



Bapuji Educational Association®
BAPUJI INSTITUTE OF ENGINEERING & TECHNOLOGY, DAVANGERE.

Mech News

Semiannual News Letter of Mechanical Engineering Department

January-June 2019

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Issue : 01

*All of us do not
 have an equal
 talent, yet all of us
 have equal
 opportunities to
 develop our
 talents –
 Ratan Tata*

OUR VISION: *The department endeavors to be a center of excellence to provide quality education leading the students to become professional mechanical engineers with ethics, contributing to the society through research, innovation, entrepreneurial and leadership qualities.*

Editorial Board

Chief Editor:
 Dr S.Kumarappa.
 Professor & Head
 Mechanical Engineering Department

Advisors:
 Prof Y.Vrushabhendrapa
 Director, BIET, Davanagere

Dr M.C.Nataraja
 Principal, BIET, Davanagere

Editors:
 Mr Umesh.B.S.
 Asst Professor
 Mechanical Engineering Department.

Mr D.E.Umesh.
 Asst Professor
 Mechanical Engineering Department.

Mr Ananda.L.G.
 Asst Professor
 Mechanical Engineering Department.

STUDENT MEMBERS:



In This Issue....

- ✚ *Departmental Activities*
- ✚ *Faculty Column*
- ✚ *Students Column*
- ✚ *Article Column*
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DEPARTMENT'S MISSION :

- ✚ *To impart quality technical education to students through effective teaching learning process leading to development of professional skills and attitude to excel in Mechanical Engineering.*
- ✚ *To interact with reputed institutions and R & D organizations to enhance academic and research activities.*
- ✚ *To inculcate creative thinking abilities among students and develop entrepreneurial skills and innovative ideas.*
- ✚ *To imbibe ethical, environmental and moral values amongst students through broad based education.*

Program Educational Objectives (PEOs) of the Department

1. *Enable to understand mechanical engineering systems those are technically viable, economically feasible and socially acceptable to enhance quality of life.*
2. *Apply modern tools and techniques to solve real problems in mechanical and allied engineering streams.*
3. *Communicate effectively using innovative tools to demonstrate leadership and entrepreneurial skills.*
4. *Be a professional having ethical attitude with multidisciplinary approach to achieve self and organizational goals.*
5. *Utilize the best academic environment to create opportunity to cultivate lifelong learning skills needed to succeed in profession.*

Program Specific Outcomes (PSOs of the Department

1. *PSO1: Apply the acquired knowledge in design, thermal, manufacturing and interdisciplinary areas for solving industry and socially relevant problems.*
2. *PSO2: To enhance the abilities of students by imparting knowledge in emerging technologies to make them proficient mechanical engineers.*



Dr. S. Kumarappa
Professor & Head of Department

Mechanical Engineering – a core engineering discipline – plays a central role in creation of the materialistic world. The department offers undergraduate, postgraduate programs in Machine Design and Thermal Power Engineering. Department also had a Research Centre and Product Development Cell.

The department has a team of highly qualified, dedicated and experienced faculty in order to contribute to the technical education and research, which helps to old young engineers by igniting their minds. In addition to academics, the department strives for the holistic development of students by arranging various activities like seminar, conference, workshops, industrial visit, training & placement activities. Students are also encouraged to carry out in-house projects and motivate them to apply for grants from national agencies like KSCST, AICTE and DST. The department believes in preparing ethical leaders who are not only committed to Industry but also to the serve the society through Entrepreneurship.

The department is actively encouraging the students for co-curricular and intercollegiate activities and sports. Students have received several awards and appreciations in these activities. The department has a vibrant alumni network, through which the alumni are sharing their views. The department conducts interaction programs with distinguished alumni and the current students. Our alumni are pursuing higher studies in various reputed institutions in India and premier foreign Universities across the world in diversified field in Mechanical Engineering.

Some of our distinguished alumni are serving in reputed organizations in higher positions. Few alumni are also serving in Government organizations and public sectors after qualifying UPSC and KPSC exams.



*Excellence is a
Continuous process
and not an Accident*

A.P.J.Abul Kalam



Royal Premier league (RPL)



An interdepartmental cricket tournament 'Royal Premier league (RPL)' was conducted by ROYAL MECH FORUM, Final match was held on 6th May 2019 after a series of league matches among the participating teams.

