Advanced Technology Division
Drafting Unit Plan

Lane
Community College

Revised 3/16/05

Advanced Technology Division
Drafting Unit Plan

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Alignment with the College

Drafting is a credit instructional program and has been offered at Lane Community College since 1976. The program is administered under the Office of Instruction and Student Services through the Advanced Technology Division.

The Drafting program is centrally aligned with the College's strategic directions, core values, and learning centered principles.

Strategic Directions

Achieve Financial Stability: This program demonstrated a reduction in cost per student for FY03. This means more students were served with less funds while maintaining the excellent quality of the program.

Enhance the College Climate: This program actively recruited students from under-represented populations.

Core Values

Learning: Learning is both theoretical and applied. Student learning progresses from basic to advanced technical, academic and employability skills.

Diversity and Accessibility: The program faculty welcome students from diverse backgrounds. Students with special needs are accommodated with appropriate supplemental learning technologies and experiences.

Innovation: Faculty maintain their expertise in the field and incorporate advanced technologies in the curriculum. The faculty has made a commitment to maximize the use of innovative instructional technologies to transform the curriculum. Some examples of this include transferring lecture notes to PowerPoint, demonstrating concepts using three-dimensional CAD models, and assisting the division in developing a technical common core curriculum.

Collaboration and Partnership: The faculty work very closely with their program advisory committee. This committee is a representation of active community business partners who provide advice and program support. The Drafting faculty also work very closely with other divisional programs, especially Construction and Fabrication/Welding

Integrity: The program faculty has demonstrated a high degree of integrity. They are openly accountable to perform according to the policies, procedures and expectations of the College, the division, the advisory committee, and most importantly, the students.

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<u>Learning Centered Principles</u>

Substantive Change in Individual Learners: The Drafting program excels in transforming student lives. This transformation is demonstrated when a new student enters the program without entry level skills and can complete the two-year program to obtain a high-wage career in the drafting industry.

Document Learning Success:

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Unit Description

The Drafting program is an occupational, preparatory, two-year Associate of Applied Science degree and/or a one-year certificate of completion program.

The Drafting program features state-of-the-art laboratories where students prepare for careers in architectural, mechanical or civil drafting. The advanced expertise of the faculty make Lane's Drafting program the best way to enter the field.

Faculty in the program bring considerable experience to the classroom and regularly attend workshops to help them keep up with changes in the industry.

The program provides classroom training in the mathematical, visual and communication skills needed to demonstrate proficiency in the use of at least one CAD software program. Students will set up a drawing, create and modify text and geometry, use associative dimensioning correctly, create, store and use blocks or symbols, manage object properties including linetype and layer, create objects in three dimensions and print or plot drawings using a correct scale. Second-year students learn to use the most current version of at least one solid modeler software program.

Program course work for all students includes: Graphic Concepts; Engineering Information; Computer Fundamentals; Mechanical and Architectural Drafting; Survey Applications and a seminar in workplace skills. Program course work for second-year students includes Statics, Strength of materials, Structural Steel Detailing, Technical Report Writing, a cooperative education work experience and 18-21 credits of specialized training in either architectural, mechanical, or civil drafting

Architectural drafters may work for residential designers, structural engineers, architects, cabinet shops or construction firms. Mechanical drafters may work in the manufacture of electronics, precision sheet metal, heavy equipment steel fabrication, process piping or plastics. Civil drafters may work for a structural engineer or for city, county, state or federal agencies.

This training can lead to employment for experienced drafters earning approximately $37,000 annually. Employment opportunities for architectural and civil drafters are affected by short-term fluctuations in construction industry activity, and opportunities for mechanical drafters are affected by short-term business cycle fluctuations. Drafters must have post-secondary training to gain the necessary skills for this occupation. Those with an associate degree have a competitive advantage in this labor market.

Normal program entry is fall term. A program orientation is held for new students for fall term (dates available in counseling or the Students First! Center). Contact the department advisor/counselor for assistance for winter and spring term entry. Applicants complete placement testing (Assessment & Testing Office, Building 1) in reading, writing and math. A minimum score of 68 in Reading and 64 in Writing is required. Basic computer literacy skills are a prerequisite to any CAD course..

