



**COMSATS**  
University Islamabad  
Wah Campus



# NEWSLETTER

Department of Mechanical Engineering  
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## About the Newsletter

Welcome to the inaugural edition of this Newsletter, which will give our readers an insight into the Department of Mechanical Engineering at COMSATS University Islamabad (CUI), Wah Campus. Initially, this newsletter will be published biannually to keep our interaction alive with society and industry globally. We will focus on the developments in educational and research activities of the department. The current volume includes news about student events, achievements, seminars, curriculum review and newly introduced policies of the department. Through this opportunity, we will also introduce the state-of-the-art equipment available in our laboratories, which will be highlighted in the “Equipment in Focus” section. Please give us your feedback and suggestions through the email address mentioned on the cover page.

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## Message from Director Campus

*CUI Wah Campus is playing a leading role in providing quality higher education in the areas of Management Sciences, Computer Science, Mathematics, Electrical and Computer Engineering, Civil Engineering and Mechanical Engineering. Mechanical Department established in Fall 2018 is presently offering BS, MS and PhD programs with its 2 Batches of BS and MS students are graduated and are well placed in industry and well reputed universities for higher education worldwide. Mechanical Engineering department has highly qualified and professional faculty working on state of the art research on emerging trends with global and local partner institutes and local industries for indigenous solution provisions and continuously engaged for Continued Professional Development activities for industrial personnel and its graduates.*

*I appreciate hard work of HoD and faculty of Mechanical Engineering department and assure my all support in its academic and research endeavors to benefit local industry, society and country and scientific community at large.*

## Message from Head of Department

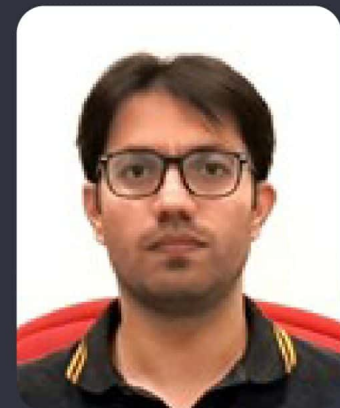
*The Department of Mechanical Engineering (DME) at CUI Wah Campus is providing quality education and research opportunities to the students in a competitive environment. Geographically, this department is situated in a place where multiple other universities are offering the same program; however, the DME has established its place high despite being a young department. Our dedicated faculty empowers the students with the best education in the classroom and laboratories. It is due to the efforts of our faculty that the Mechanical Engineering program of CUI is ranked 451-500 in QS and 301-400 in THE World University rankings.*

*Our undergraduate program is accredited under level-II of Outcome Based Education by the Pakistan Engineering Council (PEC), which is the highest rank of PEC accreditation. The Masters and PhD programs of this department are compliant with the policies of the Higher Education Commission (HEC) of Pakistan. We regularly refine our curriculum to address modern industrial and societal needs, while adhering to the national and international standards. Through a strong liaison with the industry, we give internship and job searching opportunities to our students.*

*We are currently involved in industrial projects for providing solutions to the local industry. All of our projects are linked with the United Nation's Sustainable Development Goals (SDGs). Besides industrial solutions, our students are required to undertake mandatory community services which is a core value and degree requirement at the Department of Mechanical Engineering of CUI.*



Prof. Dr. Muhammad Abid (T.I)  
Campus Director



Dr. Atta ur Rehman  
HOD / Associate Professor

## About the Department

The Department of Mechanical Engineering (DME) at COMSATS University Islamabad, Wah Campus, stands as a beacon of quality education since its establishment in 2018. Committed to multidisciplinary excellence in mechanical sciences and engineering, the department boasts an accredited Mechanical Engineering Program by the Pakistan Engineering Council. The inaugural graduating batch in 2022 signifies a milestone in its pursuit of producing well-placed professionals in industry, academia, and research globally. DME takes pride in its distinguished faculty, hailing from premier national and international institutes, proficient in teaching and research.



## Student Societies

### ASHRAE (American Society of Heating, Refrigeration & Air Conditioning Engineers)

A student section of ASHRAE was established at DME in 2019, which is functioning under ASHRAE international. ASHRAE is a global society dedicated to well-being via the enhanced use of sustainable technologies. The society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability within the industry.



### ASME (American Society of Mechanical Engineers)

An ASME student chapter was established at DME in 2023 which is a part of global ASME family. ASME is the leading international developer of codes and standards associated with the art, science, and practice of mechanical engineering. ASME develops voluntary standards that enhance public safety, health, and quality of life as well as facilitate innovation, trade, and competitiveness.



