ISSUE 3

JUNE 2017 - MAY 2018

DEPARTMENT OF MECHANICAL

MECHANICUS

K. E. Society's
Rajarambapu Institute
of Technology,
Rajaramnagar.
(An Autonomous Institute)
(Diploma 2nd Shift)
Islampur, Dist. Sangli,
Maharashtra, India - 415414.
Tel : +91 - 2342 – 220329 ,

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION , MUMBAI HAS AWARDED

Excellent

GRADE TO DEPARTMENT OF MECHANICAL ENGINEERING, RIT, RAJARAMNAGAR (DIPLOMA 2ND SHIFT) FOR THEIR PERFORMANCE IN A.Y. 2017-18

JOBS WITH SMILE

From the Editor's

Dear Readers, Greetings, for this academic year department achieved 100% placement and also witnessed a higher number of Industries visiting the campus, I'm sure you'll go through it and join us in cherishing this milestone. Going a step further department also put in streamlined efforts to offer placement assistance to those who felt a dearth of the same. Department not only organized two state level technical events but also celebrated Engineer's Day and Teacher's Day by arranging Quiz & Teaching competition. Thankyou.

Prof. V. V. Jadhav
(Editor, Mechanical Engg. Dept.)
(Diploma 2nd Shift)

Department Vision

To become a center of excellence in the field of Mechanical Engineering, producing innovative and creative Mechanical Engineers to meet the ever changing industrial demands and social needs.

Department Mission

To transform the students and faculty of the department into highly motivated and cultured engineers, technologist and entrepreneurs who will contribute to uplift the society in collaboration with industry and academia.

Article of Faith

Programme Educational Objectives (PEOs)

PEO 1. Provide socially responsible, environment friendly solutions to Mechanical engineering related broad-based problems adapting professional ethics.

PEO 2. Adapt state-of-the-art Mechanical engineering broad-based technologies to work in multidisciplinary work environments.

PEO 3. Solve broad-based problems individually and as a team member communicating effectively in the world of work.

Program Outcomes (POs)

PO 1. Basic knowledge: Apply knowledge of basic mathematics, sciences and basic engineering to solve the broad -based Mechanical engineering problems.

PO 2. Discipline knowledge: Apply Mechanical engineering knowledge to solve broad-based mechanical engi neering related problems.

PO 3. Experiments and practice: Plan to perform experiments and practices to use the results to solve broad-based Mechanical engineering problems.

PO 4. Engineering tools: Apply relevant Mechanical technologies and tools with an understanding of the limita tions.

PO 5. The engineer and society: Assess societal, health, safety, legal and cultural issues and the consequent re sponsibilities relevant to practice in field of Mechanical engineering.

PO 6. Environment and sustainability: Apply Mechanical engineering solutions also for sustainable development practices in societal and environmental contexts.

PO 7. Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Mechanical engineering.

PO 8. Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

PO 9. Communication: Communicate effectively in oral and written form.

PO 10. Life-long learning: Engage in independent and life-long learning activities in the context of technological changes also in the Mechanical engineering and allied industry.

Program Specific Outcomes (PSOs)

PSO 1. Modern Software Usage: Use latest Mechanical engineering related softwares for simple design, drafting, manufacturing, maintenance and documentation of mechanical engineering components and processes.

PSO 2. Equipment and Instruments: Maintain equipment and instruments related to Mechanical Engineering.

Department Activities

A number of programs like Guest Lectures, Industrial visits and training workshop from various Institutional, Organization and Industrial Experts in the field were organized by department for in-depth understanding of the subjects.

Expert's Talk

Expert Lecture by Prof. A. M. Mulla, On "Basic Electronics & Mechatronics"

Expert Lecture by Prof. S. R. Kumbhar, On "Automotive Electronic Systems"

Guest lecture on Personality Development by Mr. I. J. Patil (Winning Edge Consultancy, Miraj)

Guest Lecture on "Design Software's & Its Applications" by Mr. Naresh Shingate

Expert Lecture by Mr. Arvind Paranjape ,Asst. General Manager (Retd), Tata Power,Mumbai

Expert Lecture by Mr. Suhas Gadekar, Director, Prolific System & Technology

Confluence with Industries

Industrial visit to Tulja Industries

Industrial Visit to Quality Castings

Industrial Visit to Anurag Industries

Industrial Visit to Omkar Engineering.

