MAKERERE UNIVERSITY

COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY

ANNUAL REPORT 2014

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1. Overview

The College of Engineering, Design, Art and Technology (CEDAT) was formed from a merger of two academic units: Faculty of Technology (FOT) and Margaret Trowell School of Industrial and Fine Arts (MTSIFA).This academic cooperation springs from the practical-based teaching and learning methods in FOT and MTSIFA which emphasize creativity and innovation aimed at solving societal problems. The technological advancement in the twenty-first century has further reduced the gap between art, design and technology, which more than ever before, calls for interdisciplinary pedagogical approaches between the artists, designers, architects, surveyors, construction managers and engineers. In line with the University's strategy, the College has steadily moved from traditional classroom teaching to more learner centred pedagogy, which stresses research and innovation. We encourage our students to be innovative and search for solutions to problems that afflict our society. Our academic staff is also engaged in intensive research and innovation. This is why the college has come to be known as the home of innovation. Popular known for the vehicle design project, the college is engaged in several other research projects. The college has found itself at the vanguard of technological, art and design advancement while staying relevant to the needs of the society. Our research and innovative capacity has helped attract support from Government and development partners. The quality of our graduates has inspired collaborations with different governments, organisations, universities, communities and companies.

The college has three schools; School of Built Environment, School of Engineering and the Margaret Trowell School of Industrial and Fine Arts. Each of these schools has three departments.

The School of Built Environment has the departments of Architecture and Physical Planning, Department of Construction Economics and Management, Department of Goematics and Land Management.

The School of Engineering; Department of Civil and Environmental Engineering, Department of Electrical and Computer Engineering and the Department of Mechanical Engineering.

The Margaret Trowell School of Industrial and Fine Arts; Department of Fine Art, Department of Industrial Art and Applied Design, Department of Visual Communication, Design and Multimedia.

1.1. Mission of the College

To undertake high quality research relevant to the region's and global development needs and consequently produce highly qualified graduates with specialised skills but equipped with holistic knowledge, as well as professional services and innovation for sustainable national and regional development.

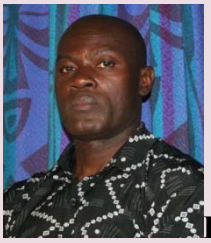
1.2. Goals of the College

- To provide a teaching and learning environment that assures superior experience to both the learners and the academic staff in order to produce graduates relevant to the world of work and society at local and international levels

- To enhance knowledge generation and its access for the benefit of society.
- To enhance linkages between the College and Partners for purposes of knowledge sharing and service provision.
- To improve the management function so that it assures an efficient and effective operational environment
- To provide a gender responsive organizational environment
- To improve the image of CEDAT through aggressive publicity of its achievements and outcomes
- To enhance the efficiency and effectiveness of the core activities of CEDAT.
- To ensure a high quality human resource base
- To improve the effectiveness and efficiency of the CEDAT Library
- To Promote an Enabling Environment for CEDAT to advance in Academic Excellence and Innovations.
- To establish and maintain an up to date website and gallery for the College**.**
- To train staff and students in ICT skills.
- To improve the Gender terrain (staff, mainstreaming) in the CEDAT.

2. CEDAT Administration

 **Assoc. Prof. Henry Alinaitwe** *Principal, CEDAT*	 **Dr. Venny Nakazibwe** *Deputy Principal*
Mr. Kayima Stephen *College Bursar*	**Mr. Tom Otim** *College Registrar*
Mr. *College Human Resource Officer*	**Ms. Betty Kyakuwa** *College Communication Officer*
Ms. Sarah Nakibuka *College Procurement Officer*	 **Mr. Wilberforce L. Musoke** *College Librarian*
 **Dr. Kizito-Maria Kasule** *Dean, MTSIFA*	 **Dr. Umaru Bagampadde** *Dean, School of Engineering*
 **Dr. Moses Musinguzi** *Dean, School of Built Environment*	 **Assoc. Prof. Phillip Kwesiga** *Chair, Department of Visual Communication, Design and Multimedia*



Dr. Angelo Kakande
Chair, Department of Industrial Art and Applied Design

Dr. Kizito Maria Kasule
Ag. Chair, Department of Fine Art

Mr Martin Tumutungire
Ag. Chair, Department of Civil and Environmental Engineering

Dr. Adam Sebbit
Chair, Department of Mechanical Engineering

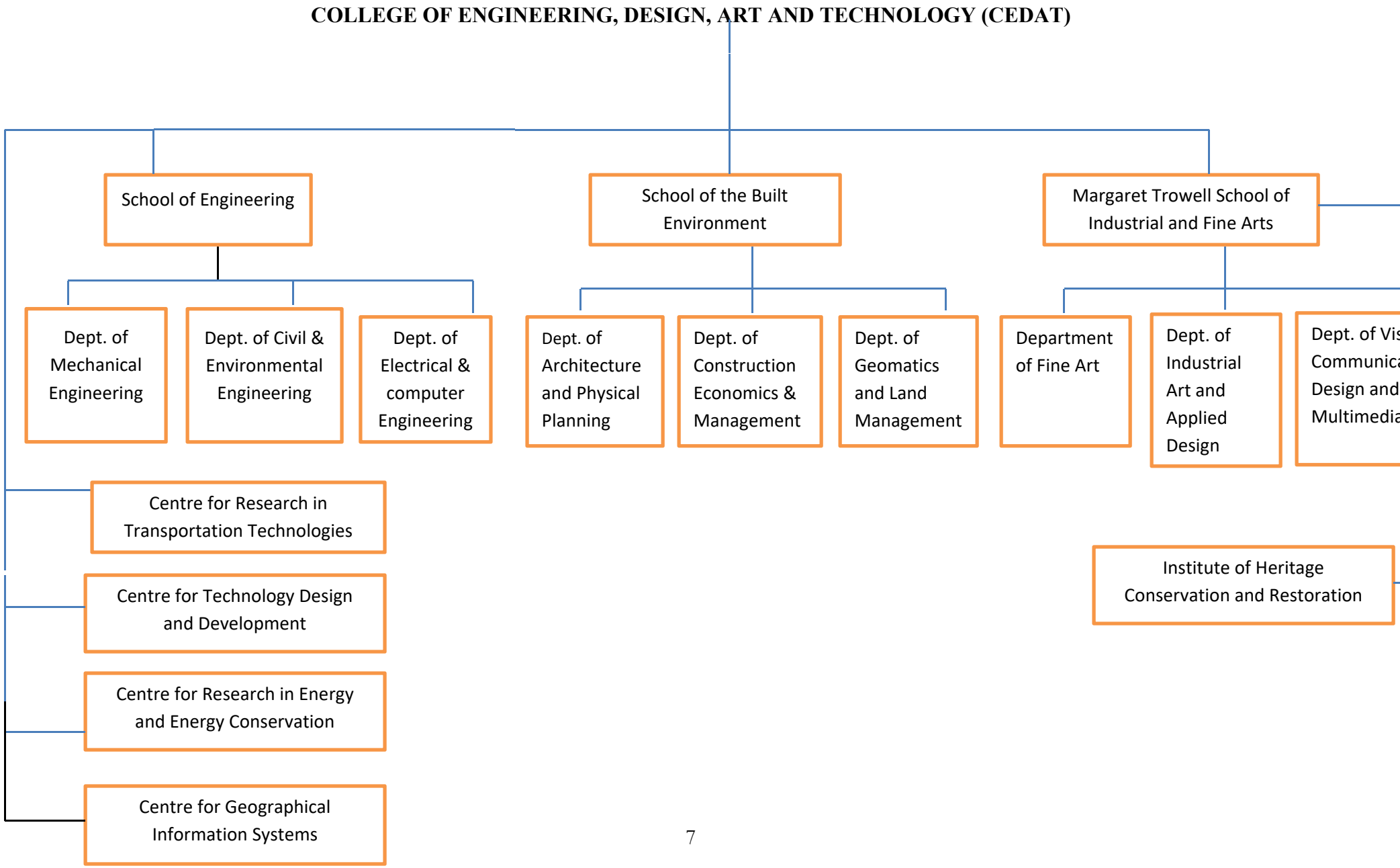
Dr. Julius Butime
Chair, Department of Electrical and Computer Engineering

Dr. Stephen Mukiibi
Chair, Department of Architecture and Physical Planning

Dr. Anthony Gigudu
Ag. Chair, Department of Geomatics and Land Management

Dr. Anthony Kerali
Chair, Department of Construction Economics and Management

1.5 Academic structure



2.1. College Management

Management of the college is under the Principal, assisted by the Deputy Principal, 3 School Deans and 9 Departmental Heads/Chairs. The Principal chairs all academic and administrative meetings in the college. The Deputy Principal is in charge of Academic and research in the college. The Deans chair all School Academic Board Committee Meetings. The Deans and Departmental Heads/Chairs are involved in coordinating the academic programmes, handling examinations, monitoring undergraduate and graduate research, overseeing collaborative linkages with other institutions and industry, industrial training, staff professional growth, assisting with teaching students from other colleges and human resource performance evaluation. The Deans have continued to ensure that the Heads do the following:

- Provide overall academic leadership of the department with the aim of maintaining the highest possible standards in teaching and research.
- Lead the process of academic policy and planning for the departments.
- Maintain and enhance the departmental teaching quality of courses and programmes.
- Lead the department in establishing and maintaining a productive, accessible and well regarded learning environment for students, fulfilling the University's responsibilities in respect of student admissions, instruction, progression and examination; availability of counseling assistance and adherence to the various regulations regarding students.
- Support the promotion and strengthening of the research culture within the department and cross-departmentally where appropriate.
- Enforce appropriate quality assurance mechanisms.
- Ensure that Departments meet standards set by relevant professional bodies.
- Initiate linkages between the department and Institutions of higher learning inside and outside the Country.
- Initiate curriculum review and new programmes.
- Soliciting of funds for enhancing the academic progress of the department e.g. research, reading materials, etc.
- Participation in the appointment, promotion and disciplining of School staff in accordance with the established procedures of the University.
- Generally assisting in the operation of the University by serving on committees and in the capacities appropriate to the well being of the School.
- Performing such other related duties as may be assigned by the Dean.

