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## Executive Summary

The College of the Canyons MakerSpace project is an exciting, robust, and evolving project that will create and sustain an exciting location where students, faculty, staff and community members can engage individually or in teams develop STEAM (Science, Technology, Engineering, Art, and Mathematics) related and integrated projects. MakerSpace is built to provide the location, tools, techniques (education), support, and encouragement for innovative and creative work.

### Nature of the Project

MakerSpace has been designed and will be implement primarily to foster community involvement, robust teaching and learning, and teacher and student engagement in a robust, engaging environment that provides support to learners in terms of resources, technical assistance, the physical space, and collaboration.

### Inspiration for the Project

The project was inspired from the directive of the Chancellor due to the need to implement new ways of teaching topics in the STEAM areas. Further, supporting the inspiration is a national movement to integrate teaching, learning, and activity in a collaborative way that will ultimately lead to student success.

### Project Management

At present, the project management for the MakerSpace project has yet to be formalized. With the implementation of Phase 1 of the project (the initial start of MakerSpace), an on-going Steering Committee will determine the management of the MakerSpace area including the project management, the operational management, the policies and procedures, etc. as it pertains to safety, integration into the campus community, and the on-going search for financial support to sustain the operation and activities of our MakerSpace movement.

## Project Summary

### Vision

The vision of the College of the Canyons MakerSpace is to create an autonomous, College community-driven, located on the college campuses, shared space with access to tools for friendly, collaborative, inspirational, technical and artistic expression and experimentation in the Santa Clarita Valley.

### Mission

The mission of the College of the Canyons MakerSpace is to offer collaboration space for students interested in Science, Technology, Engineering, Art and Math fields of study (STEAM). The space will provide tools, resources, training and entrepreneurial opportunities pursued by its participants. MakerSpace will provide venues where individuals and business partners can consult, collaborate, and create enabled by appropriate technology and their own shared skills, inspiration, and resources.

### Steps toward achieving these goals include:

- Provide space, tools and activities accessible to participants regardless of their current skills, capabilities or financial status.
- Sharing Maker knowledge through organized events focused on particular technologies and applications, including workshops and classes on using Maker tools safely and effectively
- Showcasing, participating, and sharing the accomplishments of MakerSpace with the broader campus community and local business and educational partners.

### Business Case

The College of the Canyons MakerSpace is intended to bring a new innovative and robust environment for inspirational expression. MakerSpace at COC will provide:

- A venue for multi- and inter-disciplinary opportunities.
- A means of expression and innovation to cross-pollenate disciplines, stimulate entrepreneurial thoughts, use of advanced manufacturing technology, application of new tools and enhance education.
- Enhance skills of participants.
- The creation of new networking opportunities.
- An opportunity for students to explore career pathways.
- An opportunity to learn how to use various tools in a safe and monitored environment.

## Core Values

The sustained core values of our MakerSpace involve the Creativity (the ability to create and innovate), the Opportunity (by having the space, resources and support), the Relationship (involvement with other peers and faculty), Entrepreneurial (the ability to create something new and to move it from concept to reality), and Skill Building (the ability to try something new and/or develop skills with tools, technologies, and processes).

**C: Creative:** Creativity is the spark of innovation. MakerSpace is a place (location) and provides the tools and resources to support creativity.

**O: Opportunity:** MakerSpace supports the creative opportunity by providing tools, the location, a collaborative space, assistance, and many layers of support for STEAM related projects.

**R: Relationships:** MakerSpace is a collaborative learning space. In this collaboration, new relationships will be formed and existing relationships will be supported around STEAM-related collaborative work.

**E: Entrepreneurial:** The Creative spark in MakerSpace is the engine for the entrepreneurial engagement. Support for entrepreneurial projects is available for work involved in the MakerSpace.

**S: Skill Building:** As a collaborative space for the engagement and creation of STEAM-related projects, MakerSpace will support skill building by providing tools, a lab environment, educational/training support, and information on techniques for MakerSpace consumers in a robust and engaged work environment.



## Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis

The following list of Strengths, Weaknesses, Opportunities and Threats for the MakerSpace project is listed below. The intention of the SWOT Analysis is to think through and plan these items so as to address issues now and leverage other items in order to create a robust opportunity with our MakerSpace.

