

Bi-annual Newsletter

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### Edith Cowan University and JNEC signed a Credit and Recognition of Prior Learning Agreement for Diploma Programmes

n 9th June 2023, a momentous event unfolded as Jigme Namgyel Engineering College (JNEC), Royal University pf Bhutan and Edith Cowan University (ECU),

Australia signed a Letter of Understanding )LoU. The signing ceremony, held at the Office of the Vice Chancellor in Thimphu, was graced by esteemed dignitaries from

both institutions, including Professor Daryoush Habibi, the pro Vice-Chancellor, and Executive Dean of ECU's School of Engineering, and Mr. Sangay Chedup, Dean of Research and Industrial Linkages at JNEC, RUB.

This LoU marked a significant milestone for the institutions, as it endorsed the Credit and Recognition of Prior Learning (RPL) Agreement. with this agreement, engineering graduates from JNEC aspiring to pursue higher studies at ECU's School of Engineering will now have the opportunity for lateral entry. This seamless pathway provides JNEC graduates with enhanced academic opportunities and global exposure joining ECU's esteemed engineering program.

It is essential to note that credit transfer and RPL evaluation will be carefully assessed on an individual case-by-case basis. ECU will thoroughly review prospective students' information during enrollment to determine their eligibility. furthermore, the terms of this agreement will undergo periodic reviews to ensure its effectiveness and relevance.

Beyond the credit and RPL agreement, the

representatives also explored other potential areas of collaboration, emphasizing a commitment to further cooperation and knowledge exchange between the two institutions. This shared vision promises a bright future of academic synergy and growth, fostering a vibrant and enduring relationship between JNEC and ECU for many years to come.



#### Workshop on the Basics of Satellite Communication Using "EduSat"

n April 29th 2023, a group of 35 students from Garpawoong Middle Secondary School, along with 15 students from diverse programmes of the college were fortunate to attend an enriching hands-on workshop titled "Introduction to Satellite and Ground Station Application". This inspiring workshop was thoughtfully

organized by the students of Jigme Namgyel Engineering College (JNEC).

The primary objective of the workshop was to provide the participants with a strong foundational understanding of space education, satellite development, and the vital importance of STEM (Science, Technology, Engineering, and Mathematics) subjects. The ultimate goal was to ignite a passion for learning and to motivate these students to consider higher education in relevant fields. The workshop offered a comprehensive program that consisted of engaging seminars, presentations, interactive Q&A sessions, and practical handson experiences.

A key highlight of the workshop was the focus on "EduSat," a remarkable home-grown educational satellite prototype, designed by students pursuing the Diploma in Electronics and Communication Engineering at JNEC. Through the use of this prototype, theoretical concepts were made more relatable, and students were taken on an insightful tour of the Ground Station situated within the college premises. During this interactive tour, they had the privilege of learning about antennas, communication equipment, and ground station monitoring systems, and even had the unique opportunity to track a satellite in real-time.

The presence of Dr. Tshewang Lhendup, the President of JNEC, added significance to the event. In the opening remarks, the President emphasized the pivotal role of STEM education in preparing students for a digitally advanced and progressive future. To gauge the workshop's impact, he conducted a poll to determine the number of students aspiring to pursue STEM subjects in the future, confidently assuring them that the workshop would positively influence their perspectives.

The workshop was skillfully facilitated by students from JNEC, who actively participated in developing a satellite prototype for the esteemed BIRDS-X satellite project organized by the prestigious Kyushu Institute of Technology. Their commendable progress to phase 2 of the competition had earned them an international participation opportunity. In the spirit of a social initiative, these enterprising students conceived the workshop with the noble intention of sharing their experiences and imparting knowledge to students from schools and universities alike.

During the workshop, various students from different academic levels took the stage and delivered informative presentations. Jiwan Thapa, a dedicated Diploma student in Electronics and Communication Engineering (ECE), conducted a series of presentations and interactive Q&A sessions introducing Space, satellite technology, and the relevance of STEM in the context of Bhutan. Bal Krishna Pradhan, another exceptional Diploma student in ECE, provided in-depth insights into the concepts and technologies involved in space and satellite communication engineering. Phurba Wangchen, a final year student pursuing a Bachelor's degree in Mechanical Engineering, shared his invaluable experience and technical processes involved in prototyping a satellite payload. Following the theoretical sessions, the participants were divided into two groups for parallel hands-on sessions. One group actively engaged with "EduSat" while the other group visited the Ground Station facility. Subsequently, the groups switched learning centers, ensuring a comprehensive and wellrounded experience for all attendees. The participants were thoughtfully provided with refreshments and awarded certificates of participation at the conclusion of the workshop.

