

INFORMATION ON POSTGRADUATE PROGRAMMES IN AGRICULTURAL AND BIORESOURCES ENGINEERING

1. Full Name of the Department: Agricultural and Bioresources Engineering Department

2. Driving Philosophy and Objectives of the Programmes

The aim of the programmes is to train productive and technological human resources to execute the production phase of agriculture; the design and development of field and research equipment and systems suitable for local applications; the conduct of pure and applied research required for accelerating the growth of the agricultural and bioresources sector; and to participate in the training of agricultural/bio-engineers for other universities, colleges of technology and schools of agriculture.

The specific objectives of the programmes are to train engineers who will function at advanced levels in one or more of the following roles towards national self-sufficiency:

- (i) To increase and sustain agricultural and bioresources production;
- (ii) To manage the natural resources such that a high level of production can be sustainably achieved without damage to the environment;
- (iii) To maintain or change the natural characteristics of food and biomaterials for desired purposes;
- (iv) To remove or reduce the physical drudgery in production operations;
- (v) To provide desirable amenities for communities of producers, usually rural; and,
- (vi) To increase efficiency and precision of production through automation and ICT applications.

3. Departmental Logo: None

4. Brief History of Department of Agricultural and Bioresources Engineering, UNN

Establishment and Initial Development

Established in 1962, UNN Department of Agricultural Engineering is the oldest in Nigeria. Started and developed by academic personnel from Michigan State University (M.S.U), the Department benefited from the best of the land grant philosophy of many of the bigger and better known American Universities, a philosophy that found optimum expression in their Faculties of Agriculture. So, at the beginning under the Headship of Professor J.O Boyed, the Department together with the Department of Agricultural Mechanization was based in the Faculty of Agriculture for administrative purposes while, at the same time, it was based in the Faculty of Engineering for its academic regulation and administration. As a result of this arrangement, the Department was very well equipped as it had free use of and direct responsibility for maintenance and repair of all the agricultural machinery and equipment in the Farm Operations Unit of the Faculty of Agriculture. To facilitate the discharge of that responsibility the

Department was provided with a very well equipped Fabrication Workshop, a Carpentry/Farm Structures Workshop and a Farm Power and Machinery Workshop in the Farm Operations Centre. Similarly, with the first two years of the five-year programme being the same for all the Departments of the Faculty of Engineering, students of Agricultural Engineering Department took the foundation engineering courses and the workshop technology courses in well-furnished mechanical engineering workshops, civil engineering workshops/laboratories and electrical engineering workshops/laboratories.

- The Department therefore, had a very solid foundation and, until 1966 enjoyed steady growth and development under the combined efforts of the MSU team and the Dutch-Technical-Aid academic personnel, headed from 1964 by Dr. B.F. Cargill (Late) of MSU. All the seven or eight academic staff at that time were expatriates. The first Nigerian academic staff, an assistant lecturer, was employed in October, 1966. At that time, three other Nigerians were away in U.S.A. doing their M.Sc./Ph.D. degree work as staff-in-training.
- The department produced its first set of Agricultural engineering graduates literally on the eve of the Nigerian civil war in 1967. The expatriate staff had been compelled to leave some days before the graduation ceremony when the situation in the country had worsened to a point where the expatriates felt threatened. In fact the graduation ceremony for the first indigenously trained Nigerian agricultural engineers took place at night and was the last official public event of the University at UNN before the civil war erupted.
- **Post Civil War Era:** At the end of the hostilities in 1970, it was heartbreaking to observe that all the previously accumulated teaching and research equipment in the different laboratories and workshops had been completely ruined; the carcasses of some are still there as sad reminders. The department with the rest of the University had to pick up bits and pieces from the ruins and devastation of the three-year civil war. Of course, the expatriate staff did not return. But undaunted, the Department struggled to re-establish itself and succeeded admirably in doing so.
- For logistic and other reasons, the Agricultural Mechanization Programme was discontinued in 1970. Agricultural Engineering Department came to be based wholly in Faculty of Engineering, administratively, academically and physically. But the department retained its facilities in the Farm Operations Centre. It has also retained the good relationship with the Faculty of Agriculture such that use of the machinery, equipment and facilities of the Farm Operations Centre are readily made available for its teaching/research uses as needed.
- The Department has continued to produce graduate agricultural engineers every year since 1970. Agricultural engineers trained in the Department are found in every sizeable establishment in Nigeria that needs the services of agricultural engineers – Ministries of Agriculture, Agricultural Research Institutes, private and publicly owned food companies and agro-industries, agricultural machinery sales and services companies, the National Centre for Agricultural Mechanization, Universities, Polytechnics, etc. In fact, our graduates are today playing leadership roles in many of these establishments. There are few Agricultural Engineering Departments in the country which do not have our graduates as members of their academic staff. Fourteen out of the currently seventeen members of the Department's own academic staff are graduates of the Department at either B.Eng or M.Eng level, or both.

