IIIC.   Technology Resources

C1. Technology services, professional support, facilities, hardware, and software are appropriate and adequate to support the institution's management and operational functions, academic programs, teaching and learning, and support services.

Evidence of Meeting the Standard-

PCC's technology services, professional support, facilities, hardware, and software are appropriate and adequate to support the institution's management and operational functions, academic programs, teaching and learning, and support services. The College maintains a sizeable inventory of technology equipment and the staffing to support hardware and software. This includes approximately 3200 desktop computers and laptops; 260 classrooms equipped with technology systems; 22 conference/event spaces with presentation systems; over 100 physical and virtual servers; 215 security cameras with 22 recording servers; 1350 Nortel 1120 and 1140E voice over IP telephones; approximately 250 emergency phones; approximately 50 departmental fax machines; and a vast system of printers and network infrastructure.

In 2019, PCC adopted a "cloud-first" strategy when considering core infrastructure or application purchases (software, physical and virtual servers). The "cloud" is an on-demand delivery of IT resources over the internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider on the service's remote servers. PCC has chosen Amazon Web Services (AWS) as our cloud hosting partner. Cloud hosting is an important component that enables PCC's disaster recovery and business continuity plans. This strategy facilitates PCC's ability to recover the critical IT systems within 24 to 48 hours after a disaster is contained without incurring an additional infrastructure expense of a second physical site.

Appendix D and E of the College's Technology Master Plan (TMP) (III.C1_1) outline standards for the institution's desktop computers, laptops, and smart classroom/presentation equipment. In accordance with the standards, all desktop computers and laptops are to have i5 Intel Core processors and be equipped with Microsoft Office and Adobe Acrobat Professional software. The Microsoft products are offered for free download to faculty, staff, and students. (https://pasadena.edu/business-administrative-services/its/microsoft-office.php)

PCC has also rolled out a new service - PCC AppStream 2.0 for student use.   AppStream 2.0 is a virtual environment that gives students access to the software applications they need on any computer, whether they're in the classroom, the library, or at home. A variety of software programs to support instruction have been loaded for student use. The software inventory shows the available programs - like QuickBooks, AutoCAD, and others – and they are immediately available for use (no download is required).

Classrooms on campus are equipped with an Epson Powerlite 585W ultra short throw projector, Steelcase Eno 2810 96" diagonal interactive whiteboard, Epson DC-21 Document Camera, Dell OptiPlex 3070 small form factor PC with 8GB of memory and an SSD hard disk, Dell 22" Monitor, Extron control system including a touch panel and amplifier, one or two pairs of room speakers, Blu-ray player, and Spectrum Media Manager 2 or Freedom XRS Lectern.

Because the College's wireless network is heavily used by both students and for instruction, the district keeps up with the tremendous growth in demand by using newer and more intelligent wireless networks. The College is continuously evaluating where additional capacity is needed. Using data from infrastructure, PCC can identify heavily used areas and direct replacement resources to those locations (IIIC2_1_ Cisco Meraki network report).

The College's Distance Education (DE) Department administers Canvas and other online educational technology resources for the College (III.C1_2). The DE Department provides troubleshooting and ongoing maintenance for these resources, oversees the back-end administration of Canvas, and implements new technologies. The DE Department continually reviews technology use and feedback from faculty and students to ensure the College's various online educational technology resources are effective for teaching and learning (DE technology plan- add evidence).

A technology survey that was sent to employees in early 2016 (III.C1_3) asked respondents to rate their satisfaction with how the College's technology met their work needs; about Wi-Fi problem areas; about their satisfaction with various applications software used in the course of their work; their use of smart classroom technology; their technology preferences; and suggestions for improvement, among other things. A majority of respondents felt that the College's desktop computers, laptops, copiers, printers, scanner, wireless internet access, presentation equipment, phones, and email met their work needs. A majority of respondents were also satisfied with LancerPoint, Canvas, and smart classrooms.

As part of the fall 2019 student survey, students were asked about technology needs and satisfaction with campus technology (Fall Student Survey Campus Technology Results). The full survey results can be accessed online:

https://public.tableau.com/profile/office.of.institutional.effectiveness1849#!/vizhome/FallStudentSurvey2019_CampusTechnology/Story2

The TMP survey found that a majority of respondents used the institution's Helpdesk when they needed technical assistance. The survey also asked respondents to rate their satisfaction with how the Helpdesk responded to their requests, the timeliness of the responses, the Helpdesk's customer service, and respondents' overall experience with the Helpdesk. An overwhelming majority of respondents rated all of the above as good or excellent.

Analysis and Evaluation

Pasadena City College meets the standard. The College's Technology Master Plan was created "to provide a framework for the implementation of technology training, hardware, software, services, and processes from 2016-2020 in support of the District's mission, Educational Master Plan, strategic goals, and accreditation standards". The plan was developed by the District Technology Standing Committee (DTC) and is in the process of being revised and updated by the DTC,   which is made up of members from each of the College's constituents.