Industrial Visit to Power Control Systems

Industrial Visit to Jagdish engineering works

Welcome “ Freshers ”

Mechanical Department welcomed new faces of Diploma First Year & Direct Second Year Students. Academic Year 2017-2018.

Various Student Centred Activities

Farewell Function

State Level Technical Events

Interactions with Parents

Tree Plantation

“Street Play” - Indepenence Day

Teacher’s Day

Engineer’s Day

Student's Corner

Arduino LED Auto Intensity Control

Sujit S. Shinde
T.Y. Mechanical
Roll No-4321

INTRODUCTION:

Power consumption and cost effectiveness. Automation is intended to reduce man power with the help of intelligent systems, Power saving is the main consideration forever as the source of the power (Thermal, Hydro etc...,)are getting diminished due to various reasons The main consideration in the field of technologies are Automation. Street lighting is a particularly critical concern for public authorities in developing countries because of its strategic lighting wastes significant financial resources every year, and poor lighting can cause accidents .Use of Energy efficient technologies can reduce cost of the street lighting drastically and also provide excellent efficiency. We want to save power automatically instead of doing manual, so it's easy to make cost effectiveness. This saved power can be used in some other applications, such as in irrigation, villages, towns and many other fields. we can design intelligent systems by using Arduino to control intensity of street lights. The idea of designing a new system for the streetlight by using LED that do not consume huge amount of electricity and illuminate large areas with the highest intensity of light whenever required

TECHNIQUES USED IN ARDUINO:

Manual control is prone to errors and leads to energy wastages and manually dimming during midnight is impractical. In this paper two kinds of sensors will be used which are light sensor like LDRand photoelectric sensor. The light sensed will detect darkness to activate the ON/OFF switch, so the streetlights will be ready to turn on and the photoelectric sensor will detect movement to activate the streetlights. LDR, which varies according to the amount of light falling on its surface, this gives an inductions for whether it is a day or night. The photoelectric sensor will be activated only in the night. If any object crosses the photoelectric beam, a particular light will be automatically ON. By using this as a basic principle, the intelligent system can be designed for the perfect usage of streetlights in any place. The lighting system consists of Arduino board, LDR, photoelectric sensor and other electrical equipment's. By using the LDR we can operate the lights, i.e. when the light is available then it will be in the OFF state and when it is dark the light will be in ON state. It means LDR is inversely proportional to light, when the light falls on the LDR it sends the commands to the Arduino board that it should be in the OFF state then it switch OFF the light, the photoelectric sensor will be used to turn ON or OFF the light according to the presence or absence of the object. All these commands are sent to the controller then according to that the device operates. We use a mostly switch as a relay to act as an ON/OFF switch.

