



SOMERSET
COMMUNITY COLLEGE

DPT 280

Special Projects for 3D Printing, Level I

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Special Projects for 3D Printing, Level I

Allows the student to gain intermediate level experience in their perspective fields through projects and tasks assigned by the instructor and based on applications the student may one day experience as a professional. Focuses on various assignments and curriculum as determined by the program instructor.

Pre-requisite(s); co-requisite(s): Instructor consent

Credit Hours: 1

Textbook and other supplies:

- Access to various free/student version computer software(s).
- Access to a PC based computer or a modern laptop (not a tablet or Chromebook) running Windows 7 or higher with reliable internet (Note: Somerset CC local students are welcome to use the computers within the 3d printing lab located in room 115 of the Alton Blakely building or the 3D printing classroom on Laurel North Campus)
- Please note, low powered laptops or tablets such as Chromebooks are **NOT** capable of performing all the work necessary for this class. Such devices can only perform approximately 40% of what is required, the other 60% of the work requires a desktop computer or a true laptop with modern computing power. Also note that Mac based systems are likely to have significant difficulties as well, this course is designed only for PC applications.

- 3d printing supply package is required, you will be charged a \$65 flat fee to your student account. You will find more information regarding this fee below when you access the Class Portal.
- No textbook is required for this course

Your first task, visit your Class Portal: You are **required** to use the following link to gain access to your portal for this class, or what we use to provide updated links and instructions. **You are highly recommended to save this link to your “favorites” or keep this syllabus handy where you can access it**, as you will need to visit it from time to time. Once you have accessed your class portal, you will find written directions on how to proceed.

https://drive.google.com/open?id=1FO2tnRC1VZRWh86fSH6CMh_igTQTVee0OKxYRhhgUzA

Please note that failure to follow the directions found on the Class Portal may result in you being dropped from this class. We likewise recommend installing/using Google Chrome for internet browsing associated with this class. Other browsers will work, but we have found Chrome to invoke less problems.

Access to **Autodesk software(s)** (this software is already provided for local students on the computers within the class laboratory, however for offsite students, or those wishing to work offsite, they will be responsible for acquiring the software by their own means). The Class Portal provides video links on how to get the software for free from Autodesk when the time comes.

General Education Competencies

Students should prepare for twenty-first century challenges by gaining:

- A. Knowledge of human cultures and physical and natural worlds through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts.
- B. Intellectual and practical skills, including:
 - a. inquiry and analysis
 - b. critical and creative thinking
 - c. written and oral communication
 - d. quantitative literacy
 - e. information literacy
 - f. teamwork and problem solving
- C. Personal and civic responsibility, including
 - a. civic knowledge and engagement (local and global)
 - b. intercultural knowledge and competence
 - c. ethical reasoning and action
 - d. foundations and skills for lifelong learning
- D. Integrative and applied learning, including synthesis and advanced accomplishment across general and specialized skills.

Course or Program approved objectives:

Upon completion of the course, the student will have understanding of and will be able to apply the following knowledge in a lab/work type environment:

1. Demonstrate basic, practical design and fabrication applications related to additive manufacturing.
2. Present basic working models and prototypes in related fields of interest.
3. Apply a broad range of research techniques for the purpose of gathering information related to a design problem.
4. Understand the stages of preliminary product or solution design.
5. Demonstrate a basic understanding of the team-design process, and iterative design changes.

Course Outline:

The following course outline projects are subject to slight modifications or amendments by the instructor based on the lab hardware available, but represent the relative projects that students will be undertaking during this course.

1. Developing the additive manufacturing technology demonstration kit
2. Addressing STL modification, batch processing, errors, and functional creations
3. Product redesign using artificial intelligence for optimization
4. Exploring medical issues, addressing arthritis with low cost additive manufacturing.
5. Research and development of a low cost additive manufacturing workstation for functional lab applications
6. Design and develop a low cost tensile strength, material testing station for 3D printing labs
7. Develop, fabricate, and assemble a low cost filament re-spooling system
8. Develop, fabricate, and assemble a jet turbine engine assembly for mechanical engineering and technology visual reference.
9. Resin and other additive manufacturing hardware technology applications
10. Additional projects as developed by local lab instructor

Grading Criteria:

Grades will be derived as follows:

- Assigned projects will be evaluated by the Instructor with regards to effort and success; the course may focus on a single project or multiple depending on the semester. Each project will be given a point value and the points awarded the student for that project will be in relation to the student's performance.

Grades will be earned as follows:

Percentage
90 - 100 %

Grade
A

80 - 89%	B
70 - 79%	C
60 - 69%	D
Below 60%	E

Attendance Policy:

The attendance policy is based on the particular project assigned by the instructor and his/her discretion as to the necessary number of times that the student should meet with the instructor for project updates and review. If the instructor deems that the student is not progressing well enough on their project, the instructor reserves the right to amend this policy as he or she sees fit.

Make up work Policy:

Make up work is at the instructor's discretion, if it is felt that a student has a legitimate reason for missing a test/assignment and made efforts to inform the instructor in advance of a problem or conflict, such as an email or phone call, then the instructor may work with the student to make up the required work. Otherwise, the student will receive a score of zero for that test/assignment.

Late work Policy:

Not applicable.

