



THE TECHNICAL UNIVERSITY OF KENYA

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NAME: PROF DAVID OTIENO KOTENG'

Faculty:	ENGINEERING AND THE BUILT ENVIRONMENT
School:	CIVIL AND RESOURCE ENGINEERING
Department:	STRUCTURAL AND CONSTRUCTION ENGINEERING
Current Designation:	Associate Professor, STRUCTURAL AND CONSTRUCTION ENGINEERING (DSCE)
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Consultation Hours:	8AM-5PM MON - FRI



EDUCATION

LEVEL	QUALIFICATION NAME	INSTITUTION	YEAR
Doctor of Philosophy (PhD)	CONSTRUCTION MATERIALS	NATIONAL TAIWAN UNIVERSITY OF SCIENCE AND TECHNOLOGY(Taiwan)	2015
Master of Engineering (M.Eng)	SCIENCE	UNIVERSITY OF MELBOURNE(Australia)	1984
Bachelor of Science in Engineering(B.Sc. Eng)	CIVIL	UNIVERSITY OF NAIROBI(Kenya)	1977
Short Course/ Training	MIDAS GEN SOFTWARE	UNIVERSITY OF NAIROBI(Kenya)	2016
Short Course/ Training	ADVANCED CONCRETE DURABILITY	WEBCORR CORROSION CONSULTING SERVICES(Kenya)	2009
Short Course/ Training	ASIESMIC DESIGN AND CONSTRUCTION OF BUILDINGS	INSTITUTE OF EARTHQUAKE ENGINEERING(Macedonia)	1988

WORK EXPERIENCE

PERIOD	INSTITUTION	POSITION
01/03/2017 - TO DATE	THE TECHNICAL UNIVERSITY OF KENYA	ASSOCIATE PROFESSOR
July 1977 - July 1989	Ministry of Public Works	Superintending Engineer
1989 - 2016	University Of Nairobi	LECTURER

GENERAL STATEMENT ON RESEARCH AREAS

Prof. Koteng's research interests are in construction materials, with specific interest in high performance concrete, and alternative binders for concrete.

Investigation on the use of EN Portland pozzolana and pozzolanic cements, both incorporating natural pozzolana, in the production of high performance concrete.

CURRENT RESEARCH PROJECTS

Experimental and Numerical Investigation of the Effect of Sugarcane Bagasse Ash as Partial Cement Replacement on Mechanical and Functional Properties of Normal and High Strength Concrete	Pozzolanic cement.
STRUCTURAL PERFORMANCE OF CONCRETE COLUMN REINFORCED BY BORASSUS AETHIOPUM MART TIMBER	Alternative concrete reinforcing material.

SELECTED PUBLICATIONS

TITLE	LINK TO PUBLICATION	YEAR
Effect of Plastic Bottle Arrangement on the Performance in Self-Compacting Concrete Block	View online	
Strength development of lime-pozzolana pastes with silica fume and fly ash.	View online	
Evaluating Superplasticizer Compatibility in the Production of High Performance Concrete using Portland Pozzolana Cement CEM II/B-P.	View online	
Concrete use for sustainable development	View online	
Concrete strength prediction using multi-linear regression model: a case study of Nairobi Metropolitan.	View online	
Effects of different fine aggregate on concrete strength.	View online	
Construction Practices on Expansive Soils in Kenya.	View online	

