

MECHANICAL ENGINEERING UNDERGRADUATE STUDENT HANDBOOK

2020



**NORTH CAROLINA AGRICULTURAL AND TECHNICAL
STATE UNIVERSITY**

**DEPARTMENT OF MECHANICAL ENGINEERING
COLLEGE OF ENGINEERING**

GREENSBORO, NORTH CAROLINA 27411

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Notices

This handbook was prepared for use by undergraduate students in the Department of Mechanical Engineering at North Carolina A&T State University. It is designed to supplement existing policy and is intended as a guide. However, students are asked to consult with academic advisors and with the appropriate University office for current information and policy. Important changes may occur without notice. The Department always attempts to maintain an accurate Undergraduate Student Handbook; however, errors may inadvertently occur. The Department reserves the right to correct such errors when they are found, without further notice. The presence of errors will not affect the application of rules and requirements to students.

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Mission

The mission of the Bachelor of Science in Mechanical Engineering (BSME) program at North Carolina A&T State University is to prepare students for the broad practice of mechanical engineering and for graduate education in mechanical engineering and the many related fields such as materials engineering and aerospace engineering.

Program Educational Objectives

Within a few years of graduating from the Bachelor of Science in Mechanical Engineering Program, graduates are expected to:

1. Perform effectively in mechanical engineering related positions in industry or in graduate/professional schools.
2. Demonstrate proficiency in teamwork and leadership skills for solving problems.
3. Be active in their professional societies and in their communities.
4. Engage in professional development through lifelong learning.

BSME Curriculum Requirements for Graduation

Mathematics and Basic Sciences 33/36* credit hours

MATH 131(4), 132(4), 231(4), 341(3)
ISEN 370 (3)
CHEM 106(3), 116(1)
MEEN 210(3)
PHYS 241(3), 251(1), 242(3), 252(1)
Math/Science Elective* (3)

General Education 19 credit hours

1. Ideas & Their Expressions..... 6 credit hours
ENGL 100 (3) and ENGL 101 (3)
2. Global Awareness from the approved list 3 credit hours
3. Humanities and Fine Arts from the approved list..... 3 credit hours
4. Knowledge of African American Culture and History from the approved list ... 3 credit hours
5. Social Behavioral Sciences from the approved list 3 credit hours
6. Student Success 1 credit hours
GEEN 111(1)

Engineering 68/71* credit hours

1. General Engineering 2 credit hours

GEEN 100(2)

2. Electrical and Industrial Engineering 5 credit hours

ECEN 340(3), ISEN 260(2)

3. Mechanical Engineering..... 58/61* credit hours

MEEN 104(2), 202(1), 231(3), 232(3), 233(3), 241(3), 261(3), 267(1), 316(3), 317(1), 321(3), 324(3), 341(3), 343(3), 361(3), 363(3), 421(3), 424(3), 425(1), 480(3), 481(3), 492(1), and three (or six*) credit hours of Mechanical Engineering Technical Electives.

Mechanical Engineering – Aerospace Option..... 58/61* credit hours

MEEN 104(2), 202(1), 231(3), 232(3), 233(3), 241(3), 261(3), 267(1), **315(3), 318(3), 319(1)**, 321(3), 324(3), 343(3), 361(3), 363(3), 421(3), 424(3), 425(1), 480(3), **482(3)**, 492(1), and three (or six*) credit hours of Mechanical Engineering Technical Electives.

Note: **boldface courses** signify those unique to Aerospace Option

Mathematics and Basic Sciences Electives

MATH 432 (3), MATH 351(3), CHEM107&117(4), BIOL 100(4), PHYS 290(3), PHYS 405 (3)

* Note that two electives are required, and students can choose either

- two MEEN 4xx Technical Electives or
- one MEEN 4xx Technical Elective and one Math/Science Elective

Mechanical Engineering Curriculum

Fall Semester – Year 1		Spring Semester – Year 1	
ENGL 100 Ideas & Their Expressions I	3	ENGL 101 Ideas & Their Expressions II	3
CHEM 106 General Chemistry VI	3	PHYS 241 General Physics I	3
CHEM 116 General Chemistry VI Lab	1	PHYS 251 General Physics I Lab	1
MATH 131 Calculus I	4	MATH 132 Calculus II	4
GEEN 100 Engineering Design and Ethics	2	Global Awareness Elective	3
GEEN 111 Engineering Colloquium	1		
MEEN 104 Engineering Graphics	2		
Total Credit Hours:	16	Total Credit Hours:	14
Fall Semester – Year 2		Spring Semester – Year 2	
MATH 231 Calculus III	4	African American Studies Elective	3
ISEN 260 Engineering Economy	2	PHYS 242 General Physics II	3
MEEN 202 Mechanical Engr. Project Lab	1	PHYS 252 General Physics II Lab	1
MEEN 210 Numerical Methods Using MATLAB	3	MEEN 232 Strength of Materials	3
MEEN 231 Mechanics I: Statics	3	MEEN 233 Mechanics II: Dynamics	3
MEEN 261 Fundamentals of Materials Science	3	MEEN 241 Fundamentals of Thermodynamics	3
Total Credit Hours:	16	Total Credit Hours:	16
Fall Semester – Year 3		Spring Semester – Year 3	
MATH 341 Introduction to Differential Equations	3	ECEN 340 Electrical Circuits and Systems	3
ISEN 370 Engineering Statistics	3	MEEN 317 Thermal-Fluid Systems Lab	1
MEEN 267 Mechanics and Materials Lab	1	MEEN 321 Engineering Design	3
MEEN 316 Fluid Mechanics	3	MEEN 324 System Dynamics	3
MEEN 361 Modern Eng. Materials	3	MEEN 341 Applied Thermodynamics	3
MEEN 363 Manufacturing Processes	3	MEEN 343 Heat Transfer	3
Total Credit Hours:	16	Total Credit Hours:	16
Fall Semester – Year 4		Spring Semester – Year 4	
Humanities and Fine Arts Elective	3	Social and Behavioral Sciences Elective	3
MEEN 421 Design of Machine Elements	3	[2] MEEN 481 Mechanical Engr. Senior Project II	3
MEEN 424 Vibrations and Control	3	[2] MEEN 492 Senior Seminar	1
MEEN 425 Mechanical Systems Lab	1	MEEN 4xx Technical Elective	3
[1] MEEN 480 Mechanical Engr. Senior Project I	3	MEEN 4xx Technical Elective or Math/Science Elective	3
Total Credit Hours:	13	Total Credit Hours:	13

(Total credit hours: 120)

[1] This course is offered in the FALL SEMESTERS ONLY

[2] These courses are offered in the SPRING SEMESTERS ONLY

[1, 2] The department recommends that students plan their studies so that they only take a **maximum of 13 credits** while taking MEEN 480, and 481/482 in the senior year.

Mechanical Engineering Curriculum – Aerospace Option

Fall Semester – Year 1	
ENGL 100 Ideas & Their Expressions I	3
CHEM 106 General Chemistry VI	3
CHEM 116 General Chemistry VI Lab	1
MATH 131 Calculus I	4
GEEN 100 Engineering Design and Ethics	2
GEEN 111 Engineering Colloquium	1
MEEN 104 Engineering Graphics	2
Total Credit Hours:	16
Fall Semester – Year 2	
MATH 231 Calculus III	4
ISEN 260 Engineering Economy	2
MEEN 202 Mechanical Engr. Project Lab	1
MEEN 210 Numerical Methods Using MATLAB	3
MEEN 231 Mechanics I: Statics	3
MEEN 261 Fundamentals of Materials Science	3
Total Credit Hours:	16
Fall Semester – Year 3	
MATH 341 Introduction to Differential Equations	3
ISEN 370 Engineering Statistics	3
MEEN 267 Mechanics and Materials Lab	1
MEEN 315 Aerodynamics	3
MEEN 361 Modern Eng. Materials	3
MEEN 363 Manufacturing Processes	3
Total Credit Hours:	16
Fall Semester – Year 4	
Humanities and Fine Arts Elective	3
MEEN 421 Design of Machine Elements	3
MEEN 424 Vibrations and Control	3
MEEN 425 Mechanical Systems Lab	1
[1] MEEN 480 Mechanical Engr. Senior Project I	3
Total Credit Hours:	13

Spring Semester – Year 1	
ENGL 101 Ideas & Their Expressions II	3
PHYS 241 General Physics I	3
PHYS 251 General Physics I Lab	1
MATH 132 Calculus II	4
Global Awareness Elective	3
Total Credit Hours:	14
Spring Semester – Year 2	
African American Studies Elective	3
PHYS 242 General Physics II	3
PHYS 252 General Physics II Lab	1
MEEN 232 Strength of Materials	3
MEEN 233 Mechanics II: Dynamics	3
MEEN 241 Fundamentals of Thermodynamics	3
Total Credit Hours:	16
Spring Semester – Year 3	
ECEN 340 Electrical Circuits and Systems	3
MEEN 318 Propulsion	3
MEEN 319 Aerodynamics and Propulsion Lab	1
MEEN 321 Engineering Design	3
MEEN 324 System Dynamics	3
MEEN 343 Heat Transfer	3
Total Credit Hours:	16
Spring Semester – Year 4	
Social and Behavioral Sciences Elective	3
[2] MEEN 482 Aerospace Senior Project	3
[2] MEEN 492 Senior Seminar	1
MEEN 4xx Technical Elective	3
MEEN 4xx Technical Elective or Math/Science Elective	3
Total Credit Hours:	13

(Total credit hours: 120)

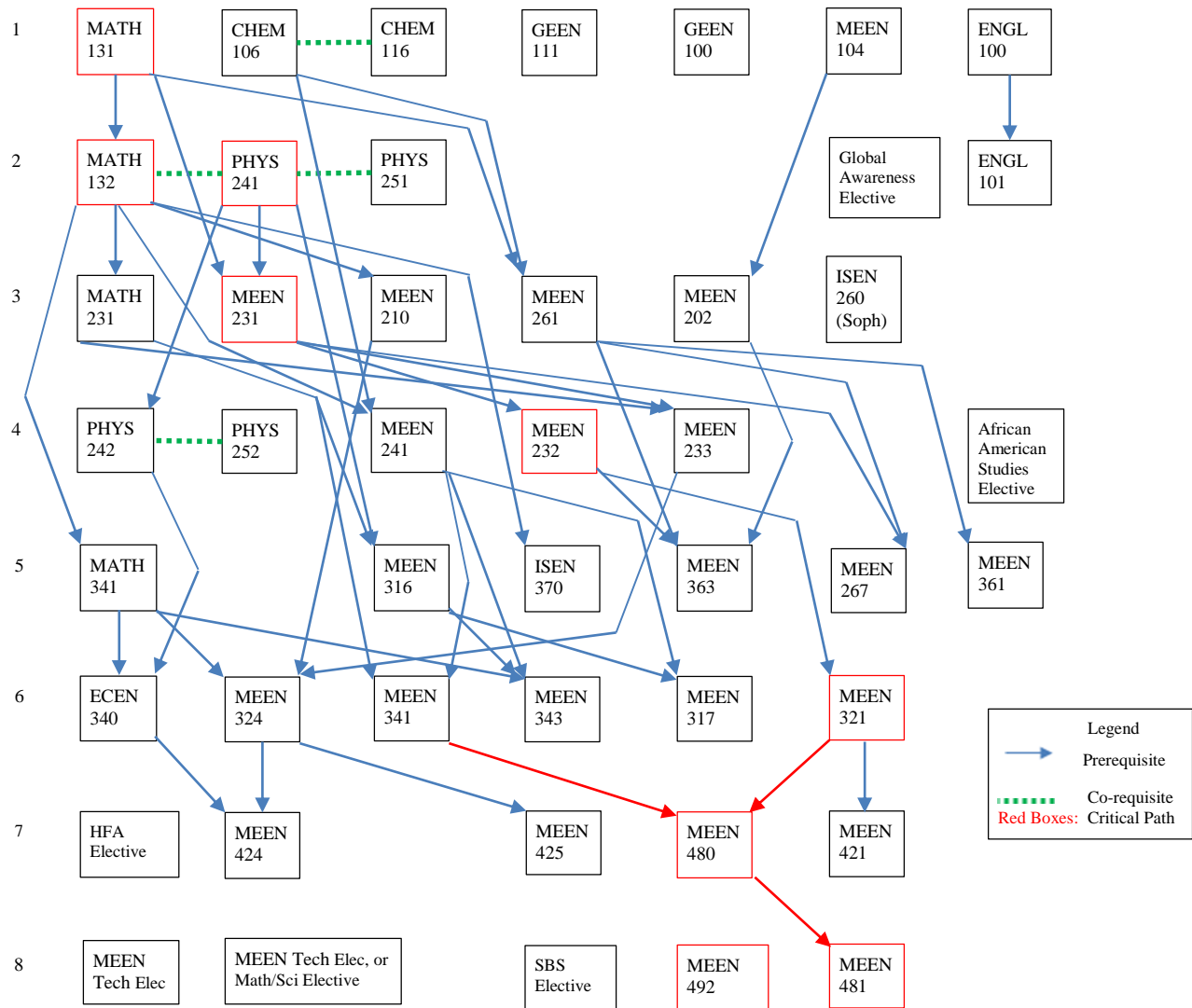
[1] This course is offered in the FALL SEMESTERS ONLY

[2] These courses are offered in the SPRING SEMESTERS ONLY

[1, 2] The department recommends that students plan their studies so that they only take a **maximum of 13 credits** while taking MEEN 480, and 481/482 in the senior year.

