

Course syllabus

EGT 3063- 3D Modeling

Term: Fall 2026

Course Time: Monday, Wednesday 3:30 pm - 5:35 pm

Classroom: Klehm Hall 3135

Course Dates: Aug 24, 2026 - Dec 18, 2026

Faculty: Dr. Reachsak Ly

Email: rlly@eiu.edu (Preferred communication method)

Office: Klehm Hall 1044

Teaching Method: Lab and Lecture

Office Hours:

Monday, Wednesday and Friday (10:00 AM to 11:00 AM) , Tuesday (4-5 PM)

Communication Response Time: Within 2 days

Course description:

A computer-aided modeling course. Development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work. Planning and developing computer-aided solid models for design and manufacturing and assembly modeling.

Course objectives:

After completion of the course the student will be able to:

- Understand the basics of 3D modeling
- Use sketch geometry
- Use geometric constraints.
- Use dimensioning in the sketch environment
- Create base features from sketches.
- Use the browser bar (model tree) to modify existing model features.
- Understand “design intent” and its application to solid modeling.
- Create parts with multiple sketches and features.
- Use placed features to modify a 3D model.
- Understand the practical uses of parametric constraints (dimensions)
- Create features from projected geometry.
- Understand the importance of parent/child relationships in features.
- Turn features on and off with the suppress features option.
- Create multiview 2D drawings from 3D models 15. Use Properties to fill out the title block.
- Create isometric views and other pictorial views from a 3D model.
- Create multi-sheet drawings. 18. Utilize work features for feature/model creation.
- Create 2D drawings of auxiliary view from 3D model.
- Use symmetrical features, including: revolved, mirrored, and patterns.
- Use advanced 3D construction tools including, sweep, loft, and shell.

- Create sheet metal parts.
- Create assemblies using multiple parts and assembly constraints.
- Create exploded assemblies from presentation file.
- Use the Content Center to place standard components.
- Reuse 2D AutoCAD files to create 3D models 27. Create contact sets for use with the contact solver.
- Perform basic stress analysis.

Student Contributions, Responsibilities, and Class Policies:

- Students are responsible for maintaining, organizing, and backing-up copies of all digital files. Failure to maintain an up-to-date backup may result in data loss.
- Students are responsible for accessing their student email, remembering the password, and setting up a OneDrive account to save their work to.
- Students are expected to exhibit professional and courteous behavior on campus, in the classrooms, and in labs.

Graded Course Requirements Information

Grading Structure

Content	Percentage
Attendance and Participation	10%
Homework	30%
In-class activities	30%
Mid Term Project	10%
Final Project	20%
Total	100%

Grading Scale:

Individual grade items and your final grade will be assessed as follows:

A = 100- 90%

B = 89- 80%

C = 79-70%

D = 69-60%

F = less than 60%

Course Requirements:

1. Complete readings, assignments, attend class, and submit assignments and exams on time.
2. Independent study of the textbook and other relevant material is required.
3. Attendance: If you do not attend and participate you will not succeed in this class. Only **documented** emergencies and legitimate University activity-related events (e.g., athletes for games, sponsored field trips for other classes) will be excused. Tardiness reduces points awarded by ½. No points are awarded for absences.
4. Homework Assignments, Tests, and Communication will be conducted through the campus learning management system. The student is required to access the system daily for updates and to submit assignments.

Course outline

* The course schedule is subject to change throughout the semester. Revisions will be noted in class.

Week	Date	Topics	Readings / Assignments / Quizzes (Tentative)
1	Aug 24 Aug 26	• Course intro, • Fusion account/browser setup, UI tour (workspaces, browser tree, navigation cube, orbit/pan/zoom) • Part/Components and Assembly • Sketching • Sketch fundamentals: lines, rectangles, circles, dimensions, geometric constraints (coincident, parallel, tangent, symmetry)	
2	Aug 31 Sep 2	• Extrude & revolve — sketch to solid • Fillet, Chamfer, Shell, Draft	
3	Sep 7** Sep 9	• Sweep & Loft • Rectangular/circular Pattern, Mirror; construction planes/axes; multi-body basics	
4	Sep 14 Sep 16	• Holes • Embossing and Wraps	
5	Sep 21 Sep 23	• Sheet metal Mid Term Project	
6	Sep 28 Sep 30	• Combine (Join/Cut/Intersect), Move/Copy/Align • Section Analysis, Measure/Inspect tools • Timeline editing, suppress/rollback, editing sketches & features after the fact • Top-down assembly design (derive components, in-context modeling), Content Center/standard part • Surface modeling: Patch, Stitch, thicken-to-solid, when to go surface vs. solid • Simulation workspace: static stress study basics, contact sets, reading results	
7	Oct 5 Oct 7	• Data management & interoperability: Fusion Team/cloud collaboration, version history, exporting for BIM (STEP/IFC) etc	