### Strengths

- MakerSpaces were first formed in the early 2000's as part of the "makers movement"
- Not entirely new concept
- Operate in 1967 locations throughout U.S.
- Key components and disciplines already exist on campus
- Built around multidisciplinary collaborative efforts
- It is a powerful learning force in the nonacademic community.
- Encourages taking individual ideas to invention
- Reflects COC's entrepreneurial image and reputation
- Useful working with STEM/STEAM education

### Weaknesses

- Difficult to explain
- Concept is vague
- Not well understood
- Lack of knowledge about what a MakerSpace is
- Equipment may be costly and expensive
- Finding appropriate venues and operating space on campus
- Ensuring that there is adequate infrastructure for the operation of equipment
- Need for proper staff supervision
- Must deliver skills, safety guideline, and learning protocols before allowed use of equipment
- Need to acquire technology and tools

### Opportunities

- Stimulates entrepreneurship
- Offers new opportunities for training in manufacturing skills
- Allows for community collaborations
- Expands new directions for COC educational programs
- Presents new avenues for partnership and collaboration with local businesses
- Fits the College's set of strategic goals

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- Inspires an interest in science, technology, design, and life-long learning
- Provides opportunities for a wide range of College courses
- Enables students to build a portfolio of accomplishments for future education and careers

## Threats

- Where MakerSpace should be housed?
- Where is its College address?
- What are its lines of authority?
- Who has ownership on campus?
- Who is responsible and has control of the project?
- How does MakerSpace align with COC's Administration?
- How does MakerSpace sync with Academic Affairs, Career Technical Education, Campus Facilities, Information Technology, Student Services and Community Education?
- Where are the funding sources to include technology like 3D printers, sewing machines, soldering guns, laser cutters, robotics, and wood carving machines?
- Funding

## Services Provided to the College

Services provided to the college and the community at large (the college community) will be driven by the design and implemented tools in the MakerSpace. At present, there are two distinct Phases defined in the MakerSpace. Each of these phases and the tools provided are noted below.

### Phase 1

The first phase, launched on May 12, 2016, will provide a limited MakerSpace environment primarily focused on electronics and computer technology. The tools for the Phase 1 MakerSpace will include:

- 3D printer(s)
- 3D scanning
- Small CNC mill
- Hi-end PCs (several, most with Intel I7 processors)
- Various hand tools (screw drivers, wire strippers, etc.)
- Soldering irons
- Oscilloscopes and other electronic devices
- Digital multi-meter



## Phase 2

While the Phase 2 MakerSpace has not been described and defined by a Steering Committee, consideration for Phase 2 should include:

- Involvement of Arts, Sciences (Biology, Chemistry, Engineering, etc.), other Technology Areas (Welding, Networking, etc.) and related programs on either the Valencia or CCC Campuses.
- Involvement of Faculty, Students, and Staff from each represented area.
- Exploration and involvement of various Community Constituents that will support the goals of the MakerSpace.
- Consideration for having Maker Movements, periodic presentations, and other related on-going events in the makerspace.

A consideration of tools for the Phase 2 MakerSpace should minimally include:

- Wood saws
- Jigsaws
- Sewing Machines
- Dremel
- Additional Work Benches
- Storage Cabinets/lockers
- Saw horses
- CNC Routers
- Lathes.

## Market Analysis Summary

### Competition

Currently, competition between MakerSpace facilities does not exist, primarily due to their limited numbers, but this is slowly changing. In addition, the diversity of facilities, equipment, and resources provides the opportunity for multiple Maker Space enterprises to co-exist in a region. 3D printing (numerous medium), Laser cutting, welding, metal fabrication, sewing, computer graphics, software development, etc. can all play a significant role in the activities performed at a Maker Space facility.

Maker Space technology focus is as varied as their affiliations and organizational structures. Business profiles include profit based, non-profits, school affiliated, library partnerships, business alliances and/or a combination of various collaboration. In general, they tend to have local support and membership, with their technology emphasis being driven by their constituents.

## Competition Comparison

For our MakerSpace, market competition is not a factor since our facility is the first of its kind in the Santa Clarita Valley (SCV), however there has been recent proliferation of Makerspace type facilities across California, the nation, and around the world.

Even though there are no Maker Space in SCV, MakerSpace facilities around the area include:

- Burbank Makerspace - <http://burbankmakerspace.com/about-us/>
- Los Angeles Makerspace - <http://lamakerspace.org/>
- Los Angeles Makerspace - <http://www.theexploratory.com/>
- Hex Lab Makerspace (near Chatsworth) - <http://hexlabmakerspace.com/>
- Deezmaker (Pasadena)- <http://deezmaker.com/>
- PCC Fab Lab (Pasadena)- <https://pccfablab.wordpress.com/>
- Make Ventura - <http://www.makeventura.com/>
- CV Make (Conejo Valley) - <http://cvmake.org/>
- Pierce MakerSpace Club - No website

MakerSpace will have ongoing marketing efforts of outreach to keep the community aware of the latest facility upgrades, equipment enhancements, and weekly activities highlighting training sessions, networking events and partnership activities.