Mechanical Department cricket team were the winners of the tournament. Congratulations...

Farewell Function 2018-19 Batch



Farewell to the outgoing students of 2018-19 batch was arranged in the department on 25th May 2019. Mr Venugopal.B.V, Technical Engineer, Central Manufacturing Technology Institute (CMTI), Bangalore, addressed the students.

KSCST Students Project Exhibition



Department of Mechanical Engineering arranged students project exhibition sanctioned by Karnataka State Council for Science Technology KSCST on 25th May 2019.

Guest Talk

A talk was arranged by Mr. Prakash Chakravarthy Resource faculty from Vani Insitute Bengaluru, on 18th march 2019. He briefly explained about the various opportunities in higher education and briefed about different entrance exams highlighting the importance of GATE exam to the students.

Prasanna Kumar Shankara a corporate trainer was a delivered talk on JOB SPECIFIC SKILL Development opportunities on 7th march 2019

Srinath Achar, a linguist who can speak, read and write 18 langauges, trained at oxford and yokohoma Japan delivered a talk on effective utilisation of Brain power. on 21st Feb 2019.

Mech-I –Prix 2019



A National level students technical symposium was organized by Royal Mech Forum, on 9th May 2019. It was inaugurated by proud Alumni of 2018 batch, Mr Raushan Kumar, 114th rank holder of UPSC Civil Services Examination, and Mr Sachin Keyyoor, Senior Program Manager, Deautshe Telecom Group Company, Bengaluru. Both the guests delivered inspiring words to our students.

Graduands Day 2019



Graduands Day was arranged at SSM Auditorium for 2018-19 Batch students on 8th June 2019. All outgoing students of the department attended the function.

Dr Sudhakar Nayak H.V and Mr Vagish Patil were the Chief Guests for the function.

Farewell to Dr S Subrahmanya Swamy



Dr Subrhamanya Swamy resigned from our Institute as Principal to continue his service at Global Academy of Technology, Bengaluru

Dr Swamy served as faculty member and Head of dept of Mechanical department for a long term. Staff and students of Mechanical Department wish him the best in future.

Welcome to Dr M.C.Nataraja



Staff and Students of Mechanical Department, Heartily welcome Dr M.C. Nataraja, the New Principal of BIET, who took charge from March 2019.

Mr D.E Umesh and Mr Mohan.T.R

coordinators of Royal Mech Forum were responsible in organizing the activities of the forum which includes Mech-I-Prix 2019, Lecture program on 'Job specific skill development opportunities'



Dr G Manavendra has published the following technical papers in journals.

1. 'Influence of Exhaust gas recirculation on dairy scum Biodiesel operated diesel engine performance' in Vol 3, Issue 1, Page : 1-13, in European Journal of Sustainable development Research.

2. 'Comparative study of standard engine and modified engine with different piston bowl geometries operated with B20 fuel blend', Vol 133, Page 216-232, in Renewable Energy journal, Published by Elsevier.

Student Projects funded by KSCST, Bangalore during 2018-19

SI No	Project Title	Amount	Guide
01	S.M.A.R.T Portable Fruit Preservation System	12000/-	Dr. K Sadashivappa Dr. Sharan A S
02	Design And Development Of Low Cost Ultraviolet And Ultrasonic Disinfection Device For Rural Hospital	9000/-	Mr. B Basavaraj Dr. Sharan A S
03	Development of Bio-Medical waste Incinerator by using Electromagnetic Induction	9000/-	Dr. S Kumarappa
04	Eco-Friendly Water Filtration using Plant Xylem	6000/-	Dr. C B Suresh Dr. Sharan A S
05	Design and Fabrication of Arecanut Plucking Machine	9000/-	Mr. B S Umesh
06	Design of Paper Recycling Machine	9000/-	Mr. S J Prashanth

VTU Rank

Murugesh M G (4BD17MMD01) M Tech (Machine Design) student of 2018-19 batch secured 6th rank during 19th annual Convocation of VTU. Congratulation by HOD, PG Coordinator, and Staff of the Department.

