

ENGR 232
Statics
Spring 2017 Syllabus
Section # 01
Henry Ford College

Instructor: Dr. Hassan Nameghi
Time: 05/09/2017-06/22/2017 Tuesday,
Wednesday, Thursday 02:10PM - 04:05PM
Place: Science Building Room: J-160
Phone # Campus: (313) 317 – 1746, Cell #:
(519) 992 – 6260 (Text, What's app)
Social Media: [Facebook: @drnam.org](#)
[Instagram @drnam_org](#) [Twitter](#)
[@drnam_org](#)

Email: hnameghi@hfcc.edu
(hamona58@gmail.com)
Office hours: By appointment.
Learning Lab Hours: Dr. Garrett Godfrey
is available at the learning lab on Tuesday
Wednesday and Thursday 10 am - 1 pm.

Course Description:

This course covers basic concepts and principles of statics including an introduction to the mechanics of materials. Also discusses vector algebra, equilibrium of mechanical systems, centroids, moments of inertia, stress and deflections of beams under load, statically indeterminate loads, and virtual work.

Pre-requisites: MATH 180 with a C grade or better

Course Learning Objectives:

- Identify the purpose of solving each particular problem considered in statics.
- Develop a method of solution for each problem assigned.
- Demonstrate meticulous professional techniques characteristic of problem solving practice by showing care in the analysis of information given and its transformation by the utilization of appropriate physical principles into the determination of the mechanical behavior of a system.
- Display the results of calculations using scientific notation, S.I. units, and correct significant figures.
- Develop cognitive skills by interpreting data, charts, equations, and graphs to analyze how measurements correlate with predictions from physical law.
- Demonstrate critical thinking skills by connecting universal physical law with systemic behavior utilizing mathematical manipulation.
- Demonstrate communication skills by interacting with the instructor and classmates, working in collaboration with other students in small teams to present orally and in written form the methods of resolving assigned problems in statics.
- Calculate the components of vectors and add, subtract, and multiply vectors using components.
- Apply Newton's laws of motion to particles and rigid bodies in equilibrium.
- Define the moment of a force about a point, about an axis, and as a couple.
- Reduce system of forces into a force and a couple.
- Diagram the forces acting on rigid bodies in equilibrium in two- and three-dimensions.
- Determine the center of gravity and the centroid of two- and three-dimensional bodies.
- Apply the theorems of Pappus-Guldinus.
- Analyze the forces acting on various structures such as loads applied to beams, objects submerged in fluids, trusses, frames, machines, and cables.

- Apply the principle of virtual work.
- Define friction and apply it to various objects such as wedges, screws, bearings, belts, and wheels.
- Find the moments of inertia of objects in two and three dimensions.
- Demonstrate the use of the parallel axis theorem.
- Analyze the moment of inertia for composite bodies.
- Categorize the stability of equilibrium as unstable or stable

Course Text: Engineering Mechanics: Statics, 12th Edition (or 13th) by Russell C. Hibbeler

Course Schedule and topics:

Week	Day of meeting	Topic	Assignment/Test
	Tuesday	May 9	Resultant force
	Wednesday	May 10	3D Resultant force (Ch. 2)
	Thursday	May 11	Dot product (projected component; Ch. 2)
2	<u>Monday</u>	<u>May 15</u>	Free Body Diagram & 2D Equilibrium (Ch. 3)
	Tuesday	May 16	3D Equilibrium of particle (Ch. 3)
	Thursday	May 18	2D moment (Ch. 4)
3	Tuesday	May 23	Cross product and scalar approaches (Ch. 4)
	Wednesday	May 24	Couple Moment (Ch. 4)
	Thursday	May 25	Equivalent force-moment (Ch. 4)
4	Tuesday	May 30	2D Rigid Body Equilibrium, Free Body Diagram(Ch.5)
	Wednesday	May 31	2D Rigid Body Equilibrium (Ch. 5)
	Thursday	Jun 1	Midterm Exam
			Midterm exam
5	Tuesday	Jun 6	3D Rigid Body Equilibrium (Ch. 5)
	Wednesday	Jun 7	Truss – Joint Method (Ch. 6)
	Thursday	Jun 8	Truss – Section Method (Ch. 6)
6	Tuesday	Jun 13	Frame and machines (Ch. 6)
	Wednesday	Jun 14	Frame and Machines continued (Ch. 6)
	Thursday	Jun 15	Internal forces (Ch. 7)
7	Tuesday	Jun 20	Friction (Ch. 8) Friction (Wedge& Belts; Ch. 8), Center of
	Wednesday	Jun 21	Gravity (Ch. 9)
	Thursday	Jun 22	Final Exam
			Final exam

