Howard University
Department of Mechanical Engineering
College of Engineering and Architecture

UNDERGRADUATE PROGRAM HANDBOOK

Revised Version
April 1, 2019

UNDERGRADUATE PROGRAM HANDBOOK

DEPARTMENT OF MECHANICAL ENGINEERING
COLLEGE OF ENGINEERING AND ARCHITECTURE
HOWARD UNIVERSITY
WASHINGTON, DC 20059

Revised April 1, 2019

From the Department.....

Welcome to Howard University and the Department of Mechanical Engineering. I am pleased that you chose to enroll and work towards a Bachelor of Science degree in mechanical engineering. Our undergraduate program in mechanical engineering is accredited by The Accreditation Board for Engineering and Technology (ABET). You should know that the department also offers the Master of Engineering and PhD degrees and you are encouraged to set your academic goals high enough to obtain advanced degrees in mechanical engineering.

Over the years, the department has produced a large number of outstanding graduates who have continued to excel in their chosen fields of work. Our graduates work with engineers and professionals from other disciplines to provide the fuel that drives this nation's industries and government operations. They are also employed as leaders in academic institutions and other varied professions in the United States and across the world. With a good preparation in the fundamentals of mechanical engineering you should be in a position to take full advantage of the opportunities available in technology and enjoy a fascinating and rewarding career.

You will find in this Handbook a listing of courses designed for a four-year curriculum and a few other resources that you should find very useful. This Handbook does not provide a complete guide to information you need for your day-to-day stay here at Howard. You should consult other university and college publications such as the *H-Book, The Student Reference Manual and Directory of Classes* or other university publications that may become available in print or on line at the Howard University web site for additional detailed information. You will be assigned an academic advisor shortly after registration and you should make a point to visit with your advisor from time to time for academic matters relating to your courses and career objectives. You should feel free to visit the Office of the Department of Mechanical Engineering in Room 2032 LKD Building, and the Office of Student Services in Room 1114 LKD Building and acquaint yourself with other academic and non-academic resources that are available in the College. Many other resources that are available at the University are described in the *H-Book*.

The Department of Mechanical Engineering faculty and staff are committed to continuous improvements of our programs and we encourage your questions and comments on all aspects of our programs. We are particularly interested in your comments regarding program educational objectives, learning outcomes and the curriculum.

Again, welcome to the Mechanical Engineering Department and we invite your questions and comments.

TABLE OF CONTENTS

MECHANICAL ENGINEERING DEPARTMENT

VISION

To be a leading program in providing undergraduate and graduate mechanical engineering education and to graduate outstanding engineers that are prepared to assume leadership roles in government, industry and academia.

MISSION

The mission of the department is to provide mechanical engineering majors a high-quality engineering education and to contribute new knowledge through research in mechanical engineering and allied disciplines. In addition, the department seeks to maintain recognition through scholarly work and service to the college, the university and the external community.

To achieve the mission of the department of mechanical engineering, the faculty of the department, with input from other constituents, established the following Undergraduate Program Educational Objectives:

UNDERGRADUATE PROGRAM EDUCATIONAL OBJECTIVES

The Mechanical Engineering Undergraduate Program Educational Objectives (PEOs) are that our graduates:

I. Establish careers in mechanical engineering or a related field

II. Successfully complete graduate school and/or obtain professional registration

III. Effectively lead other engineers in solving technical problems and developing products sought by local and/or the global community

UNDERGRADUATE PROGRAM LEARNING OUTCOMES

Graduates of the Mechanical Engineering Program at Howard University have:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(d) an ability to function on multi-disciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

ACADEMIC POLICIES, HONORS AND DEGREE REQUIREMENTS

This information has been prepared as a convenience for undergraduate Mechanical Engineering students and their faculty advisors. It is not intended to replace official university publications such as the Student Reference Manual[1] published by the Office of Enrollment Management, nor the H-Book[2], which serves as a general resource for all Howard University students, and is published by the Office of Student Affairs. Students and their faculty advisors are encouraged to become familiar with information contained in these documents and other university publications that may become available in print form or on the Howard University web site[3]

[1] Student Reference Manuel, http://www.howard.edu/enrollment/registration/default.htm # Student Reference Manual, Accessed August 1, 2017
[2] Howard University Student Handbook, http://www.howard.edu/students/hbook/H-book.pdf, Accessed August 1, 2017
[3] http://www.howard.edu

Faculty Advisors

Students in the Department of Mechanical Engineering are assigned a faculty advisor at the beginning of their first semester in residence. Students should consult on a regular basis with their faculty advisor on all academic matters and career objectives. Continuing students must report to their faculty advisor to plan their program of study prior to the general registration period. After the student and advisor plan a program of study, the advisor will issue a Personal Information Number (PIN) that allows the student to register via the Bison Web. A new PIN will be issued each semester.

