

**SPRING2017 ART4633C - interactive electronic art**

**meets MW 11:00 - 13:40 bldg/rm: 82/264 & 264A**

**instructor: thomas asmuth**

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**course site: <http://newtraditionalists.net/sp17/iea>**

### **Instructor's Office Hours**

Office hours for the current semester are posted on the instructor's office door and in the main office. Consultations are offered first come, first serve or a student may sign up for a specific time on a sheet posted on the office door. Preferred contact outside class and office hours is by email. The instructor will normally respond to email during office hours and within 2 days. Response outside these hours, through weekends, or on holidays will be rare.

### **Required Text**

1. Clark, Andy. Natural-born Cyborgs: Minds, Technologies, and the Future of Human Intelligence. Oxford: Oxford UP, 2004. (9780195148664): Andy Clark
2. Additional texts are linked to the weekly schedule in PDF form.

### **Recommended Texts:**

- arduino programming notebook - Bryan W. Evans ( <http://bit.ly/1kkO7m4> )
- Getting Started with Arduino (Make: Projects) (ISBN-10: 0596155514)

### **Other Required Materials and Tools**

- UWF Gmail account & ArgoNet account Students must have an ArgoNet account to login to the lab computers. Students must also maintain a UWF Gmail account to receive important class materials updates. It is recommended that students check their UWF email at least daily.
- Other Accounts: instructor may direct students to use other online services, these services will be free of charge
- Removable storage device. You must invest in a USB 'travel' drive to save your work. The recommended minimum is a 500Gb USB 3.0 example: <http://amzn.to/1kGUEaV> , but we highly recommended 1Tb USB 3.0 example: <http://amzn.to/1kGUNLr>
- Materials for projects. Some materials may be provided per any Material Fee assessed for the course. The materials provide will vary for each course and the students should consult the instructor for a list of the materials available.

- All students should be prepared to purchase materials above and beyond this fee required to complete the project. The total for the semester will vary depending on the student and artistic choices.
- ELECTRONICS KIT I have taken the opportunity to use some of your fees to pick up a few tools that you will need for your kit because I get a better deal buying in bulk. I have purchased a Multimeter, Breadboard, test clips, jumper wires, etc.

You will still need to get the following and start bringing it the second week. I have made some suggestions, but you can get good deal if you hunt around. Another tip is to look at home for these tools or ask your family for stuff. You will need:

- soldering iron (25-40 Watt is recommended) such as: <http://amzn.to/2iTgawt> or <http://amzn.to/1OERt1I> \$10 -20
- wire stripper tool <http://amzn.to/1OESvdY> - will suffice. I prefer a pair like this <http://amzn.to/1kCGBTW> with the specific gauge marks. Please buy a pair for small wire, about 20- 30AWG (larger the number, smaller the wire) \$5 - 10
- flush cutting pliers - <http://amzn.to/1OESE0W> \$4.47 or Harbor Freight Tools <http://bit.ly/R67mAd> 1.99
- precision screwdriver set <http://amzn.to/1OESKWx> \$3.50 or <http://bit.ly/w2MJyu> \$3.99
- Needle nose pliers <http://amzn.to/1OET9rO> \$7 or <http://bit.ly/wMBtax> \$1.99
- inexpensive Safety Glasses, Clear Lens <http://amzn.to/1OETfzO> \$3 or <http://bit.ly/wUf2fe> \$1.49
- box/bag to carry everything like a tackle box. something like this is a bit more expensive but more configurable: <http://amzn.to/1OETsmr> \$20 or not as configurable <http://bit.ly/1OETz1j> \$9 or this is a decent option but isn't hard case so take care not to crush: <http://amzn.to/2iTbJSm> \$9
- As needed batteries to power projects (I recommend stashing a couple of 9V batteries in your kit.

The Elenco Starter Soldering Tool Set <http://amzn.to/1YYTchM> is a pretty good kit. You will still need to get the items not included in this kit listed above. Here is a link to a bunch of kits with various tools: <http://amzn.to/2iTIhwN>

### Please Note:

In addition to some tools, **you will need to make additional purchases of parts and components this semester.** The department provides some common components for the labs and kits. The shop has a good general selection of electronic components. We cannot guarantee that the lab will have the specific parts needed for your design. This is a shared

resource for all students; if you only need large quantity, please order your parts. Please ask instructor or mentors if you are unsure.

