

### PRESIDENT MUGABE CAPS 418 HIT GRADUATES



President of the Republic of Zimbabwe and Chancellor of HIT HE Cde R.G. Mugabe capping graduates at the Institute's Eighth Graduation Ceremony.

President of the Republic of Zimbabwe and Chancellor of the Harare Institute of Technology, His Excellency Cde R.G. Mugabe capped 418 HIT graduates at the Institute's 8th Graduation Ceremony on Friday 6 October 2017.

The students were drawn from the Schools of Engineering and Technology, Industrial Sciences and Technology, Information Science and Technology and Business and Management Sciences.

In his address, HIT Vice Chancellor Engineer Quinton Kanhukamwe said the university continued to contribute positively to the country's economic growth through the development, incubation, transfer and commercialisation of technology for rapid industrialisation. "HIT has made major inroads towards its goal of conducting research, which is responsive to the country's national needs, challenges and aspirations. Research from across the schools resonated with and responded well to the nation's development blueprint, ZIMASSET," said Eng Kanhukamwe.

He added that the university's innovations focused on the promotion of indigenous knowledge systems, value addition of natural resources, herbal medicines research, development of software applications and agricultural engineering and technology, among other areas. Some of the projects undertaken by HIT students included recovery of gold from waste dumps, value addition to graphite and

production of hydrogen from waste lubricating oil.

"The university has also produced distributor electric transformers, which are undergoing tests. We expect positive results and are eager to commercially use them once the tests are successful," he said. The university is also producing agricultural machinery and farm implements like a tractor drawn hay baler; a maize sheller and a stock feed pelletisers; which were on display at the graduation ceremony.

Eng. Kanhukamwe also told the gathering that HIT has signed partnerships agreements with local companies such as TelOne and Commercial Bank of Zimbabwe in areas of research, innovation and development. "HIT has also signed a Memorandum of Understanding with Transilvania University of Brasov in Romania and similar agreements were entered into with universities in India and South Korea.

The ceremony was attended by the Minister of Higher and Tertiary Education, Science and Technology Development, Honourable Professor Jonathan Moyo, his deputy Hon. Dr Godfrey Gandawa, Minister of State for Harare Metropolitan Province, Cde Miriam Chikukwa, foreign envoys, captains of industry, Vice Chancellors from other state universities, Institute Board Chairman, Dr Gibson Mandishona and the Institute Board members, among others.

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**INNOVATION**

**LEADERSHIP**

**INTEGRITY**

**COMMITMENT**

**PROFESSIONALISM**

## HIT CONDUCTING RELEVANT RESEARCH

In his address at the Institute's Eighth graduation Ceremony, Vice Chancellor Eng. Q.C Kanhukamwe told the gathering that HIT is making inroads towards its goals of conducting research which is responsive to national needs, challenges and aspirations.

The Vice Chancellor said research from across the Schools resonated with and responded well to the nation's development blueprint, ZIMASSET. "Our main focus areas in research, development and innovation are the promotion of our indigenous knowledge systems, value addition of natural resources, herbal medicines research, development of software application packages across various sectors of our economy, energy generation models, renewable energy and agricultural engineering and technology. Our research output has also been characterised by production of relevant outputs such as intellectual property," he said.

"HIT research efforts have been guided by the need to maintain relevance and context as we strive to provide solutions to national challenges through intellectual enterprise. Our research has also been largely hinged on the need to apply the new knowledge sciences such as nanotechnology, biotechnology into research," said Vice Chancellor Kanhukamwe.

To date, and counting on the gains since 2015, the Institute has registered the following success and milestones in its research efforts:

### **Recovery of Gold from Tailings/Waste Dumps using Activated Carbon Magnesium Oxide (C-MgO) Nanocomposite as Adsorbent**

The project reprocesses tailings or gold mine waste dumps to extract gold; an exercise which has become an attractive proposition for mining houses worldwide because of the availability of gold which was not easily recovered using old technologies. This technology exploits the novel properties of nanostructured materials in enhancing gold extraction from gold mine tailings; and presents a huge potential for the application of nanotechnology in value addition and beneficiation of gold mine waste; and also in the recovery of the precious metal from virgin or run off mine.