Advanced Placement (AP) Credit

Students entering college for the first time may receive credit for work completed in high (secondary) school **through** the advanced placement program administered by the College Board. **Upon** submission of AP test results, the Department will review and grant credit if the score meets the requirements set by the appropriate Howard University department offering a similar course.

Transfer Credit

Transfer credit is awarded to students who are admitted as transfer students from an accredited institution after review of official transcripts from all of the student's previous institutions by the Department of Mechanical Engineering. Courses for which transfer credit is given must be equivalent to Howard University courses in content, prerequisites, co-requisites, and credit hours. No credit will be transferred for courses that do not meet the prerequisites of courses in the mechanical engineering curriculum at Howard University. Only courses in which a grade of "C" or better was obtained at an accredited institution are transferable. Credits for some courses offered by the College of Arts and Sciences are transferable from international institutions if those courses have been evaluated by the University and are considered equivalent to courses offered at Howard University. To apply for transfer credit, the student must provide official course descriptions and other supporting documentation, i.e. a current University Catalog from all institutions in which transfer credit is requested. Applications for transfer credit may be obtained from the office of the Department of Mechanical Engineering.

Consortium Courses

Howard University offers it's qualified undergraduate and graduate degree students the opportunity to enroll in courses in the Washington Metropolitan Area Consortium of Universities (WMACU). Courses to be pursued through the Consortium must be courses not available at Howard University during the given semester or year. Detailed **eligibility requirements for** enrolling in consortium courses are contained in the Howard University Student Reference Manual published each semester.

Dean's Honor Roll

Students with a grade point average of at least 3.0 based on a minimum load of 14 credits for the semester will have their names placed on the Dean's Honor Roll.

Attendance Regulations

All students are expected to attend classes regularly and promptly. Students who are absent from classes or laboratory periods are responsible for the entire work of the course. Members of the faculty will hold students responsible for regular and prompt class attendance.

Faculty members are responsible for reporting to the Chair of the Department the names of students, whose repeated absences or tardiness are in their opinion, impairing the student's work. In such cases, the Chair will take appropriate action, which may include withdrawing the student from the course.

Academic Suspension and Readmission

The Department of Mechanical Engineering adheres to the policy published by the university. Details concerning academic probation, suspension and readmission after suspension are published in the Howard University H-Book and in the Student Reference Manual.

Graduation

Students must be recommended for graduation by the faculty of the College of Engineering and Architecture. Formal applications for graduation are required. Application forms may be obtained from the Office of CEA Student Services, Room 1114 LKD Building. Application should be made approximately seven months in advance of the anticipated date of graduation. *A copy of this application must be submitted to the Mechanical Engineering Department Office for filing. If a student does not graduate when expected, the student must reapply.*

All students should consult with the Office of the Mechanical Engineering Department prior to the published deadline to add courses for the fall semester of the academic year in which they plan to graduate to assure that their proposed program of study will allow them to meet all academic requirements for graduation in that academic year.

Degree Requirements

To become a candidate for a bachelor's degree, the student must satisfy all entrance requirements; satisfactorily complete the course requirements of the department for the degree; have a cumulative Grade Point Average (GPA) of at least 2.0 for all work in which enrolled and at least a 2.0 GPA in the mechanical engineering major (all courses listed in the undergraduate mechanical engineering program curriculum with an MEEG prefix in the course number); achieve a grade of C or higher in at least five-sixths of the credits offered for graduation; complete in residence the last 30 credits of mechanical engineering courses in the curriculum which leads to the degree BSME, and be recommended for graduation by the faculty of the College of Engineering and Architecture.

