



बी० आई० टी० सिन्दरी, धनबाद, झारखण्ड  
**B.I.T Sindri, Dhanbad, Jharkhand**  
(Higher Technical and Skill Development, Govt. of Jharkhand)

# MECHAZINE

DEPARTMENTAL NEWSLETTER

(Department of Mechanical Engineering)

1<sup>ST</sup>  
EDITION

APRIL 2020

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DR. DK SINGH  
Director

## CO-PATRON

DR. S.K. SINGH  
Head, ME

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**FROM THE DIRECTOR'S DESK****Dr. D.K SINGH**

**“I am vainglorious in introducing you all this commendable departmental newsletter of the department of Mechanical engineering. This newsletter describes the details of this ameliorative department of the institution.”**

The Department of Mechanical Engineering was established in the year 1949 when the institute was born. It has well equipped laboratories required for undergraduate and postgraduate programs. The vision of the department is to provide valuable resources for industry and society through excellence in technical education and research in mechanical engineering with moral values for the economic and sustainable growth of the country.

BIT Sindri is an evocative name which projects the image of pioneer institute that has been acclaimed worldwide for imparting competent technical knowledge and clubbing academic excellence with effective technical skills. The institute has been developing both in infrastructure and academics in order to be capable of catering to this smarter and more technically aware set of graduates. Recently, our institution stood first at national level with our faculty members bagging 21 projects under CRS scheme by the AICTE. May all the pupils prove to be assets for the state and nation as well just the way they are for the institute.

## FROM THE HOD'S DESK



**Dr. S.K SINGH**

Welcome to the department of Mechanical Engineering at BIT Sindri, Dhanbad. We started our journey in the year 1949 when the institute was born. We have a strong undergraduate program in Mechanical Engineering. At the postgraduate level, we offer M.Tech Programme with specialization in Heat Power, Machine Design and Production technology. The sanctioned student intake of

B.Tech and M.Tech programme are 105 and 75 per year respectively. The department is having well equipped laboratories required for undergraduate and postgraduate programmes.

We have state of the art **SIEMENS lab** consisting of **3D Printing, Advanced Manufacturing lab, Robotics Lab, paint shop, CNC Lathe, spot welding** etc. we have dynamic and large number of faculty members qualified from IITs & NITs with well experienced support staff. That gives a wide range of Technical expertise.

We provide our students opportunities to engage in experiments, design work, project work, industrial training, seminars etc. to enhance their learning process which is very vital for holistic and quality engineering education..

I have great pleasure and pride to announce that the department of Mechanical engineering is publishing its first newsletter "**MECHAZINE**". Mechazine will help to share the news, events, and achievements of the department. I would like to congratulate all members of the department for their contribution in publishing the newsletter. I earnestly wish and sincerely hope that this newsletter turn out to be resounding success.

## ABOUT THE INSTITUTE

**Birsa Institute of Technology**, formerly known by the name of Bihar institute of Technology, is a premier institute under the department of science and Technology, Government of Jharkhand. Established in 1949, B.I.T Sindri boasts of a lush green campus spanning 450 acres and all the amenities to promote the overall development of each student. The college offers Bachelor of Technology (B.Tech) and Master of Technology (M.Tech) programme for the brightest students of the state and aims at the multidimensional grooming of the students during their stay. It offers education in ten disciplines of engineering namely- Mechanical, Electrical, Civil, Production, Mining, Metallurgy, Electronics & communication, Chemical, Information Technology and Computer Science. All the departments are facilitated with laboratories to replenish and boost the practical exposure of students to the theoretical principles. The institute also have several student-run organizations and societies which contribute significantly in polishing student's soft skills, communication and technical skills. With the advancement in placement statistics over the years, B.I.T Sindri strives to become the Mecca for a multitude of engineers-in-making.

## VISION OF THE INSTITUTE

To provide the valuable human resources for the industry and society through the excellence in technical education and scientific research for the sustainable development.

## MISSION OF THE INSTITUTE

- To offer the state of the art undergraduate, postgraduate and doctoral programme.
- To generate new knowledge by quality research.
- To undertake the collaborative projects with industries and society.
- To develop human intellectual capacity with its full potential.
- To solve problems of society through innovation in technology.

## ABOUT THE DEPARTMENT

The Department of Mechanical Engineering was started in the year 1949 when the institute was born. The department offers four years B.Tech degree course with an annual intake of 105 students. Two year postgraduate programme is also offered leading to M.Tech degree with specialization in Heat Power Engineering, Machine Design & Production Technology. The annual intake in the postgraduate programme is 75.

The department has well equipped laboratories required for undergraduate and postgraduate programs. The important laboratories include: Strength of materials, applied mechanics, Heat engine, Hydraulics, Aerodynamics, Heat & Mass Transfer, Solar energy and recently developed SIEMENS Laboratory having 3D Printing, Advanced Manufacturing lab, Robotics Lab, paint shop, CNC Lathe, spot welding etc. The department has also a huge workshop consisting of various units like carpentry, Smithy, Foundry, Machine shop etc.

## **VISION OF THE DEPARTMENT**

To provide the valuable human resources for the industry and society through the excellence in technical education and scientific research in Mechanical engineering with moral values for the economic & sustainable growth of the country.

