# **Fall 2020**

# **IET 4451 - Systems Simulation Course Syllabus**

**Instructor**:  Dr. Robert S. Keyser, Associate Professor

**Preferred Email Address**: Prefer D2L e-mail, alternately [rkeyser@kennesaw.edu](mailto:rkeyser@kennesaw.edu)

**Office:** M 113

**Phone:** 470-578-7339

**Virtual office hours only:** M 11:30am – 2:00pm; T 10:45am-2:00pm [except third Tuesday each month (IRB Meeting)]

**Class meeting time and location:** M 9:30am -12:15pm (or earlier) in M 131 and online

**Coronavirus Statement**

**Face Masks in the classroom**

As mandated by the University System of Georgia, the university requires the use of face masks in the classroom and in KSU buildingsto protect you, your classmates, and instructors.  Per the University System of Georgia, anyone not using a face covering when required will be asked to wear one or must leave the area. Repeated refusal to comply with the requirement may result in discipline through the applicable conduct code.

Reasonable accommodations may be made for those who are unable to wear a face covering for documented health reasons. Please contact Student Disability Services at sds@kennesaw.edu for student accommodation requests.

**Shifting Modalities**

Please note that the university reserves the right to shift teaching modalities at any time during the semester, if health and safety guidelines require it to do so.  Some teaching modalities that may be used are F2F, Hyflex, Hybrid, or online, both synchronous and asynchronous instruction.

**Staying Home When Sick**

If you are ill, please stay home and contact your health professional.  In that case, please email the instructor to say you are missing class due to illness. Signs of illness include, but are not limited to, the following:

* Cough
* Fever of 100.4 or higher
* Runny nose or new sinus congestion
* Shortness of breath or difficulty breathing
* Chills
* Sore Throat
* New loss of taste and/or smell

**Seating Plans**

Students will sit in the same seat for every F2F class so that the instructor can use a seating plan for contact tracing if a student contracts Covid-19.

**Web Cameras**

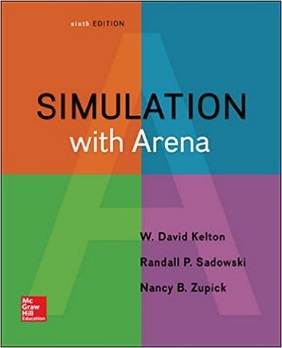
Instructors may require web cameras in their respective courses.

## **Electronic Communications Statement**

The best way to reach me between class periods is using the D2L email. This way I will know what class you are in. I will reply as quickly as possible to questions sent over e-mail.  If you wish to meet with me in person, you can drop by my office during office hours.  For online students, I am also willing to meet with you with an ad-hoc Blackboard Collaborate live session during the week if necessary.

**Email Response Time**

I try to answer all emails within 48 hours from the time you first transmit the email, unless I let you know in advance of travel prohibiting me from doing so (or if I have an emergency). This short response time includes weekends and holidays. At times I will send a mass email to the class or an announcement. This will be through D2L email and alternately with the campus mail.  I do not know your Yahoo or Gmail accounts so do not expect any mass emails to those accounts.  CHECK YOUR D2L EMAIL ACCOUNTS FREQUENTLY! 



**Recommended Textbook (but not required):**

*Simulation with Arena (6e)*, by W. David Kelton, Randall P. Sadowski, Nancy B. Zupick, McGraw-Hill (2014). ISBN: 978-0-07-340131-7. Note: Arena software v16.0 is required for this course and can be used for free (see options below). Previous editions of the textbook may also be used.

**A.** Download the software directly from the Arena website at

<https://www.arenasimulation.com/academic/students>.

**B.** We now have access to Arena v16.0 on the KSU Virtual Desktop.

Direction to access the virtual desktop are below:   
  
1.Faculty\ Students can download Vmware Horizon View client from  [http://virtualowl.kennesaw.edu/downloads.html](http://virtualowl.kennesaw.edu/downloads.html" \t "_blank), for Mac or Windows.     
  
2.Detailed instructions on how to use Virtual Owl can be found here  <http://virtualowl.kennesaw.edu/help.html>.     
  
3.Once the Vmware Horizon View client is downloaded & installed on the workstation, students can use their NetID username & password to login and select "IET-Resources" desktop from the list to access Virtual Desktop.

**C.** Arena is also available on the desktop computers in the M-131 and the Computer lab, M-130.

**Note: We will use Arena v16.0 in this course. You can download the software directly from the Arena website. You will need to register as a KSU student in the download process.**

**Course Description**

Students use ARENA, a stochastic event-based, PC-based graphical simulation program to create virtual equivalents of real world processes. Students create and apply a series of simulation models to statistically analyze discrete and continuous systems in the areas of manufacturing, banking, retail, transportation, and others. Techniques such as sequencing, separation, batching, entity transfer, data collection, animation, process analysis, and process optimization are used to improve efficiency and effectiveness.

