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# BS IN MATERIALS SCIENCE & ENGINEERING

## DEGREE IN THREE ACADEMIC MAP

2017-2018 CATALOG YEAR

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This is an unofficial simplified checklist effective fall 2018. Degree requirements may change. You may need elective courses to help reach a minimum of 120 Total Hours & 42 Advanced Hours. Check with an advisor.

Must earn at least a grade of “C” in each course above except for most University Core courses.

### MATERIALS SCIENCE & ENGINEERING

*(Bachelor of Science (B.S.) degree with a major in Materials Science & Engineering)*

Department of Materials Science & Engineering Discovery Park E-132; (940) 565-3260 Faculty Advisors: Dr. Marcus Young <a href="mailto:Marcus.Young@unt.edu">Marcus.Young@unt.edu</a>	Engineering Advising Office Discovery Park A-101; (940) 565-4201 Academic Advisors: Nancy Van Hoy <a href="mailto:Nancy.VanHoy@unt.edu">Nancy.VanHoy@unt.edu</a>
<b>University Core</b>	<b>Major Requirements</b> (Grades with a C or better)
<p><u>COMMUNICATION</u></p> <ul style="list-style-type: none"> <li>▪ 1 Course (3 Hours)</li> <li>▪ Grade of “C” or better is required</li> </ul> <p><u>AMERICAN HISTORY I</u></p> <ul style="list-style-type: none"> <li>▪ 1 Course (3 Hours)</li> </ul> <p><u>AMERICAN HISTORY II</u></p> <ul style="list-style-type: none"> <li>▪ 1 Course (3 Hours)</li> </ul> <p><u>FEDERAL GOVERNMENT/POLITICAL SCIENCE</u></p> <ul style="list-style-type: none"> <li>▪ 1 Course (3 Hours)</li> </ul>	<p><u>MATERIALS SCIENCE &amp; ENGINEERING</u></p> <ul style="list-style-type: none"> <li>▪ ENGR 2301, Statics (3 Hours)</li> <li>▪ MTSE 3000, Fundamentals of Materials Science &amp; Engr. I (3 Hours)</li> <li>▪ MTSE 3001, Fundamentals of Materials Science and Engr. II (3 Hours)</li> <li>▪ MTSE 3010, Bonding &amp; Structure (3 Hours)</li> <li>▪ MTSE 3020, Microstructure &amp; Characterization (3 Hours)</li> <li>▪ MTSE 3030, Thermodynamics &amp; Phase Diagrams (3 Hours)</li> <li>▪ MTSE 3040, Transport Phenomena (3 Hours)</li> <li>▪ MTSE 3050, Mechanical Properties (3 Hours)</li> </ul>

STATE GOVERNMENT/POLITICAL SCIENCE

- 1 Course (3 Hours)

CREATIVE ARTS

- 1 Course (3 Hours)

LANGUAGE, PHILOSOPHY, & CULTURE

- 1 Course (3 Hours)

SOCIAL & BEHAVIORAL SCIENCES

- 1 Course (3 Hours)

**Major Requirements** (Grades of C or better)

TECHNICAL COMMUNICATIONS

- TECM 2700, Technical Writing (3 Hours)

MATHEMATICS

- MATH 1710, Calculus I (4 Hours)
- MATH 1720, Calculus II (3 Hours)
- MATH 2730, Multivariable Calculus (3 Hours)
- MATH 3410, Differential Equations (3 Hours)

SCIENCES

- CHEM 1410, General Chemistry I (3 Hours) & CHEM 1430, General Chemistry I Lab (1 Hour)
- CHEM 1420, General Chemistry II (3 Hours)
- PHYS 1710, Mechanics (3 Hours) & PHYS 1730, Mechanics Lab (1 Hour)
- PHYS 2220, Electricity & Magnetism (3 Hours) & PHYS 2240, Electricity & Magnetism Lab (1 Hour)
- PHYS 3010, Modern Physics (3 Hours)

- MTSE 3060, Phase Transformations (3 Hours)
- MTSE 3070, Electrical, Optical, & Magnetic Properties (3 Hours)
- MTSE 3080, Materials Processing (3 Hours)
- MTSE 3090 Laboratory I (1 Hour)
- MTSE 3100 Laboratory II (1 Hour)
- MTSE 4010, Physical Metallurgy Principles (3 Hours)
- MTSE 4030, Ceramic Science & Engineering (3 Hours)
- MTSE 4050, Polymer Science & Engineering (3 Hours)
- MTSE 4060 Materials Selection & Performance (3 Hours)
- MTSE 4090 Senior Design I (3 Hours)
- MTSE 4100 Senior Design II (3 Hours)