- The undergraduate student enrolment of the Department has varied between 180 and 200 in recent years. The objective is to stabilize at a population of 250, i.e. 50 students per year of study, on the average.
- **The Pioneering and Leadership Role of the Department:** The interruption caused by the civil war notwithstanding, the Department of Agricultural and Bioresources Engineering (DABE), has for years continued to play a pioneering and leadership role in the development of the discipline of Engineering in Nigeria. DABE has done so by contributing and helping to establish most of the other Agricultural Engineering Departments in the country, through assistance with programme/curriculum development, external examination, staff assessment/recruitment, and training of academic staff. Since 1975, staff members of the Department have served the national professional society, the Nigerian Institution of Agricultural Engineers (NIAE), which is a division of the Nigerian Society of Engineers, in various capacities. Staff members of the Department have also served as active members of the Advisory Committee and resource persons for the National Centre for Agricultural Mechanization. In 2004, the Department pioneered the name change to **Agricultural and Bioresources Engineering** in line with global developments, to strengthen the discipline for the production of food, feed and fibre, and to incorporate the relevant specialties of Aquacultural, Forest and Biomass Engineering into its curriculum. This development has since become a model to other Departments in Nigerian universities.
- **COREN Accreditation:** The Council of Registered Engineers of Nigeria (COREN) undertook the first visitation to the Department and accredited its B.Eng. degree program in 1975. Again in 1978, a COREN Visitation Team recommended renewal and the B.Eng. degree program accreditation was renewed. On the basis of the 1978 COREN Visitation Team recommendations, the University made a special grant of N200,000.00 in 1980 to improve certain facilities in the Department. With this generous sum, the Department bought a number of teaching and research machinery and equipment, refurbished its existing laboratories and workshops and furnished a new processing laboratory and a new soil and water laboratory, and built a new implement shed and a farm machinery adjustment/calibration bay, all by the end of 1982. In 1983, the Department acquired its present suite of offices in the then newly built block, now referred to as the Faculty Annex. This suite of offices effectively solved the office space problems of the Department for some time.
- **Postgraduate Programme:** The Department commenced teaching at post-graduate levels in the 1979/80 session, starting with the M.Eng. degree programmes in Farm Power & Machinery and Agricultural Process Engineering. The other options of Soil and Water Engineering, Farm Structures & Environmental Control/Agricultural Waste Management were introduced a few years later and still at the M.Eng. level. Later, the Ph.D. programmes were introduced in all the options of agricultural engineering. The first Ph. D's were awarded in 1991. Currently, there are over 100 students enrolled in the Departments postgraduate programmes.
- **Research and Development:** Both in teaching and research, the Department has emphasized and tackled the problems of evolving a functional level of agricultural mechanization in Nigeria. It has conducted research, design and development of practical and appropriate machines and equipment to remove the drudgery inherent in the onerous manual labour prevalent in farm work in Nigeria. Not counting many useful products

resulting from final-year and post-graduate students projects over the years, major prototype machines, structures and systems of considerable significance and potentials developed by staff since 1975 include the following:

Two-row automatic cassava Planter, Model I –	SJC/014
Single-row automatic cassava planter, Model II –	SJC/015
Multi-row automatic cassava planter, Model III –	SJC/016
Manually operated Ridge Profile Weeder –	SJC/018
Manually operated Broadcaster for Lime Fertilizer / Chemicals / Seeds –	SJC/019
Motorized Ridge-Profile Weeder.	
Single-row automatic Cassava Harvesters (trailed & mounted versions)	SJC/020-21
Irrigation Water Dripper –	SJC/022
Continuous-process Cassava Peeler –	SJC/023
Batch-process Cassava Peeler –	SJC/024
Manually operated Gari Grating Machine –	SJC/025
Motorized Gari Grater	
Gari Mash Pulverizing / Sifting Machine –	SJC/026
Continuous-Process Gari Frying Machine –	SJC/027
Egusi (Melon) Shelling Machine (Industrial Model) Patented –	SJC/028
Egusi, Shelling Machine (Kitchen Model) –	SJC/029
Grain Storage equipped for aeration with dehumidified air.	
Grain cleaners, graders (various versions).	
Multiple-pass solar collector and dryer system (Patented)	
Dryers for agricultural products (various versions).	
Dehumidified air – solar-heated tray dryers for high-value vegetable	
Poultry Feeders.	
Chicken brooders (Solar-heated & Kerosene-heated versions).	
Hammer Mill.	
Manual Bitter leaf processing machine.	
Motorized Bitter leaf processing machine.	
Two-row automatic seed yam planter.	
Two-row automatic minisett yam planter.	
Jab planter for grain crops	
Orange juice extractor.	
Biodiesel Continuous production plant	
Electronic fish feeding device	
Electronic Moisture Sensor	
Electric Garri Frying Machine	
Briquetting Machine	
2000 birds' capacity solar energy powered poultry brooder	
Solar energy powered photo-voltaic poultry egg incubator	
WRM: Computer-based Modeling Systems for Watershed and Water Resources Management	
AQUASMAT: Aquacultural Production System Modelling Technology.	
Development of Dual Carriage Cook Stove	

Technical reports on the above developments have been published in national and international peer reviewed journals and proceedings of seminars/symposia. Most of the machines have been exhibited and demonstrated at National science and Technology and Trade Fairs where they have attracted a great deal of commendation from the public. The Department also exhibits these prototype machines and developments every year during the annual (Faculty) Engineering Week. Some of the machines and equipment have won national prizes and an international award. All the exhibitions and demonstrations of the developments are intended to positively arouse the interest of Nigerian entrepreneurs/industrialists and induce them to invest into the commercial manufacture of some of these unique agricultural machines. Recognizing its strengths, demonstrated capabilities and potentialities, the UNESCO-sponsored African Network for Scientific and Technological Institutions (ANSTI) selected the Department as its principal centre for post-graduate training in Africa in the area of Farm Power and Machinery

Academic Linkages with Oversea Institutions: To ensure the maintenance of international standards and to facilitate adequate staff exposure to developments in the more advanced overseas countries, the Department after the civil war maintained links with such institutions as Michigan State University, U.S.A. and National College of Agricultural Engineering, Silsoe, England (now Cranfield University). Such famous names in the profession as Prof. Carl W. Hall, Prof Bill Stout, Prof. B. Biokert, Prof. R.S. Broughton, Prof. R.W. Radley and others came to the Department under the linkage programme for short-term teaching/research or as external examiners. The Department had a very viable academic linkage with the Technical University of Nova Scotia (now Dalhousie University), Halifax NS, Canada. The linkage, which commenced in 1987, was funded by CIDA for staff training at the Ph.D level. The linkage also provided funds for the procurement of teaching and research equipment to improve facilities in the workshops/ laboratories. Also, the linkage provided for one academic staff to spend 3-months research leave in Canada for the 6 year duration of the linkage. Similarly, the Department had a viable academic linkage with the Belgian Administration Development Union (BADU), based at the Catholic University of Leuven. The project was on Water resources development for domestic use and small scale irrigation schemes. The linkage provided funds for procurement of teaching and research equipment in the soil and water laboratory.

