PLANNING & BUDGETING COMMITTEE
October 20, 2016
1:00 -2:30 P.M.
Library 202

Facilitator: Rory K. Natividad Notes: Linda M. Olsen

STATEMENT OF PURPOSE

The Planning and Budgeting Committee serves as the consultation committee for campus-wide planning and budgeting. The PBC assures that the planning and budgeting are interlinked and that the process is driven by the mission and strategic initiatives set forth in the Strategic Plan. The PBC makes recommendations to the President on all planning and budgeting issues and reports committee activities to campus constituencies.

Strategic Initiative – C – Collaboration

Advance an effective process of collaboration and collegial consultation conducted with integrity and respect to inform and strengthen decision-making.

Members

- ☐ William Garcia - Student & Community Adv.
- ☐ Amy Grant - Academic Affairs
- ☐ Ken Key - ECCFT
- ☐ David Mussaw – ECCE
- ☐ Areceli Rodriguez – ASO, Student Rep.
- ☐ Rory K. Natividad - Chair (non-voting)
- ☐ Cheryl Shenefield - Administrative Services
- ☐ Jackie Sims - Management/Supervisors
- ☐ Dean Starkey – Campus Police
- ☐ Lance Widman - Academic Senate

Alternate Members / Support

- ☐ Babs Atane – Support
- ☐ Linda Beam – Support
- ☐ Janice Ely – Support
- ☐ Irene Graff – Support
- ☐ Jo Ann Higdon – Support
- ☐ Kristie Daniel-DiGregorio – Support
- ☐ Art Leible – Support
- ☐ Jeanie Nishime – Support
- ☐ Rebecca Russell - Alt., Ac. Affairs
- ☐ Andrea Sala – Alt. SCA
- ☐ Jean Shankweiler – Support
- ☐ Ericka Solarzano - Alt. Police
- ☐ Michael Trevis – Alt. Adm.
- ☐ Josh Troesh – Alt. Ac. Sen
- ☐ Steve. Waterhouse-Alt.Mgmt/Sup
- ☐ Alt. ASO, Student
- ☐ Luukia Smith – Alt. ECCE
- ☐ Susana Prieto – Alt. ECCFT

AGENDA

1. Draft Minutes Approval – October 6, 2016	R. Natividad	1:00 P.M.
2. Educational Master Plan	I. Graff / J. Troesh	1:10 P.M.
3. Technology Master Plan	A. Leible / I. Graff	1:25 P.M.
4. Accreditation Update	J. Shankweiler	1:45 P.M.
5. Annual Planning and Budgeting Calendar	R. Natividad	2:00 P. M.

Next meeting – November 3, 2016

Committee Funds and Financial Terms Glossary

General Unrestricted	Fund 11
General Restricted	Fund 12
Compton Center Related Activities	Fund 14
Special Programs Compton Center Partnership	Fund 15
Student Financial Aid	Fund 74
Workers Comp.	Fund 61
Capital Outlay Projects	Fund 41
General Obligation Bond	Fund 42
Property & Liability Self-Insurance	Fund 62
Dental Self-Insurance	Fund 63
Post-Employment Benefits Irrevocable Trust	Fund 69
Bookstore	Fund 51

WSCH = Weekly Student Contact Hours
BOGFW = Board of Governors Fee Waiver
FTES = Full Time Equivalent Students
FTEF = Full Time Equivalent Faculty
COLA = Cost of Living Adjustment
OPEB = Other Post-Employment Benefits
FON = Faculty Obligation Number

* A complete list is available in the annual final budget book.

Planning and Budgeting Committee
2016-17 Goals

PBC Goals 2016-17 for discussion:

1. Develop an action plan utilizing the college wide evaluation of planning and budgeting process. The evaluation was conducted last year.
2. Review and approve the Comprehensive Master Plan to ensure that they are:
    a. Supportive of the Mission and Strategic Plan,
    b. Integrated with other college planning and budgeting,
    c. Implementable, and
    d. Achievable.
3. Evaluate the Strategic Plan including Institutional Effectiveness Outcomes and Strategic Initiative Objectives.
4. Review and improve upon the yearly activity calendar.
5. Provide a professional development opportunity for faculty and classified.
6. Seek evidence of constituent group PBC communications in an effort to improve the understanding of committee efforts throughout the campus.

EL CAMINO COLLEGE
Planning & Budgeting Committee
Minutes
Date: October 6, 2016

MEMBERS PRESENT

- ☒ William Garcia– Student & Comm Adv.
- ☒ Amy Grant – Academic Affairs
- ☒ Ken Key - ECCFT
- ☒ Araceli Rodriguez – ASO, Student Rep.
- ☒ David Mussaw – ECCE
- ☒ Rory K. Natividad – Chair (non-voting)
- ☒ Cheryl Shenefield–Administrative Services
- ☐ Jackie Sims -Management/Supervisors
- ☐ Dean Starkey – Campus Police
- ☐ Lance Widman - Academic Senate

Other Attendees: Members: S. Waterhouse
Support: B. Atane, I. Graff, J. Nishime, J. Shankweiler (R. Natividad acting VP)

The meeting was called to order at 1:04 p.m.

Approval of the September 15 Minutes

1. The date on agenda with reference to the draft minutes was corrected to September 15, 2016.
2. Page 1 – Financial Aid Update section. Last sentence: **Delete:** This will be in effect for the next 31 years. **Added:** This will be the first time that an academic criterion is used to determine eligibility.
3. It was noted that the comprehensive master plan update meeting was moved to October 11th due to conflicts.

PBC Evaluation Timeline/Discussion – I. Graff / R. Natividad (handout)

1. The PBC evaluation survey was provided for a second time for committee review and updates. It was noted the PBC conducts an annual evaluation to provide feedback on the committee structure and effectiveness. No changes or additions were suggested. The PBC evaluation will be provided to members and support via an email link. The committee was encouraged to provide feedback during the open evaluation period.

PBC Annual Planning and Budgeting Calendar – I. Graff, R. Natividad (handout)

1. A revised, updated Annual Planning and Budgeting Calendar was provided to the committee. The updated calendar provided the same information but in a more concise format and alignment. Discussion and input was provided by the committee on timelines and additions to the calendar. The calendar has been used in the original format for a number of years. President Maloney provided feedback on alignment and format prior to the meeting to assist the committee. Discussion provided the addition of: The college plan finalized/budgeted (October), Faculty Obligation Number (April), May revise (May), and the Mid-year evaluation (January) will be changed to mid-year updates. The committee and support members were encouraged to review included dates from their area to confirm appropriate dates are provided. The calendar additions will be made and the calendar will be reviewed again by the committee.
2. The committee was provided two informational graphics on the timeline for planning and budgeting. These two documents are graphic representations of the monthly activity of each process. Discussion took place as to the integration of the two charts into one chart showing the link between planning and budget.

TracDat Training Schedule/Discussion– I. Graff (handout)

1. I. Graff provided and update with the TracDat system to the committee. In addition, the Fall 2016 Program Review and Program Plan Training schedule was provided to the committee. It was noted that all program leads should attend a training session. Program participants should also contact I. Graff for additional information.

Adjournment – R. Natividad

1. The meeting adjourned at 1:40 p.m. The next meeting will be held on **October 20, 2016 at 1:00 p.m.** in Library 202.

RKN/lmo

Annual Planning & Budgeting Calendar

Annual Planning Process	Month	Annual Budget Process
College Plan discussion and development (Vice Presidents)	**September**	Final Budget submitted to Board of Trustees for discussion and approval (Early September meeting)
College Plan published. PBC review & endorsement of College Plan.	**October**	College Plan finalized budgeted
Program plans finalized for the next fiscal year (November 15th) Unit plan (next fiscal year) development commences.	**November**	
Unit plan (next fiscal year) development	**December**	
Mid-year updates of program/unit/area plans.	**January**	Governors State Budget Update
Unit plan (next fiscal year) finalization	**February**	
Unit plans finalized for the next fiscal year (March 15th)	**March**	
Area Plans finalized for the next fiscal year (April 30th)	**April**	Determine enrollment targets, sections to be taught, and full- and part-time FTEF. Faculty Obligation Number (FON) Vice Presidents jointly determine ongoing operational costs including: 1. Full-time salaries 2. Benefits, Utilities, GASB 3. Legal and contract obligations Develop Line Item Budgets for Operational Areas.
	May	May Revise Tentative budget for PBC review, discussion and recommendation
	June	Tentative Budget is presented to the Board.
Final updates and evaluation of annual plan recommendations	**July**	Tentative Budget is rolled into active status (purchasing can begin)
	August	Final revenue and expenditure adjustments made to budget Final Budget 1st and 2nd review and discussion

El Camino College
2016 Comprehensive Master Plan

Table of Contents

CMP Timeline - Revised Draft, 9/30/2016

Task Name	Start Date	End Date	Status
Comprehensive Master Plan Development	**02/01/16**	**02/09/17**	
Content Development Period	**02/01/16**	**03/24/16**	✓
Narrative Drafting Period	**06/06/16**	**09/30/16**	✓
Final Consultation Period	**08/16/16**	**12/19/16**	
Draft CMP Published to Web	09/26/16	09/26/16	✓
Public Comment Period/Presentation	09/26/16	10/24/16	
Email employees with link to EMP	10/05/16	10/10/16	✓
Open Forum/Public Presentation	10/11/16	10/11/16	✓
Draft CMP to Public Relations	10/11/16	10/11/16	
Deans Council	10/13/16	10/13/16	✓
Student Success Advisory Committee	10/13/16	10/13/16	✓
ASO Cabinet (First Reading)	10/13/16	10/13/16	not held
Academic Senate First Reading	10/18/16	10/18/16	✓
Technology Committee (review & finalize)	10/18/16	10/18/16	✓
PBC First Reading	10/20/16	10/20/16	
ASO Senate Endorsement (2nd Reading)	10/20/16	10/20/16	
Academic Senate Endorsement	11/01/16	11/01/16	
PBC Second Reading & Endorsement	11/03/16	11/03/16	
Cabinet Final Review & Approval	11/07/16	11/07/16	
College Council Review & Endorsement	11/07/16	11/07/16	
Board of Trustees First Reading	11/21/16	11/21/16	
Management Forum Presentation	12/01/16	12/01/16	
Facilities Master Plan Update Completed	08/16/16	11/07/16	
Technology Plan Completed	08/16/16	11/07/16	
Board of Trustees Approval	12/19/16	12/19/16	
Publication and Implementation	**pending**	**pending**	
Staffing Plan Completed	01/31/17	01/31/17	
Comprehensive Master Plan Approved			
Notification of approval to Public Relations			
Comprehensive Master Plan Published			
Comprehensive Master Plan Implemented			
CMP Kickoff Celebration			

El Camino College

Educational Master Plan 2017-2022
Proposed Objectives & Goals

Introduction

The ECC Educational Master Plan (EMP) for 2017-2022 was developed based on input from the Master Plan Work Group (MPWG), ECC students, the Superintendent/President, faculty, staff, and administrators. It also reflects broader trends: we identified areas experiencing momentum in the ECC community, the CCC system, and the South Bay area. As the world changes, so do educational and business needs, and we aim to be relevant and responsive to students' goals in the 21st century.

Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
A – Curricular Innovations: Implement and/or expand curricular innovations that will promote creativity in the classroom and encourage greater engagement, success, and persistence among students **Strategic Initiative(s): A – Student Learning, B – Student Success and Support, C – Collaboration, D – Community Responsiveness, E – Institutional Effectiveness, and F – Modernization**						
1. Develop and/or expand integrated programs in which basic skills courses are paired with degree- or transfer-level courses relevant to students' interests OR in which basic skills content is aligned with a student's academic or vocational program (contextualized learning)	Academic Affairs (AA)	3 years to develop and pilot	● Increase in enrollment ● Increase in course completion ● Increase in college- or transfer-level course success rates ● Improved academic planning ● Increased certificate/degree	● Stipends for faculty to develop and implement curriculum	● BSSOT ● CAA & related grants	● Evaluate new courses or innovations against std. approaches – course succ. & progress ● Track mile-stones & IE Outcomes ● Student & faculty feedback

BSSOT=Basic Skills & Student Outcomes Transformation Grant; CAA=Career Advancement Academy; EM=Enrollment Management; PI=Process Improvement; SEP=Student Equity Program; SSSP=Student Success & Support Program

Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			completion			
2. Promote curricular innovations that lead to greater academic engagement in these courses and that promote higher completion rates of transfer-level Math and English, among other courses. Explore approaches, programs, or partnerships that respond to local business and community needs	AA, BSI/BSSOT leads	3 years to research and pilot, 3 additional years to scale up	• Increase in succ. course completion • Increase in college- or transfer-level course success rates • Increased completion & transfer	• Funding for research and conference attendance • Stipends for curriculum development and implementation	• BSSOT	• Evaluate new courses or innovations against std. approaches – course succ. & progress • Track mile-stones & IE Outcomes
3. Conduct an assessment of how well the College engages and serves the surrounding community and develop a response plan, as determined by assessment findings	AA, Student Services, key faculty?	2 years to develop multiple small-scale programs, 4 years to expand and institutionalize (varying according to program)	• Increased enrollment • Increased student engagement • Improved visibility of ECC in surrounding communities	• Cost unknown (marketing?)	• ECC	• Increase in community partnerships • Faculty & student feedback
4. Develop or identify in-house funding opportunities that allow for faculty experimentation with innovative ideas	PD and FDC, Foundation	Ongoing	• Increased enrollment • Innovative offerings • Faculty development	Depends on idea, compensation for faculty, potentially some equipment	• iGrants? • Kickstarter program? • Crowd funding? • Partnership with business	• Required post-use self-evaluation
5. Develop and promote the adoption and utilization of resources being developed by the Online Education Initiative (OEI) to improve teaching, learning, and student success	Distance Ed; AA; PD; SSAC	1 year to pilot; 1 year to implement & institutionalize?	• Increased enrollment • Higher student success • Faculty	• Cost unknown	• ECC?	• Increased enrollment • Higher student success

