

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KNUST), KUMASI

CoE, FMCE

Department of Mechanical Engineering

BSc Marine Engineering



Brochure 2021

1. Brief Description

The Marine Engineering programme allows graduates to address a wide range of marine applications ensuring harmonious human-machine interfaces in manufacturing of products as well as seamless process planning. It gives training in modern computer software usage in manufacturing systems engineering, production management, facilities design, process planning and other similar work situations.

2. Aims and Objective

The aim of the Marine Engineering programme is to provide broad-based education and training in marine engineering sciences and their applications in order to produce world-class marine engineering graduates with scientific knowledge as well as technical skills to enable them work in existing ship and other operating companies, or start their own companies. On successful completion of the programme, the graduate shall be able to

- Troubleshoot and solve general and marine engineering problems using appropriate tools, analysis, and empirical methods including the application of computers.
- Design all manner of watercrafts to meet set of constraints
- Design, fabricate and install simple mechanical elements and systems on watercrafts
- Assemble components and systems of various watercrafts, including boats, ships, oil rigs and offshore petroleum exploration rigs and systems, ports and harbours mechanical systems
- Work with other engineers and other professionals to solve marine engineering and other related challenges including search-and-rescue missions or undersea cable laying and repair
- Manage foreign going dry vessels, foreign going tanker vessels (oil, gas, chemical, etc.), coastal trading dry and tanker ships, passenger vessels, dynamic position vessels, offshore platforms and ships, port assisting boats and ship (Tugs, barges, etc.)
- Install, commission, operate, maintain and service water vessels, plant, machinery, tools and equipment
- Manage ports, harbours, ships, and other mechanical systems in the ocean environment
- Assess watercraft performance and conduct evaluation of watercrafts

3. Entry Requirement

- WASSCE/SSSCE applicants should have credits in Elective Mathematics, Elective Physics and any one of the following
 - Chemistry
 - Metalwork
 - Auto Mechanics
 - Applied Electricity
 - Technical and Engineering Science
- WASSCE/SSSCE applicants without Chemistry should at least **B3** in Integrated Science.
- Mature applicants must be twenty-five (25) years or more at the time of submitting the application.
- Mature applicants must have a minimum of three (3) years relevant working experience at the time of submitting the application.
- Mature applicants must possess WASSCE/SSSCE, A' Level Certificate or an HND from a recognized institution.
- International Baccalaureate applicants may be admitted if the contents of such programmes are found to be equivalent to the WASSCE/SSSCE programme or the A' Level programme.

4. Course Structure

Note: Course codes ending with odd digits are 1st-semester courses while codes ending with even digits are 2nd-semester courses.

Year One Semester One

SN	Course Code	Course Title	Credit
1	MATH 151	Algebra	4
2	ENGL 157	Communication Skills I	2
3	EE 151	Applied Electricity	3
4	MME 155	Marine Environmental Studies	2
5	ME 159	Technical Drawing	3
6	ME 157	Introduction to Information Technology	2
7	MME 153	Marine Engineering Technology	2
8	FC 181	French for Communication I	2

Year One Semester Two

SN	Course Code	Course Title	Credit
1	MATH 152	Calculus with Analysis	4
2	ENGL 158	Communication Skills II	2
3	EE 152	Basic Electronics	3
4	ME 160	Engineering Drawing	3
5	ME 164	Statics of Solid Mechanics	2
6	ME 168	Computer Programming for Engineers	2
7	IE 152	First Year Design Project	3

Year Two Semester One

SN	Course Code	Course Title	Credit
1	MATH 251	Differential Equations	4
2	MME 291	Economics and Commercial Geography	2
3	ME 261	Dynamics of Solid Mechanics	2
4	ME 251	Introduction to Fluid Mechanics	2
5	MME 251	Marine Engineering Materials	2
6	MME 253	Strength of Marine Materials I	3
7	ME 259	Applications of Computer Graphics	3
8	SES 171	Fundamentals of Aquatic Skills	2

Year Two Semester Two

SN	Course Code	Course Title	Credit
1	MATH 252	Calculus with Several Variables	4
2	MME 252	Marine Engineering Design Project II	2
3	MME 254	Marine Mechanisms, Synthesis and Analysis	3
4	ME 270	Manufacturing Technology	3
5	MME 256	Marine Engineering Laboratory I	1
6	MME 258	Seamanship	2
7	SES 172	Aquatic Strokes Development and Refinement	2

Year Three Semester One

SN	Course Code	Course Title	Credit
1	MATH 353	Numerical Analysis	2
2	MATH 351	Statistics	2
3	ME 363	Automatic Control I	2
4	ME 361	Dynamics of Machinery	3
5	MME 351	Design of Marine Machine Elements	3
6	MME 353	Marine Electrical Technology	2
7	MME 355	Basic Ship Structure	2
8	ME 365	Engineering Thermodynamics	3

Year Three Semester Two

SN	Course Code	Course Title	Credit
1	MME 352	Marine Industrial Engineering and Ergonomics	2
2	MME 354	Strength of Marine Materials II	3
3	MME 356	Marine Electrical Technology and Electrical Measurements	2
4	ME 366	Heat Transfer	2
5	ME 362	Vibrations	3
6	ME 352	Fluid Dynamics	3
7	MME 358	Marine Engineering Laboratory II	1

Year Four Semester One

SN	Course Code	Course Title	Credit
1	MME 451	Marine Engineering Practical	2
2	ME 453	Hydraulics and Pneumatics	3
3	MME 453	Marine Engineering Economy, Accounting and Management	1
4	MME 455	Final Year Project I	2
5	MME 457	Marine Air conditioning and Refrigeration	3
6	MME 459	Naval Architecture I	2
7	MME ***	*** Technical Elective	2

Year Four Semester One Technical Electives

(Select at least one)

SN	Course Code	Course Title	Credit
1	MME 461	Marine Internal Combustion Engines	2
2	MME 463	Marine Machinery Systems Design	2

Year Four Semester Two

SN	Course Code	Course Title	Credit
1	MME 452	Ship Operation, Regulations and Management	2
2	MME 454	Final Year Project II	5
3	MME 456	Marine Maintenance Engineering	2
4	MME 458	Naval Architecture II	2
5	MME 460	Ship Safety, Environmental Protection and Safe Watch Keeping	2
6	MME ***	*** Technical Elective	3

Year Four Semester Two Technical Electives (Select at least one)

SN	Course Code	Course Title	Credit
1	MME 462	Marine Control Engineering and Automation	3
2	MME 464	Ship Construction	3

5. Graduation Requirement

To graduate, the student must pass all required courses, done a minimum of 21 weeks supervised industrial work, obtain a minimum of 142 credit hours and CWA of 45%.

Research Centre and laboratories

1. Brew Hammond Energy Centre
2. Mechanical Engineering Laboratories
3. Bioenergy Laboratory

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