



**Kwame Nkrumah  
University of Science  
and Technology**

WORLD BANK AFRICAN CENTRE OF EXCELLENCE

# **DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL SANITATION AND WASTE MANAGEMENT**



# DOCTOR OF PHILOSOPHY (PHD) IN ENVIRONMENTAL SANITATION AND WASTE MANAGEMENT

## RWESCK World Bank African Centre of Excellence, Kwame Nkrumah University of Science and Technology Kumasi-Ghana

This programme is hosted in the Department of Civil Engineering (DCE) in collaboration with the School of Graduate Studies of the Kwame Nkrumah University of Science and Technology. The Regional Water and Environmental Sanitation Centre (RWESCK) works with the Department of Civil Engineering to strengthen the research, education and competency of sector professionals to deal with the issues of environmental Sanitation and waste management.

### Aims and Objectives

This PhD programme aims at strengthening the research competency of the professionals from the West-African countries to deal with issues of environmental sanitation and waste management, through scientific research, innovation and development. The programme seeks to equip PhD students with knowledge, skills and competences to solve environmental sanitation and waste management problems through the development of innovative and sustainable approaches.

The objectives of this PhD programme are to equip graduates to:

- Demonstrate state-of-the-art knowledge, skills and competence in environmental sanitation and waste management;
- Independently formulate and execute research in accordance with academic standards leading to contribution to the body of knowledge,
- Apply engineering principles and concepts to solve problems of environmental sanitation and waste management,
- Use scientific knowledge for policy formulation and implementation,
- Show evidence of scholarship by publishing at least two (2) articles from PhD research in reputable peer reviewed journal.

### Taught Courses and Research

The research proposal including the research plan should be completed in year one semester two. The table below presents the courses to be taught:

Table 1: Programme structure, Summary of Courses and Credits

Module	Module Name	Course Code	Course Name	T (hr)	P (hr)	Total Credit
<b>YEAR ONE - SEMESTER ONE</b>						
1	<b>Public Health and Environment</b>	WRES 743	Environmental Impact Assessment (EIA)	2	1	2
		WRES 719	Environmental and Public Health	2	1	2
		<b>Sub-Total Credits</b>		<b>4</b>	<b>2</b>	<b>4</b>
2	<b>Applied Statistics and Modelling</b>	WRES 727	Applied Statistics for research	2	2	3
		WREM 717	Modelling Tools	1	2	2
		WREM 719	Reliability and Risk Management	1	2	2
		<b>Sub-Total Credits</b>		<b>4</b>	<b>6</b>	<b>7</b>
3	<b>Geo-Spatial Analysis</b>	WRES 725	Application of GIS and Remote Sensing in Environmental Systems	1	4	3
		<b>Sub-Total Credits</b>		<b>1</b>	<b>4</b>	<b>3</b>
4	<b>Skills Development and Research Methodology</b>	WRES 711	Skills Development & Scientific communication	1	2	2
		WRES 713	Research Methods	2	2	3
		<b>Sub-Total Credits</b>		<b>3</b>	<b>6</b>	<b>5</b>
<b>YEAR ONE – SEMESTER TWO</b>						
5	PhD Thesis	WRES 890	PhD Thesis (proposal writing)			
	Elective courses		MSc Courses* MSc Courses**			
	Seminar 1		Global Water and Environmental Issues			
	Seminar 2		Sanitation and waste treatment Technologies			
	Seminar 3		Entrepreneurship and Business Development			

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Mod- ule	Module Name	Course Code	Course Name	T (hr)	P (hr)	Total Cred- it
<b>YEARS 2 TO 4 SEMESTERS ONE &amp; TWO</b>						
	PhD Thesis research	WRES 890	PhD Thesis research (lab and fieldwork, thesis writing)	0	108	54
<b>TOTAL CREDITS</b>				<b>12</b>	<b>124</b>	<b>73</b>

*\*Students with deficiency at the MSc level are mandated to take at least 2 relevant MSc level courses,*

*\*\*Students can also audit additional courses at MSc level as approved by the supervisor(s)/programme coordinator, to help their research.*

### Admission Entry Requirements

In conformity with the entry requirement of the Kwame Nkrumah University of Science and Technology, the applicants have:

- First or Second Class in their first degree in Water and Sanitation, Civil Engineering (environmental quality option), Environmental Engineering, Environmental science/management, Chemical Engineering, chemistry and other relevant physical science disciplines,
- Good Master's degree in Water and Sanitation, Civil Engineering (sanitary option), Environmental Engineering, Environmental science/management, Chemical Engineering, chemistry and other relevant physical science disciplines, with an average of at least 60%.
- Proficiency in English: Must have first or second degree with English language as the medium of instruction, OR Must have an internationally recognised Certificate of Proficiency in English Language (TOEFL or IELTS) with above average score. Otherwise, they will undertake a three-month intensive English course at KNUST.

### Graduation Requirements

The students shall adhere to agreed rules and regulations of the Kwame Nkrumah University of Science and Technology while following the programme. For a candidate to graduate the following must be adhered to:

- The time required for the completion of the PhD programme shall be 4 years.
- The pass mark for examination in any course shall be 60% and the minimum Cumulative Weighted Average (CWA) for graduation shall be 60%.
- The students will submit theses for approval by the DCE and the RWESCK

Management. The thesis must represent an original contribution to knowledge in environmental sanitation and waste management, and has to be written in English.

- The defence of the thesis is done by the School of Graduate Studies of the Kwame Nkrumah University of Science and Technology, Kumasi, before an examination panel,
- The minimum number of credit hours required for graduation is 73 credit hours.
- Students will be required to publish at least TWO articles in a reputable international peer-reviewed journal (SCI, SCOPUS indexing etc.) from their research before qualifying for graduation.
- PhD students are encouraged to attend at least one national/ international conference to present the results of their work.
- Students are required to undertake at least 6 weeks internship in industry.

## Mode of Application

Sale of E-Vouchers for admission is in progress

- Purchase e-Voucher for **GHc280.00** at the following banks: **GCB, CBG or ECOBANK** or **dial \*447\*160#** on any network and follow the prompts
- Upon payment of the application fee, candidates will receive an e-Voucher containing
- an application number and PIN that will grant access to the on line admissions portal
- Candidates should then proceed to online admissions website: <https://apps.knust.edu.gh/admissions/> and begin the application process
- Once the process has been completed, candidates **MUST PRINT OUT 2 COPIES** of the completed application form from the portal and submit them (by post) to the School of Graduate Studies together with all relevant documents (Photocopies of Certificates,
- Recommendation Letters, and Transcript for those attending KNUST for the first time) to the following address:

**THE SECRETARY**  
**SCHOOL OF GRADUATE STUDIES**  
**(KNUST, KUMASI-GHANA)**

**Deadline for submission of application forms is 31st October, 2022.**

Application forms submitted after the deadline will not be processed.

Admissions will be preceded by an interview. Students awaiting results can apply!

NB: All International Applicants must use this link: <https://apps.knust.edu.gh/admissions/apply/Account/Register> to generate logins and apply online.

Contact RWESCK Office **+233 (0)54 807 9278** for more information or Visit <https://rwesck.org/education/>