## **MISSION OF THE DEPARTMENT**

- To offer state of the art undergraduate, postgraduate and doctoral programs in Mechanical engineering.
- To generate new knowledge by engaging in cutting edge research and development in mechanical engineering of new technology.
- To provide conducive environment for collaborative projects with academia and industries.
- To promote innovation and entrepreneurship.
- To develop professional skills with ethical values.

# PROGRAM OUTCOMES (POs)

## Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.



6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# PROGRAM SPECIFIC OUTCOMES (PSOs)

1. Graduates will demonstrate the knowledge of applied mathematics and advanced software tools for thermal, design specification, development such as fabrication, analysis such as testing and operation of the physical systems, components and processes involved in mechanical engineering
2. Graduates will demonstrate the knowledge, skill and attitude to analyze the cause and effects on machine elements, processes and systems.
3. Able to pursue a career in mechanical and interdisciplinary fields.

# PROGRAM EDUCATIONAL OUTCOMES (PEOs)

## **PEO-1- KNOWLEDGE**

Mechanical engineering graduates will have strong fundamental technical knowledge and will be capable to develop core competency in diversified areas such as thermal engineering, design, production, industrial engineering and allied fields with the use of various software tools like flow and thermal analysis etc. to expand their knowledge horizon and inculcate lifelong learning.

## **PEO-2- SKILLS**

Mechanical engineering graduates will have effective communication, leadership, team building, problem solving, decision making skills, and software and creative skills by understanding contemporary issues there by contributing to their overall personality and career development.

## **PEO-3- ATTITUDE**

Mechanical engineering graduates will practice ethical responsibilities and service towards their peers, employers, society and follow these precepts in their daily life.

# TECHNICAL REPORT

## “SMART NANOPARTICLES AND ITS APPLICATIONS”

Dr. Purushottam Kr. Singh, Assistant Proff  
Department of Mechanical Engineering  
B.I.T Sindri



### Overview of particles in nano scale

Nanoparticles are the most fundamental components for the fabrication of a nanostructure. They are considerably smaller than the everyday objects around us that are governed by Newton's laws of motion. But, they are bigger than an atom or a simple molecule that are the subjects of quantum mechanics [Horikoshi et al.,2013]. In general, the size of a nanoparticle varies within the range of 1 to 100 nm. Nanoparticles are classified into three types on the basis of their dimensions, i.e, one dimensional, two dimensional and three dimensional nanoparticles [Hett,2004]. One dimensional nanoparticles, such as, thin film, has been used for decades in the field of electronics, chemistry and engineering. Nowadays, it has many applications such as in solar cells, information storage system, chemical and biological sensors, magneto-optic and fiber-optic systems. Two dimensional nanoparticles are mainly carbon nanotubes (CNTs) which are available in two forms - single-wall carbon nanotubes (SWCNTs) and multi-wall carbon nanotubes (MWCNTs).

The small dimension of carbon nanotubes makes them a unique material, while considering their physical, electrical and mechanical properties [Joachim,2004]. They show conductive or semi-conductive properties, depending on how the carbon layer is arranged over one another. The mechanical strength of carbon nanotube is higher as compared to the steel. Three dimensional nanoparticles are important for the nanometer scale devices in science and engineering. In this way the nanoparticles are classified and the concern are expanding day by day.

Nanoparticles can be generated by two processes, top-down approach and bottom-up approach. Top-down approach is also known as break-down approach, which involves restructuring of bulk materials in order to create nanomaterial [Lane et al.,2002]. Here, an external force is applied to bulk solid to break up into smaller particles. For this purpose, any one of the setups, namely, the ball mill, planetary ball mill, jet mill, hammer mill, shearing mill and roller mill is used.

The bottom-up approach is also called build-up approach, which represents the concept of constructing a nanomaterial from basic building blocks, such as, atoms or molecules. It produces nanoparticles from atoms of gas or liquids, based on atomic transformations or molecular condensation. The bottom-up approach is much better suited to generate uniform particle size and distinct shape [Klabunde, 2001] in comparison to top-down approach.