## **UWF Course Description(s)**

ART 4633C Interactive Art 3.0 sh (may not be repeated for credit) Prerequisite: ART3618C

An exploration of the design of interactive environments for design professionals. Issues addressed include accessibility, usability, interface, and information design. A greater emphasis on prototyping techniques and software best suited to the contemporary marketplace.

### **Description of Topics Covered**

This course will explore electronics, hardware design, human machine interface, etc. as a viable method and medium for art. The course will focus on learning the basics of electrical theory, design, hands-on learning through technology modification/adaptation and microcontrollers (MCU). Students will additionally examine artists, works, and genres of New Media; including: physical computing, electronics, robotics, experimental music, HMI, and product design.

## **competencies (aka SLO's)**

- Critical assessment of Art & Technology
  - identify and critically describe new media works in physical computing
  - identify literature, film and pop culture references in critique discourse
  - identify key issues in physical computing/art and technology work
  
- Electronic and HMI design
  - ability to read a circuit diagram
  - understand fundamentals in modification and adaptation existent technology
  - ability to prototype a circuit on breadboard
  
- New Media/Art and Technology Theory
  - discuss history of Machine Culture
  - identify key concepts such as: transparency, opacity, black box, augmentation, cyborg, cybernetics, etc.

## **policies on due dates, deadlines, & late work:**

- Coursework will include both interim Assignments and Formal Projects. See value weighting of each category below.
  
- It is critical for student to complete all Assignments; failure to do so can severely lower the final grade for the course. In order to receive credit. Assignments must be received before the deadline per assignment guidelines. Late or incomplete assignments will not receive credit. Incomplete and Late Assignments will not be discussed in public

discussions or in-progress critiques.

- Formal Projects are due at the scheduled time and must be received per assignment guidelines. Project requirements and dates are announced in class and/or posted by electronic media such as email or class website.
- Incomplete and Late Projects will not be discussed in class or during the public critique. The grades for a late Formal Project will SPRING by one letter grade for each business day it is late. After the fourth day, the grade will be zero.
- Formal Project Critique attendance is mandatory. Student who fail to attend and participate in formal community reviews/critiques will receive a zero grade for the project.

### late work & deadline exceptions

Exceptions are reserved for extreme emergencies and select professional University sponsored events (see p. 26, UWF Student Planner and Handbook-<http://uwf.edu/osrr/>). If you are participating in school sponsored events or have an emergency please contact the instructor as soon as possible. Granted exceptions are unusually rare and given at the discretion of the instructor. Students seeking an exception should note these responsibilities:

- Any student seeking an excused absence for a professional affiliation/University-sponsored event must make arrangements with the instructor prior to the absence. Students who fail to give advanced notice will not receive an exception.
- Official documentation is required in all cases. This document must identify the student, the dates missed, the events around the absence, be printed on official stationary or form, and include signature and contact information for the professor, coach, physician, court officer, etc.

### Grading Procedures Assignment/Project weighting:

- 07 points Blog Entries
- 10 points Reading Responses
- 05 points Participation
- 03 points Project 0: UPGRADE Poster
- 10 points Project 1: Intervention
- 25 points Project 2: TBA
- 40 points Project 3 TBA

<b>Evaluative Process</b> Projects are evaluated for Conceptual Approach, Technical skill/proficiency, Organizational Approach, Documentation and completion by deadline. Students may contact the instructor at any point during the semester to receive a grade to date and projection for the semester.	<b>Letter Grades</b> A ≥ 92% Superior A- ≥ 89% B+ ≥ 86% B ≥ 83% Above Average B- ≥ 80% C+ ≥ 77% C ≥ 74% Average/Competent
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evaluation rubric can be found here:  
<http://bit.ly/1wkz xuE>

C- ≥ 71%  
D ≥ 63% Below Average/Needs Work  
F > 63% Incompetent

## attendance policy for the course

**FIRST TWO SESSIONS ARE MANDATORY PER UNIVERSITY POLICY: The Financial Aid Office tracks attendance for the first week. Failure to attend can result in financial aid disbursements being withheld.**

<https://confluence.uwf.edu/display/public/Attendance+Confirmation>

### General

Students are expected to attend class and participate. This includes using all of the studio time during scheduled hours. Leaving early is a waste of resources and time.

