



Bi-annual Newsletter

JNEC INSIGHTS

Keeping you informed

Volume - IX
Issue I

Hon'ble Auditor General Dashi Tashi accompanied by Deputy Auditor General from the Department of Follow-Up and Clearance Division and Assistant Auditor General from Samdrup Jongkhar visited Jigme Namgyel Engineering College on 12th May 2022. The team sensitized students on RAA's vision, mission and mandates. In addition the team also shared the operation of the audit office such as auditing procedures, report preparation, presentation and follow up processes.

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International Webinar on Emerging Trends in Power Engineering, Surveying and Geoinformatics, and Mechanical Engineering

Sangay Chedup

Workshop/
Seminar

International Webinar in partnership with IEEE Region 10 Subsection Bhutan was organized by Jigme Namgyel Engineering College on May 22, 2022. It was jointly organized with technical support from the college's research centers (CAT, CLEES and TISC). It is part of JNEC's pursuit of ensuring learners to be informed on recent trends in their respective fields of study. It also creates an avenue for researchers to disseminate their findings to appropriate audiences leading to further research through collaboration and partnerships. Furthermore, it is to ensure and enhance the research culture and research-based teaching-learning in the campus.

Keynote speaker, Professor Tadachika NAKAYAMA from Nagaoka University, Japan delivered a talk on 'Cutting Edge Research on Robotics and the Internet of Things (IoT)'. He shared the significance of embracing the recent technologies particularly the trends of robotics and IoT. Further, he shared about the breakthrough technologies and implementations in Japan and highlighted his contributions, discoveries, copyright and patents achieved. The Keynote speech was attended by more than 100 participants including the audience outside JNEC.

A webinar was conducted in three parallel sessions upon completion of the keynote session. Recent trends in power engineering had three eminent speakers Dr. Asawin Rajakrom from Bangkok, Dr. Albert Alexander from India, Dr. Nadim Kandekar, Bangladesh, Mr. Tenzin (CEO of Penden Cement Authority) and Mr. Vasker Sharma from JNEC.

Advancing Technology for Humanity

International Webinar on Emerging Trends in Power Engineering, Surveying & Geoinformatics and Mechanical Engineering

May 22, 2022

Keynote Speaker

Prof. Tadachika NAKAYAMA
Nagaoka University, Japan

Join Through
Zoom Link

Opening Session
President
9 AM (BST)

Speaker	Title	Session	Moderator
Prof. Tadachika NAKAYAMA Japan	Cutting Edge Research on Robotics and the Internet of Things	09:15—10:15 (BST)	Sangay Chedup
Dr Asawin Rajakrom Thailand	Field Testing and Commissioning of IEC 61850 Based Substation	10:20—11:10 (BST)	Ms Dheynay Zangmo
Dr Nadim Kandakar Bangladesh	Waste to Energy Conversion of Municipal Solid Waste	11:15—12:05 (BST)	Ms Dheynay Zangmo
Dr. S. Albert Alexander India	Fault Diagnostic System in Microgrid: A Case Study	12:10—13:00 (BST)	Ms Dheynay Zangmo
Mr Tenzin Bhutan	Maintenance Strategy- For Effective Asset Management of a Cement Plant	10:20—11:10 (BST)	Mr Norden Wangchuk
Mr Vasker Sharma Bhutan	Assessing the Landslide susceptibility in Samdrupjongkhar Dzongkhar using Machine Learning Models	10:20—11:10 (BST)	Ms Dechen Wangmo

Organizer

Centre for Appropriate Technology (CAT), Centre for Lighting and Energy Efficient Studies (CLEES), and Technology & Innovation Support Centre (TISC) in Partnership with IEEE Region 10 Subsection BHUTAN

Register [HERE](#)

Winter STEM Camp

Sangay Chedup

With an aim to promote Science Technology Engineering Mathematics (STEM) at grassroots level, a series of STEM camps were organized by Jigme Namgyel Engineering College. The college commenced its STEM camp on 7th January 2022 with the students of Garpawoong Middle Secondary School, Dewathang, Samdrup Jongkhar. Same programme was organized for the students of Samdrup Jongkhar Middle Secondary School and Samdrup Jongkhar Primary School from 10th – 11th January 2022.