POSTGRADUATE STUDENTS SUPERVISION

NAME	PROJECT TITLE	PERIOD
Tareg Abdalla Abdalla Abdalla	Experimental and Numerical Investigation of the Effect of Sugarcane Bagasse Ash as Partial Cement Replacement on Mechanical and Functional Properties of Normal and High Strength Concrete	August 2021 - ongoing.
Julien GBECHI	Numerical simulation of the flexural behaviour of biform Polyethylene Terephthalate fiber concrete with nano corn cob ash.	August 2021 - ongoing.
Ahouefa Reine KATTE	PERFORMANCES PREDICTION OF PALM KERNEL SHELL CONCRETE WITH ULTRAFINE PALM OIL FUEL ASH AS SUPPLEMENTARY CEMENTITIOUS MATERIAL	August 2020 - ongoing.
JAMES MAINA KIAMBIGI	EFFECTS OF DIFFERENT FINE AGGREGATE ON CONCRETE STRENGTH	March 2016 - March 2021
OUBEDOULAYE KONE	STRUCTURAL PERFORMANCE OF CONCRETE COLUMN REINFORCED BY BORASSUS AETHIOPUM MART TIMBER	June 2021 - ongoing.
Ofwa Thomas Omollo	EVALUATING SUPERPLASTICIZER COMPATIBILITY IN THE PRODUCTION OF HIGH PERFORMANCE CONCRETE USING PORTLAND POZZOLANA CEMENT CEM II/B-P	June 2017 - September 2020.
NYAMBURA BANICE MWANGI	EVALUATING THE BEHAVIOUR OF DIFFERENT SUPERPLASTICIZERS APPLIED TO POZZOLANIC CEMENT CEM IV/B-P TO DEVELOP HIGH PERFORMANCE CONCRETE	June 2017 - ongoing.
Kiburi Isaiah Achini	Effect of Mixing Methods on Strength Characteristics of High Performance Concrete.	June 2017 - ongoing.
Ngunjiri Joseph Mwangi	Production of high performance concrete using EN 197 CEM IV/B-P Portland pozzolana cement with silica fume addition.	March 2017 - ongoing.
ABONG'O PAUL AKUMU	COMPARISON BETWEEN HIGH PERFORMANCE CONCRETE MADE USING OVEN DRIED AGGREGATES AND AIR DRIED AGGREGATES.	January 2019 - ongoing.
Joshua O. Ramogi	Structural strength and performance of cement-stabilized block walls.	Graduated 1991.
Moses Kiliswa.	Effect of quarry dust on the strength and permeability of concrete.	Graduated 2012.
Barrack Okoya.	Investigations into the cementitious properties of a mixture of rice husks ash with building lime.	Graduated 2013.
AHMED OMAR ROBLEH	EFFECT OF PLASTIC BOTTLES ARRANGEMENT IN SELF-COMPACTING CONCRETE BLOCK	June 2020 - October 2021