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			development			
6. Facilitate and expand alternative modes of instruction using ECC's learning management system (LMS)	Distance Ed; AA; PD	Ongoing	• Higher student engagement & success	• Cost unknown	• ECC?	• SENSE • Success rates
B – Empowering for Equity: Equip faculty and staff to equitably serve our increasingly diverse student population **Strategic Initiative(s): A – Student Learning, B – Student Success and Support, C – Collaboration, E – Institutional Effectiveness**						
1. Regularly disseminate achievement gap data to faculty and staff to facilitate productive discussion of those areas where ECC could better serve targeted student populations	VP (AA), IR, Couns. Deans, Faculty, Staff, Prof. Dev. Academic Senate, Director Staff/Student Diversity	Ongoing	• Increased collegial communications • More in depth investigation of core issue • Increased student success in target pops. • Better trained and responsive staff/faculty • Improved SLO data • Improvements and shifts in pedagogies, pedagogical approaches, type and number of programs • Additional support strategies/	• Development of data dashboards • Possible training costs to address persistent gaps	• IRP (in progress) • SEP	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			service offerings			
2. Develop an evidence-based and integrated professional development function that consults with existing and emerging institutional plans (e.g., SSSP, SEP, BSI) and other campus stakeholder groups	VP academic Affairs, SSSP, SEP, BSI, Prof Dev. Acad. Senate	Ongoing	● Streamlined, integrated planning, ● avoid duplication of efforts/funding ● Integrated communication dissemination ● Increased opportunities for FLEX ● Increased opportunities for faculty development	● Stipends/pay for PD presentation development	● SEP	
3. Promote growth and sustainability of faculty inquiry groups that reflect culturally responsive pedagogies	VP Academic Affairs, Academic Senate, Counseling , Director Staff/Student Diversity, Human Resources, Academic Senate, Union	Ongoing	● Increased student equity ● Increased student success, persistence, completion ● Increased opportunities for faculty development/ training and FLEX opportunities ● Increased inter-Division	● Funds for conferences ● Funds for staff/faculty training. ● Funding to include adjunct faculty	● SEP	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			cooperation			
4. Offer professional development programs that are responsive to diverse faculty and staff schedules to maximize knowledge of key practices	Prof Dev, Academic Senate, VP Academic Affairs	Ongoing	• Bigger buy-in from adjunct faculty • Increase in trained faculty • Increase meaningfulness of SLO/SAO data • Increased faculty/staff development opportunities • Common practices adopted for streamlined, unified teaching	• Funds for staff/faculty training. • Funding to include adjunct faculty in training and initiatives like paid mandatory office hours	• SEP	
5. Institutionalize equity practices by regularly scheduling professional development programs that address equity, inclusion, and social justice with the goal of concrete changes in the classroom to improve equity outcomes	Acad. Senate (PDC), PD, VP Acad Affairs		• Increased Staff/faculty sensitivity to issues • Increased student satisfaction • Increased professionalism in realm of mentioned issues	• Funds for staff/faculty training. Cost Neutral if using faculty who have attended conf./trainings to use this as a venue to "report back"	• SEP	
6. Promote the use of educational technologies and other innovative instructional methods to support	AA, PD, ATC, DEAC, FDC	Ongoing; Tech Plan	Greater use of educational tech Improved	• Cost unknown	• ECC	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
student learning and improve teaching			student engage. & outcomes			
7. Develop an ongoing review process to ensure that all aspects of the educational experience are compliant with the Americans with Disabilities Act (ADA) and comply with the Universal Design for Learning Guidelines				●	●	
C – Funding Technology: Prioritize campus technology needs and ensure a constant source of funding for assessing and updating infrastructure **Strategic Initiative(s): B – Student Success and Support, C – Collaboration, E – Institutional Effectiveness, F - Modernization**						
1. Conduct a series of surveys/focus groups among students and faculty/staff to obtain detailed information on their real technological needs, ensuring that leadership is proactive in soliciting these ideas and reporting out on implementation processes	ITS SCA AA CTC ACT	? years to develop and pilot	● Improved communications ● Increased student satisfaction ● Increased enrollment ● Better adherence to deadlines for registration, fees...	● Increased Tech Support to innovate, train and support new technologies and apps,	● ECC	
2. Identify and address issues that hinder student support processes	ITS SCA AA CTC ACT	? years to develop and pilot			● EM; in progress ● Integrates w/ Initiative D	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
3. Set aside funds for regular upgrades of equipment, and invest in new technologies to stay current, efficient, secure, and innovative	ITS Academic and Campus Technology Committee DE	Ongoing	• Innovative program offerings, • Faculty/staff satisfaction • Student satisfaction • Current instead of "catch-up"	• Money for regular updates and maintenance • Slush fund to experiment with innovation.	• ECC, via ongoing "Tech Plan" budget line	
4. Produce written plans for regular replacements and upgrades for classrooms and faculty laptops/computers, which are periodically shared with the departments and college campus via the Academic Technology Committee	Cabinet ITS Academic and Campus Technology Committees	Ongoing	• Faculty/staff satisfaction • Increased collegial communications • Efficient, integrated planning • Integrated planning • Less confusion and waste		• No cost • Could be redundant w/ #3 – seeks transparency and ability to plan	
5. Develop and adhere to the highest level security protocols to ensure safekeeping of student and college data and information.					• ECC	
6. Review technical capabilities in classrooms and CMS to ensure that the infrastructure supports instructional technology initiatives	College ITS AA/Media Services Facilities	2017-18	Recommendations from audit committee(s)	$0	• ECC/Bond	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
7. Implement Facilities, Staffing, and Technology plans, and evaluate progress on a regular schedule	College comms. & plan leads	Life of plan	Actions implemented as planned; institutional improvement	$0	• As determined in each plan	IE Outcomes
8. Ensure that Wi-Fi capability or any technology upgrades in all new buildings is based on contextual needs rather than simply classroom capacities (e.g., support for planned classroom-based tablet or Chromebook use).					• ECC	
D – Technology for Communication: Utilize various technologies to improve communication and to promote increased completion rates for ECC students **Strategic Initiative(s): A – Student Learning, B – Student Success and Support, E – Institutional Effectiveness, F - Modernization**						
1. Work with local high schools to digitally acquire the paperwork necessary for entering students (currently, many prospective students give up on registration because they receive conflicting information and are sent to different departments to obtain all the necessary paperwork, within the constraints of limited operating hours)	ITS SCA AA	Ongoing	• Streamlined, integrated processes • Increased student support and satisfaction • Clearer, more accurate communications • Partnerships with local schools • Increased enrollment	Creating a mobile app or other platform may require extra staff or outside vendor, money in staff time will be saved by having less complicated procedures	• ECC	Survey all on ease of systems use and interaction and improve processes based on feedback until a uniform survey score of Good is achieved
2. Facilitate communications by distributing the capability to create				• No Cost	• N/A	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
contact lists for targeted student populations (e.g., email listservs, texting, and other options)						
3. Improve ease of access to querying data necessary for assessments of various programs, initiatives, services, etc.				● No Cost	● N/A	
4. Ensure web/mobile processes are continually evaluated to ensure clarity and ease of use for students, faculty, and staff. Ensure that all online services can be used or viewed on the most common platforms, browsers and devices.	ITS SCA AA	Ongoing	● Streamlined, integrated processes ● Increased student support and satisfaction ● Clearer, more accurate communications ● Partnerships with local schools ● Increased enrollment ● Better adherence to deadlines for registration, fees, etc.	Creating a mobile app or other platform may require extra staff or outside vendor, money in staff time will be saved by having less complicated procedures	● ECC	Survey all on ease of systems use and interaction and improve processes based on feedback until a uniform survey score of Good is achieved
5. Migrate form-based processes to online submission. Conduct a needs assessment to create a prioritized list of forms and processes to convert				● Cost unknown; dependent on online systems designed or selected	● ECC	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
6. Use technology to more closely track student progress so that the College can communicate with students more readily after they reach specific milestones or exhibit at-risk behaviors	ITS SCA AA				• SSSP	
7. Create or adapt a mobile app for El Camino students that allows them to interact with all college systems in a "mobile-first" environment (including registration, financial aid, fee payments, form submissions, educational plans and transcripts, counseling appointments, etc., and all services currently available through MyECC)	ITS SCA AA	? years to develop and pilot			• PI • ECC	Survey all on ease of systems use and interaction and improve processes based on feedback until a uniform survey score of Good is achieved
E – Comprehensive Student Support: Develop, expand, or change services so that students experience a high level of comprehensive support, beginning prior to matriculation and culminating with goal completion **Strategic Initiative(s): A – Student Learning, B – Student Success and Support, C – Collaboration, D – Community Responsiveness, E – Institutional Effectiveness**						
1. Implement recommendations following analysis of the student experience, and redesign the process as described in Enrollment Management Plan	ITS SCA AA				• EM	
2. Expand and/or develop bridge programs to address the student support needs of basic skills students prior to credit coursework, building on ECC's existing Math and					• BSSOT • SEP • SSSP	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
English summer bridge programs, and working in concert with local high schools and Adult Education in order to create a seamless transition into college coursework						
3. Evaluate ECC's placement procedures, and redesign our processes so they utilize CCCAssess, includes multiple measures of assessment, and accurately place students into Math and English classes where they will experience the highest levels of success	AA, Student Services (SCA), ITS	3 years to pilot and research	● More accurate placement ● Increase in course completion ● Increase in college- or transfer-level course success rates ● Increase in student satisfaction ● Increase in persistence	● Training ● Research ● Technology	● SSSP	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
4. Expand services and follow-up processes to directly address new students. Services to be expanded will be detailed in the SSSP Plan.	Counseling	Gradual expansion of orientation services, full implementation by Year 4	• Increase in student engagement • Increase in retention • Increase in course completion • Improved academic planning • Increased certificate/degree completion	• Paid hours for counselors and instructional faculty • Stipends for peer mentors	• SSSP	
5. Transform the current "Information Desk" and create in future Student Services Centers a centralized and comprehensive Welcome Center. Welcome Center staff will be broadly knowledgeable and be able to triage and effectively remedy a variety of student needs.	Student Services Facilities (FMP?)	Ready to provide services by opening of new Student Services building	• Increase in student engagement • Increase in retention • Increase in course completion	• Paid hours for counselors and other staff • Training for counselors and staff	• ECC	
6. Improve service delivery processes to better manage high student demand for services and assist with providing basic information, referring to counselors and other resources, and triaging student situations as necessary, especially during peak times	Student & Community Advancement, Counselling, Admissions, Service Counters, etc	With immediate effect, during peak times	• Decrease stress and overload of peak time service demands • Increased Student satisfaction • Increased Staff Satisfaction • Decrease staff	• Extra staff for service desks and appointments	• SSSP?	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			stress ● Increased enrollment & persistence			
7. Revise online orientation so students are exposed to a wide array of services and are more engaged with orientation content Create brief and engaging resources, such as YouTube videos, with which to share a variety of information to support college readiness of incoming students (including, but not limited to, common orientation topics). Develop strategies to share this information with students regularly		Ongoing revision	● Improved communications ● Increased student satisfaction		● SSSP	
8. Align service hours to assure that Counseling, Student Health Center, psychological services and other support services are available during intersessions, evenings and weekends, as needed.	VP Academic Affairs, VP Student/Community Services, Counselling, Library, Facilities...	Ongoing	● Increased student satisfaction ● Increased equity of access ● Increased enrollment, persistence, completion ● Increased student involvement	● Staffing for extra hours	● ECC (offset by higher FTES?)	
9. Promote greater coherence, communication, and collaboration among the various learning assistance resources on campus (Reading Success Center, Learning					● Various: ● SEP ● BSI ● BSSOT	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
Resource Center, etc.)						
10. Develop positive messages (e-mails, letters, and social media communications) to encourage continuing students to return the following fall and spring semester					• No cost	
11. Evaluate supports for students with a transfer goal. Develop or expand programs that successfully increase the number who transfer annually					• Cost dependent on what is needed	

12. Create opportunities for increased professionalization and training among tutors (in best practices, etc.)					• Various:
					  • SEP
					  • BSI
					  • BSSOT	

F – Lowering the Cost of Education: Lower the cost of education for students, including external costs **Strategic Initiative(s): A – Student Learning, B – Student Success and Support, C – Collaboration, D – Community Responsiveness, E – Institutional Effectiveness**						
1. Promote and encourage open education resources (OER) and alternative textbooks in order to bring down costs	AA ITS Academic Senate DE	? years to develop and pilot Consult with M.Fields	• Student savings on texts • Increased student satisfaction • Increased completion, persistence • Increased enrollment	Already in planning stage. Consult with M. Fields on needs	• OER Grant	
2. Provide expanded scholarships and book vouchers to our low-income student population					• Foundation	

