Assessment

Makerspace Implementation

In order to evaluate the makerspace, we will need to track certain useful statistics. The following per-semester statistics will be tracked:

* Number of events held
* Number of attendees at events
* Website hits
* Number of new/completed projects which are related to a non-FYE class
* Number of new/completed projects which are related to an FYE class
* Number of new/completed projects which are not related to a class
* Number of professors who assign makerspace projects
* Number of new students who used the makerspace
* Number of students who used the makerspace
* Makerspace-related equipment checkouts
* Questions answered
* Hours worked by student employees
* Hours worked by staff
* Expenditures for Materials, Equipment, Maintenance

In addition, we would like to maintain a method for feedback from students and faculty.

Events and Sessions

Makerspace Implementation

Events will be a good way to get users into the makerspace. They will also be a good way to get non-library faculty/staff involved with the makerspace.

Broad questions:

* Should we require a lesson plan and approve it?
* Should we have a light curriculum which outlines the contents of certain routine sessions?
* How do we solicit faculty/staff/students to run events?
* How do we deal with knowledge requirements?
	+ Do we only teach sessions that start from the very beginning?
	+ Say “Course X” requires “Course Y” and “Course Y” requires “Course Z”?
	+ Split into broad categories “Beginner” “Advanced”

Sample Events

* Basics of 3D printing ([Details](file:///%5C%5CStaff.uwec.edu%5Clibsh%24%5C%28Groups%20And%20Committees%29%5CMakerspace%20Implementation%20Task%20Force%5CEvents%5CBasics%20of%203D%20Printing.docx))
* 3D modelling with Fusion360
* Balsa Wood Bridge Competition ([Details](file:///%5C%5CStaff.uwec.edu%5Clibsh%24%5C%28Groups%20And%20Committees%29%5CMakerspace%20Implementation%20Task%20Force%5CEvents%5CBalsa%20Wood%20Bridge%20Competition.docx))
* Intro to Electronics and Arduino ([Details](file:///%5C%5CStaff.uwec.edu%5Clibsh%24%5C%28Groups%20And%20Committees%29%5CMakerspace%20Implementation%20Task%20Force%5CEvents%5CIntro%20to%20Electronics%20and%20Arduino.docx))
* Build a Kite

Dallas [event calendar](https://dallasmakerspace.org/calendar/) for inspiration.

Funding, Costs, and Fees

Makerspace Implementation

What do we charge users? They’re building things with materials and materials cost money.

Options:

1. Charge a “membership fee” which funds materials/operations
2. Maintain a small/moderate inventory of common materials and sell to users (for MS projects only?)
3. Like #2 but provide some amount at no charge to students

Charging for 3D prints by weight is common and easy, but:

* Are we providing a printing service, where we accept the file/money and hand over a part? We are then responsible for monitoring the print and if it fails, we’re on the hook.
* Do we provide access to a printer, and the user is responsible for monitoring. Here, the user is usually responsible for failed prints.

Hours of Operation

Makerspace Implementation

# When can we open our doors?

1. Option – Open to select, highly interested students week after spring break. Grand opening in Fall
	1. Gives us time to work out kinks before grand opening (7-8 weeks of operation)
	2. Gives us something more concrete to entice staff/faculty to help us.
	3. Rudimentary Safety and Policy need to be completed
	4. 6.5 weeks to prepare
2. Option – Wait until facilities work is fully complete, probably fall

# How many hours per day?

Limiting factors:

* Demand-how will this change over time (semester, years)
* Student employees (pay?)
* Faculty/Staff time and availability
* Summer/Winterim?
* On demand staffing? Or permanent staffing?

Marketing

Makerspace Implementation

In the beginning, when few know about our presence, marketing will be key to success.

