Situation or issue: Woodland Community College is a Hispanic Serving Institution with 49% Hispanic Enrollment, but low enrollment and completion rates in STEM/STEAM disciplines.

Priorities: Establish and implement STEM/STEAM pathways through interdisciplinary collaboration that leverages Makerspace and problem based learning activities. Meets:

- WCC 2016-2019 Educational Master Plan Completion Phase
 Objectives (Students complete course of study through
 certificate/degrees with labor market value): Design, Execute and
 Assess California Community College Curriculum Gap Analysis and
 Enhancement Plan;
- Aspen Institute College Excellence Program (2016): Establish Clear Student Success Goals, Building on the Completion by Design Framework

INPUTS

OUTPUTS

OUTCOMES

Resource

PEOPLE:

- WCC Faculty
- Administrative leadership
- K-12 Partners
- CTE, Academic Instruction and Math Science
 Divisions at WCC
- Community and Industry Partners

RESOURCES:

- YCCD IT
- WCC Ecosystem
- Institutional Self Study
- Raw materials for construction and manufacturing
- Graphic printer

Activities

- Faculty
 Professional
 Development,
 Including
 Technical Training
 in Equipment Use
- Interdisciplinary
 Collaborations
 and work with
 community and
 industry to
 promote job
 training and
 placement
- Hands on practical entrepreneur program utilizing business concepts and activities

Outputs

- Profitable operations for café
- Increased student knowledge and experience in a business setting
- Marketing materials for the library to advertise materials to faculty and students
- Digital media items to be used as study aids
- Student learning using problem based learning concepts

Short-term (1 year)

- Introduction of new technology into business and marketing
- Students and staff will gain experience in working with others across variety of disciplines
- Students will learn course materials by creating their own communications in print and digital media
- Introduction to 21st
 Century skills
- Students establish
 SEP based on
 STEM/STEAM
 pathways

Intermediate (1-2 years)

- Increase in the number of faculty using Makerspace and interdisciplinary collaborations
- Increase in the number of disciplines using Makerspace
- Entrepreneurship students model projects in Makerspace using business concepts
- Math, English, agriculture, culinary and other disciplinary concepts embedded in

Long-term (3-5 years)

- Makerspace is a teaching and learning methodology at WCC
- Enhanced College and community relations
- Increase in the number of Hispanic and other students earning STEM and STEAM certificates and degrees
- WCC perceived as an institution devoted to innovation and advancement of knowledge.

WCC Grant Logic Model

- Proiect Team
- WCC President's Cabinet
- Student Success
 Center
- Academic Senate
- TAPs and DSNs
- Equipment
- MESA Space
- Digital Media Lab
- Makerspace
- Curriculum
 Committee
- Counseling Department
- Local Makerspaces
- FBLA
 Entrepreneurship
 Club
- Dual Enrollment Program
- Strong
 Workforce/Doing
 What Matters
 Initiative
- Business and Industry Partnerships
- CWEE Program

PLANNING

- Identify STEM Pathways
- Incorporate
 Makerspace in EMP
 Activities
- Recruit Multidisciplinary Faculty for Interdisciplinary Collaboration

- related to Makerspace
- STEM/STEAM
 Pathways
 Development and
 Intentional
 Scheduling
- Participate in Regional Collaborations
- Design
 Makerspace as
 Part of Student
 Success Center
- Reactivate Digital
 Media Curriculum
- Implement
 Completion by
 Design Phases in
 Matriculation and
 Student Advising
- STUDENT CONNECTION PHASE: Early Outreach to Secondary Schools
- STUDENT ENTRY
 PHASE:
 - Comprehensive Student Education Plans with FYE and "ME first"
- Administer SENSE Survey to entering students
- Integrate
 Makerspace in
 Curriculum
 Development

- Develop WCC Makerspace
- Introduce students to STEM/STEAM careers and entrepreneurship
 - Retooling curriculum to reflect interdisciplinary or contextualized learning
- Internships

- Increase in level of faculty engagement with students
- SENSE and CCCSE data results are used in program reviews and evaluation of EMP
- Establish baseline benchmarks for student completion
- Increase industry relations
- Increase secondary school relations
- Increase in number of students reached through CbD methodology

- Makerspace activities
- Makerspace
 activities linked
 to Institutional
 Learning
 Outcomes in
 terms of
 technology
 awareness and
 communication
- Biology, chemistry and math/science disciplines engage students in the process of supporting academic achievement and scientific research
- Engage WCC
 Foundation and industry to foster partnerships that lead to sustainable
 Makerspace.
- Leverage
 Community of
 Practice

- Interdisciplinarynary and contextualized learning is a core of WCC curriculum development and scheduling
- Makerspace is institutionalized at WCC
- Completion rates increase as a result of comprehensive portfolio of CTE and STEM/STEAM programming that support labor market success and 21st Century Skills
- Last year of EMP evaluation – Makerspace concepts integrated in 2019-2021 EMP planning
- Student entrepreneurs identify projects that can be marketed.

WCC Grant Logic Model

T	
Work with	• Introduce
Counseling	Students to
Department	STEM/STEAM
·	Activities and
	Entrepreneurship Entrepreneurship
 Purchase 	• STUDENT
Equipment and	PROGRESS PHASE
Design Space	Continue to
• 3-D Printer	Emphasize
	Program Based
	Learning
Digital drawing	
boards	Administer CCSSE
Multi page scanner	Student Surveys
Establish	to Continuing
Sustainability Plans	
 Integrate Results 	Organize and
from CCSSE and	Participate in Participate in
SENSE in	Maker Events
completion by	Increase Intrusive
Design and	Student Supports Supports
Problem Based	Include Parents
Learning	and Community
Drive Program	in WCC Maker
Selection Based on	Showcases
Labor Market Value	• STUDENT
 Student run café 	COMPLETION
modeling	PHASE:
entrepreneurship	Plan Student
	Internships
	• Work with
	Business and
	Industry
	Improve Student
	Career
	Exploration and
	Job Placement

WCC Grant Logic Model

Assumptions: Research-based student engagement practices (active and collaborative learning, problem based learning, student internship, curriculum innovation and faculty engagement) applied to students to support STEM/STEAM completion among Hispanic students utilizing Makerspace activities.

External Factors:

- Business, Industry and College collaborations
- Resource development to sustain Makerspace
- State and District budgets
- Student preparation for STEM/STEAM fields

EVALUATION: Focus (decide what to evaluate) → Collect Data → Analyze and interpret → Completion/Report/Follow-up

- Student Retention (term to term) in STEM/STEAM courses
- Student completion rates in STEM/STEAM courses
- SENSE/CCSSE and WCC Student Services survey results
- Increase in student success and enrollment using CbD
- Increase in the number of internships in 21st century skills
- Increase in the number of STEM/STEAM certificates and degrees