Importance of nanoparticles

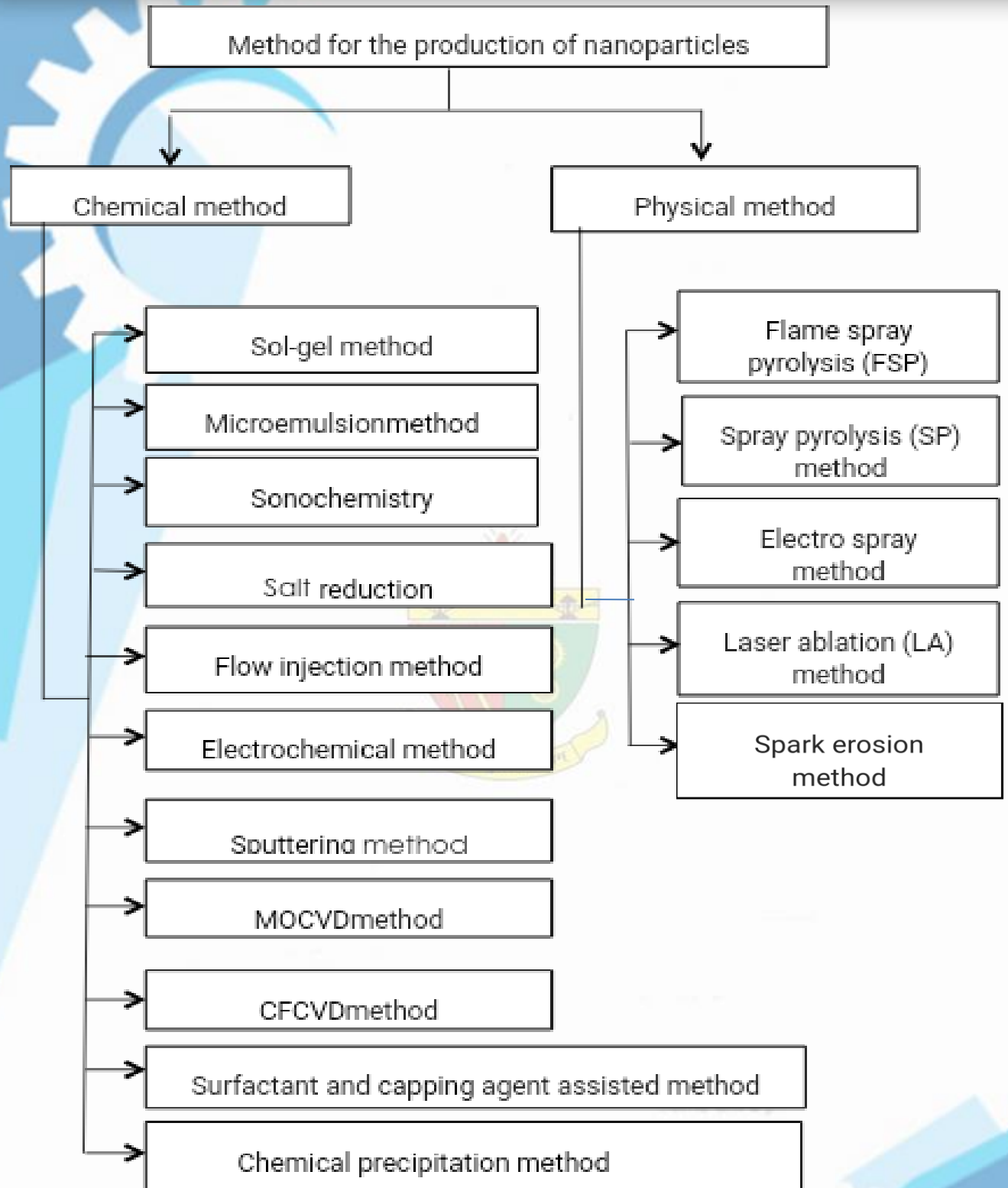
Nanoparticles have attracted industrial and technological interest due to their improved physical properties as compared to the bulk material. The physical and chemical properties of the nanoparticles are controlled by their 3D morphology, structure and chemical composition. Nanomaterial is found in biological as well as man-made systems. Nature has been using nano-materials since its very existence.

For example, nano-structured elements play a vital role in magneto-tactic bacteria [Blakemore et al.,1980] and ferritin [Theil,1987]. At nano-scale, the materials get new properties (e.g. lower melting points, higher specific surface areas, specific optical properties, high mechanical strength, and, specific magnetizations) that are different from the bulk materials. These aspects are of great interest among the researchers [Lue et al.1995; Huang et al.,2013; Liu et al.2016]. Because of their exceptional properties, nanoparticles have many applications in different fields, such as, materials technology (micro-electronics, catalytic systems, hydrogen storage ferro fluids and chemical nanosensors) as well as nanomedicine, food science, agriculture, military and energy.

### Methods for production of nanoparticles:

Nanoparticles are produced through both physical and chemical methods. The physical method is based on the subdivision of the bulk material, which includes mechanical crushing or pulverization of bulk materials, vapour condensation, spray pyrolysis, flame spray pyrolysis, aerosol process and unconventional machining process. Chemical reduction method is more frequent method for generating nanoparticles. In chemical method, metal ions are reduced to atoms. The various type of physical and chemical methods used for generating nanoparticles are described in following sections.





**Fig.1. Block Diagram of Process for the Production of Nanoparticles**



## Applications of nanoparticles

Applications of nanoparticles in different area are in given below:

- Nanoparticle can be used as superconducting materials, sensing materials, thermoelectric materials, catalyst, ceramics and other fields
- Nanoparticles use as a catalyst to breakdown volatile organic pollutants in air.
- Nanoparticle can be used in magnetic storage media, photoconductive and photothermal applications
- It is used as a semiconductors, solar energy transformation, and high-tech superconductors.
- It is used in coatings to protect wood, plastic and textiles from exposure to UV rays in industry.
- It can be used to kill bacteria, making clothing odor-resistant.
- It can be used to provide a barrier to gasses (for example oxygen), or moisture in a plastic film used for packaging.
- Nanoparticles such as Silicon nanoparticles used for coating of anodes of lithium-ion batteries can increase battery power and reduce recharge time.
- Doping of nanoparticles such as platinum-cobalt nanoparticles exhibited more catalytic activity than pure platinum.
- Gold nanoparticles combined with organic molecules create a transistor known as a NOMFET (nanoparticle organic memory field-effect transistor). This transistor is unusual in that it can function in a way similar to synapses in the nervous system.