The College of the Canyon has several resources that attract and fosters Maker Space entrepreneurs and promote networking such as:

- **Small Business Management Degrees** and certificates for Entrepreneurship
- **COC Foundation** providing mini grant funding and Maker Space scholarships
- **Small Business Development Center (SBDC)** providing multiple business start-up services
- **Employee Training Institute** to provide possible training support in conjunction with utilizing Maker Space resources
- **Economic Development Division and other school departments** providing equipment and materials

The City of Santa Clarita has several organizations that attract and retain entrepreneurs and promote networking such as:

- **SCV Economic Development Corporation** (<http://www.scvedc.org>) it works to provide an integrated approach to attracting, retaining and expanding a diversity of business and industry in the Santa Clarita Valley.
- **SCV Chamber of Commerce** (<http://www.scvchamber.com>) it represents and promotes business successfully in the Santa Clarita Valley through leadership, advocacy and member services.

- **SCV Industry Association** (<http://via.org>) serves as a one-stop shop for relevant business information, supports local educational initiatives, and provides networking opportunities.

## Implementation

To successfully implement Maker Space these following steps should be considered:

- Have significant collaboration and participation of the Faculty and the Academic Senate
- Inform the Board of Trustees
- Robust facility and equipment resources
- Market and advertise via social media
- Explore potential grant funding sources i.e.:
- Corporation foundations that support business, entrepreneurship business student education, and economic growth.
- Economic development agency support in the form of sponsorship and scholarships
- Angel investment circles
- Private philanthropic foundations
- Business sponsorships and naming rights
- Identify sources for grant match-funding, i.e.:
- Existing SBDC funds
- Business Department resources (funding and in-kind)
- Business community and agency match
- Explore continued fundraising with the COC Foundation and the SBDC.

## Promotion and Outreach

The services offered at MakerSpace will reach out to SCV students:

- MakerSpace Website
- An attractive, and user-friendly website enriched by the use of social media (Facebook page, LinkedIn, etc.)
- Active networking with COC Foundation, FBLA and business community
- Advertising throughout COC campuses
- Email blast, brochures, etc.
- COC-all messages
- Calendar events promoting the incubator process, providing tips on developing ideas, and celebrating past ideas
- MAC presentations
- Electronic bulletin board postings

## Marketing Strategy

### Marketing Target & Goals

The initial emphasis will be the outreach to the COC faculty, staff, and students. Through the promotion and implementation activities mentioned above, a focus will be to heighten the awareness of the COC community at-large. This involves a publicity campaign of explaining what the MakerSpace concept is all about and the unique resources and opportunities that are available. COC's Board of Trustees and Economic Development partnerships and collaborations will also be marketing targets to promote understanding and support of our Maker Space initiative.

In later phases of development the target audience will expand to include the K12 community and the Santa Clarita Valley community at-large. Marketing emphasis may focus on Industries and various civic organizations to host and sponsor entrepreneurship enterprises. Local residents will be encouraged to participate, as well as clubs and private and public organizations. Ultimately, the market target and goal for the MakerSpace facility will be to encompass the entire SCV population as eligible participants of the facility. At this point in the evolution of Maker Space multiple facilities will exist, with availability and access to easily meet community usage and demand.

In particular, the intended areas of impact for our MakerSpace involve the following aspects:

- **Inspiration:** inviting students to participate in the creative economy and to direct their own future.
- **Innovation:** serving as a catalyst for grassroots invention.
- **Education:** building a connection between the community and learners.

### Services Provided to the College.

Maker space is a movement. Being part of a movement means the benefits and outcomes from this activity will evolve. The idea of Maker space is that it will provide two things: tools, equipment, technology for the COC community to create, make and craft objects of one's imagination; and to provide a community of practice where ideas, making, collaboration, and energy can come together to allow the innovation and invention to happen in a space.

The beginning of the makerspace project will provide tools, technology and capacity for making. The tools will go from basic hand tools to computer controlled machines. The makerspace will allow students with the skills and knowledge to produce their creations as an extension of their program knowledge. It will serve as an educational space and an extension of college programs.

Instructors and students can use the space as an extension or expansion of the classroom. Whether it is to complete course projects, perform an experiment, or expand on classroom experiences, the Makerspace will be a resource for students.