The camp covered basic courses on automation, Internet of Things, and Artificial Intelligence, where student participants were informed about the significance of STEM in solving social issues. The facilitator also created awareness on the significance of early access to technologies to harness youths' creativity,

innovation, women empowerment, and gender balance through STEM.

In the 2 days workshop, students were introduced to two STEM educational tools; runline and Arduino. Students started with hands-on learning by implementing basic applications such as controlling lights. It was followed by implementing automation concepts by interfacing the household appliances with the sensors and microcontrollers.

Participants were taught basic concepts of IoT by controlling physical devices such as bulbs, fans, and buzzers connected to the internet remotely. They developed an ON/OFF button webpage to remotely control home devices. The event enabled participants to realize the implementation of basic programming language, knowledge of C/C++, JavaScript, and HTML. The event could also relate to their basic understanding of programming languages such as python and Code Monkey taught in

their schools.

During the closing session, the college President interacted with the participants and shared about the college's role in the community. He shared that JNEC is the only higher education institution in the Samdrup Jongkhar region and community service is one of the college's priorities.

He said this STEM camp is to provide the rural youths with access to STEM technologies, thereby playing a role in bridging the digital divide between youths in the rural and urban regions. The camp is organized to ignite STEM interest among the rural youths and embrace it from an early age. President also informed that the college would continue to provide such platforms and seek to collaborate with the schools in STEM monitoring and mentoring.

The college plans to continue with a STEM camp for other schools in Samdrup Jongkhar Dzongkhag during winter 2022.



WINTER STEM CAMP

7th - 24th January, 2022

IN PURSUIT OF REACHING SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS (STEM) EDUCATION TO THE GRASSROOTS

A 2 DAY WORKSHOP ON INTRODUCTION TO STEM EDUCATIONAL TOOLS: RUNLIN AND ARDUINO

Interfacing the software and hardware to implement basic Automation, Internet of Things (IoT) and Artificial Intelligence (AI) "Learning by Doing"

School Collaborators :

Garpawoong MSS 7 th -8 th Jan., 2022	S. Jongkhar MSS 10 th -11 th Jan., 2022	S. Jongkhar PS 10 th -11 th Jan., 2022	Karmaling HSS 15 th -16 th Jan., 2022	Dewathang PS 23 rd -24 th Jan., 2022
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ORGANIZER & FACILITATOR:
JIGME NAMGYEL ENGINEERING COLLEGE
ROYAL UNIVERSITY OF BHUTAN
DEWATHANG : BHUTAN
www.jnec.edu.bt



Students of Garpawoong Middle Secondary School, Samdrup Jongkhar Primary School and Samdrup Jongkhar Middle Secondary School attending Winter STEM camp.

"QUOTE OF THE DAY"

"Keep your face always toward the sunshine, and shadows will fall behind you."

— Walt Whitman

Guest Lecture on Affordable and Clean Energy at the Household and Community Level and InnoTech: Its role in Research and Development of Technology and Innovation in Bhutan

Sangay Chedup

Workshop/
Seminar

A Guest Lecture was organized by Jigme Namgyel Engineering College, Center for Appropriate Technology, in collaboration with IEEE Region 10 Subsection Bhutan on 16th April 2022 through Zoom Conference. Students and staff from four programmes including a few international STEM enthusiasts, attended the session.

The event was organized to provide awareness on the significance of alternative energy sources and how science and technology should transform the community's livelihood with clean and affordable energy. The event also

informed the students about the significance of research and innovation in Bhutan. Accordingly, initiatives were undertaken by the Innovation and Technology (InnoTech) Center towards fostering innovation and a technology-driven society in Bhutan.

Professor Somporn Chuai-Aree (PhD), Prince of Songkhla University, Thailand shared the significance of ensuring clean and affordable energy for all, particularly for the rural community. He emphasized that research and innovation should serve the community. It is possible if the university is taken to the people. He also shared that his solar PV projects and technology interventions have benefited the communities. Therefore, he encouraged the attendees to ideate, innovate and serve the community.

