

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500). See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE
(Attach copy of syllabus)

SUBMITTED BY:

Department	Design Technology (DSGN)	College/School	Community & Technical College
Prepared by	Martha Westphal	Phone	455-2886
Email Contact	mmwestphal@alaska.edu	Faculty Contact	Adam McDermott ajmcdermott2@alaska.edu

1. ACTION DESIRED (CHECK ONE): Trial Course New Course

2. COURSE IDENTIFICATION: Dept **DSGN** Course # **F194** No. of Credits

Justify upper/lower division status & number of credits: **Entry level course introducing 3D Software and Applications**

3. PROPOSED COURSE TITLE: **Modeling, Assembly & 3D Animation: Autodesk Inventor**

4. To be CROSS LISTED? YES/NO NO If yes, Dept: Course #

NOTE: Cross-listing requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.

5. To be STACKED?* YES/NO YES If yes, Dept. **DSGN** Course # **F294**

How will the two course levels differ from each other? How will each be taught at the appropriate level?:

* Use only one Format 1 form for the stacked course (not one for each level of the course!) and attach syllabi. Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi (undergraduate and graduate versions) will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online - see URL at top of this page.

6. FREQUENCY OF OFFERING: **As Demand Warrants**
Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) - or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (Effective AY2015-16 if approved by 3/31/2015; otherwise AY2016-17) **Spring 2018**

8. COURSE FORMAT:

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the Core Review Committee.

COURSE FORMAT: (check all that apply) 1 2 3 4 5 6 weeks to full semester

OTHER FORMAT (specify)

Mode of delivery **Combination of lecture and lab.**

(specify lecture, field trips, labs, etc)

9. CONTACT HOURS PER WEEK:

<input type="text" value="3"/>	LECTURE hours/weeks	<input type="text"/>	LAB hours /week	<input type="text"/>	PRACTICUM hours /week
--------------------------------	------------------------	----------------------	--------------------	----------------------	--------------------------

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-computing-/> for more information on number of credits.

OTHER HOURS (specify type)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management
3 Credits Offered Spring

Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)

DSGN F194 Modeling, Assembly and 3D Animation: Autodesk Inventor
3 Credits As Demand Warrants

Students will develop skills and knowledge needed to quickly and accurately create three dimensional parts, assemblies and printed models. Students will develop skills that can later be utilized professionally or in advanced coursework.

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities S = Social Sciences

Will this course be used to fulfill a requirement for the baccalaureate core? If YES, attach form. YES: NO:

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6 W = Writing Intensive, Format 7 X = Baccalaureate Core

11.A Is course content related to northern, arctic or circumpolar studies?

YES

12. COURSE REPEATABILITY:

Is this course repeatable for credit? YES NO
If yes, fill out boxes below.

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit? TIMES

If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course? CREDITS

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? CREDITS

13. **GRADING SYSTEM:** Specify only one. Note: Changing the grading system for a course later on constitutes a Major Course Change - Format 2 form.

LETTER: PASS/FAIL:

RESTRICTIONS ON ENROLLMENT (if any)

14. **PREREQUISITES**

These will be required before the student is allowed to enroll in the course.

15. **SPECIAL RESTRICTIONS, CONDITIONS**

16. **PROPOSED COURSE FEES**

\$60.00

Has a memo been submitted through your dean to the Provost for fee approval?

Yes/No

17. **PREVIOUS HISTORY**

Has the course been offered as special topics or trial course previously?

Yes/No

YES

If yes, give semester, year, course #, etc.:

DSGN F193 201601, 201603, 201701, 201703

18. **ESTIMATED IMPACT**

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

More people are becoming interested in 3D modeling and printing. This course will have a positive impact on student enrollment.

19. **LIBRARY COLLECTIONS**

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No YES

20. **IMPACTS ON PROGRAMS/DEPTS**

What programs/departments will be affected by this proposed action? Include information on the Programs/Departments contacted (e.g., email, memo)

The Drafting Technology program is moving more toward Design Technology to meet industry standards. Adding this course will help meet student goals and help them advance in their chosen design field. Other departments/programs should not be effected.

21. **POSITIVE AND NEGATIVE IMPACTS**

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.