### **Value Addition of Graphite to Nanostructured High Value Carbon Materials**

The technology adds value to a critical worldwide raw material, graphite which is mined

locally by the Zimbabwe-German Graphite Mine trading as Lynx Mine. Graphite is a unique all carbon based-material in that it has properties of both a metal and a non-metal and has been classified as a critical raw material. This technology project embraces Nanotechnology in making high value graphite derived multifunctional nanostructured products for applications in lithium-ion batteries, water treatment, fuel cells, support for metallic catalysts, super-capacitors, desalination, corrosion protection, radioactive clean-up, biosensors, biomedical applications, solar panels and electronics ranging from smartphones to laptops.

### **Production of Hydrogen from Waste Lubricating Oil**

The research produced a technology for the production of hydrogen from waste lubricating oil using the steam reforming process and has the ability to reduce shortage of ammonia based fertilizer in Zimbabwe.

The main challenges being faced by fertilizer companies is mainly attributable to the use of the expensive and energy consuming water electrolysis technology for the production of hydrogen hence the need to develop an alternative cost effective process to produce hydrogen. This will reduce cost of ammonia-based fertilizer and result in improved availability of the product on the market. This will wean off the country's dependency on imports, while reducing the country's negative balance of payment.

### **Transformers project**

The University has now produced distributor transformers that are currently undergoing tests. Positive results are expected and thereafter commercialisation will be pursued once the tests are successful.

### **Technology Centre**

Research efforts in the Institute's Technology Centre have been focused on producing agricultural machinery and farm implements that contribute to import substitution and value addition in the agricultural sector. Some of the machinery and implements produced include: a Tractor-drawn Hay Baler, a huge Maize Sheller, a Stock Feed Palletizer and a Twig Thrasher.

### **Hay Baler**

For the baling of hay which facilitates easy storage and movement of hay from one region to another during dry periods. A functional prototype has been developed and is capable of baling at least a 1000 bales of 15 kg bales per day. This is drawn by a minimum of 45-horse power tractor. Supporting machinery to the hay baler notably the hay cutter and hay thrasher is now at design stage.

### **Maize Sheller**

This tractor drawn piece of equipment is capable of performing multiple functions that include de-husking, shelling, winnowing, and automatic maize grading.

### **Hay Miller**

This diesel powered hay miller or chipper is used to chip different hay types to small particles of at most 20mm length in preparation for the pelletizing process.

### **Hay Pelletizer**

This 350 kg per hour equipment is capable of converting the chipped hay particles, together with any nutritional enriching additives such as chipped orange peels for vitamin C, molasses for enriched sugars, spent grains (masese) residues from beer processing for enriched carbohydrates and mineral additives into pellets for livestock feeding.

### **Solar Driers**

Continued research in the ergonomics of this drying equipment for drying fruits and vegetables has resulted in the development of collapsible units in response to market feedback and transport logistics constraints. This has seen increased demand of the driers from across the country. This year five districts namely: Gutu, Nyanga, Mutasa, Chimanimani and Murehwa have been recipients of the driers. The Ministry of Women Affairs, Gender and Community Development and the Ministry of Youth Development, Indigenous and Economic Empowerment were beneficiaries of these driers. Project beneficiaries were trained on how to use and maintain them.