In addition, Mr. Ujjwal Deep Dahal, Director of InnoTech, Druk Holding and Investment (DHI), expressed his view on the significance

of research, innovation and technology in achieving the Nation's goals. InnoTech is committed to creating knowledge and skill-driven workforce. InnoTech provides capacity development in recent technologies and executes projects with international collaborators. He affirmed how InnoTech is taking a steadfast initiative in creating infrastructure for research and innovation.

"Strong foundation in the fundamentals is key for any prospects of youths venturing into technology and innovation-driven development," he added. Furthermore, he recommended the attendees to read the inspirational works of great achievers of the past.

The Dean of Research and Industrial Linkages offered gratitude to the speakers on behalf of the college and the participants.







GUEST LECTURE

9 AM – 11 AM BST | 16th April 2022



Dr. Somporn Chuai –Aree
Professor
Prince of Songkla University
Thailand

**Affordable and Clean
Energy in Household
and Community Level**
9AM – 10AM BST

**InnoTech: Its role in
Research & Development
of Technology and
Innovation in Bhutan**
10AM – 11AM BST



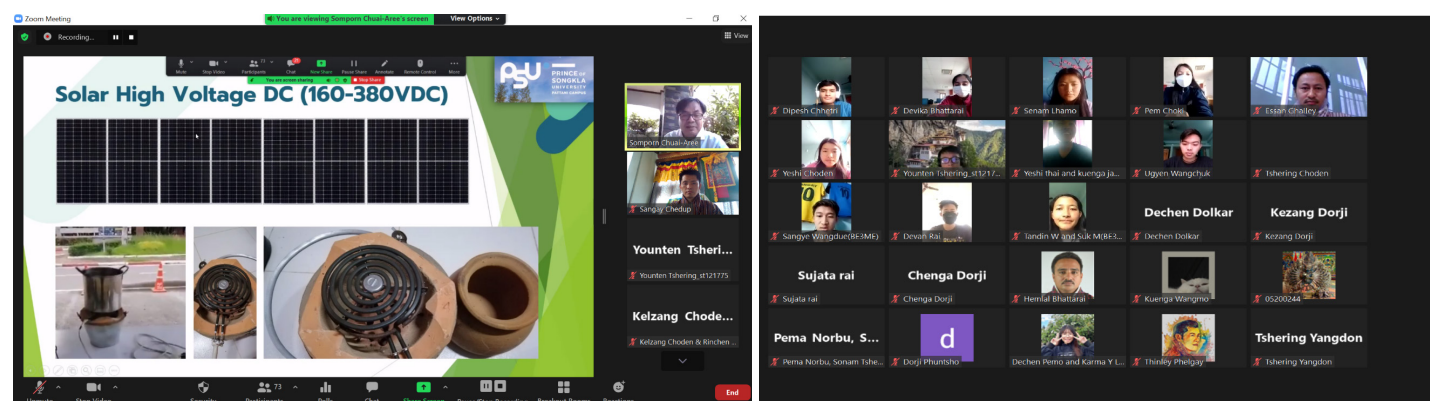
Ujjwal Deep Dahal
Director
InnoTech, DHI
Thimphu



[Zoom Link](#)



[Registration Link](#)



Staff and Students (BE Mechanical Engineering, BE Power Engineering and Diploma Electronics and Communication Engineering) attending the virtual Guest Lecture.

Feasibility study, Design and Estimation of Gravity Water Source for Samdrup Jongkhar Thromde

Research & Innovation

One of the missions of Jigme Namgyel Engineering College is to “Provide resourceful services through professional development training, consultancy, and expert services.”

The existence of a premier engineering college in the current location has always allowed this academic institute to provide services to its community. In June 2022 Department of Civil Engineering and Surveying agreed to assist Samdrup Jongkhar Thromde (Municipal) in curbing water shortage in Samdrup Jongkhar.

This collaboration commenced when Samdrup Jongkhar Thromde gave an expression of interest (EOI) to conduct a feasibility study, design, and estimate of an additional gravity water supply source for the region on 24th June 2022. Samdrup Jongkhar thromde has a population of 10,545 residing in an area of 4.47 square kilometers.