3. TEACHING AND LEARNING

2.1 Teaching and Learning

The college recognises the fact that there is general need by Government to expand supply capacity by higher education institutions to increase access opportunities to those eligible. In addition, there is a call for increased enrolment of students in engineering, Art and technology disciplines within the next 10 years. The college has attempted to improve teaching and learning as a strategy to meet this challenge.

2.1.1 Innovations in teaching, Learning and Research

- All the lecturers are now using advanced technologies in teaching and learning. All Departments have at more than two power point projectors. Lecture rooms have been fixed with overhead projectors and white hanging screens. Where illustrations are to be made using chalk, the college is now providing dustless chalk.
- More staff members are using direct lecturing, tutorials and laboratories in teaching based on the capacity and results obtained from research. Although laboratory space is still a challenge, there has been general improvement in the laboratories after getting new equipment from Projects like Sida/SAREC, the Presidential Initiative on Science and Technology, CrossRoads, etc. The major challenge is critical shortage of Technicians in the laboratories.
- There are some courses conducted through e-learning especially the e-labs component.
- The number of industry partners co-supervising students on industrial attachment has continued to increase and now stands at over 50% and we hope this will increase.
- There has been a general increase on the use of wireless network by students since this facility is now available around CEDAT.
- Online access to Exam results and coursework by students has continued to improve.
- Use of improved audio and video systems during Masters and PhD Viva Vorce has been effectively used both in the New and Old buildings.
- Use of GIS in research using the new GIS Lab at CEDAT has increased especially by the Graduate students.
- Increased collaboration and communication through Skyping with famous international universities.

2.1.2 New Programs

There are several new programmes which are in pipeline or have been approved and taken off as follows:

Programme	Status
Master of Science in Power Systems Engineering	This is in its second year of implementation
Master of Science in Telecommunications Engineering	This is in its second year of implementation
Masters in Public Infrastructure Management in Collaboration with the Schools of Business and Social Sciences.	The staff involved in this are Dr. U. Bagampadde, Dr. C. Niwagaba, Dr. A. Sebbit and Dr. A. Rugumayo
BSc Engineering Programme in Collaborative linkage with Belgorod Shukhov State Technological University in Russia*	Students are progressing with this programme.
BSc Chemical Engineering	The programme was tabled before Senate and is undergoing Quality Assurance.
Master of Science in Geo-information Science and Technology	Proposed

Master of Science in Construction Management	Proposed
Postgraduate Diploma in Urban Planning and Design	Proposed
Master of Science in Urban Planning and Design-	Proposed
Bachelor of fine art degree	Proposed
Bachelor of industrial and applied design	Proposed
Bachelor of visual communication design and multimedia	Proposed

Programmes offered

Undergraduate Programmes

1. Bachelor of Science in Civil Engineering- 4 years
2. Diploma in Civil Engineering Surveying- 2 years
3. Bachelor of Science in Electrical Engineering- 4 years
4. Bachelor of Science in Telecommunication Engineering- 4 years
5. Bachelor of Science in Computer Engineering- 4 years
6. Bachelor of Science in Mechanical Engineering- 4 years
7. Bachelor of Architecture- 5 years
8. Bachelor of Urban and Regional Planning- 4years
9. Bachelor of Science in Construction Management-3 years
10. Bachelor of Science in Land Economics- 4years
11. Bachelor of Science in Quantity Surveying- 4years
12. Bachelor of Science in Surveying- 4 years
13. Bachelor of Science in Land Surveying and Geomatics- 4 years
14. Bachelor of Industrial and Fine Art- 3years

Graduate Programmes

1. Doctor of Philosophy- 4 years
2. Master of Science in Civil Engineering- 2 years
3. Master of Science in Electrical Engineering- 2 years
4. Master of Science in Mechanical Engineering- 2 years
5. Master of Engineering (Civil) - 2 years
6. Master of Engineering (Electrical) - 2 years
7. Master of Engineering (Mechanical) - 2 years
8. Master of Science in Renewable Energy- 2 years
9. Master of Architecture- 2 years
10. Master of Physical Planning- 2 years

11. Post Graduate Diploma in Urban Design- 1 year
12. Master of Art in Fine Art- 2 years
13. Master of Science in Technology Innovation and Industrial Development- 2 years
14. Post Graduate Diploma in Construction Project Management- 1 year
15. Master of Science in Power Systems Engineering - 2 years
16. Master of Science in Telecommunication Engineering – 2 years

3.1. January 2015 Graduation Statistics

SN	PROGRAMME	NOS. GRADUANDS
1	B.ARCHITECTURE	14
2	BSC CIVIL ENG	86
3	BSC MECH ENG	28
4	BSC ELECT ENG	76
5	BSC COMP. ENG	46
6	BSC. TELECOM ENG	48
7	BSC CONTRUCT MGT	57
8	BSC. QUANT SURVEY	63
9	BSC. SURVEYING	46
10	BSC.LAND ECON	55
11	BIFA	112
12	DCES	14
13	PGD CONT MGT	7
14	MASTERS	17
15	PH.D	5
16	**TOTAL**	**674**

3.2. Semester One 2014/2015 Registration Statistics

		YEAR OF STUDY				
SN	PROGRAMME	1	2	3	4	5
1	B.ARCHITECTURE	40	36	27	30	35
2	BSC CIVIL ENG	122	106	98	100	
3	BSC MECH ENG	79	60	49	57	
4	BSC ELECT ENG	108	92	87	84	
5	BSC COMP. ENG	59	32	36	58	
6	BSC. TELECOM ENG	63	61	55	55	
7	BSC CONTRUCT MGT	42	46	60	0	
8	BSC. QUANT SURVEY	56	44	61	54	

9	BSC. SURVEYING	0	0	0	4	
10	BSC.LAND ECON	42	39	39	39	
11	B.URBAN & REG PLAN	73	58	52		
12	BSC GEOMATICS	45	44	49	39	
13	BIFA	168	164	152		
14	dces	1	1			
15	PGD CONT MGT	11	0			
16	PGD URBAN DESIGN	1	0			
17	MSC POWER SYS ENG	3	1			
18	MSC RENEW ENERGY	2	13			
19	MSC CONT MGT	16	7			
20	MSC CIVIL	30	22			
21	MSC GIST	17	22			
22	MSC TELECOM	3	2			
23	MSC TIID	16	23			
24	MSC URBAN PLAN DESIGN	2	1			
25	MAFA	4	0	0		
26	**TOTAL**	**1004**	**876**	**768**	**524**	**40**
27	**GRAND TOTAL**	**3,212**				

3.3. Student activities

Students organised the Open Day

Students voted for the new leadership which has steered them through the year

CEDAT Student Leaders Handover 2014

Students of the different CEDAT student associations on the 3rd of April 2014 witnessed the swearing in ceremony of new leaders voted in to power in March. The ceremony, which took place in the Conference Hall saw the different associations get new leaders. The Principal, Assoc. Prof. Henry Alinaitwe, who was the chief guest at the swearing-in and handover ceremony congratulated the new leaders upon attaining leadership positions but also appreciated the service the

outgoing leadership gave their fellow students and the College as a whole. He called on the new leaders to not only emulate the outgoing leaders but do better for the good of the student body. He commended the old leadership on the smooth handover of leadership and applauded the new leadership on holding orderly, chaos-free elections. Dr. Alinaitwe pledged administrative support to the new leaders and urged them to cooperate with the CEDAT Administration, even through times of financial constraint.

Brain Challenge

3.4. Exchange programmes

The college has continued to grow her relationship with Belgorod Uniersity in Russia. So, the college has sent 6 students to this university.

The Department of Architecture and Physical planning has this year hosted a student from Japan on an exchange program with.....univeristy.

3.5. Teaching Facilities/ ICT in Teaching and learning

The college has got enough class rooms to accommodate all the admitted students. About 80% of the classrooms have got over-head projects to ease teaching.

The laboratories have been equipped under the Presidential Initiative Project. Many more need to be equipped but the different departments have been able to equip some labs.

4. Research and innovation

Projects (2014)

1. **Project 1: Stimulating Local Innovation on Sanitation for the Urban Poor in Sub-Saharan Africa and South-East Asia.** This project (2012-2016) is funded by the Bill and Melinda Gates (BMG) Foundation. This project is coordinated by UNESCO-IHE in the Netherlands. The project overall has 20 PhD students and 5 Postdocs. Our part at Makerere University involves one post doc, and three PhD students, studying how to increase the lifespan of a pit latrine by using indigenous organisms to degrade the excreta (PhD student Anne Nakagiri); improving the functioning of biogas latrines by optimising the

co-digestion of human excreta and organic bio-waste (PhD student Peter Mutai) and investigating local valorisation of faecal sludge on site (within the slums) to decrease transportation cost and increase benefits to slum dwellers (PhD student Swaib Semiyaga).

2. **Project 2: SCUSA Grey project:** In this project (2013-2014), we are aiming at reducing the pollution load coming from grey water generated in urban slums. We are working with UNESCO-IHE in the Netherlands. This project is funded by DGIS of the Government of Netherlands. We have built 20 household grey water treatment units, treating wastewater from more than 100 households. We are monitoring these treatment systems to quantify the pollution reduction achieved as a result of these grey water treatment filters.

3. **Project 3: Sludge to Energy Enterprises in Kampala (SEEK) project.** This project (2014-2016) is funded by the REPIC-Platform, Switzerland. We work with Sandec (Department of Water and Sanitation in the Developing Countries) as the project leader. In this project, we are optimizing drying technologies to reduce the foot print of faecal sludge drying beds; and doing value addition by optimizing the production of faecal sludge pellets that are applied in a gassifier to produce electricity.

