



**SPEECH DELIVERED BY PROFESSOR CLEMENT K. DZIDONU, PRESIDENT OF THE
ACCRA INSTITUTE OF TECHNOLOGY (AIT) AT THE 8th CONGREGATION OF AIT**

VENUE: CHRIST THE KING HALL, ACCRA. FRIDAY, 3RD JULY, 2015

- Special Guest of Honour, Dr. Abdullai Baba Salifu, Former Director General of the Council for Scientific and Industrial Research (CSIR)
 - Professor Francis K. Allotey, Chairman of the AIT Board of Trustees
 - Professor William Otoo Ellis, Vice Chancellor of the Kwame Nkrumah University of Science and Technology (KNUST)
 - Professor Anuwar Ali, Vice Chancellor, Open University, Malaysia
 - Members of the AIT Board of Trustees
 - Members of the AIT Advisory Council
 - Members of the AIT Senate
 - Traditional Rulers Present
 - The Faculty, Staff and Students of AIT
 - The Graduating Class
 - Distinguished Invited Guests
 - Members of the Media
 - Distinguished Ladies and Gentlemen
-All Protocol Observed

It is an honour for me, as President of AIT and your host, to be given the opportunity to add my voice to that of the Chairman of the AIT Board of Trustees, to extend our traditional hand of welcome to all of you who have made the time to be with us for the 8th Congregation of AIT.

I particularly want to thank our Special Guest of Honour, Dr. Abdullai Baba Salifu, Former Director General of the Council for Scientific and Industrial Research (CSIR) for honouring our invitation at a short notice. On behalf of our Chairman, I am extending to you a special welcome to AIT. Given the significant role you are playing in championing research and university education in Ghana, I am sure you will agree with me that you are the right choice of a Special Guest of Honour and Speaker for the 8th graduation ceremony of a young university of technology making great strides internationally.

I also want to extend a special welcome to Professor William Otto Ellis, the Vice Chancellor of the Kwame Nkrumah University of Science and Technology (KNUST) who is joining us to perform a very important statutory function of conferring the Bachelor Degrees on our students graduating on

academic programs being offered by AIT as part of the affiliation arrangement with the KNUST. Our being here today to celebrate the achievements of these students would not have been possible without your leadership. We salute you and members of the KNUST team that worked diligently to bring us this far.

The Chairman of the AIT Board of Trustees has already outlined the general vision of the university which has been the driving force behind all our efforts. It is now my responsibility to account for my stewardship to the Board and to this Congregation. I am happy to confirm to you and to this Congregation that we have so far assiduously met the general requirements of our mission. And I shall briefly elaborate aspects of our achievements in those directions in this report.

AIT's Academic Performance and Achievements

AIT is currently offering accredited campus-based programs in affiliation with the Kwame Nkrumah University of Science and Technology (KNUST) in the fields of: Information Technology, Computer Science, Electrical and Electronic Engineering, Civil Engineering, Computer Engineering and Business Administration.

We also offer Open University programs in collaboration with the Open University, Malaysia (OUM) at the Undergraduate and Postgraduate levels. On the postgraduate programs we are offering at the **Professor Francis Allotey Graduate School**, apart from the fact that we offer a range of Master's degree programs, and given the fact that over 250 PhD students are now enrolled at AIT, we can claim that we have become one of the leading postgraduate research institutions on the continent.

Mr. Chairman, I can confirm that AIT has made great strides over the past year in improving on its academic program offerings as well as improving its enrollment on these programs considerably..

On our Research Efforts

Mr. Chairman, please allow me to say a word or two on our achievements in the area of research at this university. As a teaching and research university, and working towards becoming a leading entrepreneurial university, I am pleased to inform this congregation that AIT, is making major strides in the area of PhD research work. We are currently doing PhD research work in Engineering, Information Technology, Education and Business Administration. We have a number of the academic and senior administrative staff from almost all the public and private universities in Ghana doing their PhD at AIT.

Mr. Chairman, still on the research front, I am pleased to announce that AIT in collaboration with a number of international and local partners including, the Ghana Academy of Arts and Sciences, the Ghana Institution of Engineers, the Council for Scientific and Industrial Research (CSIR) among others will be hosting the 2015 edition of the International Research Initiatives Conference (IRIC) this October.

On the Graduating Class

Mr. Chairman, on the Graduation Class of the 8th Congregation here present, I can report that, we are graduating today:

- 14** PhD Candidates
- 39** Master's Degrees
- 184** Bachelor's Degrees (Campus-Based Programs)
- 31** Bachelor's Degrees (Open University Programs)

Of the 184 graduating on the **Campus-Based** Bachelor's degree programs:

- 15 obtained First Class Honours
- 47 obtained Second Class Honours, Upper Division
- 120 obtained Second Class Honours, Lower Division
- 2 obtained Third Class Honours

Mr. Chairman, I must acknowledge the key role played by our faculty and staff. We have a dedicated faculty and staff who strongly believe in the AIT vision and are working hard to enable us move AIT forward. I say thank you to all of them. My colleague Professors and Deans are no doubt key to the academic progress recorded by AIT for the past couple of years. To them I say we thank you and will continue to count on their academic leadership to move us to the next steps.