5. Approved Postgraduate Programmes and Approval Dates:

M.Eng and Ph.D programmes since 1979/80 session

6. Academic Staff of Department with their qualifications and Affiliations, including fellowship of academic and professional bodies and awarding institutions.

See 7(b) below.

7. Postgraduate Experience:

(a) No. of M.Eng and Ph.D graduated since inception:

We have thus far graduated over 200 M.Eng and about 80 PhD students since inception of the Department.

(b) List of Approved postgraduate supervisors with title and affiliations

(i) Engr. Prof. Constantine Crowner MBAJIORGU, FNIAE, FNAHS

Head of Department and Coordinator, Eco-Hydrological Systems Research Unit (EHSRU)

Department of Agricultural & Bioresources Engineering

Faculty of Engineering

University of Nigeria

Nsukka, Enugu State 410001

Nigeria

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constantine.mbajiorgu@unn.edu.ng

Qualifications

- **B.Sc. (Agricultural Engineering)** 1980: University of Ife (now *Obafemi Awolowo University*), Ile-Ife, Nigeria
- **M.Eng. (Water Resources and Environmental Engineering)** 1983: *Ahmadu Bello University*, Zaria, Nigeria
- **Ph.D. (Agricultural Engineering)**n 1992: *Technical University of Nova Scotia* (now *Dalhousie University, Sexton Campus*), Halifax NS Canada

Research Affiliation and Interest

- Applied Hydrology, Watershed and Eco-Hydrological Modelling
- Soil and Water Resources Engineering
- Aquacultural and Environmental Engineering
- Ecological Engineering

Professional Affiliations

- Member, Nigerian Institution of Agricultural Engineers; M236 (1986)
- Member, American Society of Agricultural and Biological Engineers; M0153918 (1992)
- Member, Nigerian Society of Engineers; 06320 (1993)
- Member, Canadian Society of Agricultural Engineering (1993)
- Member, British Hydrological Society; P60270174 (2001)
- Member, International Association of Hydrological Sciences; 6926 (2001)
- Member, Nigerian Association of hydrological Sciences (2003)
- Registered Engineer, Council for the Regulation of Engineering in Nigeria (COREN); R.10,538 (2004)
- Fellow, Nigerian Institution of Agricultural Engineers; F60 (2006)
- Fellow, Nigerian Association of Hydrological Sciences; FNAHS/003 (2012)

(ii) Engr. Professor Wilfred Ifeanyi OKONKWO

Professor and Coordinator, Bioresources, Environmental and Energy Engineering Research Group, Department of Agricultural and Bioresources Engineering

University of Nigeria, Nsukka

Email: wilfred.okonkwo@unn.edu.ng

Phone: +2348033264401

Qualifications

- Ph.D, Agricultural Engineering, University of Nigeria, Nsukka, Nigeria, 2000
- M.Eng., Agricultural Engineering, University of Nigeria, Nsukka, Nigeria, 1993
- B. Eng. (Second class lower division), University of Agricultural, Makurdi, Benue State, Nigeria, 1989

Research Affiliation and Interest

- Solar Energy Application/technologies
- Biomass/Biogas Production
- Structures and Environmental Engineering/Climate
- Food and Bioprocess Engineering

Professional Affiliation

- Council for Registered Engineering Regulation of Nigeria (COREN), 2014
- Acoustical Association of Nigeria, 2013
- Asian-Pacific Chemical, Biological and Environmental Engineering (APCBEES) 2012
- Renewable and Alternative Energy Society of Nigeria, 2013
- Fellow, Solar Energy Society of Nigeria, (FSESN), 2010
- International Solar Energy Society (ISES), 2005
- Nigerian Society of Engineers (NSE), 2000
- Solar Energy Society of Nigeria (SESN), 1999
- Nigerian Institution of Agricultural Engineers (NIAE), 1995