*All four Years Labs including 15 dedicated labs are available and are listed below:*

1. Engineering Drawing & Graphics
2. Computer Lab
3. Mechanical Workshops
4. Thermodynamics
5. Engineering Mechanics
6. Mechanics of Machines
7. Fluid Mechanics
8. Manufacturing Processes
9. Heat and Mass Transfer
10. Mechanical Vibration
11. Measurement & Instrumentation
12. CAD/CAM
13. Refrigeration & Air Conditioning
14. Control Engineering
15. Internal Combustion Engines



## CPDs / Seminars

### Seminar on IELTS Preparation

The ASHRAE CUI Wah Chapter, organized a seminar on IELTS preparation on March 16, 2023. Dr. Ayyaz Qadeer, Assistant Professor from the Management Sciences Department at CUI Wah, served as the resource person. The seminar, aimed at final-year BS (ME) students, covered IELTS basics, exam details, and time management, providing valuable tips and tricks for achieving higher bands.



### Seminar on Introduction to HVAC

The ASHRAE CUI Wah Chapter, organized a seminar on "Introduction to HVAC" on October 4, 2023. Guest speakers Engr. Riaz Baig and Mr. Ather Naseem Siddiqui shared insights into Heating, Ventilation, and Air Conditioning (HVAC) systems. The interactive event facilitated discussions on HVAC principles, sustainability, and future advancements. Students actively participated, engaging in stimulating conversations with the experts, enhancing their understanding of HVAC technologies.



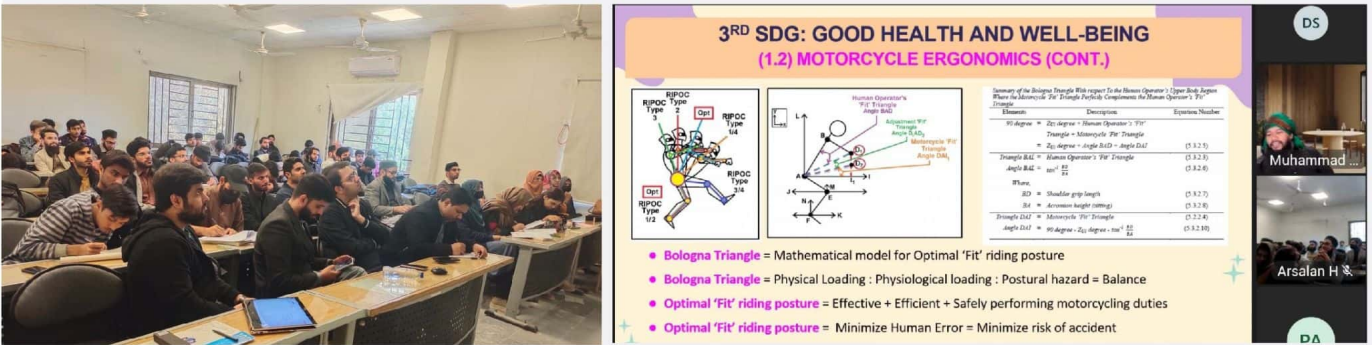
### Seminar on Mastering Sustainable Development Goals (SDGs) and their Importance in Mechanical Engineering Projects

The Department of Mechanical Engineering, in collaboration with ASME CUI Wah Chapter, organized this seminar on October 26, 2023. The seminar featured talks by Sher Shah Khan Bangash, Maryam Akhtar, and Anum Ameer, covering the 17 SDGs, their societal role, and relevance to Mechanical Engineering Projects. Students engaged in interactive sessions with the speakers. Dr. Atta ur Rehman Shah, Head of the Mechanical Engineering Department, emphasized on aligning student activities with SDGs.



### Seminar on Human Factors and the United Nations' 17 Sustainable Development Goals

A seminar on the subject topic was organized on November 24, 2023. Prof. Dr. Hj. Muhammad Izzat Nor Ma'arof from INTI International University, Malaysia, virtually presented on "The impact of human factors in engineering designs and their connection to SDGs". The audience actively engaged in discussion. Dr. Muhammad Abid, TI., Director of CUI Wah Campus, expressed gratitude, emphasizing the seminar's value in fostering understanding of the interplay between human factors, engineering, and SDGs. This seminar was conducted by the ASME CUI Wah Chapter.