In the closing remarks, another poll was conducted, and the organizers were delighted to observe an increased number of students expressing genuine interest in pursuing STEM subjects. The feedback from the students was overwhelmingly positive, with many expressing a sincere desire to attend similar workshops and events in the future.

The resounding success of this transformative workshop, which sought to foster educational exchange and inspiration within the community, garnered immense interest and participation from schools in the locality. As a testament to their dedication, the organizing committee pledged to extend invitations to various other schools in the area, promising even more engaging and interactive activities in future workshops, empowering students to embrace the limitless possibilities of STEM education.



#### **Capacity Development at JNEC through** Linnaeus-Palme

rofessor Martin Andersson and Prof. Magnus Hagelsteen from Lund University, Sweden, undertook academic related activities as part of the Linnaeus-Palme

project commitments during their visit to Jigme Namgyel International Engineering College (JNEC) from 9th to 13th May 2023. These activities were aimed at fostering academic collaboration,

capacity building, and knowledge exchange between the two institutions.

One of the key initiatives was a 6-hour intensive course on Computational Fluid Dynamics conducted by the professors for third-year B.E. Mechanical Engineering students and faculty members. This course provided valuable insights into advanced engineering simulations and analysis methods, enhancing the student's understanding and skills in fluid dynamics. Additionally, the two professors delivered a guest lecture on "Introduction to Societal Resilience" to all the final-year students. The lecture was aimed to broaden students' perspectives by emphasizing the importance of engineering solutions that consider societal impacts and sustainable development.

As a part of professional development for the faculty members, Professors Martin and Magnus facilitated a 3-hour capacity-building workshop on writing international project proposals from an evaluator's perspective. This workshop equipped 12 faculty members with the knowledge and techniques to secure international project funding effectively.

Furthermore, on 13th May 2023, the professors organized a one-day workshop on "21stcentury engineering education pedagogy, including methods used in flipped classrooms. The workshop engaged 40 faculty members



in discussions about innovative teaching methods, encouraging them to embrace a proactive approach to learning, unlearning, and relearning in their educational practices.

Apart from their academic engagements, two professors visited a farm where a solar dryer, designed and prototyped by JNEC in partnership with Lund University, was donated and installed to benefit local farmers. This practical project demonstrated the positive impact of collaboration on the local community and agricultural sector.

As a part of the Linnaeus-Palme project, it extended its support to students for exchange programs. Three students from JNEC are currently pursuing their case studies at Lund University, while one student from Lund University was in the campus conducting her case study on the solar dryer implemented at the JNEC Campus. This student exchange program provided a unique opportunity for cross-cultural learning and international exposure.

After completing their fruitful stay at JNEC, Professors Martin and Magnus went to visit the College of Science and Technology (CST) on 14th May 2023, where they would continue their project activities, further strengthening the ties between the institutions.

In general, the visit of Professors Martin Andersson and Magnus Hagelsteen proved to be a fruitful and enriching experience, reinforcing the collaboration between Lund University and Jigme Namgyel Engineering College and promoting academic excellence and international cooperation in the area of engineering education and research



#### **3rd JNEC Open Khuru Tournament**

s a part of commemorating 50 years of exceptional service to the nation, Jigme Namgyel Engineering College (JNEC) hosted a thrilling one-day Khuru knockout tournament on May 7th 2023.

The event attracted 40 teams from various regions across the country. A team from Thimphu humbled many other competent teams, taking the winning prize from the daylong match. The triumphant team members were presented with 46" Smart TV sets each, while the first runners-up and second runnersup were awarded 43" and 36" Smart TV sets respectively. This marked the 3rd successful Khuru tournament organized by JNEC, showcasing their commitment to fostering sportsmanship and camaraderie.



#### **CEEECoM Project Needs Assessment** Understanding **Bhutan's** Survey: **Requirements**

n an ambitious move to spearhead a transformative initiative, three teams from Jigme Namgyel Engineering College (JNEC), Royal University of Bhutan (RUB)

Workshop &

were dispatched to multiple locations across the country. Their mission was to conduct an all-encompassing needs assessment survey, focusing on understanding the

current state and specific requirements of various organizations involved in electrical equipment monitoring and fault diagnostics. The invaluable findings from this survey will serve as the cornerstone in the development of relevant laboratories, courses, and curricula tailored to meet the needs of students and the services offered to organizations in this domain.