- Silver nanoparticle used for making ink which is used to form the conductive lines needed in circuit boards.
- Nanoparticles such cupric oxide and iron oxide are being used to clean arsenic from water wells.
- Iron nanoparticles are being used to clean up carbon tetrachloride pollution in ground water.
- Silver nanoparticles are used to efficiently harvest light and for enhanced optical spectroscopies including metal-enhanced fluorescence (MEF) and surface-enhanced Raman scattering (SERS).
- Silver nanoparticles are used in conductive inks and integrated into composites to enhance thermal and electrical conductivity.
- Silver nanoparticles are used in biosensors and numerous assays where the silver nanoparticle materials can be used as biological tags for quantitative detection.
- Silver nanowires can be used to provide conductive coatings for transparent conductors and flexible electronics.
- Semiconductor nanoparticles are being applied in a low temperature printing process that enables the manufacture of low cost solar cells
- It can greatly improve the homogeneous propellant burning rate, lower pressure index, and also perform better as a catalyst for the ammonium perchlorate composite propellant

## Motivation and Challenges

- Nanoparticles are functional materials owing diverse properties including their versatile electronic band structure, electrical, optical, mechanical, thermal and magnetic properties that offer a large number of applications in various areas. However, for practical applications, these properties should be enhanced.
- The parameters involved in the synthesis of engineering metallic nanoparticles which comprises variation in rotational speed of stirrer, types of electrolyte concentration, temperature and pressure of electrolyte and dielectric, nanostructuring and incorporating foreign atoms or molecules via doping as well as applying electric, mechanical and magnetic fields, provide pathways for the enhancement in their functionalities.
- Challenges in generating new materials with improved/added properties ultimately lead to actual research in nanotechnology. Now a days for developing new optimized nanostructured system, different scientific fields are forced to merge. For common end point “science for society” physicist, chemist, engineer and all work together.
- Recently, due to better control over the structure, morphology, stoichiometry and crystallinity of the metallic nanoparticles, engineering procedure have gain more attention by the researchers.

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## ALUMINI INTERACTIONS

The involvement of alumni in supporting and providing contributions voluntarily to their institute is important for maintaining and expanding a institute's development. By establishing channels that can facilitate closer ties between the alumni, students and institute, it can provide crucial benefits in enriching the student's experience while being at the institute. Every alumni has experienced being a student to becoming a unique and different graduate, hence there is potential for all alumni to contribute to the institute in different ways and scale.

### **Role model and inspiration**

Alumni is an effective role model and can be easily accepted by students. With the return of the alumni to support the institute, they bring with them credibility and justification as part of a successful institute, having breathed the same air and encountering similar challenges faced by the students. Experiences that are shared by the alumni with students whether in time management, financial management, development of self-discipline and character, or in career management can be more easily accepted as guidance and inspiration by students. Through this way, alumni can assist in strengthening confidence, improve motivation and inculcate the right culture in line with what the institute intends to convey to its students.

### **Careermentor**

Competition in entering the work force is becoming more intensive as a result of a higher number of graduates compared with a limited number of job opportunities. Job availability is more critical in certain sectors. In the final year of their studies, students must identify seriously their career prospects. This is the right time for alumni to support the students by mentoring them on their career opportunities in the industry and opening channels for the students for acceptance, either in undergoing practical learning or work experience in the institutions where the alumni reside in. Alumni can be a reference for the faculty concerned in meeting the needs of students and graduates in obtaining work in selected fields. The curriculum at the institute can be improved as to fulfill the work aspirations of the students.

### **Providing expertise**

Besides that, the alumni can contribute by providing their expertise in their occupation in developing new study programs in the institute. Alumni can contribute as a guest lecturer, advisor in committees, industry experts and cooperative partners in projects with the institute. This will improve the development of their alma mater. In the field of industry research, alumni can open doors for the institute to enter into industry networks either in india or overseas in the spirit of collaborative working. This gives opportunities to the institute to improve in a particular industry by applying the theories that have been analyzed and tested with other industry experts. Success in knowledge transfer will further improve the capacity and the reputation of the institute with significance nationally and internationally.

## Opportunity to access professional development

The senior alumni communities that are successful can be a most effective medium not just for the institute graduates but also with the younger alumni. When the alumni community is successful and obtain recognition from the corporate world, industry and the wider community, it can potentially create a stronger network as well as trust in the institute and in turn, will assist younger alumni from the institute to access opportunities in improving their careers and professionalism. Currently, more institutes are committed in providing continuous education that can assist in improving the careers of the working graduates by offering postgraduate courses to alumni that graduated with 1st or 2nd class honours.



## INTERACTION WITH 1984 BATCH ALUMUNUS

Dr. Jyoti Sinha PhD, CEng, FIMechE The Professor in Vibration-based Condition Monitoring and Plant Maintenance at University of Manchester, University of Wales (Swansea University) UK has visited the department. Interactive session has been held with faculty members of the department with an agenda to identify the curricular gap and the points of improvement. He also interacted with B.Tech students. During the session he advised stidents to improve their soft skills and also stressed on the importance of GATE exam. Dr. Sinha also patiently answered many queries raised by the students regarding preparation of technical subjects and their importance for Core Company's interview.