On a Topical National Issue

Mr. Chairman, I want to take this opportunity to say some few words on a topical issue -- that is the national debate on examination leakages. A case in point relates to the outcry on the leakage of some of the papers of the 2015 BECE examinations resulting into the nation-wide cancellation of five of these examination papers.

Let us examine the issue: Mr. Chairman, this is not the first incidence of examination leakage at the pre-tertiary level, it has happened a number of times in the past resulting in the cancellation of papers at the schools that the incidence was detected. What is different this time round is the widespread nature of the leakage as a result of the posting and the sharing of the leaked examination papers over the Internet using social media platforms. This, no doubt raised the bar of concern among the public.

Some were quick to blame the technology for the widespread nature and reach of the leakage; some blamed the Examination Authorities for not exercising due diligence in preventing the leakage; some blamed the competition among some schools eager to showcase excellent examination grades; others were quick to blame it on moral degradation among our youth and some parents who participated in the act; others went as far as blaming the Government; and so on.

Let us leave aside the blame game for now and concentrate on the main issues. What is certain is that, the use of technology did play some role in propagating the leaked papers to a wider audience, leaving the Examination Body with no other option but to order the nation-wide cancellation of these papers. The question is: if the use of technology did contribute to the amplification of the leakage, can the same technology play a role in preventing the leakage? The answer is a resounding Yes!!

Mr. Chairman, evidence points to the fact that, we are at the very beginning of a very worrying phenomenon characterized by widespread examination leakages and mass cancellations of papers. The technology that people are using to access and propagate the leaked examination papers is not going to go away, in fact, the technology as a processing, storage and transmission tool and media is going to be more sophisticated and more capable of aiding examination leakage activities a notch or two up every examination season. In fact, the prediction is that things are going to get worse before they get better.

For things to get better, steps must be taken to use the technology to mitigate leakage threats at each stage of the process from the compilation, storage, printing to the distribution of the examination papers. Currently the processes involve close to eight stages; each providing various *avenues, possibilities and opportunities* (APOs) for examination paper leakage.

Mr. Chairman, let us examine these stages in terms of their threat levels in respect to the APOs and the *possible examination leakage agents* (PELAs) that could exploit these APOs to commit acts of illegal access, theft and leakage of examination papers

Stage-1: The storage of electronic version of the examination papers on a computer device or electronic storage medium possibly weeks or months before the actual examination date [*APO Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority, Computer Room Personnel & Computer Lab. Technicians]

Stage-2: The transportation of the electronic version of the examination papers using either portable storage devices or electronic transmission medium to a printing location; hours, days, or weeks before the actual printing of the papers [*APO Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority, Computer Room Personnel & Computer Lab. Technicians, Security Guards & Agents and Drivers in the event of the physical transportation of storage devices]

Stage-3: The printing of hard copies of the examination papers; days, weeks or months in advance to the actual examination date [*Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority and the Management & Staff of the Printing Company]

Stage-4: The physical storage of the printed examination papers in a supposedly ‘strong-rooms’ waiting to be transported miles across the country under Security Guard; days, or weeks before the actual day of

the examinations [*APO Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority and the Printing Company]

Stage-5: The transportation (under Security Guard) of the printed examination papers across the country to local (regional/district) distribution centers; days, or weeks before the actual day of the examinations [*APO Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority, Security Guards, Drivers of Vehicles Transporting the Examination Papers]

Stage-6: The storage of the printed examination papers at local distribution centers, hours or days before the actual examinations [*APO Threat Level* –Very High; *PELAs* –Management & Staff of the Examination Authority, Security Guards & Agents; Examination Paper Distribution Center Management & Staff]

Stage-7: The transportation of the printed examination papers to the examination centers possibly an hour or more before the actual examinations [*APO Threat Level* –Medium-to-High; *PELAs* –Management & Staff of the Examination Authority, Security Guards & Agents, Drivers, Examination Center Staff –Teachers, Head Teachers, Invigilators]

Stage-8: The storage of the printed examination papers at examination centers possibly an hour or more before the actual examination [*APO Threat Level* –Medium-to-High; *PELAs* –Management & Staff of the Examination Authority, Security Guards & Agents, Examination Center Staff –Teachers, Head Teachers, Invigilators]

Mr. Chairman, it is clear that 7 out of the 8 stages of the process identified above possess a high risk of threat to examination paper linkage. Stages 2 to 8 involving: printing, transporting, storage, distributing of printed examination papers are all an embodiment of using *old tools* 'to solve a *New Problem* of preventing examination leakages in a technological era.