Accreditation Requirements Regarding Course Prerequisites

Students enrolled in the Mechanical Engineering Program must follow the curriculum published by the department. The department must approve any deviation from the published curriculum, and it must be consistent with current curriculum criteria set by the Accreditation Board for Engineering and Technology, Inc. (ABET).

The ABET curriculum criteria requires a systematic progression through the curriculum by students enrolled in the program. This means that all students must complete lower level courses and satisfy prerequisite course requirements prior to enrolling in upper level courses. Prerequisites and co-requisites for courses in the mechanical engineering curriculum are listed in this Handbook**.**

Social Science and Humanities Electives

Course work in the humanities and social sciences is required as an integral part of the engineering curriculum. Social science and humanities electives are offered primarily through the College of Arts and Sciences. Electives may also be selected from the course offerings of the School of Education and the School of Business. In addition, students must also satisfy the university's African-American studies requirement.

Each student must complete at least 12 credits in the social science or humanities areas. Thus all students must take a minimum of four courses in the humanities and social sciences. These courses are listed in Tables 1 and 2 below. The requirements can be fulfilled as follows:

a) one course from the humanities
b) Economics I (Required)
c) An African American studies course as specified by the university requirements
d) Any other course from the social science/humanities options listed in Tables 1 and 2 below

Note: If the selected African American studies course is not designated as a social science or humanities course, you will still be required to take a total of twelve (12) credits in the social science/humanities in addition to the selected African American studies course. Also note, students can earn credit for only one Intro to Humanities I and Intro to Humanities II course regardless of the course number.

Table 1: Humanities Elective Options

Table 1 **Humanities Elective Options**			
ARTH-161	Art Appreciation	GERM-014	Intro to Humanities I
CLAS-101	Greek Literature	GERM-015	Intro to Humanities II
CLAS-102	Roman Literature	GERM-100	Individual and Society
CLAS-103	Classical Art	GERM-101	Literature of Love
CLAS-014	Intro to Humanities I	GERM-107	Women in Literature
CLAS-015	Intro to Humanities II	GERM-109	Slavic Mythology
CLAS-016	Ideas in Antiquity	GERM-111	Classic Films in English
CLAS-108	Greek Drama	HUMA-107	Women in Literature
CLAS-109	Classical Mythology	RUSS-014	Intro to Humanities
CLAS-111	Satire & Comedy in the Ancient World	RUSS-100	Russian Short Stories
CLAS-113	Women in the Ancient World	RUSS-101	Literature in Revolution
CLAS-114	Love in Antiquity	RUSS-103	Love and Hate in Literature
ENGL-014	Intro to Humanities I	RUSS-109	Slavic Mythology
ENGL-015	Intro to Humanities II	SPAN-014	Intro to Humanities I
ENGL-054	African- American Literature to 1940	SPAN -015	Intro to Humanities II
ENGL-055	African-American Literature since 1940	SPAN-100	Hispanic Literature in English
ENGL-056	Modern Caribbean Literature	SPAN-107	Women in Literature
ENGL-180	Third World Lit Myth & Archetype	THFD-010	Introduction to the Theatre
FREN-014	Intro to Humanities I		
FREN-015	Intro to Humanities II		
FREN-100	Francophone Literature in English		
FREN-106	Africa Cinema		
FREN-107	Women in Literature		

Table 2: Social Science Elective Options

Table 2 Social Science Elective Options			
CLAS-104	Greek Civilization	HIST-030	Intro to African History I
AFRO-005	Afro-American Studies I	HIST-031	Intro to African History II
AFRO-006	Afro-American Studies II	HIST-040	Intro to History of Latin Am & Caribbean I
AFRO-131	Black Philosophy I	HIST-041	Intro to History of Latin Am & Caribbean II
AFRO-133	19th Century Black Social-Political Thought	HIST-050	Intro to European History I
AFRO-191	Contemporary Slavery	HIST-051	Intro to European History II
AFST-101	Intro to Contemporary Africa	HIST-054	Intro to England
AFST-106	Intro to African Studies	HIST-060	Intro to East Asian Civilization I
ANTH-110	Intro to Cultural Anthropology	HIST-061	Intro to East Asian Civilization II
ANTH-120	Intro to Biological Anthropology	HIST-101	World Geography
CLAS-104	Greek Civilization	HIST-102	Economic Geography
CLAS-105	Roman Civilization	HIST-176	Afro-American History to 1877
CLAS-110	Blacks in Antiquity	HIST-177	Afro-American History since 1877
CLAS-112	Ancient Law and Politics	POLS-001	Intro to Political Science
CLAS-115	Slavery in the Greco-Roman World	POLS-003	Intro to Comparative Politics
ECON-001	Principles of Economics I	POLS-005	Intro to African Politics
ECON-002	Principles of Economics II	POLS-011	State and Local Government
ECON-199	Intro to Urban Economics	POLS-143	Black Electoral Politics
GERM-145	Cultural Life of Germany I	RUSS-145	Cultural Life of Russia
GERM-146	Cultural Life of Germany II	RUSS-150	Intro to Black Diaspora
HIST-001	Intro to Study of Civilization	SOCI-001	Into to Sociology