BSSOT=Basic Skills & Student Outcomes Transformation Grant; CAA=Career Advancement Academy; EM=Enrollment Management; PI=Process Improvement; SEP=Student Equity Program; SSSP=Student Success & Support Program

Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
3. Identify emergency resources for students facing food and housing insecurities. Develop a process for regularly educating faculty and service providers about these resources	VP Student & Community Advancement, Counseling	2 years	● Increased enrollment, ● Increased persistence and completion		● ECC ● SCA? ● SEP?	
4. Foster partnerships with local transportation services for reduced bus fares to campus	VP Student/Community Advancement	Ongoing	● Increased enrollment ● Better attendance ● Increased student satisfaction ● Increased equity of access	● Cost unknown	● ECC	
G – Evaluation of Student Processes: Regularly analyze current procedures to ensure they are welcoming, unambiguous, and supportive in meeting the needs of current/future students, the faculty, the staff, and the community (Focus Area(s): Institutional Process Improvement; Enrollment Management, Access, Progress & Completion) **Strategic Initiative(s):**						
1. Assess enrollment processes (communications with prospective students and new applicants, concurrent enrollment processes, core services communications and processes, registration processes, etc)				● Hire a consultant	● EM; in progress	
2. Provide positive and clear communications between all parties on multiple platforms (including the ECC website), and have students test forms and scripts in a pilot phase	Administrative Services, Student & Community Advancement,	2 years for a test and pilot phase, then a year to get the improvements out	● Increased student and staff satisfaction ● Better	● Staff stipends to write scripts for different platforms,	● EM	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
before introduction to the wider community; update web pages frequently to ensure old and misleading information is eliminated	ITS, ASO, Public Relations and Web Master	and advertised to the community, Also constant updates as items get outdated	communications between all stakeholders ● Information available on Multiple platforms will lead to increased equity of access (see example cited) ● Net savings of time and energy	● Student stipends or incentives for pilot phase testing ● New Web Master position in the hiring phase Summer 2016		
3. Foster positive and effective internal communications by developing guidelines for use by leadership, faculty, staff and students	PR	2 years for the PR department to develop templates and discuss areas of authority and liaise with Divisions/dpartments	● Less frustration for staff ● Increased time for PR to concentrate on more weighty matters ● Better communications information is produced and release more speedily	● No funding needs, current staff should be able to produce a series of general use templates that can be approved for myriad uses	● N/A	
4. Develop guidelines used with all internal policies and procedures to ensure that they are flexible and	Academic Affairs, Student & Community	Ongoing. Internal/departmental policy reviews	● Increased student and staff	● If current staff cannot manage, temporary staff	● ECC	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
accommodating to individual needs	Advancement, Administrative Affairs, Human Resources	should be speeded up especially with reference to student services	satisfaction ● Increased enrollment ● More responsive system	could be hired to get the backlog seen to and then this task could be handled by Divisions internally on an annual basis as part of Academic or Support Program Review		
5. Develop training for staff in service-oriented practices that put the needs of students first	Academic Affairs, Student & Community Advancement, Administrative Affairs, Human Resources	Ongoing, with quarterly reports	● Increased student and staff satisfaction ● Increased sense of community and common mission, ● Streamlined processes ● Increased enrollment, persistence, completion ● Increased	● Cost of training sessions ● Salaries for in-person and online support increased service hours ● Incentives for focus groups	● ECC	

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			hours of enrollment & support services			
6. Develop processes to ensure that students are not sent from one department to another without satisfaction by encouraging all staff to work collegially to aid students, and by providing more staff and extended hours during peak times Integrate with D & E?	Academic Affairs, Student & Community Advancement, Administrative Affairs, Human Resources	Ongoing	• Increased student and staff satisfaction and support • Increased sense of community • Increased sense of equity of access and care	• Possibly training costs or incentives	•	
7. Improve the process of receiving and storing transcripts from other colleges and making them easily accessible to appropriate staff (counseling faculty, deans, etc.)					• ECC	
H – Building Community: Create a greater sense of community among students, and ensure physical spaces on campus enhance students' feelings of belonging at ECC						
1. Foster campus pride through events, activities, and other efforts to engage students.	President's Office; VP Areas; Professional Development Committees; Student	2016-17 planning for subsequent annual implementation	More students remain on campus and attend campus events;	$0, except for some events as determined by planning task force	• ECC • ASO	Evaluate change in reports of general campus engagement on CCSSE; graduation survey; ASO

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
	Development					feedback
2. Evaluate and respond to the need for new or additional programs that support historically underrepresented student populations, including African American, Latino/a, Asian/Pacific Islander, Foster Youth, LGBTQ, undocumented, and disabled students, and religious minorities	Student Development; Student Equity; Professional Development; IRP (survey)	Conduct a needs assessment in 2017-18 utilizing a Campus Climate survey and focus groups, as needed.	Students who self-identify with different groups report high levels of support and engagement on campus	Selecting a nationally-benchmarked survey may have a one-time cost. Focus groups incur minor costs.	● SEP	Campus Climate Survey – pre/post
3. Create or renovate indoor and outdoor physical spaces on campus where both students and faculty can conveniently congregate and socialize	Facilities Steering Committee (FSC)	Incorporate into Facilities Plan Update. Planning to begin in Spring 2017.	More students remain on campus and higher levels of satisfaction and engagement with ECC	To be determined by the FSC	● ECC/FMP	Evaluate change in reports of general campus engagement on CCSSE or Campus Climate survey; ASO feedback
4. Improve dining options so students stay on campus longer and feel connected to the institution. Provide charging stations/outlets in these spaces, both indoor and outdoor, to attract and accommodate more students	Facilities Steering Committee (FSC)	Immediate - 3 years	Increased sense of Campus "community"	To be determined by the FSC	● ECC/FMP	Evaluate change in reports of general campus engagement on CCSSE or Campus Climate survey; ASO feedback
5. Create comfortable waiting areas for students seeking services on campus, and/or utilize mobile technology to reduce the need to wait in line [mobile computing]	Facilities Steering Committee (FSC)	Immediate - 3 years	Enhanced customer service will result in higher levels of satisfaction with	Possible cost neutral or low cost by repurposing available resources.	● ECC/FMP	Evaluate change in reports of general campus engagement on CCSSE or Campus Climate survey;

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
			ECC			ASO feedback
6. Conduct student surveys or focus groups to help identify where improvements to the physical spaces and campus environment should be prioritized, including improvements to perceived safety	Student Support Services; Facilities Steering Committee	Conduct a needs assessment in 2016-17 or 2017-18 for immediate implementation	Higher satisfaction levels of students on campus. Increased sense of Campus "community"	May be mostly cost neutral. Unknown whether prioritized modifications were funded or not	● ECC	Evaluate change in reports of general campus engagement on CCSSE or Campus Climate survey; ASO feedback
I – Process Improvement: Analyze current campus processes to ensure they maximize efficiency, promote safety, and/or effectively use current technologies.						
1. Evaluate college processes to ensure they are efficient, effective, and up to date	VPs; Form Task Force (Jose Anaya? Eldon Davidson?)	Hire consultant: 2016-17. Implement recommendations: 2017-18 – 2019-20	Improved efficiency and accuracy of processes; Reduction in costs	One-time costs for consultant. Implementation costs will depend on the nature of the recommendations.	● ECC	Task Force will monitor and evaluate review and implementation process. Annual report to Master Plan Steering Committee
2. Regularly conduct a comprehensive evaluation of our emergency preparedness including readiness for natural disasters, active shooter and events, and threats to IT security (to be added to Tech Plan). Develop action plan to implement recommendations from this evaluation	VPs; Emergency Planning Committee; Tech Comm	2016-17 (baseline) 2018-19 (mid-plan) 2020-21 (final)	Evaluations conducted. Action Plan developed. Recommendations implemented.	No costs for evaluation. Implementation costs will depend on the nature of the recommendations.	● ECC	The evaluation is built into this goal.
3. Ensure recommendations from internal committees or outside	Master Plan Steering	All 5 years	More goals successfully	No cost. Time resources of	● N/A	Annual and end-of-plan progress

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Objectives (letters) & Goals (numbers)	Possible leads	Timeline	Expected Outcome(s)	Anticipated Cost/ Funding Needs	Funding Sources	Evaluation
consultants are acted upon with efficiency, with frequent progress reports, and with project leads evaluated based on their implementation of necessary changes	Committee		implemented than previous plan	committee members only.		reports on master plan implementation

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El Camino Community College District
Technology Master Plan
2018-2022 October 17, 2016

El Camino Community College District Technology Master Plan Table of Contents:

Technology Vision

To enhance El Camino College's (ECC) vision to be the college of choice for successful student learning that transforms lives, strengthens community, and inspires individuals to excel by providing the technology services and resources, required by our faculty, staff, and students.

Technology Plan Scope

For the purpose of this plan, technology is the secure storage or transmittal of data for use by ECC staff, faculty and students. It encompasses the necessary infrastructure, multimedia systems, hardware and software systems, and Internet required to provide secure and accessible computing systems for the academic and administrative endeavors.

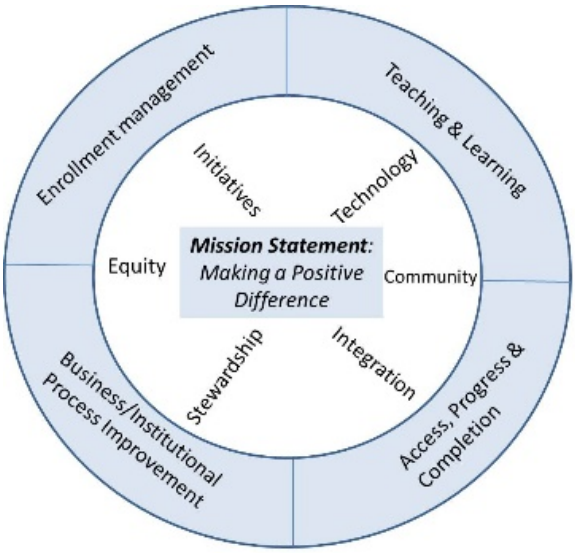
Technology Landscape

This Technology Master Plan will align with the goals and strategies of the overall Comprehensive Master Plan, Educational Master Plan, Facilities Master Plan, and Staffing Master Plan. It will also coordinate with such additional plans as Enrollment Management Plan and Distance Education Master Plan.

El Camino College Areas of Strategic Focus

1. ***Enrollment management*** – to stabilize enrollments, ensure adequate growth
2. ***Access, Progress & Completion*** – to support student access and equitable and timely progress and completion
3. ***Teaching and Learning*** – to support professional develop, innovation, methods that work, student learning and development
4. ***Institutional Process Improvement*** – to ensure efficiency and effectiveness of all internal college and student enrollment processes, and reduce roadblocks

Interweaving Threads



Information Technology Strategies

1. To provide up to date technology to ensure lifelong learning to our diverse student population.
2. To provide ongoing technology training necessary for faculty, staff and students.
3. To provide a variety of delivery methodologies and technologies to ensure flexibility in time and/or location for learning opportunities and learning management systems (LMS).
4. To ensure the institutional commitment to a viable and cost effective technology environment.
5. To ensure commitment to providing security, privacy, and protection of all systems, properties and data.
6. To ensure a continuing commitment to community, government, and corporate partnerships to meet our mutual needs.
7. To ensure an interwoven support structure and stewardship of resources for a quality technology environment.

Campus Technology Survey

The Campus Technology Survey was designed to gather information on technology use and device ownership of students and employees in order to assess campus needs, inform service delivery, and plan for technology. The baseline survey (spring 2013) revealed that 94% of students owned a laptop or desktop computer, while 80% owned at least one smartphone. A brief device-use survey administered in English & math classes in Fall 2016 found that 97% of these students own a laptop or desktop, while 94% own at least one smartphone. 41% own at least one tablet, compared to 28% three years ago.

Data was also collected from students to support planning Wi-Fi and BYOD (bring your own device) initiatives. Over 96% of students brought at least one Internet-connecting device to campus. Of those, 54% bring only one, 30% bring 2, and 16% bring three or more devices to campus regularly.

The College intends to repeat the survey in Spring 2017 and every two years thereafter. Results of the surveys are reviewed by both the ECC Technology Committee and the Academic Technology Committee to track progress on campus and academic technology improvement efforts.

Top Issues Facing Technology in Higher Educations

As part of the development of this plan, the ECC Technology Committee reviewed the top issues facing technology in higher education to determine the most critical issues to address or to support at El Camino College. These issues affected varying scopes, including College, Classroom, and Student. The top issues identified by scope, ordered by priority, are as follows:

College: *Institutional needs, opportunities, and challenges*

- Information Security
- Institutional Data Management
- Information Technology (IT) Funding Models
- IT Workforce Hiring and Retention
- IT Organizational Development
- Americans with Disabilities Act (ADA) Compliance
- Online Forms and Processes
- Enterprise Application Integrations
- Business Intelligence and Analytics
- Data Standards and Data Exchange
- Mobilization

Classroom: *Faculty pedagogy and professional development*

- Faculty and Online Education
- Educational Technologies
- Digital Literacy (faculty, staff, students)

- Shift to Deeper Learning Approaches
- Open Educational Resources (OER)

Student: *Tracking and supporting student learning and success*

- Student Success Technologies
- Digital Literacy (faculty, staff, students)
- Measurement of Learning
- Common Assessment and Multiple Measures of Assessment

Several internal and external resources were used to identify these issues. More detailed information and resource citations are located in Appendix iv.