## CLASS OF 2017 HALL OF FAME

### 1. B. TECH (HONS) CHEMICAL AND PROCESS SYSTEMS ENGINEERING

MUTWIRA Samuel	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Chemical and Process Systems Engineering.
MUPUKUTA Tichaona	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship
MUSARURWA Gey Tariro	Awarded the HIT Book Prize for the Best Capstone Design Project Awarded the ZIMPLATS Trophy for the Best Capstone Design Project.
MHANDU Desire	Awarded the HIT Book Prize for the Best Design and Innovation Project. Awarded the Lafarge Cement Shield for the Best Design and Innovation Project.
CHINYEMBA Prudence	Awarded the EMRECC Prize for the Best Graduating Student in Environmental Protection and Pollution Control.
MUTANDA Pardon Simbarashe	Awarded the AFDIS Prize for the Best Graduating Student in Mass Transfer.

### 2. B. TECH (HONS) ELECTRONIC ENGINEERING

MANDIZVIDZA Evidence	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Electronic Engineering.  Awarded the Institronics Prize for the Best Graduating Student in Power Management Systems.  Awarded the TelOne Prize for the Best Graduating Student in Electronic Engineering.
MBERI Emmanuel	Awarded the HIT Book Prize for the Best Design and Innovation Project.  Awarded the Institronics Prize for the Best Graduating Student in Electronic Instrumentation and Control Systems Design.
CHITSAKA John Tanaka	Awarded the HIT Book Prize for the Best Capstone Design Project.  Awarded the Institronics Prize for the Best Graduating Student in Embedded Systems and Internet of Things.
MUSONA Ronald	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.
CHINGORE Elisha Ngonidzashe Kodze	Awarded the Institronics Prize for the Best Graduating Student in Mobile Communications Systems Design.
MAFUSIRE Innocent	Awarded the Institronics Prize for the Best Graduating Student in Security and Surveillance Systems.

**3. B. TECH (HONS) INDUSTRIAL AND MANUFACTURING ENGINEERING**

MANGWENI Forgiveness	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Industrial and Manufacturing Engineering.</p> <p>Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.</p> <p>Awarded the MEGA Works Construction and Engineering Company Prize for the Best Graduating Student in Advanced Manufacturing Technologies.</p>
PASURAYI Kudakwashe	Awarded the HIT Book Prize for the Best Capstone Design Project.
ZIMBUDZANA Polite	Awarded the HIT Book Prize for the Best Design and Innovation Project.
BALENI Raynard	<p>Awarded the Bakers Inn Prize for the Best Graduating Student in Industrial Systems Engineering and Optimisation.</p> <p>Awarded the AFMARK Prize for the Best Graduating Student in Industrial Systems Engineering and Optimization.</p>
KUMIRE Evidence Wilbert	Awarded the AFDIS Prize for the Best Graduating Student in Engineering Management.
NEMAPARE Nyasha Promise	Awarded the VERITECH Prize for the Best Graduating Student in Engineering Design.
MANJENGWA Wadzanai Christine	Awarded the PATRICOLE Prize for the Best Graduating Student in Industrial Automation and Robotics.

**4. B. TECH (HONS) BIOTECHNOLOGY**

GUTSA Sharon Tariro	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Biotechnology.</p> <p>Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.</p>
CHINHOYI Chiedza	Awarded the HIT Book Prize for the Best Capstone Design Project.

**5. B. TECH (HONS) FOOD PROCESSING TECHNOLOGY**

MADIMUTSA Obert Nobert	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Food Processing Technology.</p> <p>Awarded the HIT Book Prize for the Best Capstone Design Project.</p> <p>Awarded the Schweppes Zimbabwe Limited Prize for the Best Graduating Student in Beverage Processing Technology.</p> <p>Awarded the Montana Meats Prize for the Best Student in Capstone Design Project.</p>
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	Awarded the Standard Association of Zimbabwe Prize for the Best Student in Food Quality Assurance and Legislation.
MADZITURIRA Lovejoy	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.
MOYO Ntokozo Bridget	Awarded the HIT Book Prize for the Best Design and Innovation Project.
CHIDHINDI Ruvimbo Faith	Awarded the Dairibord Zimbabwe Pvt Ltd Prize for the Best Graduating Student in Dairy Processing Technology.  Awarded the Kefalos Cheese Products Prize for the Best Graduating Student in Dairy Processing Technology.
CHIRONGOMA Kudzai Susan	Awarded the Montana Meats Prize for the Best Graduating Student in Meat Processing Technology.
ZIMBITI Rosenage	Awarded the Chicken Inn Prize for the Best Graduating Student in Food Science.

