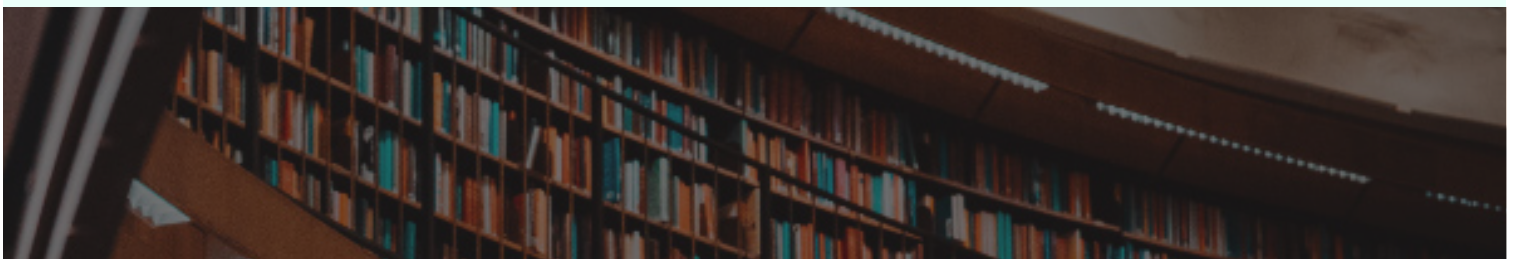


**Kwame Nkrumah
University of Science
and Technology**

WORLD BANK AFRICAN CENTRE OF EXCELLENCE

MPHIL Programme

**IN WATER RESOURCES ENGINEERING
AND MANAGEMENT**



MASTER OF PHILOSOPHY (MPHIL) IN WATER RESOURCES ENGINEERING AND MANAGEMENT

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

The MPhil Water Resources Engineering and Management programme is hosted in the Department of Civil Engineering (DCE) and run under 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 water resources engineering and management.

Aims and Objectives

The programme aims at producing water engineers and managers with expertise in the field of Water Resources, Hydrology, Hydraulics, Climate Change and Environmental Management. Students will have a clear understanding of Integrated Water Resources Management to play essential roles in Government institutions and in the private sector in the integrated management of water resources.

The objectives of the MPhil programme are to equip students to;

- Understand the concept of integrated and interdisciplinary approach for managing water systems
- Identify and critically assess the different functions of the water resources system and the – often competing – interests of the various water users;
- Design engineering structures used in the management and control of water resources.
- Comprehend within the myriad of challenges, the critical role of climate change and behavioural change towards achieving sustainable water resources management and by extension attainment of SDGs 6 and 13.
- Apply the knowledge, skills and competences acquired to solve Water Resources Engineering and Management related problems.
- Contribute to the development of innovative and sustainable approaches in Water Resources Engineering and Management.
- Conduct, independently or in a multidisciplinary team, research.

Taught Courses and Research

Students will undertake one year taught courses and one year research and submit a thesis in partial fulfilment for the award of the MPhil degree.

The research will focus on developing early warning systems for flood and drought, water systems analysis, sustainable water resources development, disaster risk reduction, and climate resilient development in Ghana and Sub-Saharan Africa, as well as policies and management practices that may be put in place for sustainable development and management of the water resources available in the region.

To achieve this, students will apply their knowledge from earlier modules to undertake a detailed research on important water resource management and engineering challenges in Ghana or abroad and write a thesis. Students will be guided by their supervisors but the work will be their own and they will take responsibility for the design, planning and execution of the project. The course also includes seminars where students will present and defend their research proposals and discuss the results of their study. Formal assessment will be given at the final Postgraduate defence hosted by the School of Graduate Studies

