

University of Arkansas – Fort Smith

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General Syllabus

CGT 2894 - Parametric Modeling

Credit Hours: 4

Lecture Hours: 2

Lab Hours: 4

Prerequisite: CGT 1644 3D Visualization

Effective Semester: Summer I 2013

I. Course Information

A. Catalog Description

Introduces the concepts, commands and techniques of parametric modeling. Brings together tools used for part modeling, assembly modeling and surface modeling.

B. Additional Information

Part modeling allows the user to construct "intelligent" 3D solid models with features like holes and fillets that update automatically when the dimensions are changed. With assembly modeling, multiple parts can be brought together in defined relationships. Assemblies can be analyzed to check for interference between components, displayed in exploded views, etc. Finally, the surface modeling tools can create complex contoured shapes, either as stand-alone surface models or in combination with solids to further refine the shape of parts. The parametric software used in this course will be selected to support local needs.

II. Student Learning Outcomes

A. Subject Matter

1. Sketch Profiles and constraints
2. Create a 3D part
3. Part modeling techniques
4. Sculpting tools
5. Creating surfaces
6. Creating surfaces from other surfaces
7. Advanced part modeling
8. Assemblies
9. Scenes and view drawing annotation

B. University Learning Outcomes

Communication Skills

Students will communicate effectively with a variety of audiences in any setting by composing coherent graphical documents appropriate to the intended audience.

Technological Skills

Students will use computerized tools to efficiently access, communicate, analyze, and evaluate electronic information.

Analytical Skills

Students will use analytical/critical thinking skills to draw conclusions and/or solve problems and justify those solutions.

Ethics

Students will recognize and analyze ethical dilemmas, understand the UA Fort Smith Standards of Conduct and Academic Honesty policies and apply these standards to particular fact situations. Students will apply ethical concepts and rules to determine viable alternatives in specific situations.

Quantitative Reasoning

Students will assign and use numbers, read and analyze data, create models, draw inferences, and support conclusions based on sound mathematical reasoning. Students will apply appropriate mathematical models to solve problems, represent mathematical information symbolically, visually, numerically and verbally as well as interpret models and data in order to draw inferences. Students will recognize the limitations of quantitative analysis.

III. Major Course Topics**A. Professional Knowledge**

1. Creating 3D parametric computer models
2. Create assemblies
3. Create drawing views used in industry.
4. Create animated assemblies and exploded views.

B. Visualization Skills

1. Participate in small group projects based on manufacturing processes.
2. Review drawings for completeness and accuracy.