## 6. BACHELOR OF PHARMACY

MUTEVERA Lewis Fortune	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Pharmacy.  Awarded the HIT Book Prize for the Best Capstone Design Project.  Awarded the Pharmacist Council of Zimbabwe Prize for the Best Graduating Student in Pharmaceutical Technology.
PINIAS Arnold	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.
MADUKU Hilda Pamhidzai	Awarded the HIT Book Prize for the Best Design and Innovation Project.

## 7. B. TECH (HONS) COMPUTER SCIENCE

MUTANGIRA Tapiwanashe	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Computer Science.  Awarded the HIT Book Prize for the Best Capstone Design Project.  Awarded the HIT Book Prize for the Best Design and Innovation Project.  Awarded the Info Relay Systems Prize for the Best Graduating Student in Computer Science.
GUMBU Nemiah Norman	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.

## 8. B. TECH (HONS) INFORMATION SECURITY AND ASSURANCE

CHIKAMBURE Victor	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Information Security and Assurance.
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	Awarded the TelOne Prize for the Best Graduating Student in Information Security and Assurance.
KANDURO Polite	Awarded the HIT Book Prize for the Best Design and Innovation Project.
BENE Adel Austin	Awarded the HIT Book Prize for the Best Capstone Design Project.
MARIBHA Sarudzai Decide	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.

#### 9. B.TECH(HONS) INFORMATION TECHNOLOGY

MAVUCHI Sternford	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Information Technology.</p> <p>Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.</p> <p>Awarded the TelOne Prize for the Best Graduating Student in Information Technology.</p>
MUTEFURA Justice Munyaradzi	<p>Awarded the HIT Book Prize for the Best Capstone Design Project.</p> <p>Awarded the HIT Book Prize for the Best Design and Innovation Project.</p>

#### 10. B.TECH(HONS)SOFTWARE ENGINEERING

TAPFUMANEYI Ryan Masimba	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Software Engineering.</p> <p>Awarded the HIT Book Prize for the Best Design and Innovation Project.</p>
CHIDZIKWE Fortune Tonderai	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.
MACHANA Tanaka	Awarded the HIT Book Prize for the Best Capstone Design Project.

#### 11. B. TECH (HONS) ELECTRONIC COMMERCE

TAVIRIMIRWA Godwin Tanaka	<p>Awarded the Vice Chancellor's Prize for the Best Graduating Student in Electronic Commerce.</p> <p>Awarded the HIT Book Prize for the Best Design and Innovation Project.</p> <p>Awarded the Webdev Prize for the Best Graduating Student in Website Engineering.</p> <p>Awarded the Institute of Directors Zimbabwe Prize for the Best Graduating Student in E-Commerce Legal Governance.</p> <p>Awarded the ZIMSWITCH Prize for the Best Graduating Student in Mobile Commerce Logistics.</p>
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	Awarded the TelOne Prize for the Best Graduating Student in Electronic Commerce.
MURANDA Kudakwashe	Awarded the HIT Book Prize for the Best Capstone Design Project.
NJERERE Phebion	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.  Awarded the SBS Consultants Prize for the Best Graduating Student in E – Commerce Security.
MAJORA Monica Tendai	Awarded the ZIMSWITCH Prize for the Best Graduating Student in E – Payments.