**Course Learning Outcomes**

Students will be able to:

1. Apply probability and statistics concepts to perform input data analysis, random variable generation, and output data analysis in simulation models.
2. Illustrate complex, real-life industrial systems using computer simulation methods.
3. Construct simulation models using advanced simulation software.
4. Discuss simulation results through written reports and oral presentations.

**Course Prerequisites**

ISYE 2600 or MATH 2332 and Engineering Standing

**KSU D2L Brightspace**

This course has a D2L course web site for use by registered students.  Any class handouts, slides, grades, announcements, and links will be available there, so please get in the habit of checking it often. To log in, go to: <https://kennesaw.view.usg.edu/>.  Your logon is the same as your KSU Net ID, and your net password.  There are help links on the website too.

**Course Schedule**

This course will meet on the dates indicated on the Course Schedule as posted on the course homepage.  For hybrid students, we will meet once a week physically in a classroom and the remainder of the week you are responsible for viewing video lectures and attempting suggested homework problems.  For online students we will also meet once a week but virtually using the Blackboard Collaborate with link located in Course Info – Start Here.  The remainder of the week you are responsible for viewing video lectures and working on homework problems.

**Assessment by Exams**

There will be two timed, 75-minute online exams (Midterm Exam and a Final Exam) covering the material you have learned. This is an **individual** effort with no help from anyone else. You may have access to all of your HW models, and the textbook to complete the exam. You are not permitted to IM each other or re-use any previous exam models for these exams. Academic integrity is expected. Online exams will open after the deadline has passed.

**Assessment by Homework**

**HW Assignments (10)**

You will work on all HW assignments in groups of 4-5 students. Submit only one assignment on behalf of each group in the appropriate Dropbox folder. Work together to come up with a foolproof plan to submit all HW assignments on time (i.e., designate one person to submit all assignments). Include all group member names on the assignment submission to ensure they receive credit for the assignment. HW submissions with group member names missing will be interpreted as they did not contribute to the assignment and, therefore, will not receive credit. It is the group’s responsibility to include names on the assignment *before* the assignment is submitted in Dropbox. Adding names to the assignment after the deadline is too late and will not be considered. **No missed or late assignments will be accepted. No exceptions.** There are 10 HW assignments.

*Helpful hint:* Bring a flash drive with you to save your model and other output files. Sometimes, trying to save your work to your network drive fails.

**Note:** **I will not review or troubleshoot your model before you submit it**. Don’t give up if you get stuck on something. Take a break and then resume your efforts as a team. Refer to the textbook, recorded lecture, ppt slides, and your group members as key resources for each assignment.

**Assessment by Group Project**

There will be a Group Project due at the end of this course. You will work with your group partners to complete the term project. You will be required to find a **real work situation** in which to model and present your findings via a narrated PowerPoint slide presentation and your .doe Arena model at the end of the semester. The PowerPoint presentation can be narrated by one up to all students in the group. **Please submit your group topics in the appropriate Dropbox folder in the D2L Assignments tab by the beginning of class on September 22nd. This is a graded assignment worth 10 points towards your Group Project grade. No exceptions!**  Many teams use their own workplace to simulate a process for this assignment. Be sure you obtain internal permission before proceeding with your project. Some proposed simulation solutions have actually been accepted and implemented by the companies under study. **Do not procrastinate with deciding on a group project. If the topic submission is late, you lose 10 points from your overall score!**

A failure to work as a cohesive group will result in the use of Peer Evaluations for those groups, whereby you will rate each other’s contributions for each assignment. Ratings from other group members may impact your assignment grade.

## **Grading Policy**

Your final grade in this course will be determined using the following weights for each component of this course:

|  |  |
| --- | --- |
| Component | Weight |
| (10) HW Assignments | 50% |
| Midterm Exam | 15% |
| Final Exam | 15% |
| Group Project | 20% |
|  | 100% |

## **Grading Scale**

**90 – 100 = A**

**80 – 89.9 = B**

**70 – 79.9 = C**

**60 – 69.9 = D**

**59.9 and below = F**

**Note:** There is no extra credit for this course.

**Missed/Late Work**

No late assignments will be accepted. All missed/late assignments will receive the grade of zero. **Strictly enforced. This policy is very clear.**

**Attendance Policy**

1. All students are expected to attend all class sessions beginning with the first class session and continuing all the way through Final Exam Week. A sign-in attendance sheet will be given each week. No signature => not in attendance that week.  
2. Students who miss class for any reason are not exempt from the material covered during the class the student misses.  
3. The instructor is not responsible for assisting students catch up on class material when the student is absent from class.  
4. Your attendance will not directly impact your grade in this course unless you are absent for an Exam or if you fail to complete an Assignment on time.  
5. It should be noted that students who attend class on a regular basis normally perform better on the Assignments and on Exams.  
6. However, simply being present in class does not guarantee that the student will receive a high grade or a passing grade in this course.