8	Oct 12 Oct 14	• Parametric modeling — user parameters, expressions, timeline editing • Assemblies I — components vs. bodies, inserting components, joints (rigid, revolute, slider) • Assemblies II — motion joints, interference check, exploded views	
9	Oct 19 Oct 21	• Drawing workspace — sheets, base/projected/section/detail views, dimensions & annotations, title block • Drawing standards for fabrication docs; export to PDF/DWG 2D Drawing Template Creation • Simple border and title block • Text fields • Attributes from assemblies • Components • User input fields • Logos • Industry-standard template • Tolerance • 3rd and 1st angle symbols • Scale • Material • Finish • Company information • Copyright Final Project	
10	Oct 26 Oct 28	Rendering • Materials & Appearance; intro to Render workspace • Using an existing assembly without material or appearance • Creating a material and an appearance • Adding material/appearance, texture mapping and a decal to the assembly • Lighting and environment control • Custom environments • Cameras and views • Local vs cloud rendering	

11	Nov 2 Nov 4	Simulation basics — stress study + contact sets	
12	Nov 9 Nov 11	- Generative AI and 3D modeling - Augmented Reality and 3D modeling - Converting File for 3D modeling - GenAI week: what MCP is, how AI assistants connect to CAD tools, demo of Claude ↔ Fusion MCP - Hands-on lab: AI-assisted modeling task, discussion of capabilities/limits and verifying AI output	
13	Nov 16 Nov 18**	GenAI / AR/VR deployment No class 11/08 (Travel-ATMAE Conference)	
14		Thanksgiving No class	
15	Nov 30 Dec 2	- Animation - Bringing a rendered assembly into the Animation Workspace - Creating an exploded view - Timeline editing - Keyframes - Camera control - Motion - Generating video - Adding an exploded view to a drawing using a 2D Drawing Template	
16	Dec 7 Dec 9	Class Review and Final Project	

Note: This is a tentative schedule, and subject to change as necessary. The instructor reserves the right to make changes to the topics or sequence of topics, schedule, assignments, grading plan, and content of the course.

Academic Integrity:

Students are expected to maintain the principles of academic integrity and conduct as defined in EIU's Code of Conduct (<http://www.eiu.edu/judicial/studentconductcode.php>). Violations will be reported to the Office of Student Standards. In this class, students may assist each other in accomplishing a homework assignment, but the submitted work must be the student's own original work. **Copying work or plagiarism will not be tolerated. Students may not collaborate on tests or quizzes. Cheating or plagiarism will, at least, result in a zero on the assignment or exam.**

- AI and Academic Integrity: Students are not allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT, Grammarly, or Dall-E 2) on assignments in this

course. Each student is expected to complete each assignment without substantive assistance from others, including automated tools.

Students with Disabilities:

If you are a student with a documented disability in need of accommodations to fully participate in this class, please contact the Office of Student Disability Services (OSDS). All accommodations must be approved through OSDS. Please stop by Ninth Street Hall, Room 2006, or call 217-581-6583 to make an appointment

Emergency Preparedness Plan:

Instructions regarding procedures to follow in the event of an emergency are posted in all classrooms.

Students are responsible for acquainting themselves with these instructions so that they are prepared in the event of an emergency.

The Academic Success Center:

Students who are having difficulty achieving their academic goals are encouraged to contact the Academic Success Center (www.eiu.edu/~success) for assistance with time management, test taking, note taking, avoiding procrastination, setting goals, and other skills to support academic achievement. The Center provides individualized consultations. To make an appointment, call 217-581-6696 or go to 9th Street Hall, Room 1302.