Prerequisite Flow Chart - Mechanical Engineering Curriculum

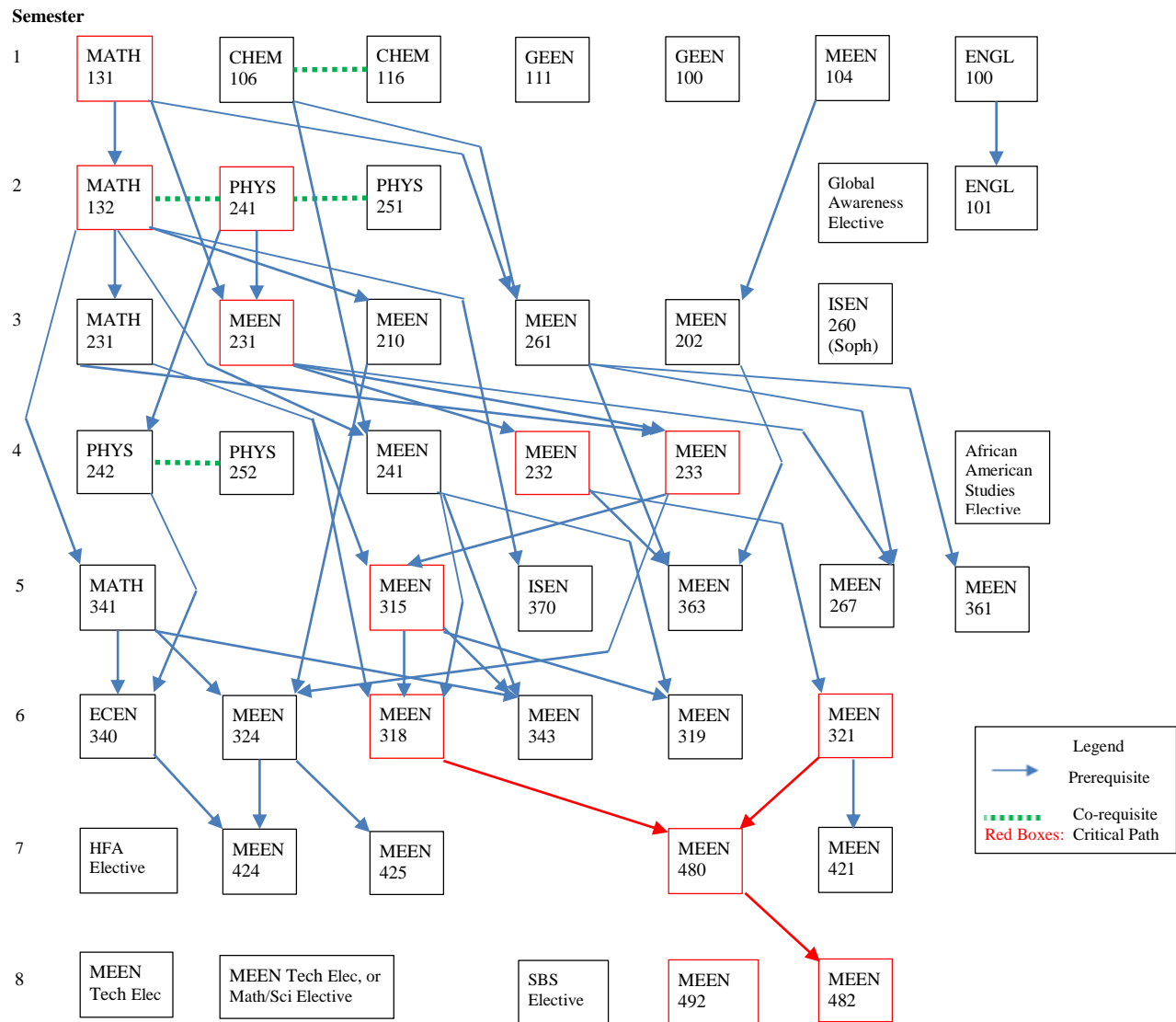
Semester



Course	Pre-Requisites
ENGL 101 Ideas and their Expressions II	ENGL 100
CHEM 106 General Chemistry VI	See description page 19
PHYS 241 General Physics I	Co-requisites: MATH 132, PHYS 251
PHYS 242 General Physics II	PHYS 241
ECEN 340 Electrical Circuits and Systems	PHYS 242, Co-requisites: MATH 341
ISEN 260 Engineering Economy	Sophomore Standing
ISEN 370 Engineering Statistics	MATH 132
MATH 131 Calculus I	See description page 19
MATH 132 Calculus II	MATH 131
MATH 231 Calculus III	MATH 132
MATH 341 Differential Equations	MATH 132
MEEN 202 ME Project Lab	MEEN 104
MEEN 210 Numerical Methods in MATLAB	MATH 132
MEEN 231 Mechanics I: Statics	MATH 131, PHYS 241
MEEN 232 Strength of Materials	MEEN 231
MEEN 233 Mechanics II: Dynamics	MEEN 231, MATH 231
MEEN 241 Fundamentals of Thermodynamics	MATH 132, CHEM 106

Course	Pre-Requisites
MEEN 261 Fundamentals of Materials Science	CHEM 106, MATH 131
MEEN 267 Mechanics and Materials Lab	MEEN 231, MEEN 261
MEEN 316 Fluid Mechanics	PHYS 241, MATH 231
MEEN 317 Thermal-Fluid Systems Lab	MEEN 316, MEEN 241
MEEN 321 Engineering Design	MEEN 232
MEEN 324 System Dynamics	MEEN 210, MEEN 233, MATH 341
MEEN 341 Applied Thermodynamics	MEEN 241, MATH 231
MEEN 343 Heat Transfer	MEEN 316, MEEN 241, MATH 341
MEEN 361 Modern Eng Materials	MEEN 261
MEEN 363 Manufacturing Processes	MEEN 202, MEEN 261, MEEN 232
MEEN 421 Design of Machine Elements	MEEN 321
MEEN 424 Vibrations and Control	MEEN 324, ECEN 340
MEEN 425 Mechanical Systems Lab	MEEN 324
MEEN 480 Mechanical Engr Senior Proj I	MEEN 341, MEEN 321
MEEN 481 Mechanical Engr Senior Proj II	MEEN 480
MEEN 492 Senior Seminar	Senior Standing

Prerequisite Flow Chart - Mechanical Engineering Curriculum (Aerospace Option)



Course	Pre-Requisites
ENGL 101 Ideas and their Expression II	ENGL 100
CHEM 106 General Chemistry VI	See description page 19
PHYS 241 General Physics I	Corequisites: MATH 132, PHYS 251
PHYS 242 General Physics II	PHYS 241
ECEN 340 Electrical Circuits and Systems	PHYS 242, Corequisites: MATH 341
ISEN 260 Engineering Economy	Sophomore Standing
ISEN 370 Engineering Statistics	MATH 132
MATH 131 Calculus I	See description page 19
MATH 132 Calculus II	MATH 131
MATH 231 Calculus III	MATH 132
MATH 341 Differential Equations	MATH 132
MEEN 202 ME Project Lab	MEEN 104
MEEN 210 Numerical Methods in MATLAB	MATH 132
MEEN 231 Mechanics I: Statics	MATH 131, PHYS 241
MEEN 232 Strength of Materials	MEEN 231
MEEN 233 Mechanics II: Dynamics	MEEN 231, MATH 231

Course	Pre-Requisites
MEEN 261 Fundamentals of Materials Science	CHEM 106, MATH 131
MEEN 267 Mechanics and Materials Lab	MEEN 231, MEEN 261
MEEN 315 Aerodynamics	MATH 231, MEEN 233
MEEN 318 Propulsion	MEEN 241, MEEN 315, MATH 231
MEEN 319 Aerodynamics and Propulsion I	MEEN 315
MEEN 321 Engineering Design	MEEN 232
MEEN 324 System Dynamics	MEEN 210, MEEN 233, MATH 341
MEEN 343 Heat Transfer	MEEN 315, MEEN 241, MATH 341
MEEN 361 Modern Eng Materials	MEEN 261
MEEN 363 Manufacturing Processes	MEEN 202, MEEN 261, MEEN 232
MEEN 421 Design of Machine Elements	MEEN 321
MEEN 424 Vibrations and Control	MEEN 324, ECEN 340
MEEN 425 Mechanical Systems Lab	MEEN 324
MEEN 480 Mechanical Engr Senior Project I	MEEN 315, MEEN 321
MEEN 482 Aerospace Senior Project	MEEN 480
MEEN 492 Senior Seminar	Senior Standing

Critical Path to Capstone Design Worksheets

Name: _____

Compiled Date: _____

Mechanical Engineering Curriculum Completed? <u>sem/grade</u> <i>321... Count Down to Senior Design!!!</i>				
1: Spring Only	min D	481 _____/_____, _____/_____, _____/_____	min D 492 _____/_____ _____/_____ _____/_____	
2: Fall Only	min D	480 _____/_____, _____/_____, _____/_____		
3: Spring	min D	341 _____/_____, _____/_____, _____/_____	min D 321 _____/_____ _____/_____ _____/_____	
4: Fall	min C	241 _____/_____, _____/_____, _____/_____	MATH231 min C _____/_____ _____/_____ _____/_____ _____/_____	min C 232 _____/_____ _____/_____ _____/_____ _____/_____
5: Spring	CHEM106 min C _____/_____ _____/_____ _____/_____	min C MATH132 _____/_____, _____/_____, _____/_____	min C 231 _____/_____ _____/_____ _____/_____	
6: Fall			PHYS241 min C _____/_____ _____/_____ _____/_____	
7: Spring			min C MATH131 _____/_____, _____/_____, _____/_____	

Critical Path to Capstone Design Worksheets (Aero Space Option)

Name: _____

Compiled Date: _____

Mechanical Engineering Curriculum (Aerospace Option) Completed? <u>sem/grade</u> <i>321... Count Down to Senior Design!!!</i>				
1: Spring Only	min D 482 <div style="text-align: center;">____/____, ____/____, ____/____</div>			min D 492 <div style="text-align: center;">____/____ ____/____ ____/____</div>
2: Fall Only	min D 480 ____/____, ____/____, ____/____			
3: Spring	min D 318 <div style="text-align: center;">____/____, ____/____, ____/____</div>		min D 321 <div style="text-align: center;">____/____ ____/____ ____/____</div>	
4: Fall	min C 241 <div style="text-align: center;">____/____ ____/____ ____/____</div>	min C 315 <div style="text-align: center;">____/____, ____/____, ____/____</div>		min C 232 <div style="text-align: center;">____/____ ____/____ ____/____</div>
5: Spring		MATH231 min C <div style="text-align: center;">____/____ ____/____ ____/____</div>	min C 233 <div style="text-align: center;">____/____ ____/____ ____/____</div>	
6: Fall	CHEM106 min C <div style="text-align: center;">____/____ ____/____ ____/____</div>	MATH132 min C <div style="text-align: center;">____/____ ____/____ ____/____</div>		min C 231 ____/____ <div style="text-align: center;">____/____, ____/____</div>
7: Spring		<div style="text-align: center;">____/____ ____/____ ____/____</div>		min C PHYS241 ____/____, <div style="text-align: center;">____/____, ____/____</div>
8: Fall		min C MATH131 <div style="text-align: center;">____/____, ____/____, ____/____</div>		

Mechanical Engineering Technical Electives

Courses include Mechanical Engineer Topics Review (MEEN 404), Composite Materials (MEEN 431), Fundamentals of Nanoscience and Engineering (MEEN 432), Aluminum-Based Product Design and Manufacturing (MEEN 433), Computer Integrated Mechanism Design (MEEN 435), Advanced Manufacturing Processes (MEEN 434), **Aero Vehicle Structures (MEEN 451)**, Turbomachinery (MEEN 452), **Flight Vehicle Performance (MEEN 453)**, Design of Thermal Systems (MEEN 461), Heating, Ventilation, and Air Conditioning (MEEN 463), Internal Combustion Engines (MEEN 464), **Energy Conversion Systems Design (MEEN 465)**, and Fundamentals of Nuclear Energy (MEEN 466).

Students in Aerospace Option should only choose Technical Electives that are in **bold face** from the list above: MEEN 451, MEEN 453, and MEEN 465.

Math/Science Electives

(Note: Students may only take courses on the math/science elective list. May not count courses not on list.)

The math/science elective list: MATH 351, MATH 432, CHEM107 and CHEM 117, BIOL 100, PHYS 290, and PHYS 305

Critical Course Sequences

[MATH 131] - [MATH 132, PHYS 241] - [MEEN 231] - [MEEN 232] - [MEEN 321] - [MEEN 480] - [MEEN 481/482]

Aerospace Option: [MATH 131] - [MATH 132, PHYS 241] - [MEEN 231] – [MEEN 232, MEEN 233] - [MEEN 315] - [MEEN 318, MEEN 321] - [MEEN 480] - [MEEN 482]

Students should take the above one or two courses in the sequence listed to avoid spending an extra semester to one year in school. Also you must take all prerequisites required, **in time**, to stay on path.

Senior-Level Courses Offered in Fall or Spring Semester only

Note that MEEN 480 is offered only in the fall semesters, and MEEN 492 and MEEN 481 (MEEN 482 for Aerospace Option) are only offered in the spring semesters. Therefore, **students should complete MEEN 321 and MEEN 341 (or MEEN 318) in the spring semester of their junior year** to be ready for the senior project MEEN 480 in the fall semester of their senior year. Students who fail to follow this schedule will not be able to graduate on time. **Note** that the department recommends for students to plan their studies so that they only take a **maximum of 13 credits** while taking MEEN 480, and 481/482 in the senior year.

National Scholarships and Fellowships

EXTRAORDINARY OPPORTUNITIES: The National Scholarships and Fellowships Coordinator helps NC A&T's undergraduate students, graduate students, and alumni learn of and apply for nationally competitive scholarships and fellowships, regardless of University Honors Program membership or current scholarship status. These extraordinary opportunities are external to NC A&T and they span a wide range of experiences. Many of these extraordinary opportunities (EOs) are fully funded and are connected to undergraduate as well as graduate degree programs and internships, international programs and activities, language programs, and independent projects and research. For more information go to website at: <https://www.ncat.edu/academics/honors/national-scholarships-fellowships/index.php>

Minimum Grade of “C-” in Selected Courses

The College of Engineering and the Mechanical Engineering Program have adopted a list of specific courses in which students must earn a minimum grade of “C-” to meet graduation requirements or to progress on to any course for which these courses are prerequisites. This policy will be in effect beginning Fall 2020. The list of courses which require a minimum “C-” grade for mechanical engineering students are:

MATH 131, 132, 231

PHYS 241

All other courses in the BSME curriculum only requires a minimum grade of D to pass. However, a student must have a minimum GPA of 2.0 overall and 2.0 in the major to graduate.