The extensive survey encompassed a diverse range of industries, including five hydropower facilities with switchyards, six manufacturing industries, and nine service industries, spanning the entire nation. Evidently, a significant majority of these industries encountered challenges in this area, primarily stemming from

**Successful 7th Inter Programme Conference Celebrates Student Achievements at JNEC** 

n June 22, 2023, the prestigious 7th Inter Programme Conference was triumphantly conducted at Jigme Namgyel Engineering College (JNEC), providing an esteemed platform

Campus audience.

for selected final-year projects to be presented to a broader A total of nine outstanding

student works were carefully chosen from their respective programs, each showcased with utmost pride during the conference. This momentous event also marked the successful completion of the first cohort of BE Mechanical Engineering and BE Surveying and Geoinformatics. Despite facing various challenges, the students exemplified their exceptional abilities through the presentation of high-quality project works. During the conference, the significance of disseminating their works and achievements through various forums was emphasized, fostering a sense of accomplishment among the participants. The students were encouraged to take pride in their exceptional projects, as they were selected as the best and granted this prestigious platform.

JNEC is committed to continuously supporting and encouraging students to exhibit their remarkable achievements through initiatives like the Inter Programme Conference. In line

the scarcity of technical experts within the local region and the substantial investments required for infrastructure enhancement. Nevertheless, the survey also revealed commendable efforts from numerous organizations as they sought to address these issues through in-house capacity building, training, and leveraging their experiences.

JNEC, RUB extends its profound gratitude to the management and officials of all participating organizations for their active and valuable contributions to this critical survey. The college remains steadfast in its commitment to formulating comprehensive courses of action within the project's duration and beyond, and they are dedicated to seeking continuous cooperation and support from these organizations to further their joint initiatives. This collaborative endeavor not only strengthens the technical capabilities of the involved institutions but also fosters stronger bonds between Bhutan and its international partners, promoting mutual growth and progress in the field of electrical equipment condition monitoring and fault diagnostics.



with this commitment, the college provides robust support systems to facilitate the publication of their works in esteemed conferences and journals.

The projects presented during the conference were diverse and showcased the caliber of the students' efforts across various departments:

1. Design and Fabrication of E-Jeep -Mechanical Engineering Department, JNEC, Dewathang.

2. Evaluating the Impact of ERP System in Supply Chain Management: A Case Study of Manufacturing Companies in Bhutan -Department of Humanities and Management.

3. Transforming Information Management Through Digitalization: JNEC Alumni Portal -Department of Information Technology, JNEC.

4. Topographic Map of Entire Dewathang Town - Department of Civil Engineering and Surveying, JNEC.

5. Smart Floating PV System on Hydropower Reservoir - Electrical Engineering Department, INEC

6. Fabrication and Installation of RFID Smart Security Gate - Mechanical Engineering Department, JNEC, Dewathang, and Department of Electronics and Communication Engineering - JNEC.

7. Electrical Load Calculation and Spatial Mapping of JNEC - Electrical Engineering Department, JNEC.

8. Design and Development of CanSat to Measure Atmospheric Data and APRS Communication - Department of Electronics and Communication Engineering, JNEC.

9. 3D Cadastral Strata Building Information Model Prototype - Department of Civil Engineering and Surveying, JNEC.

In recognition of excellence, the Diploma in Computer System and Network program received accolades for delivering the best conference paper presentation, as assessed by a distinguished panel of seven members. The conference proceedings will be immortalized in a peer-reviewed journal article book titled "JNEC Thruel-Rig Sar Toed" and the esteemed "Journal of Applied Engineering, Technology, and Management (JAETM)." Additionally, all participants are encouraged to submit their outstanding works for publication in JAETM, a reputable peer-reviewed journal that offers a coveted Digital Object Identifier (DOI).

The success of the 7th Inter Programme Conference underscores JNEC's dedication to nurturing a culture of excellence in academic and research endeavors, empowering its students to shine on a global stage. Through such prestigious events, the institution reinforces its commitment to academic growth and advancement, fostering a legacy of innovative thinking and pioneering achievements.

#### Ushering New Deans in Jigme Namgyel Engineering College (JNEC)

he Deans Selection Committee of Jigme Namgyel Engineering College (JNEC) proudly ushered the newly appointed Deans. Mr. Hemlal Bhattarai is appointed as

the new Dean Academic Affairs (DAA). He has been with the college since 2006, and currently serves as an Assistant Professor under the Electrical Engineering

Department. Mr. Chenga Dorji is appointed as the new Dean of Student Affairs (DSA). He has been with the college since 2007 and currently he serves as a lecturer under the Electrical Engineering Department. Both the esteemed individuals holding master degrees in Electrical Engineering have contributed in various capacities to the college and Royal University of Bhutan.