Should a student miss a session, it is their responsibility to ask colleagues for notes, lecture materials and any other information distributed in class. Please see deadlines/late work section for policies regarding missed assignments and projects. The instructor will make arrangements for a reasonable amount of time to answer questions, but do not expect the instructor to entirely redeliver the missed information.

**SERIALLY LATE ARRIVALS**—Being regularly late to the course is disruptive and far from collegial. It is the student's responsibility to arrive be ready to start promptly at the beginning of the session. The instructor reserves the right to close the classroom after the class session has begun.

**SERIALLY EARLY LEAVES**—Alternatively leaving early as a habit can be disruptive and will also negatively affect your grade.

**Critique attendance is mandatory.** Students who fail to attend and participate in formal community reviews/critiques will receive a zero grade for the project. If you are seeking an emergency exception, please consult Exceptions section in this syllabus.

## academic conduct and plagiarism

Any work submitted for this course must be original or properly documented/attributed. My philosophy of knowledge and creative work respects that creative and scholarly activity is process of accumulation of influences, in which we constantly borrow and build upon. However, representing the work of others as your own undermines the value of this course and the degree you are pursuing.

Properly attributing work through blockquotes, footnotes, (and increasingly in our profession) links, and inline comments is a necessity in the development of a professional practice. This course will enforce the standards, reporting, and penalties put forth in the UWF standards.

Campus policy is posted online: <http://uwf.edu/academic/policies/misconduct/misconduct.cfm>.

## General Classroom Responsibilities Policy

- **Spirited**, but **Collegial** participation is appreciated and encouraged. However, disruptive behavior will not be tolerated. The Student Code of Conduct (<http://uwf.edu/osrr/>) sets forth the rules, regulations, and expected behavior of students enrolled at the University of West Florida.
- **Focus** is maybe the most direct way to describe the expectation for the classroom, if anything distracts you from the class purpose or goal, it should not surprise you that you will be asked to re-focus or leave. If you are confused about the goal for the session, please ask for help.

### Other Important Responsibilities & Classroom Expectations

- **Alarms:** In the case of a fire alarm, please immediately proceed to entrance of Parking Lot M at Campus Drive on the north side of the art wing. Meet the instructor until we get an all clear. The instructor will lock the room so all personal items will be secure.
- **Course Subjects:** During the discourse of this discipline we may talk about matters which are at the fringes of our society. If at any time you find the subject or content of this course objectionable you are encouraged to discuss it. If however you find a presentation offensive you are permitted to quietly, without disrupting the class, excuse yourself. It is then your responsibility to contact the instructor for make-up work.
- **Overall Personal Responsibility:** Students are responsible for their own well being within the University system. If you need help, it is your responsibility to ask for it. The expectations at the University are high; you do not receive a grade, you will earn a grade.
- **Class Specific:** If the course has Health and Safety or other requirements/responsibilities, an addendum will be issued as part of the syllabus file.
- **NOTE!! CLOSED TOE SHOES ARE REQUIRED TO USE THE FABLAB. YOU WILL BE DIRECTED TO OBTAIN PROPER FOOTWEAR BEFORE YOU CAN USE THE FACILITIES.**

# Universal Campus Resources for Students

## **SDRC**

The **Student Disability Resource Center (SDRC)** at the University of West Florida supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, such as time-limited exams, inaccessible web content, or the use of non-captioned videos and podcasts, please notify the instructor or the SDRC as soon as possible. You may contact the SDRC office by e-mail at [sdrc@uwf.edu](mailto:sdrc@uwf.edu) or by phone at (850) 474-2387. Appropriate academic accommodations will be determined based on the documented needs of the individual.

## **Tutoring Services**

Tutoring services are available to all UWF students through the Learning Center in bldg. 52 Room 151. They provide free face-to-face and online tutorial assistance and academic support services to all currently enrolled students. In addition to the Learning Center, tutoring is also available at Mathematics and Statistics Tutoring Lab located in building 4, room 302 and the Writing Lab located in the Writing Center in Bldg 51 Room 157.

## **Counseling and Wellness Services**

Counseling service offers counseling and therapy to help students address how to manage, cope and grow with the stress associated with school and life. The primary goal of counseling is to help students develop the personal awareness and skills necessary to overcome problems and to develop in ways that will allow them to take advantage of the educational opportunities at the university.