ACADEMIC DISHONESTY POLICY

North Carolina Agricultural and Technical State University is committed to academic integrity and honesty for all students. Examples of Academic Dishonesty include but are not limited to:

- Cheating or knowingly assisting another student in committing an act of academic dishonesty;
- Plagiarism (unauthorized use of another person’s words or ideas as one’s own) which includes but is not limited to submitting examinations, theses, reports, drawings, laboratory notes or other materials as one’s own work when such work has been prepared by another person or copied from another person.
- Unauthorized possession of examinations or reserve library materials, destruction or hiding of source materials, library materials, or laboratory materials or experiments or any other similar action;
- Unauthorized changing of grades or marking on an examination or in an instructor’s grade book, or such change of any grade record;
- Aiding or abetting in the infraction of any of the provisions anticipated under the general standards of student conduct; or
- Assisting another student in violating any of the above rules.

A student who has committed an act of academic dishonesty has failed to meet a basic requirement of satisfactory academic performance. Thus, academic dishonesty is not only a basis for disciplinary action but may also affect the evaluation of the student’s level of performance. Any student who commits an act of academic dishonesty is subject to disciplinary action as defined below.

In instances where a student has clearly been identified as having committed an academic act of dishonesty, the instructor may take appropriate punitive action including a loss of credit for an assignment, an examination or project, or award a grade of “F” for the course subject to the review and endorsement of the chairperson and the dean. Repeated offenses can even lead to dismissal from the University.

STUDENT APPEALS OF ACADEMIC DISHONESTY

A student who feels that he or she has been unfairly treated as a result of an academic dishonesty matter may appeal the action in writing to the University Judicial Tribunal. The written notice of appeal must be submitted within one week (seven calendar days) of the date of the incident. The student should refer to the section on Appellate Procedures in the Student Handbook.

GRADE APPEAL

A student may appeal the final grade earned in a course. Initially, the student should attempt to resolve the matter informally through the instructor of the course, the department chair and/or dean of the academic unit in which the grade was assigned. If the matter is not resolved through this level of interaction, then the student should consult the individual school/college on its written grade appeal policy. A student wishing to pursue a written appeal of a grade must demonstrate a legitimate basis for the appeal. Grade appeals are final at the level of the school/college.

Academic Advising

A faculty member will serve as your academic program advisor. Information about your advisor can be obtained from the MEEN office (Room 618, McNair Hall), or from Aggie-Access-Online under Student Records. You should consult with your advisor regarding questions or problems about your program and course scheduling. It is important that you plan your academic program such that you graduate in the minimum possible time.

Registration

Each semester the University publishes a schedule that includes: classes, examination schedule, and an academic calendar. You should check with Aggie-Access-Online and use it to plan your courses.

1. Fill in a Course Request Form by referring to the class schedule.
2. Schedule a time to meet your advisor.
3. Take the completed Course Request Form to your advisor for approval and signature. Do not take courses out of sequence. Refer to this handbook for prerequisite information.
4. Online course registration can be conducted during the registration period. To use Aggie-Access-Online, you must obtain an Alternate PIN from your advisor or a secretary in the MEEN Office by presenting a course request form signed by your academic advisor.

Checking Prerequisite/Co-requisite Requirements

All MEEN students are responsible for ensuring that they are taking courses for which the prerequisite/co-requisite requirements are satisfied. **If a student takes a course without proper prerequisites or co-requisites, he or she will receive an “F” grade in that course.** To help ensure that you satisfy prerequisites, your instructors may ask you to show your grade reports to them. You should verify prerequisite requirements with your advisor prior to the last day to add so that you will have time to substitute another course if necessary.

Course Load

The normal course load in Mechanical Engineering is 15 to 16 semester credit hours to acquire 120 credits in four years following the curriculum. For full time status, an undergraduate student is required to carry a minimum of 12 credit hours; however, carrying just this minimum load will mean that you will require more than 8 semesters to complete your degree requirements.

The maximum course load that a student may carry is 18 credit hours unless the student has a cumulative grade point average of 3.0 or higher, or has a 3.2 semester grade point average while earning 12 or more credit hours in the semester prior to the one for which the overload is requested. The maximum course overload for any student is 21 credit hours. The maximum course load for one 5-week summer session is 7 credit hours.

Repetition of Courses and Withdrawals (University Policy)

During a student's academic career at the University, a student may repeat up to a maximum of 16 credits in any combination of distinct courses. The student may then request that the Provost be petitioned for no more than an additional 6 credits be repeated. If a student needs to repeat any additional credits after the repeat limit is exhausted to meet degree requirements, the student will have to change to a major where repeating isn't required to continue at the University. Also, during a student's academic career at the University, a student may withdraw (W) from a maximum of 16 credits. Withdrawals don't count in repeats. After the 16 credits of withdrawals are exhausted, the student may not withdraw from any more courses but must stay in the course and receive a grade. Course withdrawals refer to a student withdrawing from at least one of their enrolled courses after the drop/add period and by the last day to withdraw from a course, as published in the Academic Calendar. Withdrawing from the last course for the semester constitutes a withdrawal from the University, and the student must complete the

official University withdrawal process, as outlined in the Withdrawal from the University policy. In order to receive financial credit for withdrawal from courses, a student must withdraw from course(s) within the official “add/drop” period. Students are financially liable for all courses that they are registered in after the last day to drop with a refund.

More details can be found on the university website:

<https://hub.ncat.edu/administration/legal/policies/sec2-acad-affairs/aa-ug-repetition-of-courses-and-grade-replacement-for-undergraduates-052219.pdf>

https://hub.ncat.edu/administration/legal/policies/sec2-acad-affairs/2019july29_finalapproved_course-withdrawal-policy1.pdf

Maximum Course Load for a Student on Academic Probation

The maximum course load for a student on academic probation is 15 credit hours.

See: <https://hub.ncat.edu/administration/legal/policies/sec2-acad-affairs/Academic%20Standing.pdf>

Suspension/Readmission

A student suspended for academic reasons must stay out one full semester. A suspended student wishing to re-enroll must apply in writing, a minimum of 30 days prior to the semester for which readmission is requested. The department will support readmission requests only if the requestor and advisor have prepared an individualized comprehensive plan of study which affords the student a reasonable chance of success.

Tuition Surcharge

Please note that in an effort to improve the four-year graduation rate, the Board of Governors of the University of North Carolina system has mandated a tuition surcharge of 50 percent on students who attempt more than 140 degree credit hours to complete a four-year baccalaureate degree. See the University Bulletin for additional details relating to these requirements.

Degree Evaluation

Degree Audit in Aggie-Access-Online shows the courses you have taken as well as those remaining to be taken to fulfill graduation requirements. If a student has any questions, he/she should consult with his/her advisor.

Permission To Take Courses At Another Institution

A “**Permission Form To Take Courses At Another Institution**” must be completed with all the required signatures and submitted to the Office of Transfer Articulation before a student enrolls in courses at another institution. The University will not accept credits earned at another institution while a student is: (1) on academic probation (unless approved by the Department Chairperson and School/College Dean); (2) under academic or social suspension; or (3) concurrently registered at North Carolina A&T State University. No transfer credit(s) will be awarded for a course in which a grade below ‘C’ was earned.

Minor Fields of Undergraduate Study

A student must complete at least 24 hours of academic credits before declaring a minor and must have a minimum GPA of 2.0. A student who is working on a bachelor's degree has the option to enroll in a program leading to a minor (or minors) provided: (1) the minor field is different from the major field; (2) the student meets the requirements for acceptance into the minor program; and (3) the appropriate application for admission or the "Change of Major/Minor" form is approved and filed at the Office of the Registrar.

A student may have no more than two minors regardless of the student's major degree program. Multiple minors must be in different fields of study. Minors, though optional, are only awarded upon the completion of degree requirements.

For more information see:

<https://hub.ncat.edu/administration/legal/policies/sec2-acad-affairs/Minor%20Fields%20of%20Undergraduate%20Study.pdf>

Transfer Students

A student who wishes to transfer into the Mechanical Engineering Program from another accredited College or University must meet the following requirements:

1. The student must meet all of the University requirements for transfer (see the University Bulletin).
2. The student must have completed MATH 131 Calculus I with a grade of "C" or higher.
3. The student must have a cumulative GPA (grade point average) of 2.5 or above.
4. The University does not accept transfer credit for course work where grades of P/F have been given. No course is accepted in transfer in which a grade below "C" was earned.
5. The maximum number of transferable credits is 90 semester hours from a 4-year program and 64 semester hours from a 2-year program.

Students attending community colleges who intend to transfer to the BSME program should be enrolled at their community college in Pre-Engineering programs for their Associate Degree in Science (AS), **not** in one of the engineering technologies programs for their Associate Degree in Applied Science (AAS).

Change of Major

Students may transfer from other departments of the University to the Mechanical Engineering Program with approval of the Chairperson of the Mechanical Engineering Department and the Dean of the College of Engineering. The proper forms needed to apply for such a change can be obtained from the Office of the Registrar and must be executed at least six weeks prior to the beginning of the semester in which the student plans to begin the new major. New transfer students should report to the Mechanical Engineering Program Director for advising. The following department requirements must be satisfied by any student considering changing his/her major to Mechanical Engineering:

1. The student must have a grade point average of 2.5 or higher.
2. The student must have completed MATH 131 with a grade of "C" or higher.
3. A student may not have taken any courses out of sequence or without the proper prerequisites.
4. The student may not have taken any senior level course in Mechanical Engineering. The student must be officially a mechanical engineering major to be enrolled in any senior level courses.

International Programs Study Abroad

All students in *good academic standing* at NC A&T may study abroad for one or two semesters. Most programs require a minimum 2.0 GPA. However, there are programs that require a higher GPA. You may apply to study abroad after your first semester on campus and complete study abroad before your last semester as a senior. The credits earned abroad are transferred to North Carolina A&T toward your degree requirements.

Global Studies Certificate

The Global Studies Certificate Program is an interdisciplinary program designed to provide students the opportunity to better prepare themselves to live and work in a global society. The Global Studies Certificate can be earned while fulfilling the academic requirements for an NC A&T degree in every discipline.

Beginning Spring 2004, students who study abroad and take additional global studies courses can earn a Global Studies Certificate. To enroll, please contact the Office of International Programs.

Other Programs and Information

Refer to the Undergraduate Bulletin for more information.

See: <https://www.ncat.edu/provost/academic-affairs/bulletins/index.php>

- **Honors Program:** (<https://www.ncat.edu/academics/honors/>) The University Honors Program offers highly talented and motivated students a four-year, student-centered experience of academic enhancement, cultural enrichment, leadership training, and professional development that drives them to reach their full potential. Every aspect of the University Honors Program provides special opportunities for qualified students to grow intellectually through contact with a community of Honors students and supportive Honors faculty and staff. Students that graduate from the program will be intellectually and socially engaged individuals well-positioned to find success in their future endeavors.
- **Center for Academic Excellence (CAE):** Services provided by the Center for Academic Excellence include: academic coaching, walk-in advising services, delivery of the College Success Course (FRST 101), administration of the Student Athlete Academic Enhancement Program (SAAEP), **tutorial services** (group, individual, and “online delivery: <https://ncat.upswing.io>”), supplemental instruction, academic monitoring, specialized mentoring programs and advising services for undeclared students.
- **Counseling Services:** Counseling Services offers a variety of services to help all currently enrolled North Carolina A&T State University students address challenges and difficulties they may face during college. Our services are designed to help students understand themselves better, create and maintain healthy relationships, improve academic performance and make satisfying career and life choices.
- **Disability Support Services:** The Office of Disability Support Services assures ready accessibility of all academic programs, services, and activities to any person with a documented disability matriculating at the University. Likewise, services focus on facility accessibility and safety. The office staff serves as a liaison for students with disabilities as they participate in programs and activities enjoyed by all students. The office staff arranges for any necessary reasonable accommodations or academic adjustments. Documentation is required for all disabilities. All information and services for persons with disabilities is confidential. The office is located in Suite 01 Murphy Hall. Students needing academic adjustments or accommodations must be registered with this office.
- **Office of Career Services (OCS):** The primary mission of the Office of Career Services (OCS) is to provide centralized, comprehensive and progressive inter-disciplinary programs, services and resources to prepare A&T students (undergraduates and graduates) for the achievement of successful personal and professional career development to meet the needs of a global society. Services are also available to alumni of the university.
- **Satisfactory Academic Progress (SAP):** The Higher Education Amendment Act of 1965, as amended, mandates institutions of higher education to establish a minimum standard of “Satisfactory Academic Progress” for students receiving federal financial aid. North Carolina A&T State University makes its standard applicable to all federal, state and some institutional funds. The satisfactory academic progress policy applies to all terms regardless of whether financial aid was received. Satisfactory academic progress will be evaluated for all students (full or part-time) annually (at the end of each spring semester). Students re-admitted under the “five year rule” must also meet the Satisfactory Academic Progress standards to receive financial aid.
- **Advanced Placement (AP):** North Carolina A&T State University participates in the Advanced Placement Program (AP) offered by the College Board to provide greater flexibility and opportunity for high school students to proceed with their education. Students must submit to the Office of Undergraduate Admissions an official Student Score Report from the College Board for scores to be considered. North Carolina A&T State University awards college credit for qualifying AP examination scores as determined by the Director of Transfer Articulation, in consultation with the chairperson of the appropriate academic department. Acceptance of AP tests and scores is subject to change without notice. AP credit is not granted if the student has already received transfer credit for the course or earned credit for the course at North Carolina A&T State University.