**Calculators/Software**

You are welcome to use ARENA already installed on the computers in the M-130 and M-131 labs or you may bring your personal laptop with ARENA loaded. If you are taking this course online, you will need to download the free edition of Arena from the Rockwell Automation website (<http://www.arenasimulation.com/>) or go to the D2L course homepage for a downloadable copy. For other work, you may need access to a calculator or, perhaps, Excel (also available on the lab computers).

**Hybrid or Online Course Responsibilities**

Hybrid sessions (01, 02, etc.) are designed to be one-half classroom attendance and on-half on-line attendance.  The online session (W01, W02, etc.) is attended one-half via on-line meeting room software such as Blackboard Collaborate and one-half pre-recorded online video lectures.  Both types of classes require the student to view the pre-recorded lecture between any live lectures.  It will be the student’s responsibility to schedule and view these lectures at their own convenience.  It is strongly recommended that you watch the lectures and keep up with class work and class discussions.

**Technology Skills Needed**

All students are expected to be familiar with:

1. Connecting to the internet.

2. Logging in to the course website (i.e. D2L Brightspace).

3. Using internet browsers (e.g., Internet Explorer, Firefox, Chrome, etc.).

4. Downloading and opening PDF, Word, and Excel documents.

5. Elementary use of Excel including Cell Referencing and using Math Functions, no VBA required.

6. For online students, invest in a headset with a microphone and speakers.

**Withdrawal**

Students who find that they cannot continue in college for the entire semester after being enrolled, because of illness or any other reason, need to complete an online form. To completely or partially withdraw from classes at KSU, a student must withdraw online at www.kennesaw.edu, under Owl Express, Student Services.

The date the withdrawal is submitted online will be considered the official KSU withdrawal date which will be used in the calculation of any tuition refund or refund to Federal student aid and/or HOPE scholarship programs. It is advisable to print the final page of the withdrawal for your records. Withdrawals submitted online **prior** to midnight on the last day to withdraw without academic penalty will receive a “W” grade. Withdrawals **after** midnight will receive a “WF”. Failure to complete the online withdrawal process will produce no withdrawal from classes. Call the Registrar’s Office at 770-423-6200skypec2c://r/204770-423-6200 during business hours if assistance is needed.

Students may, by means of the same online withdrawal and with the approval of the university Dean, withdraw from individual courses while retaining other courses on their schedules. This option may be exercised up until the W date on the Academic Calendar (on Registrar’s website). Failure to withdraw by the W date will mean that the student has elected to receive the final grade(s) earned in the course(s). The only exception to those withdrawal regulations will be for those instances that involve unusual and fully documented circumstances. In these rare cases, the policies of the university regarding hardship withdrawals will be strictly followed.

If any remaining coursework cannot be completed by the last class day, the instructor of this course will only consider assigning an incomplete grade to a student with an unusual and fully documented circumstance (must be verified by department chair or college dean), who is passing the course within two weeks of the last class day. If the final exam is among the assignments, the student’s grade will remain an “F” until it is taken, after which a grade change form will be submitted to the registrar if necessary, once the other agreed upon conditions are met.

**KSU Diversity Vision Statement**

It is our vision to create a strong multicultural and diverse educational environment at KSU in order to increase student satisfaction and to promote an understanding and awareness of people from various backgrounds upon graduation. In this way, KSU students will be educated for, and can effectively compete in the global society.

**Course Enrollment Status Statement**

Students are solely responsible for managing their enrollment status in a class; nonattendance does not constitute a withdrawal.

**Student Support Resources – Strategies for Success**

Library, Tech Support, Tutoring, Writing Center, Advising, Bookstore, Resource Guide, Online Courses, other support resources: <http://learnonline.kennesaw.edu/resources/index.php>

* Accessibility Statements or VPAT for Technologies: <https://softchalkcloud.com/lesson/serve/jV10GKPfztZwQn/html>
* Academic and Student Services: <http://www.kennesaw.edu/currentstudents.php>

**Other Technical Resources**

* For D2L Technical Support: <http://uits.kennesaw.edu/>.
* D2L Privacy Statement: <http://www.brightspace.com/legal/privacy/>
* Blackboard Collaborate Support: <https://apps.kennesaw.edu/files/pr_app_uni_cdoc/doc/Blackboard%20Collaborate%20for%20Students.pdf>
* The Privacy Policies for External Tools: <http://www.blackboard.com/footer/privacy-center.aspx>
* Help Desk: [studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu), phone 470-578-6999skypec2c://r/204470-578-6999
* Walk-in Help: Marietta campus - bottom floor H-building just outside the double doors on the East side.
* Personal Laptop/Smart Phone Help: <http://uits.kennesaw.edu/> or walk-in.
* Please remember to use the rules of Netiquette in any online communication environment.  <http://www.education.com/reference/article/netiquette-rules-behavior-internet>

**Academic Honesty/Integrity/Ethics Statement**

Every KSU student is responsible for upholding the provisions of the [Student Code of Conduct](https://web.kennesaw.edu/scai/content/ksu-student-code-conduct), as published in the Undergraduate and Graduate Catalogs. Section 5c of the Student Code of Conduct addresses the university’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement.