Cooperative Education
Co-op offers drafting students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op students connect theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary.

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Degrees and Certificates

Two-Year Associate of Applied Science Degree	Credits
AAS Program Total	**97-104**
First Year	
Fall	
CAD 1 DRF 167	4
Graphic Concepts DRF 142	2
Engineering Information DRF 141	2
Applied Geometry for Technicians MTH 076 or Geometry MTH 097	4
Concepts of Computing CS 120 or Computer Fundamentals CIS 101	3-4
Total Credits	**15-16**
Winter	
CAD 2 DRF 168	4
Mechanical Drafting DRF 121	4
Applied Algebra for Technicians MTH 086 or Intermediate Algebra MTH 095	4-5
English Composition: Exp & Intro to Argument WR 121	3
Total Credits	**16-17**
Spring	
CAD 3D DRF 170	4
Architectural Drafting - Plans DRF 137	4
Survey Applications for Civil Drafting DRF 163	4
College Algebra MTH 111 or Science/Math/Computer Science elective	4-5
Cooperative Education: Drafting Seminar DRF 206	1
Total Credits	**17-18**
Second Year	
Fall	
Statics DRF 205	3
Human Relations requirement	3
Technical Report Writing WR 227	3
Emphasis electives	6-8
Total Credits	**15-17**
Winter	
Strength of Materials DRF 207	3
Principles of Technology 1 PGS 199A	4
Workplace Safety HE 125 or First Aid HE252 or PE/Health requirement	3
Structural Steel Detailing DRF 240	4
Emphasis electives	6
Total Credits	**20**
Spring	
Customizing AutoCAD DRF 243	2
Principles of Technology 2 PGS 199B	4
Cooperative Education: Drafting DRF 280 or Intro to Drafting: Special Projects DRF 255	2-3
Emphasis electives	6-7

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Total Credits	**14-16**

Fall Term Emphasis electives
Architectural
Residential Buildings DRF 208 – 4 credits
Architectural Desktop DRF 209 – 3 credits
Mechanical
Mechanical Design DRF 232 - 4 credits
Mechanical Desktop DRF 244 or Inventor DRF 245 - 3 credits
Pipe Drafting DRF 247 - 1 credit
Civil Mapping & Platting DRF 261 - 3 credits
Geographical Information System DRF 265 - 3 credits

Winter Term Emphasis electives
Architectural
Commercial Buildings DRF 210 - 4 credits
Construction Codes CST 122 - 2 credits
Mechanical
Geometric Tolerancing DRF 233 - 4 credits
Descriptive Geometry & Sheet Metal Layout DRF 246 - 2 credits
Civil
Civil Engineering Drafting DRF 264 - 3 credits
Advanced Geographical Information Systems DRF 266 - 3 credits

Spring Term Emphasis electives Credits
Architectural
Mechanical Systems & Environmental Design DRF 211 - 4 credits
Site Plans & Landscape Drafting DRF 212 - 3 credits
Mechanical
Power Trains DRF 234 - 4 credits
Electrical Drafting DRF 203 - 2 credits
Hydraulics Drafting DRF 248 - 1 credit
Civil
Land Development Desktop DRF 267 - 4 credits
Structural Concrete Detailing DRF 268 - 2 credits

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One-Year Certificate of Completion	Credits
One-year Certificate of Completion	46-48
First Year	
Fall	
CAD 1 DRF 167	4
Graphic Concepts DRF 142	2
Engineering Information DRF 141	2
Applied Geometry for Technicians MTH 076 or Geometry MTH 097	4
Concepts of Computing CS 120 or Computer Fundamentals CIS 101	3-4
Total Credits	**15-16**
Winter	
CAD 2 DRF 168	4
Mechanical Drafting DRF 121	4
Applied Algebra for Technicians MTH 086 or Intermediate Algebra MTH 095	4-5
Human Relations requirement	3
Total Credits	**15-16**
Spring	
CAD 3D DRF 170	4
Architectural Drafting - Plans DRF 137	4
Survey Applications for Civil Drafting DRF 163	4
Introduction to College Writing: Workplace Emphasis WR 115W or higher	3
Cooperative Education: Drafting Seminar DRF 206	1
Total Credits	**16**