Technology Governance

Technology Committee: The Technology Committee serves as the consultation committee for campus-wide technology planning. The committee evaluates needs, strategizes solutions, and proposes recommendations for College technology. The committee develops, monitors and evaluates implementation of the College Technology Master Plan.

The Technology Committee, made up of a cross section of faculty and staff, meets monthly to discuss and evaluate all forms of technology on campus. The Committee brings forward technology needs and ideas from across the campus, and relays information to staff and faculty of changes taking place on campus. Technology project management will workflow new initiatives under the rules and guidelines as established by the Technology Project Management subcommittee to the Technology Committee as whole for review and adoption. This subcommittee may then act on behalf of the whole College to receive/review for completeness and present complete Project requests to the whole Technology Committee. Technology standards will be developed and reviewed annually by the Technology Standards subcommittee to the Technology Committee under the same process as the Projects subcommittee. As the El Camino Community College District (ECC) has evolved, the Technology Committee has provided a wide spectrum of suggestions ranging from the use of technology in the classroom to the email system currently used by ECC. Recommendations from the Technology Committee are presented to the Superintendent/President's Cabinet who in turn works with the College's committee structure to incorporate technology initiatives in the District's overall planning processes.

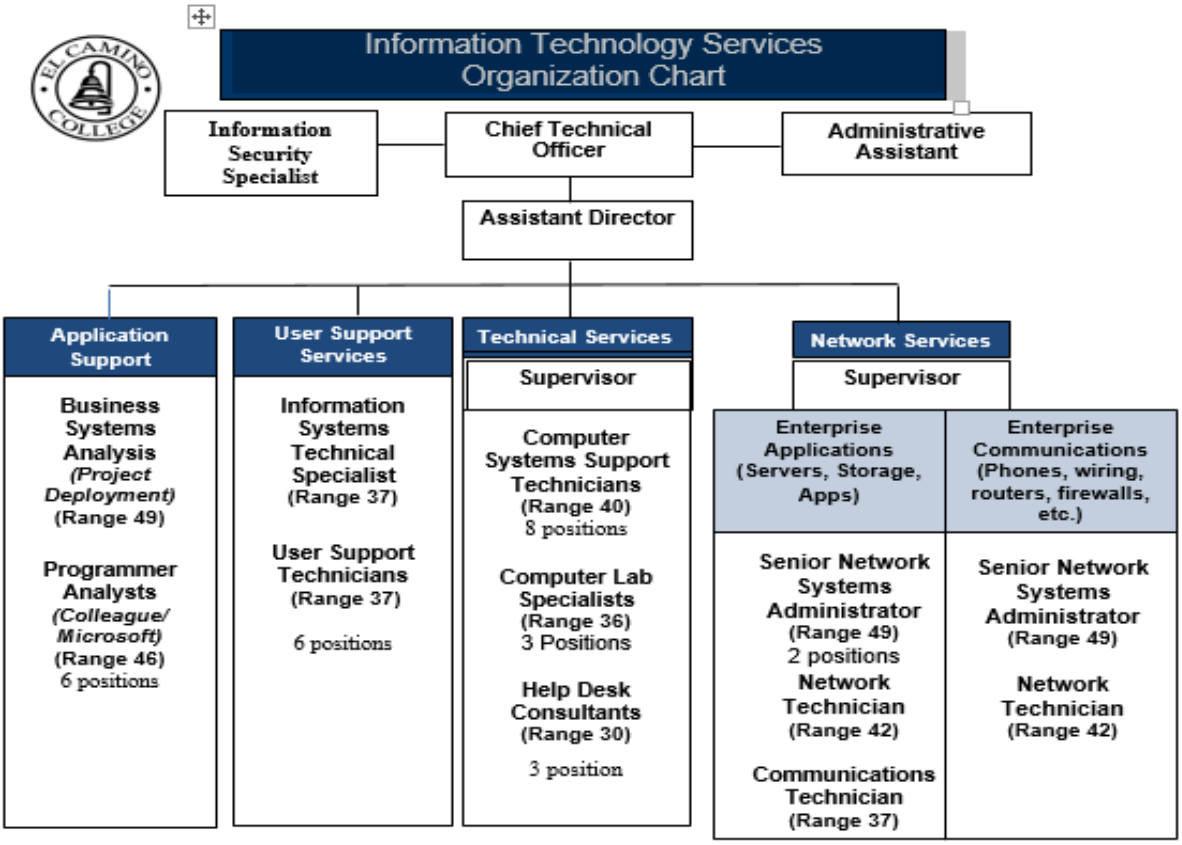
This Technology Master Plan spans a five year period from 2018 to 2022 and is organized to provide background, current environment and recommendations originating from different members of the campus community. Working with the Comprehensive Master Planning Committee and the Planning and Budget Committee, opportunities to introduce and enhance technology in the District will be developed, as the campus grows and moves forward.

The College Technology Committee works with the Academic Senate Technology Subcommittee to understand and develop technologies in support of academic endeavors, expanded global teaching and learning, and human interaction.

Information Technology Services

The mission of Information Technology Services is to enhance El Camino Community College District's optimal implementation of technology through fully integrated systems, services, networks, and security.

The Chief Technology Officer supervises the Assistant Director, Administrative Assistant III and Information Security Specialist. The Assistant Director supervises the Technical and Network Services Supervisor and the Applications and Development staff.



Applications and Development Services

Application Support is responsible for the development, deploying, operating, and maintaining of the software applications used by the campus. The unit is responsible for the software development and maintenance in support of the college's student information system Colleague by Ellucian, the student application to the college CCCApply, Financial Aid disbursements, and MIS reporting of student population information to the California Community College's Chancellors Office. In addition the unit develops or implements and maintains applications that

can be accessed on the MyECC portal site to provide real-time student information such as unofficial student transcripts and reporting services for administrative staff. Finally, the unit is charged with supporting the Human Resources area with MIS Employee reporting, Faculty Contracts and LACOE human resources and payroll interfaces in addition to supporting Fiscal Services and Purchasing for the Accounts Payables, General Ledger, Accounts Receivables, Purchasing, and Fixed Assets systems. The external LACOE financials and labor distribution interfaces are also maintained and supported by this unit.

The Assistant Director supervises 1 Business Systems Analyst, 6 Programmer Analysts, and 6 User Support Analysts. 2 User Support Analysts are assigned direct support to the Financial Aid division and Admissions and Records division.

Network and Telecommunications Services
The unit (1) maintains and operates the college's telephony and data infrastructure, (2) maintains and operates the college's data systems, including Ellucian Colleague, and (3) acquires and distributes new computing equipment including voice and data network equipment.

The is responsible for maintaining the online portal environment where Students, Faculty, and Staff access many of the previously manual processes. Student application and enrollment process are completely online using a combination of the Chancellor's Office OpenCCCApply and the MyECC portal. Faculty are submitting grades and no shows online and printing their class rosters themselves. A wide variety of student services are available online including admission and enrollment, fee payment, buying a parking sticker, account summary, test scores, financial aid status and award letters, educational plans, grades, the bookstore, scholarship applications and unofficial transcript requests.

The Network Supervisor supervises Communications Technicians, 2 Network Technicians, and 2 Senior Network Systems Administrators.

Technical Support Services and Help Desk
This unit acquires and distributes new computing equipment including PCs and printers, creates and "pushes" Operating Systems, classroom and office computer images and application program workstations images, deploys virtual desktop workstations and virtual file servers, and performs warranty repair service on all PC workstations.
The performance of the program is measured by the number of help desk tickets assigned and closed during the period, the number of hours required to close all the tickets, the average number of hours and days to close tickets.

The Technical Services Supervisor supervises 3 Help Desk Consultants, 1 Computer Lab Specialist and 8 Computer Systems Support Technicians.

Global Education

Information technology is a critical component of Global Education. Connecting with students, faculty and professionals from across the globe can help El Camino College students gain multicultural perspectives and prepare to engage effectively in an increasingly interconnected world. The college will need to update or enhance technology to ensure that various methods of quality communication exist to support initiatives in global education.

ECC will provide a technology base to support programs that provide globalizes perspective in real time, but offers a viable mechanism for making human connections, and building personal relationships through the use of videoconferencing, online chats and email-based interactions. Some of the areas for consideration are described here:

1. **Students** can either enroll in a global studies pathway and connect regularly with partnering institutions, participate in occasional connections or attend lectures via numerous multimedia venues from academicians around the globe.
2. **Faculty** can facilitate multiple connections or give solo "content expert" lectures via web conference to students in classrooms at partnering educational Institutions.
3. **Administrators** from colleges and universities in other can be served as international educational partners, leading the way for faculty collaboration.
4. **IT Professionals** can partner with faculty to successfully integrate the latest technology with course content making technology an opportunity as opposed to an obstacle.

Crucial Infrastructure

1. Internet accessibility sufficient for multimedia to include streaming video.
2. Secure access to the appropriate courses and media.
3. Online or local support for network, desktop, and conferencing systems.

Essential Infrastructure

1. Smart Classroom set-up; Projector and screen, hooked up to or through the computer, or a TV if camera can be directly hooked up to the camera/computer.
2. Support the setup video/computer accessories as necessary including an external microphone and speakers.

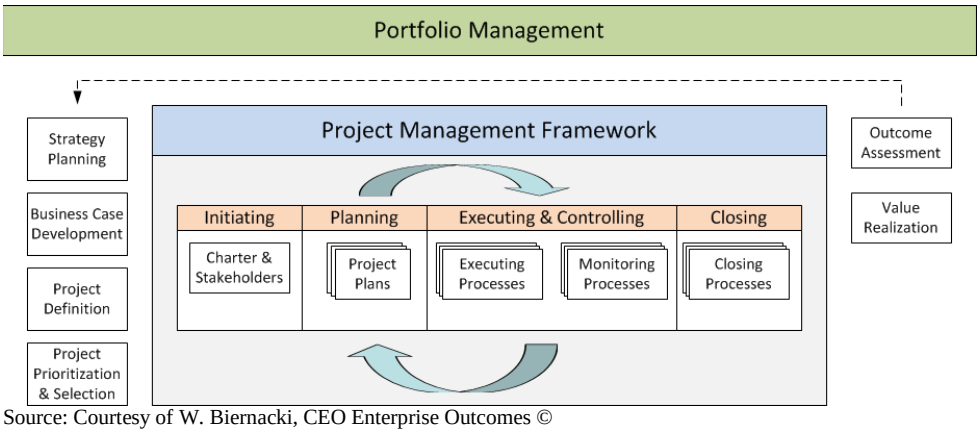
Ideal Infrastructure:

1. Computers capable of supporting various multimedia tools and applications, videoconferencing, audio, chat, and internet messaging.
2. Computer lab access which provides each student with a computer to use for online chats and/or email-based communique with their counter parts during the classroom sessions.

Technology Project Prioritization Principles

The Technology Committee will follow a structured and rigorous process for prioritizing projects. As a result of this prioritization, projects approved by the committee will adhere to the following disciplined project management process. Throughout the course of project initiation through closure, reflections on progress and learning outcomes will be collected to ensure future project embed/reflect these learnings and become ECC's knowledge base as organization process assets (OPAs). The Technology Committee will follow the more universally accepted principals of the Project Management Institute, the organization that oversees the primarily accepted Project Management Certification standards, and creator of the Project Management Book of

Knowledge which constitutes the primary handbook of all certificated Project Managers. These principles are described below.



Source: Courtesy of W. Biernacki, CEO Enterprise Outcomes ©

Project. A temporary endeavor undertaken to create a unique product, service, or result.
Portfolio Management. A portfolio refers to projects, programs, sub-portfolios, and operations managed as a group to achieve strategic objectives.
Project Scope Statement. The description of the project scope, major deliverables, assumptions, and constraints.
Project Management. The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project Management is accomplished through the appropriate application and integration of the 47 logically grouped project management processes (Refer to Attachment C).
(Source - Project Management Book of Knowledge 5th edition www.PMI.org)

1. Five process groups and ten knowledge areas will provide the framework for projects
2. The five Project Process Groups as defined by PMI.org are:

    a. **Initiating.** Processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase
    b. **Planning.** Processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
    c. **Executing.** Processes performed to complete the work defined in the project management plan to satisfy the project specifications.
    d. **Monitoring and Controlling.** Processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes.
    e. **Closing.** Processes performed to finalize all activities across all process groups to formally close the project or phase.