From a brief presentation by Thromde officials, it was understood that the region has been facing an acute water shortage. As an interim solution, Thromde has been managing an existing water source from ‘Rikhey Chu’ which is 4 km far from the municipal area. The water from ‘Rikhey Chu’ is currently pumped

to feed the 2.5 MLD (Million Liters per Day) water treatment plant (WTP). Thromde officials highlighted that the current water source is non-perennial and dries up during winter. The issue is exacerbated when there is a malfunction in the water pumps. Thus, it leads to a water crisis in the locality.

Therefore, in view of such a problem, thromde requested the college to carry out a feasibility study for supplying gravity water flow to Samdrup Jongkhar thromde. The team from JNEC has conducted extensive surveys with route and pipe network analysis using GIS. However, the water distribution network analysis, design and estimation is in progress. The finding of the study will be based on the water distribution and network analysis which is currently underway.



Samdrup Jongkhar Thromde officials visiting the site of the project.

Picture Story



Students batch of 2021-2022 presented the statue of Pel Dueki Khorlo (in Sanskrit Kalachakra) to the President of the College during the conduct of Annual College Rimdro. The college offers heartfelt gratitude to Khenchen Sonam Tashi of Chokyi Gyatso Institute, Dewathang for consecrating the statue. Pel Dueki Khorlo is identified as a deity of skilled workers by His Holiness 70th Je Khenpo Trulku Jigme Choedra.

First Biogas plant (Bert Mobil) for Food Waste Management to be installed in Jigme Namgyel Engineering College

Karchung

Campus Stories

Managing kitchen waste is always a problem for a household while it is unruly for a municipality to manage the entire waste of a region. This challenge is observed to be a pressing issue, thus Samdrup Jongkhar Thromde is looking for an alternative to curb this issue.

In collaboration with the Department of Renewable Energy (DRE), National Environment Commission Secretariat (NECS), and Samdrup Jongkhar Thromde (SJT), Jigme Namgyel Engineering College will install Bert Mobil in the campus as an alternative to curb food waste management issue in the region.

This joint venture aims to be an alternative to sustainable management of food waste which is identified and proved to be successful in managing food waste. Currently, Jigme Namgyel Engineering College is working on installing a Bert Mobil (BM) which has a capacity of 1 Ton per Day (TPD). A containerized biogas plant, also known as BM is an ideal option for managing kitchen waste through biogas production. Even though other biomass feedstocks are viable for biogas production, food waste is the most preferred feedstock for BM. Thus, BM, with a capacity to manage 1 Ton per Day (TPD) of food waste in Jigme Namgyel Engineering College, is expected to commence on 1st September 2022 funded by the World Wildlife Fund (WWF). If this endeavor comes out to be successful it shall be reciprocated to other regions in the country.

As preliminary inception, food waste was quantified using standard waste quantification

procedures based on the food waste generation data reported within the college campus and from the thromde.

The purpose of this joint project is to reduce the greenhouse gas (GHG) emissions from the biodegradable fraction of municipal solid waste and utilize its potential for heating and cooking using biomethanation techniques, one of which is through Bert Mobil. The nutrient-rich digestate from BM can be distributed as

around the thromde.

Mr. Karchung, Associate Lecturer from the Department of Electrical Engineering and Mr. Vasker Sharma, Associate Lecturer from the Department of Civil Engineering and Surveying, has been coordinating this project and will be mentoring the plant once it's fully operational.



Bio-Gas Plant site

Training on Domestic House Wiring for GSS Staff

Sonam Dorji

From June 25th till July 2nd, 2022, 11 General Service Staff were trained on Domestic House Wiring. The training was organized by the Department of Electrical Engineering, Jigme Namgyel Engineering College (JNEC). The training was resourced by Mr. Karma Singye and Mrs. San Maya Rai, Academic Support Staff from the Department.

The training was designed to provide basic knowledge of domestic house wiring and hands-on experience. It also aims to re-skill the staff and make them self-sufficient in essential skills needed in daily life. In addition to hands-on training, participants were taught with basic safety precautions required for house wiring.