(iii) Engr. Dr. Emmanuel Amagu ECHIEGU

Senior Lecturer

Structures and Environmental Control Engineering Unit

Department of Agricultural and Bioresources Engineering

University of Nigeria

Nsukka, Enugu State, Nigeria

Phone: +234(0)803 677 9169

E-mail: emmanuel.echiegu@unn.edu.ng

Qualification

- **B.Sc. (Agricultural Engineering)** 1982: University of Ife (now *Obafemi Awolowo University*), Ile-Ife, Nigeria

- **M.Eng. (Agricultural Engineering)** 1986: *University of Nigeria, Nsukka, Nigeria*
- **Ph.D. (Agricultural Engineering)** 1992: *Technical University of Nova Scotia (now Dalhousie University, Sexton Campus), Halifax NS Canada*

Research Affiliation and Interests

- Farm Structures and Environmental Control Engineering
- Bio-Environmental Engineering (including waste characterization, waste management and utilization, bioremediation/phyto-remediation of contaminated air, water and soil, environmental assessment and development of environmental technology)
- Soil and water Engineering
- Bio-Energy and Solar Thermal Energy Engineering

Professional Affiliations

Member: Nigerian Society of Engineers
 Member: Nigerian Institution of Agricultural Engineers
 Fellow African Scientific Institute
 COREN Registered Engineer No R. 25,905

**(iv) Engr. Dr. Boniface Obinwanne UGWUISHIWU
 Senior Lecturer**

Structures and Environmental Engineering Unit
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 Faculty of Engineering, University of Nigeria, Nsukka
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Qualifications

- 2010, Ph.D Agricultural and Bioresources Engineering, University of Nigeria, Nsukka (UNN), Nigeria.
- 2000, M.Eng., Agricultural Engineering, University of Nigeria, Nsukka (UNN), Nigeria.
- 1991, B.Eng. (Second Class Honours Upper Division), Agricultural Engineering, University of Nigeria, Nsukka (UNN), Nigeria.
- 1985, West African School Certificate, Premier Secondary School, Ukehe, Igbo-Etiti Local Government Area, Enugu State, Nigeria.

Research Affiliation and Interests

- (a) Agricultural Farm Structures and Design.
- (b) Agricultural Waste Management and Environmental Control.
- (c) Sustainable Agricultural and Bioresources Development
- (d) Natural Resources Management
- (e) Appropriate Technology and Gender issue

Professional Affiliations

- (a) Fellow, Nigerian Institution of Agricultural Engineers (*FNIAE*)
- (b) Member, Nigerian Society of Engineers (*MNSE*)
- (c) Council of Registered Engineers of Nigeria (*COREN*)
- (d) Member, American Society of Agricultural and Biological Engineers (*MASABE*)

(v) Engr. Dr. Ozoemena Anthony ANI

Senior Lecturer and Coordinator

University Multidisciplinary Mechatronics Research Group, UNN

Power Systems, Machinery and Mechatronics Engineering

Dept. of Agric./ Bio-Engineering/Mechatronics

University of Nigeria, Nsukka 410001,

Enugu State, NIGERIA.

Emails: aniozoemena@yahoo.com, ozoemena.ani@unn.edu.ng

Mobile: +234 817 158 0381, +234 815 098 0602

Qualifications

- Ph.D July 2013 Mechatronic Engineering, College of Mechanical and Electrical Engineering, Harbin Engineering University, China
- MEng. September 2004 Power and Machinery Systems Engineering, Department of Agricultural and Bioresources Engineering, University of Nigeria Nsukka, Nigeria
- BEng March 1999 Department of Agricultural and Biosystems Engineering, University of Ilorin, Nigeria

Research Affiliation and Interests

- Mechatronics; ground vehicles mobility; wheel mobile robots; autonomous navigation/motion control of off-road vehicles; terramechanics; optimization; systems modeling, performance prediction, design and testing of agricultural power and machinery systems; agricultural mechanization; precision agriculture; renewable energy