# UWF Department of Art Computing Lab Policies

Students found in violation of these rules may have their access limited to the labs.

- No Food and Drink in the lab. Stow your food or use the white cabinet at the entrance to hold the container until you can take a break.
- Tools and resources are primarily reserved for the students enrolled in the Digital Media Art courses. Please consult an instructor or Lab Technician before you begin.
- Do not interrupt classes. The labs have open hours for homework and projects. These will be posted on the doors of the labs.
- Use of the computers during Open Lab Hours is usually acceptable for students of the Department of Art if it doesn't impede the work of a student enrolled in digital courses.
- Access to the adjacent Fabrication Lab may require additional training. Please consult the area manager or a FabLab Technician for information on the equipment and requirements.
- Follow any directions that Instructors or Lab Technicians give to you regarding the lab and equipment.
- Students must save their files on a removable media such as a USB thumb drive or an external hard drive. The lab machines may be wiped clean and reformatted at any time. There is no backup.
- Students are advised to develop a disciplined backup schedule. It is suggested to subscribe to an online backup service such as Mediafire, Carbonite or Dropbox in the case of drive loss.
- Never install any software on any machine. Please consult your instructor for assistance and permission should you find other resources necessary to complete your projects.
- You may not use the resources to print for classes other than Digital Media/Graphic Design. The printer equipment and materials are funded by these classes fees. Please consult a lab monitor or your instructor about when and how to print for class work.
- Print resources are available in class or Open Lab Hours with the assistance of Lab Technician. All printing outside of class should be done during open lab hours.
- Please remember that we share these computers and other tools among several classes; please treat them in a manner that will ensure their cleanliness, longevity, and usefulness for all users.



# Advanced Digital & Fabrication Laboratories Facilities and Policies

The Advanced Digital and Fabrication Laboratories (aka Adv. Lab and FabLab), located in Building 82, rooms 264 and 264A, is a research studio devoted to the advanced practices in Digital Media such as Videography, Programming, Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), Computer Numerical Control (CNC) technologies, Physical Computing (PhysiComp), and Electronics as critical methods for contemporary art practice. The two lab area has both wired and wireless Argonet access. These facilities serve students and faculty at the UWF Art Department and allied University programs.

## Equipment

### CAD/CAM/CNC Equipment

The FabLab has equipment that allows students to mechanically fabricate their computer generated designs in wood, plastics, foam, etc. The Lab is equipped with a TechnoCNC LC4896 with a 3 horsepower router and 5 by 8 foot vacuum table which can be used to cut 2D shapes and 3D surfaces. In addition, the Lab has two CubeX Trio FDM 3D printers that build physical models additively in plastics. These machines have been used to create furniture, sculpture, molds for ceramic casts, etchings, panels for electronics, and circuit boards.

### Electronics Workshop

These labs also serve as the primary space for research and development of Physical Computing and electronics in the UWF Art Department. The facility is equipped with ventilation hoods, workbenches, bench power, exposure unit, PCB etching materials, reflow oven, and electronics components. The lab maintains a small selection of basic electronics tools(see below) and warehouses Printed Circuit Board and component materials for classes in these practices. Students should contact the professor for a list of the available materials for their section.

### Small Tools

A small selection of hand tools for basic fabrication are available for research projects, such as a cutting tools, measuring tools, screwdrivers, socket sets, small drill press, etc. In addition, the shop maintains a small variety of small tools for electronics: soldering tools, wire strippers, third hand tools, etc. A full list of tools available can be obtained by contacting the Lab Monitor or an instructor.

**All tools are for use in the FabLab and Advanced Digital Lab only, if you need a hand tool to use in another studio please contact the studio coordinator for that area.**

## Lab Monitors/Technicians on Duty

The Adv. Lab and FabLab holds staffed open studio hours (please consult the door for times). The primary duties of Lab Techs are to maintain a safe, clean learning environment and to insure the responsible use of equipment and tools for student primarily enrolled in Digital courses. Students can contact Techs for

questions concerning use, scheduling, and operation of any equipment or materials.