3. The ten knowledge areas of project management as defined by PIM.org are:

a. **Project Integration Management.** Processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.
b. **Project Scope Management.** Processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.
c. **Project Time Management.** Processes required to manage the timely completion of the project.
d. **Project Cost Management.** Processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs to ensure the project can be completed within the approved budget.
e. **Project Quality Management.** Processes and activities of the performing organization that determine quality policies, objectives, and responsibilities to ensure the project will satisfy the needs for which it was undertaken.
f. **Project Human Resource Management.** Processes that organize, manage, and lead the project team.
g. **Project Communication Management.** Processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.
h. **Project Risk Management.** Processes required for conducting risk management planning, identification analysis, response planning, and controlling risk on a project.
i. **Project Procurement Management.** Processes necessary to purchase or acquire products, services, or results needed from outside the project team.
j. **Project Stakeholder Management.** Processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution.
(Source - Project Management Book of Knowledge 5th edition www.PMI.org)

4. Inputs, Tools/Techniques, and Outputs from these process groups and knowledge areas may include the following but will be tailored based on size, complexity, timing, and budget. (For more in depth breakout of the Project Management processes, see Attachment C)

5. Prioritizing technology projects will be based on the inputs provided by the Technology Committee with an emphasis/preference on the following (Technology Master Plan 2012):
   a. Projects with clearly defined benefits for the faculty/student learning and teaching environment;

b. Projects that promote information and data security, and facilitate compliance with regulatory mandates;
c. Initiatives that facilitate collaboration among programs or departments for the design, implementation and the use of common applications;
d. Initiatives meeting common objectives, yet capitalizing on local autonomy and using local strengths;
e. Projects that further faculty, student, and staff technological literacy;
f. Projects that generate new revenue or reduce costs; and;
g. Projects that free up resources.

Project Design Principles

1. Prior to designing any application, solution, or process, the basic or underlying business processes must be reviewed and assessed. Only if the business process is correct and the proper automation of that process be achieved efficiently.
2. Data should be collected once, electronically, as close to its point of origin as possible.
3. New applications should be easier to use than the manual or automated systems they replace.
4. The need for clerical or manual intervention should be minimized with the adoption of new applications.

Data Governance

In the simplest terms, a data governance framework is a system of rules, policies, procedures, and responsibilities clearly establishing who can do what with what information and how and when those things can be done. An effective governance initiative promotes data quality and ensures information is both secure and available to those who should have access to it. Because such a framework is ideally integrated seamlessly throughout an institution, administrative silos, long-held practices, institutional politics, and resource limitations are more likely to be greater obstacles than any purely technical challenge. A multi-leveled data governance structure should serve the functions of governance council, stewardship committee, and information custodians. It's important to establish a framework that's appropriate for ECC.

Senior sponsorship is required to ensure compliance. Consultation throughout the development process will ensure that the framework is not seen as strictly and arbitrarily imposed from above. Support of managers and frontline staff will be done through emphasizing the benefits of a good data governance framework to an office's functionality (i.e. clear procedures for creating, maintaining, and handling information will help, not hinder, the operation of your unit). Consciously implementing a Data Governance framework in logical phases has several advantages. First, it allows you to identify and celebrate concrete successes early in the process, which is crucial to developing buy-in and momentum. Second, like any major task, realizing something as broad and involved as an institution-wide data governance framework is more manageable when deliberately and thoughtfully divided into its component parts.

Security Planning

Information security (InfoSec) concerns are beginning to take center stage within the educational sector. The importance of creating a well-rounded and multi-layered InfoSec strategy has never been more urgent. Daily news headlines are filled with horror stories of Ransomware variants running wild and frequent breaches of sensitive Personally Identifiable Information (PII). As an example of the rapidly shifting tide of targeted sectors by the cyber-criminal community, in 2014 the healthcare sector wasn't even on the radar screen. The following year (2015), healthcare, which hosts millions of records protected by HIPAA[1], was at the top of the list. As more and more sensitive financial and personal data is sold on the black market (Dark Web), cyber-criminals are shifting their sights to more lucrative hunting grounds that offer an easy payday. HIPAA data has become a favored target almost overnight, so too will data protected by the Family Education Rights and Privacy Act (FERPA).

Most people see the necessity of securing computer equipment. Machines cost money and therefore have value unto themselves. But considering why organizations are so willing to spend large amounts of money on their computer systems--to store, access, and transmit information--the value of that information becomes more apparent. In the education community, information about students, staff, and other resources is far more valuable to the operation of school buildings, campuses, and district and state education agencies than even the most costly equipment.

Education information is often considered to be confidential by its very nature-that is, certain types of sensitive information (in particular individually identifiable student and staff records) must, by law, be protected from all parties who do not have a verifiable need-to-know. In addition to numerous state and local laws designed to preserve the confidentiality of education records, the Family Education Rights and Privacy Act of 1974 (FERPA) (see Appendix B) is a federal law designed specifically to protect the privacy of a student's education record. It applies to all schools that receive funding under an applicable program of the U.S. Department of Education, and is but one example of legislation enacted specifically to protect confidential student information maintained in education record systems.

Education data can represent years' worth of investment in collection and maintenance activities, and may be irreplaceable as an asset. What would happen, for example, if a school "lost" grade information and was unable to calculate cumulative grade point averages for its graduating class. Information resources residing in the various administrative and academic computing systems are vital assets. These assets must be available and protected commensurate with the value of the assets. Measures shall be taken to protect these assets against accidental or unauthorized access, disclosure, modification or destruction, as well as to assure the availability, integrity, utility, authenticity and confidentiality of information. Access to state information resources must be appropriately managed.

[1] Health Insurance Portability and Accountability Act

One such methodology is a security vulnerability assessment of the computing infrastructure in order to determine the current state of computing resources. The vulnerability assessment attempts to identify threats that could affect the confidentiality, integrity, or availability of College information resources. Results of the assessment along with recommendations for improving security practices will be distributed to departments.
Current advances in information technology have contributed to a rise in the accessibility of information, ease of use, productivity and efficiency. However, there are significant risks involved with this type of advancement. Security threats and breaches have increased and crimes are committed with more malice. All employees and students share the risk and therefore share the responsibilities of security awareness and risk mitigation or prevention.

Information Security Responsibilities
Information security is a responsibility shared by the community. All members of the community are considered Data Users. In addition to the responsibilities of Data Users, members of each role are required to fulfill specific responsibilities, including incident reporting and handling. Stewards, Managers and Information Service Providers are responsible for establishing security policies and procedures. Users are expected to be aware of and to adhere to these and other College policies.

Data Users:
Every member of the College community is a Data User, and as such is responsible for appropriate protection of College information. Data Users are tasked with understanding and adhering to College policies, and with complying with best practices in information security as established by the College Information Security Office.

Heads of Academic and Administrative Units, Managers, and Supervisors:
College leadership are responsible for assuring that all individuals who fall within the scope of their authority are appropriately educated in the information security requirements of their roles. They also encourage information security through User training and awareness.

Data Stewards:
Data Stewards are accountable for the data under their stewardship. Stewards classify data, authorize access, and promote information security within the relevant user community. Faculty are considered Stewards of their own research and course materials; students are considered the Stewards of their own work (where it does not form part of the academic record).

College Chief Technology Officer (CTO):
The CTO is responsible for overseeing College network security; establishing required minimum security standards for handling College information; overseeing technology policy; managing an information security training and awareness program; and handling information security incidents.

Information Security Specialist (ISS):
The ISS is responsible for providing security guidance and assessment on all facets of the College's information security posture and architect, develop and implement security awareness training programs, and coordinate and conduct information security event management.
(see Attachment B for current assessment status)

Disaster Recovery Plan (DRP)
The College will create, under the guidance of the Chief Technology Officer and in conjunction with input and advice from the College's Technology Committee, an enhanced disaster recovery plan that mitigates or offsets service disruptions from minor system failures to the loss of the entire infrastructure. The plan will include information about the recovery team, who they are, how that can be reached, where they meet, and what they do. It will also include sections that describe system restart procedures including system passwords, maintenance hardware and software contracts and vendor contact information, and information for renting hardware systems for rapid recovery. The plan will be stored at two secure locations on campus and at least one location off campus.

The DRP will cover network and host vulnerability assessment, security architecture design, network and host security implementation, virus and intrusion detection, incident handling and forensics and encryption. The plan will balance the need for rapid recovery, business continuity, and security with an open, collaborative networking environment. To be effective, security practices cannot rely completely on technological solutions. Policies are required to define clearly faculty and staff responsibilities relating to student data and the security of their workstations. The planning process must involve the owners of the primary data systems as well as faculty and staff leaders as to create a broad base of consensus for the outcome.

Technology Training
College faculty, staff, students, and administrators rely on technology to perform many of their daily job functions. New technologies become available almost annually and are subsequently purchased and implemented. If employees and students are to perform their jobs effectively and efficiently or learn effectively, timely training after installation is critical. The complexity of technology at El Camino College requires Professional Development and Training Department and ITS to work closely together to ensure that faculty and staff are being trained in the use of the latest software in use at the campus including Ellucian Colleague. The College must continue to assure that training is offered, and that it meets ADA and 508 compliance standards for access. The College will provide infrastructure and technology support for compliant assistive technology and assisted learning requirements to ensure equity for all students and employees.

Technology Life Cycle Replacement Program (LCRP)
1. ECC's LCRP is a 5-year program designed to ensure a smooth continuous equipment replacement process to maintain the institution's capabilities and inventory to meet the growing and evolving needs.

2. The LCRP program is designed to identify and replace outdated or obsolete equipment annually and within budget constraints.
3. ITS will issue a memorandum annually of the equipment targeted for replacement the following fiscal year in conjunction with the budget planning cycle. This list will be derived from the automation help desk database and will identify what equipment and who the listed user is. Equipment that is not identified to IT, procured separately, or moved without notifying the Help Desk, may not be included in the database and would not be identified for replacement.
4. ITS will bulk order all LCRP purchases on July 1. Upon receipt of the equipment, ITS will prepare the equipment and, through Property, have it issued to the designated user. ITS will consolidate the LCRP requirements with received new purchases into a single requisition.
5. Administrative Services will provide ITS with a funding target available for the next fiscal year by March to allow for determining the amount of equipment that can be replaced.

Out-of-Cycle Replacements. It is recognized that not all computer equipment needs can wait for the July 1 ordering date. If equipment must be ordered out-of-cycle, the procedure followed is similar to the normal purchase order process.
1. Individual departments will prepare a requisition (including the department account number) for the equipment needed and they are then to send the requisition to ITS, where the orders will be reviewed for support, compatibility, etc.
2. The requisition will be sent for normal processing through the Purchasing Office.

Technology Funding
El Camino College continues to work to achieve a balance between the desire to expand the technology infrastructure and its ability to provide the resources necessary to support and upgrade services. There are procedures in place to guide the acquisition of new technology facilities, particularly computer laboratories through the annual Planning and Budget cycle and using the collegial consultative processes to review and approve new technology initiatives. The College has allowed requests for additional computer laboratories, new technology, software, and systems to enhance the learning environment. While there is a central approval process for new technology, it is still possible for departments to utilize grant fund resources in addition to those from the General Fund. The challenge for the college is stabilize funding for technology hardware and software so as to eliminate the excessive spending of left-over funds at the end of each fiscal year with a predictable cycle of upgrade and replacement that the College community understands and uses.

The Planning and Budget Cycle process allows for consistent and organized budget build for the College. The TracDat system is used to input requirements and data into a single system for review and processing. Once each unit has entered its requirements, the budget review process is conducted. At the conclusion of the review and approval phase, each of the primary divisions (Academics, Administration, HR, Student Affairs, Public Affairs) will conduct a review of their requirements for technology needs and possible projects for the upcoming year with the Chief Technology Officer to determine compatibility, feasibility and priority. Requirements that need ITS support will be considered in terms of availability of that support to help prioritize the

overall ITS workload within the ITS annual work plan. The ITS annual work plan addresses the need for operations, maintenance, repair, life cycle/upgrades, and technology projects.

ITS is charged with ordering, receiving and issuing all computers and network equipment as defined above in Technology Plan Scope. While each department can order/fund new software, ITS is also tasked to renew all annual software licensing for the following years until the original requesting department indicates they no longer need that license. This is done primarily to help ensure licensing compliance and accountability for the entire College. After the first year purchase by individual departments, Finance will then transfer the amount required for the licensing renewal to ITS and ensure that that funding amount is maintained. ITS will coordinate with Finance on the annual software licensing requirements through the budget and planning cycle. Please note that there are unique object codes which must be used for computer purchase or replacement/upgrade funding. Departments will refer to current published account codes and schedules as they change annually. Information Technology Services will create and submit a requisition(s) on your behalf, following approval of your request by your Division Administrator.

Current sources of technology funding are:

1. Technology and Telecommunications Infrastructure Program, TTIP/Tech II
2. Instructional Equipment/Library Materials
3. General Funds
4. Capital funds set-asides for new buildings such as Measure-E (Bond Funds)
5. Grant and categorical funding (i.e. Title III/V Federal Grants, CTE, and CalWORKs)
6. ECC Foundation
7. California Community College Chancellor's Office supported projects and initiatives
8. CCCCO Foundation provided purchasing agreements

Changing Conditions

All academic, administrative, and student support functions of the college are now dependent on very complex computer networking and data systems that interconnect departments across the District, the District with state and federal governments, and the college with higher education institutions across the country and throughout the world.

The move to an online registration process away from a manual forms process has dramatically altered and redefined the duties and responsibilities of the programming staff. Prospective students can apply from anywhere in the world using the internet. A&R staff redirect prospective students expecting to apply in person to the nearby kiosk computers to apply online.

ECC will undertake to institutionalize business processes improvement reviews and look towards a regular cycle of process improvements. While a variety of methodologies are available, ECC ITS will use the methods that most closely meet the needs of the processes being reviewed. Six Sigma, LEAN, ITIL, etc., all offer unique perspectives on different systems and processes. More of the manual processes done by the college are to be converted to electronic processes or media with the requirement of integrating automation, in addition to new processes that previously were prohibitive manually because of the resources required. The College will pursue an overall

strategy to reduce or eliminate paper forms through use of an electronic scanning, archiving, and storage retrieval system.