MATERIALS SCIENCE & ENGINEERING ELECTIVES

- 1 MTSE 4\*\*\* elective (3 Hours) chosen from list options below
  - 1 MTSE 4\*\*\* elective (3 Hours) chosen from list options below
- MTSE 4020, Materials in Medicine (3 Hours)  
MTSE 4040, Computational Materials Science (3 Hours)  
MTSE 4070, Electronic Materials (3 Hours)

### Year 1 at UNT

FALL	Hrs.
MATH 2730 (MATH 1720)	3
PHYS 2220 (MATH 1720, PHYS 1710, 1730)	3
PHYS 2240 Lab (MATH 1720, PHYS 1710, 1730)	1
ENGR 2301 (MATH 1710, PHYS 1710, 1730)	3
MTSE 1100	3
<i>Total Hours</i>	<i>13</i>

SPRING	Hrs.
MATH 3410 (MATH 1720)	3
PHYS 3010 (PHYS 2220, 2240)	3
MTSE 3000 (CHEM 1410, 1430)	3
MTSE 3001 (coreq MTSE 3000)	3
TECM 2700	3
<i>Total Hours</i>	<i>15</i>

### Year 2 at UNT

FALL	Hrs.
MTSE 3010 (MTSE 3000)	3
MSTE 3020 (MTSE 3000)	3
MTSE 3030 (MTSE 3000)	3
MTSE 3040 (MTSE 3000, MATH 3410)	3
MTSE 3090 (MTSE 3000)	1
<i>Total Hours</i>	<i>13</i>

SPRING	Hrs.
MTSE 3050 (MTSE 3000)	3
MTSE 3060 (MTSE 310, 3030, 3040)	3
MTSE 3070 (MTSE 3000)	3
MTSE 3080 (MTSE 3040)	3
MTSE 3100 (MTSE 3090)	1
<i>Total Hours</i>	<i>13</i>

### Year 3 at UNT

FALL	Hrs.
MTSE 4010 (MTSE 3010, 3030, 3040)	3
MTSE 4030 (MTSE 3010, 3020, 3040)	3
MTSE 4050 (MTSE 3000)	3
MTSE 4090 (see note 1)	3
<i>Total Hours</i>	<i>12</i>

SPRING	Hrs.
MTSE Advanced Level MTSE Elective (see note 2)	3
MTSE Advanced Level MTSE Elective (see note 2)	3
MTSE 4060 (MTSE 3030, 3040, 3050)	3
MTSE 4100 (MTSE 4090)	3
<i>Total Hours</i>	<i>12</i>

Required prerequisite (s) indicated in parentheses

Notes:

Note 1: MTSE 4090 requires completion of MTSE 3010, 3020, 3030, 3040, 3050, 3070, 3080 as prerequisite.

Note 2: Must complete prerequisite(s) for each Advanced Elective MTSE course. See your advisor for approved course options.

**Must earn at least a grade of “C” & a minimum 2.5 GPA in Communications Core, TECM 2700, MATH 1710, MATH 1720, CHEM 1410, CHEM 1430, CHEM 1420, PHYS 1710, PHYS 1730, MTSE 1100, & MTSE 3000 as foundations to enroll in advanced courses.**

<i>Credits Which Could Be Earned Prior to Enrollment at UNT –AP, IB, CLEP, DC, Transfer:</i>	<i>Credits Which Should Be Earned Prior to Enrollment at UNT –AP, IB, CLEP, DC, Transfer:</i>
Communications Core HIST 2610 HIST 2620 PSCI 2305 PSCI 2306 Creative Arts Core Language Philosophy Culture Core Social Behavioral Sciences Core	MATH 1710 MATH 1720 CHEM 1410, 1430 PHYS 1710, 1730 CHEM 1420

**This is an unofficial sample schedule. Requirements, prerequisites, etc. may change. Students should meet with an advisor each semester for individual scheduling, program decisions, etc. Engineering admissions requirements must be met & a degree audit must be created in order to progress in the program to a timely graduation.**