Withdrawal Policy

A student may officially withdraw from any class up to and including the date of midterm with a W grade. After the date of midterm and through the last class of the semester or session, any student may officially request to withdraw from a course and receive a W, which may be given at the discretion of the instructor. Criteria for permission to withdraw: the student must have put forth a good-faith effort in the class and have no more than a combined total of 5 missing assignments/tests. An instructor shall not assign a student a W for a class unless the student has officially withdrawn from that class in a manner prescribed by the college. The grade of W may be assigned by the College Appeals Board in classes involving a violation of student academic rights or for academic offenses.

http://www.kctcs.edu/Current_Students/Regulations/

Academic Integrity

Cheating will not be tolerated, **and it is very simple for the instructor to tell those that are cheating because of this particular software and applications.** Students are expected to do their own work for the courses. Violators of the *Student Code of Conduct* will be penalized accordingly.

Please refer to this link for more information regarding the SCC Student Code of Conduct:

http://www.kctcs.edu/Current_Students/Code_of_Student_Conduct.aspx

Procedures relating to Discrimination, Harassment, and Sexual Misconduct

Students may direct complaints of discrimination or harassment to Dean of Student Affairs Tracy Casada at tracy.casada@kctcs.edu or 606-451-6631 for resolution pursuant to the Code of Student Conduct at

http://www.kctcs.edu/Current_Students/Code_of_Student_Conduct.aspx. Sexual misconduct matters should be directed to the Title IX Coordinator Tracy Casada to be handled in accordance with the Sexual Misconduct Procedure at http://someset.kctcs.edu/Student_Life/Security_and_Parking/Title_IX/Policies_and_Procedures.aspx. Any responsible employee who receives information related to sexual misconduct is required to report it to the Title IX Coordinator. More information about KCTCS Title IX procedures can be found at https://someset.kctcs.edu/student_life/security_and_parking/title_ix/index.aspx.

Student Academic and Technical Support

Somerset Community College offers support to all its students, whether enrolled in classes on campus or online. Your instructor is your primary resource, but the Learning Commons branches are available for assistance with research, tutoring, and computer services. Tutoring appointments can be made at <http://someset-kctcs.libcal.com/>, but are not necessary. Walk-ins are welcome. Students can also access contact information and hours of operation for all the branches of the Learning Commons at <http://someset-kctcs.libcal.com/>. For more information, call [606-451-6710](tel:606-451-6710)

Blackboard technical support is available by telephone at [855-664-6722](tel:855-664-6722) (option 4).

Starfish

SCC is dedicated to your academic success. Starfish is a program available to all students to enhance communication among students, instructors, and advisors. To access Starfish, just log in to Blackboard and click Starfish link. Ask your instructor or advisor for details. Check out SCC's website for more details and helpful instructions.

SNAP

Safety Notification Alert Process (SNAP) is the official notification system for the Kentucky Community and Technical College System (KCTCS). SNAP alerts users to on-campus emergencies (including closures for inclement weather) for all 16 KCTCS colleges and the System office. With SNAP you can:

- Find out if classes are cancelled or delayed due to weather, power outages or other unexpected events impacting campus.
- Get severe weather notifications so you can take shelter when a storm hits.
- Receive emergency messages when something or someone could be a threat to your personal safety.

To enroll, visit SCC's website or ask your instructor for more details.

KCTCS/SCC Tobacco Free Policy

"Tobacco use, including chewing (oral), smoking, and electronic cigarettes are NOT permitted on the properties of Somerset Community College campuses and centers, including buildings, sidewalks, and parking lots. *KCTCS Tobacco Free Policy, Administrative Procedures, Section 3.3.14.*"

Disability Accommodations

SCC students with disabilities requiring accommodations (i.e. academic adjustment and/or auxiliary aids or services) for this course must contact the [SCC Disability Services Office](#) (DSO). Please DO NOT request accommodations directly from the instructor without a letter of accommodation from the DSO. The instructor is responsible for providing the designated reasonable accommodation(s) when notified by the DSO. Upon receipt of the letter of accommodation, the instructor will contact the student to discuss how accommodations will be met. If your instructor has not contacted you and you have questions about your accommodations, you should contact your instructor as soon as possible.

Students with a home college other than SCC must contact disability services at their home college for accommodations. The [DSO at the student's home college](#) will communicate with the student's instructor and/or the SCC DSO to coordinate and/or provide reasonable and appropriate accommodations to the student.

In compliance with federal law, including the provisions of Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, SCC does not discriminate on the basis of race, sex, religion, color, national or ethnic origin, age, disability or military service in its programs, activities, admissions policies, scholarship and loan programs, athletic and other college-administered programs or employment. In addition, SCC does not discriminate on the basis of sexual orientation consistent with KCTCS nondiscrimination policy. Inquiries or comments regarding these issues should be directed to the SCC DSO, 808 Monticello Street, Somerset, KY 42501.

Manager of Disability Services: Angela Swim

Office Hours: Somerset North Campus, Student Commons Bldg. #117 and Laurel North Campus, Bldg. 3, #203-B. Please contact to set up an in-person or virtual appointment.

Contact Information: 606-451-6706 and/or angela.swim@kctcs.edu

The College must remain flexible to meet challenges that may include epidemics, pandemics, natural disasters, human-influenced disasters, and any and all threats to the College campus, students, employees, and surrounding communities. To ensure the safety and well-being of our constituencies, the College maintains the right to move classes temporarily or permanently to online, remote platforms; to a hybrid section that includes some face-to-face learning and some remote learning; or to a different campus,

location, building, or time. Additionally, the College reserves the right to institute plans or practices in the physical classroom/lab/activity spaces and common areas to protect students and employees. The College will attempt to make these changes as minimally disruptive as possible, but the College reserves the sole right to alter the particular type, place, or time for their classes.