The California Community College's Chancellor's Office (CCCCO) has initiatives in play that will allow for California Community Colleges to leverage common automation platforms the CCCCO tech center is developing as a cost savings to the individual college and to move toward a single student identity with associated common college application requirements. These new initiatives represent cost savings, but the interfaces to the college's SIS are historically the college's responsibility to create.

The California State legislature has enacted into law SB1456 providing for new mandated requirements focusing on interaction between the California Community Colleges and their students. These new requirements commonly known as the Student Success Act, will mean evolving new ways to execute those required interactions and how to record and report the interactions required by the law.

Summary

This technology plan deals with the new technologies students are bringing with them into the classroom. It also anticipates the emergence of environmentally friendly technologies that are more cost efficient and able to yield greater returns on investments. The plan looks ahead to a technology infrastructure that is not yet reality but will be by the end of this plan period. This new infrastructure will be characterized by virtual and mobile technologies and cloud computing that will support affordable, highly customizable work environments that will exist almost entirely in cyber space. The College recognizes the impact that wireless technology, the Internet of Things (IoT), increased availability, and variety of computing devices accessing the network; and will continue to improve and increase the infrastructure and accessibility while providing a more flexible and robust security architecture. ECC will need to investigate and explore making mobile devices and computing more readily available through a variety of equity programs and allowing for the creating of a bring your own device (BYOD) culture amongst both faculty and students. The College will explore innovations in instructional delivery methods to expand our students learning experiences while conducting regular Institutional Process Improvement cycles to improve overall efficiency and effectiveness of programs, systems, and processes.

The focus of this plan is deploying new technologies that can enhance learning for student access and success, strengthen global College perspectives, link all members of the College community, and provide resources in a climate of drastically lower fiscal resources. The theme of the next five years is to deploy technology solutions that will help the district maintain critical services in a climate of unknown budget direction and where ECC will be called upon to do daily operations and new projects more efficiently and effectively.

These seven technology strategies described on Page 2 above will be aligned with the 4 areas of Strategic Focus. These areas of concentration are Enrollment Management, Teaching and Learning, Access Progress, Completion, and Institutional Process Improvement. With these

areas, more specific goals, objectives, and measures are developed to focus on the needs and requirements necessary to meet the strategies.

References:
El Camino Community College District Comprehensive Master Plan, November 2016
El Camino Community College District Education Master Plan, December 2017
El Camino Community College District Facilities Master Plan, January 2017
El Camino Community College District Staffing Master Plan, TBD 2017
El Camino Community College District Distance Education Master Plan, November 2016
El Camino Community College District, Information Technology Master Plan, 2012
PlanNet, Information Technology Assessment, January 2015

Technology Plan (Goals, Objectives, & Measures) Alignment to ECC EMP Focus Areas

Goal: Complete College without walls concept with more focus on distance education, both for instructor and student training and access. (EM, APC, IPI)

Objectives:

Provide student Mobile Connection needs for on and off-campus requirements such as hardware/software (laptops/software) to enable information access in a timely manner, both on and off campus through INTERNET or wireless access to the network.
Provide support to Distance Learning programs and global instructional technologies and learning management systems (LMS).
Provide and support ADA/508 compliance for all students and staff/faculty.
Provide and support requirements for compliant assistive technology and adaptive learning.

Measures:

Provide systems and integration/convergence of disparate technologies to improve learning environments regardless of location
Be able to provide ADA compliant adaptive technologies as required.

Goal: Provide Quality Information Services customer services to entire campus and co-located programs (IPI)
Objectives:
Provide proper IT staffing which is capable of meeting staff, faculty and student needs.
Survey to campus employees; evaluate IT staff's capability to provide support.
Provide up to date evaluation of current IT Support capabilities and requirements.

Measures:
Completed Surveys returned and assessed.
External IT Assessment completed and on-file
Prioritized personnel requested submitted to HR for annual budget.

Goal: Provide Campus Automation, Telecommunications, and Security Program (IPI)

Objectives:

Provide for security policies and procedures for applications software
Security Architecture will be developed and implemented
Ensure users know where to go to go to get information on computer/technology systems.

Measures:

User Reference and Security Handbook developed and available to all users
On-line Security procedures in place on ECC Web Page
Security Architecture is documented and adhered to.

Goal: To provide state of the art facilities and systems to trained end users. (T&L, APC, IPI)

Objectives:

Ensure users are comfortable with equipment and training available.
Meet needs for increased computer, lab and classroom availability
Meet need for various language labs given potential student demographics
Upgrade the Library's computer system
Provide technology training program for new employees as part of orientation.
Provide Colleague training through Title V and from IT.
Provide support to Public Safety Department.
Provide Software systems support to all ECC administrative systems.

Measures:

Increase in number of classes conducted and attendance.
Decrease in number of security violations.
Decrease in user complaints and work-orders due to simple hardware or software problems.
Number of programs, agencies and facilities supported for hardware and software.

Goal: Develop and implement assessment strategies to monitor and evaluate technology-based courses. (T&L)

Objectives:

Develop evaluation criteria
Implement a process to assess periodically the quality of technology-based courses and programs
Apply strategies of review and revision to increase the effectiveness of technology-based courses

Measures:

Show that evaluation criteria are in place.
Number of courses evaluated on a periodic basis.
Results of evaluation activities

Goal: Develop and support all educational, instructional, and training initiatives; and grants in providing outreach, access and training in information technology. (T&L, APC)

Objectives:

Ensure that full access is provided and that all customer service requests are handled in a timely and professional manner regardless of language.
Ensure training is provided that is universal and equitable for all students, faculty and staff regardless of initial training or educational level in technology.

Measures:

Number of customer services requests submitted requiring multi-lingual considerations.
Number of support services provided through multi-lingual capabilities.
Number of grants containing technology provision

Goal: Expand communications and information exchange processes to ensure understanding of IT standards, capabilities and procedures. (T&L, IPI)

Objectives:

Develop a software support subcommittee within ECC to establish software standards and support levels.
Develop a hardware support subcommittee within ECC to establish hardware standards and support levels.
Develop communication methodologies to disseminate standards and support level
Work with units to assure choices consistent with ECC major platforms.
Develop data standards subcommittee within ECC that is consistent with the overall campus client/server architecture.
Develop a standard request for proposal (RFP) process for systems purchases
Develop support plans and partnerships for all systems.
Maintain and enhance the advisory committee structure for information technology.
Solicit planning input from academic and administrative units.
Annually review and update plans.

Measures:

Establish a campus-wide software support task force.
Develop model for hardware and software standards.
Establish communication methodology; (i.e. Web page, newsletter, etc.)
Standards documented for ancillary systems.
Boilerplate section for RFPs developed for ancillary system purchases.
Standards are reviewed annually and updated as required.
Number of partnerships formed between IT and other units to support standards.
Effective representation of ECC community via advisory groups
Number of constituents participating in advisory groups

Goal: Provide end-users with current training and information on hardware and software capabilities, availability, and the life cycle replacement program.(IPI, Equity)

Objectives:

Development of centralized inventory systems for hardware and software
Plan funding sources or mechanisms
Establish necessary hardware replacement cycle.

Measures:

Establishment of centralized inventory system
Evaluation of hardware replacement needs and financial resources
Established replacement cycle at the campus level

Goal: Take advantage of every opportunity to learn and exchange information on new technology and concepts to meet customer's needs and expectations. (T&L, APC, IPI)

Objectives:

Maintain and enhance partnerships and participation in international, national and regional consortia for active development of instructional, research and technology opportunities.
Participate with state institutions in collaborative efforts for networking and telecommunications. Collaborative efforts may include network management, outreach, and delivery, and enhance the relationship to include collaborative instructional development using technology.
Extend the Virtual ECC to include the creation of universal access statewide and enhance the relationship to include collaborative instructional development using technology.
Participate with State and local host locations on providing Internet connectivity and voice services.
Partner with communication vendors to provide services to ECC faculty, staff, and students

Measures:

Outcomes from collaborative relationships with external institutions or organizations
Outcomes from collaborative projects with external institutions or organizations
Outcomes from collaborative projects with other institutions within California

Goal: Develop and provide information on support planning and decision-making systems for the ECC. (IPI)

Objectives:

Provide stable operational systems.
Investigate new technologies for executive or decision support systems.
Promote data standards

Support required external reporting.
Provide timely, flexible, and reliable data research tools and data presentation tools (Dashboards)

Measures:

Design structure for data warehouse
Establish data warehouse
Deploy data warehouse
Formal data administration is provided
Convert programs for reporting into data warehouse queries/reports
Data Dashboards are provided to each department tailored to their data needs.

Goal: Support faculty in the ongoing evolution of the teaching environments to include use of and recognition of current and emerging technologies. (T&L, APC)

Objectives:

Identify and support faculty needs in developing technology-based courses by programs, workshops, consultation and development support offered by the Distance Learning Department.
Support programs and courses for technology-based delivery
Develop strategies and standards for creating effective learning environments using technology
Identify opportunities for improved technology support for research.

Measures:

Number of programs, workshops, consultation, and development services offered.
Number of faculty using the web for instruction
The number of web-based courses
Number of students enrolled in technology-delivered courses.

Goal: Continue to pursue campus infrastructure improvements through capital Equipment, grants and other funding sources to ensure cost-effective, flexible, maintainable, and reliable network infrastructure to support voice, video, virtual, and data needs. (IPI)

Objectives:

Maintain and enhance as necessary the existing copper cable plant.
Install category current code standard cable plant, as a minimum, in all buildings
Maintain and enhance as necessary the existing fiber optic cable plant. Continue to expand the fiber cable plant to all new construction sites
Extend Internet connectivity through the Ethernet network to all classrooms
Extend Internet connectivity through the Ethernet/Wireless network to all residence hall rooms
Maintain and enhance the ECC remote access services.

Create a Network Operations Center (NOC) to coordinate and monitor the deployment of the voice and data network statewide.
Provide enhanced systems for student-to-faculty voice communications at remote sites.
Provide enhanced systems for student-to-administration voice communications at remote sites.
Continue to improve media delivery systems
Maintain and enhance video and multimedia production and distribution infrastructure to meet national standards for distribution

Measures:

Percentage of standard Ethernet bandwidth within building networks
Number of classrooms with Internet connectivity
Number of residence hall rooms with Internet connectivity.
Blockage statistics for the modem pools.
Number of remote classrooms on the ECC data network
Number of remote locations on the ECC voice network.
Circuits adequate to meet instructional and administrative needs statewide
Level of participation in development, production and distribution of instructional programming in international, national, regional and statewide venues

Goal: Develop professional development program to include skills catalog, training matrix, and targeted funding schemes to ensure the quality our human resources. (IPI, Equity)

Objectives:

Support campus diversity goals and enrich IT units through recruitment efforts.
Find and fund professional development opportunities for IT staff.
Ensure managers review with staff the progress units are making toward accomplishing their objectives at least quarterly.
Conduct evaluations for each manager to measure performance and assess development needs annually.

Measures:

Increased diversity among staff and managers
Number of staff and managers attending training sessions
Number of total training days attended by staff and managers
Completion of all staff and management evaluations on an annual basis
Vacancy rate for IT positions is zero.

Goal: Use information technology to enhance the library's accessibility, delivery, and timeliness of information services. (T&L, APC)
Objectives:

Increase support for periodical indexes on-line.
Increase Library's involvement in effective use of Internet and other electronic resources for locating and gathering information.
Use information technology to provide access to materials not owned by Library (e.g., interlibrary loans facilitated by electronic transfer of documents).

Measures:
Number of periodicals browsed both online and hard copy.
Number of searches on Library systems conducted by students
Number of customer service requests handled electronically against number handled by the LRC staff

Goal: Ensure student access to computing facilities and other learning resources. (T&L, APC)

Objectives:

Establish an overall plan for student access to computing and other learning resources through the use of mobile, global, and a variety of learning management systems (LMS).
Develop a funding model for providing the access needed by students, whether from on campus, home, or statewide sites
Monitor and measure progress in achieving the goals for student access.
Develop standards for hardware and software to increase accessibility and enable students with disabilities to utilize technologies
Provide adaptive technology stations for student access.

Measures:

Percent of students supported by converged technologies
Percent of students with e-mail accounts.
Number of networked computer stations in labs
Use of remote access facilities by remote users
Number of workstations equipped with applicable software and hardware for students with disabilities.

Goal: Optimize available resources through deliberate business process improvement review and research; and increase funding to provide innovative solutions for all IT related requirements. (IPI)

Objectives:

Establish and maintain data administration standards, protocols, and policies across the ECC community.

Promote standards for computer (desktop, mainframe, servers, and minis) and network (LAN and WAN) hardware, software, and operating systems
Maintain and build interfaces between major administrative systems and client applications to promote a seamless information environment for administrative functions at ECC.
Establish standard methodologies for project and application development, documentation, and maintenance of centralized systems.

Measures:

Standards, protocols and policies are documented and made available to the ECC community.
Standard methodologies identified and communicated to those maintaining the centralized systems.
Document incentives in place for taking advantage of ECC IT standards

Goal: Develop, maintain and enforce universal standards in terms of hardware, software, and network on all campus systems. (IPI)

Objectives:

Develop and publish standards for ECC and remote locations connectivity.
Develop and publish standards for network management and system monitoring and analysis.

