



Baccalaureate Degree Plan

NCCCS Associate in Arts *or* Associate in Science
transfer to
East Carolina University, **BS ENGINEERING**

The BS, Engineering offers concentrations in

- Biomedical Engineering
- Bioprocess Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial and Systems Engineering
- Mechanical Engineering

As a transfer student, it is important to contact an ECU Academic Advisor, cetadvising@ecu.edu, as soon as possible.

*An example of how to plan the first 2 years of study is included at the end of this document.
It is highly unlikely students will complete the BS Engineering within 4 years unless completing through Reverse Transfer.*

Recommended courses to take at a North Carolina Community College:

BIO 110 or 111 or GEL 111	EGR 120	MAT 171
	EGR 150	MAT 172
CHM 151	EGR 220	MAT 271
	EGR 225	MAT 272
ENG 111		MAT 273
ENG 112	HEA 110	MAT 285

- Students in an AA or AS will likely run out of elective space before being able to complete all EGR and MAT courses. The Associate in Engineering is an option under ECU's Uniform Articulation Agreements, **or** students can complete those courses at ECU. Not all recommended courses must be complete before entering or applying to ECU.
- Other courses to complete an AA or AS are student's choice; no other current department recommendations. Other equivalent courses may be listed in the degree requirements.
- Completion of an approved NCCCS AA or AS waives the General Education requirement. For more information about the waiver, [click here](#).
- For more information about General Education Core Requirements at ECU, and a list of specific course options, click [here](#).
- You do not have to complete all NCCCS equivalents or recommended courses before transferring. However, taking minimal recommendations may prolong your time to degree at ECU.

Degree Requirements

General Education Core Requirements

40 semester hours credit required; completion of an AA or AS waives this requirement.

Competency	Semester Hour Credits Required	Notes
Written Communication	6	<i>ENG 111 and ENG 112 should be taken at the community college to satisfy this competency.</i>
Humanities & Fine Arts	9	<i>At least one class should be labeled as Humanities (HU) and one should be labeled as Fine Arts (FA).</i>
Social Sciences	9	<i>NCCCS HIS courses are not considered a social science at ECU.</i>
Natural Sciences	7	<i>One course must include a lab.</i>
Mathematics	3	<i>Choose MAT 171.</i>
Health Promotion and Health-Related Physical Activity	3	<i>HEA 110 should be taken at the community college to satisfy this competency.</i>

Specific General Education Requirements	<p>As part of the required 40 hours, please include the following courses:</p> <p style="padding-left: 20px;">BIOL 1050 - General Biology BIOL 1051 - General Biology Laboratory</p> <p style="text-align: center;">or</p> <p style="padding-left: 20px;">BIOL 1100 - Principles of Biology I BIOL 1101 - Principles of Biology Laboratory I</p> <p style="padding-left: 20px;">CHEM 1150 - General Chemistry I</p> <p style="padding-left: 20px;"><i>The following two courses may be taken by students in the electrical engineering, environmental engineering, industrial and systems engineering, and mechanical engineering concentrations instead of BIOL 1050, BIOL 1051 or BIOL 1100, BIOL 1101:</i></p> <p style="padding-left: 20px;">GEOL 1500 - Dynamic Earth GEOL 1501 - Dynamic Earth Laboratory</p>	<p style="text-align: right;"><i>NCCCS Equivalents</i></p> <p style="text-align: right; padding-right: 20px;"><i>BIO 110</i></p> <p style="text-align: right; padding-right: 20px;"><i>BIO 111</i></p> <p style="text-align: right; padding-right: 20px;"><i>CHM 151</i></p> <p style="text-align: right; padding-right: 20px;"><i>GEL 111</i></p>
Note:	<ul style="list-style-type: none"> • <i>When selecting general education courses, it is important to check first with your advisor to get a list of mathematics and science courses that cannot count toward the engineering degree due to accrediting agency restrictions.</i> • <i>See notes in Section 3 regarding cognate courses that count toward the general education requirement.</i> 	