Another service the space provides for the campus is a community of practice around creation, production, and innovation. Bringing together the concepts of STEM and STEAM, students with different perspectives can communicate and collaborate around concepts ideas and solutions. The makerspace will bring together the unique approaches of the creative and the technical. It will allow artistic expression to meet the nut-and-bolts. By encouraging and welcoming the artistic and technical, the mechanic and the artist, the chance for creative artistic expression is enhanced in the space. Students get an opportunity to learn new skills and techniques. This can be done either through formal training and instruction or informal instruction through student contact and interaction. The maker space members, staff and faculty will serve as a resource for the college community makers.

As the Maker space evolves, the capacity focus, and environment will change. If the makerspace is to become an educational component of the campus, it must support and reflect our programs and support our students. Additional capacity and equipment will be added or deleted according to the needs of our programs. The space will also serve as a tutoring area for CTE and applied programs. As program needs become apparent, the space could provide an area to help students with course work and projects. Student CTE tutors will reside in the space to offer assistance in programs that would not be otherwise be available to students in a conventional tutoring center.

## Process

The overall development of Makerspace is based on the desire to help students, faculty, staff and community members with a passion and drive to create and share the maker movement, while supporting and encouraging creativity and innovation.

The PDR 1 and 2, adjacent to the cafeteria will be dedicated to Makerspace. Tools, Projects, Mentors, expertise and other supplements will be added as needed.

## Need

Makerspace comes in various shapes, sizes and locations. Tools alone does not define a Makerspace. Rather it is defined by what it enables: making. Learning environments are rich with possibilities and nurture a vibrant community that introduce new ideas and projects while providing on-going feedback and support. They allow access for open and collaborative networking of educators and the Makers community as well as provide training, support and tools (both hardware and software). The need of the Makerspace are based on its core values.

- Create a dedicated space, ideally a classroom, lab, studio, or dedicated corner space

- Opportunity to engage faculty, staff, student and community members.
- Relationship - building with campus and the local business community.
- Empowerment for self-expression and experimentation.
- Skill building, as well as address safety /liability concerns.

## Staffing and Services

There will be an ongoing financial need for staffing, to purchase tools, maintain upkeep and provide continued maintenance of machines as well as tool replacement.

### Committee

Formed from those expressing interest in the transformation of education to support innovation. Such committees include the COC Foundation, School of Applied Technologies, Facilities, Faculty and Executive Management as well as a broad cross section of our campus community at both campuses.

### Services Offered and Timeline

- Phase 1 Committee Formed: January, 2016
- LEAP Committee Formed: April, 2016
- Promote Makerspace amongst staff, faculty, students, and community: TBD, Phase 2
- Launch of Makerspace Phase 1: May 12, 2016
- Phase 2: following the Opening of MakerSpace Phase 1

## The Future of our MakerSpace

### Future Programming

The future of MakerSpace includes several aspects:

1. Involvement in the Maker Faire movement: One way the Maker movement convenes like-minded individuals is through Maker Faires, both those organized by Maker Media and the Mini Maker Faires that are organized by local communities, and popping up in school cafeterias, public parks, and empty warehouses around the country and the world. Our MakerSpace will seek to be involved in the Maker Faire movement to garner additional community support.
2. Deepen the involvement in Education: As a college, it is critical that our MakerSpace be involved in deepening the involvement in educational aspects for our MakerSpace. In the future, we will look at the viability of these educational items integrated into our Makerspace:

- As a college, continue to promote the context that develops the Maker mindset, a growth mindset that encourages us to believe that we can learn to do anything.
- Build a new body of practice in teaching making—and a corps of practitioners to follow it.
- Design and Develop our MakerSpace in a variety of community contexts in order to serve a diverse group of learners who may not share the access to the same resources.
- Identify, develop and share a broad framework of projects and kits based on a wide range of tools and materials that connect to student interests in and out of school for our school, the Hart district and other ‘educational constituents’.
- Design and host online social platforms for collaboration among students, teachers, and the community.
- Develop programs especially for young people (K-12 and the Community College) that allow them to take a leading role in creating more Makers.
- Create the community context for the exhibition and curation of student work in relationship with all makers. Making sure that new opportunities are created for more people to participate.
- Allow individuals and groups to build a record of participation in the Maker community, which can be useful for academic and career advancement as well as advance a student’s sense of personal development.
- Develop educational contexts that link the practice of making to formal concepts and theory, to support discovery and exploration while introducing new tools for advanced design and new ways of thinking about making. This means developing guidelines for teachers, mentors and other leaders that participate in our MakerSpace.
- Foster in students the full capacity, creativity and confidence to become agents of change in their personal lives and in their college and the community at-large.