Measures:

System for customers to report trouble and request services for the ECC network.
Standards developed and published for connecting all campus locations.
Standards developed and published for network management and system monitoring and analysis.

Goal: Provide innovative technological leadership in determining and optimizing the use of technology. (T&L, APC, IPI)

Objectives:

Research, evaluate, and promote use of state-of-the-art technology tools for data management, access, querying, and reporting.
Maintain currency on technology and management practices, capabilities and philosophies.
Participate in the ECC Master Planning Committee, College Technology Committee, as requested.
Support the ECC's budgeting process by submitting requested materials in accord with the ECC Finance and Budget Office policy and schedule.
Continuously gather IT-related data on an annual basis.
Report performance of IT units in the designated reports, and related accountability documents
Produce and distribute annual reports for each IT unit.

Provide formal status reports on all major projects to IT advisory committees.
Review all unit objectives annually.

Measures:

Demonstrations or seminars conducted.
Number of units assisted in determining proper technology acquisition.
Number of ECC wide presentations and/or meetings attended.
Completion of budget requests and/or documentation in a timely manner
Reports and/or presentations given on IT-related environmental changes
Results of performance measures shown in the Strategic Planning Goals Report.

Goal: Provide end-users of administrative systems and support systems quality and timely training and support. (EM, T&L, APC)

Objectives:

Prepare and develop administrative systems orientation to ensure end-users acquire working knowledge rapidly.
Define needed links/interfaces between administrative offices.
Include training as a key component in using administrative systems
Continue until complete our implementation of Colleague administration system
Minimize local modifications to vendor-supplied software.

Measures:

Research systems supported for engineering and implementation.
Report on local modifications needed for major administrative systems.
Complete implementation of all modules of Colleague
Implementation of upgrades of Colleague

Appendix i.

El Camino Community College District Technology Committee
Technology Committee: The Technology Committee serves as the consultation committee for campus-wide technology planning. The committee evaluates needs, strategizes solutions, and proposes recommendations for College technology. The committee develops, monitors and evaluates implementation of the College Technology Master Plan.
The Technology Committee, made up of a cross section of faculty and staff, meets regularly to discuss and evaluate all forms of technology on campus. The Committee brings forward technology needs and ideas from across the campus, and relays information to staff and faculty of changes taking place on campus. As the El Camino Community College District (ECC) has evolved, the Technology Committee has provided a wide spectrum of suggestions ranging from the use of technology in the classroom to the email system currently used by ECC.

COMMITTEE:

	Art Leible, Chair		Virginia Rapp Co-Chair		Dave Murphy Business Div.		Irene Graff Inst. Research
	Robert Sutton SRC		Melissa Guess Financial Aid		Greg Toya SSVC		Howard Story Lib/Distance Ed.
	Steve Waterhouse Admissions & Rec.		Thomas Brown Facilities		Claudio Vilchis ITS/Network		Luis Mancia ECCE
	Andrei Yermakov Compton Center		Bill Mulrooney Admissions & Rec		Noreth Men Library		Idania Reyes Student Equity
	Erick Mendoza Campus Police		Will Warren ITS/Applications		Andrea Sala Foundation		Dipte Patel Counseling Services
	Lisa Mednick Prof. Development		Rebecca Russell Library		Maria Smith Human Res.		Ann Garten Public Info.
	Pete Marcoux Humanities		Thurman Brown Tech Services		Paul Yoder IT Security		Mari Baquari (see minutes)

"The Technology Committee serves as the consultation committee for campus-wide technology planning. The committee evaluates needs, strategizes solutions, and proposes recommendations for College technology. The committee develops, monitors and evaluates implementation of the College Information Technology Strategic Plan."

Appendix ii.

El Camino Community College District Information Security Improvement

School: Institutional Needs, Opportunities and Challenges
Institutional Needs to Support Information Technology

Information Security
Issue: As information security concerns begin to take center stage within the educational sector, the importance of creating a well-rounded and multi-layered InfoSec strategy has never been more urgent. Daily news headlines are filled with horror stories of Ransomware variants running wild and frequent breaches of sensitive Personally Identifiable Information (PII). As an example of the rapidly shifting tide of targeted sectors by the cyber-criminal community, in 2014 the healthcare sector wasn't even on the radar screen. The following year (2015), healthcare was at the top of the list. The consensus in the InfoSec community is that the same thing will happen in the educational sector. As more and more sensitive financial and personal data is sold on the black market (Dark Web), cyber-criminals are shifting their sights to more lucrative hunting grounds that offer an easy payday. Just as HIPAA data became a favored target almost overnight, so too will FERPA data. Unfortunately, FERPA data currently exists in a target-rich environment. Most educational institutions don't have a CISO (Chief Information Security Officer), and even if they have a formal information security program, it is likely to be in an immature state with few staff or tangible resources dedicated to the task. The following 5-step Security Awareness Roadmap (inspired by the SANS Institute) can help ECC to achieve that goal.

STEP 1: No Awareness Program – Year 0
This is the state where ECC was at previous to implementing the PLAN-NET study suggestions and hiring a dedicated full-time Information Systems Security Specialist. Although there were some security solutions deployed (firewalls, VPN, and end-point security), there was no cohesion between these disparate devices and no formal leadership as to how to best deploy and manage a formal security posture. Policies concerning proper use of the ECC computing environment were minimal, and no consideration was given to compliance standards such as PCI-DSS or NIST 800. There was also no vulnerability management capabilities or active penetration testing being performed in order to find and exploit weaknesses in the security fabric in order to harden systems and networks from being breached by sophisticated hacker techniques.

STEP 2: Compliance Focused – Year 1-2
This is the stage where ECC currently resides. A dedicated Information Systems Security Specialist is now on board and is working with the Administration, Systems, Network, and ITS Help Desk entities to develop a comprehensive information security program. Although in the early stages of discovery, careful consideration is being given to: creating an inventory of computing resources and implementing/hardening security on the perimeter, internal network, host (end-point), application, and data layers. The implementation of a PCI-DSS and/or FERPA

compliance program is implemented and third-party vendors that service the campus (and handle PII) are vetted for their adherence to these compliance standards.

STEP 3: Promotes Awareness & Change – Year 2
This is the stage where the InfoSec office will engage in a targeted Information Security Awareness and Education program that engages and trains the ECC community in responsible, ethical, and safe computing hygiene principals. Methods that may be employed during this stage can include anti-phishing campaigns, introduction of comprehensive Acceptable Use policies, and interactive training that encourages reinforcement of defensive computing habits (i.e. thinking before clicking). Other effective measures such as tracking repeat offenders and directing them to specific training modules can also be utilized. This is a very crucial step in the maturity of any information security program, because the #1 way to stop Ransomware and Malware infections is to properly train users on how to distinguish between valid emails & websites and fraudulent/suspect ones. An InfoSec internal webpage can also serve as a repository of useful tips and information and thus should be employed during this stage.

STEP 4: Long-Term Sustainment – Year 3
This is the stage where formal processes, procedures, resources, and training have been employed and are being reviewed at least once per year. Constant monitoring of the ECC computing environment is now a normal way of life and annual InfoSec training programs are part of the natural fabric of the institution. Also, there is frequent review of EOL (end of life) systems, and a vigilant forward-thinking approach to budgeting and planning for adoption of NextGen security solutions is now commonplace. All of the major stakeholders are now in sync – Administration, Systems, Network, ITS Help Desk, and InfoSec, and work together in a synergistic and holistic manner. This is a good time to invest in a CISO to formulate the direction of training and to begin regularly reporting progress to the Board regarding the steps in the next 2 stages. At this point, the hiring of additional InfoSec staff might be considered so that the CISO's efforts can become more targeted and focused.

STEP 5: Metrics Framework – Year 4-5
This is the stage where a robust metrics framework to track progress and measure impact is in place. As a result of this constant measurement of progress and impact of the InfoSec program, continuous improvement is being made and the program is able to demonstrate an ROI (Return On Investment). The InfoSec program has now reached full maturity. As the tried-and-true model is now in place, focused efforts can now be made as an outreach program to other educational institutions to help them achieve similar success in developing a comprehensive InfoSec program.

Glossary of Terms:

InfoSec: An acronym for Information Security.
Ransomware: A type of malicious software designed to block access to a computer system by locking and encrypting its files until a sum of money is paid. After the "ransom" has been paid,

the perpetrators are supposed to send an encryption key to the victim in order to unlock their files, although this doesn't always happen.
Malware: An acronym for "malicious software", malware refers to software programs designed to damage or do other unwanted actions on a computer systems.
Phishing: Phishing is similar to fishing in a lake, but instead of trying to capture fish, phishers attempt to steal your personal information. They send out e-mails that appear to come from legitimate websites such as eBay, PayPal, or other banking institutions. The e-mails state that your information needs to be updated or validated and ask that you enter your username and password, after clicking a link included in the e-mail.
PII: An acronym for "personally identifiable information", which includes personal data such as your name, address, social security number, credit card numbers, healthcare data, etc.
Dark Web: The "dark web" is the encrypted network that exists between Tor servers and their clients. Tor is the abbreviation for "The Onion Router" which is a domain where hackers and others exchange information and products for money. This is usually where stolen credit card data and other personal information is sold.
HIPAA: An acronym for the Health Insurance Portability and Accountability Act that was passed by Congress in 1996. It is a data security standard designed to protect the sensitive personal information of patients.
FERPA: An acronym for the Family Educational Rights and Privacy Act. FERPA is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.
CISO: An acronym for Chief Information Security Officer, generally is the head of any information security program who operates at the executive-level of an organization.
SANS: An acronym for the System Administration, Networking, and Security institute. SANS is the most trusted and by far the largest source for information security training and security certification in the world. It also develops, maintains, and makes available at no cost, the largest collection of research documents about various aspects of information security, and it operates the Internet's early warning system - the Internet Storm Center.
Firewall: A computer firewall limits the data that can pass through it and protects a networked server or client machine from damage by unauthorized users.
VPN: An acronym for "Virtual Private Network", a virtual private network is "tunneled" through a wide area network such as the internet. This means the network does not have to be located in one physical location like a local area network. However, by using encryption and other security measures, a VPN can scramble all the data sent through the wide area network, so the network is "virtually" private.
End-Point Security: Refers to the securing of the end-points in a local area network, such as PC's, printers, and any other locally networked devices.
NIST-800: A series of publications by the National Institute of Standards and Technology that recommends security controls for Federal information systems and organizations and documents security controls for all Federal information systems, except those designed for national security.
Vulnerability Management: The "cyclical practice of identifying, classifying, remediating, and mitigating vulnerabilities", especially in software and firmware. Vulnerability management is integral to computer security and network security.

Penetration Testing: Also called “pen testing”, is the practice of testing a computer system, network or web application to find vulnerabilities that an attacker could exploit.
Breach: A data breach is an incident in which sensitive, protected or confidential data has potentially been viewed, stolen or used by an individual unauthorized to do so. Data breaches may involve personal health information (PHI), personally identifiable information (PII), trade secrets or intellectual property.
Computing Hygiene: Computer hygiene refers to steps that computer users can take to improve their cyber security and better protect themselves online.
EOL Systems: An acronym for “End of Life” systems, where a piece of computer network hardware or software has ceased to be supported by the company that manufactured it.
NextGen: An acronym for “Next Generation” of devices. Typically, these are devices (or software) that have taken the features of several separate devices and combined them into one device.

Appendix iii.
Project Management Process Groups Details

The Technology Committee will follow a structured and rigorous process for prioritizing projects. As a result of this prioritization, projects approved by the committee will adhere to the following disciplined project management process. Throughout the course of project initiation through closure, reflections on progress and learning outcomes will be collected to ensure future project embed/reflect these learnings and become ECC's knowledge base as organization process assets (OPAs). The Technology Committee will follow the more universally accepted principals of the Project Management Institute, the organization that oversees the primarily accepted Project Management Certification standards, and creator of the Project Management Book of Knowledge which constitutes the primary handbook of all certificated Project Managers. These principles are shown in greater detail below.

a. **Project Integration Management.** Processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.
b. **Project Scope Management.** Processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.
c. **Project Time Management.** Processes required to manage the timely completion of the project.
d. **Project Cost Management.** Processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs to ensure the project can be completed within the approved budget.
e. **Project Quality Management.** Processes and activities of the performing organization that determine quality policies, objectives, and responsibilities to ensure the project will satisfy the needs for which it was undertaken.
f. **Project Human Resource Management.** Processes that organize, manage, and lead the project team.
g. **Project Communication Management.** Processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.
h. **Project Risk Management.** Processes required for conducting risk management planning, identification analysis, response planning, and controlling risk on a project.
i. **Project Procurement Management.** Processes necessary to purchase or acquire products, services, or results needed from outside the project team.
j. **Project Stakeholder Management.** Processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution.

Knowledge Areas	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring & Controlling	Closing
Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
Project Time Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Resources 6.5 Estimate Activity Durations 6.6 Develop Schedule		6.7 Control Schedule	
Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
Project Quality Management		8.1 Plan Quality Management	8.2 Perform Quality Assurance	8.3 Control Quality	
Project Human Resource Management		9.1 Plan Human Resource Management	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Control Communications	
Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Control Risks	
Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

Process Groups
Initiating
Planning
Executing
Monitoring & Controlling
Closing

Project Integration Management. Processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.