The impact of adding this course will be neutral as facilities and faculty are already in place.


JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

As technology advances and industry utilizes different software it is important to prepare students for the workforce. 3D Modeling and printing has a variety of application from construction, automotive applications and fashion design to the medical field.

APPROVALS: Add additional signature lines as needed.

	Date	9/14/17
Signature, Chair, Program/Department of:	CM & DET	

	Date	9/14/17
Signature, Chair, College/School Curriculum Council for:	CTC	

	Date	
Signature, Dean, College/School of:	CTC	

Offerings above the level of approved programs must be approved in advance by the Provost.

	Date	
Signature of Provost (if above level of approved programs)		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair Faculty Senate Review Committee:	<input type="checkbox"/> Curriculum Review <input type="checkbox"/> GAAC <input type="checkbox"/> Core Review <input type="checkbox"/> SADAC	

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

DSGN F194 – Modeling, Assembly & 3D Animation *with Autodesk Inventor*

Course Information

Title:	Modeling, Assembly & 3D Animation with Autodesk Inventor
Course Numbers:	DSGN F194 & DSGN F294
Section:	TE1
Number of Credits:	3
Prerequisites:	Students should have developed basic computer knowledge and skills prior to enrollment in this course. Familiarity with Autodesk Inventor is helpful.
Location:	604 Barnette St., Room 307 & Online - Blackboard
Dates:	January 16 th to May 5 th ; Fridays 5:30 pm to 8:30 pm

Instructor Information:

Instructor Name:	Adam McDermott
Contact Information:	Phone: 474-2735 (Office) E-mail: ajmcdermott2@alaska.edu <i><u>The best way to reach me is by e-mail. I will try to respond to an e-mail within 48 hours. Second best is my office phone, leave a message if necessary.</u></i>
Department Contact:	Galen Johnson, Program Head, CM 455-2846 Martha Westphal, DRT Administrative Assistant, 455-2886

Class Textbook, Materials, and Resources

Required Textbook:	Autodesk Inventor 2018 for Designers By Professor Sham Tickoo CADCIM Publishers, 2016 ISBN # 978-1942689348
Class web site:	This course will use Blackboard extensively for assignments, tests, lectures, tutorials, sharing AutoCAD information, etc. Please take the time to browse the site and become familiar with its capabilities. You can access Blackboard at http://classes.alaska.edu/ .
Class e-mail:	You are expected to use your UAF e-mail account or have the e-mail from that account forwarded to another e-mail address of yours. It is essential you use this resource, as all correspondence coming from the instructor or generated through Blackboard will go to your UAF e-mail address. You can access your e-mail at http://www.alaska.edu/google/ .

Course Description, Goals, and Outcomes

Course Description: DRT F193 is the introductory level Inventor designed to develop skills and knowledge needed to quickly and accurately create three dimensional parts, assemblies and printed models. Students will develop skills that can later be utilized professionally or in advanced coursework.

Course Goals: Upon successful completion of this course, the student will be able to define, explain, or perform tasks related to the following:

1. Inventor's User Interface.
2. Creating, Dimensioning & Editing Sketches.
3. Create and work on different planes.
4. Parametric Constraint manipulation.
5. Pictorial Sketching and various View Perspectives.
6. Symmetrical Features and Part Drawings.
7. Work with Sheet Metal Components.
8. Work with weldments.
9. Advanced 3D Editing Tools.
10. Work in Presentation Panel.
11. Create Animated Movie.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- 1.1 Demonstrate proper navigation of the Application Menu, Ribbons and Quick Access Toolbar.
- 1.2 Demonstrate how to effectively use the Help feature and Overflow Menu System of Inventor.
- 2.1 Master Sketching commands.
- 2.2 Apply and use Geometric Constraints.
- 2.3 Modify Dimensions of Sketch.
- 2.4 Use and disable Heads-Up Display.
- 3.1 Understand default axes, planes.
- 3.2 Create different planes.
- 3.3 Manipulate work planes.
- 4.1 Fully Constrain Geometry.
- 4.2 Detect Over-Constraining & Driven Constraints.
- 4.3 Distinguish Sketches vs. Profiles.
- 4.4 Use Measuring Tools.
- 5.1 Understand Isometric Sketching.
- 5.2 Distinguish Inventor Orthographic vs. Perspective Sketching
- 6.1 Use Projected Geometry Option
- 6.2 Create Mirrored feature.
- 6.3 Projected Views.
- 7.1 Create and edit Sheet Metal parts.
- 7.2 Modify Parts in Assembly Panel
- 7.3 Complete a Solid Feature.
- 8.1 Apply weldments to parts.
- 8.2 Use the 3 different types of weldment.
- 9.1 Create a Shell Feature.
- 9.2 Use Sweep, Loft and Coil Commands.
- 9.3 Create Threads, Bend, Sculpt, and stitch Surfaces.
- 10.1 Create Polygons
- 11.1 Import Parts into Presentation Panel.
- 11.2 Design Parts Trails in Presentation Panel
- 12.1 Understand Degrees of Freedom and constraints.
- 12.2 Apply Assembly constraints to Project Parts and assemble Model