- **College Level Examination Program (CLEP):** North Carolina A&T State University participates in the College Level Examination Program (CLEP) offered by the College Board to provide greater flexibility and opportunity for students to proceed with their education. Students must submit to the Office of Undergraduate Admissions an official transcript from the College Board for scores to be considered. North Carolina A&T State University awards college credit for qualifying CLEP examination scores as determined by the Director of Transfer Articulation, in consultation with the chairperson of the appropriate academic department. Acceptance of CLEP tests and scores is subject to change without notice. CLEP credit is not granted if the student has already received transfer credit for the course or earned credit for the course at North Carolina A&T State University.
- **International Baccalaureate (IB) Program:** North Carolina A&T State University accepts the International Baccalaureate (IB) offered by the International Baccalaureate Organization to provide greater flexibility and opportunity for high school students to proceed with their education. Students must submit to the Office of Undergraduate Admissions an official transcript from the International Baccalaureate Organization for scores to be considered. North Carolina A&T State University awards college credit for IB examination scores as determined by the Director of Transfer Articulation, in consultation with the chairperson of the appropriate academic department. Acceptance of IB tests and scores is subject to change without notice. IB credit is not granted if the student has already received transfer credit for the course or earned credit for the course at North Carolina A&T State University.
- **Waiving Freshman Seminar (FRST 101):** The Freshman Seminar (FRST 101) requirement may be waived for students who transfer with at least 30 hours of transfer coursework.
- **Double Major:** Students who desire to obtain a double major must file a double major form in the Office of the Registrar. Students who have double majors which involve two departments or two schools must satisfy the major requirements for each department or school. To graduate with a double major, students must complete requirements for both majors during the same semester or summer term.
- **Course Credit by Examination (CE):** Credit may be earned by examination for any undergraduate course for which a suitable examination has been adopted or prepared by the department granting the credit. The student receives the grade “CE” and regular credit for the number of hours involved. However, the credit hours are excluded in computing the student’s grade point average.
- **Grading System:** Effective for fall 2014, North Carolina Agricultural and Technical State University has implemented a plus/minus grading system. If a prerequisite course requires a minimum grade of “C”, or if a minimum grade of “C” is a requirement in the student’s declared major, a grade of C- will not fulfill the requirement.
- **Standards of Academic Standing:** Effective for fall 2014, to continue at North Carolina Agricultural and Technical State University in good academic standing, undergraduate students must earn a minimum cumulative grade point average (GPA) of 2.00. Failure to earn a minimum cumulative GPA 2.00 will automatically place the student on academic probation during the subsequent semester. (Note: The cumulative GPA earned at NC A&T SU is computed ONLY on the basis of coursework taken at NC A&T SU; grades earned on coursework transferred to NC A&T SU are not computed into the GPA at NC A&T SU, and therefore not used to determine academic standing.) The University, on the recommendation of a student’s major academic department, reserves the right to deny enrollment to any student, even if the grade point average meets the minimum standards listed above, if it is apparent from the student’s academic record that the student is not making satisfactory academic progress toward meeting the required graduation requirements for their major.
- **Undergraduate Enrollment in Graduate Courses:** The student needs to meet the requirements set forth by the Graduate College where 600-699 courses are master’s level courses open to all graduate students. Undergraduate students may take these with senior status and a minimum 3.25 GPA or above, or in special cases as part of an accelerated bachelors-master’s program.

Descriptions of Mechanical Engineering Courses

MEEN 104 Graphics for Mechanical Engineering Credit 2(0-4)

This is an introductory course in computer aided graphics and design for mechanical engineers. This course will familiarize students with conventions of 2-D graphical representation of mechanical components and 3-D solid modeling. Prerequisites: None. **(F;S)**

MEEN 202 **Mechanical Engineering Project Lab** **Credit 1(0-2)**

This is a hands-on course to equip students with skills in a machine shop to make a mechanical device. Topics include machining, tolerances, surface finish, assembly and selection of common mechanical components.
Prerequisites: MEEN 104 (F:S)

MEEN 210 **Numerical Methods Using MATLAB** **Credit 3(2-2)**

This course introduces contemporary computational methods and tools for numerical analysis in engineering. It includes numerical methods in differentiation, integration, interpolation, root-finding, linear and nonlinear regression. Linear algebra topics include matrix manipulation, solution of linear simultaneous equations, and solution of ordinary differential equations. Each topic involves projects with numerical computations using MATLAB. Prerequisites: MATH 132 with minimum C-(**F**;**S**)

MEEN 230 **Statics and Mechanics of Materials** **Credit 3(2-2)**

This is an introductory course in statics and mechanics of materials for non-mechanical engineering majors. It provides a just-in-time approach to the study of characteristics of forces and couples, and their effects on equilibrium, strains, and stresses in solid bodies. Relationships between loads and deformations are also presented. Prerequisites: MATH 131, PHYS 241 both with minimum C-(F;S)

MEEN 231 **Mechanics I, Statics** **Credit 3(2-2)**

This course covers basic vector concepts of force, moment of a force; analytical and graphical techniques in the analysis of force and moment; conditions of equilibrium in frames, trusses, machine members under static loads; laws of friction; distributed forces, determination of centroid, mass center, area and mass moment of inertia. Prerequisites: MATH 131, PHYS 241. both with minimum C-(**F;S;SS**)

MEEN 232 **Strength of Materials** **Credit 3(2-2)**

This course covers the analysis of stress and strain, stress-strain relation, applications, torsional and flexural loadings, flexural deflections, combined loading, and columns. Prerequisite: MEEN 231. **(F;S;SS)**

MEEN 233 **Mechanics II, Dynamics** **Credit 3(2-2)**

This introductory course covers the motions of particles and rigid bodies and the forces that accompany or cause those motions. Topics include Newton's laws, the work and energy principle, and the impulse and momentum principle. The course includes the use of computational software to solve numerical problems. Prerequisites: MEEN 231 and MATH 231 with minimum C-. **(F;S;SS)**

MEEN 241 **Fundamentals of Thermodynamics** **Credit 3(2-2)**

This is a basic course in fundamental thermodynamic principles. The topics covered include energy, heat and work, thermodynamic properties of substances, real and ideal gases, first and second laws of thermodynamics from a macroscopic viewpoint, the basic Rankine power cycle, and the basic vapor compression refrigeration cycle. Prerequisites: MATH 132 with minimum C- and CHEM 106. **(F;S;SS)**

MEEN 260 **Materials Science** **Credit 2(2-0)**

This basic course in materials science covers the fundamental nature of materials including their physical, mechanical and chemical characteristics. Topics include: atomic arrangements and atomic bonding; structure property relationships, phase diagrams, engineering properties and basic failure modes. Prerequisite: CHEM 106 and MATH 131 with minimum C-. **(F;S)**

- MEEN 261** **Fundamentals of Materials Science** **Credit 3(3-0)**
 This course deals with the relationships between the structure of materials and their properties and performance. Topics include: (1) atomic structure and chemical bonding, (2) crystal structure, (3) defects, (4) phase diagrams, and (5) physical properties including mechanical, electrical, and magnetic. Prerequisites: CHEM 106 and MATH 131 with minimum C-. (F;S)
- MEEN 267** **Mechanics and Materials Laboratory** **Credit 1(0-2)**
 This is the first in the sequence of three mechanical engineering laboratory courses. It covers experiments in materials science and engineering, and materials testing. Prerequisites: MEEN 231, MEEN 261. (F;S)
- MEEN 315** **Aerodynamics** **Credit 3(3-0)**
 The course begins with the fundamentals of fluid statics and dynamics followed by an introduction to inviscid flow theory with applications to incompressible flows over airfoils, wings and flight vehicle configurations. Prerequisites: Math 231 with minimum C- and MEEN 233. (F)
- MEEN 316** **Fluid Mechanics** **Credit 3(2-2)**
 This course examines the continuum concept, fluid statics, mass and momentum balances, the Bernoulli Equation, dimensional analysis, pipe flow problems, the design and the selection of pumps and the three forms of drag. Boundary layer flows, compressible flow and flow measurement devices are discussed. Prerequisites: PHYS 241, MATH 231 both with minimum C-. (F;S;SS)
- MEEN 317** **Thermal-Fluid Systems Laboratory** **Credit 1(0-2)**
 This is the second course in the sequence of three mechanical engineering laboratory courses. The course includes selected experiments in the area of fluid mechanics, thermodynamics, and heat transfer. Prerequisites: MEEN 316, MEEN 241. (F;S)
- MEEN 318** **Propulsion** **Credit 3(3-0)**
 This course covers internal flow of compressible fluids, normal shock, flow with friction, and simple heat addition. The concepts are applied to aircraft and rocket propulsion systems. Prerequisites: MEEN 315, MEEN 241, MATH 231 with minimum C-. (S)
- MEEN 319** **Aerodynamics and Propulsion Laboratory** **Credit 1(0-2)**
 This is a laboratory course which provides experiments to reinforce concepts learned in aerodynamics and propulsion courses. Prerequisite: MEEN 315. (S)
- MEEN 321** **Mechanical Engineering Design** **Credit 3(3-0)**
 This course provides an introduction to mechanical design. Emphasis is placed on the design of machine elements for static and fatigue strength. Other topics such as codes and standards, project planning and communication are also covered. Team design projects are assigned. Prerequisites: MEEN 232. (F;S)
- MEEN 324** **System Dynamics** **Credit 3(3-0)**
 This course gives a treatment of dynamic systems composed of mechanical, electrical, thermal and fluid elements. General analytical and design tools for physical systems are developed. Topics include time response, frequency response, linearization, numerical analysis, and computer simulation. Projects are assigned to investigate the scope and limitations of the basic concepts. Prerequisites: MEEN 210, MEEN 233, MATH 341. (F;S)
- MEEN 341** **Applied Thermodynamics** **Credit 3(3-0)**
 This course involves applications of basic thermodynamic principles to real systems. The topics covered include: gaseous mixtures, psychrometrics, combustion, power cycles and refrigeration cycles. Prerequisite: MEEN 241 and MATH 231 with minimum C-. (F;S)

- MEEN 343** **Heat Transfer** **Credit 3(2-2)**
 The course covers the fundamentals of heat conduction, convection, radiation, boiling and condensation, and heat exchangers. Design and safety aspects of heat transfer equipment are covered. Prerequisites: MEEN 316 (or MEEN-315), MEEN-241, MATH 341. (F;S;SS)
- MEEN 361** **Modern Engineering Materials** **Credit 3(3-0)**
 This course covers the role of materials in engineering; properties of materials; nonferrous and ferrous systems and applications; heat treatment and strengthening mechanisms; various polymeric, ceramic, composite materials biomaterials and their applications; failure theories; characterization; corrosion and environmental issues; project work involving selection and design with various material systems. Prerequisites: MEEN 261. (F;S)
- MEEN 363** **Manufacturing Processes** **Credit 3(3-0)**
 The course deals with principles, analysis, and selection of manufacturing processes. Topics include casting, molding, forming, particulate processing, material removal and joining. Design for manufacturing and manufacturing economics are introduced. Prerequisites: MEEN 202, MEEN 261 and MEEN 232. (F;S)
- MEEN 404** **Mechanical Engineer Topics Review** **Credit 3(3-0)**
 This course reviews the mechanical engineering topics normally covered in the discipline specific section of the Fundamentals of Engineering Examination. The course is intended for senior students preparing for the FE Exam. Prerequisites: Consent of Instructor. (F;S)
- MEEN 421** **Design of Machine Elements** **Credit 3(3-0)**
 This course covers the theory, design and selection of machine elements, including gears, bearings, fasteners, springs, and brakes. Finite element analysis will also be introduced. Prerequisite: MEEN 321. (F;S)
- MEEN 424** **Vibrations and Controls** **Credit 3(3-0)**
 This course introduces the modeling, analysis and simulation of free and forced vibrations of damped and undamped, single and multi-degree of freedom systems and the basic properties of feedback control, and the fundamentals of control system design using root locus and frequency response methods. Prerequisite: MEEN 324 and ECEN 340. (F;S)
- MEEN 425** **Mechanical Systems Laboratory** **Credit 1(0-2)**
 This is the third course in the sequence of three mechanical engineering laboratories. The course deals with experiments in manufacturing processes, system dynamics, vibrations and control. Prerequisites: MEEN 324. (F;S)
- MEEN 431** **Composite Materials** **Credit 3(2-2)**
 This course introduces manufacturing of fiber reinforced polymer composites and mechanical characterization with an introduction to material anisotropy and design. Topics include anisotropic constitutive equations, use of software to predict elastic constants, manufacturing methods, process control parameters, and physical and mechanical characterization. Concepts learned are applied to design of simple composite beams. Prerequisites: MEEN 232, MEEN 261
- MEEN 432** **Fundamentals of Nanoscience and Engineering** **Credit 3(3-0)**
 This course will offer a perspective in areas related to the structure, stability and functional characteristics of nanoscale materials using theoretical models, with an emphasis on the interrelationship between materials properties and processing. Prerequisites: MEEN 361. (F;S)

This course introduces students to the principles of product and manufacturing process design specifically applicable to aluminum-based materials. Material properties of aluminum are compared with those of other commercial materials. Raw material fabrication and product manufacturing processes are presented. The interactions between processes and material properties are described. Case studies are presented to guide the student in successful completion of design projects. Prerequisites: MEEN 261 and MEEN 321. **(F;S)**

Theory, application, and design considerations for forming and machining are covered in this course. Design of molds, dies, presses, jigs and fixtures automated machinery are covered. Prerequisites: MEEN 363. **(F;S)**

This is a course in modern computer simulation tools and the underlying theories for synthesis and analysis of mechanical systems consisting of linkages, cams, and gears. Prerequisite: MEEN-324. **(F;S)**

This course covers the design of steam power systems, internal combustion power systems, refrigeration and heat pump systems and an overview of direct energy conversion devices. Power system design projects are assigned. Prerequisites: MEEN 343. **(F;S)**