4. **Project 4: WASH in the context of maternal health and menstrual hygiene.** This project (2014-2016) is funded by the Swiss Network for International Studies (SNIS). We work with Sandec (Department of Water and Sanitation in the Developing Countries) as the project leader. The project aims at understanding the current status of Water, Sanitation and Hygiene (WASH) facilities in healthcare facilities, and study them with the view of improving with them, taking into account the gender segregated needs for WASH in healthcare facilities.

5. **Project 5: Research in diapers**. The MakaPads project has continued to expand the range of products. The team is currently doing research on how make diapers for babies using bio-degradable materials.

6. Project 6: Development of Termite Saliva as a Potential Stabilizer for Gravel Roads

This project was conceived with the view of harnessing nature by imitating how termites use their saliva in strengthening soil so that it can be used in making gravel roads instead of buying expensive murram from distant sources. This improves gravel roads performance more cheaply and in a more environmentally friendly manner. Artificial reagents were mixed in the laboratory to obtain as a major study output a product that has been named **Termabond** with characteristics similar to those of termite saliva. The **Termabond** was mixed with red loam soils from an existing road in Lubowa, Wakiso district, which would

otherwise be thrown away when rehabilitating the road. The resulting mix of **Termabond** and loam soil was then evaluated in the laboratory to determine its suitability in road construction.

The study has given results showing that for most parts of the country, in-situ road materials can be utilized instead of being cart to waste. If implemented, the findings can be beneficial to several stakeholders. The Government, whether through force account or contracting, will spend less on sourcing, transporting and spreading material during rehabilitation of gravel roads. The TERMABOND road construction system is a cheaper option compared to the single, double and asphalt concrete surfacing systems, with figures standing at 356,114,500 for a **Termabond** system, UGX 420,000,000/=, 580,000,000/= and 1,690,000,000/= for a single dress, double dress and asphalt concrete surfacing options, respectively. Contractors can avoid the burden of looking for borrow materials (laterites) which are not easily found in some areas of Uganda. Besides the land tenure system gives a lot of freedom to private owners to determine prices for these materials. The local artisans can be protected from unfavorable and unhealthy environmental effects like the dust nuisance for roadside settlements/businesses, open borrow pit areas which breed disease vectors, and others. The road users will enjoy reduced travel times, reduced vehicle operating costs, comfortable rides, less damage to their vehicles, less fuel consumption and others. All these benefits will help Government in realizing the goals set out in its programme to improve the road sub-sector of transportation. This is aimed at increasing the percentage of the road network in a fair to good condition. These targets are in the 10- year Road Sector Development Programme (2001/02 – 2010/11), 15-year Uganda National Transport Master Plan (2008 – 2023), the 5-year National Development Plan (2010/11 – 2014/15), etc.

7. Project 7: Evaluation of Ugandan Road Soils Stabilized and Sealed with PROBASE

Globally, roads play a key economic role involving a wide range of industries and services. In Uganda, 90% of the Uganda road network is gravel, and is rehabilitated by removal and disposal of unsuitable materials, and finally ferrying of acceptable quality materials for surfacing. We used PROBASE technology that was developed in the United States of America to improve existing old material instead of throwing it away. We improved weak soil materials from five (5) different regions of Uganda namely volcanic soils from Kabale, black cotton soils from Soroti, black loamy soils from Kitgum, red loam soils from Bukwiri and lime rich soils from Kasese. The improved materials were tested in the laboratory to check on their suitability in gravel road rehabilitation.

The study has given results showing that for most parts of the country, in-situ road materials usable in lieu of carting to waste. If implemented, the findings can be beneficial to several stakeholders including Government, contractors and local artisans. The key outputs from this study are:

1. For all sources except black cotton soils from Kitgum, the strength of in-place material improved.
2. Knowledge pertaining to PROBASE technology has been stocked and some of it disseminated to stakeholders from UNRA, URF, Local Government, ERB, UIPE, MoWT and CrossRoads. In addition, training has been done to staff of Makerere University.
3. New laboratory equipment has been acquired by Makerere University to be used in training students on this technology as well as private stakeholders through modular courses.

4. The prevailing unit cost for gravel road rehabilitation can be reduced since this research has indicated possibility of improving marginal materials and hence avoid buying new and expensive material.
5. Optimal formulations of improved in situ varied soils have been developed and are ready for trial in the field and subsequently used for improvement of design standards.
6. The findings indicate that PROBASE was almost 58% cheaper than the usual method involving importation of gravel from borrow pits.

- **Research Output completed by staff**
  - Bio-energy Research products under GTZ
  - Gasifier stoves project by the World Bank
- Innovative research findings
  - Improved technologies in waste management such as ecological sanitation (ECOSAN),
  - Improved road technologies using students during workshop practice,
  - High value potential local raw materials such as kaolin,
  - Application of ICT in critical areas such as environment.
- Several Publications in both peer reviewed journals and peer reviewed conference proceedings.
- Staff from the college have increased participating in consultancy services to community.
- Innovative contributions to National Development and Poverty Reduction

Design of a Hybrid car (KIIRA EV SMACK) which uses electricity and fuel. Work for design an electric bus has begun as well as designing and constructing an assembling plant.

4.1. Research grants

	Research name	Funding agency	Amount	Contact Person
1.	WASH Project	Govt of Switzerland		
	SIDA (PhD research)	Govt of Sweden	SEK 32 million for 4 years (PhD studies)	
	Presidential Initiative	Govt of Uganda	Shs25billion for 5 years	
	Sludge to Energy Enterprises in Kampala (SEEK) project	Govt of Switzerland		
	SCUSA Grey project	Netherlands		

5. Knowledge Transfer partnerships

iLabs@Mak Project: The iLabs@Mak Project has for the 5th year running pioneered the college's out-reach and knowledge transfer initiative. The team has over the years encouraged science and technology innovation among secondary school students. This has been done through various robotics trainings and through organising the country's only Science and Technology Innovations Challenge. This is held annualy and this year round, it grew in numbers to have 12 participate up from 8 last year. It is hoped with number will grow in the coming year.

Innovations System and Cluster Program: The project is working SMEs, the Ministry of Trade and Industry, private sector and the academia to
The concept of clustering brings together people dealing in the same economic activity but also operating in the same geographic location. The idea is for the cluster groups to work together with the academia in an effort to improve the quality of the products so as to get better market and in so doing improve incomes. Some of the cluster groups that have benefited from this partnership with academia are the Katwe Metal Cluster, Mbarara milk cluster. Lira Bee cluster, Katwe salt cluster, basketry cluster among other.

CREEC: The Centre for Research in Energy and Energy Conservation is working with rural communities in Uganda on the Rural Electrification Project. In an effort to reduce the usage of candles and fuel lamps, CREEC is working with the Ministry of Energy to extend the usage of solar to rural communities. The centre has put solar kiosks in 4 different districts. The kiosk has rechargeable solar lamps which communities hire at only Shs500. This has reduced the number of people using fuels lamps, accidents due to fires and also created employment for some youth.

Research in the area of water and sanitation: the different research projects highlighted above clearly show how the researchers are working with the communities to improve their lives by ensuring the correct disposal of faecal matter as well as ensuring people take clean water.

MakaPads Project: The project has created employment for women and girls in the different production plans like in Kawempe and the various refugee camps. The project has greatly contributed to keeping girls in school during the menstruation period. With the affordable sanitary towels of just Shs400 many girls have been able to attend school during these days.

Board membership: Staff from the School are serving on several Boards of Government parastatals like the Uganda National Roads Authority, Uganda Communications Commission, Engineers Registration Board, and others.

Partnerships and Linkages with other universities

- Collaborative research with the Schools of Engineering at University of Dar-es-Salaam in Tanzania and Eduardo Mondlane, Maputo, Mozambique.
- Exchange of staff with other universities in the areas of teaching, vetting of graduate theses, external examination, opponents during viva vorce sessions, and others.
- Joint PhD supervision with Professors from universities in Sweden.

6. Academic achievements for 2014

1. John Muhumuza Kakitahi successfully defended his PhD in Lund University on December 15th 2014.
2. Wilson Musinguzi, successfully defended his PhD on October 16th , 2014 in the CEDAT conference hall, Makerere University. His thesis is titled: Thermal Characterization and Modeling of Woody Biomass Gasification for Small-scale CHP Application

3. Geofrey Bakkabulindi successfully defended his PhD on May 9th 2014 at Makerere University. Title of thesis: "Planning Of Low-Cost Electricity Distribution Networks For Rural Electrification"

4. Mr Senfuka Christopher successfully defended his PhD on March 29th 2014 at Makerere University. Thesis Title: "Reliability of Steel made from Recycled Scrap in Uganda" on March 20th in the CEDAT Conference Hall, starting at 12pm.
5. Dr. Alex Katukiza, a part-time member of staff in the department of Civil and Environmental Engineering, successfully defended his PhD thesis at UNESCI-IHE, Delft, Netherlands on 29th November 2013.
6. Adolf Kahuma successfully defended his PhD at Makerere University.
   The Topic of the Thesis is "Investigation of Structural characteristics of Vernacular materials for construction of Earthquake resistant systems in Western Uganda"

7. **Paul Mugujumbya** successfully defended his PhD on November 19th 2014 at Makerere University. The title of the Thesis is "Earthquake Loss Estimation of Kampala City Core"

7. Awards

Makerere students win MicrosoftImagine Cup

For the first time in the history of the Microsoft Imagine Cup, two teams from Africa won prizes at the worldwide finals.Team Code8 from Makerere University that represented East Africa in the just concluded 11th annual Microsoft Imagine Cup competitions in Russia received the Women's Empowerment Award presented in partnership with UN Women.While Team Masked Ninjas from Egypt receive dan AFT Excellence Award.The Code8 team consisting of Brian Gitta,Joshua Businge (year Computer Science students) Simon Lubambo, a fourth year Electrical Engineering student and Josiah Kavumaa third year Information Technology

student,developed a Windows phone application named Matibabu that diagnoses malaria without pricking the body to draw blood.