## Safety and Infrastructure

Our first MakerSpace is modest in size in contrast to other MakerSpaces. Currently, our footprint is about 1500 square feet. There is a concern for staffing in our MakerSpace to ensure that it is run both effectively and safely. Staff members in the space will maintain the cleanliness, support the equipment, order/stock supplies, check in/out students, and ensure student safety. Several concerns with safety and infrastructure items include:

- Soldering stations should have sufficient ventilation or be outside.
- Messy projects need easy-to-clean environments. We currently have a mix of carpeting and concrete floors, which will need to be addressed in the future.
- Robust wireless internet must be available throughout the MakerSpace environment.
- Projects and equipment with sensitive electronics need to be protected from moisture and dust.

- Projects that use flammables will be restricted and later, may require outdoor space with pavement, no overhead foliage, and lots of room to test projects.
- Some projects need relative quiet, while others are so noisy that they need to be acoustically isolated. The space will need to be designed to accommodate this.
- Some projects use 220 volts or even three-phase power. The space will need to be designed to accommodate this too.

## Project Support

MakerSpace will be a campus-community driven project. As such, it is anticipated that support for the MakerSpace project will be derived from several areas:

- ◆ The COC Foundation will provide on-going support for the MakerSpace program in terms of sustained contributions and one-time contributions. Further, the Foundation will serve as the conduit for donations made by individuals, companies and other organizations to our efforts to develop and evolve MakerSpace.
- ◆ The School of Applied Technologies will initially spearhead the staffing necessary for the MakerSpace Phase 1 implementation, which includes the Grand Opening event. Further, the School of Applied technologies has funding to support a limited number of open hours through June 30, 2016 to introduce and set-up the initial phase of the MakerSpace project. Subsequent staffing and necessary funding must be obtained to continue staff support for the MakerSpace at both the Valencia and Canyon Country locations.
- ◆ The Facilities department will continue to maintain and provide facilities updates to the MakerSpace area. Facilities was involved in the Phase 1 setup, which achieved the first round of equipment and facilities necessary to open up the MakerSpace through June 30, 2016.
- ◆ The Grants Development department can assist in the identification of additional sources of money, to include grants, donations, in-kind services, etc. At the writing of this document, the Grants Development office has assisted in 3 grant opportunities including one grant from the State and two grants from college sources (Associated Student Government grant and the Chancellor's Innovation Grant). At the time of this writing, decisions have not been made for these three grants.
- ◆ Faculty contribution in terms of how they can incorporate class activities and lab-related work within the context of MakerSpace.
- ◆ The Executive Management to allow us to continue the expansion of the MakerSpace project beyond the current Phase 1 implementation, which concludes by June 30, 2016.
- ◆ The MakerSpace Committee, which will create a board. Eventually, by the end of 2016, a board will consist of students, staff, faculty, and community members so as the MakerSpace movement can be appropriately sized and institutionalized with representation by relevant constituents.
- ◆ Continued and persistent broad cross sectional involvement of our campus community including faculty, staff and administration will continue to support planning, themes, a



speaker series, and other related events for the MakerSpace at both the Valencia and CCC campuses

## Financial Plan

### Financial Philosophy

Unlike a typical “for-profit” venture, the COC MakerSpace will not compete with other businesses in the Santa Clarita area to attract a share of people’s expendable incomes. In fact, MakerSpace will work to involve community organizations, student organizations, faculty, administration, staff and other Maker movements into the on-going financial and fiscal development and continuous improvement of our campus MakerSpaces. This will include reaching out for any suitable fees, grants, or donations from the various constituents involved in our MakerSpace. Further, in future iterations of this plan, fees may be collected for short-term trainings, use of tools for specific projects, and the sales of certain consumables that will serve to sustain the MakerSpace on both campuses.

The financial operations of the COC MakerSpace Project reflect the LEAP solution team’s foundational belief and commitment to advance MakerSpace as a vehicle to enhance the creative, academic and inspirational qualities of programs on campus. MakerSpace will support the college’s educational programs, and become a destination to visit in the Santa Clarita Valley.

### Initial Capital Outlay (Phase 1)

The Initial Capital Outlay for Phase 1 (start-up) was from a \$15,000 grant provided by the COC Foundation. The Phase 1 monies must be spent by June 30, 2016, else must be returned to the Foundation. It is planned that funding will be spent on the following:

Supplies, 3D printers (2) and tools: \$8,300

Projects for students and faculty: \$5,000

Project materials for opening day: \$1,300

### Sustained Funding (Phase 2+)

As noted in a prior section of this document, sustained funding will be the result of (a) donations, (b) foundation support, (c) grant funding and (d) faculty and staff support.

