



## COE – MATERIAL SCIENCE PROGRAMS - CATALOG YEAR 2017 - 2018

### Find the Right Educational Degree Plan

There are two distinctly different ways to pursue your education at HCC. Each pattern has its own particular purpose, and its own advantages and disadvantages. Read the descriptions carefully to make an informed choice. You must choose one of the two following patterns: The *Academic Transfer* pattern of education **OR** The *Workforce Career* pattern of education. For more information, visit our [College and Career Planner Guide](#).

## MATERIAL SCIENCE

### CORROSION TECHNOLOGY

Corrosion Technology - AAS . . . . .	2-3
Atmospheric Corrosion - Certificate: Level I. . . . .	4
Cathodic Protection - Certificate: Level I. . . . .	5

### WELDING

Basic Welding Helper - Certificate: Level I. . . . .	6
Advanced Welding - Certificate: Level I . . . . .	7

**HOUSTON COMMUNITY COLLEGE SYSTEM  
EDUCATIONAL PLAN/TRANSFER SUBSTITUTION PETITION**

\_\_\_ FA \_\_\_ VA

NAME:	SID#:	TEL#:	EMAIL:	DATE:
COLLEGE:	COU/ADV:	TEL#:	EMAIL:	CAT YR: 8/15/17-8/14/18

**CORROSION TECHNOLOGY - ASSOCIATE OF APPLIED SCIENCE**

HCCS Course Requirement	cr	Transfer	Substitute	Substitute (SU)	Term	Credits	Grade	Approval	Date
TSI testing required prior to first enrollment.									
<b>FIRST YEAR</b>									
<b>FIRST SEMESTER</b>									
EDUC 1300 Learning Framework <sup>A</sup>	3								
METL 1313 Introduction to Corrosion	3								
ENGL 1301 Composition I	3								
ENTC 2331 Manufacturing Materials	3								
MATH 1314 College Algebra	3								
<b>SEMESTER TOTAL</b>	<b>15</b>								
<b>SECOND SEMESTER</b>									
XXXX #3## Natural Science Elective <sup>B</sup>	3								
METL 1301 Introduction to Metallurgy	3								
METL 2441 Cathodic Protection	4								
DFTG 1305 Technical Drafting	3								
<b>SEMESTER TOTAL</b>	<b>13</b>								
<b>SECOND YEAR</b>									
<b>FIRST SEMESTER</b>									
XXXX #3## Humanities/Fine Arts Elective <sup>C</sup>	3								
INMT 1311 Computer Integrated Manufacturing	3								
HYDR 1345 Hydraulics and Pneumatics	3								
NDTE 1405 Introduction to Ultrasonics	4								
ENTC 1347 Safety and Ergonomics <b>OR</b>									
OSHT 1301 Introduction to Safety and Health	3								
<b>SEMESTER TOTAL</b>	<b>16</b>								

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**CORROSION TECHNOLOGY - ASSOCIATE OF APPLIED SCIENCE**

HCCS Course Requirement	cr hr	Transfer Institution	Substitute Course	Substitute (SU) Transfer (TR)	Term	Credits	Grade	Approval Signature	Date
					Comment/Disapproval				
<i>(Continued from page 1)</i>									
<b>SECOND SEMESTER</b>									
INMT 1343 Computer Aided Design/Computer Aided Manufacturing (CAD-CAM)	3								
METL 2305 Atmospheric Corrosion Control #	3								
INMT 1317 Industrial Automation	3								
CETT 1409 DC-AC Circuits	4								
XXXX #3## Social/ Behavioral Sciences Elective D	3								
<b>SEMESTER TOTAL</b>	<b>16</b>								
<b>PROGRAM TOTAL</b>	<b>60</b>								
<b># CAPSTONE COURSE</b>									

- A. **Student Success Course:** Students are required to complete **EDUC 1300** within their first 12 semester credit hours of instruction. Students enrolling at HCC with 12 or more hours completed should consult with an academic advisor to select an appropriate course substitution.
- B. **Natural Science: *May choose from*** – ANTH 2301 (with or without 2101 = lab), 2302, ASTR 1303, 1304, 1403, 1404, BIOL 1308, 1309, 1322, 1406, 1407, (2301, 2302 – restricted to Engineering, Science, and Health Sciences majors), CHEM 1305, 1405, 1411, 1412, COSC 1436, GEOG 1301, GEOL 1305, 1345, 1347, 1403, 1404, MATH 1314, 1316, 1324, 1325, 1332, 1342, 1350, 2318, 2320, 2412, 2413, 2414, 2415, PHYS 1305, 1401, 1402, 2325 (with or without 2125= lab), 2326 (with or without 2126 = lab), PSYC 2317.
- C. **Humanities/Fine Arts: *May choose from*** – ARTS 1301, 1303, 1304, COMM 2366, DANC 2303, DRAM 1310, 2316, 2366, ENGL 2322, 2323, 2327, 2328, 2332, 2333, 2342, 2343, 2351, HIST 1301, 1302, 2311, 2312, 2321, 2322, 2301, 2327, 2328, 2381, HUMA 1301, 1305, 1311, 2319, 2323, MUSI 1306, 1310, PHIL 1301, 1304, 2306, 2307, 2316, World Languages (ARAB 1411, 1412, CHIN 1411, 1412, FREN 1411, 1412, GERM 1411, 1412, JAPN 1411, 1412, KORE 1411, 1412, SPAN 1411, 1412).
- D. **Social/Behavioral Sciences: *May choose from*** – ANTH 2346, 2351, ECON 1301, 2301, 2302, EDUC 1300, GEOG 1302, 1303, GOVT 2305, 2306, PSYC 2301, 2314, 2316, 2319, SOCI 1301, 1306, 2301, 2336, TECA 1354.

