



# NEWS @ NUST

A newsletter for the National University of Science and Technology

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## NUST receives over \$20k towards construction of sports facility



*Dr Phuthi (right) followed by Mr Moyo alongside FBC representatives holding a dummy cheque of US\$15 000 donated to NUST by the bank*

The National University of Science and Technology (NUST) recently received over US\$20 000 from sponsors donating towards the building of the institution's multi-discipline sports facility.

The main donation of \$15 000 came from FBC Bank Limited who were also the key sponsor for the inaugural NUST-FBC Fund-raising Golf Tournament.

Proceeds from the tournament will go towards the construction of a sport facility accommodating handball, basketball, netball, tennis and volleyball.

Speaking at a cocktail event held after the golf tournament, FBC Executive Director – Corporate and Institutional Banking, Mr Martin Makonese said his bank's continued partnership with the university is set to reach greater strides.

"We are proud to associate with NUST who have been our partner for a while now and we are sure that this partnership will make more mileage," said Makonese, "We can give our commitment that we are going to

support golf at NUST going forward."

Other sponsors included National Fencing, TelOne, First Mutual Holdings, Cimas Medical Aid, PPC Zimbabwe, Chinhoyi University of Technology (CUT), Lupane State University (LSU), Nissan Clover Leaf Motors, Moonlight Funeral Assurance, Road Angels, CABS, Zimbabwe Insurance Brokers Ltd, Zimbabwe Open University, Knight Frank and Rural Bazaars.

The NUST Communication and Marketing Director, Mr Felix Moyo said the turnout of sponsors marks a positive turn on the country's economy.

"FBC and other corporates' donations marks a good turning point from our corporates. We used to have many corporates supporting the university but many of them had fallen on hard times,"

"Everybody is optimistic that we are coming out of the ditch and things are getting better, we have hope that things henceforth are looking brighter," he added.

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*One of the teams playing at the tournament*



*Dr Phuthi, giving a speech on behalf of the Vice-Chancellor*

# GOLF TOURNAMENT IN PICTURES



*Mr F. Moyo directing the Cocktail Dinner held after the golf tournament*



*one of the female players preparing to 'tee off'*



*Winners of the tournament being handed over their prizes and trophy*



*some of the attendants at the cocktail dinner*

# NUST moots Solar Farm Project with Chinese Satewave Technologies

**T**HE National University of Science and Technology recently signed a Memorandum of Agreement (MOA) with Satewave Technologies P/L to kick-start the implementation of a Solar PhotoVoltaic Farm Project to be constructed on the University grounds.

At a historical signing ceremony held at the Vice-Chancellor's Boardroom, the NUST Vice-Chancellor Prof. Mqhele Dlodlo together with the Chief Executive Officer of Satewave Technologies Mr. Zhou Zhongguo signed the MOA to make official the partnership which will bring Solar Energy to NUST.

The main area of collaboration as stated in the MOA is to "implement a Joint Venture project involving, first and foremost, development of a 5MW PV solar farm which shall include Engineering, Procurement, Construction and Commissioning, and thus meet the energy requirements of NUST and the excess sold to the grid", among other areas.

The agreement comes as a result of

both parties, NUST and Satewave, recognising concerted efforts in addressing energy challenges and the need to mainstream energy efficiency concerns, which is in line with the national vision of providing efficient alternative forms of energy. Expressing his vision and expectations concerning the project, Prof. Dlodlo highlighted that the solar plant will be able to produce energy sufficient for NUST and with time, NUST will be able to supply the community and hopefully the nation at large.

"This solar project will seek to cover the energy needs of NUST as it will supply a 0.25 Megawatt, with the excess being sold to the grid. It is my hope to see (NUST) Technopark and Satewave being a power supplier registered with our Energy regulators and hopefully grow to be one of Africa's Solar energy suppliers," said Prof. Dlodlo. The project's objectives are also inclusive of the installation of solar bins, solar bus shelters, solar water heating, solar water pumping, block

chain technology and other emerging technologies.