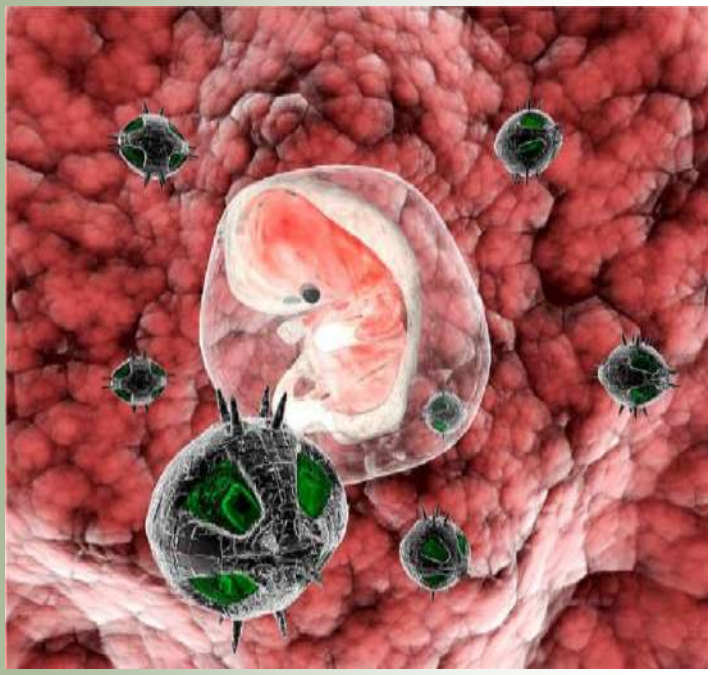
Student's Corner

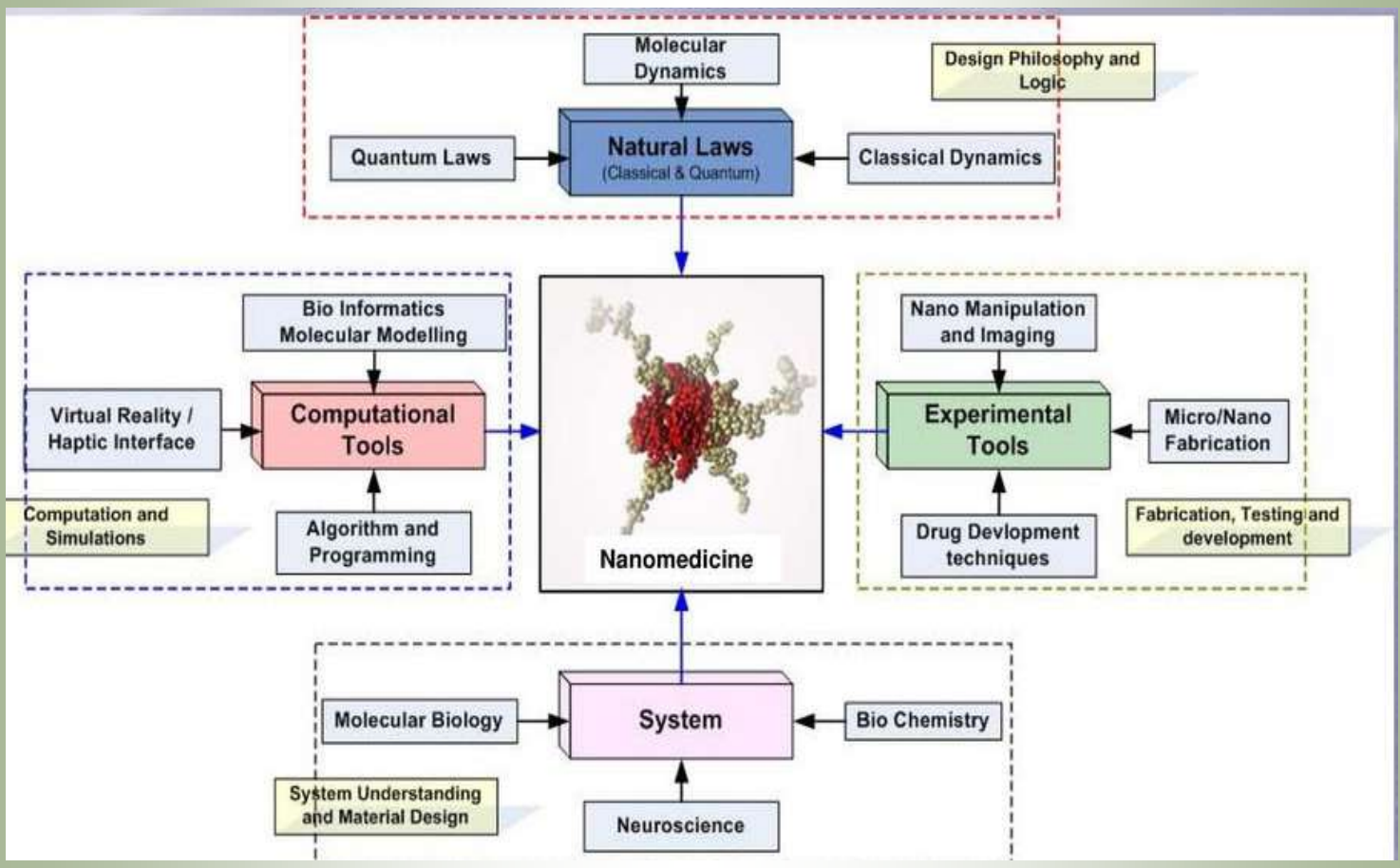
Nano Robot - Future of medicine

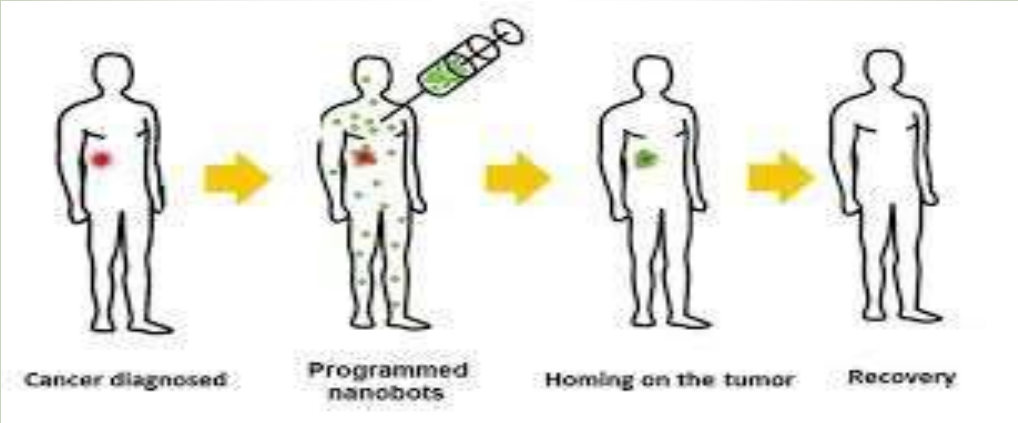
Pranav P.Sagare
SY Mechanical
Roll no 4211

Nanorobotics is the technology of creating machines or robots at or close to the microscopic scale of a nanometer (10-9 meters).More specifically, nanorobotics refers to the still largely hypothetical nanotechnology engineering discipline of designing and building nanorobots, devices ranging in size from 0.1-10 micrometers and constructed of nanoscale or molecular components. Nanorobots will be basically used for the treatement in field of nanomedicine. An intresting utilization of nanorobots may be their attachment to transmigrating inflammatory cells or WBC, to reach inflamed tissues and assist in their healing process. A cream containing nanorobots may be used to cure skin disease. It can be also used for early diagnosis and targeted drug delivery for cancer, biomedical instrumentation, surgery, pharmacokinetics, monitoring of diabetes, and health care. The devices could provide an effective long-term drug-free symptomatic treatment for asthma. The nanorobots can be used to prevent most heart attacks. Thus nanorobots applied to medicine hold a wealth of promise from eradicating disease to reversing the aging process (wrinkles, loss of bone mass and age-related conditions are all treatable at the cellular level); nanorobots are also candidates for industrial applications. They will provide personalised treatments with improved efficacy and reduced side effects that are not available today.

“Nanomedicine is the process of diagnosing, treating, and preventing disease and traumatic injury, of relieving pain, and of preserving and improving human health, using molecular tools and molecular knowledge of the human body.”





