution to the industries. This is the alternative in-feed center less grinding technique using regulating wheel. Mainly center less grinding is divided in three types, and those are End feed, in-feed and through feed Center less grinding. This paper mainly deals with low cost automation on in-feed Center less grinding machine using regulating wheel suitable for multiple in-feed type jobs. It deals with the development of a Center less grinding automation technique for the job having multiple diameter, steps or projections on the job. In this new method of automation hydraulic cylinders, sensors besides a control panel, pressure gauge, and a hydraulic power pack added. Relay control is used for the electrical control. The objective of this work is to reduce the cycle time, consistency in the quality of job and to reduce the production cost. In thisfocus is concentrated on compact center less grinding unit. The higher machining accuracy is obtained. Results showed improvement in the surface roughness and productivity of the job. Keywords:-Center less grinding, regulating wheel, in feed, Automation, Hydraulic power.

TITLE	5.4 Design, Fabrication and Performance Analysis of Cross Flow Regenerative Evaporative Cooler
AUTHOR	Mr.Bhavik D. Talware , Mr.Harshal S. Gourikar Mr.Kunal D. Lalzare. Mr. Nitin H. Doye
ABSTRACT	As per the technical evolution and latest trends taken into consideration here effectively created cross flow regenerative evaporative cooler with multi stage (advanced cooling system) can be useful for industry, home, schools and colleges, hospital, factories, auditoriums, shopping malls. In this project cross flow indirect type heat exchanger has been designed and fabricated. This arrangement allows the working air to be pre-cooled before entering the wet channel. This complete system uses battery of 12v DC and 8 amp so complete system able to work on battery so no chances of shock. This system uses sprinkle arrangement of water so as to generate advance cooling. This complete system having multiple arrangements these are Air inlet and outlet arrangement. The REC has to be design and fabricated to deliver large amount of supply air flow rate and cooling capacity. In this project we study the REC having higher cooling capacity and low energy consuming device. Keywords: Regenerative Evaporative Cooler (REC), Indirect and Direct cooling. Heat Exchanger.

TITLE	5.5 Design & Fabrication of Solar Operated Car
AUTHOR	Mr. Sahil D. Bhadke, Mr. Manish H.Bawankule, Mr. Ashish A. Gupta, Mr. Megharaj V. Thaware
ABSTRACT	This work, focused on an idea about solar car technology which solves the major problem of fuel and pollution in present days. Determine how feasible widespread change to solar would be in future with all information taken into account, concluded that hybrids have several advantages as fuel efficient, low pollution. In the present work a complete drawing and drafting of hybrid solar car have been prepared using CATIA V5R19 software. After complete analysis of this drawing by using ANSYS 16.0 it is find out bear capability of load, stress, and strain of front & rear collision of car frame. A completed data are analysed to examine the technical aspects of the hybrid car technology. Overall, solar technology has a lot of potential in the distant future, but as for right now they are not a significant applied over today's internal combustion engine. The overall objective of the project is to design and fabricate a solar powered electric vehicle. The objective of the project thus far was to produce a detailed first iteration design with planning materials. The main component to build a solar car is the solar panel, Chassis, Wheels, Suspension system, braking system, steering system, chain drives etc. The solar cells collect a portion of the sun's energy and store it into the batteries of the solar car. Before that happens, power trackers converts the energy collected from the solar array to the proper system voltage, so that the batteries and the motor can use it. After the energy is stored in the batteries, it is available for use by the motor & motor controller to drive the car. The mechanical motion was transferred to wheels through chain drive which leads to cheap and effective transmission. Finally, fabricated at concept the solar operated car with the help of modified transmission system and energized with solar energy to run it. Keywords: Solar car, solar technology, motor controller, batteries.

TITLE	5.6 Design and Development of Insulating Powder Testing Apparatus
AUTHOR	Mr. Ankit Ghode, Mr. Abhay Rakhde, Mr. Rahul Katre, Mr. Rushab Kamble, Mr. Aakash Ashtankar
ABSTRACT	Materials that offer high resistance to the flow of heat are called as heat insulators. Heat insulators find extensive application in the systems where heat losses are to be minimized such as heat transmission lines in power plants, furnaces etc. The removal of heat from system components is essential to avoid damaging effects of burning and heating. Therefore, the enhancement of heat transfer is an important subject in thermal engineering. In many heat transfer equipment, heat loss to the surroundings is to be minimized to the maximum economy. In such cases, they are lagged by materials of lower thermal conductivity, which are referred to as insulators. Powders have the advantage of taking any shape between any two conforming surfaces. In addition, its thermal conductivity will be much lower than that of the solid from which it was made. This is because of the large air space between the particles, which have very low values of thermal conductivity. Thermal conductivity of such material is a complicated function of geometry of the particles, thermal conductivity of the particles, the nature of heat transfer between the air particles which depends of the magnitude of the air space and temperature etc. Thus, it is very difficult to estimate the thermal conductivity in most practical cases. The set up provided is one such apparatus to find thermal conductivity. Thermal insulation is one of the major requirements for various industrial applicationssuch as welding, forging, machining, electrical circuits and automotive etc. Thermal insulators are often used in heat exchanging devices for increase in heat transfer. Keywords- Insulating Powder, Thermal Insulating Materials, Thermal Conductivity, Insulation, Heat Resistance, Thermal Insulating Powder Tester, Thermocouple.