The high quality of education at Kennesaw State University is reflected in the credits and degrees its students earn. ***All assignments that take place in and out of the classroom must be your own work and original for this course***. The protection of these high standards is crucial since the validity and equity of the University's grades and degrees depend upon it. Any student found to have violated any KSU academic honesty regulation after a hearing before a university hearing panel or before the Vice President for Student Success and Enrollment Services (or his/her designee) shall be suspended for at least one semester, unless the student persuades the deciding body that the circumstances of his or her behavior substantially mitigate the gravity of the violation. These regulations are designed to assist students in (1) developing appropriate attitudes about, and (2) understanding and following the university’s standards relating to academic honesty. The regulations protect students by helping them avoid committing infractions that may compromise the completion of their KSU degrees or damage their

reputations.

***Student Conduct Pledge/Statement:*** *As a member of the Kennesaw State University community of scholars, I understand that my actions are not only a reflection on myself, but also a reflection on the University and the larger body of scholars of which it is a part. Acting unethically, no matter how minor the offense, will be detrimental to my academic progress and self-image. It will also adversely affect all students, faculty, staff, the reputation of this University, and the value of the degrees it awards. Whether on campus or online, I understand that it is not only my personal responsibility, but also a duty to the entire KSU community that I act in a manner consistent with the highest level of academic integrity. Therefore, I promise that as a member of the Kennesaw State University community, I will not participate in any form of academic misconduct.*

**Types of Academic Misconduct:**

1) **Cheating:** Receiving, attempting to receive, knowingly giving or attempting to give unauthorized assistance in the preparation of any work required to be submitted for credit (including examinations, laboratory reports, essays, themes, term papers, etc.) is considered cheating, as is engaging in any behavior that a professor prohibits as academic misconduct in the syllabus or class discussion. Unless specifically authorized, using and/or having access to electronic devices during an examination, quiz, test or other assessment is automatically considered cheating, regardless of the student’s reason for using/accessing the device;

2) **Plagiarism:** Including direct quotations from other sources into work required to be submitted

for credit without indicating them as such by quotation marks, block quotes or other appropriate formatting. Incorporating the work of someone (e.g. ideas, theories, data, figures, graphs, programs, electronic based information, illustrations, etc.) into a paper or project without due acknowledgement;

3) **Self-Plagiarism:** Submitting any work for credit which was not authored specifically and originally for the assignment in question without the prior permission of the professor receiving that assignment. Most commonly, this means submitting the same, or substantially the same, paper or other assignment for credit in more than one class;

4) **Misrepresentation and/or Falsification:** Knowingly providing false information in completing University forms or applications (including admissions forms, scholarship applications, time sheets, false or counterfeit transcripts, etc.) or in any work submitted for credit. This includes providing fabricated/altered documents to substantiate an excused absence (such as to meet attendance requirements or have the chance to make**-**up a missed exam). Signing in for another student or having another individual sign in on a student’s behalf on an attendance sheet also constitutes a violation of this code section.

5) **Unauthorized Access to University Materials:** Taking, attempting to take, stealing or in any unauthorized manner otherwise procuring, gaining access to, altering or destroying any material pertaining to the conduct of a class (including tests, examinations, grade change forms, grade rolls, roll books, laboratory equipment, University grade records in written or computerized form, etc.).

6) Malicious**/Intentional Misuse of Computer Facilities/Services:** Maliciously or intentionally misusing university-controlled computer facilities and services. This includes violations of state and federal laws (e.g. copyright violations, unauthorized access to systems, alteration/damage/destruction, or attempted alteration/damage/destruction, use for profit, etc.) or a department's rules for computer usage (e.g. account violations, damage, or destruction of the system and/or its performance, unauthorized copying of electronic information, use of threatening or obscene language, etc.).

7) Malicious **Removal, Retention or Destruction of University Resource Materials**: Misplacing, taking, destroying any item or part of an item belonging to or in the protection of the University (or the attempt thereof) with the intention of bringing about an undue disadvantage in the academic pursuits of other Kennesaw State University students.

These examples of academic dishonesty shall not be construed to be comprehensive, and infractions will be dealt with on an individual basis according to university policies and procedures. It is the obligation of each student to assist in the enforcement of academic standards.

*See: The KSU Student Code of Conduct at**KSU Codes of Conduct-2015.pdf*