Professional Affiliations

- Registered Engineer, The Council for Regulation of Engineering in Nigeria (COREN, R Eng, 2010)
- Member, Nigerian Society of Engineers (NSE, 2004)
- Member, International Society for Terrain Vehicle Systems (ISTV, since 2011)
- Member, American Society of Agricultural and Biological Engineers (MASABE, since 2010)
- Member, International Soil Tillage Research Organization (MISTRO, since 2009)
- Member, West African Society for Agricultural Engineering (MWASAE, 2002)
- Member, Nigerian Institution of Agricultural Engineers (MNIAE, 2001)

(vi) Engr. Dr. Sunday Louis EZE OHA

Senior Lecturer

Food and Bioprocess Engineering Unit

Department of Agricultural & Bioresources Engineering

Faculty of Engineering, University of Nigeria, Nsukka.

Email Address: sunday.ezeoha@unn.edu.ng or louiezeoha@yahoo.com

Qualifications

- 2016, Ph.D (Agricultural and Bioresources Engineering), University of Nigeria, Nsukka.
- 2000, M.Eng. (Agricultural Engineering), University of Nigeria, Nsukka (UNN), Nigeria.

- 1987, B.Eng. (Second Class Honours Upper Division), Agricultural Engineering, University of Nigeria, Nsukka (UNN), Nigeria.
- 1980, West African School Certificate (Grade One), Eke High School, Eke, Udi Local Government Area, Enugu State, Nigeria.
- 1975, First School Leaving Certificate, Community Primary School, Amechi Awkunanaw, Enugu- South L.G.A, Enugu State, Nigeria.

Research Affiliation and Interest

- Food and Bio-Process Engineering
- Development of machines for processing of local crops
- Farm Structures Development and Agricultural Wastes Management
- Renewable Energy (Biomass and Solar Energy)
- Agric. & Bioresources Mechanization Strategies and Systems

Professional Affiliations

- Member, Nigerian Society of Agricultural Engineers (NSAE), now known as Nigerian Institution of Agricultural Engineers (NIAE)
- Member, Nigerian Society of Engineers (NSE)
- Member, American Society of Agricultural & Biological Engineers (ASABE)
- Registered Engineer, The Council for Regulation of Engineering in Nigeria (COREN, R Eng)

(vii) **Engr. Dr. Cosmas Ngozichukwu Anyanwu**, MSc, PhD, MNSE, COREN, MSES

Senior Lecturer

Department of Agricultural and Bioresources Engineering,

University of Nigeria, Nsukka

410001 Enugu State

Nigeria.

Tel: +234 7036706987, 08051980070 (mobile)

Email: cosmas.anyanwu@unn.edu.ng; cnasofia@gmail.com

Qualifications

- 2012 PhD (Agric. & Bioresources Engineering), University of Nigeria, Nsukka.
- 1994 C. & G. I and II (Information Technology), Microtech Computer Institute Southgate, London United Kingdom
- 1993 MSc (Chem. Engineering), University of Chemical Technology & Metallurgy, Sofia Bulgaria, formerly Higher Institute of Chem. Technology & Metallurgy, Sofia.

Research Affiliation and Interests

My current research interests include biomass and waste-to-energy conversion processes from agricultural waste, stove design/testing, gasification, biodiesel etc. I have served as a consultant to the German International Co-operation Agency (GIZ) as well as the International Centre for Energy, Environment and Development (ICEED) on various renewable energy projects. I represent the Nigerian Technical Committee on Clean Cook stoves and Cooking Solutions in the Technical Committee (TC 285) of the International Organization for Standardization (ISO).

Professional Affiliations

- Nigerian Society of Chemical Engineers (NSChE),
- Nigerian Society of Engineers (NSE Reg. No. 26353)
- Solar Energy Society of Nigeria (SESN)

- Council for the Regulation of Engineering in Nigeria (COREN R25849).