## 12. B. TECH (HONS) FINANCIAL ENGINEERING

NYAMADZAWO Loretta	Awarded the Vice Chancellor's Prize for the Best Graduating Student in Financial Engineering.  Awarded the Imara Prize for the Best Graduating Student in Stochastics Process in Finance.  Awarded the HIT Book Prize for the Best Capstone Design Project.
CHIRAMBA Chido	Awarded the HIT Book Prize for the Best Graduating Student in Technopreneurship.
MHURU Davidson	Awarded the HIT Book Prize for the Best Design and Innovation Project.
MASUNDA Farai	Awarded the Intellego Investments Consultants Prize for the Best Graduating Student in Portfolio Engineering.  Awarded the Rift Valley Services Prize for the Best Graduating Student in Corporate Governance and Ethics.
SHUMBASHAVA Edington	Awarded the Rift Valley Services Prize for the Best Graduating Student in Interest Rate Models and Derivatives.
TINOFIREI Stephen Tatenda	Awarded the Marsh Employee Benefits Zimbabwe Prize for the Best Graduating Student in Actuarial Models.



# 2017 Graduation Sponsors



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## HIT EIGHTH GRADUATION IN PICTURES





## ROMANIA RECIPROCAL VISIT IN PICTURES



The HIT and Romanian Embassy in Zimbabwe delegation during a visit to the Transilvania University of Brasov in Romania.



# HIT APPLAUDS CREATION OF CYBER SECURITY MINISTRY

We would like to thank His Excellency, The President of the Republic of Zimbabwe and Chancellor of the Harare Institute of Technology, Cde R.G. Mugabe for creating the new Ministry of Cyber Security, Threat Detection and Mitigation.

We also extend our congratulations to Hon. Patrick Chinamasa on his appointment as the inaugural Minister. We look forward to his valuable acumen and wish him a successful term.

At HIT, we foresaw this paradigmatic shift in information security, and lead the pack as pioneers of Information Security in the higher education sector. In line with our mandate, we established the School of Information Science & Technology, with a four year B.Tech degree in Information Security & Assurance in 2011. We have participated in consultative forums focusing on the drafting of the national Cybercrime and Cyber Security Bill; as well as conducting and taking part in local related conferences. Our aim is to be the leading Institute in cyber

security, risk management and IT audit that promotes security awareness, education and training.

The exponential growth of information systems and their entrance into many aspects of our lives has brought numerous benefits to everyday life. However, these benefits come with risks; with hackers committing cybercrimes, cyberbullying, cyber espionage, cyberwar and abuse of social media for political maleficence. The greatest risk however, is potential damage to Critical National Infrastructure due to hacking attacks.

Critical Infrastructure (or Critical National Infrastructure (CNI) is a term used by governments to describe assets that are essential for the functioning of a society and economy. Most commonly associated with the term are facilities for:

- electricity generation, transmission and distribution;
- gas production, transport and distribution;
- oil and oil products production, transport

and distribution;

- telecommunication;
- water supply (drinking water, waste water/sewage, stemming of surface water (e.g. dikes and sluices);
- agriculture, food production and distribution;
- public health (hospitals, ambulances);
- transportation systems (fuel supply, railway network, airports);
- financial services (banking, clearing);
- security services (police, military).

These are the core elements of our nation and any hacks on them would prove to be catastrophic. Therefore as HIT we salute, appreciate and fully support the importance of the new ministry.

As the only university in Zimbabwe with a fully-fledged department for Information Security; we look forward to assisting and working together with the Hon. Minister and his Ministry to ensure a connected and secure Zimbabwe.

## AIRFORCE OF ZIMBABWE VISIT



Members of the Airforce of Zimbabwe Senior Non-Commissioned Officers Management Course number 57 during a campus visit.

51 members of the Airforce of Zimbabwe Senior Non-Commissioned Officers Management Course Number 57 visited the University campus on Friday 27 October 2017 to familiarise with the institutional mandate and efforts in research and development.

Wing Commander Kunaka of the School of Academic and Staff Training of the Airforce of Zimbabwe highlighted that they had chosen to visit HIT because of the important role it plays towards Zimbabwe's development; and the production of high-tech graduates who are making important contributions to national

development, and the fulfillment of ZIMASSET.