Toppers during 2018-19

SI No	Semesters	Name of the Student	USN	CGPA
01	3 rd / 4 th	Kotresh	4BD17ME039	8.97
02	5 th / 6 th	Thomson K Thomas	4BD16ME089	9.00
03	7 th / 8 th	Krishna Raj	4BD15ME037	8.61

Top Student of the Department during 2018-19

Krishna Raj was awarded with 'Sri Anekonda Channabassappa Merit Prize' for being the Top Student of the Department. He obtained this award for his performance in all the eight semesters.

Project Exhibition

Vinay Patil, Vinay kumar Hiremath, Prashanth Tanaji Yadav, Kumbhar Rohit Ashok, Shivakumar Shankaragouda Patil, participated in 'SRISHTI 2019' held at SAINTGITS college of Engineering, Pathauttom Kerala, on 18th and 19th February 2019. They exhibited their Project 'Design development and performance evaluation of Acoustic fire extinguisher' Their project was awarded Best Mechanical Engineering project

Participation in TOOL Tech 2019

Varun U Guddadar, Siddesh.S of 3rd year participated in '12 Jagruti-IMTMA youth Programme' organized by Indian Machine Tool Manufacturers Association, on 26th & 27th January 2019 at Bengaluru.

Placement Details of 2018 Batch

Students of 2018 batch got Placement opportunities in the following companies

SI No	Company	No
1	Tata Consultancy Services (TCS)	26
2	Bharat Electronics Limited (BEL),	3
3	ACE Designers, Bengaluru,	7
4	VEETECH Bengaluru	5
5	RGBIS/Byjus	2

HOD and Faculty of Mechanical Department congratulate the students who got placement in the above companies.

'ROYAL MECH FORUM' 2019

Students selected as office bearers of 'Royal Mech Forum' for 2018-19.

SI No	Students Name	
1	Jayanth S G	General Secretaries
2	Sirendra S	
3	Karthik S N	Joint Secretary
4	Ajay S	Organising Secretaries
5	Siddesh B D	
6	Veerappa K Halli	Cultural Secretary
7	Vinay R S	Sports Secretary

Students successfully organized following activities during the period.

Inaugural Function of 'Royal Mech Forum' on 28-09-18.

- Mech -I-Prix 2019 on 09-05-2019.
- Royal Primear League Cricket Tournament.
- Pedal Expo a Cycle Exhibition.
- Prix Quiz
- Debate competition.
- Paper presentation
- Techno Innovator
- Friends Power
- Mr Mechanic
- Event X
- LAN Games



**Mr Roushan Kumar IPS
Chief Guest of inaugural function
Mech-I-Prix 2019 on 9th may 2019,
shares his experience**

Mr Roushan Kumar joined Jindal Steels Company through campus selection, after his graduation in Mechanical Engineering in the year 2010 from BIET. He worked in that company for two years. He started to feel that the job was monotonous, moreover his dream of qualifying UPSC examination could not be achieved. He determines to pursue UPSC examination for his future career.

Mr Roushan Kumar said that it was not a simple task to qualify UPSC examination but did not relent. His determination was firm. It was during fifth attempt luck was in his favor. He qualified UPSC exam securing 114th All India Rank and opted for IPS Cadre.

Mr Roushan Kumar, proud Alumni of Mechanical Engineering Department, is now serving as Police Officer in Bihar.



**Sri Sachin Keyyoor, Senior Program
Manager, Deutsche Telecom Group
Company, Bengaluru, was Chief
Guest of Inaugural of Mech-I-Prix
2019 on 9th may 2019.**

During the function, Sri Sachin Keyyoor, an alumnus of Mechanical Engineering Department BIET, said that to be successful in present days there is a need to develop expertise by studying science, Engineering and Technology and Mathematics. He stressed on the need to make effective discussions with expert groups, faculty members and should become innovative in new technological trends. He also said that there is no need to panic if there is failure at any instant and consider failure should become stepping stone to success.



**Sri B.V. Venugopal, Technical Engineer,
Central Manufacturing Technology
Institute (CMTI), Bangalore,**

Addressed the students during Farwell for Outgoing students of 2018 batch. He emphasized that the students should do such projects with an idea of commercializing them for public use, so that the students can also become Entrepreneur in their future.