Need to Embrace Technology to Prevent and Eliminate Examination Leakages

Mr. Chairman, there is now the realization and the acknowledgement that we are in a new technological era that calls for the need to tear old Rule Books and methods of handling examination paper leakage problems whose nomenclature and permutations have changed from old to new problems by the very existence and the use of these new technologies. Examination leakages have been with us for years, and as such may look like an old problem to some people. But the very fact that the technology is being used to aggravate the problem by amplifying the intensity of the magnitude of the spread, reach and the speed of the leakage, means that, this is a whole new ball game, a whole brand-new problem, that cannot be addressed using old tools, ways or means.

Some technological solutions have been proposed and adopted by some Examination Bodies to mitigate the threat of examination leakage targeted at specific stages of the process.

For example, in a recent release entitled: 'WAEC Tightens Security of BECE Examination Materials' we were informed that the West Africa Examinations Council (WAEC) has introduced stringent security measures to prevent leakage of BECE papers involving the use of security mail bags with tag numbers, a padlock and three keys that would be kept by three persons at different strategic locations - This new security arrangement requires that a group of three persons made up of the District Education Director, the WAEC depot keeper and the examination supervisor stationed at the examination center would keep the keys to prevent the possibility of the mail bags from being tampered with.

Mr. Chairman, this new security arrangement is an improvement, but it falls short of addressing the risk of linkages that could occur at Stages 1 to 4 of the process. At best it can provide some level of security at Stage 5 and to some extent at Stages 6, 7 and 8. But the risk remains reasonably high once there are people involved in the handling of the mail bags. For any security system, the weakest link pose the highest security threat. The weakest link in WAEC system is the human factor; any group of the three people (we have many of these groups spread all over the country) could collude to break or open the padlock and access the papers, and then proceed to make them available on social media –we are back to square-one. The premise of any security system is the notion of mistrust, not trust in the gatekeepers.

Another similar technological solution used in South Africa and being considered by the Zimbabwe Schools Examination Council (Zimsec) is the "gridlock technology" that enables printed examination question papers to be placed in sealed boxes with security codes remotely controlled from the command center at the Head Office. The electronic boxes open simultaneously nationwide at a prescribed time and date of writing of an examination.

The only difference here is that instead of using physical padlocks as in the case of the WAEC system, electronic codes are used and can only be activated remotely at Headquarters in real-time. The 'gridlock technology' system is certainly more secure than the WAEC system and can better mitigate the risk of leakage at most of the stages described above except that, once the code to open the boxes is cracked, a determined person may have access to the printed examination papers and then proceed to leak it physically or electronically over social media platforms.

Mr. Chairman, although some of these attempts to address the leakage problem using technology, may not eliminate the threat, they are commendable efforts. and it is clear that these Examination Authorities do recognize the fact that technology do have a major role to play as part of the solution to the problem.

The good news is that specific elements of technologies are now available to implement innovative technological solutions that stand a better chance of totally eliminating nation-wide examination paper linkages and even providing us with new ways and means to administer these examinations better and eliminate various forms of examination malpractice during the actual examination itself. Mr. Chairman, I

am happy to inform you and this congregation that AIT is proposing one such innovative technological system; what we termed the **Storage-to-Terminal Technology (STT)** system. Please permit me to briefly talk about this.

The proposed **STT system** for examination leakage mitigation and elimination will involve the following 4 steps:

1. The storage of the electronic version of the examination questions in a Question Bank in an encrypted format on a secure server with layers of computer security access control and authentication features and restrictions at a secret centralized secured strong-room location.
2. On the day of a particular examination, just minutes before the actual examination, a computer program will automatically generate the examination paper by randomly selecting questions from the Question Bank to either set a single paper (same paper for all candidates) or multiple examination papers with each having different sets of randomized questions
3. The transmission of the encrypted paper(s) over a secure link in real-time either directly to dumb terminals (or dumb tablets) at the examination centers/halls or to local servers in the examination centers/halls throughout the country which will then display the paper(s) on the dumb terminal screens.
4. Each candidate in each of the examination halls will read the examination questions on his/her dumb terminal screen and then answer the questions in the usual way using the standard examination answer script or booklet which will then be handed over to the invigilator at the end of the examination.

Since these special terminals are not stand-alone computer devices but rather dumb terminals connected to a server, its cost will not be prohibitive and can be re-used many times to spread the cost over many future examination sessions. This technological solution will eliminate Stages 2 to 8 of the current process thus reducing the chances of examination leakages to almost zero. And in the event of a linkage it will be easy to trace it to the single source –the server on which the questions were stored, and as such the culprit can easily be traced, identified and apprehended. An additional security feature of the proposed **STT system** is that, the examination papers will be available electronically just minutes before the actual examination, as such the window of opportunity to leak a paper does not exist, since the paper will not exist prior to the candidates entering the examination hall.