4.0 Project Integration Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
4.1 Develop Project Charter	• Project statement of work • Business case • Agreements • Enterprise environmental factors • Organizational process assets	• Expert judgment • Facilitation techniques	• Project charter
4.2 Develop Project Management Plan	• Project charter • Outputs from other processes • Enterprise environmental factors • Organizational process assets	• Expert judgment • Facilitation techniques	• Project management plan
4.3 Direct & Manage Project Work	• Project management plan • Approved change requests • Enterprise environmental factors • Organizational process assets	• Expert judgment • Project mgmt information system • Meetings	• Deliverables • Work performance data • Change requests • Project mgmt plan updates • Project documents updates
4.4 Monitor & Control Project Work	• Project management plan • Schedule forecasts • Cost forecasts • Validated changes • Work performance information • Enterprise environmental factors • Organizational process assets	• Expert judgment • Analytical techniques • Project mgmt information system • Meetings	• Change requests • Work performance reports • Project mgmt plan updates • Project documents updates
4.5 Perform Integrated Change Control	• Project management plan • Work performance reports • Change requests • Enterprise environmental factors • Organizational process assets	• Expert judgment • Meetings • Change control tools	• Approved change requests • Change log • Project mgmt plan updates • Project documents updates
4.6 Close Project or Phase	• Project management plan • Accepted deliverables • Organizational process assets	• Expert judgment • Analytical techniques • Meetings	• Final product, service, or result transition • Org. process assets updates

Project Scope Management. Processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

5.0 Project Scope Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
5.1 Plan Scope Management	• Project management plan • Project charter • Enterprise environmental factors • Organizational process assets	• Expert judgment • Meetings	• Scope management plan • Requirements mgmt plan
5.2 Collect Requirements	• Scope management plan • Requirements mgmt plan • Stakeholder mgmt plan • Project charter • Stakeholder register	• Interviews • Focus groups • Facilitated workshops • Group creativity techniques • Group decision-making techniques • Questionnaires and surveys • Observations • Prototypes • Benchmarking • Context diagrams • Document analysis	• Requirements documentation • Requirements traceability matrix
5.3 Define Scope	• Scope management plan • Project charter • Requirements documentation • Organizational process assets	• Expert judgment • Product analysis • Alternatives generation • Facilitated workshops	• Project scope statement • Project documents updates
5.4 Create WBS	• Scope management plan • Project scope statement • Requirements documentation • Enterprise environmental factors • Organizational process assets	• Decomposition • Expert judgment	• Scope baseline • Project documents updates
5.5 Validate Scope	• Project management plan • Requirements documentation • Requirements traceability matrix • Verified deliverables • Work performance data	• Inspection • Group decision-making techniques	• Accepted deliverables • Change requests • Work performance information • Project documents updates
5.6 Control Scope	• Project management plan • Requirements documentation • Requirements traceability matrix • Work performance data • Organizational process assets	• Variance analysis	• Work performance information • Change requests • Project management plan updates • Project documents updates • Org. process assets updates

Project Time Management. Processes required to manage the timely completion of the project.

6.0 Project Time Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
6.1 Plan Schedule Management	• Project management plan • Project charter • Enterprise environmental factors • Organizational process assets	• Expert judgment • Analytical techniques • Meetings	• Schedule management plan
6.2 Define Activities	• Schedule management plan • Scope baseline • Enterprise environmental factors • Organizational process assets	• Decomposition • Rolling wave planning • Expert judgment	• Activity list • Activity attributes • Milestone list
6.3 Sequence Activities	• Schedule management plan • Activity list • Activity attributes • Milestone list • Project scope statement • Enterprise environmental factors • Organizational process assets	• Precedence diagramming method (PDM) • Dependency determination • Leads and lags	• Project schedule network diagrams • Project documents updates
6.4 Estimate Activity Resources	• Schedule management plan • Activity list • Activity attributes • Resource calendars • Risk register • Activity cost estimates • Enterprise environmental factors • Organizational process assets	• Expert judgment • Alternative analysis • Published estimating data • Bottom-up estimating • Project management software	• Activity resource requirements • Resource breakdown structure • Project documents updates
6.5 Estimate Activity Durations	• Schedule management plan • Activity list • Activity attributes • Activity resource requirements • Resource calendars • Project scope statement • Risk register • Resource breakdown structure • Enterprise environmental factors • Organizational process assets	• Expert judgment • Analogous estimating • Parametric estimating • Three-point estimating • Group decision-making techniques • Reserve analysis	• Activity duration estimates • Project documents updates
6.6 Develop Schedule	• Schedule management plan • Activity list • Activity attributes • Project schedule network diagrams • Activity resource requirements • Resource calendars • Activity duration estimates • Project scope statement • Risk register • Project staff assignments • Resource breakdown structure • Enterprise environmental factors • Organizational process assets	• Schedule network analysis • Critical path method • Critical chain method • Resource optimization techniques • Modeling techniques • Leads and lags • Schedule compression • Scheduling tool	• Schedule baseline • Project schedule • Schedule data • Project calendars • Project mgmt plan updates • Project documents updates
6.7 Control Schedule	• Project management plan • Project schedule • Work performance data • Project calendars • Schedule data • Organizational process assets	• Performance reviews • Project management software • Resource optimization techniques • Modeling techniques • Leads and lags • Schedule compression • Scheduling tool	• Work performance information • Schedule forecasts • Change requests • Project mgmt plan updates • Project documents updates • Organizational process assets updates

Project Cost Management. Processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs to ensure the project can be completed within the approved budget

7.0 Project Cost Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
7.1 Plan Cost Management	• Project management plan • Project charter • Enterprise environmental factors • Organizational process assets	• Expert judgment • Analytical techniques • Meetings	• Cost management plan
7.2 Estimate Costs	• Cost management plan • Human resource mgmt plan • Scope baseline • Project schedule • Risk register • Enterprise environmental factors • Organizational process assets	• Expert judgment • Analogous estimating • Parametric estimating • Bottom-up estimating • Three-point estimating • Reserve analysis • Cost of quality • Project management software • Vendor bid analysis • Group decision-making techniques	• Activity cost estimates • Basis of estimates • Project documents updates
7.3 Determine Budget	• Cost management plan • Scope baseline • Activity cost estimates • Basis of estimates • Project schedule • Resource calendars • Risk register • Agreements • Organizational process assets	• Cost aggregation • Reserve analysis • Expert judgment • Historical relationships • Funding limit reconciliation	• Cost baseline • Project funding requirements • Project documents updates
7.4 Control Costs	• Project management plan • Project funding requirements • Work performance data • Organizational process assets	• Earned value management • Forecasting • To-complete performance index (TCPI) • Performance reviews • Project management software • Reserve analysis	• Work performance information • Cost forecasts • Change requests • Project management plan updates • Project documents updates • Org. process assets updates

Project Quality Management. Processes and activities of the performing organization that determine quality policies, objectives, and responsibilities to ensure the project will satisfy the needs for which it was undertaken.

8.0 Project Quality Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
8.1 Plan Quality Management	• Project management plan • Stakeholder register • Risk register • Requirements documentation • Enterprise environmental factors • Organizational process assets	• Cost-benefit analysis • Cost of quality • Seven basic quality tools • Benchmarking • Design of experiments • Statistical sampling • Additional quality planning tools • Meetings	• Quality management plan • Process improvement plan • Quality metrics • Quality checklist • Project documents updates
8.2 Perform Quality Assurance	• Quality management plan • Process improvement plan • Quality metrics • Quality control measurements • Project documents	• Quality management and control tools • Quality audits • Process analysis	• Change requests • Project management plan updates • Project documents updates • Org. process assets updates
8.3 Control Quality	• Project management plan • Quality metrics • Quality checklists • Work performance data • Approved change requests • Deliverables • Project documents • Organizational process assets	• Seven basic quality tools • Statistical sampling • Inspection • Approved change requests review	• Quality control measurements • Validated changes • Verified deliverables • Work performance information • Change requests • Project management plan updates • Project documents updates • Org. process assets updates

Project Human Resource Management. Processes that organize, manage, and lead the project team.

9.0 Project Human Resource Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
9.1 Plan Human Resource Management	• Project management plan • Activity resource requirements • Enterprise environmental factors • Organizational process assets	• Org charts & position descriptions • Networking • Organizational theory • Expert judgment • Meetings	• Human resources mgmt plan
9.2 Acquire Project Team	• Human resource mgmt plan • Enterprise environmental factors • Organizational process assets	• Pre-assignment • Negotiation • Acquisition • Virtual teams • Multi-criteria decision analysis	• Project staff assignments • Resource calendars • Project management plan updates
9.3 Develop Project Team	• Human resource mgmt plan • Project staff assignments • Resource calendars	• Interpersonal skills • Training • Team-building activities • Ground rules • Colocation • Recognition and rewards • Personnel assessment tools	• Team performance assessments • Ent. environmental factors updates
9.4 Manage Project Team	• Human resource mgmt plan • Project staff assignments • Team performance assessments • Issue log • Work performance reports • Organizational process assets	• Observation and conversation • Project performance appraisals • Conflict management • Interpersonal skills	• Change requests • Project management plan updates • Project documents updates • Ent environmental factors updates • Org. process assets updates

Project Communication Management. Processes required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information.

10.0 Project Communications Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
10.1 Plan Communications Management	• Project management plan • Stakeholder register • Ent environmental factors • Organizational process assets	• Comm. requirements analysis • Communication technology • Communication models • Communication methods • Meetings	• Communications mgmt plan • Project documents updates
10.2 Manage Communications	• Communications mgmt plan • Work performance reports • Ent environmental factors • Organizational process assets	• Communication technology • Communication models • Communication methods • Information mgmt systems • Performance reporting	• Project communications • Project management plan updates • Project documents updates • Org. process assets updates
10.3 Control Communications	• Project management plan • Project communications • Issue log • Work performance data • Organizational process assets	• Information mgmt systems • Expert judgment • Meetings	• Work performance information • Change requests • Project management plan updates • Project document updates • Org. process assets updates

Project Risk Management. Processes required for conducting risk management planning, identification analysis, response planning, and controlling risk on a project.

11.0 Project Risk Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
11.1 Plan Risk Management	• Project management plan • Project charter • Stakeholder register • Enterprise environmental factors • Organizational process assets	• Analytical techniques • Expert judgment • Meetings	• Risk management plan
11.2 Identify Risks	• Risk management plan • Cost management plan • Schedule management plan • Quality management plan • Human resources mgmt plan • Scope baseline • Activity cost estimates • Activity duration estimates • Stakeholder register • Project documents • Procurement documents • Enterprise environmental factors • Organizational process assets	• Documentation reviews • Information gathering techniques • Checklist analysis • Assumptions analysis • Diagramming techniques • SWOT analysis • Expert judgment	• Risk register

Project Procurement Management. Processes necessary to purchase or acquire products, services, or results needed from outside the project team.

12.0 Project Procurement Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
12.1 Plan Procurement Management	• Project management plan • Requirements documentation • Risk register • Activity resource requirements • Project schedule • Activity cost estimates • Stakeholder register • Enterprise environmental factors • Organizational process assets	• Make-or-buy analysis • Expert judgment • Market research • Meetings	• Procurement management plan • Procurement statement of work • Procurement documents • Source selection criteria • Make-or-buy decisions • Change requests • Project documents updates
12.2 Conduct Procurements	• Procurement mgmt plan • Procurement documents • Source selection criteria • Seller proposals • Project documents • Make-or-buy decisions • Procurement statement of work • Organizational process assets	• Bidder conferences • Proposal evaluation techniques • Independent estimates • Expert judgment • Advertising • Analytical techniques • Procurement negotiations	• Selected sellers • Agreements • Resource calendars • Change requests • Project management plan updates • Project documents updates
12.3 Control Procurements	• Project management plan • Procurement documents • Agreements • Approved change requests • Work performance reports • Work performance data	• Contract change control system • Procurement performance reviews • Inspections and audits • Performance reporting • Payment systems • Claims administration • Records management system	• Work performance information • Change requests • Project management plan updates • Project documents updates • Org. process assets updates
12.4 Close Procurements	• Project management plan • Procurement documents	• Procurement audits • Procurement negotiations • Records management system	• Closed procurements • Org. process assets updates

Project Stakeholder Management. Processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution

13.0 Project Stakeholder Management			
Process	**Inputs**	**Tools & Techniques**	**Outputs**
13.1 Identify Stakeholders	• Project charter • Procurement documents • Enterprise environmental factors • Organizational process assets	• Stakeholder analysis • Expert judgment • Meetings	• Stakeholder register
13.2 Plan Stakeholder Management	• Project management plan • Stakeholder register • Enterprise environmental factors • Organizational process assets	• Expert judgment • Meetings • Analytical techniques	• Stakeholder management plan • Project documents updates
13.3 Manage Stakeholder Engagement	• Stakeholder management plan • Communications mgmt plan • Change log • Organizational process assets	• Communication methods • Interpersonal skills • Management skills	• Issue log • Change requests • Project management plan updates • Project documents updates • Organizational process assets updates
13.4 Control Stakeholder Engagement	• Project management plan • Issue log • Work performance data • Project documents	• Information management systems • Expert judgment • Meetings	• Work performance information • Change requests • Project management plan updates • Project documents updates • Organizational process assets updates