### CPD Workshop on Green Composite Materials (A Sustainable Alternative to Plastic for Greener Future)

A Continuing Professional Development (CPD) Activity on the subject topic was arranged on Thursday December 14, 2023 by DME and the ASME CUI Wah Campus under the PEC license. Dr. Atta ur Rehman Associate Professor (Head – Department of Mechanical Engineering), COMSATS University Islamabad Wah Campus and Prof. Dr. Abdul Shakoor from University of Engineering and Technology Peshawar were the resource persons of the CPD Activity.



## Collaborations

### Research Collaboration with Bahauddin Zakariya University, Multan

A delegation from Bahauddin Zakariya University's Department of Mathematics visited COMSATS University Islamabad, Wah Campus on November 29, 2023. Led by Dr. Muhammad Rafiq, they explored collaborative research opportunities with CUI's Department of Mechanical Engineering and Mathematics. The visit focused on examining facilities such as the engine test bed, 3D printers, Dynamometer, and Mechanisms labs. The collaboration aims at joint research projects, knowledge exchange, and academic program development in areas like engine performance analysis and numerical modeling. Both universities expressed commitment to fostering this collaboration.



## Faculty Visit To NEWTECH Pipes Manufacturing And Production Plant, Islamabad

Faculty members from the Department of Mechanical Engineering visited the NEWTECH, Pipes manufacturing and production plant in Islamabad on January 3, 2023. They visited all the departments in the facility under the guidance of Mr. Asin Bin Kazim, the Managing Director (MD). MD thoroughly explained all the processes that are involved in the manufacturing of pressure pipes like HDPE, PVC, MDPE, EC, PPRC pipes and fittings along with the frequent problems that are encountered by various facilities. He graciously offered some of the potential projects that can be offered as Final Year Design Project to the students of BS (ME). During the visit, faculty members had an interactive question-answer session with the Managing Director in which discussions were about the roles of a Mechanical Engineers in this industry.



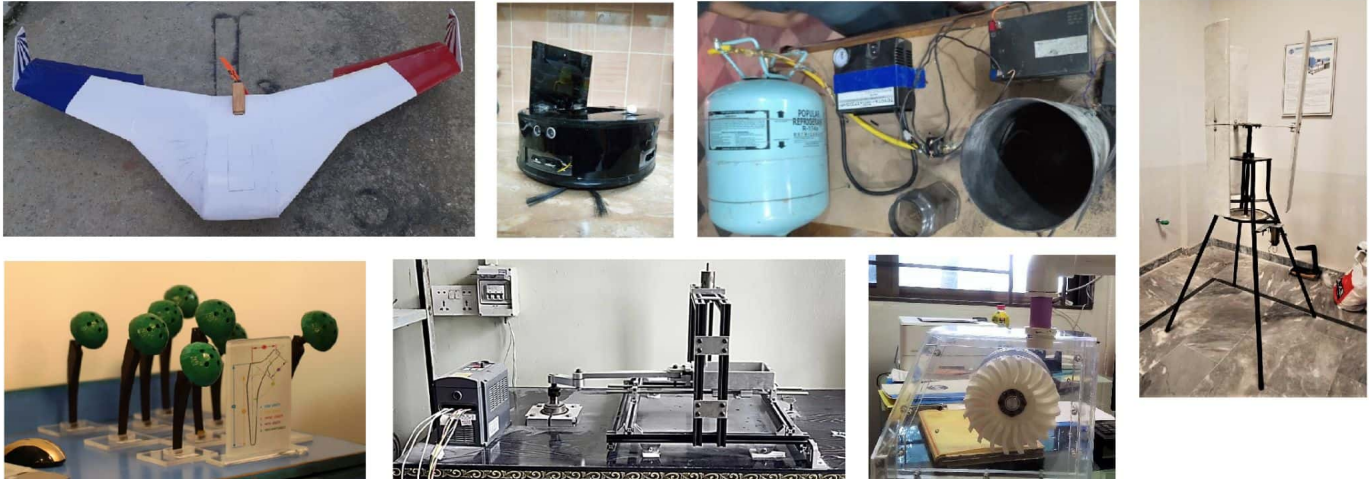
## Equipment in Focus

To introduce our state-of-the-art equipment to our readers, we would like to focus on the Computerized Numerically Controlled (CNC) lathe machine available at our workshops. This cutting-edge equipment allows our students and faculty to explore precision machining and advanced manufacturing techniques. This equipment is being utilized in projects involving any kind of turning operation(s). We are committed to provide hands-on learning experience to our students that reflect industry standards, preparing them for careers in engineering and manufacturing. We are also open to industry for using the equipment in collaborations.