## Risk Management & Risk Reduction

There are several risks associated with this project that must be addressed. The three most significant challenges presented by this project are:

- ◆ Lack of classified staff support:
  - ✓ Classified support provide the much necessary components of (a) safety, (b) training, (c) monitoring equipment, and (d) assurance that policies and procedures in the active lab environment are maintained
- ◆ Lack of campus and community support:
  - ✓ A sustained and on-going program to involve the campus community, including faculty, staff, and administration, must be developed, continually maintained, and implement.
- ◆ Lack of available funding for development of the project:
  - ✓ At the time of the writing of this document, while grants have been applied for and donations sought, there is no funding for sustained future efforts. However, as a risk that must be addressed, a consorted and persistent effort to ascertain funding and grants must be an on-going task of the MakerSpace committee.

## Survey

A survey will be periodically distributed to the campus community (faculty, staff, and administrators). The intention of a survey is to ascertain what the community wants, desires and expects from a MakerSpace on campus. Further, it will be used to shape the direction of the campus MakerSpace as well as to inform of ongoing efforts to address community needs for the campus MakerSpace. Our survey should demonstrate support (and lack of support) for the project from the general college population as well as established committees such as ASG, who is willing to partner with our project.

Our team will work with the COC Foundation on a proposal to establish a Friends of the SVC MakerSpace (SVC Makerspace) to bring in money through memberships in the group. These monies will be used for the development of the three phases of the project and will help cover initial marketing costs.

In cooperation with PIO and use of existing campus marketing venues, our group believes we can keep the marketing costs to a minimum.

## Summary and Conclusion

The MakerSpace Project will provide a robust collaborative learning space for faculty, students, staff and community members. MakerSpace Phase 1 launched on May 12, 2016 and will be an on-going and continuous project that will ultimately shape to the needs of the MakerSpace constituents. This project was to identify the initial needs (Phase 1) and the on-going needs (Phase 2 and on) for MakerSpace. Key to the success for MakerSpace is a focus on the SWOT items especially the need for on-going Staff support to operate and maintain the MakerSpace. Further, the need to build out policies and procedures in the MakerSpace for safety, equipment use, and materials is necessary as well. Lastly, the development of programs, related curriculum,

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scheduled activities, and planned integration into the community at large is necessary. MakerSpace, with the suitable attention, will become a robust and supportive ad-hoc lab environment for STEAM at the College of the Canyons.

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Appendix A: MakerSpace Grand Opening Flyer (May 12<sup>th</sup>, 2016)

The Santa Clarita Community College District Board of Trustees  
& Chancellor Dr. Dianne G. Van Hook

Invite you to celebrate the ceremonial ribbon cutting  
& open house of

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**Thursday, May 12, 2016**  
**1 – 4 p.m.**

College of the Canyons  
26455 Rockwell Canyon Road  
Santa Clarita, CA 91355  
Campus Student Center

***BE creative...BE inspired...BE HERE!***

Free & open to the public! Parking available in lots 5 & 6  
RSVP to: (661) 362-3408

[Click here for a campus map](#)



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## Appendix B: MakerSpace 1-Page Phase 1 Summary

### MakerSpace Grand Opening

Thursday May 12, 2016, from 1:00 to 4:00 p.m.

#### Mission Statement

The mission of the College of the Canyons MakerSpace is to offer collaboration space for students interested in Science, Technology, Engineering, Art and Math fields of study (STEAM). The space will provide tools, resources, training and entrepreneurial opportunities pursued by its participants. MakerSpace will provide venues where individuals and business partners can consult, collaborate, and create enabled by appropriate technology and their own shared skills, inspiration, and resources.

#### What MakerSpace means to:

- **The Public:** MakerSpace will be a creative space on campus for the public to pursue and address various technical, social, artistic, and entrepreneurial opportunities. Further, MakerSpace will have a speaker series, will provide short-term instruction and will be a meeting place for creative minds.
- **The College:** MakerSpace will be a collaborative learning space for student and staff groups, clubs and students at large. MakerSpace will provide the environment that will foster collaboration and both student and faculty engagement in a technology and tool rich supportive environment.

