

Engineering Field Experience (EFE)

Mrs. Hope MacKenzie
Spring 2023 Course Syllabus

STA Main Line: 816-986-3410

Attendance: 816-986-3413 or email: andrea.bisogno@lsr7.net

Office: 816-986-3432

E-mail: hope.mackenzie@lsr7.net

FAX: 816-986-3435

Office Hours: 7:15 – 7:45 a.m. or 2:00 – 2:50 p.m., or by appointment

COURSE DESCRIPTION: This course is designed to provide the student with experiences that are relevant to the day-to-day working environment of professional engineers. Students will learn and use the principles of *fluid mechanics*, *statics*, *dynamics* and appropriate levels of mathematics in order to address a project on public infrastructure. Students will also be familiarized with such topics as leadership, local, state, federal codes, and professional ethics.

This course is divided amongst two organizations;

- *Lee's Summit Public Works Department (LSPW)*: Students in the AM section of EFE will spend their semester working with the engineering staff at City Hall on Monday and Thursday, 7:55-10:00am. This project will entail an aspect of the city's infrastructure pertaining to roads, storm water, traffic, etc.
- *Lee's Summit School District (LSR7)*: Students in the PM section of EFE will spend their semester working with LSR7 staff in conjunction with Henderson Engineers and Gould Evans on Monday and Thursday, 11:50am – 1:55pm. The project will focus on the projected expansion of the Missouri Innovation Campus building.

INSTRUCTIONAL PHILOSOPHY: This course will expose the student to what it will be like to be enrolled in a school of engineering at **any** *ABET* accredited school of engineering in conjunction with the daily activity of those in the profession. Along with the critical academic rigor, students will have the **privilege** of working side-by-side with those who have 'been there and done that' in the engineering profession. Both organizations will require a final presentation of the students' gained knowledge and skills to an audience comprised of engineering staff, city and school district officials, and various community members.

ESSENTIAL STANDARDS: Students will:

1. Exhibit specific personal and professional characteristics that lend themselves to the creative, collaborative and solution-driven nature of the profession.
2. Apply and document an engineering design process to develop a client's site.
3. Select and use appropriate tools and technology to support engineering work.
4. Create and use conceptual, graphical, virtual, mathematical and physical models to represent, evaluate and communicate technical content.
5. Apply mathematics and science to promote problem solving and design decisions.
6. Draw from engineering experience to recognize the appropriate application of cross-disciplinary knowledge to support unique interdisciplinary solutions.
7. Conduct self in a manner consistent with engineering professionals, guided by professional ethics and standards.

MAJOR ASSIGNMENTS/PROJECTS:

1. **Lab Reports:** Students will create lab reports for the various experiments completed in class.
2. **LSPW:** Students will present to the engineering staff - presentations entitled: 40%, 80%, and 100% (Final Exam) pertaining to their design project based upon those concepts and calculations shared by Mrs. MacKenzie and the LSPW engineering staff.
3. **LSR7:** Students will present to the engineering staff - presentations entitled: 40%, 80%, and 100% (Final Exam) pertaining to their design project based upon those concepts and calculations shared by Mrs. MacKenzie and engineering staff from LSR7, Henderson Engineers and Gould Evans.

ASSESSMENT PLAN: Assessment in EFE will be accomplished via two methodologies, formative and summative. Throughout the semester, students will:

- maintain an Engineering Notebook (formative)
- be required to present numerous times throughout the semester (formative)
- open class with quizzes both computational, conceptual and informational (formative)
- be required to present progress to engineering staff: 40% & 80% (formative)
- be required to present their design project to the client, engineers, LSR7 administrators, city officials and community members (summative)
- others as deemed necessary by Mrs. MacKenzie (formative and/or summative)

GRADING POLICY: Grades will be figured using the Summit Technology Academy approved grading scale. Grades are cumulative throughout the semester. Semester (A2) grades are computed as per the following weighted grading system:

1. Client-Connected Project: 75%
2. Math/Physics: 25%

The students' Final Exam is their design team presentation in early May. It is weighted 10% of the semester (S2) grade.