Techs assist students in the preparing their files and fabrication with the CNC and FDM equipment. Students must comply with the training and safety policies of the lab. CNC and FDM operation require a Lab Technician to assist. Lab Techs are on staff to help facilitate the work; they are not on duty as contractors to complete the job. Students are required attend the work being done, monitor the process, and assist the lab monitor with material handling, cleanup, or any other task that the job requires.

## **Student Status & Access**

The Adv. Lab and FabLab is primarily available for students enrolled in relevant art courses and those approved by the lab manager. Lab access is available during class time and posted “open hours”. Students and users not in these courses should consult the on staff Techs or lab supervisor about services available general use.

All enrolled students and approved users must complete a mandatory Health and Safety Orientation for working in the Fabrication Laboratory (FabLaB). The Health and Safety Orientations take place during class, and will cover all of the important rules, practices and protocol as established by UWF, OSHA, the Department of Art faculty, and the Sculpture Lab Supervisor. The Health and Safety Orientation also covers fire safety, what to do in emergency situations, OSHA codes and policies.

The training programs for authorization are managed by the lab supervisor and administered by the lab technicians. Additional training opportunities take place as needed and only during Open Studio Session hours, when a lab technician is on duty. Students are to refer to the schedule posted for Open Studio Session hours. Students are responsible for seeking out the lab technician on duty to arrange the times and dates for the training program(s) for authorization for the wood shop and/or metal shop. Students should be aware that the training program(s) may take up to 3 or 4 different sessions.

Any unauthorized persons found using the Lab, along with those who aided their access, will be reported and action will be taken – including the confiscation of work and cancellation of lab privileges. The facilities may be electronically monitored for policy conformity, safety, and security.

## **Shop Condition and Cleanliness:**

Students are not permitted to not leave the labs without cleaning up after themselves. Sloppiness is disrespectful, and in this setting, dangerous. Allow at least 10 to 15 minutes of time for a full clean up: sweeping, vacuuming dust from power tools, and putting hand tools back in their appropriate place. Dispose (in the appropriate receptacle) debris from any print, cutting or layout. Do not forget to remove memory storage devices from the Lab computers. Jump Drives and Hard Drives will be taken to the Lost and Found in the Department of Art Office.

These facilities are a shared studio area, not only with other members of their class, but also with students in other classes and the faculty. These policies contribute to the safety and respect for the Art Department community; it is required that all students adhere to these policies:

## Use of Tools and Equipment:

- Put away any and all tools that are used.
- Students cannot operate any tool/equipment before instruction for appropriate use and safety procedures.
- Any student who feels unsure, nervous or confused about the use of a tool after training, must consult with the instructor or FabLab technician before proceeding.
- Instructor or FabLab technician must be on duty to use of the CNC and 3D Printers
- Tools may not be taken out of the lab (Adv Lab/FabLab).
- Broken tools must be reported to the instructor or lab technician. This is not an issue of fault, it's one of safety.
- The use of spray paint/adhesives or any other aerosols in the building is not permitted at any time. See Materials section below for more information.

## Storage of Works-In-Progress and Personal Materials:

- Students MUST clear their materials off of the worktables, throw away any debris, and sweep excess into the trash bin.
- Students must store their work-in-progress in the designated area for the class. Work may not interfere with the use of equipment and is out of walkways. Students who are having difficulty storing their work in the designated areas should see the instructor to address the issue.
- Students must take care not to disturb other students' works-in-progress. Note that the studio is a public area; students store materials at their own risk. but the lab will not assume liability for materials
- Students may not store work after it has been presented for critique.
- Materials and supplies must be on shelving provided. Please see the instructor for direction. Note that storage is extremely limited and needs will be accommodated as possible.

## General Shop Rules for Advanced Lab & FabLab:

- **Supervision:** The instructor or lab technician/monitor has the final call on use of the lab. A user will be asked to leave, if the instructor or tech on duty determines that a user is not complying with safety or use policies. Anyone who is asked to leave should do so immediately and respectfully leave and contact the lab supervisor as soon as possible to discuss remedies.
- **No Food:** Do not eat or drink in Lab. Please leave your food stowed away or put containers on white cabinet in the Adv. Lab.
- **Appropriate Clothing:** Avoid loose clothing or hanging jewelry while around any power tools. Loose clothing, long hair or hanging jewelry can become caught in tools. Clothing should fit the body snugly and long hair should be tied back at all times shop. Removing all jewelry prior to using woodworking tools is also advised.
- **Wear safety glasses.** Almost everything in the Fab Lab requires protective eyewear; get used to wearing them all the time. Corrective glasses are a valid alternative for impact, but splash goggles are always required for working with wet chemistry.
- **Protect your hearing.** Semi-reusable earplugs are provided by lab. Hearing protection is always required in the FabLab when the CNC is in operation.
- **CELL PHONE** use in the FabLab is strictly limited to work purposes. Acceptable work practices include: documenting work progress, consulting a chart for figures, using calculator function to determine the decimal of a fraction, etc. Taking calls, texting, gaming, posting/reading social media,