Representing the Ministry of Higher and Tertiary Education Science and Technology Development officials who witnessed the signing ceremony was Mr.

Tafadzwa Madyiwa and Mr. Everson Bhunu whose main aim is to oversee the establishment of Innovation hubs as well as advocating for technological transfer in Universities. The Director for the NUST Technopark, Dr. Eli Mtetwa and the University Registrar, Mr. Fidelis Mhlanga witnessed the agreement on behalf of NUST, whilst other Principal Officers graced the occasion.

Satewave Technologies is an integrated Zimbabwean-based Chinese construction technology services company, operating in the telecommunications, electrical, civil construction sectors. It is also the ZTE Accredited business partner for ZTE mobile phones in Zimbabwe. Satewave offers a range of expert contracting services to both public and private sector customers.



*(from left) Dr. Eli Mtetwa, Mr Tafadzwa Madyiwa, Prof Mqhele Dlodlo, Mr. Zhou Zhongguo, Mr. Everson Bhunu and Dr Mtetwa signing the MOA*



*(from left) Prof Mqhele Dlodlo and Mr Zhou Zhongguo join hands after signing the MOA*

# Bonvie donates soccer kit

...and promises to also donate a kit to a female sport team



*(from left) The NUST Staff Sports Marketing Officer Mr Chaswika Mate, the NUST Communication and Marketing Director, Mr Felix Moyo and the Bonvie Head of Sales and Marketing Mr Prosper Muvengwa*

The National University of Science and Technology (NUST) recently received a soccer kit donation from Bonvie Medical Aid Scheme ahead of the Chancellor of Zimbabwe State Universities Staff Games (CZSUSG 2018) which were played recently.

Handing over the donation, the Bonvie Head of Sales and Marketing Mr Prosper Muvengwa promised to donate another sport kit to a discipline with more females.

“By supporting the soccer team it doesn’t mean that the other disciplines are not important. We promise that our next donation will go to the discipline that has more female participants so that we are seen to be gender sen-

sitive,” said Mr Muvengwa.

The Director of Communication and Marketing, Mr Felix Moyo expressed gratitude to Bonvie for the donation citing that such collaborations between universities and medical aid societies are imperative for the development of the country.

“Today’s communities strive from synergies, you cannot strive alone,” said Mr Moyo, “Industry and universities should work hand in hand because that is a panacea for development in any country.”

The 2018 edition of the CZSUSG were hosted by Lupane State University where NUST participated in various sporting disciplines such as netball, darts, basketball, pool and chess among others.

# Platforms like NUSTESAC trigger students to be innovative- Prof Dlodlo



*Prof. Eng. Dlodlo officiating at the NUSTESAC 2018*

**C**OMPETITION platforms like the National University of Science and Technology Engineering Students Awards Competition (NUSTESAC) encourage students to be innovative and thus they ultimately improve the university's outputs, the NUST Vice-Chancellor Prof. Eng. Mqhele Dlodlo said.

Officiating at the 5th edition of the NUSTESAC, Prof Dlodlo highlighted the importance of the competition.

"I am grateful to Zimbabwe Institution of Engineers (ZIE) for coming up with such an initiative which not only mentors the young and upcoming engineers, but also exposes their potential to the world," said Prof Eng Dlodlo.

"Competition among upcoming engineers at different institutions improves creativity and innovation, hence improved quality of our graduates," he added.

NUSTESAC is an annually held preliminary competition for final year engineering students

which feeds into the National Engineering Students Awards Competition (NESAC).

NESAC is an initiative of the Zimbabwe Institution of Engineers (ZIE) which sponsors the competition on an annual basis. It was launched in 2014 to the universities that offer engineering degrees inclusive of NUST, University of Zimbabwe (UZ), Harare Institute of Technology (HIT), Chinhoyi University of Technology (CUT) and polytechnical colleges across the country.