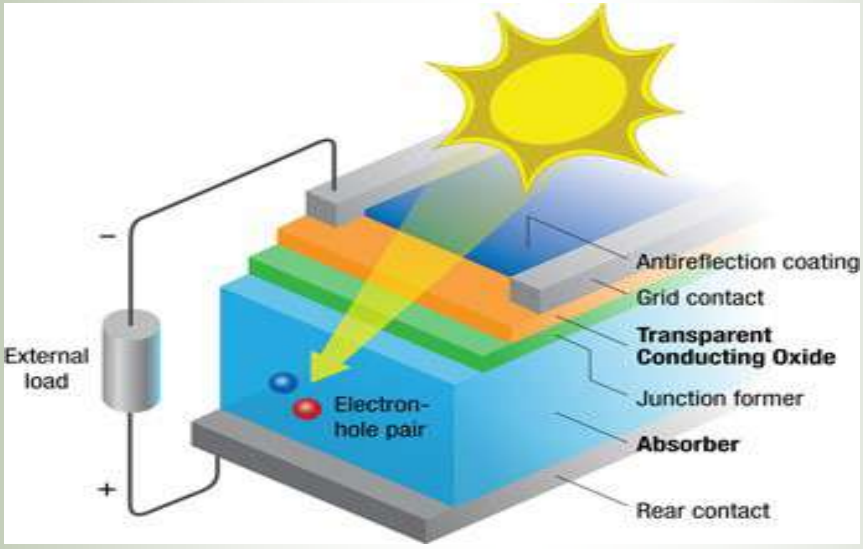


The health care industry of today is focusing on developing minimally invasive techniques for diagnosis, as well as treatment of ailments. The most promising development in this field involves marriage of the latest nanomaterial science and robotics technology with biological knowledge : Nanorobotics mainly focusing on health care , though this is a nanoscopic fraction of the scope of this technology.

organic Solar cell

Amit P. Bhosale
SY Mechanical
Roll no :- 4235

In an impressive feat of engineering, scientists in Denmark have devised a rapid, scalable and indus-trially viable way to manufacture large sheets of flexible organic tandem solar cells. Their successful application of roll-to-roll processing is a significant achievement for this emerging renewable technol-ogy. An Organic PhotoVoltaic (OPV) solar cell is a polymer-based thin film solar cell. OPV solar cells have been the focus of much research as they are lightweight, flexible, inexpensive, highly tuneable and potentially disposable. They are also unparalleled in the number of times that they can pay back the ene rgy used in their manufacture.

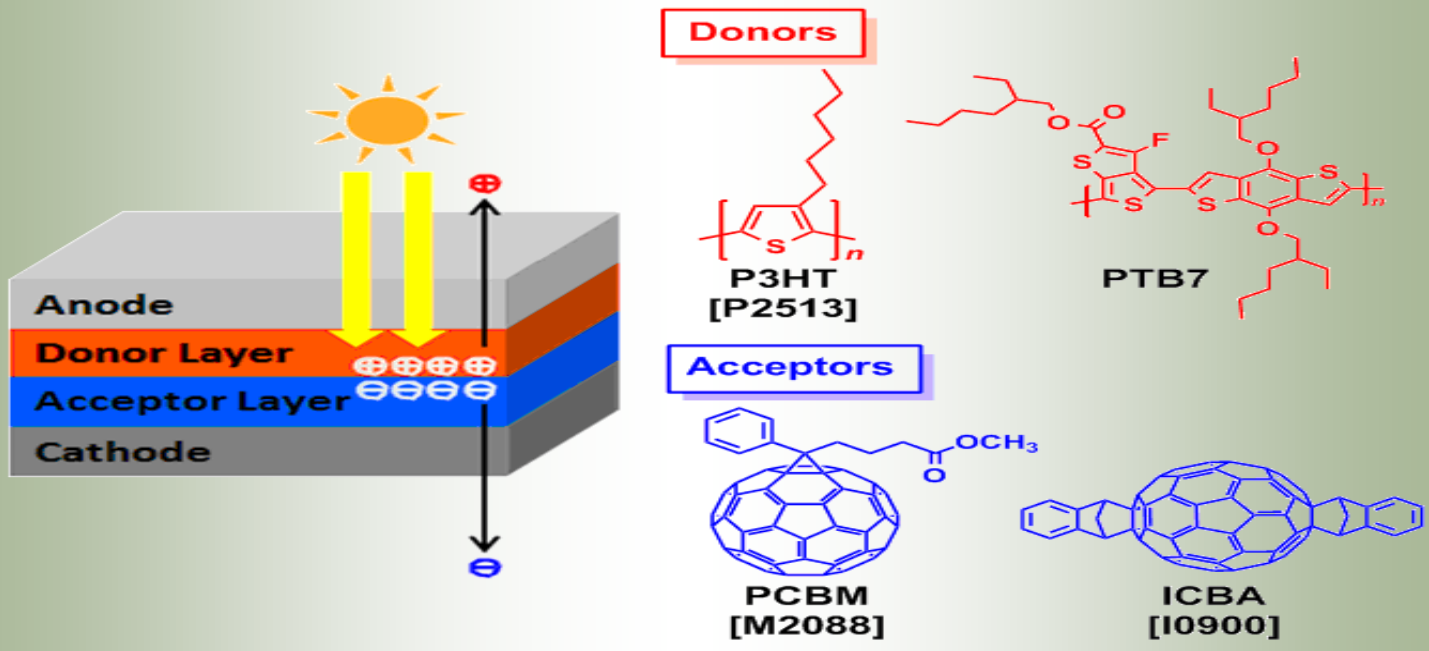


In the quest to improve the efficiency of OPVs, which, in addition to operational lifetime, is current-ly their key limitation, various new materials, processing methods and device architectures have been thoroughly investi-gated.

