

# CURRICULUM VITAE

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**Name:** James Akuno Nyang'aya

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## Academic Qualifications

- Ph.D in Internal Combustion Engines and Pollution - Indian Institute of Technology – Delhi 1992.
- M.Sc in Combustion and Energy - University of Leeds, 1982
- B.Sc in Mechanical Engineering - University of Nairobi, 1978.

## Professional Societies

Member, Engineers Registration Board (ERB) of Kenya

## Research Interests

Internal Combustion Engines; Combustion; Biofuels.

## **Professional Services**

**I. Organization:** University of Nairobi – Department of Mechanical Engineering

**Dates:** 2012 – Present -Associate Professor  
1993 - 2012 -Senior Lecturer  
1985 –1993 - Lecturer

### **Lecture Courses:**

- Undergraduate Level -Thermodynamics , I. C. Engines and Engineering Design
- Postgraduate Level -Combustion theory, Research Methodology, Energy and Environment.

## **Supervision of Postgraduate studies at University of Nairobi**

- Maima J.O., “Technology Diffusion and its impact on Product Development in the informal Metal working sector in Kenya” PhD degree 2007
- Kimilu R.K., “A study of Jatropha Oil Methyl Ester as an alternative fuel for compression ignition engines” M.Sc. 2008.
- Obadia M.M. “Performance Evaluation of waste Edible Oil as diesel fuel” M.Sc. degree 2008
- Kuloba P. “Design, Construction and Testing of a Vibrating Fluidized Bed Tea Dryer to Monitor Tea Drying Environmental Conditions”. M.Sc. degree 2009.
- Mugucia M.M., “Fuel Consumption in Automobile Transport Unit” M.Sc. Energy Management 2010.
- Minda E.N., “Potential of Waste Heat Recovery in Steam Generation System” M.Sc. Energy Management 2011.
- Kifalu H.R., “A Study of Energy Saving Opportunities at Tobacco Green Leaf Threshing Plant” M.Sc. Energy Management 2011.
- Mbeo C.O., “Production of Ethanol from High Cyanide Cassava and its Performance as Fuel Blend for Spark Ignition Engine” M.Sc. Energy Management 2011.
- Alumasa M.A., “Development of Testing Facilities for Induction Motors and Lighting Fixtures” M.Sc. Energy Management 2011.
- Ndaya M.D., “Biodiesel Production from candlenut and calodendrum capense seeds: Process Design and Technological Assessment”. Submitted for Examination for M.Sc. Degree in Environmental Chemistry, October 2012.

## **Curriculum Development**

- M.Sc. Degree and Postgraduate Diploma in Energy Management
- Building Services Engineering
- Computer Aided Drafting and Design

#### **Other Experience**

- KIPi Patent on tin lamps operated on Jatropha Oil 2009.
- KIPi patent on Ethanol cooking stoves 2009.
- Member of Board of Governors of Nairobi Technical Training Institute (NTTI)
- External Examiner to Dedan Kimathi University of Science and Technology – Nyeri, Kenya (2010-2016)

### **2. Organization:** Kenya Industrial Research and Development Institute (KIRDI)

**Dates:** 1981 – 1984

**Title:** Research Officer

#### **Duties:**

- Head of Research and Development activities of Mechanical Engineering at the institute
- Research on renewable energy fuels (Ethanol, Biomass and Biogas)

#### **Selected Research Projects at KIRDI**

- Developed biogas appliances for domestic use
- Designed and supervised construction of press for extraction of castor oil
- Characterized pollutant emission and heat losses from the wood fuel stoves.
- Carried out study on Kenyan small-scale metal working industries to assess technical capacity and determine priority areas for research and development.

### **3. Organization:** Industrial Plant (EA) Limited

**Dates:** 1978 – 1980

**Title:** Assistant Design Engineer

#### **Duties:**

- Design and costing for manufacture of stainless steel plant equipment for chemical, pharmaceutical and food industries. Typical product range included pressure vessels, storage tanks, reaction vessels, heat exchangers, pipe works and transport tankers.
- Design with particular emphasis on strength calculation
- Preparation of working drawings and material lists for production department
- Preparation of cost details in connection with customers enquires
- Follow-up and administration of order in process.
- Providing technical assistance to other departments as well as contact with customers

#### **Seminars and Conferences Attended**

- Energy Efficiency Curriculum Development UNDP-GEF-KAM – Nairobi August 2004
- Adult training principles and Practice UNDP-GEF-KAM – Nairobi August 2004
- Appreciation Course in Electronic Aided Measurements (Delhi, 1990)
- Advanced Fuel Efficient IC Engines for Transportation (Delhi, 1989)
- Unconventional Fuels Engine System Alternatives (Delhi, 1989)

- Engine Combustion Engineering (University of Reading, 1982)
- Finance for Non-Accountants (Nairobi 1979) – a Seminar for Managers
- Results through People (Nairobi 1979) – a Seminar for Managers by Talbot Smith and Consultants.

### **Publications**

- Maube O.M., Nyang'aya J.A., Onyari J.M., "Evaluation of Chemical and Physical Properties of Biodiesel produced from used Vegetable Oil" journal of Agriculture, Pure and Applied Science and Technology, Volume 8, 1-9 (2011)
- Kimilu R.K., Nyang'aya J.A., Onyari J.M., "The effects of Temperature and Blending on the Specific Gravity and Viscosity of Jatropa Methyl Ester" ARPN Journal of Engineering and applied Sciences. Volume 6 No 12, December 2011.
- Nyang'aya J.A, Mathur H.B. "Ethanol Fuel substitution Through Fumigation in Direct Injection Compression Ignition Engines, Performance and combustion Studies" Kenya Journal of Science and Technology Series A vol. no. 1(1996).
- Mathur H.B., Nyang'aya J.A, "A cost Effective Method of Ethanol fumigation in small Diesel Engines – Evaluation of Performance"  
International conference on small engines and their fuels Chiang Mai, Thailand, September 1993.
- Nyang'aya J.A, Bradley Derek "The African charcoal Stove: It's Inefficiency and Pollutants Emission". Kenya Journal of Science and Technology. Series A (1985)6 (1): 29-39.

### **Selected Consultancies**

- 2007 – 2008: Facilitator – Training of Trainers of Automotive Engineering – Nairobi.
- 2008, University of Nairobi – Developed curriculum for post graduate studies in Energy Management.
- July, 2010 – September 2011 – Numerical Machining Complex Ltd. – Consultant on development of machinery for local production.
- 1995: Sterling Health Factory: Nairobi – Design Consultant for Mechanical Ventilation and Air Condition System.
- 2001: Intermediate Technology Development Group (ITDG). Nairobi – Consultant – Promotion of rural technologies (PORT) project.
- 2009: Kenya Association of Manufacturers (KAM) – Consultant – Industry Needs Assessment Survey.
- 2003: African Technology Policy Studies (ATPS) – Peer review of Technical Research Manuscripts.
- 2012: Engineers Registration Board of Kenya – Coordinator – Development of Policy and Guidelines for Graduate Engineers Internship Programme (GEIP).
- 2012: Engineers Registration Board of Kenya – Coordinator – Development of Training Manual for Graduate Engineers Internship Programme (GEIP).