

# Syllabus

## AE 6551 Cognitive Engineering

**Instructor:** Dr. Karen Feigh  
**Email:** karen.feigh@gatech.edu

**Office Hours:** Use booking Link on Canvas

**References:** All papers are available on Canvas

*Please note that some students have tried to print all of the papers at once to central printing causing central printing to hold the prints assuming that you are violating copyright. Please print only one-two weeks at a time.*

**Course Goals:** Provide students with the knowledge and skills to:

- (1) Understand how human performance impacts the performance of large-scale systems involving humans, technologies, and procedural/regulatory demands on behavior.
- (2) Understand the fundamental determinants of human behavior within these systems, including their interaction with technological artifacts (such as computer displays and decision aids, information systems, and automated systems), context and situational factors, and their personal attributes and goals.
- (3) Apply structured design methods to developing technologies (such as information systems) and procedures, in order to enable desired human behavior and system performance.
- (4) Develop ability to critically review and discuss literature in the domain, connecting concepts and using precise terminology associated with cognitive Engineering.

### Assignments

In support of each of these goals the following assignments are set. Each assignment will be assessed Satisfactory/No Credit, with descriptions of each given in an assignment specific rubric.

Mini-projects: (MP)

- Automation analysis using SRK & COCOM models
- Cognitive work analysis modeling building and procedure implementation
- Literature Report

Course Management Tasks (MT)

- Read assigned papers
- Answer discussion questions – bullet point format
- Watch video “answers” or clarification from instructor

Discussion Sessions – Small Group (DS)

- Participate in class discussion – sometimes whole class, sometimes in smaller groups.
- [Q section] – Watch Class Videos & Submit Video Reflection assignments.

### Weekly Rhythm & Flexibility:

Each week we will tackle a different topic in Cognitive Engineering. While, some care has been taken in the ordering of the topics to help students build the understanding and vocabulary needed – in reality there is no “perfect” ordering of the topics. Each topic will have an associated set of readings posted on Canvas. Each set of readings will have an accompanying set of discussion questions. **All papers and discussion questions are available now.**

**Monday:**

- A&Q sections: Answers to discussion questions are due every Monday 9pm EST on Canvas.

**Tuesday:**

- You will have access to one other person’s answers to discussion questions via the Peer Review Function.
- Prior to class for the week, read over them and see how they differ or concur with your own. We will use this for our discussion. This is for your own benefit and is not assessed in any way.

**Tuesday-Friday:** (Section A will nominally meet W/F 11-12:15.)

- A Section: Participate in discussion in class.
- Q Section: Watch videos and prepare Video Reflection by the following Saturday @11:59pm.
- A&Q sections: Watch any mini-lectures/explanations posted by instructor in response to discussion group needs. These are aimed at Q section students, but available to all the week following a topic. There may also be introductions or other “mini explanation” videos on Canvas that were made during COVID. You may utilize these at your discretion.

**Grades for the course:**

In this course we will use a variant of what is called *specifications grading*. Rather than achieving a certain percentage of available points, you will need to meet various criteria as described below to achieve a desired grade. **You will earn the letter grade for which you meet all of the criteria.**

	A	B	C	D
Mini-projects (MPs)	See Individual Rubrics	See Individual Rubrics	See Individual Rubrics	See Individual Rubrics
Course MTs	12 Weeks of Satisfactory Discussion Question Answers*	10 Weeks of Satisfactory Discussion Question Answers*	8 Weeks of Satisfactory Discussion Question Answers*	6 Weeks of Satisfactory Discussion Question Answers*
(DS) Discussion	12 Weeks of Satisfactory Discussion Participation*	10 Weeks of Satisfactory Discussion Participation*	8 Weeks of Satisfactory Discussion Participation*	6 Weeks of Satisfactory Discussion Participation*

\* Week 1 is automatically satisfied.

**Second attempts.**

- The first two MPs qualify for one re-grade at the *grade level* which was originally sought.
- All re-grade requests are due within a week of the assignment return.
- All regrade materials are due within two weeks of assignment return.
  - [For MP3, assessments will be returned by the date in canvas (usually around Dec 8). If you do not satisfy the grade you wished to achieve, students will be given 5 days, to revise and resubmit. If this this is the only item that you lack to achieve the grade you aspire, I will regrade at the same grade level. Otherwise, I will regrade at one grade lower.]
- All regrades require a cover sheet with short (no longer than 1 page) explanation of how you have improved the assignment to meet the specifications that were previously unmet.

**Illness.** It is likely that many of us will experience illness at some point during the semester. If you become too ill to participate or complete assignments, please let me know as soon as you are able (but definitely 24 hours prior to any mini-project due date). Should a documented illness occur you will automatically earn a 1-week exemption from Course MT's, and DS participation without penalty to your grade. For example, if you have a documented illness and only earn 11 satisfactory Discussion Participation, then you will still be eligible to earn an A in the course (whereas normally you would need 12). Should your illness persist beyond a single week, please reach out to me and we can discuss a path forward. Prolonged illnesses may result in the need to take an incomplete for the course, or for withdrawal depending on circumstances and your preferences.

**Legalese:**

Georgia Tech has an honor code which applies to this class, just as every other class. All answers to discussion questions prior to class are to be individual work; all projects are to be original work. Individual assignments are considered to be an individual effort and should be treated as such. Group assignments are considered to be equal effort by all team members. Plagiarizing is not condoned. Please cite all material to which you do not own the intellectual property. When in doubt cite it.

**Use of Generative AI:**

Where it makes sense, I encourage you to utilize Generative AI with SIGNIFICANT OVERSIGHT on your part. My suggestion is to use it for first drafts only, grammatical checks, for study aides, to help summarize things for your own benefit. Use of generative AI does not remove your responsibility for not plagiarizing work.

**Mental and Physical Well Being:**

This semester I sincerely hope will be smooth for everyone; it may still present challenges for you. Please let me know of any circumstances that will keep you out of the classroom or delay your progress so that we can work out a plan. Should you need support beyond this class, please know that the counseling center is available to you.

Georgia Tech CARE: 404.894.3498 – Georgia Tech Counseling Center: 404.894.2575 – GT Police: 404.894.2500