**Course number and name: MTSE 1100: Discover How and Why Materials Matter**

**Credits and contact hours:** 3 Credits. MWF 1:30-2:20pm

**Instructor’s or course coordinator’s name:** Dr. Rick Reidy

**Text book, title, author, and year**

Course handouts will be provided

1. *Other supplemental materials*

Flatland by Edwin Abbott

**Specific Course Information**

1. *Brief description of the content of the course (catalog description)*

Course serves as the heart of the MTSE first year experience. Topics include rationale for materials choices, composition and design of everyday items and how materials science and engineering drives innovation. Basic analysis and experimental design. A team-based hands-on project teaches the student to think critically and creatively by applying a range of analysis techniques borrowed from many engineering and science disciplines.

1. *Prerequisites or co-requisites*

none

1. *Indicate whether a required, elective, or selected elective course in the program*

Required

**Specific goals for the course**

1. *Specific outcomes of instruction*

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| **Specific Course Learning Outcome** |
| 1. Formulate an approach to a technical problem through hypothesis testing
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| 1. Write technical and descriptive analysis of technical and literary readings
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| 1. Students will learn to interpret, analyze, and present data
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| 1. Student will work in teams on a common project
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1. *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*

This course addresses ABET Student Outcomes 2 and 6.

**Brief list of topics to be covered**

* Resources for success at UNT
* Read Flatland, discuss satirizing of Victorian England , how art and science parallel, issues of geometric point of view (dimensionally and scale)
* Limits of measurement based on dimension
* interpretation of data
* materials development in civilization, posit “what if” scenarios regarding materials development
* errors in experimentation
* posing a “good” experimental question
* analysis of materials issues in household items
* how size matters in materials
* what are the limits to materials development?