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Board of Education
     President
          Vice President of Instruction
               Associate Vice President of Instruction
                    Division Chair Advanced Technology
                       Faculty Drafting Program

<u>Faculty/Staff</u>

Name	*Margaret Robertson*
Classification	Full-Time Faculty
Year Hired	
Degrees/Credentials	

Name	*Jon Bridges*
Classification	Full-Time Faculty
Year Hired	
Degrees/Credentials	

Program Outcomes

Program Operating Information – Trends

Performance Analysis

Unit Initiatives

Unit initiatives are separated into two categories: Maintenance Initiatives and Enhancement Initiatives.

Maintenance initiatives are requests for resources to maintain the existing levels of program efficiency and effectiveness. Maintenance initiatives respond to:
  1) any mandatory changes in the program (recurring contracts, change in credits, implementing accreditation or other curriculum standards), and,
  2) costs to maintain the existing curriculum and program equipment.

Enhancement initiatives are requests for new resources to implement substantive changes in the program, usually in response to student growth or new curriculua.

<u>Maintenance Initiatives</u>

Initiative ID	Need	Request
M01	Autocad software license (1)	7,000
M02	ESRI software license (1)	1,700
M03	Upgrad computer workstations	25,000
M04	Upgrade printers	4,000
M05	Ms Money upgrade	1,000
M06	Plotter (1)	2,000
M07	Printer (3)	7,500
M08	Computer laboratories (2)	140,000
M09	LCD Projectors (2)	8,000
M10	Code and standards	4,800

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Enhancement Initiatives

Initiative ID	Need	Request
E01	Market research	3,500
E02	Curriculum revision	4,000
E03	Marketing, Staff & Support time, graphic design 80 hrs	2,800
E04	Revise 1st year program	1,400
E05	Faculty Professional Development	10,000
E06	New applied tech course	7,000
E07	Develop Engineering Graphics Course with Engineering Program	4,560
E08	Student assistant staff (tutors)	3,000
E09	Modify courses for workplace environment	4,560
E10	teaching aids; hands on tools	1,500
E11	Virtual field trips	1,500
E12	convert multiple PT instructors to FT	10,000
E13	Distance learning courses	5,000
E14	Tech illustration course	3,500
E15	Student Lounge	5,000
E16	Scholarships	5,000
E17	Create statewide org	616
E18	HP Plotter (1)	2,000
E19	Measurement/Inspection tools (3)	360
E20	Surveying Equipment (10)	5,000
E21	Teaching kits (10)	7,000

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NOTE: This is a large list. We recognize that it is likely that resources do not exist to support all these initiatives. We list them in relative order of priority.

Initiative 1 - Market Research

Concept:
- Enrollment rate shows fluctuations. Research will attempt to identify causes.
- Low enrollment may be due to a depressed economy.
- If research shows that the profession is shifting due to changing technology we will adapt accordingly to keep our program on the cutting edge.

Requirements:
- 80 hours faculty time
- Assistance from division chair
- Assistance from R & D staff
- Communication costs: travel or long distance telephone
- Food for Advisory Committee meetings
- Travel to meet with colleagues at peer institutions

Feasibility (constraints):
- Time constraints: contracted teaching faculty work 50-60 per week already. Division chair, support staff, and R & D staff are likewise overloaded.
- Knowledge: May require understanding of economics. May require understanding of sociology and technology changes; research may be covering new ground.
- Quality of information: Quantitative data may not be available; some information may be anecdotal.

Design/Implementation:
- Schedule meetings: faculty only, faculty and division chair, faculty and R & D staff.
- Collect data. Potential data sources:
- o Former students
- o Community at large (those who were never students)
- o Drafting, engineering, and architectural professionals in community
- o Advisory Committee
- o Peer programs at other institutions, statewide and national
- o State and federal agencies
- o Website: Standards for Technological Literacy
- Conduct benchmarking of peer institutions.
- Evaluate data.
- Formulate action plan, if indicated.