## DISTINGUISHED ALUMINI



**Founder, President and CEO of Holtec International**

**Dr. K.P Singh** is the Founder, President and CEO of Holtec International which he established in 1986 and nurtured its steady rise into a multi-national company with nine major operations centers in seven countries on five continents. Dr. Singh received his Ph.D. in Mechanical Engineering from the University of Pennsylvania, Philadelphia (1972), a M.S. in Engineering Mechanics also from Penn (1969), and a B.S. in Mechanical Engineering from BIT Sindri (Ranchi University), India (1967). Dr. Singh was elected to the National Academy of Engineering in 2013 for his seminal impact in the energy sector of mechanical engineering.

He received Edison Foundation's "Thomas Alva Edison Award" in 2015 for his ecologically and environmentally impactful inventions. Rutgers University named him "South Jersey an of the year - 2016" for his significant beneficial impact on the South Jersey region. In 2017, the National Academy of Inventors elected him a Fellow and the University City Science Center (Philadelphia) inducted him to its "Walk of Fame."

**Dr. Singh** was named a Fellow of the American Society of Mechanical Engineers in 1987 for his numerous contributions to heat exchange technologies. He is a registered Professional Engineer in Pennsylvania (since 1974) and Michigan (since 1982) and a member of the American Nuclear Society (1979-present).

Dr. Singh has led Holtec International since the company's inception, building it into a technological powerhouse respected for its engineered goods and services around the world with nine major operations centers in three countries. Over 120 nuclear plants around the world employ Holtec's systems and equipment many based on Dr. Singh's patents. In recent years, Dr. Singh has been leading Holtec in the global race to develop a "walk away safe" small modular reactor to make nuclear energy an economical green power alternative.

He is currently an Emeritus member of the University of Pennsylvania's board of Trustees, where he served from 2009-2017, and a member of the University's Board of Overseers for the School of Engineering and Applied Science (2005-present). In addition, he serves on the Board of the Nuclear Energy Institute (1998-present), and the Cooper Health System (2013-present). He is also a Director of the Washington, DC-based Atlantic Council and a member of the "National Investment Council" that advises the President of Ukraine. He chairs the KPS Foundation (2001-present), a charitable Singh family foundation whose signature contribution to the advancement of science is the completion of the "Krishna P. Singh Center for Nanotechnology" at the University of Pennsylvania in Philadelphia in 2013. The KPS Foundation is also active in improving child literacy and public sanitation in India.

# NEW FACILITIES CREATED IN THE DEPARTMENT

The Siemens CoE in Manufacturing, established in 2018 at BIT Sindri, operates with a primary focus of creating a robust technical education eco-system through its experience in industrial products and services. There are sophisticated Laboratories designed for Mechanical engineering i.e Design and Validation, Advanced Manufacturing, Test and Optimization, Automation, Mechatronics, CNC Machines, CNC Controller, Robotics, Rapid Prototyping that provides opportunity for promising innovations. This multi-faceted unique center offers skill development courses, Internships, Research and Development assistance and Industrial consultancy services across various sectors.



**ADVANCED MANUFACTURING LAB**



ROBOTICS LAB



CNC LATHE



LIFT SHOP



3D PRINTED MODELS

Lab upgradation:

In a process to modernize the laboratory new equipment/ instruments are procured In Heat Engine Lab.



**SINGLE CYLINDER ENGINE SETUP**

## INSTITUTE NEWS

- **AIIESEC**, with its motto, "Activating Youth leadership since 1948" is the world's largest youth-run organisation. It provides an opportunity to live a shared responsibility for the world by sending its student members for foreign internship in countries like Ukraine, Malaysia, Egypt and Vietnam. This year the count of students going for internship was 16.
- One of the oldest cultural clubs of BIT Sindri, **Arts Club**, strives to preserve the long rich tradition of Art and Culture and allows students to showcase their hidden talents. It registered its participation in the mega cultural fest Ensemble Valhalla of XLRI, Jamshedpur.
- BIT Sindri witnessed a three day long annual mega cultural fest named Sharad Utsav. Under this event, the **Arts Club** organised its events Sargam, Nrityanjali, Abhinay and Foley along with the enchanting performances at the end.
- **Eco Club** organised events like Tricky Tree, Tap the Cap, Best from Waste, pehchano toh jaane ending it with a green marathon.
- "Samarpan" was organized by the **Painting wing** along with Graffiti.
- **Rotaract Club** of Sindri, sponsored by "Rotary International" organised Encore and Chakravyuh.
- To promote social values and civic goals, **Prayaas India, Leo Club and Rotaract Club** organised a blood donation camp.
- To bring out the technical worth of the young technocrats of the institute the **Model Club** organised events like Listiquiz, a technical blogging cum quizzing competition along with Techie Of the Year, a platform to show one's technical prowess by practically designing their own ideas.