Instead, a custom piece of hard ware (matiscope) isconnected to the windows phone, then a light sensor is passed over a finger to diagnose malaria in the shortest time possible.After diagnosis, the results are displayed on the phone screen. These results are then sent to the user's skydrive for medical record keeping and sharing with their personal doctors.

The UN Women Award that comes with a cash prize of $12,000(sh30m) recognizes two student teams that created projects that best address issues impacting women globally.According to an excited Josiah Kavuma, the funds will enable them do more research on the feasibility and scalability of their application.

"We are extremely happy to be the first African team to secure a prize at the finals and we shall now focus towards competing for the ImagineCup Grant," he added."It feels good to see our dreams come true especially after the hard work, sleepless nights, the team spirit and motivation from our lecturers and staff of the MIC-Uganda,"Kavuma noted.

Team Code 8 is one o fthe fruits of the Microsoft Innovation Center-Uganda, currently hostedat the College of Computing and Information Sciences."At MIC-Uganda, w eare proud of the progress the program has made on the ICT sector in Ugandan terms of supporting software developments and start-ups. This is the second win after thewinsenga application that got $50,000 from Microsoft last year," said Drake Patrick Mirembe,the MIC-Uganda manager.

8. ICT Infrastructure

This gives an overview of the status of the Computer Laboratories in the College of Engineering, Design, Art and Technology. This write-up is limited to infrastructure within the college that is availed for public access to students.

Distribution of Computers

Margaret Trowell School of Industrial and Fine Art

The Margaret Trowell School of Fine Art (MTSIFA) has a total of two (2) computer laboratories. These are:

i. The Masters Lab (located in the Small offices block)

ii. The Main Computer Lab (Located on the Ground Floor of the Admin Block)

The distribution of computers in the above labs is shown in *Table 1* below:

Table 1: Distribution of Computers in MTSIFA

Lab	Type	Current No. of Computers	Total Capacity of Computers
Masters Lab	Postgraduate	2	12
Main Computer Lab	Undergraduate	20	35
Totals		**22**	**47**

Implications and Recommendations

- 10 more computers should be procured for the Masters Lab in order to bring it to full capacity.
- 15 more computers should be procured for the Main Computer Lab in order to bring it to full capacity.

In total, 25 more computers should be procured for the Laboratories in MTSIFA to bring them to their full capacities.

School of The Built Environment

The School of the Built Environment (SBE) has a total of three (3) computer laboratories. These are:

i. Architecture Lab (located on level two in the New Technology Extension) – this lab is under the department of Architecture and Physical Planning

ii. The Survey Lab (located on the upper floor of the Old Building) – this lab is under the department of Geomatics and Land Management.

iii. GIS Lab (located on the ground floor of the New Technology Extension) – this lab is under the department of Geomatics and Land Management

The distribution of computers in the above labs is shown in *Table 2* below:

Table 2: Distribution of Computers in SBE

Lab	Type	Current No. of Computers	Total Capacity of Computers
Architecture Lab	Undergraduate	16	20
Survey Lab	Undergraduate	19	19
GIS Lab	Postgraduate	22	50
Totals		**57**	**89**

Implications and Recommendations

- 4 more computers should be procured for the Architecture Lab in order to bring it to full capacity.
- The Survey Lab is already at full capacity.
- 28 more computers should be procured for the GIS Lab in order to bring it to full capacity.

In total, 32 more computers should be procured for the Computer Laboratories in the School of The Built Environment in order to bring them to their full capacities.

School of Engineering

The School of Engineering (SOE) has one computer laboratory – the Mechanical Lab. The distribution of computers in this lab is as shown in *Table 3* below:

Table 3: Distribution of Computers in SOE

Lab	Type	Current No. of Computers	Total Capacity of Computers
Mechanical Lab (KTH)	All	25	30

Implications and Recommendations

5 more computers should be procured for the Mechanical Lab in order to bring it to full capacity.

Labs Directly under the College

There are four labs that are directly under the College. These are:

i. The Masters Lab (located on the upper floor of the Old Building)

ii. The Main Computer Lab (located on the upper floor of the Old Building)

iii. The E-Learning Lab (located on the upper floor of the Old Building)

iv. Lab 3034 (located on level three in the New Technology Extension)

The distribution of computers in the above labs is shown in *Table 4* below:

Table 4: Distribution of Computers in Labs Directly under the College

Lab	Type	Current No. of Computers	Total Capacity of Computers
Masters Lab	All (Projects)	2	25
Main Computer Lab	All	46	50
Lab 3034	All	77	80
E-Learning Lab	All	49	50
Totals		**174**	**205**

Implications and Recommendations

- 23 more computers should be procured for the Masters Lab in order to bring it to full capacity.
- 4 more computers should be procured for the Main Computer Lab in order to bring it to full capacity.
- 3 more computers should be procured for the Main Computer Lab in order to bring it to full capacity.
- 1 more computer should be procured for the Main Computer Lab in order to bring it to full capacity.

In total, 31 Computers should be procured for the Computer Laboratories in CEDAT in order to bring them to their full capacities.

Distribution of Projectors

The projectors in CEDAT are mostly mounted in classrooms and Computer Laboratories to aid in conducting of lectures. The distribution of projectors in the College is as shown in Table 5 below:

School of The Built Environment

The distribution of projectors in the SBE is as shown in Table 5 below:

Table 5: Distribution of projectors in classrooms / Labs in SBE

Classroom / Laboratory	Type	Current No. of projectors	Capacity
3003	All	1	1
3004	All	1	1
3005	All	1	1
3033	All	1	1
3034 (Computer Lab)	All	2	2
2003	All	1	1
2004	All	1	1
2022	All	1	1
2023	All	1	1
2024	All	1	1
4004	All	0	1
4005	All	0	1
Totals		**11**	**13**

Implications and Recommendations

Two more projectors should be procured for the different classrooms / Labs within the School of The Built Environment in order to have all classrooms at an equal standard.

School of Engineering

The distribution of projectors in the SOE is as shown in Table 6 below:

Table 6: Distribution of projectors in classrooms / Labs Directly in the SOE

Classroom / Laboratory	Type	Current No. of projectors	Capacity (projectors)
141	Undergraduate	1	1
142	Undergraduate	1	1
143	All	1	1
160	All	1	1
161	All	1	1
163	All	1	1
149	All	1	1
158	All	1	1
M1	Undergraduate	1	1
M2	Undergraduate	1	1
M4	Undergraduate	1	1
Main Lab	All	1	1
E-Learning Lab	All	2	1
Masters Lab	All	0	1
Mechanical Lab	All	0	1
221	All	0	1
146	All	0	1
105	All	0	1
Mechanical 3	Undergraduate	0	1
Mechanical 4	Undergraduate	0	1
Totals		**14**	**21**

Implications and Recommendations

7 more projectors should be procured for the different classrooms / Labs within the School of Engineering in order to have all classrooms at an equal standard.

Margaret Trowel School of Industrial and Fine Arts

The Margaret Trowel School of Industrial and Fine Arts currently does not have projectors in all 11 studios and laboratories. There is therefore a need to procure 11 projectors for the School in order to have a more convenient teaching / learning experience for lecturers and students of the school.

Other Rooms with projectors

The CEDAT Conference Hall and New Boardroom are rooms that should also be taken note of when considering projector access to students. This is because the Conference hall is sometimes used for conducting lectures that involve a large number of students. The Boardroom is also used for meetings in general and also on occasions to host special student events that require small numbers eg. PhD Public Defenses and other presentations. The Conference Hall has 2 projectors and the boardroom has 1 projector. These rooms are actually represented to their capacity.

Distribution of Smart Boards

The smart boards in CEDAT are majorly in the department of Architecture to accommodate different learning styles and provide a neater, more interactive learning experience to students. The distribution of smart boards in the College is as shown in Table 7 below:

Table 7: Distribution of projectors in classrooms / Labs in the College

Classroom / Laboratory	Type	Current No. of Smart-Boards	Capacity
3034 (Computer Lab)	All	4	1
2003	All	1	1
2004	All	1	1
2022	All	1	1
2023	All	1	1
2024	All	1	1
Totals		**9**	**6**

There are enough smart boards in the Department of Architecture, however, in order to have a more interactive teaching and learning experience at MTSIFA, at least 3 smart boards should be procured for the School.

Wireless Access Points

The College currently has 5 wireless access points to be accessed by students and staff around the college premises. There are 2 access points in the Technology Old Building, One outside the CEDAT New Building, 1 in the CEDAT Conference Hall and 1 located on the 4th Floor of the CEDAT New Building.

9. Library Services

This report is based on the University Library Strategic Plan of 2014.

Achievements.

Enhancing access to quality information resources by all stakeholders.

- The stock 0f 13,069 books on both closed access and open access in Technology Library have been bar coded. Bar coding makes easy to access books from online catalogue

- Online circulation which started in July 2013 has improved library service and has made it easy to recover overdue books.
- Technology Library has processed and entered 671and SIFA Lib. 84 records into virtua(Makerere University Library Online Catalogue)
- 62 overdue books have been recovered from lecturers.

- Useful information for library users has been made available on both the Library and CEDAT websites.
- The College Librarians sent mails to update academic staff on Library Collection.

- Technology library spine labeled 917 and SIFA 204 books (Spine labels on books get off due to tear and wear).

- CEDAT first year undergraduates and first year's graduates were briefed about library and information resources during orientation of first year students.
- Also CEDAT first year undergraduates have been briefed on the user education conducted in the main Library and encouraged to attend.

Stock taking was successfully carried out in both libraries of CEDAT in June and July. The results are shown in the tables below.