In his welcome remarks, the Pro Vice Chancellor of the Harare Institute of Technology, Dr Maxwell Chanakira, represented by the Dean in the School of Engineering and Technology, Dr Perkins Muredzi said HIT was playing a critical role in the industrialisation and modernisation of Zimbabwe; adding that the University's efforts were informed by national policies such as ZIMASSET; the national Ten Point Plan, as well as the institutional Ten Point Plan. He added that teaching at HIT was informed by the institutional mandate; which is to develop, incubate, transfer



and commercialise technology for Zimbabwe's rapid industrialisation.

The Officers were led on a guided tour of the Institute; showcasing the University's engineering workshops, laboratories and teaching facilities.

## SYMPOSIUM SPOTLIGHTS GREEN ENERGY

A Renewable Energy Symposium was held in Harare on 19 October at the ZESA Training Centre in Belvedere, Harare. The event was hosted by the Zimbabwe Energy Council (ZEC), in conjunction with Friedrich Ebert Stiftung (FES) and the Harare Institute of Technology.

The symposium was held during the Clean Energy Week which was running from 18-20 October, under the theme 'Lobbying for a green economy and converting waste into energy'.

The Renewable Energy Symposium provided a platform for students in tertiary institutions to interact with the energy consultants and experts. The participants were addressed by Eng. H Chingosho, an energy analyst with HIVOS, Mr Hopewell Gumbo of Friedrich Ebert Stiftung (FES), Dr Anthony Phiri

(EMRECC, HIT), Eng S. Mhlanga from Soltran, Mr K. Zvarevashe (HIT), Miss R. Mushove (UZ) and Mr Moyo from the Ministry of Water and Climate Change.

Acting Director for EMRECC, Dr Anthony Phiri said government's policy on clean energy requires every sector of Zimbabwe's economy to seriously start taking steps towards greening its activities.

"The ZIMASSET blue print also articulates the need for sustainable development and has a number of components which require our attention. Sustainable Development calls for a deeper reflection on utilizing resources available in the country and elsewhere in a conscientious way. This symposium recognized the importance of involving young professionals in making a contribution to the sustainable development agenda and

mitigating the scourge of climate change by greening the energy sector," he said.

The symposium is an annual event, and highlights issues of renewable energy and the energy efficiency industry in Zimbabwe.

Selected participants, as well as young professionals were given the opportunity to present papers on various topics on clean energy. Amongst the twelve papers presented, 10 HIT students including two HIT alumni received recognition. Comfort Mhlanga (CPSE Alumni 2016), Tanaka Sadza (CPSE Alumni 2017) and Tatenda Nyadzayo from the CPSE department were named as the best three presenters by a panel of judges.

The following HIT students and alumni presented the following papers at the Symposium:

	PARTICIPANT	TOPIC	DEPARTMENT
1	COMFORT MHLANGA	Design of a plant that produces 17tpd fuel oil from scrap tyres	CPSE ALUMNI 2016
2	TANAKA SADZA	Production of coal briquettes from coal fines and waste plastics as binder	CPSE ALUMNI 2017
3	MARGARET ENOS	Waste to Energy in mitigating potential hazards due to poor waste disposal.	CPSE YEAR 3
4	TAKUDZWA MAFANDIZVO	Utilisation of waste cooking oil produced by fast food outlets in the production of Green Diesel by the Transesterification process.	CPSE YEAR 4
5	BLESSING MPALA	Potential for investment in Waste to Energy with Pomona as a case study	PSE YEAR 3
6	FARLON MUGUMIRA	Waste to Energy: A New Dimension in Generating Electricity in Harare.	CPSE YEAR 4
7	TATENDA NYADZAYO	Design of a process that Produces 10TPD of Biofuel (Ethanol) from Cellulosic Municipal Solid Waste	CPSE YEAR 3
8	TINEMI HONDO	Design of a hybrid CPTL plant that produces diesel from coprocessing coal with municipal solid plastic waste and waste oil as a liquefaction solvent and red mud as a catalyst	CPSE YEAR 4
9	PATIENCE CHIUTSI	Conversion of sewage sludge to bioethanol	CPSE YEAR 4
10	PIOL PETER MANYUON	Microalgae biofixation technology for biodiesel production, mitigation of greenhouse gas emissions	CPSE YEAR 3



