

Courses Recommended for Pre-engineering Program

Clemson Courses

Winthrop Equivalent

General Chemistry with lab
CHEM 101-102 (8 hrs)

General Chemistry with lab
CHEM 105-106, 107-108 (8 hrs)

Organic Chemistry¹
BE -CHEM 201; ChE -CHEM 223,
224,229 (0-7 hrs)

Organic Chemistry¹
CHEM 301-302, CHEM 203-304 (0-8 hrs)

Mathematics-Calculus, Differential
Equations, and Statistics²
MthSc 106, 108,206,208,202² (19 hrs)

Mathematics-Calculus, Differential
Equations, Linear Algebra and Statistics²
MATH 201,202,302,305,300,541² (21 hrs)

Physics (Calculus based)
PHYS 122,221(6 hrs)

Physics with calculus- lecture and lab
PHYS 211-211L, PHYS 212-212L (8 hrs)

English Composition
ENGL 101-102 (6 hrs)

English Composition
WRIT 101-102 (6 hrs)

Advanced Communications-
Technical Writing(ENGL 314)
and Public Speaking (Speech 250)³ (6 hrs)

Advanced Communications-
Technical Writing(WRIT 566)
and Public Speaking (SPCH 201)³ (6 hrs)

Social Science pair–two courses in
a single subject such as(Economics,
history, psychology, political science,
or sociology) (6 hrs)

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Humanity or Social Science Electives⁴
(6 hrs)

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Engineering Problem Solving and
Design(ENGR 120)⁵ (3 hrs)

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Introduction to Engineering
(ENGR. 101)⁵ (1 hr)

Introduction to Engineering (ENGR. 101)⁵
(Included in PHYS 211L and PHYS 212L) (2 hrs)

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1. Biological engineering (4cr hrs) and chemical engineering (7cr hrs) Only,
 2. Electrical engineering requires advanced calculus (e.g. vector calculus-MATH 503) instead of statistics (MATH 541)
 3. Some majors do not require both of these advanced communications courses. Consult the Clemson Catalog or Website (www.clemson.edu) for guidance.
 4. The Clemson Engineering Policy on Humanistic-Social Science Electives should be consulted for details on acceptable courses and depth requirements. Biological Engineering requires at least one economics course (e.g. ECON 201).
 5. A course in a technical programming language such as C++ (CSCI 207) may be substituted for an engineering problem solving course such as ENGR 120. A science lab such as PHYS 211L or PHYS 212L may be substitutes for ENGR 101. PHYS 211L and 212L that are integral parts of PHYS 211 and 212 can substitute for ENGR 101.

Engineering Courses Recommended to be taken Before Transfer to e.g., Clemson
Clemson is used as a standard. The student may select any other university he/she wants to transfer to after two or so years at Winthrop.

Intended Curriculum	Clemson Course Number (Visit www. Clemson.edu for course description)
Biological Engineering	EM 201, EM 202
Chemical Engineering	EM 201, Che 211
Ceramic and Materials Engineering	CME 221,CME225,CME 226
Civil Engineering	EM 201.CE 251
Electrical Engineering	ECE 201,ECE 202. CpSC 111
Industrial Engineering	EM 201, IE 201
Mechanical Engineering	EM 201, ME 202 or 203

Recommended Engineering courses that can be taken at Winthrop.

PHYS 331: Engineering Mechanics- Statics. This is equivalent to the Clemson course **EM 201**. EM 201 is required for all engineering programs except ceramic and materials engineering, computer engineering, and electrical engineering.

PHYS 315: Circuit analysis. This course is important for students interested in computer engineering and electrical engineering.

PHYS 321: Material Science. This course is important for students interested in ceramic and materials engineering

PHYS 345: Thermodynamics. Chemical engineering, mechanical engineering, ceramic and materials engineering, etc. require thermodynamics course that are tailored to their specific disciplines. Phys 351 will provide the foundation needed to pursue the specialized thermodynamics courses the engineering schools offer.

CSCI 110: Introduction to Computers and Programming is equivalent to the Clemson CpSC 111 recommended for electrical engineering.

CSCI 208: Introduction to computer science II is equivalent to the Clemson course CpSC 210 recommended for Computer engineering.