Commencing their tenures from July 1, 2023, the new deans are set to lead JNEC through a transformative phase, coinciding with the implementation of a recently revamped curriculum. Their roles will play a crucial part in ensuring the successful execution of the new curriculum and advancing academic and

#### JNEC Observes World Red Cross Day

n the occasion of World Red Cross Day, celebrated annually on May 8, 2023 Jigme Namgyel Engineering College (JNEC) helf the inauguration ceremony

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of its Rock Garden. The event was graced by the presence of Dr Tshewang Lhendup, the President of the college. The rock garden was a collaborative effort built by the dedicated

members of JNEC Red Cross Youth, who also proudly serve as members of the Bhutan Red Cross Society (BRCS).

The BRCS was established under the Bhutan Red Cross Society Act of 2016 and operates as an autonomous and non-profit organization. It plays a crucial role in establishing a robust network of volunteers across communities in Bhutan. These volunteers offer essential services in social welfare, health, and disaster risk management, complementing the efforts of the Royal Government and other organizations.

The JNEC Red Cross Youth members have proven to be highly proactive, actively engaging in voluntary work within the college premiss. Their contributions encompass a wide range of activities, such as water source management, blood donation drives, cleaning campaigns, and providing refreshments during college events. Currently, the college boasts around 57 JNEC student-related affairs in the college. We extend our warmest congratulations to them and wish them the best of luck as they take on additional responsibilities.

At this juncture, JNEC would also like to express its deepest gratitude to the outgoing deans, Mr. Samten Lhendup, who served as the Dean of Academic Affairs (DAA), and Mr. Shah Bir Rai, who served as the Dean of Student Affairs (DSA). Their unwavering dedication and hard work over the last six years have significantly contributed to the growth and success of the college. We sincerely appreciate their invaluable service and wish them all the best in their future endeavors.



students as members of BRCS, with 17 of them being females. The group has ambitious plans to further increase its membership following the official inauguration of the Bhutan Red Cross Youth.

This dedication shown by these students in voluntary work and community service highlights their commitment to making a positive impact on society. With their active involvement, the JNEC Red Cross youth is poised to play a significant role in assisting those in need and contributing tho the betterment of their college and the wider Bhutanese community. Their spirit of service and altruism sets an inspiring example for others, reflecting the true essence of World Red Cross Day.



#### JNEC signs MoU with Vajra Builders Private Limited

n its move to create valuable linkages and collaboration with external agencies, Jigme Namgyel Engineering College singed the Memorandum of Understanding (MoU) with Vajra Builders Pvt. Limited on May 1,

#### National Linkages

2023. The MoU was signed by Mr. Jamtsho, CEO of Vajra Builders, and Dr. Tshewang Lhendup, President of JNEC, in presence of esteemed board members of Vajra Builders and

Deans, Heads of Departments (HoDs), and Programme Leaders from JNEC.

The primary objective of this MoU is to foster collaboration between the partners and facilitate capacity development, thereby strengthening knowledge and skills transfer initiatives in both directions. The agreement includes several key provisions:Facilitation of Guest Lectures: Vajra Builders will provide industrial experiencebased guest lectures to the students and staff of JNEC-RUB. This will provide the students with valuable insights into real-world practices and industry trends.

1. Field Attachment of Staff: Staff members from JNEC-RUB will have the opportunity to participate in field attachments at Vajra Builders. This hands-on experience will enhance their understanding of industry operations and best practices.

2. Student Internships: JNEC-RUB students will have the chance to undergo internships at Vajra Builders. This practical exposure will help them develop job-ready skills and gain

#### industry experience.

3. Staff Training: JNEC will support Vajra Builders by facilitating short-term/part-time training for their staff. This collaboration will contribute to enhancing the skills of the industry workforce.

The CEO of Vajra Builders felt the importance of providing job-ready skills to graduates at the industrial set which the academic institutions may not be able to equip them with at the institute. Hence, he reiterated the commitment to collaborate with academic institutions like JNEC in imparting and developing jobready skills in graduates. He feels that this collaboration will allow students and staff from JNEC to gain hands-on skills at the construction site and have a better understanding of the industrial practices and their requirements.

The President of the college, expressed similar

concerns about the job readiness of graduates and acknowledged the significance of industry exposure. To address this concern, JNEC has included a semester-long industrial attachment module in the programme structure for three diploma levels programmes which will be implemented from the Autumn Semester 2024. With the semester-long industrial attachment programme, graduates will have good skills to meet the requirements of the market in addition to the knowledge they have acquired at the college.