## Open House and Job Fair 2023

On 8th June 2023, the Open House and Job Fair showcased final year projects from different departments of CUI Wah campus, attracting number of companies. There were 19 projects from DME in which students presented innovative work, leading to on-site interviews and numerous job offers. This dynamic event effectively bridged academia and industry, providing students with valuable opportunities to connect and secure promising roles in their respective fields.



## Students' Achievements



Team ASCENDERS (Usama Javed and Usama Akram) from DME CUI Wah won the RC plane flying competition, Taakra'23, at the University of Central Punjab, with an outstanding 18-minute flight time. They secured the top position among 14 nationwide teams.



The ASME CUI Wah Chapter team participated in ASME International Engineering Festival EFX 2023 at UET Peshawar on March 11-12, 2023. Led by Mr. Danish Shahid, Vice President of ASME CUI Wah, they presented a project on recycling LDPE plastic bags to reduce CO<sub>2</sub> emissions in the Elevator Pitch Competition. Mr. Danish Shahid secured the 2nd position, earning a \$100 cash prize.



The 17th iteration of the Design, Build, and Fly Competition (DBFC-17) took place at GIKI, where two teams, Ascenders and Arrowheads, from DME CUI Wah Campus participated under Dr. Shoaib Naseem's supervision.



Ms. Kiran Rashid, a student of DME at CUI Wah, secured funding in the US-funded incubation program, "Empowering Pakistani Women Entrepreneurs," organized by BIC-COMSATS University Islamabad in collaboration with RAIN Catalyst, Oregon, USA. Her project, "Design & Fabrication of High Energy Ball Mill for the Synthesis of Nanoparticles," earned her a Fully Funded Networking visit to the U.S. in August 2023. Kiran's initiative aims to locally produce nanoparticles for various industries, contributing to additive manufacturing and diverse applications like cosmetics, automotive, and healthcare.





# DME Faculty and Research (1st Jan – 31st Dec 2023)

## Publications

1. Waheed, S., Ahmed, A., Abid, M., Mufti, R. A., Ferreira, F., Bashir, M. N., ... & Fattah, I. R. Ionic Liquids as Lubricants: An Overview of Recent Developments. *Journal of Molecular Structure* 2023. <https://doi.org/10.1016/j.molstruc.2023.137307>.
2. A Zulfiqar, AR Shah, MS Khalil, MM Azad, Y Zulfiqar, MS Naseem, JI Song. Enhancing properties of jute/starch bio-composite material through incorporation of magnesium carbonate hydroxide pentahydrate: A sustainable approach. *Materials Chemistry and Physics* 2023; 128690. <https://doi.org/10.1016/j.matchemphys.2023.128690>.
3. AR Shah, A Sadiq, A Jalil, M Azaid, MS Naseem, R Alanazi, S Alanazi, AO Alanzy, IH Alsohaimi, RAA Malik. Effect of Rice Husk and Wood Flour on the Structural, Mechanical, and Fire-Retardant Characteristics of Recycled High-Density Polyethylene. *Polymers* 2023; 15(19), 4031. <https://doi.org/10.3390/polym15194031>.
4. AR Shah, H Ahmad, MH Abid, S Arif, Z Khan, M Khan, F Djavanroodi. Development and characterization of the jute / cotton reinforced epoxy / polyester hybrid - resin composite material. *Mechanics of Advanced Materials and Structures* 2023. <https://doi.org/10.1080/15376494.2023.2235352>.
5. Q Saghir, AR Shah, SK Afaq, T Ahmed, JI Song. Effect of machining parameters on surface quality and delamination of carbon/glass/epoxy hybrid composite material during end milling operation. *Journal of Mechanical Science and Technology* 2023.
6. AR Shah, A Imdad, A Sadiq, RA Malik, H Alrobei, IA Badruddin. Mechanical, Thermal, and Fire Retardant Properties of Rice Husk Biochar Reinforced Recycled High-Density Polyethylene Composite Material. *Polymers* 2023. <https://doi.org/10.3390/polym15081827>.
7. Hameed, M. S., Wakeel, A., Pasha, R. A., Ullah, B., & Ali, U. Analysis of Mechanical Strength of the Indium - Doped SAC 105 Lead-Free Solder Alloy. *Engineering Proceedings*, 2023.
8. Mehmood, A., Akhtar, K., Noor, S., Zahir, M. Z., Ullah, B., Khan, R & Sajid Ullah, S. Experimental study to optimize cold working, aging temperature, and time on the properties of AA6061 tubes: analysis using design of experiment. *Frontiers in Materials*, 2023.
9. Mehmood, A., Akhtar, K., Noor, S., Zahir, M.Z., Ullah, B., Khan, R., Salah, B. and Sajid Ullah, S. Experimental study to optimize cold working, aging temperature, and time on the properties of AA6061 tubes: analysis using design of experiment. *Frontiers in Materials*, 2023.
10. Waheed, S., Ahmed, A., Abid, M., Mufti, R. A., Ferreira, F., Bashir, M. N. & Fattah, I.R. Ionic Liquids as Lubricants: An Overview of Recent Developments. *Journal of Molecular Structure* 2023. <https://doi.org/10.1016/j.molstruc.2023.137307>.
11. Mazaheri, H., Ong, H. C., Masjuki, H. H., Arslan, A., Chong, W. T., & Amini, Z. Friction and wear characteristics of rice bran oil based biodiesel using calcium oxide catalyst derived from *Chicoreus Brunneus* shell. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 2023. <https://doi.org/10.1080/15567036.2019.1683100>.
12. Zahid, A., Anwar, M. T., Ahmed, A., Raza, Y., Gohar, G. A., & Jamshaid, M. Synthesis and investigation of mechanical properties of the acrylonitrile butadiene styrene fiber composites using fused deposition modeling. *3D Printing and Additive Manufacturing* 2023. <https://doi.org/10.1089/3dp.2022.0199>.
13. Shehzad, A., Arslan, A., Rehman, F., Quazi, M. M., Butt, S. I., & Jamshaid, M. Corrosion behavior of copper, aluminium, and stainless steel 316L in chicken fat oil based biodiesel-diesel blends. *Sustainable Energy Technologies and Assessments*, 2023. <https://doi.org/10.1016/j.seta.2023.103089>.