## ICONIA CONFERENCE HIGHLIGHTS IMPORTANCE OF INDUSTRIAL AUTOMATION IN DEVELOPMENT



Participants at the International Conference on Industrial Automation (IConIA).



The International Conference on Industrial Automation (IConIA) organised by the Industrial and Manufacturing Engineering department from 25-26 October, highlighted the importance of industrial automation in national development.

The conference was held under the theme, 'Consolidating Synergies between Research and Manufacturing for Industrial Development,' and was held under the following subthemes: process system technologies, industrial automation technologies, production technologies and energy technologies.

Emergent issues arising from the conference were on how innovation and process automation can impact positively on the revitalisation of industry; the development of agricultural solutions for developing countries; creation of optimized machineshops; rapid prototyping and nano-manufacturing with a focus on the feasibility and application of these technologies in manufacturing environments; and the development of renewable energy designs.

Vice Chancellor of the Harare Institute of Technology, Eng. Q.C. Kanhukamwe said the conference underscores the need for innovative Research and Development talent, and the use of industrial automation technology to solve challenging real-world problems. He added that the conference aims to harness practical and innovative research work, anchored on emerging technologies that can be implemented in the Zimbabwean manufacturing industries for sustainability and industrial transformation. The conference, he said, was an important opportunity for constructive discussions, sharing of knowledge and entrepreneurial skills between renowned researchers, scientist, scholars, business people and policy makers.

Guest of Honour at the event, Deputy Director in the Ministry of Industry and Commerce, Mr Bernard Manatsa commended the conference organisers for taking on board the country's economic blueprint, ZIMASSET; especially the clusters relating to growing the economy and value addition and beneficiation, and the resuscitation of the manufacturing sector.

"The theme of this conference resonates well with the objectives of the country's economic Blueprint; the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET), especially those relating to empowering the society and growing the economy through value addition to our resources and resuscitation of our manufacturing sector.

He indicated that Government was implementing several policies, strategies, and initiatives to improve competitiveness through industrial upgrade, innovation and automation. He mentioned progressive policies such as the Industrial Development Policy (currently under review), the Science, Technology, Engineering and Mathematics (STEM) initiative; The Southern African Development Community's (SADC) industrialization Strategy and Roadmap (2015-2063) and African Union Agenda 2063 on the strategic role of STEM in the industrialisation and modernisation of Africa.

"The initiatives are aimed at achieving manufacturing sector growth through advanced manufacturing technologies and innovations as drivers of the Zimbabwean economy," he said.

Mr Manatsa also highlighted that industrial automation is the key to economic growth and development. He added that engineers and technologists are strategically tasked to come up with research and relevant skills that are required

to drive automation in both industry and commerce. He also added that there was need to move away from the dependency on the import of technologies created by other nations, which had led to the country's reliance on archaic machinery.

He added that it remained important for the country to embrace new technologies, new curriculum and new thinking, in order to remain globally competitive. Mr Manatsa commended



Dean P. Muredzi

the University for inculcating innovation and creativity.

"It is heartening that the spirit of innovation is thriving among our universities. I am impressed by the putting together of this conference and it is encouraging to see the collaboration amongst institutions. This is a rich platform for keeping up with industrial development. Such research collaborations with industry have often led firms into new technologies and applications," he said.