Stock taking results of MTSIFA Library June –July2014 compared with 2013		
	2013 Copies	**2014Copies**
Books borrowed	**131**	**100**
Books on reserve	**260**	**260**
Books on open access	**3249**	**3749**

Total stock	**3640**	**4109**

Technology Library Stocktaking results of 2014 June-August compared with 2013		
	2013	**2014**
Books borrowed	**470**	**588**
Books on reserve	**764**	**1,065**
Books on open access	**5,374**	**11,153**
Books for binding	**152**	**263**
Total stock	**6, 873**	**13,069**
Dissertations and thesis	**120**	**169**

2.3 **Prolong the life span of Information material**

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- **32 titles and 42 copies of books taken by the former librarian in the University Library bindery were recovered.**
- **113 titles and 200 copies of books in TECH that needed repair were sent for binding.**
- **Six books in SIFA Lib. were repaired.**

Challenges

- SIFA Library needs computers urgently.
- SIFA Library users can not access online resources due to lack of computers.
- Library space in SIFA Library is only for 30 chairs but at time library users go up to 60.

- 61 titles and 191 copies of books were weeded in Technology Library and taken to the main Library.
- Technology Library needs more computers.
- Limited library space at Technology library that has made merging of the two libraries impossible.

The way forward:

- Request for computers from the college was made through the Dean MTSIFA in 2013 but has not successful.
- Request for extension of Technology Library to enable merging of the two libraries has been made.

10. Human Resources

The major human resources activities undertaken as a Division of the College during this period were, recruitment and selection of staff, confirmation in appointments, and renewal of contract appointments, Promotions, handling of annual leave, redeployment, documentation and records management, and guidance and counselling at the workplace.

Human Resources Activities under taken and outputs

1.1 Renewal of contract appointments, during this period a total of sixty (60) contract appointments for support and academic staff were renewed.

1.2 Confirmations in service, a total of two (2) staff were recommended to the appointments board for consideration.

1.3 Appointments, the College recommended 14 staff for appointment on probation by the appointments Board.

1.4 Promotions, recommendations for promotion in this period totalled to 4 cases.

1.5 Performance management for staff, during this period a number of performance appraisal reports were given to staff and guidance on filling the forms was provided to staff who are due for renewal of contract. A comprehensive booklet for all job descriptions for staff at CEDAT has been compiled.

1.6 Annual leave, annual leave has been timely handled in line with leave rosters provided and on recommendation of the head of department. This has enabled staff to proceed for leave as scheduled.

1.7 A number of Official travel forms granting authority to staff to travel were timely approved.

1.8 Redeployment, staff have been redeployed through transfers and placements to different departments and units.

1.9 Two heads of departments that is Architecture & Physical Planning and Geomatics & Land Management were appointed by the appointments board.

1.10 Documentation, various forms, documents and guidelines have been provided to a number of our staff. This has enabled them to timely undertake trainings, fill leave forms and to take informed decisions accordingly.

Furthermore, guidance on several HR related issues has been given and information disseminated accordingly.

Promotions and recruitments (Human resource development)

- Some staff members (Prof. J. A. Mwakali and Mr. P. Mujugumbya) have retired from University Service although the latter has just defended his PhD.
- The Head of Civil and Environmental Engineering has been in this position for 10 months without ratification from the Human Resource Directorate.The following promotions and recruitments have taken place in the various Departments during 2014.

Promotions

NO	NAME	NEW POSITION	DEPT.
1	Dr. Max Kigobe	Lecturer	Civil
2	Dr. Abraham J.B. Muwanguzi	Lecturer	Mechanical
3	Dr. Gilbert J. Kasangaki	Lecturer	Civil
4	Dr. Michael Lubwama	Lecturer	Mechanical
5	Dr. John Baptist Kirabira	Assoc. Professor	Mechanical
6	Dr. Peter Okidi-Lating	Assoc. Professor	Electrical

NO	NAME	DURATION OF CONTRACT	DEPT.
1	Mr. Andrew Katumba	2 years	Electrical
2	Mr. Hilary Bakamwesiga	1 year	Civil

NO	NAME	APPOINTMENT	DEPT.
1	Mr. Anthony Rucukye	Assistant Lecturer	Civil

2	Mr. Allan Okodi	Assistant Lecturer	Civil
3	Dr. Jotham Ivan Sempewo	Lecturer	Electrical
4	Dr. Ronald Kizito	Lecturer	Electrical
5	Dr. Albert I. Rugumayo	Part time S/Lecturer	Civil
6	Mr. Silas Luliro Kito	Part time A/Lecturer	Civil

11. Workshops and Seminars

Researchers get training in Problem Based Learning

The college successfully hosted the Enriching Engineering Education Programme under the theme "Problem Based Learning" with a view of drawing ways through which the engineering curriculum can be problem based. This involves lecturers and students identifying a community problem and working together to find a solution. In this case, rather than the teacher communicating knowledge to students (chalk and talk), often in lecture setting, the teacher instead acts as an initiator and facilitator in the collaborative process of knowledge transfer and development.

The workshop covered areas of what Problem Based Learning (PBL) is, why introduce it into Engineering Teaching, challenges of PBL and strategies in implementing PBL. The two-day workshop (August 7-8, 2014) attracted participants from University of Dar es Salaam, Tanzania and Moi University, Dedan Kimathi University of Technology in Kenya and Aalborg University in Denmark. Ugandan universities included Makerere, Ndejje, Busitema and Kyambogo Universities.

The Vice Chancellor of Makerere University, Prof. John Ddumba-Ssentamu, while opening the workshop, noted that the Problem Based Learning methodology is very important when it comes to ensuring that teaching and learning benefits both the students and the industry.

"It is a radical shift in educational thinking from a teacher-centred approach of teaching to student-centred approach to learning. Problem Based Learning completely re-defines the role of the teacher in the learning process," he said.

The VC called on higher learning institutions in the East African Community partner states to adopt teaching and learning methodologies including curriculum that not only cope with the rest of higher education learning Institutions world-wide but also instil adequate skills, knowledge and attitudes in our graduates.

The workshop was facilitated by Dr Mona-Lisa Dahms from Aalborg University in Denmark.

The first Workshop of Enriching Engineering Education in Sub-Saharan region was held at the University of Dar es Salaam in March 2014. The first workshop focused on developing the

Outcome Based Curriculum that aims at bringing the engineering curricula closer to the needs of the learners and the modern industry. In other words, developing curricula which are responsive to the market needs while at the same time ensuring they are learner-centred.

CEDAT Successfully hosts 9th regional collaboration conference

Tthe College of Engineering, Design, Art and Technology on July 20th – 23rd successfully hosted the 9th Annual Regional Collaboration Conference which brings together researchers from Uganda, Tanzania, Mozambique and Sweden. The conference which was officially opened by the Minister of Education and Sports, Hon. Jessica Alupo, brought together over 100 delegates in the fields of engineering, design and Art.

The conference under the theme "Research and Innovations forum for sustainable regional development: Over a decade of Swedish Partnership" was also attended by the Vice Chancellor Makerere University Prof. John Ddumba-Ssentamu and the Director of the Directorate of Research and Graduate Training, Prof. Mukadasi Buyinza.

The scope of the conference was broad, covering aspects of engineering, architecture, art, industrial design, surveying and land management. The conference papers focused on the following sub-themes:

- Improving the performance of Infrastructure and Land Management.
- Architecture, Physical Planning, Urbanism, Built Environment Conservation and Efficiency in building.
- Water Resources and Environmental Engineering.

- Engineering Materials and Applications. Harnessing Mineral Resources for Economic and Industrial Development.
- Renewable and Sustainable Energy Systems.
- Power Systems, Mechatronics and Nanotechnology
- Information and Communication Technology; and Geographical Information Systems for Rural Development.
- Visual art, multimedia, and industrial design.
- Innovations and cluster initiatives and related areas.

In her speech the Minister Hon. Jessica Alupo thanked all the researchers for the continued effort in undertaking research geared at developing the country. The pledged continued government support towards science and technology.

“Our President emphasizes the need to industrialize our economy, this is the only way we as a country will grow to compete with the developed world. Your role as scientists is to help the government in this venture by carrying out cutting edge research and proof of concepts,” she said.

Hon. Jessica Alupo addressing participants at the Conference

She challenged the researchers to ensure that the graduates sent out in the field of work have practical skills reflective of the research going on at Makererere.

“I challenge you today to go back draw curricular which opens the minds of our students and gives them an opportunity of create jobs rather than wait to be offered a job,” Hon. Alupo said.

She also called on the industry to be supportive of research at the universities.

“I call on the industry in Uganda too, to support research at universities. The government alone cannot fully support research because of the limited resource envelope,” she said.

“Instead of industries paying foreign companies to do their research, they should fund laboratory development at universities so that the researchers carry out the tests needed. This way the university benefits in getting a laboratory equipped but also the industry cuts costs in the long run”.

The Vice Chancellor, Prof. John Ddumba- Ssentamu welcomed researchers from the different countries and called on researchers to increase research output because “the public is now seeking to make universities more accountable for the research funds they consume”

He thanked the government of Sweden, which has continued to support research in Makerere. Sweden is the biggest development partner of the university. Sweden has supported over 200 lecturers to acquire PhDs.

Prof. Buyinza called on universities to partner with the private sector, government, other universities and development partners in order to bridge the funding gap.

He applauded some of the research projects that are contributing to the development of the community. Some of these include the Cluster project which has helped cluster groups in value addition and finding market for products.

The conference received over 100 papers from different researchers. The conference was concluded with an annual general meeting which was characterised by a change of leadership. Prof. Cuthbert Kimambo of USDM handed over chairmanship of the Regional Collaboration to Prof. Henry Alinaitwe.

In appreciation of its Swedish partners, CEDAT awarded some colleagues from the partner institutions in Sweden. These awards were given in appreciation of their outstanding contribution towards the growth and sustainability of the partnership.