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Initiative 2 - Revise Curriculum as Indicated by Market Research

Concept:
- If research indicates the profession is shifting due to changing technology, the Drafting program needs to adapt. The nature of the program requires it to stay "on the cutting edge."

Requirements:
- Curriculum Development time, amount to be determined. Minimum estimate 120 hours.

Feasibility (constraints):
- Cannot identify constraints until it becomes more clear whether change is needed and what direction that change needs to go.

Design/Implementation:
- Convene faculty team.
- Agree on curriculum design process and decisionmaking process.
- Define problem, goals, objectives.
- Brainstorm possible solutions.
- Develop plan.
- Implement.
- Evaluate and adjust as needed.

Initiative 3 - Upgrade Equipment and Software

Concept:
- The drafting profession and LCC's Drafting program are technology-driven.
- Keeping classroom hardware and software current are critical to student success.
- Instructor office equipment and software must be upgraded regularly.

Requirements:
- Annual Autodesk software license fees
- Computer workstation upgrades every 3-5 years
- Printer upgrades every 5 years

Feasibility (constraints):
- Installation and maintenance requires Instructional Computing staff time.
- Software changes rapidly. It is difficult to predict which product training to offer. (For example, will more workplaces use Mechanical Desktop or Inventory next year? Architectural Desktop or Revit? AutoCAD, SolidWorks, or Microstation?)
- Technology is not going away and will only get more sophisticated as time goes on.

Design/Implementation:
- Negotiate new license agreement with Autodesk.
- Plan regular hardware upgrades in collaboration with Instructional Computing.

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Initiative 4 - Maintain Classroom Materials and Supplies

Concept:
- Maintain adequate supply of printer and plotter paper, toner, ink, and other supplies necessary for student success.

Requirements:
- Annual M & S budget

Feasibility (constraints):
- No known constraints.

Design/Implementation:
- Monitor inventory; replace as needed.

Initiative 5 - Marketing

Concept:
- Drafting employment follows the economy. Employment in general is at a 30-year low; drafting employment has followed this trend. Enrollment is affected.
- Enhance enrollment through marketing.

Requirements:
- 40 hours faculty time plus 40 hours support staff time
- Graphic design expertise
- Webpage design expertise
- Fees for advertisement placements

Feasibility (constraints):
- Time constraints: contracted teaching faculty work 50-60 per week already.
- Expertise: Faculty and staff are not experienced at marketing.
- Expertise: Faculty and staff are not skilled at graphic design or webpage design.

Design/Implementation:
- Identify target audiences
- Identify appropriate media
- Identify appropriate messages
- Develop messages
- Develop supporting graphics or other strategies
- Design webpages
- Produce marketing materials
- Purchase advertising in print, radio, television, or other locations
- Place webpages on websites
- Implement other yet-to-be identified programs.

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Initiative 6 - Revise First-Year Program and 1-Year Certificate Program

Concept:
- New curriculum was implemented 2002-2003. As with any new program, some small revisions could make it even better.

Requirements:
- 40 hours planning and curriculum development

Feasibility (constraints):
- Time constraints: contracted teaching faculty work 50-60 per week already.

Design/Implementation:
- Meet with faculty.
- Agree on process.
- Evaluate program and its components.
- Determine where adjustments are warranted; agree on revisions.
- Implement changes.

Initiative 7 - Faculty Professional Development

Concept:
- Drafting program uses and teaches rapidly-changing technology.
- Faculty need a more consistent method of staying aware of changes in the field and of future trends.
- Faculty need to keep software skills current in a rapidly-changing field.

Requirements:
- Funding for travel to Portland four times per year (two per contracted faculty) for software training.
- Funding for out-of-state travel four times per year (two per contracted faculty) for conferences, software trade shows, and training.
- Funding for substitute faculty.
- Professional memberships
- Professional journal subscriptions

Feasibility (constraints):
- Scheduling: Travel and absence schedule must accommodate vendor schedules which may not match instructor/student convenience. For example, Autodesk University occurs last week of fall term classes. Most software training occurs during academic year, rather than during summer.