Engineering Foundation	<p>Complete 44 hours.</p> <p style="padding-left: 20px;">ENGR 1000 - Introduction to Engineering ENGR 1012 - Engineering Graphics ENGR 1016 - Introduction to Engineering Design ENGR 2000 - Engineering Design and Project Management I ENGR 2001 - Linear Algebra Laboratory ENGR 2022 - Statics ENGR 2050 - Computer Applications in Engineering ENGR 2070 - Materials and Processes</p>	<p style="text-align: right;"><i>NCCCS Equivalents</i></p> <p style="text-align: right; padding-right: 20px;"><i>EGR 150</i> <i>EGR 120</i></p> <p style="text-align: right; padding-right: 20px;"><i>EGR 220</i></p>
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	ENGR 2450 - Dynamics ENGR 2514 - Circuit Analysis ENGR 3000 - Engineering Design and Project Management II ENGR 3024 - Mechanics of Materials ENGR 3034 - Thermal and Fluid Systems ENGR 3050 - Sensors, Measurements, and Controls ENGR 3420 - Engineering Economics ENGR 3800 - Quality Control for Engineers ENGR 4010 - Senior Capstone Design Project I ENGR 4020 - Senior Capstone Design Project II	<i>EGR 225</i>
Cognates	Complete 19-21 hours. CHEM 1151 - General Chemistry Laboratory I MATH 2152 - Engineering Calculus II or MATH 2172 - Calculus II MATH 2153 - Engineering Calculus III or MATH 2173 - Calculus III MATH 2171 - Calculus I MATH 3307 - Mathematical Statistics I MATH 3331 - Introduction to Ordinary Differential Equations PHYS 2350 - University Physics I PHYS 2360 - University Physics II	<i>NCCCS Equivalents</i> <i>CHM 151</i> <i>MAT 272</i> <i>MAT 273</i> <i>MAT 271</i> <i>MAT 285</i> <i>PHY 251</i> <i>PHY 252</i>
Note:	<i>Three semester hours (3 s.h.) of MATH 2171 will count toward the mathematics general education requirement.</i> <i>Three semester hours (3 s.h.) of PHYS 2350 will count as the general education elective for this degree.</i>	
Concentrations	Complete 22 hours by choosing one from <ul style="list-style-type: none"> • <i>Biomedical Engineering</i> • <i>Bioprocess Engineering</i> • <i>Electrical Engineering</i> • <i>Environmental Engineering</i> • <i>Industrial and Systems Engineering</i> • <i>Mechanical Engineering</i> 	<i>NCCCS Equivalents</i>
Biomedical Engineering	BIME 2080 - Foundations of Biomedical Engineering BIME 4030 - Biomechanics BIME 4040 - Physiological Systems and Modeling for Engineering I BIME 4050 - Physiological Systems and Modeling for Engineering II BIME 4200 - Biomedical Instrumentation Technical electives, 6 s.h. as approved by the academic advisor.	
Bioprocess Engineering	BIOE 3013 - Engineering Applications in Microbial Systems BIOE 3250 - Bioprocess Engineering Systems BIOE 4006 - Bioprocess Engineering Validation and Quality BIOE 4010 - Bioprocess Separation Engineering BIOE 4020 - Bioprocess Plant Design, Simulation and Analysis CHEM 1160 - General Chemistry II CHEM 1161 - General Chemistry Laboratory II CHEM 2750 - Organic Chemistry I CHEM 2753 - Organic Chemistry Laboratory I	<i>CHM 152</i> <i>CHM 251</i>
Electrical Engineering	EENG 2410 - Digital Electronics EENG 3013 - AC Circuits EENG 3023 - Signals and Systems EENG 3040 - Microprocessors	

	EENG 3750 - Electric Power Systems EENG 4510 - Control System Design Technical electives, 3 s.h. as approved by the academic advisor.	
Environmental Engineering	CHEM 1160 - General Chemistry II CHEM 1161 - General Chemistry Laboratory II ENVE 3103 - Water Quality ENVE 3203 - Water and Wastewater Treatment ENVE 3303 - Air Quality Engineering ENVE 4103 - Engineering Surface Water Hydrology ENVE 4203 - Engineering Groundwater Hydrology Technical electives, 3 s.h.as approved by the academic advisor.	<i>CHM 152</i>
Industrial and Systems Engineering	ISE 3010 - Principles and Methods of Industrial and Systems Engineering ISE 3060 - Systems Optimization ISE 4010 - Work Measurement and Human Factors ISE 4020 - Analysis of Production Systems and Facility Design ISE 4065 - Discrete Systems Modeling Technical electives, 7 s.h. as approved by the academic advisor.	
Mechanical Engineering	MENG 3624 - Solid Mechanics MENG 4153 - Engineering Fluid Mechanics MENG 4263 - Engineering Heat Transfer MENG 4650 - Machine Design Technical electives, 7 s.h. as approved by the academic advisor.	

Potential 2 Year Map for BS ENGINEERING

An example of courses to take at your community college.

First Semester at NCCCS Institution

NCCCS Course	ECU Transfer Equivalent
ENG 111	ENGL 1100
EGR 150	ENGR 1000
MAT 171	MATH 1065
HEA 110	HLTH 1000/KINE 1000
ACA 122	COAD 1XXX (elective credit)

Second Semester at NCCCS Institution

NCCCS Course	ECU Transfer Equivalent
Humanities/Fine Arts Course	
MAT 172	MATH 1083
EGR 120	ENGR 1012
CHM 151	CHEM 1150, 1151
Social Behavioral Science course	

Third Semester at a NCCCS Institution

NCCCS Course	ECU Transfer Equivalent
ENG 112	ENGL 2201
MAT 271	MATH 2171
EGR 220	ENGR 2022
BIO 110 or 111 or GEL 111	BIOL 1050, 1051 or 1150, 1151 or GEOL 1500, 1501
Humanities/Fine Arts course	

Fourth Semester at a NCCCS Institution

NCCCS Course	ECU Transfer Equivalent
MAT 272	MATH 2172
EGR 225	ENGR 2450
Humanities/Fine Arts course or CHM 152	CHEM 1600,1601
Social Behavioral Science course	
Social Behavioral Science course or MAT 273	MATH 2173

- Schedule at ECU will depend on courses completed at the community college and semester of entry (fall or spring).
- You should email cetadvising@ecu.edu as soon as possible for more specialized advising.
- This schedule is dependent on taking full-time course loads; however, it may not be realistic to take a full-time course load if you are working full-time or part-time, are a caregiver, or have other obligations.
Ask your advisor how you can be most successful.