The following standardized grading scale is used for STA:

A = 95 - 100	C = 73 - 76
A- = 90 - 94	C- = 70 - 72
B+ = 87 - 89	D+ = 67 - 69
B = 83 - 86	D = 63 - 66
B- = 80 - 82	D- = 60 - 62
C+ = 77 - 79	F = 59 & below (No Credit)

TUTORING/EXTRA HELP PLAN: STA utilizes a pyramid of interventions in order to increase the likelihood that students successfully meet the course requirements. Tutoring or extra help can be obtained by contacting the STA teacher through e-mail, phone or Schoology. The teacher will provide either immediate help, set up a time to meet, or utilize an online video conference method.

ATTENDANCE POLICY: Regular attendance reflects dependability. The experience gained by student design teams is of paramount importance. **Summit Technology Academy's policy may differ from that of the home school and will be in effect for the period of attendance at STA.** Please reference the on-line [student handbook](#) for the most current policy at <http://sta.lsr7.org>. Absences must be reported by parents or guardians to STA by calling 986-3413 or email andrea.bisogno@lsr7.net. Andrea Bisogno is the attendance secretary at STA.

A student shall be allowed no more than nine (9) absences, excused or unexcused, per semester in any one class. When a student reaches 9 days, the school will send an informational letter to the parents, regardless of prior contact by phone or conference. The letter serves as notification of the number and type of absences by the student in each class. On the tenth (10) absence, in any one class, the student will not earn credit for that class. Students will have the opportunity to work with their administrator or teacher to make up missed time prior to the end of the semester. If a student still has 10 or more absences at the conclusion of the semester, the student will be required to complete an attendance waiver appeal. A waiver to maintain full credit must be submitted by the end of the semester. This waiver should include documentation of illness, funeral, or family emergency from a medical doctor, dentist, minister, or other official source. The waiver should be turned into the attendance office.

ELECTRONIC GRADEBOOK/PARENT CONNECT WEBSITE: Grades are updated on a weekly basis. The Power School website address is <https://powerschool.lsr7.org/public/>.

ACADEMIC LETTERING: Students who have earned a 94.5% or higher in a STA program for first semester and a 94.5% or higher grade at the time of the fifth grading period will receive the academic letter.

ADDEMDUM TO COURSE SYLLABUS

TARDY POLICY: A tardy will be issued in accordance with the student handbook. Students are on time if they are seated in the classroom at the time of the bell.

DRIVING PRIVILEGES: Students are strongly encouraged to utilize bus transportation when provided. However, students are permitted to park on school premises with a valid STA or UCM parking permit. Student parking on-site is a privilege, and can be revoked. Students parking/driving to STA without permission from their sending school and STA will be subject to disciplinary action. Parking permits may be revoked if a student is frequently tardy or late to school. (See tardy or late to school policies in the student handbook.)

ELECTRONICS POLICY: No electronics or headphones are allowed in the classroom unless being used in the educational process or as directed by the instructor. Electronics should be placed in backpacks or purses and out of sight. Students are encouraged to interact and help one another when appropriate.

DAILY MATERIALS NEEDED:

1. LSPW/LSR7 Notebook: provided by STA
2. Math/Physics Notebook: provided by the student - *Composition-style (or spiral)* notebook with graph paper. Students will compile any and all mathematics, fluid mechanics and structures work in this notebook.
3. 1 or 2-inch, 3-ring binder
4. Scientific calculator
5. Pencil(s) and pen(s)
6. Flash drive

TECHNOLOGY: Students are required to utilize technology for various assignments. It is understood that not all students will have home access to personal computers. Computers are available at your home high schools, the public library, etc. It is wise to backup all coursework in multiple locations.

LATE WORK: No late work is accepted.