Design/Implementation:
- Obtain training schedule from Portland office of Imaginit.
- Obtain Autodesk University conference brochure.
- Schedule training and conferences.
- Maintain professional society membership dues.
- Maintain subscriptions to professional journals.

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Initiative 8 - New Applied Technology Course

Concept:
- Develop applied technology principles course. Course will serve needs of all Advanced Technology Division programs and will replace Principles of Technology now offered through Science Dept.

Requirements:
- 20 hours division-wide faculty time for planning and collaboration.
- 160 hours curriculum development time.
- Equipment: specifications and cost to be determined.

Feasibility (constraints):
- Course will need to be matched to needs of a diverse population.

Design/Implementation:
- Meet with division faculty to identify content and pedagogy needs.
- Meet with science faculty to review past curriculum, pedagogy, and experience.
- Consult with peers at other institutions.
- Develop course outline and outcomes.
- Develop delivery and assessment materials.

Initiative 9 - Develop Engineering Graphics Course with Engineering Program

Concept:
- Interdisciplinary initiative, in collaboration with Science Department
- Develop GE 115, Engineering Graphics.
- Transferable to Oregon State University
- Form of course taught at LCC in the past is no longer current or usable.

Requirements:
- 120 hours curriculum development time

Feasibility (constraints):
- Requires coordination with Science Department and Engineering instructors.

Design/Implementation:
- Obtain equivalent course requirements from Oregon State University.
- Meet with Engineering and Drafting faculty.
- Develop course outline and outcomes.
- Develop delivery and assessment materials.

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Initiative 10 - Provide Tutors and Classroom Assistants for Software Courses

Concept:
- In classes of 20-30, students do not receive adequate individualized attention to optimize learning.
- Some students need tutors in order to succeed.
- Many students master skills far more quickly and thoroughly when they have access to assistants in computer labs.
- Having lab assistants on staff will allow labs to be available longer hours and will contribute to a welcoming environment.

Requirements:
- Funding for student assistants
- Staff to coordinate process

Feasibility (constraints):
- Depends upon having access to drafting students who are capable, good communicators, and available.

Design/Implementation:
- Identify criteria for selecting courses.
- Identify criteria for selecting student assistants.
- Develop process for selection, payment, and supervision.

Initiative 11 - Modify Courses for Simulated Workplace Environment

Concept:
- Improve pedagogy so that student learning mimics actual workplace situations.

Requirements:
- Minimum 120 hours curriculum development time.
- Equipment, supplies, and software needs to be determined.

Feasibility (constraints):
- Potentially time consuming. Implement incrementally.
- Challenge will be to maintain or enhance, and not diminish, content.

Design/Implementation:
- Meet with faculty to identify needs, opportunities, and strategies.
- Meet with other division faculty to identify potential collaboration opportunities.
- Meet with Advisory Committee.
- Develop part numbering system for mechanical drafting courses.
- Develop simulated MRP program using Microsoft Access software.
- Develop bill of material system using Microsoft Excel.
- Develop modifications to other delivery and assessment methods as identified by faculty team.

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Initiative 12 - Provide Teaching Aids and Hands-On Learning Tools

Concept:
- Students learn best when they have access to three-dimensional objects related to the drawings they create.
- Students learn best when they can employ a variety of learning modes, including haptic modes.

Requirements:
- Provide concrete teaching aids and tools for hands-on learning.
- Purchase handbooks, codes, and standards as needed to allow students access to current knowledge.
- Purchase National CAD Standard, $465

Feasibility (constraints):
- Cannot be implemented all at once. Ideas will come in steps.

Design/Implementation:
- Examine lectures and activities for each course.
- Identify opportunities for teaching aids and hands-on tools.
- Confer with peers at other institutions for sharing of ideas.
- Design teaching aids where none exist off-the-shelf.
- Collaborate with in-house manufacturing facilities where possible.