The engineering students competition was split into two

categories namely; the Poster Presentation done at the Delta Foyer area and Oral Presentation conducted in the Delta lecture theatre with the guest of honour being Eng. Mercy Ncube, who is the Acting Principal Operations Engineer at Bulawayo City Council (BCC), handing all participants certificates and the winners shields.

The winner for the Poster Presentation category was Joram Chikwadze with his project titled Cloud based medical consultation, diagnosis and therapy system for remote rural patients.

Last Mabvuu took the second position with his project titled An Online Leak Detection System.

In the Oral Presentation category, Faraday Mahoho beat all the competitors with his Intelli-Auto Line Sorting System project, whilst Samson Svondo was in the second position with his project titled Use of Fly Ash to make paint.

The judges comprised of Eng. Jermaine Mugoronji, a Projects Engineer at Synergia Engineers Pvt Ltd; Eng. Jasper Ndlovu, a NUST lecturer who has been a judge at ZITF for the past 8 years; Eng. Lazarus Machiwana, an Operations Manager at Zimbabwe Power Company (ZPC); Prof Eng. B Sibanda, the Production Manager at Zimbabwe Grain Bag; and Eng. Delfino Makamache a Principal Engineer at the National Railways of Zimbabwe (NRZ).

The secret judging method was used to assess the competitors. The judges, who beforehand had not met or know each other, were all given individual scoring sheets which they filled after which they then combined the marks at the end of the competition to come up with the winners. The judges said they were impressed by the presented projects and they had the potential to solve existing problems the country is facing.

"The projects we saw today are quite relevant to the Zimbabwean situation and they also spread across various sections (of engineering)..... We were all impressed by the way the students applied engineering principles in their projects and this shows that the institution is imparting relevant knowledge to the students," said Eng. Machiwana.





*some members of the audience applauding during a presentation*



*A student making a poster presentation before one of the judges*

# NUSTESAC in pictures



*A student making an oral presentation in the Delta Lecture theatre*



*Eng. Mercy Ncube, the Acting Principal Operations Engineer at Bulawayo City Council (BCC)*



*(from left): Samson Svondo and Faraday Mahoho, second and first winners in the Oral Presentation category respectively are parted by Dr Eng. William Goriwondo (centre) who is the Dean of the Faculty of Industrial Technology. (from right): Eng. Stanford Mudono who is a Chemical Engineering lecturer, Last Mabvuu and Joram Chikwadze who took second and first position in the Poster Presentation category respectively*

## The LabHack experience at HIT

Article by Romeo Estara a Part 3 Industrial and Manufacturing Engineering student

“Dreams are not for those with the biggest beds but are for those who burn the midnight oil to achieve that which they aspire to have.”(Romeo Estara 2018) No one can better relate to the phrase than team Elite, a team sent on a race to the moon by the National University of Science and Technology on the 8th of June 2018. Alongside them was team Young Inventors, another group of wonderful minds dispatched from the harbour of NUST’s ocean of academic excellence to go and defend the flag of the University on a stage where many were called. The event was dubbed LabHack Harare, the first of its Kind in Zimbabwe under the sponsorship of Oxford University through Dr. Helena Webbs and associates.

Harare Institute of Technology was the host and by late afternoon on the 7th, the Institute perimeter was teeming with life as most teams had already shown up at the venue. Within hours of arrival, team NUST had made themselves comfortable, already surveying the area for friendly faces and information concerning the competition. Some members of the

team quickly helped themselves at the HIT workshops to fine tune their prototypes just before joining a banquet hosted by the sponsors of the event. This was a chance for us all to meet other competitors even though there was rather a brotherly spirit than a competitive one. The sponsors also took time to greet everyone individually and taking pictures as they did so. The following morning started quite early with an opening ceremony for everyone one else but for Team NUST, it was rather a rush hour as we tried to make ends meet. We had not been able to access some material and equipment back home such that we had to finish work at HIT. As the golden sun rays broke the Eastern dusty horizon, decorticating the sky like an onion and heralding a new day for everyone else, for us it signalled the end of another sleepless night. As we would later learn, this last minute machining cost us more than we were prepared to give up. We never got to finish everything on time and had to improvise a great lot on our initial designs in order to make things work and they

did but just enough to exhibit for a few minutes. Elsewhere, Dr Hellena Webb and Louise Besuidenhout were covering on the topic of Open science and responsible research in the Small hall. Andre Chagas, from Brazil, would later go on to talk about Open hardware, Trend and Gosh just before a heavy breakfast meal for everyone, again on the sponsors cheque as were all other meals throughout the course of our stay.