(viii) Engr. Dr. (Mrs). Chinenye C. Anyadike

Senior Lecturer

Dept. of Agric. & Bioresources Engineering

University of Nigeria, Nsukka

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Qualifications

- **University of Nigeria, Nsukka (UNN)** 2007 -2013
Ph.D. in Soil, Water & Aquacultural Engineering
- **University of Nigeria, Nsukka** 2001 – 2004
Masters (M.Eng) in Soil and Water Conservation Engineering
- **University of Agriculture Makurdi** 1991 – 1997
Bachelor of Engineering (B.Eng) in Agricultural Engineering
(Second Class Upper Division)

Professional Affiliation

- Corporate Member, Nigerian Institution of Agricultural Engineers.
- Corporate Member, Nigerian Society of Engineers (COREN REGISTERED)
- Corporate Member, Association of Professional Women Engineers in Nigeria(APWEN)
- Corporate Member, Nigerian Association of Hydrological Sciences (NAHS)
- Member, Women in Science and Technology UNN Chapter
- Member, Society of Women Engineers.

(ix) Engr. Dr. Joel Nwakaire

Lecturer I

Department of Agricultural and Bioresources Engineering

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Website: www.joelnwakaire.com

Qualifications

- 2009 – 2013 Ph.D in Power Systems Engineering, **University of Nigeria**, Nsukka, Nigeria
- 2006-2008 M.Eng (Master in Agric & Bioresources, Engineering), University of Nigeria
- 1998-2004 B.Eng (Second Class Upper Division) Agric Engineering, University of Nigeria

Research Affiliation and Interests

- Biodiesel Production, Transesterification, Renewable Energy Technologies, Energy Engineering, Renewable Energy and Environment Protection, Biofuel Production,

Kinetic Modeling, Alternative Energy Sources, Algae Biodiesel, Automobile Engineering, Automobile Design and Nanotechnology application

Professional Affiliation

Member Nigerian Society of Engineers

8. Competences/Skills acquirable at the end of Postgraduate Studies in the Department

The Department of Agricultural and Bioresources Engineering offers the following eight areas of specialization for the Master of Engineering (M.Eng) and Doctor of Philosophy (Ph.D) degrees:

- (i) Power Systems, Machinery and Mechatronic Engineering
- (ii) Soil and Water Resources Engineering
- (iii) Food and Bioprocess Engineering
- (iv) Structures and Environmental Control Engineering
- (v) Biomass and Renewable Energy Engineering
- (vi) Aquacultural Engineering
- (vii) Forest Engineering
- (viii) Ecological Engineering

Graduates should be able to design and develop field and research equipment and systems for application in any of the above named areas of specialization; to conduct pure and applied research required for accelerating the growth of the agricultural and bioresources sector; and to participate in the training of agricultural/bio-engineers in universities, colleges of technology and schools of agriculture.

9. Pictures of activities undertaken by the Department: None available at the moment

10. Distinguished Grand Alumnus of your Department

Most of our Alumni are highly placed and commanding influence in various spheres of life. Below are some of the alumni:

- Professor Michael Ngadi of McGill University in Canada
- Professor Linus Opara, CIGR Chair at Stellenbosch University, South Africa
- Engr. Prof. Azikiwe Peter Onwualu, former DG, Raw Materials Research and Development Council, Abuja
- Engr. Dr. Ernest Onyekwena, MD Protech Nigeria LTD
- And a host of others

11. Any Other Information

The Department of Agricultural and Bioresources Engineering, University of Nigeria, Nsukka prides herself of the following Laboratories and workshops with qualified Technologists and other technical staff:

- NLNG Ultra-modern Multipurpose Laboratory
- Soil, Water Resources and Aquacultural Engineering Laboratory
- Food, Bioprocess and Waste Management Laboratory
- Power Systems, Mechatronics and Machinery Laboratory
- Wood and Structures Workshop
- Fabrication Workshop
- Soil-bin Laboratory