- **Literary Society** organised an open mic event called Dhvani, wherein the contest had an open platform for people to present their ideas through poetry, short story, poem, monologue or stand ups.
- **Gandhi Rachnatmak Samiti** organised "Kislay" during the cultural fest which consisted of segments like General Election and Seedhi baat.
- **BIT Cultural Society** has been working to encourage the culture of various tribal groups in the institute. This association also gave us an opportunity to have a glimpse at the various indigenous traditions at the Sharadotsav.
- The oldest functioning club of BIT Sindri, **The Photography Club** also organised Sparsh'19 including the display of magnificent photographs in its event Glossarium and dj night.
- **Leo Club** of BIT Sindri, the youth organization of Lions Club International organised the most awaited "Fresher of the year competition" having various segments like Prarambh, Pfoy, 180 degrees, Karaoke, Silver Screen and ABCD.
- To kindle the very spirit of igniting zeal and inspiration in the populace of our institution, the inauguration of **TEDxBITSindri** took place on 12th November. It brought together, a stellar line-up of unprecedented speakers like Mr Vinay Singh, Major Mohammad Ali Shah, Mrs. Saira Shah Halim, Mr. Jogesh Jain and Mr. Ashutosh Kumar all having a high degree of knowledge in their respective fields.
- **The Hackathon and Coding Club** of BIT Sindri conducted its first version of hackathon on a national level, "HACKATRON '19", on November 16-17 in the college campus. The 24 hour-long continuous event focused on the solutions and ideas for resolving many real-life problems and this event witnessed a zealous participation of various colleges of India.
- **Sports Club** of BIT Sindri organized the most awaited annual sports extravaganza, the inter-branch Football tournament and inter-branch Kho Kho tournament for the techie lads and lasses.

- **Start up and incubation cell** of BIT Sindri has set up an ecosystem for budding entrepreneurs. It organised its three day StartUp Conclave inviting eminent guest speakers like Mr.SN Sharma, a US based entrepreneur, Mr.Shashank S Garuryar, Mr. SK Singh, Mr.Amit Roy, Mr.Kamal Nath, Ms. Kumud Sharma, Mr. Amar Kumar Yadav, Mr.Ashok Chaurasia, Mr. Balwant Lal Suman, Mr. Santosh Anshumali along with others like Mr. Saurav Karmakar, Mr.Gaurav Singh, Mr.Ravi singh Choudhary and organising successful events for students like logo designing, poster designing etc.
- **IETE, Institute of Electronic and Telecommunication engineers** organised Unicorn, an opportunity for the students to unleash the entrepreneurs within them along with a pubg championship to check out the gaming passion among students.
- **ISTE Students Chapter** BIT Sindri, organised its completion of Aavishkar, to get the best innovation out of waste and qi festa, a quizzing event.
- It was a jolly and a nostalgia struck day for the alumnis to visit their alma mater after years during the **Annual Alumni Meet** organised by **BITSAA** which was celebrated as the **Golden Jubilee and Silver Jubilee of 1969 and 1999 batches respectively.**





The event ended with great pomp and show creating a wistful desire in them to return to a former student life.

# PLACEMENT RECORD

( Session 2016-2020 )

NAME	ROLL NUMBER	BRANCH	COMPANY	CTC
Sonu Kumar	1600101	Mechanical Engineering	4IITeens	6
Anubhav Kumar Singh	1600029	Mechanical Engineering	JSL Limited	6
M.d. Musharraf Hussain	1600058	Mechanical Engineering	JSL Limited	6
Nikhil Kumar	1600064	Mechanical Engineering	JSL Limited	6
Mayank Kumar	1600057	Mechanical Engineering	ACC Limited	4.5
Sandeep Prasad	1600086	Mechanical Engineering	Tata Steel	10.1
Yash Singh	1600110	Mechanical Engineering	Tata Steel	10.1
Amit Kumar	1600018	Mechanical Engineering	Saint Gobain	6
Vishnu Keshri	1600107	Mechanical Engineering	Saint Gobain	6
Vishal Chandra Das	1600106	Mechanical Engineering	Analytics Quotient (Business Domain)	5
Gaurav Kumar	1600039	Mechanical Engineering	Adani Group	6
Aman Kumar	1600015	Mechanical Engineering	Viraj Profile Limited	3.6
Gangadhar Sardar	1600038	Mechanical Engineering	Viraj Profile Limited	3.6
Satish Kumar	1600089	Mechanical Engineering	Viraj Profile Limited	3.6

Akash Kumar	1700001D	Mechanical Engineering	Viraj Profile Limited	3.6
Vikas Kumar Mondal	1700025D	Mechanical Engineering	Viraj Profile Limited	3.6
Abhishek Gupta	1600005	Mechanical Engineering	Cognizant	4
Aman Agarwal	1600013	Mechanical Engineering	Cognizant	4
Ankit Raj	1600028	Mechanical Engineering	Cognizant	4
Anubhav Kumar Singh	1600029	Mechanical Engineering	Cognizant	4
Bikram Kumar	1600034	Mechanical Engineering	Cognizant	4
Sushant Gupta	1600104	Mechanical Engineering	Dalmia Cement	4.5
Nitesh Kumar	1600066	Mechanical Engineering	Dhatu Online (Business Analyst)	5
Amit Kumar Keshri	1600020	Mechanical Engineering	TRL Krosaki Refractories Limited	4.6
Abhishek Kumar Gupta	1600007	Mechanical Engineering	Tata Power	5.5
Vivek Kumar	1600108	Mechanical Engineering	Tata Power	5.5
Abhishek Ash	1600003	Mechanical Engineering	Aditya Birla Group	6.6
Anand Saurabh	1600024	Mechanical Engineering	Aditya Birla Group	6.6
Indra Kumar Sharma	1600043	Mechanical Engineering	Aditya Birla Group	6.6
Jayant Kumar Prabhakar	1600045	Mechanical Engineering	Aditya Birla Group	6.6