MEEN 466 **Fundamentals of Nuclear Energy** **Credit 3(3-0)**

This course introduces nuclear physics as applied to nuclear power. Pressurized water reactors, boiling water reactors, and others that are currently in operation and those planned for the future are discussed. The course addresses the safety and environmental concerns of nuclear energy with discussion of nuclear accidents and nuclear waste. Prerequisites: MEEN 241. (F;S)

MEEN 480 **Mechanical Engineering Senior Project I** **Credit 3(2-2)**

This is the first part of a two-course sequence which together prepares students for engineering practice. This is a major team design experience. The projects are based on the knowledge and skills acquired in earlier course work and incorporate multiple design constraints. Team design projects are continued during the following semester in MEEN 481 or MEEN 482. Oral presentations and written reports are required. Prerequisites: MEEN 341 (or MEEN 318) and MEEN 321. (F)

MEEN 481 **Mechanical Engineering Senior Project II** **Credit 3(0-6)**

This is the second part of the two-course sequence senior project. Work continues on the design project begun in MEEN 480 culminating in a final product which incorporates multiple design constraints. Oral presentations and written reports are required. Prerequisite: MEEN 480. (S)

MEEN 482 **Aerospace Senior Project** **Credit 3(2-2)**

This is the second part of the two-sequence senior capstone design experience. Work continues on the design project begun in MEEN 480 culminating in a final aircraft or aerospace vehicle which incorporates multiple design constraints. Oral presentations and written reports are required. Prerequisites: MEEN 480. (S)

MEEN 490 **Independent Study** **Credit 3(3-0)**

This course involves student participation in research conducted by faculty. Topics may be analytical and/or experimental and encourage independent study. The submission of a written report is required. Students will receive "P" for "Satisfactory" or "F" for "Unsatisfactory" grades. Prerequisites: Senior standing and consent of instructor. (F;S)

MEEN 492 **Mechanical Engineering Seminar** **Credit 1(1-0)**

This weekly seminar course utilizes invited speakers to address such topics as resume preparation, interviewing, ethics and professional registration, as well as technical topics presented by graduate students and faculty researchers. Prerequisite: senior standing in mechanical engineering. (S)

MEEN 496 **Special Undergraduate Project** **Variable Credit (1-3)**

This is a senior level project of interest to students. A faculty member will serve as a project advisor. Projects may include design, analysis, testing, and/or experimental work. Prerequisites: Permission of department and faculty member as an advisor. (F;S;SS)

MEEN 585 **Special Topics** **Credit 3(3-0)**

This course is designed to allow the introduction of potential new courses on a trial basis or special content courses on a once only basis. The topic of the course and title are determined prior to registration. Prerequisites: Senior Standing. (F;S)

Descriptions of Other Required Engineering Courses

General Engineering

GEEN 100 Engineering Design and Ethics Credit 2(2-0)

This course introduces students to engineering and computer science disciplines and functions, professional licensure, the Fundamentals of Engineering exam, code of ethics, safety, the design process, creative thinking, teamwork, and technical writing. A case study on ethics and the application of the design process through a team project are required. Prerequisite: None. (F; S; SS)

GEEN 111 College of Engineering Colloquium I Credit 1(1-0)

This course includes lectures, seminars, and activities important to the retention and matriculation of students in the college of engineering. Students are introduced to various engineering and computer science degree programs and their respective professions, and are also provided with group advisement regarding department, college, and university-level policies and procedures. Prerequisite: None.

Electrical Engineering

ECEN 340 Electrical Circuits and Systems Credit 3(3-0)

This course covers power and energy concepts; basic R, RC, RL, and RLC circuits; three phase circuits; ideal transformers; diodes and ideal op amp circuits; and logic circuits. The Laplace transform method will be introduced and used to solve circuit problems. Prerequisites: PHYS 242, MATH 341

Industrial Engineering

ISEN 260. Engineering Economy Credit 2(2-0)

This course introduces the concept of time value of money, cash flows, and the methods of evaluating alternatives based on present worth, annual worth, rate of return, payback period and cost benefit analysis. The course also introduces breakeven analysis, replacement analysis, depreciation methods and the effect of income taxes and inflation on economy studies. Prerequisites: Sophomore Standing.

ISEN 370. Engineering Statistics Credit 3(3-0)

This course introduces data presentation and analysis, frequency distributions, probability concepts and axioms of probability. Random variables, discrete and continuous probability distributions, calculus based probability calculations, joint distributions, conditional probability and independence are covered. Independence of events is applied to engineering system reliability. Students are introduced to concepts of sampling, sampling distributions, estimation, confidence intervals, and hypothesis testing. Prerequisites: MATH 132 with minimum C-.

Description General Education Courses: Written Communication (WC)

ENGL 100. Ideas and their Expressions I Credit 3(3-0)

This course helps prepare students for academic work by: (1) providing instruction in the foundational elements of writing; (2) focusing on skills required for effective writing in a variety of contexts; (3) emphasizing the development of ideas through varied rhetorical strategies; and (4) providing an introduction to library research. Prerequisites: None (F;S)

ENGL 101. Ideas and their Expressions II Credit 3(3-0)

This course continues the student's growth as a writer through: (1) providing a review of the foundational elements of writing and methods of developing essays; (2) providing further development of critical thinking and analysis skills; (3) teaching the construction of argument; and (4) providing a study of research skills and writing a research paper. Prerequisites: ENGL 100.

Descriptions of Required Courses in Math and Sciences

Chemistry

CHEM 106. **General Chemistry VI** **Credit 3(3-0)**

This is a course which emphasizes basic principles and important theoretical concepts of chemistry. Topics will include atomic structure, electronic configuration, the wave mechanical model of the atom, chemical bonding, states of matter, chemical equilibria, systems of acids and bases, and electrochemistry. Corequisite: CHEM 116. Prerequisites: SAT MATH score of 490 (old) or 520 (new), SAT II MATH Level II score of 470 or ACT MATH score of 19 or CHEM 103 with a grade of C or better. (F;S;SS)

CHEM 116. **General Chemistry VI Laboratory** **Credit 1(0-3)**

This is a course which emphasizes quantitative studies of chemical reactions such as acid-base studies, redox reactions, and equilibrium reactions. Emphasis is also placed on the development of manipulative skills in the laboratory. Corequisite: CHEM 106. (F;S;SS)

Mathematics

MATH 131. **Calculus I** **Credit 4(4-0)**

Limits and continuity of functions, the derivative, applications of the derivative, the definite integral and applications of the definite integral will be studied. Prerequisites: C- or better in MATH 104, Math 110 or MATH 111; SATM score at least (550, old) or (570, new); or an SAT Math Level II score at least 540; or an ACT Math score at least 24 or a Math Department Pre-calculus test score at least 17. (F;S;SS).

MATH 132. **Calculus II** **Credit 4(4-0)**

Topics in analytical geometry, differentiation and integration of exponential, logarithmic, trigonometric, inverse trigonometric and hyperbolic functions, additional techniques and applications of integration, indeterminate forms, improper integrals, Taylor's Formula and infinite series will be studied. Prerequisite: MATH 131. (F;S;SS)

MATH 231. **Calculus III** **Credit 4(4-0)**

This course will cover plane curves and polar coordinates, vector and solid geometry, vector valued functions, partial differentiation, multiple integrals, applications of multiple integrals and vector analysis. Prerequisite: MATH 132. (F;S;SS)

MATH 341. **Introduction to Differential Equations** **Credit 3(3-0)**

(Formerly MATH 332 & MATH 431) This course will cover first order differential equations, higher order linear differential equations, matrices and determinants, systems of linear algebraic equations, systems of linear differential equations, and Laplace transforms. Prerequisite: MATH 132. (F;S;SS).

Physics

PHYS 241. **General Physics I** **Credit 3(3-0)**

This is a calculus-based physics course that covers the fundamental principles of Newtonian mechanics, heat, and thermodynamics. Corequisites: MATH 132, PHYS 251. (F;S;SS)

PHYS 242. **General Physics II** **Credit 3(3-0)**

This is a continuation of PHYS 241. It is a calculus-based study of physics, which covers the fundamental principles of electricity, magnetism, wave motion, and optics. Prerequisites: PHYS 241, MATH 132. Both minimum C-. Corequisite: PHYS 252. (F;S;SS)

PHYS 251.**General Physics I Laboratory****Credit 1(0-2)**

This is a laboratory course where a selected group of physics experiments will be performed. Emphasis is placed on the development of experimental technique, analysis of data, and physical interpretation of experimental results. Corequisite: PHYS 241. (F;S;SS)

PHYS 252.**General Physics II Laboratory****Credit 1(0-2)**

This course is a continuation of PHYS 251. Corequisite: PHYS 242. (F;S;SS)

Math and Science Electives

All MEEN majors may only take the math/science elective from the following list: MATH 351, MATH 432, CHEM107 and CHEM 117, BIOL 100, PHYS 290, and PHYS 305

MATH ELECTIVE:

MATH 432. **Introduction to Applied Mathematics** **Credit 3(3-0)**

This course will cover Fourier series, partial differential equations, complex variables, Taylor and Laurent series and residue theory. Prerequisites: MATH 231 and MATH 341 both minimum C. (F;S;SS)

MATH 351. **Linear Algebra and Matrix Theory** **Credit 3(3-0)**

(formerly MATH 450) This course is an introduction to linear algebra and matrix theory; the algebra of matrices and its application to the solutions of systems of linear equations, determinants, real and complex vector spaces, bases, dimension, linear transformations, eigenvalues and eigenvectors. Prerequisite: MATH 132. (F;S;SS)

SCIENCE ELECTIVES

CHEM 107. **General Chemistry VII** **Credit 3(3-0)**

This course is a continuation of CHEM 106. It includes chemistry of important metals and nonmetals and a rigorous treatment of qualitative inorganic analysis. Prerequisite: CHEM 106 or equivalent. Corequisite: CHEM 117. (F;S;SS)

CHEM 117. **General Chemistry VII Laboratory** **Credit 1(0-3)**

This is a continuation of CHEM 116 with an introduction to qualitative analysis. Co-Requisite: CHEM 107. Prerequisite: CHEM 116. (F;S;SS)

BIOL 100. **Biological Science** **Credit 4(3-2)**

This is a general education course that stresses the objectives presented under the general education program of the University. This course stresses central concepts in biology including; basic chemical and physical phenomena, biochemistry, cell form and function, genetics, evolution, and multicellular organization. The laboratory will examine major biological concepts. Biological Science is not open to Biology majors. (F;S;SS)

PHYS 290. **Introduction to Geophysics** **Credit 3(3-0)**

This course provides an introduction to the use of physical measurements to determine the structure and composition of the solid Earth. Topics include plate tectonics, the gravity and magnetic fields, elasticity and seismic properties of the Earth, seismic waves, earthquake seismology, isostasy, and elementary concepts in geodynamics. The course summarizes current knowledge of the interior of the Earth as determined by modern geophysical techniques. Prerequisite: PHYS 242. (F;S)

PHYS 305. **Mathematical Physics** **Credit 3(3-0)**

(formerly PHYS 405) This is a course in the applications of mathematics to solutions of physical problems. It covers selected topics in vector analysis, differential equations, special functions, calculus of variations, eigenvalues and eigenfunctions, and matrices. Prerequisite: MATH 231 with minimum C. (F;S)

List of Social/Behavioral Sciences (SBS) and Humanities/Fine Arts (HFA) electives

Revised: 04/09/2020

Courses are added to this list after approval by the General Education Council, the Faculty Senate, and the Provost. Courses are listed alphabetically by department and course number within each general education student learning outcome area. **NOTE:** Courses may only satisfy ONE general education requirement (e.g. LIBS202 can satisfy HFA or AA, but not both).

GLOBAL AWARENESS (GL)

- HIST 130: The World Since 1945
- HIST 206: Pre-Modern World History
- HIST 207: Modern World History
- HIST 216: African History Since 1800
- HIST 231: Genocide
- MGMT 221: Global Business Environment
- PHIL 103: World Religions (formerly PHIL 265)
- PHIL 201: Business Ethics (formerly PHIL 315)

HUMANITIES AND FINE ARTS (HFA)

- ENGL 200: Survey of Humanities I
- ENGL 201: Survey of Humanities II
- ENGL 230: World Literature I
- ENGL 231: World Literature II
- ENGL 211: Survey of African American Literature I (formerly ENGL 333)
- ENGL 212: Survey of African American Literature II (formerly ENGL 334)
- LIBS 202: Introduction to African American Studies
- MUSI 216: Music Appreciation
- MUSI 220: History of Black Music in America
- PHIL 101: Introduction to Philosophy (formerly PHIL 260)
- PHIL 103: World Religions (formerly PHIL 265)
- PHIL 104: Introduction to Ethics (formerly PHIL 268)
- PHIL 201: Business Ethics (formerly PHIL 315)
- PHIL 266: Contemporary Moral Problems
- PHIL 267: Philosophy of Love and Friendship
- SPCH 250: Fundamentals of Speech Communication

KNOWLEDGE OF AFRICAN AMERICAN CULTURE AND HISTORY (AA)

- ENGL 211: Survey of African American Literature I (formerly ENGL 333)
- ENGL 212: Survey of African American Literature II (formerly ENGL 334)
- HIST 106: African American History to 1877 (formerly HIST 201)
- HIST 107: African American History 1877 to the Present (formerly HIST 202)
- HIST 103: NC A&T State University History: A Legacy of Social Activism and Aggie Pride (formerly HIST 203)
- LIBS 202: Introduction to African American Studies
- MUSI 220: History of Black Music in America

SOCIAL AND BEHAVIORAL SCIENCES (SBS)

- BUED 279: Personal Finance (formerly BUED 379)
- ECON 200: Introductory Microeconomics
- ECON 201: Introductory Macroeconomics
- FCS 135: Food and Man's Survival
- FCS 181: Social-Psychological Aspects of Dress
- FCS 260: Introduction to Human Development
- HIST 103: NC A&T State University History: A Legacy of Social Activism and Aggie Pride (formerly HIST 203)
- HIST 104: U.S. History from 1492-1877 (formerly HIST 204)
- HIST 105: U.S. History from 1877-Present (formerly HIST 205)
- HIST 106: African American History to 1877 (formerly HIST 201)
- HIST 107: African American History 1877 to the Present (formerly HIST 202)
- HIST 130: The World Since 1945
- HIST 206: Pre-Modern World History
- HIST 207: Modern World History
- HIST 216: African History Since 1800
- HIST 231: Genocide
- JOMC 240: Media History
- POLI 110: American Government and Politics (formerly POLI 200)
- PSYC 101: General Psychology for Non-Majors (formerly PSYC 320)
- SOCI 100: Principles of Sociology
- SOCI 200: Introduction to Anthropology
- SSFM 226: A Personal Approach to Health

Notes:

1. 10.5.2015 Update: Course renumbering. Previous version: 8.14.2014

Note: These elective lists are subject to change. Please check with the following website for updates.