Audiences

* Students in general
* STEAM students
* FYE students
* Faculty/staff
* Administrators
* MakeUWEC
* Student Organizations—partial list:
	+ Hmong Student Assn
	+ African Student Assn
	+ Japanese Cultural Society
	+ Korean Student Assn
	+ Activities, involvement, and leadership (HIDDEN)
	+ ACS - American Chemical Society
	+ AMA - American Marketing Association
	+ Anime Appreciation Society (FROZEN)
	+ Aspiring Educators
	+ AITP - Assn of IT Professionals
	+ Biology Club
	+ Blugold Beginnings
	+ Blugold Mile
	+ Collegiate DECA
	+ Collegiate Entrepreneur's Organization
	+ College Feminists
	+ CWAMLE - Collegiate Wisconsin Assn of Mid-Level Ed
	+ Cosplay and Costuming Guild
	+ Fashion Revolution
	+ Graphic Communications Design Club
	+ Materials Research Society-UWEC Chapter
	+ Math Club
	+ Photography Club
	+ Researchers and Innovators Club
	+ Society of Physics Students
	+ SACM - Student Assn for Computing Machinery
	+ UWEC Women and Gender Minorities in STEM
	+ WITS - Women in IT Systems

Messages

* Advertise our presence (grand opening)
* Advertise our events/sessions
* Advertise our tools
* Ask faculty/staff/students to run sessions
* Solicit feedback
* Convince administration that this is a valuable service

Channels

* Existing
	+ Plasma Screens
	+ Touch Screen
	+ Library Athena marketing feed
	+ Library Blog
* Suggested
	+ Table toppers
	+ Makerspace blog? Project writeups
	+ Makerspace Facebook? Can be used to create events with reminders
	+ Makerspace Twitter?
	+ Makerspace Instagram?
	+ Makerspace YouTube?

Events?

* Feedback session from students/faculty/staff in the space, surrounded by tools. Get ideas for events. Build hype and excitement.
* Trial open hours
* Grand opening
* CETL: Collaborate with faculty

Blurb in Off the Shelf (OtS will be published before April)

* MS coming in fall
* If you have naming ideas, watch our webpage—we’ll be soliciting naming ideas
* Interested? Join MakeUWEC

Coming this fall: The McIntyre Library Makerspace—a place where people get together to make things. You can look forward to a range of tools, from 3D printers and 3D scanners to sewing machines and vinyl cutters. Soldering irons, power tools, Legos, and a podcasting studio will share shelf space with tools you would expect to find in any garage. Are you concerned that you don’t know how to use the tools? No problem—we plan on having all the expertise and training you need to accomplish your projects. Watch the McIntyre Library webpage and social media for more details. Also, be on the lookout as we will be soliciting ideas of what to name the Makerspace.

Faculty, staff, and students who want to collaborate, get involved, or just stay updated, please contact DH. He can also connect students with a newly-formed student group MakeUWEC. Spread the word!

Mission and Vision

Makerspace Implementation

# Mission Statement

 A mission statement defines the scope of what we do. It answers the question

 "Why do we exist as an organization"

*“To provide the space, expertise, and equipment necessary for our community to safely explore the processes of creation, collaboration, and learning.”*

 We facilitate the education of students through the process of creation.

 We provide the tools and expertise necessary for learning through creation.

 We recognize the opportunity creative projects provide for students

# Vision Statement

 A vision statement is a broad statement that helps envision the future we want to create.

 Think "bursting at the seams" optimism and motivation

All students will have access to an active maker community engaging in led and self-led creative projects

\* experiences that creatively and actively engage students

\* challenging, engaging opportunity

\* collaborative learning community

Name

Makerspace Implementation

Dungeon of ingenuity

Innovation station

Chamber of creation

McIntyre Makerspace

Library Artistry and Building Space (LAB Space)

Center for Learning, Artistry and Building (C-LAB)

Maker Lab

HackerLab

iLab (Ideation Laboratory)

Launch Lab

Blugold Makerspace

FabLab

MakeLab

Innovation Sandbox

Invention Studio

Lab G (BG for Blugold)

The Garage

Toolbox

Workbench

Projectory

The Tinker's Discovery Lab

The DREAM Lab:

 Dream it

 Realize it

 Embrace it Lab

 Articulate it

 Make it

Makey McMakerSpace

221B Maker's Street

Creative Corner

Creativity Corner

The Creation Station

Crefftau Corner (Crefftau means crafts)

YouCreate

Blugold Design Center

STEAM engine

InnEAUvation Lab

"Power of AND lab

AND lab"

sANDbox or S[AND]box

Out Of Your Mind

MakeIntyre Great Again.

MakeSphere

The Libratory

MakeSpace

McIntyre Library Makerspace

Community Create

Blugolds make space

Craft Time

Make Eau Claire

makerspace

Build a Thing

Creation Cloud

Creator's hall

Creatives Marks: Make your mark

Mark your place!