Initiative 13 - Create Virtual Field Trips

Concept:
- Allow students to "visit" multiple worksites.
- Students learn best when they see concepts of manufacturing , construction, and engineering actually applied in the real world.

Requirements:
- Purchase video camera.
- Purchase video editing software.
- Train faculty in use of camera and software.
- Occasional student support from Multimedia Department may be possible.

Feasibility (constraints):
- Multiple site visits are time-consuming.
- Site visits require coordination with private industry.

Design/Implementation:
- Contact a work site. Arrange visit.
- Define what areas will be visited and what elements are important to show.
- Develop narration or list of questions, if applicable.
- Tour work site with camera.
- Edit video.

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Initiative 14 - Replace Multiple Part-Time Instructor Positions With One Fulltime Instructor Position

Concept:
- Relying on part-time instructors creates multiple problems: high turnover, low motivation, inconsistent qualifications; results in less-than-ideal structure for students.
- These issues relate to student retention in a very real way.

Requirements:
- Some increase in salary may occur, but may actually be offset by increase in available hours.
- Increase in expenses for benefits

Feasibility (constraints):
- College policy may make approval difficult to obtain.

Design/Implementation:
- Form search committee.
- Conduct standard search and selection process.

Initiative 15 - New Distance Learning Courses

Concept:
- Develop online delivery for courses.
- Begin with one course. Develop additional online courses over time.

Requirements:
- 160 hours curriculum development time.
- Faculty training in design of online courses.
- Faculty training in distance learning software.

Feasibility (constraints):
- Faculty will need additional training.
- Courses will have unusually high graphic content requirements due to subject areas.

Design/Implementation:
- Obtain training in design of online courses.
- Obtain training in distance learning software.
- Meet with faculty. Identify order of implementation.
- Develop course outline and outcomes for one course.
- Develop delivery and assessment materials for one course.

Initiative 16 - Develop New Technical Illustration Course

Concept:
- Develop course in technical illustration using desktop publishing and rendering software. This skill differs from multimedia and graphic design in that it requires technically-accurate and to-scale graphics used for technical purposes.

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Requirements:
- 120 hours curriculum development time.
- Photoshop, Illustrator, and 3D Studio Max software for 60 workstations.
- Faculty skills updating (Photoshop, Illustrator) and training (3D Studio Max).

Feasibility (constraints):
- Faculty will need additional training.
- Student course load will need to be adjusted to make room for new course.

Design/Implementation:
- Develop course outline and outcomes.
- Develop delivery and assessment materials.

Initiative 17 - Develop Environment of Student Collegiality

Concept:
- A feeling of belonging contributes to student retention.
- Create a small area to function as a "student lounge."

Requirements:
- Space allocation
- Comfortable chairs and sofas
- Tables
- Telephone for local calls

Feasibility (constraints):
- Finding space for a student lounge area will be challenging if no square feet are added.

Design/Implementation:
- Meet with bond project architect to review space inventory and look for opportunities.
- Conduct design charettes with faculty and architect.
- Conduct design charettes with students.
- Prepare alternative drafts of floor plan; select one.
- Purchase furniture.

Initiative 18 - Provide Scholarships to Students for Workshops, Conferences, and Student Memberships in Professional Organizations

Concept:
- Local and regional conferences, workshops, and seminars occasionally occur which would enrich student learning and expand student horizons.
- Students are typically unable to attend, although they express interest, because of financial limitations.

Requirements:
- Scholarship and travel fund

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Feasibility (constraints):
- Requires instructor flexibility when events occur during class time.
- Requires flexibility in student's personal life situation.

Design/Implementation:
- Establish scholarship fund.
- Identify criteria for event and membership funding.
- Identify criteria for selecting student recipients.

Initiative 19 - Facilitate Creation of Statewide Organization: Community College Drafting Instructors

Concept:
- Develop regular communication channel among peers for the purpose of sharing experience, monitoring trends, and pooling intellectual resources.