CWRC seminar: More than just a 4th year Project

On Monday 7th April 2014, CWRC organised a seminar for Fourth Year Electrical, Telecommunications and Computer Engineering students. The seminar was entitled "Final Year Project Guidance" and the objective was to enlighten the importance of Final year project to the students and how they can carry them out for a larger goal than just for marks. The message was that this work is more than a fourth year project and can be built upon for more than simply marks. The seminar was attended by 88 students and three presenters attended to the students. The seminar which started at 2:00 pm with an expectation to end at 4:00pm, went on up to 5:30 pm because of the so many questions asked by the students who were curious of the potential benefits of the final year projects. Mr. Mwikirize also shared experiences about other fourth year students that had developed successful projects that were more than a fourth year project. All the projects have been developed into innovations that have received international acclaim.

12. Exhibitions

Makerere Art Gallery

1. Wood: Artistic Exploration, Makerere University Art Gallery/MIHCR, 2nd -31st August 2014. Reception and artist talk 10th August 2014. An article attached*https://makerereartgallery.files.wordpress.com/.../nabulime-flyer_lr.pdf*

2. Art as medium for pedagogical learning Karolinsika Institute: Presentation and exhibiting art works on HIV/AIDs

”Arts in public health for global benefit” exhibition at Candyland Gallery, Gotlandsgatan 76, Stocholm, Sweden. 14th /5/2014. http://ki.se/en/medh/calendar/art-as-a-medium..

Also exhibited at the Aula Medica, Kalorinska University. 16/5/2014

How soap genitals talk HIV_AIDS _ PhD students and researchers at KI. http://ki.se/sites/default/files/konstevent_final_booklet_eng_0.pdf Art as medium Lilian at Karolinsika Institute

3. Fusion of Spiritual and Secular achievements and Expectations, Fine Gallery (CEDAT), Institute of Heritage Conservation and Restoration, November 2014

SHATTERED GLASS CEILING by AMANDA TUMUSIIME

Visualizing Women’s Emancipation – A History

This was a solo exhibition by Amanda Tumisiime held at the Gallery, Friday 10th January, 2014 to 25th January 2014.

8. DIFFERENT BUT ONE-18 curated by RevkaUziel

This was the 18th annual group exhibition by the academic staff of Margaret Trowell School of Industrial and Fine Arts (MTSIFA) held from Friday 7th February, 2014 to 23rd February,2014. It was code- named “maturity age” because in Uganda 18 is the legal age of consent.

9. THE GULU PROJECT by Anna Ackerman

Held on the 27th February, 2014 to the 18th March, 2014

The photographs of Anne Ackermann captured moments of life of four young women, Christine, Beatrice, Lady Sharia and Gloria, who have become victims and survivors of a war that ravaged northern Uganda for more than two decades.

Anna’s images, both sensitive and beautiful, take us into the lives of her subjects without flinching, revealing the last harm caused by the war. Her personal and honest approach to the stories that these women have to tell made this exhibition a sincere and important to document of this difficult part of Ugandan history**.**

10. PHOTOGRAPHY EXHIBITION by Sam Hopkins

The exhibition showed works of a Kenyan based artist Sam Hopkins whose works respond to the specific social and political context with in which he is living. It run from Friday 21st march, 2014 to 6th April, 2014.

The works presented are a reflection on Abayudaya, the Ugandan Jewish community around Mbale, in eastern Uganda, including but not limited to, “Once upon a time” afour channel video installation featuring interviews with four rabbinical students of Abayudaya**.**

11. “ARCHIVES – TRADITION AND ARTISTIC INSPIRATION” by Dr. Rose Kirumira Namubiru

This was an exhibition of sculptures by Dr. Rose Kirumira providing a retrospective of her artistic trajectory and a first display of her recent work. The exhibition was opened on the 10th April and concluded 2014 to 6th May, 2014.

12. EBIFANANYI EXHIBITION by Deo Kyakulagira

Held on the Thursday 8th May, 2014 to 31st May 2014, this was opening of Exhibition and panel discussion**.**

13. THE REFUGEE LAW PROJECT " TRAVELLING TESTIMONIES EXHIBITION"

By Kara Blackmore

This exhibition was opened on the Thursday 19thJune 2014 to the Saturday 26thJune 2014. This Exhibition focused on the war torn areas of northern Uganda, the remains and traces that it left behind. The screening show cased the different speeches given by the various leaders at different levels and the particular individuals who experienced and maneuvered the entire period.

14. KAMPALA ART BIENNALE (KAB) AND WOOD: ARTISTIC EXPLORATION

Held on Saturday 2nd to 31st August 2014.

The presentation of this exhibition was special because Dr. Lillian Nabulime's wood sculptures shared space with exhibits in the context of Kampala Art Biennale. While her sculptures filled up the room space, a selection of paintings, and prints was displayed on the walls and these where two dimensional artworks from different African countries.

15. FEATS OF UGANDAN POTTERY IV. "MY TOTEM"

Held on the September 4th 2014 to 21st September 2014.

This is an annual event of a group of ceramic artists who came together this year to exploit their clay passion and artistic instincts.

This year's theme being "my totem" in regard to Buganda, the clans are not known by names of respective clan founders, instead totems were adopted by the clans. The names of those totems came to be synonymous with the clans themselves. Therefore, artists attached beauty and function to those sources of inspiration with an objective of instilling symbolic intimacy of our respective totems.

16. MENTAL ILLNESS IN AFRICAN COUNTRIES IN CRISS

Held from 25th September 2014 to 11th October 2014

This was a photography exhibition by Robin Hammond an internationally renowned photographer. Robin was born In New Zealand and is currently based in Paris, France. He has dedicated his career to documenting human rights and development issues around the world through long term photographic projects. For "condemned –Mental health in African countries in crisis" he has won numerous awards like world press photo. Therefore, this was aimed at advocating for the rights of the mentally ill courtesy of John Paul II Justice and Peace Centre.

17. UGANDA PHOTOPRESS AWARD (UPPA)

Held from the 16th October 2014 to 8th November 2014

Curated by: Anna Kucma

This is an annual photography exhibition now happening for the third time. The exhibition brings together different photographers with different back grounds for example; journalists, artists, freelancers and people with hobbies in photography.

This is a competition where the winner is awarded a prize for the best photograph. This year's winner was a MTSIFA former student now working with New Vision Group.

18. A GROUP CHRISTMAS EXHIBITION

Theme: Fusion of spiritual and secular – Achievements and Expectations

Curated by: Mukyala Hasifa

This is a group Christmas Exhibition by renowned artists of Uganda. The aim of this exhibition was to bring together distinguished artists who would normally have a chance for solo exhibitions in either commercial or non-commercial galleries.

The Inaugural Geomatics Student Exhibition

his year, the Department of Geomatics and Land Management marks 25 years, and as part of the activities to commemorate this landmark, the department held its inaugural Geomatics Student Exhibition on the 5th of September 2014 in room 3033 in the New CEDAT building. The motivation behind this exhibition was to show case the best student projects carried out in the previous academic year. On display were three 3rd year group projects, twelve 4th year individual projects and two MSc. group projects. The exhibition was also meant to create an environment where industry would interface with academia to explore ways in which societal issues could be addressed using Geomatics tools.

In collaboration with DataGrid Africa Centre, the Makerere University – Datagrid Africa Center Award of Excellence was awarded to Mr. Joseph Kamoga and Mr. Derrick Robert Irumba, both of whom will be graduating with first class degrees in BSc. Surveying of Makerere University. Thanks to the generosity of DataGrid Africa Centre, the awards came with a plaque and a cash prize of Shs250,000 each. The Makerere University – Benefit Worldwide Award for the Best Exhibitor was awarded to Mr. Robinson Khisa, whose presentation was about, "Developing a Smart Campus Guide: A Web Based Location Awareness and Routing Application for Makerere University". His project was aimed at developing a web interface through which information about different locations e.g. hostels and academic areas of interest could be ascertained and the shortest routes between determined online. This award came with a plaque

and a cash prize of Shs150,000 courtesy of Benefit Worldwide. Other presentations on display included:

Estimating Carbon Sequestration of Mabira Forest Using Landsat

Semi-Automatic Brain Tumor Detection Using OBI analysis

Assessing the Applicability and Accuracy of Photosynth in Production of contour maps

Spatio-Temporal Analysis of Land Cover Change Using OBI Analysis

Improving access to land by Women

An investigation into the major causes of land Disputes in Teso Sub-Region,

Detection and Quantification of Air Pollution Over Kampala Using LandSAT

A Web based Crime GIS

Assessment of Urban Growth of Jinja Municipality

Assessment of the nature and impacts of land disputes on Land Development – Case study of Hoima District

Development of a Town GIS for Wakiso Town Council

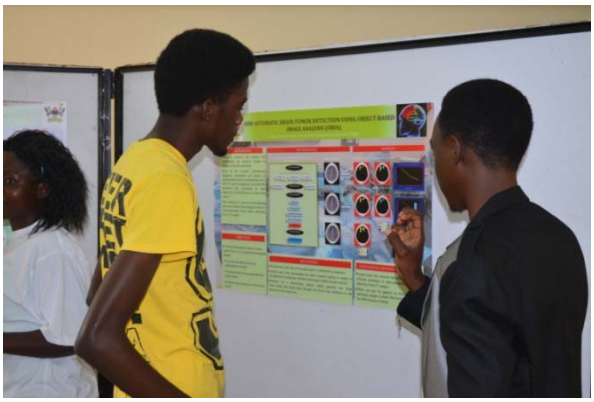
Development of a Web portal for Control Points in Kampala

Control Extension for Wakiso District

Topographic Survey & 3-D Modelling of Mengo SSS

Improvement of access to Geospatial information for National Development

The Head of Department, Dr. Anthony Gidudu, thanked the college management and industry partners for partnering with the department in the promotion of excellence in the profession and hoped that this will go a long way in inspiring other students to always aim higher. The Principal, Prof. Henry Alinaitwe, commended the department for this innovation and hoped that the occasion will enable the department to highlight its areas of competence, thereby attracting industry partners. The visitors to the exhibition included professionals in industry, former students, staff and students from CEDAT, the University at large as well as from Kyambogo and Ndejje Universities.