An added advantage of this technological solution is that, since questions are generated at the time of the examination by a computer, the questions can be randomized such that no two candidates in same exam hall will get the same set questions, hence eliminating the incidence of examination malpractice during the examination itself.

Apart from the initial cost of procuring the dumb terminals which could easily be recovered over a period of time from savings made from not printing, transporting and distributing hard copies of

examination papers, the availability and reliability of the transmission medium for securing the transmission of the papers to the examination hall servers for display on the terminals may pose a challenge, but this could be overcome with time.

The Internet bandwidth and spread through the country is improving all the time, and it is also now possible for the National Examinations Authorities to set-up their own secured private, dedicated virtual broadband wide-area network that will link the Head Office to secure regional/district/local node servers and systems to facilitate real-time transmission and the display of the examination papers on candidate's terminals. There will be no time delay between the transmission from the central server at Headquarters and the display of the papers on the various terminals for the candidates.

Mr. Chairman, various permutations and variations of the proposed **STT system** can be implemented in a phase-wise manner, starting with pilot implementation towards a full-scale nation-wide implementation, depending on the availability of resources and expertise. Once there is the will there is always the ways and means to achieve it. In any case we don't have a choice in the matter, we must deploy technologies to solve this recurrent perennial examination leakage problem.

The Role of the Universities

Mr. Chairman, there is no doubt that the higher educational institutions do have some role to play in addressing a number of the issues raised in connection to mitigating the examination paper leakage phenomenon at the pre-tertiary level. Not only are the universities an onward destination for some of the students who might have benefited from examination leakages hence with questionable grades seeking admission into the universities, but also of concern is the issue of threat to academic standards at the pre-tertiary and tertiary level if steps are not taken to mitigate examination leakages.

Needless to say that those who fraudulently gain admissions to the universities as beneficiaries of examination malpractices are more likely to try and cheat their way through their university education and by so doing contribute to falling standards and possible dent on the image of the universities. The universities have no choice in the matter, they must be at the forefront of the fight to eliminate examination leakages at the pre-tertiary level, not forgetting preventing all types of examination malpractice at the tertiary level including ruthlessly dealing with perpetrators be they staff or students.

We at AIT are in the fore front of these efforts; the proposed **STT system** to addressing the examination leakage issue is just one of the efforts we are contributing to mitigate the problem at the national level. Mr. Chairman, on a lighter note, I want to assure you that all students we are graduating today honestly and truthfully earned and deserved all the A's, B's and C's in their transcripts. By the way you cannot graduate with a grade less than C or a score less than

60 in any subject at AIT. We have the highest and the toughest grading scheme of any university in this country, and we are proud of this.

Turning to the Graduating Class

With pride and excitement, I want to take this opportunity to welcome all our new graduates to the future...your future. Your short journey through AIT has given you a world-class education that no doubt equipped you to take on the world. The future as we say at AIT is yours. As you journey into the future make sure you take on all the opportunities that your education here will offer you.

Talking about grabbing and acting on opportunities, the other day, I saw a man in the T-shirt with the word opportunity written outside down, I asked him why?; he replied, I want to keep the opportunity to myself, -- I don't want to reveal it. Well I don't know about you, *just remember that everything ever done by man, is an act of man stretching his hand to seize one opportunity or another. Don't wait for an opportunity to be equally shared before you seize it, go with what you have, and may be tomorrow your share of the opportunity may be larger than those of others.*

Your graduation today, is neither the beginning nor the end of your days of opportunities, it just signifies the day of harvest of the fruits of the opportunities you took some time ago to advance yourself in life. More opportunities will come your way, make sure you recognize them and grab them with both hands, don't let them fly away without you.

For those of you planning to avail of the opportunity to do your graduate studies either at the Master's or the PhD level, we are encouraging you to take the advantage of the enriched academic life and experience at AIT and enroll with us. You know what you can expect from your Alma Mater; nothing less than first class education.

As I always say on occasions like this: I want to leave you with these words: Always remember that: *it is not the past, but rather it is the future which is at stake* and this future starts from here –this very spot. That future, I promise you will offer you *opportunities* that will present you with a number of *possibilities* to choose from to make a *difference* in your lives, your families, society, country and in the world at large. –That is the AIT Challenge you have to honour.

Whatever you do, remember to cherish opportunities to make a difference - they give you a chance to prove your true self again and again. Do something great with your life..Why?..because you are a product of AIT. Remember, *in life there are no boundaries to achieving great things except those that you set for yourself*..Putting it another way: *"If you place a limit on what you can do, you have placed a limit on what you can become."* ... never forget that.

GOD BLESS YOU ALL..AND I THANK YOU