Training Instructor Mr. Karma Singye & Ms. San Maya Rai with DAA and HoD (DEE) with participants during the training completion certificate award.

Training on Electronic Government Procurement System (e-GP)

Pema Wangchuk

Jigme Namgyel Engineering College hosted a five-day Electronic Governmental Procurement (e-GP) training program for departmental heads, administrative and management supporting staff, and technicians from 23rd to 27th May 2022. The session was resourced by Mr. Sonam Tobgay (Executive Engineer) and Mr. Kezang Jamtsho (Asst. District Engineer) from Samdrup Jongkhar Dzongkhag Administration.

The session was organized to provide hands-on practice on the e-GP system as it is mandated that every government organization adhere to and adopt an e-procurement system for efficiency and transparency in public procurement procedures. The session highlighted and demonstrated the tendering process, publishing the Annual Procurement Plan (APP), and Contract Management procedures.

Participants expressed their gratification from the session's outcome and felt the need for a similar session involving newer participants to stay tuned with the emerging trend. The college looks forward to hosting similar

training sessions in the future and is indebted to Samdrup Jongkhar Dzongkhag for making this event happen.



Training Resource official with the President and the participants

Student exchange program

Pema Thinley

Who would have dreamt of going to European countries for an exchange program from a very small country like Bhutan, still unknown to half of the world. I couldn't even believe that I happened to come across such an amazing opportunity, and more than that, I was awestruck when I received Erasmus + Programme-KA107 project n.2020-1-IT02-KA107 scholarship, coordinated by the University degli Studi della Tuscia (Italia) and funded by the European Commission.

It was not rocket science to travel from Bhutan to Italy with 6 hours of flight from India (Delhi)

to Italy (Rome). Yet, with great excitement and joy, I overcame all the obstacles and challenges that appeared on my way. I was privileged to witness the stunning places and meet so many kind people who absolutely wanted to give their hand to needy ones. It made me realize how big the world truly is, and I am looking forward to receiving even more valuable experiences and wisdom from this program.

This program made me realize how unique my culture and lifestyle are from other cultures and made me feel delighted and proud of my culture and tradition. Moreover, I came to know many international students with whom I could share our country's exceptional culture

and tradition and listen to their culture and tradition in return. It was indeed eye-opening to interact and network with so many kind souls. Unfortunately, I was the only one who came from Bhutan, but solitary made me brave and independent and made me learn and appreciate different languages. Hence, I took a 3 months of Italian language course at UNITUS.

UNITUS is not only a place to study but also provides a platform for international students to come together and share their knowledge and innovation. It is situated in a tranquil and lovely city called Viterbo, where you can appreciate the city's architecture. So, whenever you get an opportunity, take the risk and go for it.



Mr. Pema Thinley with his international friends at the University of Tuscia, Italy. He is studying in UNITUS funded by Erasmus+ International Credit Mobility programme agreement between JNEC and UNITUS.

A Reflection from Semester away at Bialystok University of Technology (BUT), Poland

Chimi Pelden Dorji

Traveling abroad would be a cherishing dream for many, that will instill wider exposure, create joyful moments with acquisition of new knowledge and unique experience. One such trip I experienced was when I was given an opportunity by the college to pursue a semester long study at Bialystok University of Technology, Poland along with one of my companions, Mr. Lok Bdr Chhetri.

Being new to the place, in a different cultural environment, a naïve girl like me was awestruck seeing a distinct way of life abroad and realizing

what challenges may follow. However, it was a precious four-month learn-travel mode with a complete package of learning sessions with additional engagement in cultural exchanges and new learning experiences. The very challenge I experienced was while exchanging our interaction due to language barriers and acquisition of their native language which is likely to take longer time to learn.

Having grown and groomed in the remote village in the landlocked country, Bhutan, I aspired to broaden knowledge of countries abroad, their culture, food, way of living and lifestyle as I traveled to Poland and planned to travel to other European countries. These study abroad experiences not only allowed me to thoroughly immerse myself in a foreign culture

with many unique experiences but also made me understand my perspectives. In conjunction with the practical skills and knowledge I obtained from my studies in college, I feel this study abroad program has been enriching personally and professionally in the pursuit of being an engineer and better human being.

