

# **Houston GPS Engineering Meta-Major Map**

## Map Guidelines

- Houston GPS maps include courses that apply to lower-level requirements in specified degrees across Houston GPS institutions without resulting in excess credit upon transfer. Courses are in the Lower-Division Academic course Guide Manual (ACGM) and course numbers provided are those in the Texas Common Course Numbering System.
- [Field of Study](#) Curricula approved by the Texas Higher Education Coordinating Board are incorporated into maps.
- The following [Texas Core Curriculum](#) requirements are incorporated into maps:

<b>Code</b>	<b>Component Area</b>	<b>SCH</b>
010	Communication	6
020	Mathematics	3
030	Life and Physical Science	6
040	Language, Philosophy and Culture	3
050	Creative Arts	3
060	American History	6
070	Government/Political Science	6
080	Social and Behavioral Sciences	3
090	Component Area Option	6
<b>Total</b>		<b>42</b>

Chemical Engineering

The Chemical Engineering Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
	AS, Chemical Engineering		AS, Engineering Science - Chemical Engineering - Specialization
<b>Lone Star College</b>	<b>San Jacinto College</b>	<b>Wharton County Junior College</b>	
AS, Chemical Engineering	ASE, Engineering	AS, Engineering	

<b>PVAMU</b>	<b>TSU</b>	<b>UH</b>
BSCHE, Chemical Engineering		BS, Chemical Engineering
<b>UH Clear Lake</b>	<b>UH Downtown</b>	<b>UH Victoria</b>

Courses in the following representative sequence apply to lower-level requirements in **Chemical Engineering** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
MATH 2413 Calculus I** (020)*	MATH 2414 Calculus II**
CHEM 1411 or 1311/1111 Chemistry I (030)*	CHEM 1412 or 1312/1112 Chemistry II** (030)**
ENGR 1201 Introduction to Engineering	PHYS 2425 or 2325/2125 University Physics I**
ENGL 1301 Composition I (010)*	ENGR 2304 Programming for Engineers
Any Remaining Core Requirement	Any Remaining Core Requirement
MATH 2415 Calculus III**	CHEM 2425 or 2325/2125 Organic Chemistry II**
PHYS 2426 or 2326/2126 University Physics II**	ENGR 2333 Elementary Chemical Engineering**
CHEM 2423 or 2323/2123 Organic Chemistry I**	Any Remaining Core Requirement
ENGL 1302 Composition II (010)*	Any Remaining Core Requirement

\* Core Curriculum

\*\* Chemical Engineering Field of Study (extended until August 31, 2027)

Notes Regarding Institutional Exceptions or Special Cases:

COM: Does not offer ENGR 2333 Elementary Chemical Engineering.

SJC: Does not offer ENGR 2333 Elementary Chemical Engineering.

Civil Engineering

The Civil Engineering Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
	AS, Engineering	AS, Civil Engineering	AS, Engineering Science - Civil Engineering- Specialization
<b>Lone Star College</b>	<b>San Jacinto College</b>	<b>Wharton County Junior College</b>	
AS, Civil Engineering	ASE, Engineering	AS, Engineering	

<b>PVAMU</b>	<b>TSU</b>	<b>UH</b>
BSCE, Civil Engineering	BS, Civil Engineering	BS, Civil Engineering
<b>UH Clear Lake</b>	<b>UH Downtown</b>	<b>UH Victoria</b>

Courses in the following representative sequence apply to lower-level requirements in **Civil Engineering** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
MATH 2413 Calculus I** (020)*	MATH 2414 Calculus II**
CHEM 1409 or 1309/1109 General Chemistry for Engineering Majors**	PHYS 2425 or 2325/2125 University Physics I** (030)*
ENGR 1201 Introduction to Engineering	ENGL 1302 Composition II (010)*
ENGL 1301 Composition I (010)*	ENGR 2304 Programming for Engineers
Any Remaining Core Requirement	
Year 2	
MATH 2415 Calculus III**	MATH 2320 Differential Equations**
PHYS 2426 or 2326/2126 University Physics II** (030)*	ENGR 2302 Engineering Mechanics – Dynamics**
ENGR 2301 Engineering Mechanics – Statics**	ENGR 2332 Mechanics of Materials**
ENGR 1304 Engineering Graphics I**	Any Remaining Core Requirement
Any Remaining Core Requirement	Elective

\* Core Curriculum

\*\* Civil Engineering Field of Study (extended until August 31, 2027)

Notes Regarding Institutional Exceptions or Special Cases:

**COM:** Students take CHEM 1411 Chemistry 1 in the first semester of year 1 in place of CHEM 1409. Does not offer ENGR 2332 – Mechanics of Materials.

**LSCS:** Students must take EDUC 1300 -1<sup>st</sup> Year Experience. First year – students have a choice between CHEM 1409 or 1411; ENGR 2332 is an elective.

**UH:** CHEM 1411 Chemistry I is taken in place of CHEM 1409 or 1309/1109 in the first semester of Year 1, CHEM 1412 is taken in the second semester of Year 1, and ENGR 1304 Engineering Graphics I is taken in the first semester of Year 2. Students take MATH 3321 in place of MATH 2320. Only one credit hour of ENGR 1201 Introduction to Engineering can be used towards the UH BSCE degree. In Year 2, students need to take Math 2318 Linear Algebra as the elective.