<https://www.ncat.edu/provost/general-education-resources/gec-list.php>

Appendices
Appendix 1: Curriculum Changes in 2018

- The total number of credit hours required in BSME is reduced from 125 to 120.
- MEEN 121 ME Colloquium (1 cr.) and MEEN 401 General Engineering Topics Review (1 cr.) are removed from the MEEN curriculum.
- One elective (3 cr.) is removed from the MEEN curriculum: either an MEEN 4xx Technical Elective or a Science/Math Elective
 - In 2014-2017 MEEN curriculum, there are three electives: 2 MEEN 4xx Technical Electives and one Math/Science Elective.
 - In the 2018 MEEN curriculum two electives are required, and students can choose either
 - two MEEN 4xx Technical Electives or
 - one MEEN 4xx Technical Elective and one Math/Science Elective

Appendix 2: Mechanical Engineering Curriculum – 2015, 2016, 2017

Fall Semester – Year 1			Spring Semester – Year 1		
	ENGL 100 Ideas & Their Expressions I	3		ENGL 101 Ideas & Their Expressions II	3
	CHEM 106 General Chemistry VI	3		PHYS 241 General Physics I	3
	CHEM 116 General Chemistry VI Lab	1		PHYS 251 General Physics I Lab	1
	MATH 131 Calculus I	4		MATH 132 Calculus II	4
	GEEN 100 Engineering Design and Ethics	2	[5]	Global Awareness Elective	3
[1]	GEEN 111 Engineering Colloquium	1	[1]	MEEN 121 ME Colloquium	1
	MEEN 104 Engineering Graphics	2			
	Total Credit Hours:	16		Total Credit Hours:	15
Fall Semester – Year 2			Spring Semester – Year 2		
	MATH 231 Calculus III	4	[5]	African American Studies Elective	3
	MEEN 202 ME Sophomore Project	1		PHYS 242 General Physics II	3
	MEEN 210 Numerical Methods Using MATLAB	3		PHYS 252 General Physics II Lab	1
	MEEN 231 Mechanics I: Statics	3		MEEN 267 Mechanics and Materials Lab	1
	MEEN 261 Fundamentals of Materials Science	3		MEEN 232 Strength of Materials	3
				MEEN 233 Mechanics II: Dynamics	3
				MEEN 241 Fundamentals of Thermodynamics	3
	Total Credit Hours:	14		Total Credit Hours:	17
Fall Semester – Year 3			Spring Semester – Year 3		
	ISEN 260 Engineering Economy	2		ECEN 340 Electrical Circuits and Systems	3
	MATH 341 Introduction to Differential Equations	3		MEEN 317 Thermal-Fluid Systems Lab	1
	ISEN 370 Engineering Statistics	3		MEEN 321 Engineering Design	3
	MEEN 316 Fluid Mechanics	3		MEEN 324 System Dynamics	3
	MEEN 361 Modern Eng. Materials	3		MEEN 341 Applied Thermodynamics	3
	MEEN 363 Manufacturing Processes	3		MEEN 343 Heat Transfer	3
	Total Credit Hours:	17		Total Credit Hours:	16
Fall Semester – Year 4			Spring Semester – Year 4		
[5]	Humanities and Fine Arts Elective	3	[5]	Social Behavioral Sciences Elective	3
[3]	MEEN 401 General Engineering Topics Review	1		Math/Science Elective	3
	MEEN 421 Computer Aided Design of Machines	3		MEEN 425 Mechanical Systems Lab	1
	MEEN 424 Vibrations and Control	3	[2,4]	MEEN 404/492ME Topics Review/Senior Seminar	1
[3]	MEEN 480 Mechanical Engr. Senior Project I	3	[4]	MEEN 481 Mechanical Engr. Senior Project II	3
	MEEN 4XX Technical Elective	3		MEEN 4xx Technical Elective	3
	Total Credit Hours:	16		Total Credit Hours:	14

(Total credit hours: 125)

[1] Transfer students with 16 hours of transfer credits will be exempted from GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.

[2] Students preparing to take the FE Exam will take MEEN 404 instead of MEEN 492

[3] These courses are offered in the FALL SEMESTERS ONLY

[4] These courses are offered in the SPRING SEMESTERS ONLY

[5] Check the university approved lists General Education: African American Studies, Global Awareness, Humanities and Fine Arts, and Social Behavioral Sciences.

http://www.ncat.edu/provost/general_education_resources/general_education_course_list/index.html

Appendix 3: Mechanical Engineering Curriculum/ Aerospace Option – 2015, 2016, 2017

Fall Semester – Year 1		Spring Semester – Year 1	
ENGL 100 Ideas & Their Expressions I	3	ENGL 101 Ideas & Their Expressions II	3
CHEM 106 General Chemistry VI	3	PHYS 241 General Physics I	3
CHEM 116 General Chemistry VI Lab	1	PHYS 251 General Physics I Lab	1
MATH 131 Calculus I	4	MATH 132 Calculus II	4
GEEN 100 Engineering Design and Ethics	2	[5] Global Awareness Elective	3
[1] GEEN 111 Engineering Colloquium	1	[1] MEEN 121 ME Colloquium	1
MEEN 104 Engineering Graphics	2		
Total Credit Hours:	16	Total Credit Hours:	15
Fall Semester – Year 2		Spring Semester – Year 2	
MATH 231 Calculus III	4	[5] African American Studies Elective	3
MEEN 202 ME Sophomore Project	1	PHYS 242 General Physics II	3
MEEN 210 Numerical Methods Using MATLAB	3	PHYS 252 General Physics II Lab	1
MEEN 231 Mechanics I: Statics	3	MEEN 267 Mechanics and Materials Lab	1
MEEN 261 Fundamentals of Materials Science	3	MEEN 232 Strength of Materials	3
		MEEN 233 Mechanics II: Dynamics	3
		MEEN 241 Fundamentals of Thermodynamics	3
Total Credit Hours:	14	Total Credit Hours:	17
Fall Semester – Year 3		Spring Semester – Year 3	
ISEN 260 Engineering Economy	2	ECEN 340 Electrical Circuits and Systems	3
MATH 341 Introduction to Differential Equations	3	MEEN 318 Propulsion	3
ISEN 370 Engineering Statistics	3	MEEN 319 Aerodynamics and Propulsion Lab	1
MEEN 315 Aerodynamics	3	MEEN 321 Engineering Design	3
MEEN 361 Modern Eng. Materials	3	MEEN 324 System Dynamics	3
MEEN 363 Manufacturing Processes	3	MEEN 343 Heat Transfer	3
Total Credit Hours:	17	Total Credit Hours:	16
Fall Semester – Year 4		Spring Semester – Year 4	
[5] Humanities and Fine Arts Elective	3	[5] Social Behavioral Sciences Elective	3
[3] MEEN 401 General Engineering Topics Review	1	Math/Science Elective	3
MEEN 421 Computer Aided Design of Machines	3	MEEN 425 Mechanical Systems Lab	1
MEEN 424 Vibrations and Control	3	[2,4] MEEN 404/492ME Topics Review/Senior Seminar	1
[3] MEEN 480 Mechanical Engr. Senior Project I	3	[4] MEEN 482 Aerospace Senior Project	3
MEEN 4XX Technical Elective	3	MEEN 4xx Technical Elective	3
Total Credit Hours:	16	Total Credit Hours:	14

(Total credit hours: 125)

[1] Transfer students with 16 hours of transfer credits will be exempted GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.

[2] Students preparing to take the FE Exam will take MEEN 404 instead of MEEN 492

[3] These courses are offered in the FALL SEMESTERS ONLY

[4] These courses are offered in the SPRING SEMESTERS ONLY

[5] Check the university approved lists General Education: African American Studies, Global Awareness, Humanities and Fine Arts, and Social Behavioral Sciences.

http://www.ncat.edu/provost/general_education_resources/general_education_course_list/index.html

Appendix 4: Curriculum Changes in 2015

LOWER-DIVISION COURSES

100-199 level courses are intended primarily for freshmen. Upper division students may enroll in these courses. Graduate students may enroll in these courses with their advisor's approval, but they are not available for graduate credit.

200-299 level courses are intended primarily for sophomores. Certain classes are closed to freshmen who lack the designated prerequisites or whose majors are outside the unit offering the course. This information is available in the Undergraduate Bulletin, or from the student's academic advisor. Upper division students may enroll in these courses. Graduate students may enroll in these courses with their advisor's approval, but they are not available for graduate credit.

UPPER-DIVISION COURSES

300-399 level courses are intended primarily for juniors. Prerequisites and other restrictions should be noted before registration. Graduate students may enroll in these courses with their advisor's approval, but they are not available for graduate credit.

400-499 level courses are intended primarily for seniors and include capstone courses, study abroad, etc. Prerequisites and other restrictions should be noted before registration. Graduate students may enroll in these courses with their advisor's approval, but they are not available for graduate credit.

Appendix 5: Course Number Changes in 2015 – Sorted by Old Numbers

Old number	Course Title	New number
MEEN104	Graphics for Mechanical Engineering	MEEN104
MEEN121	Mechanical Engineering Colloquium	MEEN121
MEEN202	ME Sophomore Project	MEEN202
MEEN210	Analytical Methods in Engineering	MEEN210
MEEN241	Fundamentals of Thermodynamics	MEEN241
MEEN305	Mechanics and Materials Laboratory	MEEN267
MEEN335	Mechanics I, Statics	MEEN231
MEEN336	Strength of Materials	MEEN232
MEEN337	Mechanics II, Dynamics	MEEN233
MEEN360	Fundamentals of Materials Science	MEEN261
MEEN405	Thermal-Fluid Systems Lab	MEEN317
MEEN407	Mechanical Systems Laboratory	MEEN425
MEEN415	Aerodynamics	MEEN315
MEEN416	Fluid Mechanics	MEEN316
MEEN440	System Dynamics	MEEN324
MEEN442	Applied Thermodynamics	MEEN341
MEEN445	Vibrations and Controls	MEEN424
MEEN446	Manufacturing Processes	MEEN363
MEEN460	Modern Engineering Materials	MEEN361
MEEN462	Heat Transfer	MEEN343
MEEN474	Mechanical Engineering Design	MEEN321
MEEN475	Computer-Aided Design of Machine Elements	MEEN421
MEEN476	Propulsion	MEEN318
MEEN477	Aerodynamics and Propulsion Laboratory	MEEN319
MEEN501	General Engineering Topics Review	MEEN401
MEEN504	Mechanical Engineering Topics Review	MEEN404
MEEN513	Composite Materials	MEEN431
MEEN520	Fundamentals of Nuclear Energy	MEEN466
MEEN530	Fundamentals of Nanoscience and Engineering	MEEN432
MEEN544	Special Undergraduate Project	MEEN496
MEEN545	Aluminum-Based Product Design and Manufacturing	MEEN433
MEEN546	Advanced Manufacturing Processes	MEEN434
MEEN547	Computer Integrated Mechanism Design	MEEN435
MEEN551	Aero Vehicle Structures	MEEN451
MEEN557	Design of Thermal Systems	MEEN461
MEEN563	Energy Conversion Systems Design	MEEN465
MEEN567	HVAC	MEEN463
MEEN570	Internal Combustion Engines	MEEN464
MEEN571	Turbomachinery	MEEN452
MEEN572	Mechanical Engineering Seminar	MEEN492
MEEN573	Mechanical Engineering Senior Project I	MEEN480
MEEN574	Mechanical Engineering Senior Project II	MEEN481
MEEN578	Flight Vehicle Performance	MEEN453
MEEN580	Aerospace Senior Project	MEEN482
MEEN596	Independent Study	MEEN490