HIST-003	Europe and the Wider World I	SOCI-198	Negro in America
HIST-004	Europe and the Wider World II		
HIST-005	Intro to Black Diaspora I		
HIST-006	Intro to Black Diaspora II		
HIST-009	US History to 1877		
HIST-010	US History since 1877		

In addition to the courses listed in Table 3 below, students in the College of Engineering and Architecture may receive African American elective credit for successful completion of any course with an AFRO subject code.

Table 3: University's African-American Course Options

Table 3 **University's African-American Course Options**	
AFRO-005	Introduction to Afro-American Studies I (SS)
AFRO-006	Introduction to Afro-American Studies II (SS)
AFST-101	Intro to Contemporary Africa (SS)
ARTH 193	Black Body Dress and Culture
ENGL-054	African- American Literature to 1940 (H)
ENGL-055	African-American Literature since 1940
FASH 102	African-American Dress
HIST-005	Intro to Black Diaspora I (SS)
HIST-006	Intro to Black Diaspora II (SS)
MUTP-100	Blacks in the Arts
POLS 006	Pan-Africanism

Undergraduate students are required to complete one course (one credit hour) in Physical Education.

If in doubt about any information contained herein, students should consult the Department Office or their Advisor when information is lacking. *The final responsibility for the fulfillment of **all** requirements for the degree lies with the student.* Academic clearances for the degree BSME will be issued by the Department of Mechanical Engineering if and only if the candidate for graduation has satisfied *all* published requirements for the degree. The Department of Mechanical Engineering will not consider exceptions to these requirements.

The Mechanical Engineering Curriculum contained in this Handbook is designed for students to complete the program in four years**.**

MECHANICAL ENGINEERING CURRICULUM
HOWARD UNIVERSITY
TOTAL CREDIT HOURS IN THE MECHANICAL ENGINEERING CURRICULUM: 120

Freshman – Semester 1				
Course	Course Title	Lec	Lab	Total
*ENGW-101/102/104	English I Writing & Literacy	3	0	3
MATH-156	Calculus I	4	0	4
CHEM-003	Chemistry I	4	0	4
EGPP-101	Introduction to Engineering I	2	0	2
HHPP-xxx	Physical Education	0	1	1
TOTAL		13	1	14

Freshman – Semester 2				
Course	Course Title	Lec	Lab	Total
*ENGW-103/105	English II Writing & Research	3	0	3
MATH-157	Calculus II	4	0	4
PHYS-013	Physics I	3	0	3
PHYS-023	Physics I Lab	0	1	1
MEEG-103	Intro to Computer Aided Design	2	0	2
ECON-001	Economics 1	3	0	3
TOTAL		15	1	16

Sophomore – Semester 1				
Course	Course Title	Lec	Lab	Total
XXXX-xxx	Social Science/ Humanities Elect.	3	0	3
MATH-158	Calculus III	4	0	4
PHYS-014	Physics II	3	0	3
PHYS-024	Physics II Lab	0	1	1
MEEG-207	Intro to Engr Computations	3	0	3
CIEG-202	Statics	3	0	3
TOTAL		16	1	17

Sophomore – Semester 2				
Course	Course Title	Lec	Lab	Total
MATH-159	Differential Equations	4	0	4
CIEG-302	Dynamics	3	0	3
MEEG-204	Solid Mechanics	3	0	3
EECE-310	Principles of Electronics	2	0	2
MEEG-206	Solid Mechanics Lab	0	1	1
MEEG-209	Materials Science	3	0	3
TOTAL		15	1	16