TITLE	5.7 Design and Fabrication of Sugar Globules Making Machine
AUTHOR	Mr. Amit H. Pall, Mr. Pranjali P. Zade, Mr. Akshay V. Nimje, Tushar K. Kharwade
ABSTRACT	As progress of Medical Science increasing day by day likewise the side effect of allopathic medicines are also being seen in the world. Looking to the adverse effect of allopathic medicines population of this era is moving towards the Ayurveda &Homeopathic Medicines because it is well known that adverse effect of homeopathic &Ayurveda medicines are quite low. Homeopathic globules are commonly used in clinical practice, while research focuses on liquid potencies. Various machines have been used over the years to prepare homeopathic medicines. Although these machines follow the same principles, i.e. energetically mixing the medicines and diluting them significantly, their mode of operation is different from each other. Potentization, consisting of serial dilution and succession, is a key step in the manufacture of homeopathic medicines. Originally prescribed as a manual process. Several attempts at mechanization have been published, patented and commercialized in order to remove the human element and introduce reproducibility without drudgery. Various machines have been used over the years to prepare homeopathic medicines. Although these machines follow the same principles, i.e. energetically mixing the medicines and diluting them significantly, their mode of operation is different from each other. We have tried to design & fabricate the compact machine for making sugar globules by extruding nylon roller and also we have tried to reduce the total cost of this machine required for large set up. It is observed that the small globules of sugar are coming out from the lower part of this machine when vermicelli is placed between the two rollers successfully. Hence this project is best suited for small clinics, pharmacy collages &small pharmacies as well. Keywords: Globules, scattering beads, household sugar, homeopathic.

TITLE	5.8 Design and Fabrication of Mini CNC Milling Machine
AUTHOR	Mr. Vivek K. Potreddiwar, Mr. Raj D. Bansod, Mr. Vikrant P. Kakde, Mr. Vijay D. Shastrakar, Mr.Vrushabh M. Palandurkar
ABSTRACT	This thesis aims to explore the theories and techniques behind procedures of developing a high precision cost-effective mini CNC milling machine. This newly designed machine tool can be widely used in electrical and medical industry for making small parts and engraving small features. Various structures were explored and compared during the design stage. Different commercial products were carefully selected and purchased from the Chinese market. PMAC from Delta Tau was used as the motion controller. Different setup and configuration issues using PMAC were explored. A newly designed motion controller using Arduino and TI MSP430 was also tested and implemented as a replacement of PMAC to reduce cost. Fabricated prototype machine was calibrated and tested under various self testing procedures to meet industrial standard. Comprehensive cost analysis and profit estimation was conducted after completion. Keywords:- Arduino Uno micro-controller board, Flexible coupling, GRBL software, NEMA 17 Stepper motor, Screw rods, bearings and T8 lead screw.

TITLE	5.9 Performance Analysis Of Noodles Making Portable Axial Machine
AUTHOR	Prof. V. S. Nikam , Mr. Nilesh Bule, Mr. Pratik Konde, Mr. Nikhil Ghongade, Mr. Zuber Sheikh
ABSTRACT	Noodles are of the staple food consumed in many Asian countries. Instant noodles have become internationally recognized food and word wide consumption is one rise. Whenever, we think about noodles we remember our part experience where our mother making had been noodle (savage) by their hand in long strips and strings. Now in modern era we have proposed automation and giving relief to those hand practice making noodle by taking lot of efforts .we have Design and Fabrication of Axial noodle making machine • this machine will help us to makes noodles and its similar product like pasta , akki savage with different diameter with greater quantity and accuracy with the underestimation of labor cost, space, time, effort and cotton of wastage. The proposed Noodles making machine will forced out work through the well-shaped dice in the axial direction by the extruder which held and rotates in barrel or cylinder. Here the work will produce parallel to base of machine hence its named Axial Noodle making machine • The working of this similar to the squeezing the toothpaste from paste pack. On the bed rock on this principle the dough will be squeezed chronologically by the extruder which rotates with uniform speed. This whole mechanism will be drive by the heavy duty D.C. Motor. The main feature of the proposed model is to start drawing work by feeding 400gm of dough which is itself a proof of its compactness. Keywords: Extruder , selection of flour, DC motor, SMPS kit & timer belt Pulley mechanism