Appendix 6: Course Number Changes in 2015 – Sorted by New Numbers

Old number	Course Title	New number
MEEN104	Graphics for Mechanical Engineering	MEEN104
MEEN121	Mechanical Engineering Colloquium	MEEN121
MEEN202	ME Sophomore Project	MEEN202
MEEN210	Analytical Methods in Engineering	MEEN210
MEEN335	Mechanics I, Statics	MEEN231
MEEN336	Strength of Materials	MEEN232
MEEN337	Mechanics II, Dynamics	MEEN233
MEEN241	Fundamentals of Thermodynamics	MEEN241
MEEN360	Fundamentals of Materials Science	MEEN261
MEEN305	Mechanics and Materials Laboratory	MEEN267
MEEN415	Aerodynamics	MEEN315
MEEN416	Fluid Mechanics	MEEN316
MEEN405	Thermal-Fluid Systems Lab	MEEN317
MEEN476	Propulsion	MEEN318
MEEN477	Aerodynamics and Propulsion Laboratory	MEEN319
MEEN474	Mechanical Engineering Design	MEEN321
MEEN440	System Dynamics	MEEN324
MEEN442	Applied Thermodynamics	MEEN341
MEEN462	Heat Transfer	MEEN343
MEEN460	Modern Engineering Materials	MEEN361
MEEN446	Manufacturing Processes	MEEN363
MEEN501	General Engineering Topics Review	MEEN401
MEEN504	Mechanical Engineering Topics Review	MEEN404
MEEN475	Computer-Aided Design of Machine Elements	MEEN421
MEEN445	Vibrations and Controls	MEEN424
MEEN407	Mechanical Systems Laboratory	MEEN425
MEEN513	Composite Materials	MEEN431
MEEN530	Fundamentals of Nanoscience and Engineering	MEEN432
MEEN545	Aluminum-Based Product Design and Manufacturing	MEEN433
MEEN546	Advanced Manufacturing Processes	MEEN434
MEEN547	Computer Integrated Mechanism Design	MEEN435
MEEN551	Aero Vehicle Structures	MEEN451
MEEN571	Turbomachinery	MEEN452
MEEN578	Flight Vehicle Performance	MEEN453
MEEN557	Design of Thermal Systems	MEEN461
MEEN567	HVAC	MEEN463
MEEN570	Internal Combustion Engines	MEEN464
MEEN563	Energy Conversion Systems Design	MEEN465
MEEN520	Fundamentals of Nuclear Energy	MEEN466
MEEN573	Mechanical Engineering Senior Project I	MEEN480
MEEN574	Mechanical Engineering Senior Project II	MEEN481
MEEN580	Aerospace Senior Project	MEEN482
MEEN596	Independent Study	MEEN490
MEEN572	Mechanical Engineering Seminar	MEEN492
MEEN544	Special Undergraduate Project	MEEN496

Appendix 7: Mechanical Engineering Curriculum – 2014

Fall Semester – Year 1		Spring Semester – Year 1	
ENGL 100 Written Communication I	3	ENGL 101 Written Communication II	3
CHEM 106 General Chemistry VI	3	PHYS 241 General Physics I	3
CHEM 116 General Chemistry VI Lab	1	PHYS 251 General Physics I Lab	1
MATH 131 Calculus I	4	MATH 132 Calculus II	4
GEEN 100 Engineering Design and Ethics	2	[5] Global Awareness Elective	3
[1] GEEN 111 Engineering Colloquium	1	[1] MEEN 121 ME Colloquium	1
MEEN 104 Engineering Graphics	2		
Total Credit Hours:	16	Total Credit Hours:	15
Fall Semester – Year 2		Spring Semester – Year 2	
MATH 231 Calculus III	4	[6] African American Studies Elective	3
MEEN 202 ME Sophomore Project	1	PHYS 242 General Physics II	3
MEEN 210 Numerical Methods Using MATLAB	3	PHYS 252 General Physics II Lab	1
MEEN 335 Mechanics I: Statics	3	MEEN 305 Mechanics and Materials Lab	1
MEEN 360 Fundamentals of Materials Science	3	MEEN 336 Strength of Materials	3
		MEEN 337 Mechanics II: Dynamics	3
		MEEN 241 Fundamentals of Thermodynamics	3
Total Credit Hours:	14	Total Credit Hours:	17
Fall Semester – Year 3		Spring Semester – Year 3	
INEN 260 Engineering Economy	2	ECEN 340 Electrical Circuit Analysis	3
MATH 431 Introduction to Differential Equations	3	MEEN 405 Thermal-Fluid Systems Lab	1
INEN 370 Engineering Statistics	3	MEEN 440 System Dynamics	3
MEEN 416 Fluid Mechanics	3	MEEN 442 Applied Thermodynamics	3
MEEN 446 Manufacturing Processes	3	MEEN 462 Heat Transfer	3
MEEN 460 Modern Eng. Materials	3	MEEN 474 Engineering Design	3
Total Credit Hours:	17	Total Credit Hours:	16
Fall Semester – Year 4		Spring Semester – Year 4	
[7] SBS/HFA Electives	3	[7] SBS/HFA Electives	3
MEEN 445 Vibrations and Control	3	MEEN 407 Mechanical Systems Lab	1
MEEN 475 Computer Aided Design of Machine Elements	3	[2,4] MEEN 504/572 ME Topics Review/Senior Seminar	1
[3] MEEN 501 General Engineering Topics Review	1	[4] MEEN 574 Mechanical Engr. Senior Project II	3
[3] MEEN 573 Mechanical Engr. Senior Project I	3	Math/Science Elective	3
MEEN 5XX Technical Elective	3	MEEN 5xx Technical Elective	3
Total Credit Hours:	16	Total Credit Hours:	14

(Total credit hours: 125)

- [1] Transfer students with 16 hours of transfer credits will be exempted from GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.
- [2] Students preparing to take the FE Exam will take MEEN 504 instead of MEEN 572
- [3] These courses are offered in the FALL SEMESTERS ONLY
- [4] These courses are offered in the SPRING SEMESTERS ONLY
- [5] Global Awareness Elective: (Social Sciences) = HIST 130, 207, 216, 231 (Humanities) = PHIL 265, PHIL 315
- [6] African American Studies List: (Social Sciences) = HIST 201, 202, 203 (Humanities) = ENGL 333, 334, LIBS 202, MUSI 220
- [7] Check the university approved lists General Education/Social Behavioral Sciences (SBS) or Humanities and Fine Arts (HFA).
http://www.ncat.edu/provost/general_education_resources/general_education_course_list/index.html

Appendix 8: Mechanical Engineering Curriculum/ Aerospace Option – 2014

Fall Semester – Year 1		Spring Semester – Year 1	
ENGL 100 Written Communication I	3	ENGL 101 Written Communication II	3
CHEM 106 General Chemistry VI	3	PHYS 241 General Physics I	3
CHEM 116 General Chemistry VI Lab	1	PHYS 251 General Physics I Lab	1
MATH 131 Calculus I	4	MATH 132 Calculus II	4
GEEN 100 Engineering Design and Ethics	2	[5] Global Awareness Elective	3
[1] GEEN 111 Engineering Colloquium	1	[1] MEEN 121 ME Colloquium	1
MEEN 104 Engineering Graphics	2		
Total Credit Hours:	16	Total Credit Hours:	15
Fall Semester – Year 2		Spring Semester – Year 2	
MATH 231 Calculus III	4	[6] African American Studies Elective	3
MEEN 202 ME Sophomore Project	1	PHYS 242 General Physics II	3
MEEN 210 Numerical Methods Using MATLAB	3	PHYS 252 General Physics II Lab	1
MEEN 335 Mechanics I: Statics	3	MEEN 305 Mechanics and Materials Lab	1
MEEN 360 Fundamentals of Materials Science	3	MEEN 336 Strength of Materials	3
		MEEN 337 Mechanics II: Dynamics	3
		MEEN 241 Fundamentals of Thermodynamics	3
Total Credit Hours:	14	Total Credit Hours:	17
Fall Semester – Year 3		Spring Semester – Year 3	
INEN 260 Engineering Economy	2	ECEN 340 Electrical Circuit Analysis	3
MATH 431 Introduction to Differential Equations	3	MEEN 477 Aerodynamics and Propulsion Lab	1
INEN 370 Engineering Statistics	3	MEEN 440 System Dynamics	3
MEEN 415 Aerodynamics	3	MEEN 462 Heat Transfer	3
MEEN 446 Manufacturing Processes	3	MEEN 476 Propulsion	3
MEEN 460 Modern Eng. Materials	3	MEEN 474 Engineering Design	3
Total Credit Hours:	17	Total Credit Hours:	16
Fall Semester – Year 4		Spring Semester – Year 4	
[7] SBS/HFA Electives	3	[7] SBS/HFA Electives	3
MEEN 445 Vibrations and Control	3	MEEN 407 Mechanical Systems Lab	1
MEEN 475 Computer Aided Design of Machine Elements	3	[2,4] MEEN 504/572ME Topics Review/Senior Seminar	1
[3] MEEN 501 General Engineering Topics Review	1	[4] MEEN 580 Aerospace Senior Project	3
[3] MEEN 573 Mechanical Engr. Senior Project I	3	Math/Science Elective	3
MEEN 5XX Technical Elective	3	MEEN 5xx Technical Elective	3
Total Credit Hours:	16	Total Credit Hours:	14

(Total credit hours: 125)

[1] Transfer students with 16 hours of transfer credits will be exempted GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.

[2] Students preparing to take the FE Exam will take MEEN 504 instead of MEEN 572

[3] These courses are offered in the FALL SEMESTERS ONLY

[4] These courses are offered in the SPRING SEMESTERS ONLY

[5] Global Awareness Elective: (Social Sciences) = HIST 130, 207, 216, 231 (Humanities) = PHIL 265, PHIL 315

[6] African American Studies List: (Social Sciences) = HIST 201, 202, 203 (Humanities) = ENGL 333,334, LIBS 202, MUSI 220

[7] Check the university approved lists General Education/Social Behavioral Sciences (SBS) or Humanities and Fine Arts (HFA).

http://www.ncat.edu/provost/general_education_resources/general_education_course_list/index.html

Appendix 9: Curriculum Changes in 2014

- One MEEN Technical Elective (MEEN 5xx) is dropped.
- One MATH/SCIENCE Elective (MATH 432, MATH 450, CHEM107&117, BIOL 100, PHYS 290, PHYS 405) is added.
- The total number of credit hours required remains at 125.

Appendix 10: Mechanical Engineering Curriculum – 2012 and 2013

Fall Semester – Year 1			Spring Semester – Year 1		
	ENGL 100 Written Communication I	3		ENGL 101 Written Communication II	3
	CHEM 106 General Chemistry VI	3		PHYS 241 General Physics I	3
	CHEM 116 General Chemistry VI Lab	1		PHYS 251 General Physics I Lab	1
	MATH 131 Calculus I	4		MATH 132 Calculus II	4
	GEEN 100 Engineering Design and Ethics	2	[6]	Social Sciences Elective	3
[1,2]	GEEN 111 Engineering Colloquium	1	[2]	MEEN 121 Mechanical Engineering Colloquium	1
	MEEN 104 Engineering Graphics	2			
	Total Credit Hours:	16		Total Credit Hours:	15
Fall Semester – Year 2			Spring Semester – Year 2		
	MATH 231 Calculus III	4	[6]	Humanities Elective	3
	MEEN 202 ME Sophomore Project	1		PHYS 242 General Physics II	3
	MEEN 210 Numerical Methods Using MATLAB	3		PHYS 252 General Physics II Lab	1
	MEEN 335 Mechanics I: Statics	3		MEEN 305 Mechanics and Materials Lab	1
	MEEN 360 Fundamentals of Materials Science	3		MEEN 336 Strength of Materials	3
				MEEN 337 Mechanics II: Dynamics	3
				<i>MEEN 241 Fundamentals of Thermodynamics</i>	3
	Total Credit Hours:	14		Total Credit Hours:	17
Fall Semester – Year 3			Spring Semester – Year 3		
	INEN 360 Engineering Economics	2		ECEN 340 Electrical Circuit Analysis	3
	MATH 431 Introduction to Differential Equations	3		<i>MEEN 405 Thermal-Fluid Systems Lab</i>	1
	INEN 370 Engineering Statistics	3		MEEN 440 System Dynamics	3
	MEEN 416 Fluid Mechanics	3		<i>MEEN 442 Applied Thermodynamics</i>	3
	<i>MEEN 446 Manufacturing Processes</i>	3		<i>MEEN 462 Heat Transfer</i>	3
	MEEN 460 Modern Eng. Materials	3		MEEN 474 Engineering Design	3
	Total Credit Hours:	17		Total Credit Hours:	16
Fall Semester – Year 4			Spring Semester – Year 4		
[6]	Social Sciences Elective	3	[6]	Humanities Elective	3
	MEEN 445 Vibrations and Control	3		MEEN 407 Mechanical Systems Lab	1
	MEEN 475 Computer Aided Design of Machines	3	[3,5]	MEEN 504/572ME Topics Review/Senior Seminar	1
[4]	MEEN 501 General Engineering Topics Review	1	[5]	MEEN 574 Mechanical Engr. Senior Project II	3
[4]	MEEN 573 Mechanical Engr. Senior Project I	3		MEEN 5xx Technical Elective	3
	MEEN 5XX Technical Elective	3		MEEN 5xx Technical Elective	3
	Total Credit Hours:	16		Total Credit Hours:	14

(Total credit hours: 125)

[1] MEEN students should take Section 5 of the colloquium GEEN 111

[2] Transfer students with 16 hours of transfer credits will be exempted GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.

[3] Student preparing to take the FE Exam will take MEEN 504 instead of MEEN 572

[4] These courses are offered in the FALL SEMESTERS ONLY

[5] These courses are offered in the SPRING SEMESTERS ONLY

[6] Of the 12 total hours in Social/Behavioral Sciences and Humanities/Fine Arts, at least 3 hours of African-American Studies and 3 hours of Global Studies courses are required.