Junior – Semester 1				
Course	Course Title	Lec	Lab	Total
MEEG-305	Thermodynamics	3	0	3
MEEG-307	Fluid Mechanics	3	0	3
MEEG-310	Mechanical Design I	3	0	3
MEEG-319	Manufacturing	3	0	3
MATH-189	Probability & Statistics	3	0	3
TOTAL		15	0	15

Junior – Semester 2				
Course	Course Title	Lec	Lab	Total
MEEG-301	System Dynamics	3	0	3
MEEG-306	Applied Thermodynamics	3	0	3
MEEG-311	Mechanical Design II	3	0	3
MEEG-316	Instrumentation& Experimentation	1	1	2
MEEG-320	Fluid Mechanics II	3	0	3
MEEG-350	Computer Aided Engineering	3	0	3
TOTAL		16	1	17

Senior – Semester 1				
Course	Course Title	Lec	Lab	Total
MEEG-403	Heat Transfer	3	0	3
MEEG-423	Thermal/Fluid Science Lab	0	1	1
MEEG-441	Senior Project I	0	3	3
MEEG-xxx	Technical Elective	3	0	3
XXXX-xxx	Required Afro American Course	3	0	3
TOTAL		9	4	13

Senior – Semester 2				
Course	Course Title	Lec	Lab	Total
XXXX-xxx	Free Elective	3	0	3
XXXX-xxx	Social Science/ Humanities Elect.	3	0	3
MEEG-442	Senior Project II	0	3	3
MEEG-xxx	Technical Elective	3	0	3
TOTAL		9	3	12

*A student who successfully completes ENGW 101 or 102 with a final grade of "C" or better in fall should enroll in ENGW 103 in spring. A student who successfully completes ENGW 104 with a final grade of "C" or better in fall should enroll in ENGW 105 in spring.

PREREQUISITES AND CO-REQUISITES
FOR COURSES LISTED IN THE
MECHANICAL ENGINEERING CURRICULUM

Freshman – Semester 1			
Course	Course Title	PREREQUISITES	CO-REQUISITES
ENGW-101/102/104	English I	SAT or Other Placement Exam Scores	
MATH-156	Calculus I	SAT or Other Placement Exam Scores	
CHEM-003	Chemistry I	ACAD-015 Basic Math II	
EGPP-101	Introduction to Engineering I	Admission to Howard University	
HHPL-xxx	Physical Education	None	
Freshman – Semester 2			
Course	Course Title	PREREQUISITES	CO-REQUISITES
ENGW-103/105	English II	ENGW-101/102/104 English I	
MATH-157	Calculus II	MATH-156 Calculus I	
PHYS-013	Physics I	MATH-156 Calculus I	
PHYS-023	Physics I Lab	MATH-156 Calculus I	
MEEG-103	Intro to Computer Aided Design	Admission to Howard University	EGPP-101 Intro to Eng. I
ECON-001	Economics I		
Sophomore – Semester 1			
Course	Course Title	PREREQUISITES	CO-REQUISITES
xxxx-xxx	Social Science/ Humanities Elect.		
MATH-158	Calculus III	MATH 157 Cal. II	
PHYS-014	Physics II	PHYS-013 Physics I; MATH-157 Cal. II	
PHYS-024	Physics II Lab	PHYS-013 Physics I Lab; MATH -157 Calculus II	
MEEG-207	Intro to Engineering Computations	PHYS-013 Physics I	
CIEG-202	Statics	PHYS-013; MATH-157 Cal. II	
Sophomore – Semester 2			
Course	Course Title	PREREQUISITES	CO-REQUISITES
MATH-159	Differential Equations	MATH-157 Cal. II	
CIEG-302	Dynamics	CIEG-202 Statics	
MEEG-204	Solid Mechanics	CIEG-202 Statics	

