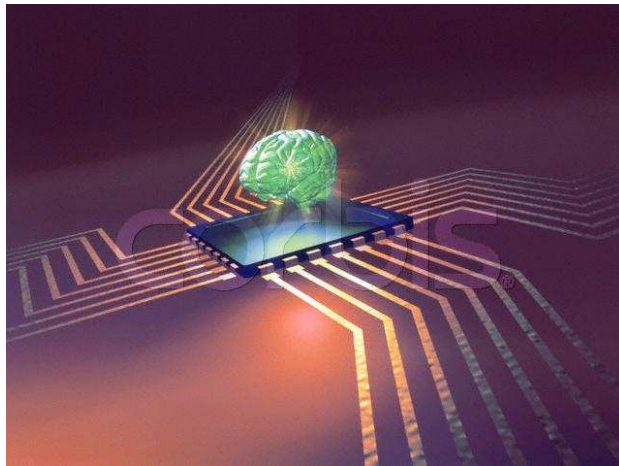


# ENGINEERING EDUCATION IN NIGERIA: *Today and Tomorrow*



*by*

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## 1.0 I HAD A DREAM

*They filed out of the dormitory, just to catch a glimpse of “the star”. The news was all over the school... an ex-student had returned! That he was an ex-student wasn’t the issue, and that he was even in the University was of no serious weight. But that he was a student of Engineering said it all! Here was someone who could look at a problem, come up with a solution and implement his idea... it was no exaggeration to say a wizard was in town.*

*They were in secondary school, and had an unusual respect for engineers because they were creators – maybe not on the scale of the deity, but in a class of their own. The dream of becoming an engineer dwelt in the heart of many ... if only they could cross the examination hurdles. A few friends therefore decided to embark on the prestigious journey – the journey into the world of engineering. It was a tall dream, but it was worth it. They were not exactly thrilled by the monetary prospects, but the power to create solutions and calm chaos was an adventure they were willing to embark on.*

*They knew that one of them would solve the problem of erratic power supply in their country (a developing one) if he could implement his “Independent Electric Power Generation” pet project. That was John. He was not endowed with so much flesh on his body but his brain was full of an idea. He had hurdles to cross but he was willing to give up anything just to become his dream... an engineer, and not only an engineer but the one to solve the “Christmas light” phenomenon he grew up to know. John finished as part of the top 10% of the class and proceeded to one of the foremost universities in his country to study Electrical Engineering and he did not hide his dream from anyone who could spare a few seconds. He must have used the phrase, “I have a dream” more than Martin Luther did.*

*The first tragedy struck when, at the Physics laboratory in his first year, he challenged a theory while conducting an experiment on gravity. He was willing to explain to the laboratory attendants that there was an error in the lecturer’s calculations during the lecture on gravity but they would not listen. “My friend, will you write what you see and stop feeling like Albert Einstein...”. He wouldn’t allow the case to settle there as he proceeded to the lecturer to clarify issues – and he was right.*

*What was “stop feeling like Albert Einstein” supposed to mean? He discovered the answer to his thoughts over time. He graduated from the university with good grades but he knew that he wasn’t ready to create anything. He could remember the course titles but applying them to real life problems was going to be difficult – if not impossible. Then came another hurdle – he needed a job. He was at an interview and the only proof that he studied Electrical Engineering was his certificate!*

## 2.0 A SINCERE ASSESSMENT OF TODAY

There are thousands of young people like John in developing nations today. Their dreams are being *assassinated* and their hopes being *erased*. These young men and women will be the ones to lead their nation's engineering industry tomorrow but may we ask what they are made up of today? How many of them still carry their dreams of revolutionising the engineering industry? Or has that been replaced with the drive to *settle down to a plum job*? How many of them are equipped with practical/working knowledge? How many of them can handle tomorrow's tool – **Information Technology**? Or what can an engineer do without Information Technology? From *Geographic Information Systems* to *automated manufacturing processes*, the sustainability of any engineering experience is built on the application of Information Technology.

I'm sure that this distinguished profession is conscious of its future. If the future is built around people and a profession around what its people-players know, we must then ask a sincere question: **How much of engineering do today's engineering graduates know?** We may be quick to blame students – *they don't read like we used to*. Or we may be tempted to accuse lecturers of teaching theory and the nation of not producing a conducive environment but I think a holistic view will do a lot in helping us maintain standards of excellence in this non-compromising industry and also create an enviable future for the same.

### 2.1 Laboratories Or Museums

The state of laboratories/equipment rooms in much of engineering training institutions in developing nations needs some attention. It is embarrassing to know that there are graduates who never touched or handled tools of their profession. If there were to be an honest Engineering Equipment Audit for all institutions that award Engineering degrees, many of emerging engineers could have their certificates *recalled*!