#### Sample List of Attendees

|   |   |
|---|---|
| Chris Miller: COO, Paton Group              | Mariane Doyle, Director, CTE: Hart District   |
| JR Brees: Area VP, Lincoln Electric         | John Stokes, Chair, Engr/Tech: Cuesta College |
| Tim Ragus: Director NBC Universal           | Elizabeth Cheung, Engr: Pierce College        |
| Maryam Sadri, Director, Quest Diagnostics   | Salomon Davila, CTE Dean, Pasadena CC         |
| Vanessa Rutherford, Mfg Engr Mgr, Donaldson | Dr. Mary Hobus, Asst. Dean, Concordia Univ.   |

#### Agenda for the Ribbon Cutting

1:00 -- Bruce Fortine welcomes guests to event, thanks dignitaries in attendance and introduces Jerry Buckley  
1:05 -- Jerry makes BRIEF remarks about MakerSpace at COC  
1:10 -- Jerry introduces Ron McFarland (brief remarks on MakerSpace movement, thanks to DVH and calls her to podium for gift presentation made in the MakerSpace  
1:20 -- DVH opening remarks  
1:35 -- Bruce invites BOT to join DVH at podium for ribbon cutting (photos will be in progress)

**Initial Hours for the Spring 2016 semester:** Monday – Thursday, 9:00 a.m. – 3:30 p.m.; Friday, 10:00 a.m. – 1:00 p.m.

#### Expectations for Demonstrations

**Google Cardboard:** hands-on 3D Cell Phone App

**Arduino:** Open-source microprocessor devices – used for hands-on robotics

**Raspberry Pi:** Small cred-card size computers – will be used for hands on computing skills projects

**3D Printing:** samples, demo on process

## Appendix C: Budget for Phase 2

### College of the Canyons Maker Space Equipment Needs (Phase 2)

#### Valencia Campus

#### COMPUTER EQUIPMENT (one-time)

| Qty | Description                   | Item Cost  | Total Item Cost           |
|-----|-------------------------------|------------|---------------------------|
| 10  | Cube 3D Printers (or similar) | \$800.00   | \$8,000.00                |
|     | High Performance PC           |            |                           |
|     | * 256 GB SSD/2TB HDD          |            |                           |
|     | * 16 GB RAM                   |            |                           |
| 14  | * Pentium I7 Processor        | \$3,000.00 | \$42,000.00               |
| 24  | Flat Screens (2 per computer) | \$250.00   | \$6,000.00                |
| 1   | B/W Paper Laser Printers      | \$400.00   | \$400.00                  |
| 1   | Paper Color Laser Printers    | \$800.00   | \$800.00                  |
| 1   | Food-grade Laser Printer      | \$1,200.00 | \$1,200.00                |
| 1   | Laser Cutter/Router           | \$8,000.00 | \$8,000.00                |
| 1   | Extrusion based 3D Printer    | \$2,000.00 | \$2,000.00                |
| 2   | 3D Camera                     | \$900.00   | \$1,800.00                |
| 2   | Digital Video Camera          | \$500.00   | \$1,000.00                |
|     | Software:                     |            |                           |
|     | * Sketch-up                   |            |                           |
|     | * AutoDesk                    |            |                           |
|     | * Rhino                       |            |                           |
|     | * SolidWorks                  |            |                           |
| 14  | * 123D                        | N/A        |                           |
|     |                               | SUB TOTAL  | <b><u>\$71,200.00</u></b> |

#### OTHER EQUIPMENT (ELECTRONICS and CONSTR RELATED - One Time)

|   |   |            |                           |
|---|---|------------|---------------------------|
| 2 | 4-station Wood Top Bench (Paxton quote) | \$1,890.00 | \$3,780.00                |
| 1 | Bench, Electrical, 1-station Maple Top  | \$1,780.00 | \$1,780.00                |
| 1 | Tech Ed Tool Locker with Tools          | \$5,395.00 | \$5,395.00                |
| 1 | Oscilloscope, Dual Trace 40MHz          | \$895.00   | \$895.00                  |
| 2 | Multimeter, Digital, 31 ranges          | \$57.00    | \$114.00                  |
| 2 | Soldering stations                      | \$213.00   | \$426.00                  |
| 1 | Saw, Jig, Orbital                       | \$205.00   | \$205.00                  |
| 1 | Tool Set, Cordless (5 piece)            | \$700.00   | \$700.00                  |
|   |   | SUB TOTAL  | <b><u>\$13,295.00</u></b> |

LEAP Team Project – Spring, 2016

**FURNITURE**

|    |                                |            |                          |
|----|--------------------------------|------------|--------------------------|
| 20 | Chairs                         | \$3,000.00 |                          |
| 14 | Computer Desks                 | \$3,000.00 |                          |
| 1  | Reception area desk/setup      | \$2,000.00 |                          |
| 4  | 4x8 wall -- Large White boards | \$4,000.00 |                          |
|    | <b>SUB TOTAL</b>               |            | <b><u>\$9,000.00</u></b> |

