A total of 135 units is required for the Ph.D. Degree. Of these units:

- 48 must include Materials Science and Engineering core and approved technical units including:
  - 30 required MatSci core course units, including MatSci 201-210**
  - 15 approved technical units, which are usually substantive engineering courses and directly relevant to Materials Science & Engineering**
  - 3 units of MatSci 230 – Colloquium (taken in Autumn/Winter/Spring of first-year)

**MatSci 206 may be replaced with ME 209.
*All 45 core and technical units MUST be letter graded (A,B,C,D,F - NOT P/NC).
**Research, seminar, teaching, CPT, required EFS courses may NOT be used for the 45 core/technical units, but may be used for the 135 total units needed for Residency.

- 87 are residency units (typically 75-87 research units in MatSci 300)

1. REQUIRED MatSci Core Courses* (30 units)

_____ I understand I need to complete all MatSci Core Courses (graded), unless I file a petition to waive. In the event the waiver is approved I will need to complete another MatSci course or advisor-approved course(s).

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<th>Course</th>
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^MatSci 206 may be replaced with ME 209.
^Courses that must be completed in the first-year in order to take the Qualifying Exam.

2. APPROVED Technical Elective Units** (15 units*)

_____ I understand I need to complete technical elective courses (at least 15 units) for a letter grade. The courses have listed below are my proposed courses to fulfill this requirement.

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<th>Course Number</th>
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(sample of approved courses listed on back of sheet.)

An MS Degree is achieved with 45 units successfully completed. The MS Degree (+application fee) must be added in Axess via: Academics > Graduate Program Authorization Petition > MATSCI_MS

3. MATSCI 230 Colloquium (1 unit x three quarters)

_____ I understand I need to complete three quarters of the MatSci Colloquium during my first-year. I may take the colloquiums without registering IF I write in an EFS course # below and successfully pass.

Autumn ________ Winter ________ Spring ________

Revised 7/2018 continued on back
4. RESIDENCY UNITS (87 units)

Your research units will very likely equal or exceed 75, so other courses may count here IF:

a. You transferred in units because you obtained an MS degree in MatSci elsewhere – up to 45 units may be transferred within these guidelines. Transfer must be done in Autumn of first-year.

b. Your research is completed within the 75 units and thus you can include other courses.

_____ I have/will transfer _____ units, as I already have a Materials Science MS.

_____ I understand I need to complete 75+ units of research up to a total of 87 units.

Total residency units to count (87)_____

*Research units should be listed as PhD research units (MatSci 300) UNLESS:

a) You did an MS Research Degree here at Stanford University with a separate MS Research Report for which MS research units were earned.

b) You transferred in MS Research units toward your degree from another University where you received an MS degree in Materials Science and Engineering.

135 TOTAL DEGREE UNITS (1+2+3+4)

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Dissertation Research Advisor under consideration: ____________________________________________

Student: ____________________________________________ Date: _____________

Research Advisor: ____________________________ Date: _____________

(Research Advisor signature required, unless you have not secured one by 11/9/17.)

Academic Advisor: ____________________________ Date: _____________

(If your Research Advisor is from another department, your Academic Advisor must approve list of elective technical courses.)

Student Services Manager: ____________________________ Date: _____________

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Sample of approved classes for elective technical course reference

- Biomaterials – MATSCI 380, 381, 382; BIOPHYS 228; CHEMENG 310, 355; ME 381
- Electronic Materials Processing – MATSCI 312, 316; EE 212, 216, 311, 410
- Materials Characterization – MATSCI 320, 321, 322, 323, 325, 326; APPPHYS 216; CHEMENG 345
- Mechanical Behavior of Solids – MATSCI 251, 358; AA 252, 256; ME 335A,B,C, 345
- Physics of Solids & Computation – MATSCI 331, 343, 347; APPPHYS 272, 273; EE 223, 228, 327
- Soft Materials – MATSCI 343; CHEMENG 310

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