Picks from the 4th CEDAT Open Day

The College of Engineering, Design, Art and Technology (CEDAT) on the 31st October and 1st November 2014 hosted the 4th Annual CEDAT open day, under the theme "The Contribution of Science and Technological Innovation and Advancement to the Development of Uganda and the East African Region."

The Principal of CEDAT, Assoc. Prof. Henry Alinaitwe, after welcoming the guest of honor, welcomed the students, members of staff and the public to yet another exhibition of innovations organized by the Student leadership. Prof. Alinaitwe thanked the students for organizing the Open Day aimed at disseminating research and innovations in the college and encouraged them to keep the culture of unity and organization.

The Minister for Relief, Disaster Preparedness and Refugees, Hon. Eng. Hilary Onek was the guest of honor at the event held at the CEDAT grounds. In his speech, Hon. Onek said he was very pleased to attend the event and he indeed felt at home

because he obtained his first degree from the College and also taught there shortly after in the 1970's.

In his remarks, the honorable minister emphasized that "Today, we are very proud that under President Yoweri Museveni's visionary leadership and support, Makerere University has become a center for scientific innovations and development, moving away from the old ivory tower psychology." He added that "Although the university in the past made a number of discoveries which were only published, but used elsewhere for technological development, today, the NRM government has enabled the university develop their own discovery into technology that can be applied in industrial production."

The Honorable Minister congratulated Makerere University for embracing the policy direction and paradigm shift towards linking university education to industries, as was exemplified by the exhibition. "This is the way to guarantee Africa's survival in today's competitive world." Hon Onek said, "I would like to thank H. E. The President for the direction he has shown our scientists and the support he has given them, which is a great boost for them to tackle greater challenges. There has never been a better time for Ugandan scientists than today."

After his remarks, the honorable Minister officially opened the Open day and proceeded to tour all exhibition stalls starting at the beautifully decorated CEDAT quadrangle, which had projects from the Department of Architecture up to the CEDAT parking, where exhibitors from different CEDAT projects were displayed. Here, students from the College were showcasing their different interesting research projects ranging from drawings, sculptures and art works to aerodynamic car body kits, electrification systems, gasification systems, alternative housing and

roofing systems. Engineering firms like Roofings Uganda Ltd. and CAD Centre Uganda also had an opportunity to exhibit their different products and innovations.

Unlike the previous Open Days, the 4th Annual Open day included different activities like a charity campaign, and a bicycle race, a blood donation drive and free HIV testing and counseling which was organized in partnership with Uganda Cares.

The 4th Annual CEDAT Open day was crowned by a colorful fashion and talent show, organized by the students from The Margaret Trowell School of Industrial and Fine Art.

13. PUBLICATIONS

1. **M. Lubwama**, B. Corcoran, K. Sayers, ***DLC films deposited on rubber substrates: A review***, Surface Engineering (2014) doi:10.1179/1743294414Y.0000000379
2. **M. Lubwama**, B. Corcoran, J.B. Kirabira, A. Sebbit, K.A. McDonnell, D. Dowling, K. Sayers, ***Flexibility and frictional characteristics of DLC and Si-DLC films deposited on nitrile rubber***, Surf. Coat. Technol. 239 (2014) 84-94
3. **M. Lubwama,** J.B. Kirabira, A. Sebbit, B.Corcoran, K.Sayers, ***Effects of Si incorporation on XPS, Tauc gap and nano-mechanical properties of hybrid Si-DLC films***, Conference proceedings of the 9th Regional Collaboration Conference, July 20th – 23rd, 2014, Entebbe Uganda, pp 301 – 306.
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14. Student Support Services

- Student counseling through allocating **mentors** on issues related to academics, social life, economics, and others has continued although the staff on ground are limited.
- Financial support to students in identifying industrial training placement.
- Technical support to students in career guidance to secondary schools to encourage them in studying science based courses that enable them join Engineering programmes at the university.
- Staff have continued to guide students to exhibit some of the innovations and good ideas that are developed in the School.

15. CROSS CUTTING FUNCTIONS

Quality Assurance

Quality assurance in Academics has been ensured at the various levels as follows:

- Continuous Assessment
  - Course assessments have been always planned in advance and students informed formally about them at the beginning of each semester.
  - The plans for the course assessments indicate clearly the modes of assessments, when each assessment would be conducted, its duration as well as the maximum marks to be awarded in the assessments.
- End of semester Examination
  - Every examination is conducted by internal examiners, and overseen by at least two (2) invigilators.
  - Display of the final Examination Timetable with invigilation schedule is done two weeks before the commencement of the end of Semester Examinations at the latest.

- The Office of the Head ensures timely submission of Examination question papers and their respective marking schemes from the lecturers.
- External examiners are invited to review the examination at the end of Semester II to ensure adequate coverage of syllabus, appropriate standard, and appropriateness of the marking scheme. At the end of second semester, the Departments of Civil and Mechanical did not receive examiners because their booked tickets for examiners were not issued due to non-payment to the travel agents.
- The issue of re-cycling examination questions which discourages students from understanding the course material has now been arrested and staff no longer do it.
- Some lecturers tend to mark and compile exams towards the set deadlines which puts much pressure on Department Heads and increases chances of errors in grading.

Physical Infrastructure and maintenance

- Space availability
  - Classroom space available is 2010 Sq.m
  - Laboratory space available is 2006 Sq.m
  - ICT or computer lab space available is 110 Sq.m
- Condition of space
  - The lab space has continued to be a challenge as the numbers of students (undergraduate and graduate) continue to increase.
  - Internet speed is not to the required standard for such a great institution like Makerere University.

16. EVENTS

Semester closes with fascinating student projects

As the second semester comes to an end, the administration of the college wishes to thank all lecturers, administrative and support staff for all your respective contributions to the well being of our students and the college at large. We would also like to thank God for bringing us thus far.

This semester has been characterized by many things, some good while others have been sad events. We have lost several students and some staff have lost their loved ones, please accept our condolences. May all the souls of our dearly departed rest in peace.

As is the custom with second semester, we had our final year students make their final presentations. Some of these projects were very impressive and we call on all who can assist grow this ideas to do so.

Fifth year Architecture students had a cocktail of design projects, with varying backgrounds. There were some that had a strictly architectural background while others had both architectural and planning aspects. Final year projects are to show individual skills and ability to handle design projects independently from inception stage to completion. It is a test to find out the readiness of the students to go out and work in a job market as young architects with skills to meet the varying requirements of the client.

The student has to give a brief which includes services required, space available, use of materials, construction techniques and aesthetics of the building, cost and the context within which it is going to be developed.

A number of interesting projects were presented for examination as is seen in the pictures. Some of these designs included a Rugby club, an intercity railway station which KCCA might want to use, a forensic referral and training centre, a cultural mall, exhibition grounds and an adventure park among others.

The Department of mechanical engineering had students design and prototype an ergonomic chair, a salt crystallizer. One student designed a computerised information management system for the Uganda Police Force mechanical workshop, while another did research on the quality of aluminium products manufactured in Uganda.

At MTSIFA students started exhibiting their works yesterday June 6, 2014. The beautiful pieces of art include drawings, photography, sculptures, fashion deigns, paintings and graphic designs among others. All staff are encouraged to go view these pieces of art which will be on display until August. You might just get yourself the perfect art piece for your living room.

CEDAT celebrates success of “cycle for health” project

At a ceremony presided over of Mr Charles Opio Ewalu, who represented the Minister of Works and Transport, Hon. Abraham Byandala, CEDAT celebrated the successful use of the bicycles at

Makerere. The bicycle project is a result of collaboration between UN-Habitat and the Dutch Cycling Embassy as well as UST-Network.

The project was introduced to CEDAT in February 2014, as a way of encouraging students and staff to cycle. The project has been a success and has registered hundreds of users especially students. The objectives of the project are to create a Free and an affordable alternative means of transport, Safe; road safety and social safety, maintain current cyclists by allowing them to park on the project rack. The project dubbed "cycle for health" allows users to take the bicycle for one hour upon leaving their identity card. If one exceeds one hour, he / she is expected to pay Shs1000 per extra hour. This money is used to maintain the bicycles and the rack.

The CEDAT Principal, Dr Henry Alinaitwe welcomed the visitors who comprised officials from various government ministries and called on the Ministry of Works and Transport to embrace Non-Motorised transport which includes walking and cycling. He called on them to pay particular attention to issues of safety of the riders while planning for this mode of transportation.

Mrs Amanda Ngabirano, a member of UST-Network encouraged people to use cycling as a mode of transportation because it is healthy, it helps reduce traffic congestion, reduce accidents and pollution. She noted that the project had been a success because at peak hours, all bicycles are used by bikers. She said CEDAT student cyclists now have a safe parking slot for their bikes and there was increasing demand from other colleges to have this service extended to them. Cycling is common in Europe but is looked at as a poor man's mode of transportation in Africa. Presently, only Johannesburg has a planned cycling transport system.

KCCA is working on decongesting the city using non-motorised modes of transportation. These modes include walking and cycling. Mr Charles Opio Ewalu said the government recognises the need for the provision of non-motorized transport facilities due to the economic, health and environmental significance. He noted that although unsafe, Non- Motorised Transport (walking and cycling) is the most popular means of transport in Uganda. In the central business district, most trips are done by walking. Thus the Non-Motorised Transport Policy was formulated and launched mid last year. This policy will allow for safety to all road users. He said, countries that have attained rapid socio-economic development have adopted and adapted transport modes and technologies, and accumulated sufficient quality stock of transport infrastructure.