EECE-310	Principles of Electronics	MATH-159 Diff. Eqns; PHYS-014 Physics II	
MEEG-206	Solid Mechanics Lab	CIEG-202 Statics; PHYS-013 Physics Lec; PHYS-023 Physics Lab	
MEEG-209	Materials Science	CHEM-003 Chemistry I; PHYS-014 Physics II; MATH 158 Cal. III	
Junior – Semester 1			
Course	Course Title	PREREQUISITES	CO-REQUISITES
MEEG-305	Thermodynamics	PHYS-014 Physics II, MATH-158 Cal. III	
MEEG-307	Fluid Mechanics	MATH-158 Calculus III, MATH-159 Diff. Eqns; CIEG-302 Dynamics	
MEEG-310	Mechanical Design I	MEEG-204 Solid Mechanics; MEEG-209 Material Science	
MEEG-319	Manufacturing	MEEG-204 Solid Mechanics; MEEG-209 Materials Science	
XXXX-xxx	Required Afro American Course		
MATH-189	Probability & Statistics	MATH-158 Cal. III	
Junior – Semester 2			
Course	Course Title	PREREQUISITES	CO-REQUISITES
MEEG-301	System Dynamics	CIEG-302 Dynamics; MATH-159 Diff. Eqns; MEEG-207 Intro. To Eng. Comp.	
MEEG-306	Applied Thermodynamics	MEEG-305 Thermo; MEEG-307 Fluid Mechanics	
MEEG-311	Mechanical Design II	MEEG-310 Mechanical Design I	
MEEG-316	Instrumentation & Experimentation Lab	EECE-310 Principles of Electronics; MATH-159-Diff. Eqns.	
MEEG-320	Fluid Mechanics II	MEEG-307 Fluid Mechanics	
MEEG-350	Computer Aided Engineering	MEEG-103 Intro to Computer Aided	

		Design; MEEG 204 Solid Mechanics; MEEG 307 Fluid Mechanics I	
Senior – Semester 1			
Course	Course Title	PREREQUISITES	CO-REQUISITES
MEEG-403	Heat Transfer	MEEG-305 Thermodynamics; MEEG 307 Fluid Mechanics	
MEEG-423	Thermal/Fluid Science Lab	MEEG-307 Fluid Mechanics	MEEG-403 Heat Transfer
MEEG-441	Senior Project I	MEEG-311 Mechanical Design II	
MEEG-xxx	Technical Elective		
Senior – Semester 2			
Course	Course Title	PREREQUISITES	CO-REQUISITES
XXXX-xxx	Free Elective		
XXXX-xxx	Social Science/ Humanities Elect.		
MEEG-442	Senior Project II	MEEG-441 Senior Project I	
MEEG-xxx	Technical Elective		
Technical Electives			
MEEG- 421	Product Data Management	MEEG-310 Mechanical Design I; MEEG-103 Intro to CAD	
MEEG- 443	CAD/CAM	MEEG-207 Intro to Engrg. Comp.; MEEG-310 Mech. Design I; MEEG-301 System Dyn.	
MEEG- 444	Robotics	MEEG-207 Intro to Engrg. Comp.; MEEG-301 System Dyn.	
MEEG-461	Energy Engrg. I	MEEG-306 Applied Thermodynamics	
MEEG-462	Energy Engrg. II	MEEG-461 Energy I	
MEEG-438	Environmental Control	MEEG-306 Applied Thermodynamics; MEEG-403 Heat Transfer	

MEEG-308	Aerofluid Dynamics	MEEG-305 Thermodynamics; MEEG-307 Fluid Mechanics	
MEEG-318	Jet Propulsion	MEEG-306 Applied Thermodynamics; MEEG 320 Fluid Mechanics II	
MEEG-416	Aerostructures	MEEG-204 Solid Mechanics; MATH-159 Differential Equations	
MEEG-418	Vibration Analysis	MEEG-301 System Dyn.	
MEEG-447	Computational Fluid Dynamics	MEEG-320 Fluid Mechanics II; MEEG-403 Heat Transfer	
MEEG-445	Undergraduate Research	Consent of Instructor	
MEEG-450	MEMS	PHY-013 Physics I; PHYS-014 Physics II; MEEG-209 Materials Science	

TECHNICAL OPTIONS

Select two of the following mechanical engineering courses from the desired option per consultations with your faculty advisor.