Although I studied various theoretical aspects of Power Engineering, through this program I could see many practical arenas to apply and implement. The semester-long study abroad was certainly an eye-opening moment in my life which was beyond the intended journey. We felt privileged and grateful to the college and Bialystok University of Technology, Poland for this grand opportunity.



Ms. Chimi Pelden Dorji and Mr. Lok Bdr. Chhetri with this international friends at the Bialystok University of Technology, Poland.

Awareness Program on Auditing

Sonam Jamtsho

On 7th May 2022, Assistant Auditor General of Samdrup Jongkhar and his team provided a day-long Awareness Program on Basic Auditing to JNEC Integrity Club members.

The main objective of the program was to orient club members and concerned individuals with the auditing procedures and its operations. The session began by highlighting the Royal Audit Authority's mandates as per the Audit Act of Bhutan- 2018, and the audit processes.

The official shared the core values of the Royal Audit Authority which comprises Integrity, Accountability, Transparency, Professionalism, and Teamwork. In addition, the event also emphasized the importance of integrity and ethics in the Royal Audit Authority.

With this awareness program, the college is looking forward to uphold the values of integrity, honesty, transparency, accountability, and responsibility in the behavior and attitude

of the staff and students respectively. The awareness program was also attended by

student leaders and the student affairs team.



Students attending the awareness program.

Reports from COVID-19 Safety Officer

Ngawang Namgyel

The coronavirus disease (COVID-19) outbreak in December 2019 has ragged and created havoc on humanity around the globe. Bhutan and its people are safeguarded from the virus under the benevolent leadership of His Majesty the King, spearheaded by Lyonchen DASHO Lotay Tshering, the Prime Minister of Bhutan. His Majesty the King has been tirelessly touring every corner of the country to oversee the safety of the Bhutanese. On 8th June 2021, His Majesty the King was on the Royal Tour to eastern dzongkhags to oversee measures against the spread of the virus and its outbreak in Tashigang.

Jigme Namgyel Engineering College has been working hard to safeguard the staff and students from the virus. The college management instituted JNEC-COVID-19 Task Force (JNEC-C19TF) in March 2020 after the first case of coronavirus in the country was reported. The JNEC-C19TF had a series of meetings until

the date and discussed matters ranging from academics to the logistics management of staff, their families, and students during the lockdown and post-lockdown. The college seeks advice from the Eastern COVID-19 coordination Office (ECCO) based inside the campus whenever there was an issue related to the adherence of COVID-19 protocols and other official formalities. The JNEC-C19TF came up with the following measures for the safety of the staff and students:

- Students are strictly prohibited from going outside the campus. Students and staff with medical cases and other emergencies are sent outside the campus and escorted by student service officers/staff. Staff is allowed to go outside the campus on a coupon basis. They were provided with only 6 coupons in a month. No staff was allowed to go outside the campus without the coupon.
- 5-6 staff were assigned to patrolling teams daily from 8:00 PM until 12:00 AM, even on weekends and national holidays.

They monitored the whole campus in that stipulated time.

- Every hostel, academic premises, and office were provided with proper hand washing facilities.
- All staff and students must mandatorily use face masks on campus.

As per the directives of the National COVID-19 Task Force, 10% of staff and students of JNEC should undergo random COVID-19 tests biweekly. As of 9th June 2021, the 9th round of random tests was carried out for JNEC and all tested negative. The Dewathang hospital also carried out Flu vaccination for staff and students on 15th December 2020. Simultaneously, the first round of COVID-19 vaccination for staff and students was carried out on the 4th and 5th of April 2021. Given the increasing number of virus outbreaks in the country, the college had identified isolation and holding facilities on 29th May 2021, as per directives from the Ministry of Health, in the event of virus upsurge in Samdrup Jongkhar.



JNEC Students getting the routine Covid-19 Antigen test and Covid-19 dose.

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