Appendix 11: Mechanical Engineering Curriculum/ Aerospace Option – 2012 and 2013

Fall Semester – Year 1			Spring Semester – Year 1		
	ENGL 100 Written Communication I	3		ENGL 101 Written Communication II	3
	CHEM 106 General Chemistry VI	3		PHYS 241 General Physics I	3
	CHEM 116 General Chemistry VI Lab	1		PHYS 251 General Physics I Lab	1
	MATH 131 Calculus I	4		MATH 132 Calculus II	4
	GEEN 100 Engineering Design and Ethics	2	[6]	Social Sciences Elective	3
[1,2]	GEEN 111 Engineering Colloquium	1	[2]	MEEN 121 Mechanical Engineering Colloquium	1
	MEEN 104 Engineering Graphics	2			
	Total Credit Hours:	16		Total Credit Hours:	15
Fall Semester – Year 2			Spring Semester – Year 2		
	MATH 231 Calculus III	4	[6]	Humanities Elective	3
	MEEN 202 ME Sophomore Project	1		PHYS 242 General Physics II	3
	MEEN 210 Numerical Methods Using MATLAB	3		PHYS 252 General Physics II Lab	1
	MEEN 335 Mechanics I: Statics	3		MEEN 305 Mechanics and Materials Lab	1
	MEEN 360 Fundamentals of Materials Science	3		MEEN 336 Strength of Materials	3
				MEEN 337 Mechanics II: Dynamics	3
				MEEN 241 Fundamentals of Thermodynamics	3
	Total Credit Hours:	14		Total Credit Hours:	17
Fall Semester – Year 3			Spring Semester – Year 3		
	INEN 360 Engineering Economics	2		ECEN 340 Electrical Circuit Analysis	3
	MATH 431 Introduction to Differential Equations	3		MEEN 477 Aerodynamics and Propulsion Lab	1
	INEN 370 Engineering Statistics	3		MEEN 440 System Dynamics	3
	MEEN 415 Aerodynamics	3		MEEN 462 Heat Transfer	3
	MEEN 446 Manufacturing Processes	3		MEEN 476 Propulsion	3
	MEEN 460 Modern Eng. Materials	3		MEEN 474 Engineering Design	3
	Total Credit Hours:	17		Total Credit Hours:	16
Fall Semester – Year 4			Spring Semester – Year 4		
[6]	Social Sciences Elective	3	[6]	Humanities Elective	3
	MEEN 445 Vibrations and Control	3		MEEN 407 Mechanical Systems Lab	1
	MEEN 475 Computer Aided Design of Machines	3	[3,5]	MEEN 504/572ME Topics Review/Senior Seminar	1
[4]	MEEN 501 General Engineering Topics Review	1	[5]	MEEN 580 Aerospace Senior Project	3
[4]	MEEN 573 Mechanical Engr. Senior Project I	3		MEEN 5xx Technical Elective	3
	MEEN 5XX Technical Elective	3		MEEN 5xx Technical Elective	3
	Total Credit Hours:	16		Total Credit Hours:	14

(Total credit hours: 125)

- [1] MEEN students should take Section 5 of the colloquium GEEN 111
- [2] Transfer students with 16 hours of transfer credits will be exempted GEEN 111 and those with 32 hours of transfer credits will be exempted from both GEEN 111 and MEEN 121.
- [3] Student preparing to take the FE Exam will take MEEN 504 instead of MEEN 572
- [4] These courses are offered in the FALL SEMESTERS ONLY
- [5] These courses are offered in the SPRING SEMESTERS ONLY
- [6] Of the 12 total hours in Social/Behavioral Sciences and Humanities/Fine Arts, at least 3 hours of African-American Studies and 3 hours of Global Studies courses are required.

Faculty Profile

Daniel Acree	Instructor/Lab & Projects Coordinator
B.S. and M.S., North Carolina A&T State University	
Paul Akangah	Teaching Assistant Professor
B.S., Kwame Nkrumah University of Science & Technology, Kumasi, Ghana; M.S., Royal Institute of Technology, Stockholm, Sweden; Ph.D., North Carolina A&T State University	
Michael D. Atkinson	Assistant Professor
B.S. and M.S., North Carolina A&T State University; Ph.D., University of Dayton	
David Carmon	Adjunct Associate Professor
B.S., North Carolina A&T State University; M.S., Rutgers University; Ph.D., North Carolina A&T State University	
	Professional Engineer
Adrian Cuc	Adjunct Assistant Professor
B.S., “Politehnica” University of Timisoara, Romania; M.S., University of South Carolina; Ph.D., University of South Carolina.	
DeRome O. Dunn	Associate Professor and Undergraduate Program Coordinator
B.S. and M.S., North Carolina A&T State University; Ph.D., Virginia Polytechnic Institute and State University	
Mookesh Dhanasar	Teaching Assistant Professor
B.S., Livingstone College; M.S. and Ph.D., North Carolina A&T State University	
Frederick Ferguson	Professor and Chair
M.S., Kharkov State University; Ph.D., University of Maryland	
Saeil Jeon	Adjunct Assistant Professor
B.S., Korea Aviation University; M.S., Seoul National University; Ph.D., Texas A&M University	
John Kizito	Professor and Graduate Program Coordinator
B.S., Makerere University; M.S., Ph.D., Case Western Reserve University	
Dhananjay Kumar	Professor
B.S., Bhagalpur University; M.S., Magadh University, Ph.D., Indian Institute of Technology	
Theophilus Okore-Hanson	Adjunct Professor
B.S., Kwame Nkrumah University of Science and Technology; M.S., University of Applied Sciences, Hoechstshuele Offenburg, Germany; Ph.D., North Carolina A & T State University	
Daniel Richards	Adjunct Professor
B.S. and M.S., Mississippi State University; Ph.D., North Carolina State University	
Jagannathan Sankar	University Distinguished Professor and Director, NSF Engineering Research Center
B.E., University of Madras; M.E., Concordia University, Ph.D., Lehigh University	
J. David Schall	Assistant Professor and Director for Assessment
B.S., M.S., and Ph.D. North Carolina State University	
Kunigal N. Shivakumar	Research Professor
B.E., Bangalore University; M.E., Ph.D., Indian Institute of Science	
Mannur Sundaresan	Professor
B.E , M.E., Bangalore University, Bangalore, India, Ph.D., Virginia Polytechnic Institute & State University	
Sun Yi	Associate Professor
B.S., Seoul National University; M.S. and Ph.D., University of Michigan-Ann Arbor	

Faculty and Staff Directory

<u>Faculty</u>	<u>Office</u>	<u>Phone</u>	<u>email</u>
Acree	602 McNair	285-3738	dacree@ncat.edu
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<u>Staff</u>	<u>Office</u>	<u>Phone</u>	<u>email</u>
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Wolicki	112 Office Cherry	285-4665	tkwolicki@ncat.edu
TBD	618 McNair	285-3745	
TBD	615-D McNair	285-4618	

Exhibits of Select Forms

Permission Form To Take Courses At Another Institution



**NORTH CAROLINA
AGRICULTURAL AND TECHNICAL
STATE UNIVERSITY**

www.ncatedu

A LAND-GRANT UNIVERSITY and A CONSTITUENT INSTITUTION of THE UNIVERSITY of NORTH CAROLINA

Permission Form To Take Courses At Another Institution

This form must be completed with all the required signatures and submitted to the Office of Transfer Articulation before a student enrolls in courses at another institution. The University will not accept credits earned at another institution while a student is: (1) on academic probation (*unless approved by the Department Chairperson and School/College Dean*); (2) under academic or social suspension; or (3) concurrently registered at North Carolina A&T State University. No transfer credit(s) will be awarded for a course in which a grade below 'C' was earned.

Name _____ Banner ID Number _____

Street Address _____

City _____ State _____ Zip _____

The above-mentioned student has been granted permission to take course(s) at:

Name and Address of College/University _____

For Fall _____ Spring _____ Summer _____ 20 _____

Subject Code & Number	Course Title	Hours	A&T Subject Code & Number	A&T Course Title	Hours	Initials of the Dept. Chair for the course
BIO 110	Prin of Biology	4	BIOL 100	Biological Science	4	CAF

Approved by: _____
Chairperson _____ Department _____ Date _____

Endorsed by: _____
School Dean _____ Date _____

Make three (3) copies of this form and distribute as follows: School/College Dean, Departmental Office, and keep one copy for your records. Submit the original form to the Office of Transfer Articulation. Please have your official transcript sent to the Office of Transfer Articulation.

Division of Enrollment Management
Office of Transfer Articulation

Dowdy Administration Building

1601 East Market Street
Greensboro, NC 27411

Office 336.285.4149
Fax 336.334.7136

Add/Drop Form & Withdraw from an Individual Course

NORTH CAROLINA A&T STATE UNIVERSITY

CHANGE OF SCHEDULE

Student ID Number	Student Name		
	Last	First	Middle Initial
Major	Semester		Date

Consortium student? Yes ☐ No ☐ is one of the courses listed below a consortium course? Yes ☐ No ☐

COURSE(S) ADDED

SUBJECT CODE	COURSE NO.	AUDIT	COURSE REFERENCE NO.	CREDIT HRS.

Total Semester Hours
BEFORE This Change ➡

Total Semester Hours
AFTER This Change ➡

COURSE(S) DROPPED

SUBJECT CODE	COURSE NO.	COURSE REFERENCE NO.	CREDIT HRS.

For Registrar Office Use Only

STUDENT'S SIGNATURE	ADVISOR'S SIGNATURE
---------------------	---------------------

Initials

Date Processed

Rev. Date 5/2007

REGISTRAR'S COPY

Change of Major Form
NORTH CAROLINA AGRICULTURAL AND TECHNICAL
STATE UNIVERSITY

OFFICE OF THE REGISTRAR

CHANGE OF MAJOR FORM

Full Name :
Last First M.I.

Student's I.D. Number: Classification:

New Major: New Major Code:

New Concentration (if applicable): New Conc. Code:

New Advisor's Name:

New Chairperson's Signature: _____ Date: _____

New Dean's Signature: _____ Date: _____

Former Major: Former Major Code:

Former Concentration (if applicable): Former Conc. Code:

Former Advisor's Name:

Former Chairperson's Signature: _____ Date: _____

Former Dean's Signature: _____ Date: _____

Director, Center For Academic Excellence (For undeclared students)

NOTE: This form will not be processed without the necessary signatures.

Student's Signature: _____ Date: _____

FOR REGISTRAR'S OFFICE USE ONLY

Date request received: _____ Date processed: _____

Request processed by: _____

Declaration of a Minor Form

NORTH CAROLINA A&T STATE UNIVERSITY

Office Of The Registrar

1601 East Market Street

Greensboro, NC 27411

OFFICE (336) 334-7595

FAX (336) 256-2715



REQUEST FOR

DECLARATION OF A MINOR

Banner ID# _____

Presently Enrolled? ☐ YES ☐ NO

First Name _____ Middle Name _____ Last Name _____

First Enrollment Term _____

Home Phone _____ Cell Phone _____

Last Enrollment Term _____

Student's Signature: _____

Date: _____

Major Code _____

Major Name _____

Minor Code _____

Minor Name _____

Required Approval Signatures for Minor:

Dept. Chairperson of Major: _____

Dean of Major: _____

Dept. Chairperson of Minor: _____

Dean of Minor: _____

~~processed~~

Requesting a Minor?

Mail completed request form to:
North Carolina A&T State University
Office of the Registrar
1601 E. Market St
Greensboro, NC 27411
or Fax completed request form to:
1-336-256-2715

Attention Students!

To declare a minor students must have completed at least 24 credit hours with a cumulative GPA of 2.0 or higher. This form is to be signed by the all officials indicated above and submitted to the Office of the Registrar.

FOR REGISTRAR'S OFFICE USE ONLY

Date Request Received: _____

Date Processed: _____

Request Processed By: _____

Revised 08/25/2011

Withdrawal from University & Retroactive Withdrawal Form

NORTH CAROLINA STATE UNIVERSITY Official Student Withdrawal Form

INSTRUCTIONS:

1. Complete Withdrawal Form and report to your Department Chair for an exit interview.
2. If receiving Financial Aid, you must report to 100 Dowdy Building for clearance. Your future eligibility for financial assistance may be affected by withdrawing. In addition, the Title IV Refund Policy may require return of funds to the appropriate federal program(s) and/or may require repayment of funds by the student.
3. Submit completed and signed form to the Registrar's Office, 107 Dowdy Building.

REGISTRAR'S OFFICE

Date received _____

Received by _____

Regular
Administrative
Retroactive
Withdrawal

IMPORTANT NOTES:

- ❖ If you live on campus, you must complete proper checkout procedures in your residence hall.
- ❖ If you have books or materials checked out from Bluford Library, you will be billed for FINES and/or FEES
- ❖ If you receive veteran benefits, you should be aware of the effects that withdrawing can have on your future certification for veteran educational benefits. Please contact Veteran & Disability Support Services Office located in 001 Murphy Hall,
- ❖ If you have an F-1 or J-1 Visa, you should be aware that withdrawing will affect your legal immigration status. Please contact International Students and Scholars located in 208 Murphy Hall.

Date _____

Student ID # _____

Name _____

E-mail _____

Home Address _____

Street or P.O. Box

City

State

Zip

Telephone #

Term:

Date of last class attended: _____

Classification:

Major: _____

Reason for Withdrawal (Select one)

NO REFUNDS WILL BE MADE AFTER
THE 5th WEEK OF CLASSES

Select One

It is my intent to withdraw from North Carolina A&T State University at this time. I understand that I am responsible for any fees, fines, or tuition due to the university.

Student Signature: _____

EXIT INTERVIEWS (REQUIRED SIGNATURES):

Dept. Chair's Signature and Date _____	I live on campus: If yes, cleared by _____
Dept. Dean's Signature and Date _____	I receive Financial Aid: If yes, cleared by _____
	I receive Scholarship Funds: If yes, cleared by _____

NOTICE OF READMISSION TO THE UNIVERSITY: Students who withdraw from the University in good standing may request a reinstatement by completing a Readmission Application and submitting it to the Office of the Registrar at least 30 days prior to the semester in which the student plans to register.



Override Request Form
NORTH CAROLINA A&T STATE UNIVERSITY
MECHANICAL ENGINEERING DEPARTMENT

Override Request Form

Permission to be placed in a course in the Mechanical Engineering Department requiring an override through Banner MUST have approval. This form must be completed with a required signature of the advisor or the chairman before a student can receive a course override.

Name

Banner ID#

Department

Major and Concentration

Classification

NCAT e-mail

Term of Request: Fall ☐ Spring ☐ Summer I ☐ Summer II ☐ , Year: _____

Course Subject & #	Course Title	Credit Hours	CRN	College Code	Department Code

☐ Course has reached capacity

☐ Course has prerequisites not required in my curriculum

☐ Currently enrolled in prerequisite

☐ System states prerequisite has not been met

☐ I have previously taken and passed the prerequisite

☐ I have previously taken the co-requisite

☐ Other _____

☐ My classification/standing prevents registration

DO NOT WRITE BELOW THIS LINE

Approved by: _____
 Advisor

Date

Approved by: _____
 Chairman

Date

"ONLY ONE SIGNATURE NEEDED"