After a 15 minutes breakaway, where everyone got into a chit chat with at least someone, people were summoned to the small hall once again for Team presentation and discussion. The segment began with a fun game of drawing your neighbour as a way to get warm and thaw the ice solid serious aura that haunted the already cold room. After the short session of artistic display- or rather less artistic in the case of some – people got into presentations. Each group was required to introduce its members, talk about their project and discuss what they found hard or easy.



NUST students at the LabHack working on their project

# Students' Page

First up was a group from the high schools who presented a brilliant project that sought to solve a problem of overcrowded classrooms and fewer resources in our local schools. With them was a microscope that allowed multi-view of the same specimen concurrently. Some of the other interesting projects were a Bioreactor made wholly from scrap material; a robotic arm; a magnetic stirrer and centrifuges.

The two teams from NUST were the only two teams to have made PCR's (polymerase chain reactor). A PCR is a laboratory machine that is used to replicate DNA and it comes in handy in cases where a small sample of DNA is available but more tests need to be done on it on that same sample.

This is relevant in the case of NUST students to venture into such projects especially considering that NUST is one of the few DNA testing centres in Zimbabwe and possibly the cheapest at the current moment.

However, an off the shelf PCR machine costs a screaming \$40000 on average yet the PCR machine made by team Elite cost \$56 to build. Team Elite also presented a centrifuge they made on a \$50 budget with most of the material used scrapped from old machines and toys.



*Some members of team Elite with the PCR machine they built*

We took a brief break for lunch. People got to their social side again as we all dug into a rich meal. Soon after lunch, we displayed our prototypes in the "Big hall" as interested people went around asking questions about functionality of prototypes and future plans.

Afterwards, we were asked to join groups of our choices and we attended mini workshops under the following topics: 3D printing, How to build a \$10 microscope

(Andre Chagas), How to get the best out of your Arduino and Raspberry PI (NETRO ZIM) and finally User engagement and user feedback presented by Lou, Jeff and Hellen.

The next day comprised mainly of Presentations by different professionals. Martin De Heaver presented on Responsible Research and innovation before the trio of NetroZim, Tech village and Elevate touched on How to commercialize open hardware. This rich session ended with questions from the students to the presenters who did a good job to leave us dry of questions. One of the main points they stressed on was that "Science pays" and that people should use innovation to solve problems and learn how to get paid for it. Knowing the numbers is one thing, getting the numbers in your wallet is another thing all together.

The final day closed with presentations of projects while judges moved around asking all sorts of questions. The panel of judges was populated by Andre Chagas, Martin de Heaver, Louise Bezuidenhout and Helenna Webb.

After half an hour or so, the panel had its seating to decide the winners. The prizes were categorized as follows: the best documented project, the most promising researcher, best fraught, the overall best project and the runner up.

Team Elite from NUST walked away with the best documented project and that prize was attached to a \$100 voucher redeemable at Netro Zim for electric gadgets of choice at a discount of 15%. All who were in attendance were awarded certificates for having participated in the challenges.

It was all hugs and flashes of cameras as people waved goodbye to each other and the sponsors alike.

Despite of the prize we got, our most valuable treasure from this voyage was the exposure we got from meeting students from other universities and professionals from other continents.

The experience was a mind opener and we did not leave the same as we entered the camp. If I had a wish genie and a single wish to spare, I would trade it for more of such enriching experiences.