The President thanked Vajra Builders for being the first industry partner to sign the MoU and informed the members that JNEC will approach other stakeholders to initiate similar collaborations. This MoU marks a crucial step in bridging the gap between academia and industry; fostering the holistic development of students.





### The DevOps concept training to graduands of Diploma in Computer Systems and Networking by Department of Information Technology

rom 9th to 26th June 2023, an intensive DevOps concept training was conducted with the primary goal of equipping students with a thorough understanding of DevOps principles, methodologies, and tools. The training program engaged students in a

National Linkages

featuring a combination of lectures, hands-on exercises, and group assignments. To facilitate their learning journey, students were provided

dynamic learning experience,

with essential reading materials and granted access to DevOps tools, enabling practical application of their knowledge.

The training sessions centered around various topics, with a particular emphasis on continuous integration and continuous delivery (CI/CD) practices. These concepts were reinforced through real-world applications in the development of two critical systems: the Entrepreneurship Incubation Center Website and the No Due System for Jigme Namgyel Engineering College (JNEC).

The Entrepreneurship Incubation Center Website was thoughtfully crafted to efficiently manage and promote the college's incubation center. Its user-friendly interface provides comprehensive information about the center's offerings, incorporates an online application system, and boasts an event management feature to effectively engage the target audience.

Conversely, the No Due System streamlines the clearance process for graduands or departing students. This innovative system enables students to submit clearance requests online, facilitating seamless coordination amongst departments. Additionally, it provides real-time status tracking and generates valuable analytics and reports for administrators, elevating the overall efficiency of the clearance process.

As a result of the training, students developed a clear understanding of the myriad advantages of adopting DevOps practices and gained practical knowledge of DevOps tools and technologies. Furthermore, they acquired valuable skills in designing and implementing efficient CI/CD pipelines, ensuring a streamlined and effective software delivery process.

The DevOps concept training proved immensely beneficial in enhancing the students' comprehension of DevOps principles, practices, and tools. Empowered with this newfound knowledge, they are now wellequipped to proficiently implement and manage DevOps processes within their respective organizations, significantly enhancing the efficiency of software development and deployment. For those interested in exploring the Entrepreneurship Incubation Center Website and the No Due System of JNEC, the access links are provided below:

Entrepreneurship Incubation Center Website: https://eic.jnec.edu.bt/

No Due System Link of JNEC: https://nodue. jnec.edu.bt/

This successful training initiative marks a pivotal step towards fostering a culture of efficient software development practices among students, paving the way for continued growth and innovation in the realm of technology and engineering.



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# Institution's Commitment to Geospatial Sciences Strengthened with Profound Cartography Training

n the 20th and 21st of June 2023, a comprehensive two-day introductory training on cartography was skillfully organized to enrich the knowledge and skills of

Workshop/ Seminar

students and faculty in the field of Survey & Geoinformatics. This empowering training initiative, facilitated by the esteemed Prof. Wim Feringa, a renowned cartography specialist

from ITC, Netherlands, witnessed active participation from final year BE students in Survey & Geoinformatics and Diploma in Surveying.

During the intensive training, participants were immersed in the fundamental principles and techniques of cartography, equipping them with invaluable insights to create accurate and visually appealing maps. The overwhelming positive feedback from the attendees served as a testament to the training's effectiveness, prompting the institution to make the strategic decision of inviting Prof. Feringa once again in August.

The upcoming three-week course on CARTOGRAPHY, dedicated exclusively to the final year Surveying students and faculty members, promises to delve deeper into advanced cartographic concepts and practical applications. This extended training opportunity is expected to offer participants a more comprehensive understanding of cartographic tools and methodologies, further enhancing their expertise in the field.

This proactive initiative highlights the institution's unwavering commitment to fostering excellence in geospatial sciences. By providing cutting-edge training opportunities, the institution aims to empower its students and faculty with the latest industry knowledge and expertise. The dedication to continually enriching knowledge and skills in the realm of Survey & Geoinformatics is a testament to the institution's vision of preparing its stakeholders for success in the dynamic and ever-evolving world of geospatial sciences.

In a pursuit to nurture academic excellence and equip individuals with the necessary skills to thrive in the geospatial field, the institution remains steadfast in its dedication to delivering exceptional learning opportunities. The forthcoming three-week course on CARTOGRAPHY stands as a compelling testament to the institution's unwavering commitment to empowering its academic community with the most advanced and cutting-edge knowledge in the domain of geospatial sciences.



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