*Arise ! Awake ! and not
stop until the Goal is
reached.*

Swami Vivekananda



Group Photo of 2017-18 Batch Students



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2014 - 18



Mechanical Engineering 'A' Section

Alumini Meet



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2014 - 18



Mechanical Engineering 'B' Section



Mr Sachin Keyoor, Senior Program Manager, Deautshe Telecom Group Company, Bengaluru. Speaking during Mech-I-Prix.

Students of 2017-18 Batch, who got Placement



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2017 - 18



Mechanical Engineering Students placed for various companies



Mr Raushan Kumar, 114th rank holder of UPSC Civil Services Examination sharing his experiences about UPSC examination



Organized PEDALS Expo Exhibition on 9th May 2019 in the Department of Mechanical Engineering.



Mr Naveen Karki, Alumni and Guest Speaking during Valedictory Function of MECH-I-PRIX ,



KSCST Students Project Exhibition



One day workshop was organized by the Department on "Vibration Measurement"



RPL Cricket Tournament



5 -days work shop was organized by the Department on "Automation and Robotics"



Prasanna Kumar Shankara a corporate trainer was a delivered talk on JOB SPECIFIC SKILL Development opportunities on 7 th march 2019



Mr. Prakash Chakravarthy Resource faculty Vani Insitute Banglore, briefly explained about the different opportunities in higher education and briefed about different entrance exams. He also explained the importance of GATE exam to the students 18th March 2019



Srinath Achar, a linguist who can speak, read and write 18 langauges, trained at oxford and yokohoma Japan delivered a talk on effective utilisation of Brain power. on 21 st Feb 2019,



Hutatma Diwas held on Jan-30-2019

*Be the change that you
want to see in the
world*

Mahatama Gandhiji





1. Glimpse of Mechanical Engineering.

Umesh.B.S . Asst Professor

Mechanical Engineering is considered to be the most diverse and versatile branch of Engineering fields. It is one of the oldest and broadest engineering disciplines. It is a discipline of engineering that applies the principles of physics and materials science for analysis, design, manufacturing, and maintenance of mechanical systems. Mechanical engineering combines creativity, knowledge and analytical tools to complete the difficult task of shaping an idea into reality

Society depends on mechanical engineering. Careers in this branch center on creating technologies to meet human needs. Virtually every product or service in modern life has probably been touched in some way by a mechanical engineer to help humankind. The need for this expertise is great in so many fields, and as such, there is no real limit for the freshly minted mechanical engineer. Jobs are always in demand, in most of the areas.

The essence of engineering is problem solving. With this at its core, mechanical engineering also requires applied creativity—hands on understanding of the work involved—along with strong interpersonal skills like networking, leadership, and conflict management. Creating a product is only part of the equation; knowing how to work with people, ideas, data, and economics fully makes a mechanical engineer.

Mechanical Engineering skills can be developed by doing internships, taking part-time jobs, volunteering, or shadowing professionals during undergraduate degree. This provides best chance of not only graduating with a degree, but also with practical insight about how to get the job done.

Breakthroughs in materials and analytical tools have opened new frontiers for mechanical engineers.

Nanotechnology, biotechnology, composites, computational fluid dynamics (CFD), and acoustical engineering have all expanded the mechanical

Engineering toolbox. However, with advancements in technology happening at such a rapid pace, it is impossible for someone to graduate from an academic program and have all the requisite knowledge they will need for the rest of their career. In order to succeed, mechanical engineers will have to find a way to continue their education and stay abreast of technological developments even as they begin their careers.