Requirements:
- 10 hours setup time; 12 hours per year thereafter.
- Travel funding

Feasibility (constraints):
- Potential for expansion into overly-large time commitment.
- Contracted faculty already working 50-60 hours per week.
- Challenge of coordinating multiple members at multiple institutions.

Design/Implementation:
- Contact peers at other Oregon community colleges.
- Develop meeting schedule.
- Meet semi-monthly or as agreed.
- Maintain records.

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Division/Unit	Initiative ID	Division Priority	Date of Initiative	Expected completion date	Initiative Description	Resource Description	$$	Recurring / Nonrecurring	Payroll (w/OPE)	Equipment	Space	Other	Existing	New G-F	CP	TACT	CD	Other
Drafting	E01	1	1/9/04	6/30/05	New equipment	Market research	3,500	R									1	
	E02	2	1/9/04	6/30/05	New equipment	Curriculum revision	4,000	R									2	
	M01	3	1/9/04	6/30/05	Replacement equipment	Autocad software license (1)	7,000	R		x			1			1		
	M02	3	1/9/04	6/30/05	Replacement equipment	ESRI software license (1)	1,700	R		x			2			2		
	M03	3	1/9/04	6/30/05	Replacement equipment	Upgrad computer workstations	25,000	R								3		
	M04	3	1/9/04	6/30/05	Replacement equipment	Upgrade printers	4,000	R								4		
	M05	4	1/9/04	6/30/05	Replacement equipment	Ms Money upgrade	1,000	R								5		
	E03	5	1/9/04	6/30/05	New equipment	Marketing, Staff & Support time, graphic design 80 hrs	2,800	R									3	
	E04	6	1/9/04	6/30/05	New equipment	Revise 1st year program	1,400	NR									4	
	E05	7	1/9/04	6/30/05	New equipment	Faculty Professional Development	10,000	R										
	E06	8	1/9/04	6/30/05	New equipment	New applied tech course	7,000	R									5	
	E07	9	1/9/04	6/30/05	New equipment	Course with Engineering Program	4,560											
	E08	10	1/9/04	6/30/05	New equipment	Student assistant staff (tutors)	3,000							1				
	E09	11	1/9/04	6/30/05	New equipment	Modify courses for workplace environment	4,560	R									6	
	E10	12	1/9/04	6/30/05	New equipment	teaching aids; hands on tools	1,500	R								6		
	E11	13	1/9/04	6/30/05	New equipment	Virtual field trips	1,500	R	x					1		7		
	E12	14	1/9/04	6/30/05	New equipment	convert multiple PT instructors to FT	10,000	NR					3					
	E13	15	1/9/04	6/30/05	New equipment	Distance learning courses	5,000	R									8	
	E14	16	1/9/04	6/30/05	New equipment	Tech illustration course	3,500	R									9	
	E15	17	1/9/04	6/30/05	New equipment	Student Lounge	5,000	NR										1
	E16	18	1/9/04	6/30/05	New equipment	Scholarships	5,000	R										2
	E17	19	1/9/04	6/30/05	New equipment	Create statewide org	616											
	E18	20	1/9/04	6/30/05	New equipment	HP Plotter (1)	2,000	NR		x					2	7		
	E19	21	1/9/04	6/30/05	New equipment	Measurement/Inspection tools (3)	360	NR		x			4		3			
	E20	22	1/9/04	6/30/05	New equipment	Surveying Equipment (10)	5,000			x			5	4				
	M06	23	1/9/04	6/30/05	Replacement equipment	Plotter (1)	2,000	NR		x			6			8		
	M07	24	1/9/04	6/30/05	Replacement equipment	Printer (3)	7,500	NR		x						9		
	M08	25	1/9/04	6/30/05	Replacement equipment	Computer laboratories (2)	140,000	NR		x			7			10		
	M09	26	1/9/04	6/30/05	Replacement equipment	LCD Projectors (2)	8,000	NR		x			8			11		
	M10	27	1/9/04	6/30/05	Replacement equipment	Code and standards	4,800	R		x			9	5				
	E21	28	1/9/04	6/30/04	New equipment	Teaching kits (10)	7,000	R		x			10	6				