## Core Faculty Members



**Prof. Dr. Muhammad Abid**  
Professor / Director Campus  
Product Design, FEA, CFD, Water Resources



**Dr. Atta Ur Rehman**  
Associate Professor  
Composite Materials, Mechanical Behaviour of Materials, Fracture Mechanics, Materials



**Dr. Shoaib Naseem**  
Assistant Professor  
Robotics, Aerospace Propulsion and Manufacturing Processes



**Dr. Arslan Ahmad**  
Assistant Professor  
Tribology, Additive Manufacturing, Materials, FEA



**Dr. Barkat Ullah**  
Assistant Professor  
Vibrations and Controls, Structural Stability, Underwater Vehicles

## Industrial Visits



### KSB Pumps, Hassanabdul, KPK

The Department of Mechanical Engineering arranged an industrial visit to KSB Pumps under the supervision of Faculty members. Students visited machine shop, foundry section & casting operations. They also visited services section and learnt how the defective parts are repaired & what services are provided by KSB.



### Bestway Cement Limited, Hattar, KPK

The Department of Mechanical Engineering organized an industrial visit to BESTWAY Cement Limited, Farooqia plant, on December 29, 2022. Students explored the quarry, crushing area, raw mill, kiln, pre-heater, clinker storage, ball mill, and packing plant, learning about cement manufacturing phases and equipment.



### Silver Lake Foods Limited, Hattar, KPK

The Department of Mechanical Engineering arranged an industrial visit to Silver Lake Foods Limited (Kims Food) for 6th-semester students on May 18, 2023. The visit included exploration of various manufacturing plants, providing insights into ingredient specifications, processing techniques, and emphasizing the role of Mechanical Engineers.



### Heavy Industry Taxila, Taxila Cantt

The Department of Mechanical Engineering organized an industrial visit for third-semester undergraduate students to Heavy Industries Taxila (HIT) on November 10, 2023. Students witnessed the assembly line units for tank rebuilding and engaged in a productive Q&A session with HIT experts, exploring potential final-year projects.



### Nutech Pipe Industry, Islamabad

The Department of Mechanical Engineering organized an industrial visit to NEWTECH, Islamabad, a leading pipe manufacturer in Pakistan. The visit encompassed all departments, fostering interactive discussions on the roles of Mechanical Engineers in both technical and managerial aspects.



### Emporium Mall, B-17, Islamabad

The Department of Mechanical Engineering organized an industrial visit to the Emporium Mall, B17, Islamabad where students were briefed about the HVAC systems to be installed in the building. They also gained insights about the types of chillers, firefighting systems and roles of a mechanical engineer in any high rise building.