- 13.1 Animate the Assembly
- 14.1 Record an animated Movie.

Instructional Methods

- Lectures:** There will be weekly lectures with an overview of each module's topics. It is highly recommended you listen to and review the lecture material, as it will provide you with an overview and understanding of what that module's tools are used for in practice.
- Tutorials:** There will be video tutorials posted for each lesson or tool you learn to use. Some of these will be from your instructor, others from the software manufacturer Autodesk, amongst other sources. Please take advantage of these resources!
- Collaboration:** Design work, and therefore drafting, requires extensive communication. Drawings, after all, are a form of communication. Students are encouraged to interact and learn from one another. The best AutoCAD tricks or tools are learned from other users, not a text book or tutorial.
- Blackboard:** Blackboard will be used extensively. Assignments will be turned in via Blackboard. Lectures, announcements, and schedule adjustments will be posted via Blackboard.

Course Policies

- Attendance:** Classes meet weekly, and attendance is required for accessibility to all available resources and to receive participation credit.
- Late Assignments:** Late assignments are discouraged, but will be accepted. The grade for late assignments will be reduced by 10% after the original due date and decrease by an additional 10% every day for 1 week, at which time the grade will be assigned a 0.
- Missed Exams:** Missed exams will not be available to be made up unless prior arrangements have been made with the instructor.
- Important Dates:** Check the UAF Academic Calendar for important dates related to fee payment, class registration and last day to drop courses. The calendar can be viewed online at:
http://www.uaf.edu/catalog/current/acad_calendar.html.
- Plagiarism/Academic Integrity:** Plagiarism and cheating are serious offenses and may result in failure on exams, papers, projects, or courses. The entire purpose of this class is to acquire useful skills. To cheat is to lose the opportunity to acquire those skills.

Support Services

CTC Student Assistance Center: The Student Assistance Center provides services that contribute to a successful learning experience and transition to a career. Services are available by appointment and on a walk-in basis.

Services include pre-admission advising, academic assessment and placement advising, financial aid information and application, and assistance with choosing a major. Ongoing academic advising, degree planning and course selection are available.

For more information, contact Student Assistance, UAF Community and Technical College, 604 Barnette Street, Fairbanks, Alaska 99701, telephone (907) 455-2851, or visit online at <http://www.ctc.uaf.edu/student/index.html>.

UAF Title IX Policy:

The University of Alaska Board of Regents have clearly stated in BOR policy that discrimination, harassment and violence will not be tolerated on any campus of the University of Alaska. If you believe you are experiencing discrimination or any form of harassment, including sexual harassment/misconduct/assault, you are encouraged to report that behavior. If you disclose sexual harassment or sexual violence to faculty members or university employees, that must notify the UAF Title IX coordinator about the basic facts of the incident. Your choices for disclosure include:

- 1) You may confidentially disclose and access confidential counseling by contacting the UAF Health and Counseling Center at 474-7043.
- 2) You can get support and file a Title IX report by contracting the UAF Title IX coordinator at 474-7599.
- 3) You may file a criminal complaint by contacting the UAF Police Department at 474-7721.

Disabilities Services: Disability Services, a program of the Center for Health and Counseling, provides services for UAF students with disabilities to ensure equal access to educational opportunities. Services are free of charge and available to any student who qualifies as a person with a disability.