2. Trends in Manufacturing: High Speed Machining

Machining with high speeds (HSM) is one of the modern technologies, which in comparison with conventional cutting enables to increase efficiency, accuracy and quality of work pieces and at the same time to decrease costs and machining time. HSM is a powerful machining method that combines high feed rates with high spindle speeds, specific tools and specific tool motion

ADVANTAGES

- ❖ High material removal rate
- ❖ High surface finish
- ❖ Increased productivity
- ❖ Possibility of machining of very thin walls
- ❖ Reduction in lead times
- ❖ Low cutting force
- ❖ Cutting tool and work piece temperature are kept low
- ❖ Connection time between the cutting edge and work piece is short
- ❖ It eliminates the need of coolant
- ❖ Reduction of production process

APPLICATIONS

- ❖ Industry which deals with the machining of Al to produce automotive components,
- ❖ small computer parts or medical devices
- ❖ Aircraft industry involves machining of Al often with thin walls.
- ❖ Die mould industry which requires dealing with finishing of hard materials .
- ❖ Used to machine such parts as die casting dies, forging dies, injection moulds and blow moulds, milling of electrodes in graphite and copper, modeling and prototyping of dies

DEMANDS OF HSM MACHINE

- Spindle speed range ≤ 40000 rpm
- Spindle power > 22 KW
- Programmable feed rate 40-60 m/min
- Rapid travels < 90 m/min
- Block processing speed 1-20 ms
- High thermal stability and rigidity in spindle
- Air blast/coolant through spindle
- Advanced look ahead function in the CNC

3. OUTCOME-BASED EDUCATION (OBE)

Outcome-Based Education (OBE) is a student-centric teaching and learning methodology in which the course delivery, assessment are planned to achieve stated objectives and outcomes. It focuses on measuring student performance i.e. outcomes at different levels. OBE is the system based on student based learning wherein the ultimate objective is to impart the skill required by students in their education process. The OBE system highlights the clear standards for observable and measurable outcomes from the performance of the students during and after completion of the programme. In India "Outcome-Based Education" (OBE) model is being implemented recently in engineering education and adopted by Engineering colleges at a faster pace. India has become a signatory member of Washington accord from June 2014 onwards. National Board of Accreditation (NBA) accredits the engineering programmes in the country based on OBE. It is considered as a giant leap forward to improve technical education in India and help Indian Engineers compete with their global counterparts. For Indian Engineering Institutions to get accredited by NBA according to the pacts of the accord, it is compulsory that engineering institutions follow the Outcome Based Education (OBE) model. So, for an Engineering Institution to be accredited by NBA it should compulsorily follow the OBE model. It helps an Engineering graduate from India can be employed in any one of the other countries who have signed the accord. It is essential for the Faculty and students to understand the following terminologies associated with the OBE

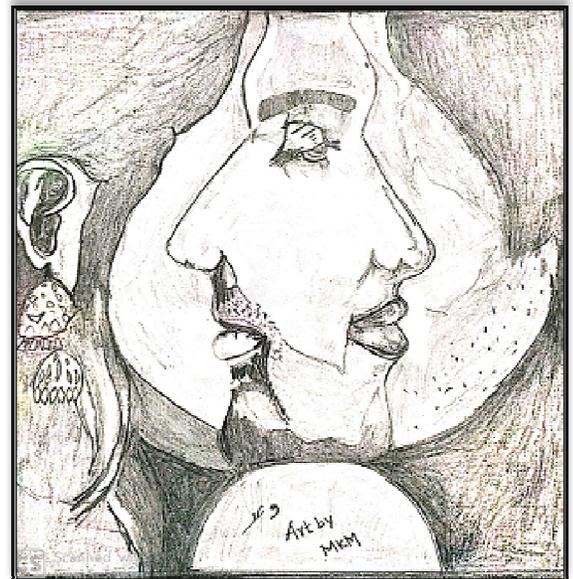
process

Program Educational Objectives (PEO's) are broad statements that describe what graduates are expected to attain within few years of graduation. Program Educational Objectives are based on the needs of the programs constituencies.

Program Outcomes (POs) describe what students are expected to know and be able to do by the time of graduation. Following are the program outcomes given by National board of Accreditation (NBA) 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.



Art by M.Krishnamurthy

Course Outcomes(CO's) these are the statements student actions that serve as evidence of the knowledge, skill and attitude acquired in a course

Blooms Taxonomy(BLO's) In 1950 Benjamin Bloom classified the cognitive process into six major levels arranged in hierarchical order. Beginning with the simplest level L1 and increasing complexity with the highest level L6

Green Campus of BIET



*We should not give up
and we should not allow
the problem to defeat us*
A P J Abdul Kalam



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