Design & Manufacturing

MEEG- 421 Product Data Management
MEEG- 443 Computer Aided Design/ Computer Aided Manufacturing (CAD/CAM)
MEEG- 444 Robotics
MEEG- 445 Undergraduate Research
MEEG- 450 MEMS

Energy

MEEG- 461 Energy Engrg. I
MEEG- 462 Energy Engrg. II
MEEG- 438 Environmental Control
MEEG- 445 Undergraduate Research

Applied Mechanics/Aerospace

MEEG-308 Aero Fluid Dynamics
MEEG-318 Jet Propulsion
MEEG-416 Aerostructures
MEEG-418 Vibration Analysis
MEEG-447 Computational Fluid Dynamics
MEEG-445 Undergraduate Research

Free Elective
Free electives may be selected at will provided the student meets the prerequisites for them; they are at least three credits; and they are designated by the offering department as junior level or higher. Students are encouraged to choose a free elective that will enhance the degree program. Suggested areas include courses from mathematics, business, physical and life sciences, engineering, research, styling and design in fine arts, and information technology.

For convenience, students should use the table below to maintain a record of their progress through the mechanical engineering curriculum.

ACADEMIC PROGRESS CHECKSHEET

Student Name_____ **I.D. No.** _____ **Advisor** _____

YEAR 1				YEAR 2				YEAR 3				YEAR 4			
FIRST SEMESTER		SECOND SEMESTER		FIRST SEMESTER		SECOND SEMESTER		FIRST SEMESTER		SECOND SEMESTER		FIRST SEMESTER		SECOND SEMESTER	
ENGL-002 FRES. COMPOSITION I		ENGL-003 FRES. COMPOSITION II		XXXX-XXX SOCIAL SCI./ HUM. ELECTIVE		MATH-159 DIFF. EQUATIONS		MEEG-305 THERMODYNAMICS		MEEG-301 SYSTEM DYNAMICS		MEEG-403 HEAT TRANSFER		MEEG-XXX FREE ELECTIVE	
SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE
MATH-156 CALCULUS I		MATH-157 CALCULUS II		MATH-158 CALCULUS III		CIEG-302 DYNAMICS		MEEG-307 FLUID MECHANICS		MEEG-306 APPLIED THERMODYNAMICS		MEEG-423 THERMAL/FLUID SCIENCE LAB		XXXX-XXX SOCIAL SCI./ HUM. ELECTIVE	
SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE
CHEM-003 GEN. CHEMISTRY		PHYS-013 PHYSICS I LEC.		PHYS-014 PHYSICS II LEC.		MEEG-204 SOLID MECHANICS		MEEG-310 MECHANICAL DESIGN I		MEEG-311 MECHANICAL DESIGN II		MEEG-441 SENIOR PROJECT I		MEEG-442 SENIOR PROJECT II	
SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE
EGPP-101 INTRO. TO ENGR. I		PHYS-023 PHYSICS I LAB.		PHYS-024 PHYSICS II LAB.		MEEG-206 SOLID MECHANICS LAB		MEEG-319 MANUFACTURING		MEEG-315 INSTR & EXPERIMENTATIO N LAB		MEEG-XXX TECHNICAL ELEC.		MEEG-XXX TECHNICAL ELEC.	
SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE
HHPL-XXX PHYSICAL EDUCATION		MEEG-103 INTRO TO CAD		MEEG-207 INTRO TO ENG COMPUTATION		EECE-310 PRINCIPLES OF ELECTRONICS		MATH-189 PROBABILITY & STATISTICS		MEEG-320 FLUID MECHANICS II		XXXX-XXX REQUIRED AFRO AMERICAN COURSE			
SEM	GRADE	SEM	GRADE	SEM	GRADE		GRADE	SEM	GRADE	SEM	GRADE	SEM	GRADE		
		ECON-001 ECONOMICS I		CIEG-202 STATICS		MEEG-209 MATERIALS SCIENCE				MEEG-350 COMPUTER AIDED ENGINEERING					
		SEM	GRADE	SEM	GRADE	SEM	GRADE			SEM	GRADE				