### 2.2 Lecture Notes Or History Texts

The reports we get from the international community are not fair on us, and on the coming generations. One of such reports called **us** half-baked graduates and another one revealed that a Nigerian student that graduated in the First Class category was subjected to another test in order to ascertain the quality of his degree. That is humiliating!

The course curriculum of our Universities **must** be revisited if we must break this cycle of *half-baked* graduates. The idea of not updating lecture notes should also be discouraged - I would not be surprised if some lecturers' notes are as old as their BSc certificates.

### 2.3 Should Engineers Be Innovators?

Many young Nigerians grow up as innovators but pass through school to become job seekers! It is a cycle that must be broken by all parties concerned – students must hold on to their goals and school should be an environment that rewards

innovation above *CPF* (*Cram-Pass-Forget*, which many students employ to satisfy the lecturer in exchange for good grades).

That way, we can once again recreate the beauty of engineering in Nigeria. I grew up hearing of a certain *Okati Motors* that was building automobiles from 70% local materials. Course advisers should please identify and assist young people to become tomorrow's innovators. Final year projects must be solution-specific endeavours and not the usual reproduction of some forgotten thesis from the school library. We would never move forward that way!

## **2.4 Where's The Government?**

One of the most common questions today is, "*what is the government doing about...?*" While we await the sleeping giant's revival, we must not stand still. The Private sector should partner with institutions in both infrastructure availability and human resource development. The truth is that your manpower comes from these institutions, equip them today and have a solid workforce tomorrow!

We have spent enough dollars on our ignorance, its high time we had private sector sponsored Computer Science laboratories and Civil Engineering. Life is not all about how much we can get but how much we can give... business is not always about how much profit we make but how socially responsible the organisation is.

## **2.5 Certificates vs. Proficiency**

Without trading faults, we must sincerely acknowledge that the present educational system is certificate-driven, but that should not be so. We need to build our lives and careers around being proficient because that is the only way we can stand up to be counted.

The usual trend is that when certain certificates become commonplace, there's a drive towards another level, which goes on to become "too popular"... and on goes the cycle. We must put an end to this cycle, and break away before its too late. And if I can borrow from the wealth of a friend's words, be certified but not satisfied!

### 3.0 PREPARING FOR TOMORROW

It is not too late to awaken the spirit of excellence in Nigeria's emerging engineers - recent graduates and students. The student branch of the Institute of Electronic and Electrical Engineers is an initiative that must be commended, among others. But beyond that, young people should be involved in mainstream decision-making, as they will be the ones to maintain the outcomes of such decisions. I grew up being told that "*today's young people are tomorrow's leaders*" but is that saying still valid today? **If we do not equip young people today, we must not complain if they derail the society tomorrow.**

#### 3.1 Taking The Law Of Your Future Into Your Own Hands

Lifelong learning and personal development are two philosophies that each young person must adopt in order to stay competitive in today's global village. While the educational system is set to improve the student, it is the responsibility of each student - regardless of possible excuses - to carve a niche for him/herself.

In the days to come, there will be no excuses for anyone to claim that his background is the reason why progress is not in sight. The world has become a level playing field that has no respect for class, style, colour, age or location - the man who has what others need rules the day. The whole world will stand aside for a man who knows where he's going. Why stand aside for others when you can have the red carpet below your own feet - by preparing for tomorrow today.

#### 3.2 Information Technology And Engineering - Together In Technology

Engineering and Information Technology cannot be isolated from each other. It should be a taboo for a graduate of engineering to say he/she does not have a working knowledge of the computer - at the very least! This is a challenge to every emerging engineer as the days when we had all the excuses are gone. We can now access information on practically every sphere of engineering on various websites, including those built by Nigerians and Nigerian corporations.

We have enough information on the web and must take advantage of such - [www.itrainonline.org](http://www.itrainonline.org), <http://ocw.mit.edu> are two examples of a whole web of data that is waiting to be converted into information. The fact is that Information Technology empowers you regardless of your chosen career path, but engineers have the advantage of using this "tool" and understanding the principles of its operation.

#### 3.3 Engineering A New Nigeria

The task of building a new Nigeria is a general responsibility but I know that it is not a question of whether Nigeria will be great again, its only a question of **when** and **who**. We can decide to answer the **when** question now but can Nigeria's engineers be the ones to answer the **who** question?

I believe that the future of the Engineering discipline in Nigeria can only be assured if tomorrow's key players are equipped today. **What tomorrow will look like is a reflection of what we paint on the canvas of today.**