Mark the World

Eau-Craft

Make UWEC

The makerspace

The Makers Space

YouCreate

Final options:

Blugold Makerspace

The DREAM Lab:

 ***D***ream it

 ***R***ealize it

 ***E***mbrace it

 ***A***rticulate it

 ***M***ake it

InnEAUvation Lab

MakeLab

Maker Lab

MakeSpace

Make UWEC

McIntyre Library Makerspace

S[AND]box

Final Answer:

Blugold Makerspace

Operations and Staffing

Makerspace Implementation

What staff/management positions are required?

* Manager to coordinate and take general responsibility
* Staff to help with work load
* Safety?

Who will staff the makerspace?

* Library faculty/staff
* Library student employees
* University faculty/staff
* Student volunteers

What are staff duties?

* Purchase equipment and materials
* Maintain and inventory equipment and materials
* Train student employees/volunteers
* Solicit and schedule events
* Market the makerspace to faculty/staff/students
* Connect with community partners
* Liaison to MakeUWEC
* Maintain makerspace website
* Create and review documentation
* Assessment (statistical?) tracking
* Ensure safety and policy adherence
* Training
* Welcome users
* Run the 3D printer?
* Provide project assistance or refer user to available experts
* Practice using tools
* Help students document their projects
* Help students select projects
* Store and retrieve tools and materials
* Collect money if we charge for materials/services

Makerspace Policies

Makerspace Implementation

* In order to use the Blugold Makerspace, a patron must be one of the following:
	+ A student currently enrolled at UW-Eau Claire
	+ A currently employed faculty member at UW-Eau Claire
	+ A currently employed staff member at UW-Eau Claire
* All patrons must present their Blugold ID card each and every time they use the Blugold Makerspace
* All patrons must sign, and we must have on file, a liabilty waiver before the patron can use the Blugold Makerspace
* Before using most Blugold Makerspace equipment, patrons must be certified in the use of such equipment
* All patrons must agree to not use intellectual property which they don’t have the right to use
* The creation of weapons in the Blugold Makerspace is prohibited
* All patrons must clean up after themselves
* All patrons must behave in a professional manner:
	+ Harassment is unacceptable. You will be required to leave.
	+ If discussions or behavior unrelated to makerspace activities bother other patrons, you may be required to leave
* Academic and personal projects are allowed. Commercial projects are only allowed with the approval of Blugold Makerspace staff
* Blugold Makerspace staff reserve the right to prohibit projects or to refuse access to equipment for legal, safety, or other reasons. The patron will be told why this action is being taken
* The Blugold Makerspace may be monitored and recorded by video camera for safety and property reasons.
* Patrons who damage Blugold Makerspace property may be fined for damage caused if the damage was found to be intentional or due to negligent behavior

# Potential policies for our makerspace

Who is allowed?

* Allow all current Students, Faculty, Staff
* Allow family members, invited community, former Students, Faculty, Staff with purchase of Makerspace card ($10 per month)

Sign a waiver

Intellectual Property – you must attest that you have the proper legal right to use any digital assets you use.

Cleaning up after yourself – You are always responsible for leaving the space as clean as you found it

Safety – You must abide by all of our safety regulations

No harassment – We will kick you out for harassment

Training required for most equipment

What to do if someone starts burning something, releasing smoke (put it in the fume hood?) Avoid smoke detectors going off?

Limit type or quantity of assistance our staff provide on projects?

Don’t make weapons

Mandatory to attend a safety training session before using makerspace?

Food/drink policy

Donation policy

# Survey of other makerspace policies

ncsu - https://www.lib.ncsu.edu/makerspace/policies

 Access - who can access

 Payment - payment methods

 IP - I am authorized to use any of the stuff I use.

 Content/limitations - lawful purposes, no weapons. One printer at a time

 Link to full terms of service and user agreement

 Ask for help, Check in/out, safety guidelines/gear, work safe, responsible

 for own property, no food/only drinks w/ lids, maker activities only, report

 accidents/injuries, no weapons

 Completed safety orientation, I am aware of risks

 Indemnify the university

umd - https://www.lib.umd.edu/tlc/makerspace-policies

 General - Eligibility, provide own storage, not responsible for your loss

 Computer use - courteous, comply w/ rules, respect copyright laws

 - no illegal, advertising, lobbying, commercial use

 Fines/fees - found broken or missing after you use it? You pay.