## Student Testimonials

### Muhammad Adnan

Lucky to be part of CUI, Wah Campus; the experience surpassed expectations with best faculty, state-of-the-art laboratories, and comprehensive student facilities. The Department provides me all essential resources, and the cooperative, friendly faculty fosters a gap-free environment, creating a friendly campus atmosphere.

### Muhammad Shazil Khan

Joining the Mechanical Department at CUI Wah transformed me from an introverted student to someone embracing challenges. Opportunities like affiliations with ASME and ASHRAE facilitated personal growth and networking. The supportive DME faculty played a crucial role, never overlooking me academically or in any situation.

### Muhammad Mobeen

Despite limited campus space, my experience in CUI, Wah Campus's Mechanical Department was excellent. The department's exceptional infrastructure, along with experienced faculty, provided an ideal learning atmosphere. My time here was marked by an extraordinary experience, promoting both learning and growth.

### Nawal Rizwan

A 2020 Mechanical Engineering student from CUI Wah Campus, I excelled with a notable GPA and served as ASHRAE Wah Chapter President. The experience, coupled with ASHRAE involvement, shaped me into a well-rounded engineering professional prepared for impactful contributions in the dynamic industry.

### Kainat Talat

As a student in Mechanical Engineering at CUI Wah Campus, I committed to academic excellence and practical skill development. This transformative education prepares graduates for success in the dynamic engineering industry, making CUI Wah's Mechanical Engineering a symbol of excellence.

## Alumni Testimonials

### Faisal Amin

I am writing to share some exciting updates on my academic journey since graduating from CUI, Wah Campus in 2022, I have been selected for the Master's of Science program in Technology of Biogenic Resources at the esteemed Technical University of Munich in Germany. My time at CUI has been instrumental in preparing me for this exciting transition. The support and guidance received during my Bachelor's studies have laid a solid foundation for my academic and professional pursuits. Proud to be an alumnus of such a distinguished institution.

### Alishba Javed

I'm Alishba Javed, a recent Mechanical Engineering graduate with a passion for leadership and industry application. Serving as the president of the AIAA CUI Wah chapter was a highlight of my university journey, fostering collaboration with our esteemed mechanical department faculty. Post-graduation, I delved into the industry, landing an exciting Maintenance Engineering internship at PepsiCo. Excited to continue bridging academia and real-world challenges!



## Curriculum Review

The CUI is among the few universities who have adopted and implemented the HEC's undergraduate and graduate education policies 2023. The Department of Mechanical Engineering has revised its curriculum and developed a scheme of studies (SoS) for BS Mechanical Engineering program which has been implemented on the intake batch 2023. This curriculum also adheres to the guidelines of the Pakistan Engineering Council (PEC). Some prominent additions in the new SoS of BS Mechanical Engineering program include courses on Machine Learning, Application of Information & Communication Technology and Smart Manufacturing. These courses will enhance the skills of our graduates to meet the modern-day technological requirements. Besides, we have also included some important courses in the general education category including Functional English, Expository Writings, Entrepreneurship, and others, which will help our graduates in enhancing their technical writing, communication, and business development skills. As per the new education policy, the students of BS Mechanical Engineering may also earn specialization in two Minors of their own choices. The Minors can help in adding to their skills related to other departments/disciplines. The existing SoS for graduate programs are also under review and will be updated and implemented in Fall 2024.

## New Policies

### ✓ Internship Policy

To bridge classroom knowledge with field experience, internship opportunities are given to the students during their studies. The Department has approved a new internship policy for BS Mechanical Engineering students in its 17th Board of Studies. The students are required to complete 6-8 weeks of internship in a relevant industry during their studies which is a degree requirement. The department facilitates the students to find internship opportunities in different industries through its industrial collaborations. This policy is applicable to the students who are enrolled in intake of batch Fall 2023 and onwards.



### ✓ Community Services Policy

To increase social awareness and responsibility in our students, the Department of Mechanical Engineering has introduced a new policy regarding Community Services. This policy has been approved in the 17th Board of Studies of Mechanical Engineering. The students are required to carry out specific social activities in each semester under the supervision of their class counsellors. This is a degree requirement for the mechanical engineering students, and the students must complete the required number of tasks to earn BS Mechanical Engineering degree. The purpose of this policy is to produce the graduates with a responsible attitude towards the society and the people.



## Wah Campus

### Contact Us

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