Rup Goswami	1600082	Mechanical Engineering	Aditya Birla Group	6.6
Saurav Kumar	1600092	Mechanical Engineering	Aditya Birla Group	6.6
Amresh Kumar	1600023	Mechanical Engineering	Amalgam Steel	2.5
Dilip Kumar Kisku	1600036	Mechanical Engineering	Amalgam Steel	2.5
Manish Kumar Mehta	1600055	Mechanical Engineering	Amalgam Steel	2.5
Raja Babu	1600075	Mechanical Engineering	Amalgam Steel	2.5
Shubham Hembrom	1600099	Mechanical Engineering	Amalgam Steel	2.5
Aman Kumar	1600015	Mechanical Engineering	Pin Click	5.4
Ankit Kumar Nayak	1600026	Mechanical Engineering	Pin Click	5.4
Dilip Kumar Kisku	1600036	Mechanical Engineering	Pin Click	5.4
Gangadhar Sardar	1600038	Mechanical Engineering	Pin Click	5.4
Haripad Mardi	1600043	Mechanical Engineering	Pin Click	5.4
Nikesh Mehra	1600063	Mechanical Engineering	Pin Click	5.4
Nitesh Kumar	1600066	Mechanical Engineering	Pin Click	5.4
Ravi Kumar	1600078	Mechanical Engineering	Pin Click	5.4
Mohit Gupta	1700010D	Mechanical Engineering	Pin Click	5.4

Shekhar Kumar	1600096	Mechanical Engineering	JSW Steel Limited	6.6
Sudhanshu Ranjan Prakash	1600102	Mechanical Engineering	JSW Steel Limited	6.6
Manideep Sinha	1600052	Mechanical Engineering	JSW Steel Limited	6.6
Ankit Kumar	1600025	Mechanical Engineering	JSW Steel Limited	6.6
Navin Kumar Singh	1600061	Mechanical Engineering	JSW Steel Limited	6.6
Mukund Madhav	1600059	Mechanical Engineering	Tata Power	5.5
Manideep Sinha	1600052	Mechanical Engineering	The Engineer's Class	5
Abhijeet Sinha	1600002	Mechanical Engineering	TCS	3.4





**World Records :**

**Healthy mind recides in a healthy body. Making the flag of mechanical engineering BIT Sindri flutter high. Shani Ranjan Paswan was awarded the title of maximum wrist flips in one minute is 2004 and Maximum wrist flips in 5 minutes is 756 by India Book Records and America Book Records counting to the total of 20th world record**

**2 दैनिक जागरण धनबाद, 30 नवंबर 2019**

**वीआईटी छात्र का इंडिया बुक ऑफ रिकार्ड में नाम दर्ज**

संस. सिंदरी : वीआईटी सिंदरी मेकेनिकल अभियंत्रण ब्रांच तृतीय वर्ष के छात्र सनी रंजन पासवान को खेल-खेल में रिस्ट फ्लिप ( कलाई फुरकान) की ऐसी आदत लगी कि वह रिस्ट फ्लिप की अपनी आदतों के कारण राष्ट्रीय स्तर पर एक पहचान बना ली। सनी रंजन ने एक मिनट में 185 बार अपना रिस्ट फ्लिप कर न केवल एक रिकार्ड बनाया। बल्कि इंडिया बुक ऑफ रिकार्ड में अपना नाम दर्ज करा लिया। सनी रंजन ने बताया कि इंडिया बुक

ऑफ रिकार्ड में पहली बार रिस्ट फ्लिप को शामिल किया गया है। सनी रंजन ने यह कामवाची 23 वर्ष की उम्र में हासिल की। सनी रंजन, छात्र पासवान बीसीसीएल जकरामपुर कॉलेजरी में कार्यरत हैं। मां विद्या देवी गृहिणी हैं। सनी रंजन ने बताया कि वह अपने परफार्मेंस को और बेहतर बनाना चाहते हैं।



**Hackathon:**

**Yet again bringing the essence to provide better education for upliftment and development of Society Shivam Anand was the finalist for Unity India Hackathon. He is also a 5 star Gold badge in JAVA on Hacherrank and also in Problem Solving. This shows the potential we carry not only in core but in today's need of AI.**



**Achievements**

**Swach Sarvekshan quiz 2018 conducted by Ministry of Drinking water and Sanitation (Dhanbad Administration).**

**Knowledge is the key to success and that's what we follow in Mechanical Engineering BIT SINDRI in the WAVE QUIZ with team members that was loaded by a Student of Department named Abhishek Ash.**

**Internships:**

**Industrial exposure in is an important and integral part of Technical Education. Proving this, Nikhil Kumar was awarded as best campus CEO across India by completing with various selected participants from various IIT's and NIT's .He also presented his best business plan to Vivek Sunder CEO of Bundl Tech Pvt Ltd (Swiggy) and was letter selected to do a Summer Internship with the team. He was also a awarded letter of recognition by JIO and Platinum letter of certification being in top 500 on National level in Digital Championship program conducted by JIO.**

**Entrepreneurship:**

Yes, we never rely on job seeking, we create job. So did the Students of mechanical Engineering. Abhinav Sah and Sandipan Sarkar jointly won 2nd prize in the National Entrepreneurship Summit organized in IIT (ISM) Dhanbad by pitching their extra ordinary idea of Road accident contril system and urgent call for help during need. Yet again Abhinav Sah proved his worth in institute of national importance, NIT Jamshedpur by winning 1st prize in Tie-the-Knot a startup event under the eges of Mechanical Department of NIT Jamshedpur.