Table 1: Programme structure, Summary of Courses and Credits

Mod- ule	Module Name	Course Code	Course Name	T (hr)	P (hr)	C(hr)
Year One Semester One						
1	Introduction to Water Resources	CEWR 511	Integrated Water Resources Management	1	1	1
		CEWR 513	Meteorology and Hydrometry	1	1	1
		CEWR 515	Applied Hydraulics	1	1	1
		CEWR 517	Urban Hydrology and Urban Drainage	2	1	2
			Total Credits	5	4	5

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Module	Module Name	Course Code	Course Name	T (hr)	P (hr)	C(hr)
Year One Semester One						
2	Mathematics and Research Methods	CEWR 521	Statistics and Data Analysis for Environmental Engineers	1	2	2
		CEWR 523	GIS and Data Management in Water Systems	1	3	2
		CEWR 525	Research Methods	1	0	1
			Total Credits	5	4	5
3	Advanced Hydrology and Modelling	CEWR 531	Applied Hydrology	2	0	2
		CEWR 533	Hydrogeology	2	1	2
		CEWR 535	Water Systems Modelling	1	2	2
			Total Credits	5	3	6
4	Environmental Quality	CEWS 541	Environmental Issues and Impact Assessment	1	1	1
		CEWS 543	Water Quality Management and Public Health	2	1	2
			Total Credits	3	2	3
			Sub-total for Year one Semester one	16	14	19
Year One Semester Two						
5	Water Resources Engineering	CEWR 552	Reservoir Development & Operation	1	0	1
		CEWR 554	Hydraulic Structures	1	0	1
		CEWR 556	Irrigation Engineering	2	1	2

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Mod- ule	Module Name	Course Code	Course Name	T (hr)	P (hr)	C(hr)
		CEWR 558	Hydro-Power Development	2	0	2
			Total Credits	6	1	6
6	Water Re- sources Man- agement	CEWR 562	Water and Environmental Law	2	1	2
		CEWR 564	River Basin Management	2	1	2
		CEWR 566	Water Resources Planning	2	0	2
			Total Credits	6	2	6
7	Management and Institu- tions	CEWS 572	Community Participation and Institutional Development	1	0	1
		CEWS 574	Water Project Management	1	1	1
		CEWS 576	Engineering Economy and Financial Management	1	0	1
			Total Credits	3	1	3
8	Project De- sign WREM	CEWR 582	Project Design and Master Plan	0	6	3
			Total Credits	0	6	3
			Sub-Total for Year one Semester Two	15	10	18
9	MPhil Thesis WREM	CEWR 691	MPhil Research Thesis	0	24	12
			Sub-Total for Year Two Semester 1	0	24	12
			TOTAL COURSE CREDITS	31	48	49

Admission Entry requirements

1. First or Second Class (Upper Division) degree or its equivalent in Civil Engineering, Geological Engineering and other programmes relevant to water resources, or any field of specialisation relevant to the water resources industry from a recognized University;
2. Applicants with qualifications other than those specified in (1) above shall be interviewed and if necessary, may be required to take a written examination before admission
3. Applicants whose working language is not English must show that they have good command of both spoken and written English. Wherever necessary, arrangements will be made with the Department of Languages for the acquisition of the necessary English language skills prior to embarking on the course
4. Relevant office or field experience will be an added advantage.
5. Students are to pass a selection interview.

Graduation requirements

1. The minimum time for the completion of the full time MPhil (Water Resources Engineering and Management) programme shall be two (2) academic years. The first two sessions will be dedicated to lectures and the third session for the individual thesis.
2. The programme may also be taken over a 3-year period for part-time students and the MPhil. degree awarded after meeting all the requirements specified.
3. Each student is supposed to undertake a detailed research project under the supervision of a university lecturer leading to an externally and internally examinable thesis. The thesis is then defended during an oral examination.
4. Students will be required to attend seminars given by professionals from industry, and take part in field trips (study tour) organized as part of the programme.
5. The minimum number of credit hours required for graduation is 47 credit hours.
6. The pass mark for any course subject shall be 50% and the minimum Cumulative Weighted Average (CWA) for graduation shall be 55%

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

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·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.