**PVAMU:** ENGR 2302 may substitute for CVEG 2101. ENGR 1304 does not transfer into program.

**SJC:** Does not offer ENGR 2332 Mechanics of Materials.

Electrical Engineering

The Electrical Engineering Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
		AS, Electrical Engineering	AS, Engineering Science - Electrical Engineering -Specialization
<b>Lone Star College</b>		<b>San Jacinto College</b>	<b>Wharton County Junior College</b>
AS, Electrical Engineering		ASE, Engineering	AA, Engineering

<b>PVAMU</b>	<b>TSU</b>	<b>UH</b>
BSEE, Electrical Engineering	BS, Electrical and Computer Engineering	BS, Electrical Engineering
BS, Computer Engineering		BS, Computer Engineering
<b>UH Clear Lake</b>	<b>UH Downtown</b>	<b>UH Victoria</b>

Courses in the following representative sequence apply to lower-level requirements in **Electrical Engineering** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
MATH 2413 Calculus I** (020)*	MATH 2414 Calculus II**
ENGR 1201 Introduction to Engineering	PHYS 2425 or 2325/2125 University Physics I**
ENGL 1301 Composition I (010)*	ENGR 2304 Programming for Engineers
Any Remaining Core Requirement	ENGL 1302 Composition II (010)*
Any Remaining Core Requirement	
Year 2	
MATH 2415 Calculus III**	MATH 2320 Differential Equations**
PHYS 2426 or 2326/2126 University Physics II**	ENGR 2405 or 2305/2105 Electrical Circuits I**
COSC 1420 or 1320 C Programming**	Any Remaining Core Requirement
Any Remaining Core Requirement	Any Remaining Core Requirement
Any Remaining Core Requirement	

\* Core Curriculum

\*\* Electrical Engineering Field of Study (extended until August 31, 2027)

Notes Regarding Institutional Exceptions or Special Cases:

**HCC:** Students take ENGR 2306 instead of COSC 1420.

**LSCS:** Students take ENGR 2406 – Introduction to Digital Systems

**UH:** ENGR 2306 is not transferrable. Students take CHEM 1411 Chemistry I in the first semester of Year 1 and ECE 2201 in place of ENGR 2405 or 2305/2105 Electrical Circuits I. COSC 1420 and 1320 not in the curriculum. Students take MATH 3321 in place of MATH 2320.

**PVAMU:** ENGR 2304 does not transfer into EE or CE; student should take core requirement. EE majors should take COSC 1320 or 1420 to satisfy ELEG 1304; CE majors should take COSC 1320 or 1420 to satisfy ELEG 1301. ENGR 2306/2406 should be taken to satisfy ELEG 2311/2131 Logic Circuits/Lab. ENGR 2304.

**SJC:** Students take ENGR 2301 Engineering Mechanics-Statics instead of COSC 1420 C Programming

Mechanical Engineering

The Mechanical Engineering Map for Houston GPS includes the following majors at participating institutions:

<b>Alvin Community College</b>	<b>College of the Mainland</b>	<b>Galveston College</b>	<b>Houston Community College</b>
AS, Engineering	AS, Engineering	AS, Mechanical Engineering	AS, Engineering Science - Mechanical Engineering- Specialization
<b>Lone Star College</b>		<b>San Jacinto College</b>	<b>Wharton County Junior College</b>
AS, Mechanical Engineering		ASE, Engineering	AA, Engineering

<b>PVAMU</b>	<b>TSU</b>	<b>UH</b>
BSME, Mechanical Engineering		BS, Mechanical Engineering
<b>UH Clear Lake</b>	<b>UH Downtown</b>	<b>UH Victoria</b>
BS, Mechanical Engineering		

Courses in the following representative sequence apply to lower-level requirements in **Mechanical Engineering** degrees across Houston GPS institutions without resulting in excess credit upon transfer. Course numbers provided are those in the Texas Common Course Numbering System.

Year 1	
ENGR 1201 Introduction to Engineering	MATH 2414 Calculus II**
MATH 2413 Calculus I** (020)*	PHYS 2425 or 2325/2125 University Physics I**
CHEM 1409 or 1309/1109 General Chemistry for Engineering Majors**	ENGR 2304 Programming for Engineers
ENGL 1301 Composition I (010)*	ENGL 1302 Composition II (010)*
Any Remaining Core Requirement	Any Remaining Core Requirement
Year 2	
PHYS 2426 or 2326/2126 University Physics II**	ENGR 2302 Engineering Mechanics - Dynamics**
MATH 2415 Calculus III**	ENGR 2305 Electrical Circuits**
ENGR 2301 Engineering Mechanics - Statics**	ENGR 2334 Chemical Engineering Thermodynamics I
ENGR 1204/1304 Engineering Graphics I	MATH 2320 Differential Equations
MATH 2318 Linear Algebra	Any Remaining Core Requirement

\* Core Curriculum

\*\* Mechanical Engineering Field of Study (extended until August 31, 2027)

Notes Regarding Institutional Exceptions or Special Cases:

**ACC:** MATH 2415 and 2318 are not required. Students may need to take 6 SCH at four-year institution.

**COM:** Students take CHEM 1411 Chemistry 1 in the first semester of year 1 in place of CHEM 1409. Does not offer ENGR 2334 Chemical Engineering Thermodynamics I.

**UH:** CHEM 1411 Chemistry I strongly preferred in place of CHEM 1409 or 1309/1109 in the first semester of Year 1 and CHEM 1412 is taken in the second semester of Year 1. ENGR 2305 is not in our curriculum but will make an exception if needed. Students take MATH 3321 in place of MATH 2320. PHYS 2126 and 2125 is not required.

**UHCL:** CHEM 1311/1111 strongly preferred in place of CHEM 1309/1109/1409. UHCL will not accept ENGR 2334; students take MENG 3334 in its place.

**PVAMU:** MATH 2415 and 2318 are not required, but may be used for 6 SCH of technical electives. ENGR 2334 may substitute for MCEG 2301.

**SJC:** Does not offer ENGR 2334 Chemical Engineering Thermodynamics I.