**Competitive exams:**

Competition has never been competent enough for Mechanical Students. So does the results in various exam prove it

Gate-Considered toughest by all yet highest by BIT's Mechanical students, secured a higher rank 9 in GATE 2019

CAT: Nikhil Kumar stabbed all his competitors in CAT Exam by securing 96.78 percentile in the Common Admission Test 2019 conducted by IIMs for their flagship MBA.

इंडियन पंच

छत्तीसगढ़ पंच

कैट परीक्षा में बीआईटी सिन्द्री की छात्र छात्राओं का टॉप अक्यूट प्रदर्शन

**कैट परीक्षा में त्रिशिता दासगुप्ता ने 98.6% लाकर बीआईटी का नाम किया रोशन**



त्रिशिता दासगुप्ता, निकिल कुमार, अजय कुमार साह, मन्दीरा प्रसाद, प्रीति शर्मा

द्वैत तलवार में प्रवेशी मतदाताओं को रिवाने के एनपीआर

**Program Union Public Service Commission:**

Better administration creates a good future and we at the department of Mechanical engineering, B.I.T. Sindri aim to keep the flag of good future fluttering high.

So did our students Ajay Kumar Sahu who got 83 rank in India's toughest exam which he made a cake walk, UPSC

**फल विक्रेता के बेटे को आईएस में मिली 83वीं रैंक**

<p><b>कलकत्ता प्रतिमान</b></p> <p>कलकत्ता प्रतिमान का 100वां संस्करण प्रकाशित हुआ। इस संस्करण में 1000 से अधिक लेख शामिल हैं।</p>	<p><b>02</b></p> <p>कलकत्ता प्रतिमान का 100वां संस्करण प्रकाशित हुआ। इस संस्करण में 1000 से अधिक लेख शामिल हैं।</p>		<p>कलकत्ता प्रतिमान का 100वां संस्करण प्रकाशित हुआ। इस संस्करण में 1000 से अधिक लेख शामिल हैं।</p>
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**SAE INDIA:**

**Prestigious with its name bringing out the real meaning of education from reel i.e. to implement the concepts learnt. This is only possible by considering the students as a lamp to be lit and not a vessel to be filled. SAE implements the concepts of mechanical engineering into vehicles for better and effective automobile. And yes our students were no exception in this too.**

**SAE India B.I.T. Sindri chapter was ranked 25th in E BAJA Vehicle 2019.**

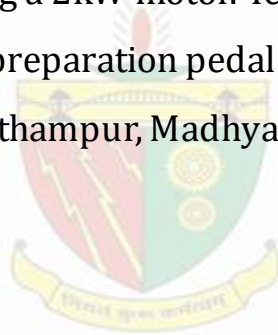


The team is a student organization of SAE INDIA, working with a mission to ignite the young minds and provide a next level to their knowledge and curiosity in automobiles as well as contributing to the future of automobile sector of India. The students not only design the racing vehicles but also build them from scratch as per the given set of rules and design standards of SAE International. The team, under the name SPITFIRE, participates in two of the major events organized by SAE INDIA:

**SUPRA SAE**, a Student Formula is a national engineering design competition. The goal is to develop and provide a platform for budding engineers to experience, build and learn, offering a unique way to test students' theoretical knowledge in a practical context. Points are earned in a series of off track, "Static" events and

“Dynamic” on track events. Team SPITFIRE participated in SAE SUPRA 2019 scheduled from July 15-20, 2019 at Buddha International Circuit, Greater Noida.

- **BAJA SAE**, an intercollegiate design competition run by the Society of Automotive Engineers (SAE). Teams of students from universities all over the world design and build small and race off-road vehicles that can withstand the harshest elements of rough terrain. The 2020 SAE BAJA event will sport vehicles with electric engines powered by a 48 V-80Ahr Lithium Ion battery driving a 2kW motor. Team Spitfire has tightened their seatbelts and pushed the preparation pedal to the metal for upcoming SAE BAJA 2020 to be held at Pithampur, Madhya Pradesh.



# ACHIEVEMENTS

- Mechanical engineering department organized two TEQIP-III sponsored one week workshops on “Recent Advances in Manufacturing (RAIM-18)” during 27 Nov – 1 Dec, 2018 and “Emerging Trends and Technology in Mechanical Engineering (ET<sup>2</sup>ME)” during 08 – 12 July, 2019.

## पांच दिवसीय तकनीकी कार्यशाला में मशीनों के रख रखाव की दी जानकारी

सिंदरी, (आकाश सोहनराज) : बी.आई.टी. सिंदरी के यंत्रिकी विभाग द्वारा आयोजित पांच दिवसीय तकनीकी कार्यशाला में केन्द्र प्रमुखों एवं मैनुफैक्चरिंग के क्षेत्र में केन्द्र के अधिकारियों को जानकारी के दौरान प्रमुखों के अध्यक्षता में एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया।



कार्यशाला में मशीनों के रख रखाव की दी जानकारी

प्रो. एमके चौधरी ने आयोजित कार्यक्रम के बारे में बताया कि यह एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया। इस दौरान यंत्रिकी विभाग के प्रमुखों के बीच में एक सत्र का आयोजन किया गया।