Among these is the tandem cell, where multiple junctions are stacked upon one another. This can in-crease the efficiency of the cell by not only increasing the number of junctions, but, along with careful selection of complementary materials, can make it possible to harvest photons from a broader region of the spec-trum. However, this more complicated architecture renders their manufacture significantly more challeng-ing.

Frederik Krebs and his research team at the Technical University of Denmark are specialists in renew-able energy technologies, particularly OPVs. For the first time they have demonstrated the successful roll-to-roll manufacture of tandem OPV modules, each comprised of a stack of 14 discrete layers, which are rapidly print-ed, coated or deposited one on top of another by a machine reminiscent of a printing press.

The experiment was carried out in simple conditions and is extremely fast, with a single solar cell module being printed onto blank foil each second. Most importantly, the process is relatively cheap and completely scalable, with a high technical yield .



If I have made a kilometre of solar cells, then I am not interested if one module has an efficiency of 10% and the rest are 2% – I think what is important is what you can make for the public,' says Krebs. 'I am the guy that makes a lot of it and tries to look for the average and what is practical, and then there are the other guys that look at what is obtainable. Everybody has their role to play and hopefully we will meet some day, probably somewhere in the middle.'

'The performance from these fabricated devices has a long way to go to achieve commercial viability,' states Seth Darling, an expert in solar energy conversion at Argonne National Laboratory, US, 'but this work clearly shows that the process itself is feasible and has the potential for genuine market impact. 'The future direction of this research now lies in materials development, and in the optimization of each layer for the manufacturing process'.

Placements & Out house Interactions by Department

Sr. No.	Name of Company	No. of Students Placed	Package (LPA)
1	Bharat Forge Ltd, Pune	09	1.77 LPA
2	Essel Pro-Pack Extraordinary Packaging, Mumbai	05	1.14 LPA
3	Endurance Technologies Ltd, Aurangabad	05	1.14 LPA

Research & Publication

Sr. No.	Name of the Faculty	Title of Publication
1.	Mr. J. J. Pharne	Outcome-based education- developing and tracing the efficacy of revision tools
2.	Mr. V. V. Jadhav	Outcome-based education- developing and tracing the efficacy of revision tools
3.	Mr. N C Gaikwad	An Experimental Investigation of effect of weld geometry on natural frequencies of welded plates
4	Mr. V. B. Choudhari	An Experimental Investigation of effect of weld geometry on natural frequencies of welded plates

Training/ Workshop/ Seminar / Conference attended by Faculty

Sr. No.	Name of the Faculty	Module description	Contributing Host
1.	Mr. V. V. Jadhav	Basic Pneumatic	Festo India Pvt. Ltd,
2.	Ms. K. S. Kulkarni	Power Plant Familiarization at Dahanu Thermal Power Station, Dahanu	Reliance Infra. Ltd.
3.	Ms. S. M. Waghmare	Power Plant Familiarization at Dahanu Thermal Power Station, Dahanu	Reliance Infra. Ltd.
4.	Mr. J. J. Pharne	Basic Level Pneumatics Course	M/S Festo India Pvt. Ltd.
5.	Mr. R. S. Mali	Industrial Training Program	KEC International

OUR TOPPERS A.Y. 2017 -18

SECOND YEAR

1st	SAGARE PRANAV P.	85.33
2nd	PATIL VISHWAJEET S.	79.22
3rd	MASAL SOURABH S.	79.00

THIRD YEAR

1st	SHINDE SUJIT S.	85.82
2nd	PATIL NIKITA S.	83.12
3rd	BALLAL RUSHIKESH R.	81.53