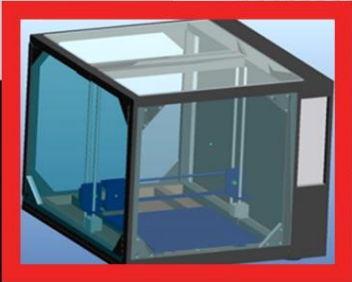


DEVELOPMENT OF 3D PRINTER

The Mechanical Department Team at NUTECH has developed a prototype 3D printer from scratch during ICAT 2020. The design is based on easy-to-find materials in the market. This project has been approved for the development of a commercial scale 3D printer named as NUPRINT. Our objective is to develop our own Graphic User Interface (GUI) for obtaining user design and printing requirements. Hence NUPRINT can target current local market in a better way as compared to other commercially available 3D Printers. Design and mechanism of this NUPRINT will be such that it can be developed from easily accessible components.



GESTURE CONTROL CAR

The technology has changed the way we live and revolutionized the world in every field of life. It is improving day after one and creating comforts for the people. The main purpose of this project is to help those who are handicapped to use their legs to accelerate the car or stopping it. The car is controlled by the gestures of one's hand and AI technology is used to detect the obstacles and stop following the directed path. It is the most emerging and focused field of automobile engineering. Even older persons will drive a wheelchair with low muscle power.



NUPAINTS – PRODUCTION OF PIGMENTS & PAINTS FOR ART ACTIVITIES/PAINTING BY STUDENTS AT NUTECH

NUTECH is the University for Industry where indigenous product development, innovation and research are highly appreciated. NUPaints is one of the creative projects offered in ICAT 2020 where students successfully produced prime powdered pigments from easily available raw materials, aimed at utilization in art and painting activities. The scope of the project lies in the development of new technologies and methods to increase the efficiency of pigments, development of newer shades and natural/non-toxic pigments.

The team initially synthesized well known pigments such as Prussian Blue, Chrome Yellow, Malachite and White powder from chemical precursors. A new shade of blue was also created using novel procedures. The developed paints are highly stable, long lasting and tested as Water paints, Egg tempera and oil Paints. The project is a noteworthy step towards indigenous product development in Pakistan.



NUTECH RESEARCH & DEVELOPMENT NEWSLETTER

RESEARCH AT NUTECH

The Office of Dean of Research (DoR) supports the research and development (R & D) efforts of all faculty members and students of NUTECH. We provide mentorship for our new faculty members, facilitate and foster industrial collaboration, while identifying and disseminating research opportunities and collaborations.

Avowed as “University for Industry” we have been functioning as one accord with the industry to resolve and rectify their problems. Our researchers individually and collaboratively investigated a vast spectrum of interdisciplinary research at the cutting edge of engineering and technology with unabridged support of university management. We are already set in motion with Industrial grade ICU ventilator, 3D printer and an X-Ray system. The research programs are focused on finding burgeoning knowledge, and integrating them with the various thriving métier of technologies.

Our faculty members' excellence in the research is demonstrated by the quality of their published articles, books, patents and conference presentations. Therefore, it has led to our participation in several national level projects as well as research partnerships with industries.

Our upcoming research centers will bring together faculty, graduate students and industries to pursue joint ventures in research and development of technologies.

Umair Manzoor PhD
Dean of Research



INDUSTRIAL AND CREATIVE ACTIVITY TERM FOR UG STUDENTS

At NUTECH, A 4 weeks Industrial and Creative Activity Term (ICAT) is offered before every Spring Semester and is part of the UG curriculum. Students develop small-scale projects with a focus on understanding and implementing a particular topic and to improve hands-on skills. ICAT is meant to unleash the creative abilities of students through innovative teaching and learning approaches and by encouraging everyone to set one's own educational agendas according to their aptitude and interests (both curricular and extra-curricular).

The second Industrial Creativity Term was offered in NUTECH from 21 Feb, 2020. Students and faculty were freely allowed to introduce innovative educational experiments/projects as ICAT activities. A total of 71 different projects were offered. The projects were displayed as an open house on the last ICAT day and Rector NUTECH Lt Gen (Retd) Khalid Asghar and Pro-Rector Major Gen Khalid Javed visited different projects stalls and interacted with the students. The highlight of ICAT-20 are “three dimensional printer, gesture control car, three axis CNC milling machine, hydraulic robotic arm, machine condition monitoring using sensor, ECG signal processing, saving cold unused water by recirculating and effectiveness of plastic roads” projects.



NUVENT-AN ICU VENTILATOR INDIGENOUSLY DEVELOPED BY NUTECH

Pakistan is currently recovering from COVID-19 and taking appropriate steps to uproot the devastating effects of the disease. Mitigation of the disease can only be made possible if the healthcare system is well-equipped with medical paraphernalia and personnel besides protective measures. The prevalent up rise in CORONA virus cases has choked our already laid up health systems, that are deficient in critical health care equipment such as mechanical ventilators. Thus, to address the issue of severe shortage of ventilators, saving time and foreign exchequer, NUTECH team of expert engineers and scientists, put their heads and hands together to devise an indigenous mechanical ventilator with high standards for medical use, yet in affordable prices for the benefit of our people. The NuVent will meet the needs of patients who have acute respiratory problems.

The NuVent is an ICU ventilator employing the highest of all standards using medical grade components where applicable, for its reliable performance as a lifesaving device for critically ill patients. Since it is a life critical device, it has strictly followed the international safety standards and PEC and DRAP standards. The industrial sector is lined up to help NUTECH for batch production of NuVent with economical prices easily affordable for local hospitals.



Already NuVent has been hailed as an innovative and state of the art piece of technology by local experts in the field. It is very likely that within the next few months, apart from benefiting the national exchequer and saving precious lives, export to others countries to support them in this fight against COVID-19, will also be conceivable.