COURSES TAUGHT

NAME	DESCRIPTION	PERIOD
BRIDGE ENGINEERING	History of bridge-building. Types of bridges. Materials for modern bridges. Loads on bridges - standard truck and lane loading. Impact loads. Wind and seismic loads. Thermal loads. Serviceability criteria - deflection and fatigue. Non-composite vs. Composite Design. T-Beam. Plate Girder Bridges - general approach. Box Girder Bridges. Pressurised Concrete Bridges. Optimum Bridge Proportioning. Bridge Aesthetics, Inspection, Rehabilitation.	October 2020 - TO-DATE
TUNNEL ENGINEERING	Tunnelling and underground space development. Factors affecting shape. Size and route of tunnels. Geological investigation relevant to tunnelling. History of tunnelling. Soft ground tunnelling Rock tunnelling. Design of tunnel lining.	May 2021 - TO-DATE
HARBOUR ENGINEERING	Sea port and its importance in the national and international communication systems, Location of harbour, Natural and artificial harbours; Accessibility and size, Trade winds, Waves and their action on marine structures, Docks	January 2021 - TO-DATE
STRUCTURAL DESIGN OF HIGHRISE STRUCTURES	Philosophy and design criteria of tall buildings. Design concepts for framed, shear wall, tubular and coupled structures. Considerations for lateral loads - wind & seismic. Structural analysis and design of typical tall buildings. Computer applications to the analysis of tall buildings.	January 2021 - TO-DATE
ADVANCED STRUCTURAL CONCRETE DESIGN	1.1 Concrete Mix Design: 1.2 Prestressed concrete design: 1.3 Prestressing of statically indeterminate structures: 1.4 Concrete in aggressive environments. Seismic-resistant design.	June 2019. - TO-DATE
ADVANCED STRUCTURAL DESIGN	The nature and function of a structure. Fundamental criteria for design of structures. Design of shell structures, elevated water tanks, tall buildings, and cable structures.	March 2021 - TO-DATE
BEHAVIOUR AND DESIGN OF STEEL STRUCTURES	The behavior of structural steel members. Structures and connections by welding and bolting. The significance of the behaviour in terms of design and the development of design specifications. Elastic and non elastic behaviour. Buckling. Ultimate capacity. Fatigue. Brittle fracture. Plate girder design including tension field action. Tubular section design - stable and unstable equilibrium. Elastic instability and critical loads.	March 2021 - TO-DATE
STRUCTURAL MATERIALS	(i). Relevance of materials properties as determined by test procedures to practical structural and building requirements. (ii). Composite materials and fibre-reinforced matrices. (iii). Ferro-cement. (iv). Stability of materials under service conditions. (v). Investigation of locally produced alternative materials.	August 2021 - TO-DATE
THEORY OF STRUCTURES IIB	1.1.1 Structural Dynamics. 1.1.2 Formulation of equations for single degree of freedom. 1.1.3 Undamped and damped systems. 1.1.4 Forced vibrations. 1.1.5 Multi-degree of freedom dynamics. 1.1.6 Introduction to Earthquake Engineering.	January, 2020 - TO-DATE
CIVIL ENGINEERING MATERIALS I	Construction materials and environmental consideration. Concrete technology. Introduction to types. Concrete making materials. Properties of fresh and hardened concrete. Mixing, placing and curing. Mix design. Destructive and non-destructive tests. Quality control, durability, and special concrete. Masonry: building stone, block and brick types. Properties, uses, deterioration properties of mortar. Quality control tests on masonry and mortars.	March 2017 - TO-DATE

PROFESSIONAL AFFILIATIONS AND SOCIETIES

TITLE

INSTITUTION

Registered Consulting Engineer

Engineers Board of Kenya.

Corporate Member.

The Institution of Engineers of Kenya.

DESCRIPTION

Prof. David O. Koteng' is a Kenyan citizen with over 43 years of postgraduate engineering experience, 12 of which were obtained in industry and 31 in teaching and research. For 12 years he worked in the Structural Department of Ministry of Public Works rising from Assistant Engineer to Superintending Engineer and was involved in the design and implementation of buildings projects, highway structures, and marine structures. For the next 28 years he taught at the University of Nairobi, rising from Lecturer to Senior Lecturer. For the past 3 years he has been Associate Professor in the School of Civil and Resource Engineering at The Technical University of Kenya, and since October 2019 he has been head of the Department of Structural and Construction Engineering and Director of the School of Civil and Resource Engineering. He is also currently serving as Adjunct Professor at the Pan African University Institute of Sciences Technology and Innovation (PAUISTI), domiciled at Jomo Kenyatta University of Agriculture and Technology (JKUAT) where he teaches coursework to Ph.D. students and supervises research at both M.Sc. and Ph.D. levels. He has also served as external examiner for M.Sc. and Ph.D. theses at PAUISTI and JKUAT. He has also been appointed Adjunct Professor at Dedan Kimathi University of Technology (DeKUT) with effect from 1st March 2021 where he is incharge of M.Sc. (Structures) program. Prof. Koteng' is a Registered Consulting Engineer with the Engineers Board of Kenya and is a corporate member of the Institution of Engineers of Kenya. He has undertaken several engineering consulting works for the Government of Kenya, University of Nairobi, and other agencies. He has also authored academic papers in international refereed journals, international conferences, and local conferences and seminars. His research interests are in high performance concrete, alkali activated cements, and pozzolanic cements.