In his keynote address, entitled, "Putting the

## HIT SIFE/BOOST ENACTUS TEAM SCOOPS INVESTMENT AWARD

The Harare Institute of Technology's Students in Free Enterprise (SIFE) and Building Opportunities on Student Talent (BOOST) Enactus Team scooped an investment award worth US\$650 at the Delta Ethics and Social Responsibility Competitions 2017 held on Friday 13 October at the Meikles Hotel under the theme "Make a Difference M.A.D, a call to sustainable environment management."

This year's theme was based on the need to recycle beverage waste in socio-economic and sustainable ways, and for the first time in its history, participating teams were twinned. The aim of this year's Delta Ethics Showcase was to encourage young people's involvement in waste management, environmental remediation, entrepreneurship through self-employment, teamwork, as well as other various ethical relationships with society. Students were taught how to start a business in a hands-on and practical approach, and each team was then required to pitch a business idea to convince the judges to invest in it.

The HIT BOOST Enactus Team was paired to work with the Catholic University of Zimbabwe team under the trade name Recovery (Pvt) Ltd.

"In our preparations for these competitions, we studied a HIT 200 project from the Industrial and Manufacturing Engineering Department; The Design of a hybrid chipping-and-compacting machine. This machine pelletizes plastic bottles, solving the problems of mass-to-volume ratio in plastic recycling, so that we can transport a large mass of plastic bottle waste in lower volumes," said the HIT BOOST Enactus Team leader Fredrick Mavhiza.

According to the team, the hybrid chipping-and-compacting machine model is portable, unlike the massive plant machinery currently being used in the waste management sector, therefore it can be installed and commissioned in many recycling centres and even in the local rural communities.

On the exhibition day, Recovery (Pvt) Ltd stand was overwhelmed by members of the general

public who were keen to know more about the project on display. Some of the team members were also chosen to march around the city centre during a campaign against littering. After the presentation and pitch of business ideas in anticipation for funding, the HIT BOOST Enactus Team leader was awarded an investment award of US\$650.

"The judges believed that we are capable of taking our ideas to a larger scale and we gladly received the investment and vowed to utilise every opportunity to expand the idea for the betterment of our nation Zimbabwe. We would like to thank our team members for their effort in organizing and establishing groundwork for these projects, especially our Faculty Advisors from the Technopreneurship Development Centre and the input by the HIT Industrial and Manufacturing Engineering department for allowing us to access their project, carried out by Thokozile Bhila, Tapiwa Masiye, Jabulani Nyamugafata, Tafadzwa Masendu and Tanaka Putsai.

We also appreciate the HIT Community, and special thanks to our Team Manager, Mr D. Tongofa as well as to our partner, Unique Innovations (Pvt) Ltd t/a TEMP-BAG," said Fredrick Mavhiza, the HIT BOOST Enactus Team leader.

In a bid to demonstrate its commitment to best practice in business, Delta Corporation has taken the positive step of promoting business ethics among future leaders from an early age by supporting the Students in Free Enterprise (SIFE), an international network of university students initiated in the United States of America in 2000. SIFE is a non-profit organisation, and is operating in Zimbabwe under the purview of a relatively new phenomenon called BOOST, which brings together students from across the world with the aim of creating economic opportunities for individuals in their home countries and to share learning experiences.

The SIFE/BOOST Zimbabwe National Programme was made official in November 2003.

## MATONGO OBITUARY



**Mr Thursday Matongo**

The Vice Chancellor, Engineer Q.C. Kanhukamwe joins the entire HIT community in mourning the passing of Mr Thursday Matongo, an Audit Clerk in the Internal Audit Department who died on 28 October 2017. He joined the Harare Institute of Technology in 2009 as a Security Guard while studying for an Accounting Diploma and joined the Internal Audit Department upon completion in 2014. At the time of his death, he was studying for an Accounting degree with the Midlands State University.

Mr Matongo is survived by his wife and two children.

Thursday Matongo was interred on Tuesday 31 October 2017 at Grenville Cemetery in Harare. May his soul rest in eternal peace.