 Digital equip terms - "as is" basis, yadda yadda. no guarantee of confidentiality

 - no illegal, unsafe, IP violating use

 - reserves right to refuse requests

 .. Adapted from other guidelines ...

uwb - https://www.uwb.edu/innovation/collaboratory/policies

Code of Conduct

 open to..., strives to provide..., users expected to...

 Users will: follow uw computer use policy

 appropriate use of univ. ID

 !papers!

 comply with MS policy

 listen to staff in emergency, leave at close, don't go to rest. area

 Users will not: be an asshole

 unsafe behavior

 use disruptive noise

 sex, etc.

 vend, peddle, solicit, petition, post, distribute

 alcohol/tobacco

Purchase List

Makerspace Implementation

We need to firm up the list of specific items we’ll purchase

# Items to be purchased from the initial allotment

These items should be related to safety and space renovation

* Note that most of this allotment needs to be reserved for flooring, power, data, and fume hood
* Fire extinguisher
* First aid kit
* Eyewash
* Safety glasses
* Face shields
* Heat resistant gloves
* Aprons
* Floor mat (anti-static, ergonomic)

# Items to be purchased from subsequent allotment

* 3D Printer

# Items that weren’t on the original purchase list

* Handheld or small format whiteboards
* Scroll saw

Relationship with MakeUWEC

Makerspace Implementation

MakeUWEC is the student group on campus that represents makers.

What is their relationship with the McIntyre Library Makerspace?

* Source of student employees
* Volunteers to staff the Makerspace?
* Students who run events
* Source of feedback about the Makerspace

Safety

Makerspace Implementation

There are many potential ways injuries can occur in a makerspace. Our highest priority needs to be to ensure that we appropriately mitigate these threats and create not only a safe space, but a culture of safety—that is to say that safety should be routinely mentioned and routinely considered.

Meet with Loss and Prevention officer

Where to purchase Fire extinguishers? Provided by facilities?

Can we block empty fire hose box?

First aid requirements?

Eye protection: safety glasses (are prescription glasses enough?), face shield, Eyewash station??

Policy about not leaving users alone in makerspace??

Training/certification for equipment before using it?

Video monitoring for loss prevention?

Chemical storage? A special cabinet?

SDS sheet requirements?

Waiver required for which activities? One per event/semester/year/?

Activated carbon filters are ineffective (except the granular type) against solder fumes: <https://www.ncbi.nlm.nih.gov/pubmed/9838864>

Clothing requirements for certain equipment

Room capacity

Loss prevention / inventory

Prohibit making weapons or parts of weapons. What constitutes a weapon? Science experiments can be dangerous sometimes, does that make it a weapon? (Laser projects, railgun, other High Voltage, etc.)

Concerns with allowing selected Non-UWEC members to use the space? Spouses? Blugold Beginnings? Paying community members?

Kids/minors/College students under 18

# Concerns for Specific Equipment

Hand tools: hammer, screwdrivers, box cutters, tin snips, wrench

Drill/Driver

Jigsaw

Dremel

Pop riveter

Heat gun

3D printer

Sewing machine

Cutting mat/cutter

Fabric iron

Vinyl cutter

Hot glue gun?

Soldering iron

Oscilloscope

Multimeter

Electronics power supply

Shopvac

Fume hood

User Training

Makerspace Implementation

Most hardware/tools require training for purposes of utility or safety. We will want to train users in their use.

Makerspace Website

Makerspace Implementation

Unique characteristics of a makerspace website

* One fundamental concept of a makerspace is ‘Community’
	+ A strong role the website can play is facilitating communication between members of this community
	+ We can expect content contribution to come from many individuals (the makerspace patrons), not just site admins
* At this time, unlike libraries, makerspaces are somewhat new and not well-understood

Purposes of a website

* Show availability
	+ Tools
	+ Events/sessions/training
	+ Expertise
* Showcase completed projects
* Provide a forum
* Share with outside world what we’re doing

Examples:

* <https://lib02.uwec.edu/Make/>
* <https://blogs.lawrence.edu/makerspace/>