**OTHER ITEMS NEEDED**

|  |                               |            |                          |
|--|-------------------------------|------------|--------------------------|
|  | Electronic Locks              | \$3,000.00 |                          |
|  | Security Cameras              | \$3,000.00 |                          |
|  | Check in/check out student sw | \$2,000.00 |                          |
|  | <b>SUB TOTAL</b>              |            | <b><u>\$8,000.00</u></b> |

**GRAND TOTAL 1x EXPENSE VALENCIA** **\$101,495.00**

**CLASSIFIED STAFF NEEDS (on-going)**

|  |  |          |                          |
|--|--|----------|--------------------------|
|  | PER WEEK: Classified Staff hours per week: 60 x<br>\$35/hour | On-going | <b><u>\$2,100.00</u></b> |
|--|--|----------|--------------------------|

**Canyon Country Campus**

**COMPUTER EQUIPMENT (one-time)**

| Qty | Description                   | Item Cost  | Total Item Cost |
|-----|-------------------------------|------------|-----------------|
| 2   | Cube 3D Printers (or similar) | \$800.00   | \$1,600.00      |
|     | High Performance PC           |            |                 |
|     | * 256 GB SSD/2TB HDD          |            |                 |
|     | * 16 GB RAM                   |            |                 |
| 8   | * Pentium I7 Processor        | \$3,000.00 | \$24,000.00     |
| 16  | Flat Screens (2 per computer) | \$250.00   | \$4,000.00      |
| 1   | B/W Paper Laser Printers      | \$400.00   | \$400.00        |
| 1   | Paper Color Laser Printers    | \$800.00   | \$800.00        |
| 1   | Laser Cutter/Router           | \$8,000.00 | \$8,000.00      |
| 1   | Extrusion based 3D Printer    | \$2,000.00 | \$2,000.00      |
| 2   | 3D Camera                     | \$900.00   | \$1,800.00      |
| 2   | Digital Video Camera          | \$500.00   | \$1,000.00      |

LEAP Team Project – Spring, 2016

|   |              |           |                    |
|---|--------------|-----------|--------------------|
|   | Software:    |           |                    |
|   | * Sketch-up  |           |                    |
|   | * AutoDesk   |           |                    |
|   | * Rhino      |           |                    |
|   | * SolidWorks |           |                    |
| 8 | * 123D       | N/A       |                    |
|   |              | SUB TOTAL | <u>\$43,600.00</u> |

**OTHER EQUIPMENT (ELECTRONICS and CONSTR RELATED - One Time)**

|   |   |            |                    |
|---|---|------------|--------------------|
| 2 | 4-station Wood Top Bench (Paxton quote) | \$1,890.00 | \$3,780.00         |
| 1 | Bench, Electrical, 1-station Maple Top  | \$1,780.00 | \$1,780.00         |
| 1 | Tech Ed Tool Locker with Tools          | \$5,395.00 | \$5,395.00         |
| 1 | Oscilloscope, Dual Trace 40MHz          | \$895.00   | \$895.00           |
| 2 | Multimeter, Digital, 31 ranges          | \$57.00    | \$114.00           |
| 2 | Soldering stations                      | \$213.00   | \$426.00           |
| 1 | Saw, Jig, Orbital                       | \$205.00   | \$205.00           |
| 1 | Tool Set, Cordless (5 piece)            | \$700.00   | \$700.00           |
|   |   | SUB TOTAL  | <u>\$13,295.00</u> |

**FURNITURE**

|   |                                |            |                   |
|---|--------------------------------|------------|-------------------|
| 8 | Chairs/for computers           | \$2,000.00 |                   |
| 8 | Computer Desks                 | \$5,000.00 |                   |
| 2 | 4x8 wall -- Large White boards | \$2,000.00 |                   |
|   |                                | SUB TOTAL  | <u>\$9,000.00</u> |

**OTHER ITEMS NEEDED**

|  |                               |            |                   |
|--|-------------------------------|------------|-------------------|
|  | Electronic Locks              | \$3,000.00 |                   |
|  | Security Cameras              | \$3,000.00 |                   |
|  | Check in/check out student sw | \$2,000.00 |                   |
|  |                               | SUB TOTAL  | <u>\$8,000.00</u> |

**GRAND TOTAL 1x EXPENSE CCC**

\$64,895.00

**CLASSIFIED STAFF NEEDS (on-going)**

|  |   |          |                   |
|--|---|----------|-------------------|
|  | PER WEEK: Classified Staff hours per week: 60 x \$35/hour | On-going | <u>\$2,100.00</u> |
|--|---|----------|-------------------|

**TOTAL** \$166,390.00