To discuss eligibility and available services, call the Center for Health and Counseling at (907)474-7043 or TTY (907)474-7045 and schedule an appointment with the coordinator of Disability Services.

Grading Policy

Grading:All grades are determined by competency-based criteria evaluation. Students are evaluated on individual performances and are not graded in comparison with other students or normal curve distribution. Letter grades for the course will reflect the *Grading System and Grade Point Average Computation* policy stated in the current UAF catalog. Faculty initiated withdrawals for non-attendance, plagiarism, and disruptive behavior is per current UAF Catalog guidelines.

Evaluation: The following components each contribute to the final grade.

- **Quizzes:** There are 12 Lesson Quizzes, totaling 12% of your final grade.
- **Inventor Work:** 48% of your final grade is based on your Inventor homework. Points per assignment vary. Inventor work will be evaluated on the following scale explained in Lesson 1:
 - Completion (thoroughness) 25%
 - Accuracy (precision) 25%
 - Setup (standards) 25%
 - Clarity (neatness, professionalism) 25%
- **Final Exam:** The final exam is worth 250 points. The final exam will be a task or series of tasks based on the Inventor skills learned to date. It will be comprehensive.
- **Class Participation:** Students will be expected to know the lesson work when they arrive to class. Review sessions will verify that the previous week’s objectives have been met and the class is prepared to move on.

Grade Tabulation:	Inventor Work	550 points
	Final Exam	250 points
	<u>Class Participation</u>	<u>200 points</u>
	Total	1000 points

Grading Scale:	Note: no +/- grades in this course)		
	A	92%	920 - 1000
	B	84%	840 - 919
	C	76%	760 - 839
	D	68%	680 - 759

Course Outline: The instructor reserves the right to change the outline as required to

Class 1 – Friday, Jan 19th (5:30-8:30pm)
Introduction and Course Overview.
Overview.
Accessing your UAF e-mail account (Google Apps).
Accessing Blackboard.
Downloading Inventor.

Class 2 – Friday, Jan 26th (5:30-8:30pm)
Navigate Inventor User Interface.
Create a rough sketch.
Modify Dimensional and Geometric constraints.
Use Heads Up display.

Class 3 – Friday, Feb 2nd (5:30-8:30pm)
Master Sketching Commands.
Extrude a feature.
Cut a feature.
Modify items using History Tree.
Create a Base Feature.
Rename Parts.

Class 4 – Friday, Feb 9th (5:30-8:30pm)
Fully Constrain Geometry.
Assign & Calculate Associated Properties.
Detect Over & Driven Constraints.
Apply BORN Technique.
Pictorial Sketching.
View Perspectives.

Class 5 – Friday, Feb 16th (5:30-8:30pm)
Use Projected Geometry.
Complete Solid Feature.

Class 6 – Friday, Feb 23rd (5:30-8:30pm)
Sketches vs. Profiles.
Add a feature.
Use Measuring Tools.

Class 7 – Friday, Mar 2nd (5:30-8:30pm)
Import Solid Model to Assembly Panel.
Constrain Parts in Assembly Panel.
Edit/ Modify Parts in Assembly Panel.

Class 8 – Friday, Mar 9th (5:30-8:30pm)
Import Models into Presentation Panel.
Design Parts Trails.

No Class Mar 16th

Class 9 – Friday, Mar 23rd (5:30-8:30pm)
Create Coil Feature.
Create Swept Feature.
Create Loft Feature.

Class 10 – Friday, Mar 30st (5:30-8:30pm)
Create Threads.
Create Polygons.

Class 11 – Friday, Apr 6th (5:30-8:30pm)
Create offset Work Plane.
Create an Angled Work Plane.

Class 12 – Friday, Apr 13th (5:30-8:30pm)
Apply material to a simple Part.
Apply fixture to a simple part.
Perform Stress analysis.

No Class Apr 20st

Class 13 – Friday, Apr 27th (5:30-8:30pm)
Create a Disc Cam.
Edit the Disc Cam.
Animate the assembly.

Class 14 – Friday, May 4th (5:30-8:30pm)
Create animated movie of model.
Present Movie.

Final Project Due May 5th Midnight