"In relation to the transport sector, by 2040, the government of Uganda envisages a multi-lane standard gauge railway system with high speed trains using the latest technology for both passenger transport and cargo freight. This will form the backbone of East Africa Regional railway system," Mr Opio said. "By 2040, Greater Kampala Metropolitan Area (GKMA) will be one of the most attractive cities in the world, offering its citizens and visitors a safe and efficient transport system based on high quality public transport and a complementary non-motorised transport network." As the government plans our transport system, cycling remains a sure way of going places and staying healthy, all at the same time. The function culminated into a cocktail.

Makerere receives land for Kiira EV Plant

The Executive Director of Uganda Investment Authority, Eng Dr Frank Ssebowa, has, on behalf of the Government , handed over 100 acres of land to Makerere University‘s Centre For Research in Transportation Technologies (CRTT). The land, in the Jinja Industrial park, is located in Kagogwa village. CRTT will build a production plant for the Kiira Electric Vehicles (Kiira EV) on 50 acres, while the other 50 acres shall have the testing ground for the vehicles.

Dr. Ssebowa explained during the ceremony held on 15th May 2014 at Busoga Square, Jinja that the handover would enable CRTT to start the process of surveying the land. The Kiira EV will be made by Kiira Motors Corporation on this land. Also receiving land in the same neighbourhood was China Engineering company to assemble Foton pickups on 60 acres, as well UEDCL (12 acres). Dr. Ssebowa urged the companies that received land to ensure that they create employment for the locals.

The Principal Investigator, CRTT Prof. Sandy Stevens Tickodri-Togboa upon receiving the documents pertaining to the land appreciated the Government’s contribution and pledged that the team would work hard to ensure the Kiira EV is ready for production in 2018.

Kiira EV SMACKAt the same ceremony CRTT unveiled for the first time the Kiira EV SMACK; a hybrid car that the team has been working on for the last one and half years. The Kiira EV SMACK is powered by both electric energy and fuel. At low speeds, the car uses electricity while at high speeds it will use fuel and in the process charge the batteries. Kiira Motors will produce the car in three versions: EV – full Electric Vehicle for enthusiasts, ICE – Internal Combustion Engine or normal fuel engine, as well as the hybrid – combining both fuel and electric systems.

The Kiira EV SMACK is a result of a joint collaboration between CRTT and students of St. Mary’s College Kisubi (SMACK). It will be officially unveiled to the public by President Yoweri Kaguta Museveni at a later date this month.

Present at the handover of the land was the Chairperson of the Makerere University Council, Eng. Dr. Charles Wana-Etyem and several members of Staff.

MAK partners with UNICEF in WASH project

Makerere University has signed a Memorandum of Understanding with UNICEF to collaborate in the area of Water, Sanitation and Hygiene (WASH) at an event held on 9th May 2014. The event also involved a launch of a three year project code-named Unicef-Academia-Private Sector

Partnership (UNAPP) WASH Innovations Project, at the College of Engineering, Design, Art and Technology (CEDAT). The project partners include CEDAT, UNICEF Finland, UNICEF Uganda, Aalto University, Helsinki University and Biolan Oy. At Makerere University, CEDAT will collaborate with the College of Health Sciences (CHS) and the College of Humanities and Social Sciences (CHUSS). The project will be implemented in Acholi sub-region, Northern Uganda.

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Poor sanitation and contaminated water are linked to transmission of diseases like cholera, diarrhea and dysentery among others. Mrs. Aida Girma, the UNICEF-Uganda representative emphasized that the need for such projects is dire. “I thank the Government of Finland for supporting the initiative. Access to safe water and adequate sanitation facilities is both critical to children’s learning as it contributes to improved enrollment; as well as child survival. The pupil latrine ratio in Uganda is 69:1, compared to the national standard of 40:1 and access to hand washing with soap is as low as 33%,” she said.

TheVice Chancellor of Makerere University, Prof. John Ddumba-Ssentamu, who was represented by the Principal of the College of Natural Sciences, Prof. J.Y.T Mugisha, was grateful for the project. “We are glad that the partners will work together with schools in Acholi-land to come up with innovative ways to solve local water, sanitation and hygiene issues among primary school children. This gives us an opportunity to contribute to the wellbeing of the people in Acholi,” he said. “It will further support the objectives of the Uganda National Development Plan that encourages innovations and adaptable technologies to address societal needs and social transformation,”” he added.

Eng. Nyeko from the Ministry of Water and environment was equally grateful for the project, which he referred to as a remarkable example of multi-stakeholder cooperation. He pledged full cooperation and support from the Ministry.

According to the Project Coordinator, Dr. Richard Kabiito, “The planning process for this 1.2m Euro project started in September 2012. The main activity of the pilot phase were ideas and products developed by student teams.”

In her presentation, Dr. Venny Nakazibwe, the Dean of the Margaret Trowell School of Fine Art (MTSIFA) explained that the project will have three components of Capacity building, Innovations and Distribution of lessons learned. “This project is going to impact on the local community and it has been developed with the interests and cultural inheritances of the Acholi community in mind. We are going to start small, but are hopeful that this will be rolled out to the rest of the country, in consultation with our other partners, she added.

Dr. Moses Musinguzi of the School of Build Environment, who represented the Principle, Dr. Henry Alinaitwe, pledged that the College will ensure maximum utilization of the funds and is happy to be associated with the project.

Aalto University was represented by Prof. Mikko Koria. Helsinki University was represented by Pekka Tuominen.

Exhibition and Book Presentation The Photographer; Deo Kyakulagira

May 8 – 31, 2014

Opening reception with panel discussion on Thursday 8th of May at 5 pm

with with Deo's son and heir Dennis Kalyango, MTSIFA photography lecturer Annette Ssebba, HIPUganda initiator Andrea Stultiens and journalist David Tumusiime

Deo Kyakulagira (1940-2000) was devoted to his family and to photography. From the early 1970s until his untimely death in 2000 he operated several photo studios, among them the Central Art Studio Ltd in Kampala Road. He also worked as photographer for the Ministry of Agriculture and for the Department of Medical Illustration at Mulago Hospital. HIPUganda initiator Andrea Stultiens edited his work presented in this book and exhibition and added some of her own contemporary photographs to create a dialogue between past and present.

Deo Kyakulagira's work will be exhibited in its full spectrum at the Makerere Art Gallery. The photographs on display are images made for the different institutions Deo worked for as well as examples from his studio practice and some photographs of events that took place immediately after the bush war and Museveni's seizure of power.

The Photographer; Deo Kyakulagira is the first edition of a new book series called Ebifananyi (Likenesses) published by History In Progress Uganda. Each book of the Ebifananyi series will focus on one specific photo collection and/or photographer in Uganda.

The exhibition of Deo Kyakulagira's photographic work is the third collaboration between Makerere Art Gallery/IHCR and Andrea Stultiens with History In Progress Uganda. The cooperation started with an exhibition and book presentation of the Kaddu Wasswa Archive in May 2011, followed by the exhibition Sketching a Civilization with Rumanzi Canon in April 2013. Exhibition and book presentation of The Photographer; Deo Kyakulagira is the first in a new annual exhibition series in collaboration with HIPUganda highlighting work and life of Ugandan photographers. Following projects in HIPUganda's Ebifananyi series will feature the work of Musa Katuramu (1913-1986), and Elly Rwakoma (1937-).

Dr Kirumira Rose Namubiru's solo exhibition opens

The High Commissioner of Trinidad and Tobago, H.E Patrick Edwards, has appreciated the work of Art and Creativity by Dr. Rose Namubiru Kirumira, an internationally renowned sculptor and a lecturer at Margaret Trowell School Industrial and Fine Art, College of Engineering, Design, Art and Technology (CEDAT). This was during the opening of the solo exhibition held on April 10th 2014 at the Makerere University Art Gallery. The exhibition under the theme, "Archives-Tradition and Artistic inspiration" aimed at creating awareness about Uganda's material culture and taking part in the discussion of collective nationalism and its relevance. The exhibition was attended by different people from various sectors and among which included; former Vice Chancellor of Makerere University, Professor Livingstone Luboobi, the Deputy Vice Chancellor (Academic Affairs), Dr. Ernest Okello Ogwang, Principal-CEDAT, Dr. Henry Alinaitwe, the Dean, Margaret Trowell School of Industrial and Fine Arts, Dr. Venny Nakazibwe, Principal, College of Humanities and Social Sciences and other dignitaries. In his speech the Ambassador congratulated Dr. Namubiru Kirumira whom he referred to as the "Pioneer" of Art and Creativity at Makerere for the interests and efforts she has put in to bring out the role of the artists, which to him is critical in maintaining the past and the present. "Artists have made a desirable role in developing the society through recording the history for the new generation," said the High Commissioner.

Race for Deputy Principal

The public presentations by candidates vying for the position of Deputy Principal, College of Engineering, Design, Art and Technology were successfully held on Monday 31st March 2014 in the Conference Hall, School of Food Technology, Nutrition and Bio-Engineering. The two candidates vying for this position, Dr. Venny Nakazibwe and Dr Stephen Mukiibi, made known their intention to serve the CEDAT community and also shared their plans for severing and managing CEDAT affairs. Among the issues emphasised by both candidates is the need to have well-motivated staff who will be able to impart knowledge and also carry out research as well as mobilise resources for the college. The candidates also noted the limited the resources that the college had and promised to mobilise resources if elected. Also in

attendance were the members of the search committee led by the chair person Dr Peter Baguma, Dr Elly Sebiiti, Dr Jessica Aguti, Ms Ritah Namisango among others. The candidates previously sat interviews and had their CVs vetted as part of the search process. **The race was won by Dr Venny Nakazibwe.**

17. CONCLUSIONS AND WAY FORWARD

The general situation in terms of human resource on ground is not good. The departments don't have enough teaching and non-teaching especially Laboratory technicians. Laboratory facilities have improved owing to support from the Presidential Initiative Fund although more still needs to be done. There is need to find ways of motivating the few members of staff that the college has got.