Grading Scale:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Points	4.00	4.00	3.67	3.33	3.00	2.67	2.33	2.00	1.67	1.33	1.00	0.67	0.00

Grade Distributions

10% In-class work and participation.

20% Assignments (10 assignments) – Students are required to document all quizzes and assignments in a *Notebook*. The notebook will be reviewed by instructor once a week on Tuesdays.

30% Midterm exam

40% Final Exam

Online Communication:

Assignments and course notes may be posted online. Links to the notes will be shared by email. It is student responsibility to check his/her HFC official email, Hawkmail, for updates sent by the instructor.

Attendance Policy:

Regular class attendance is necessary if a student is to receive maximum benefit from classes. Students are expected to attend all the sessions of the classes in which they are enrolled, and absences in no way lessen student responsibility for meeting the requirements of the class. Penalties may be imposed, at the discretion of the individual instructors, whenever the quality of the student’s work has been affected by absence or tardiness.

Students, as a matter of courtesy, should contact their instructors concerning absences. Lack of attendance may affect the student’s final grade.

Absences in connection with participation in authorized college activities must be considered in the total picture of absences for all purposes, and it is the responsibility of the student to make up work missed.

Students are required to be present at the final examination. In case of absence, it is the student’s responsibility to contact the instructor in regard to makeup.

If a student does not attend a class, he/she may also lose the credit for in-class works. If a student does not attend a lab, he/she lose the credit for that lab.

Never Attendance Policy

Since student success depends on active engagement, Henry Ford College requires students to actively participate in their learning with regular and sustained interaction. Students who have NOT actively participated in a class by the College's Never Attended deadline, **Monday May 15, 2017**, will not be permitted into that class even if they are enrolled in the class and will receive a Never Attended (NA) designation as the grade for the course.

- All students should participate in class activities in order for a student to avoid receiving a Never Attended (NA) grade on the student record.
- Note that merely attending class, obtaining a syllabus, or logging in to an online class will not necessarily be adequate to meet these requirements.
- For each class in which a student is enrolled, the student is responsible for knowing the requirements that must be met by the Never Attended Deadline in order to avoid receiving a Never Attended (NA) designation on the student record.

Consequences of receiving a Never Attended (NA) grade:

- The grade for the course on the student record will be NA.
- The student will receive no credit hours for the class.
- The NA grade will negatively affect Satisfactory Academic Progress (SAP).
- The NA grade will negatively affect a student's ability to maintain and/or receive financial aid.

Last Day to Withdraw: Last Day for Student Withdraw in Registration Office or on WebAdvisor (W grade) is **Jun 7, 2017**.

Drop Policy:

Students can drop the course in the registrar's office or through webadvisor on or before the official drop date (May 10, 2017) with no notation on transcript. Also, **May 10, 2017** is the last day for refund. If a student was not able to continue the course after drop date due to medical/family issues, instructor can grant a DR grade upon the request of student and providing necessary documents.

Academic Honesty:

Henry Ford College considers academic dishonesty to be a serious offense. It is the policy of the College that determination of and appropriate action in respect to academic dishonesty by a student shall be a matter of individual judgment by the instructor. The instructor may administer a penalty up to and including failure in the particular course. It is the professional obligation of the faculty to enforce academic integrity in their courses. From: *HFCC Catalog, Policy on Academic Dishonesty*. Incidents of academic dishonesty will be reported to the Registrar, who will maintain a file on each incident. Two reported incidents will result in the student's debarment from the college. *College's Academic Honesty policy is in the College catalog.*