etc. is unacceptable and will not be tolerated. Students who are expecting an important phone call from a doctor or family member may inform the instructor before class, and excuse themselves quietly when they receive their call. Otherwise, cell phones are to remain stowed.

- **HEADPHONES AND EARBUDS** are not allowed in the FabLab. While it is appropriate to wear headphones in the Advanced Lab to work on video and audio, it is dangerous to wear such devices in the fabrication shop.
- **Intoxication is prohibited.** Alcohol is never allowed in any of the lab areas. Anyone found under the influence of any substance will result in immediate and permanent removal from class.

## **Materials for Lab/Studio**

Depending on your course materials may need to be supplied by the student. Cutting (as opposed to engraving) capacity varies with materials, thus it is recommended that you consult with a lab monitor about cutting thickness limits and materials. All material brought into the FabLab must conform to MSDS and departmental guidelines regarding allowable, safe substances. Unlisted materials are subject to approval (see box below).

FDM (3D Printer) ABS PLA	CNC Foam (Extruded Polystyrene) Plastics(Acrylic, Polycarbonate, ABS, PTFE, HDPE) Wood Plywoods (MDF, Particle, etc.) Light Gauge Soft Metals (Copper, Aluminum)
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## **Solvents, Cleaners, Finishes, Adhesives**

Only approved materials can be used inside the lab. These materials will be provided by the lab, no outside materials are to be brought in to the lab. No Aerosols are to be used in the lab at anytime. Please set up a work area outside and at least 20 feet from the Lab door.

A binder with all approved material's MSDS is located in the top cabinets next to the software and policy manuals. These are available to any student, faculty, or inspector upon request at any time. An additional copy can be found in the Art Department office. Please consult area faculty members if you would like to request use of other materials. Only faculty members or the Departmental Coordinator can approve new materials for lab use.

## **Scheduling of CNC and FDM Printers**

Cutting and fabrication time can be scheduled by contacting a Lab Monitor or Instructor. Instructors may set limitations or blackout periods on certain processes during the semester. You are advised to check the schedule early to avoid conflicts.

Blocks of time will be scheduled in one hour increments up to 3 hours in a single shift. Users can schedule up to 3 distinct shifts per week. Students requiring more time will be able to use the services per the Standby and No-Show Policy (see below). The operator has the right to refuse any jobs that will extend past 15 minutes before closing of the shift. Please arrive early.

Lab Monitors may be available to assist students in the formatting of CAD files, if they are not occupied with a fabrication job. CAD files must be formatted properly prior to their being sent to the machines. It is NOT the responsibility of the lab monitors to “fix” problematic files. The lab monitor will notify the student if he or she needs to modify the submitted CAD file.

**SCHEDULE EARLY!** Pre-scheduled appointments must be made at least 12 hours in advance of appointment time. Clients needing access with less than 12 hours notice will comply to the Standby and No Show Policy

## **Standby and No Show Policy**

Please arrive promptly for your scheduled appointment and prepared to begin. Clients must start a job within 10 minutes of the beginning of the scheduled appointment. The client must have files ready for final CAM processing by technician, approved materials prepared for machining, and any other preparations to begin immediate use of machining. Users should meet with instructors and technicians to go over any specifics of their work and to pre-process their files before their scheduled appointment.

If no job is running after 10 minutes, standby users who are prepared to start as noted above may bump the unprepared or late user for the remaining period of the scheduled time slot if the job does not extend into the next pre-scheduled users appointment.

Standby users may use extra time left from signed up users who are finished early, as long as the job will not extend into the next scheduled appointment. When users finish early, they are encouraged to let as many other users as possible know that there is free machine time.