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**CORROSION TECHNOLOGY - ATMOSPHERIC CORROSION - CERTIFICATE: LEVEL I**

HCCS Course Requirement	cr hr	Transfer Institution	Substitute Course	Substitute (SU) Transfer (TR)	Term	Credits	Grade	Approval Signature	Date
					Comment/Disapproval				
<b>FIRST YEAR</b>									
<b>FIRST SEMESTER</b>									
METL 1313 Introduction to Corrosion	3								
OSHT 1301 Introduction to Safety and Health <i>OR</i>									
DFTG #3## Drafting Elective	3								
ITSC 1309 Integrated Software Applications I	3								
DFTG 1305 Technical Drafting	3								
<b>SEMESTER TOTAL</b>	<b>12</b>								
<b>SECOND SEMESTER</b>									
METL 2305 Atmospheric Corrosion Control #	3								
METL 1301 Introduction to Metallurgy	3								
NDTE 1405 Introduction to Ultrasonics	4								
<b>SEMESTER TOTAL</b>	<b>10</b>								
<b>PROGRAM TOTAL</b>	<b>22</b>								
<b># CAPSTONE COURSE</b>									

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**CORROSION TECHNOLOGY - CATHODIC PROTECTION - CERTIFICATE: LEVEL I**

HCCS Course Requirement	cr	Transfer	Substitute	Substitute (SU)	Term	Credits	Grade	Approval	Date
	hr	Institution	Course	Transfer (TR)	Comment/Disapproval			Signature	
<b>FIRST YEAR</b>									
<b>FIRST SEMESTER</b>									
METL 1313 Introduction to Corrosion	3								
DFTG 1305 Technical Drafting	3								
CETT 1409 DC - AC Circuits <i>OR</i>									
ELPT 1311 Basic Electrical Theory	3-4								
ITSC 1309 Integrated Software Applications I	3								
<b>SEMESTER TOTAL</b>	<b>12-13</b>								
<b>SECOND SEMESTER</b>									
METL 2441 Cathodic Protection #	4								
METL 1301 Introduction to Metallurgy	3								
NDTE 1405 Introduction to Ultrasonics	4								
<b>SEMESTER TOTAL</b>	<b>11</b>								
<b>PROGRAM TOTAL</b>	<b>23-24</b>								
<b># CAPSTONE COURSE</b>									

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**WELDING TECHNOLOGY - BASIC WELDING HELPER - CERTIFICATE: LEVEL I**

HCCS Course Requirement	cr hr	Transfer Institution	Substitute Course	Substitute (SU) Transfer (TR)	Term	Credits	Grade	Approval Signature	Date
					Comment/Disapproval				
<b>FIRST SEMESTER</b>									
TECM 1301 Industrial Mathematics	3								
WLDG 1407 Introduction to Welding Using Multiple Process	4								
WLDG 1413 Introduction to Blueprint Reading for Welders	4								
WLDG 1428 Introduction to Shielded Metal Arc Welding (SMAW) #	4								
<b>PROGRAM TOTAL</b>	<b>15</b>								
<b># CAPSTONE COURSE</b>									

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### WELDING TECHNOLOGY - ADVANCED WELDING - CERTIFICATE: LEVEL I

HCCS Course Requirement	cr hr	Transfer Institution	Substitute Course	Substitute (SU) Transfer (TR)	Term	Credits	Grade	Approval Signature	Date
<b>FIRST SEMESTER</b>									
TECM 1301 Industrial Mathematics	3								
WLDG 1407 Introduction to Welding Using Multiple Process	4								
WLDG 1413 Introduction to Blueprint Reading for Welders	4								
WLDG 1428 Introduction to Shielded Metal Arc Welding (SMAW)	4								
<b>SEMESTER TOTAL</b>	<b>15</b>								
<b>SECOND SEMESTER</b>									
WLDG 1434 Introduction to Gas Tungsten Arc TIG Welding (GTAW)	4								
WLDG 1435 Introduction to Pipe Welding	4								
WLDG 1457 Intermediate Shielded Metal Arc Welding (SMAW)	4								
<b>SEMESTER TOTAL</b>	<b>12</b>								
<b>THIRD SEMESTER</b>									
WLDG 2447 Advanced Gas Metal Arc MIG Welding (GMAW)	4								
WLDG 2451 Advanced Tungsten Arc Welding (GTAW)	4								
WLDG 2453 Advanced Pipe Welding #	4								
<b>SEMESTER TOTAL</b>	<b>12</b>								
<b>PROGRAM TOTAL</b>	<b>38</b>								
<b># CAPSTONE COURSE</b>									