FACULTY & STAFF DIRECTORY

Full Time Faculty			
Name	Room	Telephone Number	Email address
Dr. Hyung Bae Assistant Professor	2024	202-806-2780	hyung.bae@howard.edu
Dr. Emmanuel K. Glakpe Professor	3019	202-806-7741	eglakpe@howard.edu
Dr. Achille Messac Professor, Dean	Mackey 100	202-806-6565	messac@howard.edu
Dr. Mohsen Mosleh Professor	2022	202-806-6222	mmosleh@howard.edu
Dr. Moses Owolabi Professor	3032	202-806-6594	gbadebo.owolabi@howard.edu
Dr. Sonya T. Smith Professor	2020	202-806-4837	ssmith@.howard.edu
Dr. Naren Vira Professor	3028B	202-806-6611	nvira@howard.edu
Dr. Grant Warner Associate Professor	2036-A	202-806-6607	g_warner@howard.edu
Dr. H.A. Whitworth Professor	2032	202-806-6610	hwhitworth@howard.edu
Dr. Nadir Yilmaz Professor, Chair	2032C	202-806-6604	nadir.yilmaz@howard.edu
Part Time & Emeritus Faculty			
Dr. Kevin Greenaugh Adjunct Assistant Professor	2032	202-806-6600	Kevin.Greenaugh@nnsa.doe.gov
Dr. Peter M. Bainum Distinguished Professor Emeritus of Aerospace Engineering	2032	202-806-6600	pbainum@howard.edu
Dr. Lewis Thigpen Professor Emeritus	2032	202-806-6600	lthigpen@howard.edu
Staff			
Administrative Assistant Priscilla Pinkney	2032	202-806-6600	priscilla.pinkney@howard.edu
Mr. Damion Whyte Machinist/Technician	G41/G46	202-806-2203	damion.whyte@howard.edu

DEPARTMENT BULLETIN BOARD

The Department of Mechanical Engineering keeps a bulletin board in order to maintain contact with students. On the bulletin board you will find the following:

- A listing of faculty advisors for all undergraduate students in the Mechanical Engineering Department,
- Opportunities for graduate studies at Howard and other institutions,
- Job opportunities
- Research opportunities at Howard University and at other Institutions,
- Request for students to report to the Department office for important information, and
- Any other information that is important to students in the mechanical engineering department.

It is important that all students in the Department of Mechanical Engineering check the bulletin board regularly.

STUDENT ORGANIZATIONS

Student Chapter of the American Society of Mechanical Engineering (ASME) has a charter in the Department of Mechanical Engineering at Howard. You are encouraged to participate in the activities of this organization and take advantage of the opportunities provided to members. In addition, the College supports other student organizations that you may consider. These include the Society of Automotive Engineers (SAE), the Society of Women Engineers (SWE) and the National Society of Black Engineers (NSBE).

OFFICE OF STUDENT SERVICES

The Office of Student Services (Room 1114 LKD) provides counseling, arranges for tutorial services, coordinates special programs, assists with admission and registration, and maintains students records. Financial aid assistance, the Cooperative Education Program and several special academic programs are also administered by this office.

NOTES:

ASME CODE OF ETHICS OF ENGINEERS

The ASME code requires ethical practice by each of its members and has adopted the following Code of Ethics of Engineers as referenced in the ASME Constitution, Article C2.1.1.

The Fundamental Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

I. using their knowledge and skill for the enhancement of human welfare;
II. being honest and impartial, and serving with fidelity their clients (including their employers) and the public; and
III. striving to increase the competence and prestige of the engineering profession.

The Fundamental Canons

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.

2. Engineers shall perform services only in the areas of their competence; they shall build their professional reputation on the merit of their services and shall not compete unfairly with others.

3. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional and ethical development of those engineers under their supervision.

4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest or the appearance of conflicts of interest.

5. Engineers shall respect the proprietary information and intellectual property rights of others, including charitable organizations and professional societies in the engineering field.

6. Engineers shall associate only with reputable persons or organizations.

7. Engineers shall issue public statements only in an objective and truthful manner and shall avoid any conduct which brings discredit upon the profession.

8. Engineers shall consider environmental impact and sustainable development in the performance of their professional duties.

9. Engineers shall not seek ethical sanction against another engineer unless there is good reason to do so under the relevant codes, policies and procedures governing that engineer's ethical conduct.

10. Engineers who are members of the Society shall endeavor to abide by the Constitution, By-Laws and Policies of the Society, and they shall disclose knowledge of any matter involving another member's alleged violation of this Code of Ethics or the Society's Conflicts of Interest Policy in a prompt, complete and truthful manner to the chair of the Ethics Committee.