C2. The institution continuously plans for, updates and replaces technology to ensure its technological infrastructure, quality and capacity are adequate to support its mission, operations, programs, and services.

Evidence of Meeting the Standard

Pasadena City College continually plans and updates its technology infrastructure to ensure quality and capacity are adequate to support its mission. This planning occurs at various levels, including the institution's Technology Master Plan, annual updates, and annual technology replacement efforts. The institution's campuses are connected to the Internet via two 10 gigabit internet connections which are utilized under 20% at peak loads. The College continuously updates its infrastructure based on equipment age and when bottlenecks in performance are identified. Using data from infrastructure, PCC can identify heavily used areas and direct replacement resources to those locations (IIIC2_1 Cisco Meraki network report).

The College's Technology Master Plan (TMP) was developed by the District Technology Committee and recommends that computers and laptops be refreshed every five years (IIIC2_2, IIIC2_8_District Technology Committee). The recommendation for specialized areas such as computer-aided design labs is every three years. According to the TMP, smart classrooms and presentation systems should be refreshed every eight years.   To ensure adequate delivery of services and keep up with continuous growth in network traffic, the TMP recommends that the College replace critical equipment in the central cores and datacenter every five years. The TMP also recommends that the components of the wired network be refreshed every ten years. The necessary budget for each refresh cycle is reviewed and adjusted as needed to ensure continually successful operation. ITS reviews and compares the equipment requests added during the annual planning retreat with the equipment scheduled for refresh to determine budget requirements.

The TMP recommends that the College replace wireless networks every seven years and upgrade one seventh of the infrastructure each year (IIIC2_2). The TMP's annual budget recommendation is $50,000 for this.

As an example of the way the institution updates its infrastructure and equipment, computer equipment and software that was ordered in March 2018 included Deep Freeze annual maintenance software, system monitoring software, and equipment to repair and maintain existing technology inventory for the Information Technology (IT) Department; replacement monitors; laptops for faculty refresh; laptops for employee use; and Chromebooks to serve as

Kronos kiosks (IIIC2_3, IR169816 30-MBAir Faculty Refresh.pdf, 30 CPUs-3070 F-S upgrade.pdf, 169216 30-StaFac Refresh #1016458989568.pdf, IR169228 25-MBAir Factly refresh-1.pdf). In September 2018, the IT department ordered equipment for audio-video, screen, and forum speaker repair; 30 MacBook Air computers as part of an employee refresh cycle; and Logitech keyboard and mice, among other things (IIIC2_4). For another round of employee computer updates in January 2019, the College ordered monitors for the CEC division office, OptiPlex desktop computers for the Student Equity Program, iMacs for the career center, MacBook Pro laptops for faculty, and iPad minis for work-based learning. The College also purchased 30 OptiPlex desktop computers, MacBook Air computers, Datacenter service upgrades for room LL-142, HP LaserJet PRO printers, back-up servers, and automatic transfer switches (IIIC2_5).

In September 2016, the Board of Trustees approved an authorization to accept bids for the institution's smart room technology updates in eight additional classrooms (IIIC2_6). At its regular business meeting in June 2017, the Board authorized the awarding of a $119,257 contract to Digital Networks Group, Inc. to carry out the updates (smart room refresh 2017). At its February 2019 regular meeting, the Board approved an authorization to solicit bids to upgrade or install audio-visual technology in 13 instructional spaces for the Non-Credit Division, BET Division, Health Sciences Division, Library Division, PCA Theater Division, Counseling Division, and Educational Services. Twelve of the updates were for the Colorado campus and one was for the Foothill campus. The projected cost of these updates was $223,711 (smart room refresh 2019). In May 2019, the Board approved a contract for these updates, and in December 2019, the IT department identified the project as complete (Smart Refresh Dec 2019) (IIIC2_7).

Analysis and Evaluation

Pasadena City College meets the standard. The College continuously plans for, updates, and replaces technology to ensure its technology infrastructure, quality, and capacity are adequate to support its mission. Technology update plans are built into the College's Technology Master Plan, annual updates, comprehensive unit reviews and annual technology replacement efforts.

> C3. The institution assures that technology resources at all locations where it offers courses, programs, and services are implemented and maintained to assure reliable access, safety, and security.

Evidence of Meeting the Standard

Pasadena City College assures that technology resources at all locations where courses, programs, and services are implemented and maintained for reliable access, safety and security. The District has five locations where courses, programs and services are offered: the Colorado

Campus, Foothill, PCC at Rosemead, PCC Northwest, and the Child Development Center (CDC).

Pasadena City College Information Technology Services (ITS) maintains technology standards to ensure a consistent experience at all five sites with reliable access, safety, and network security. These standards include:

> 1. Standards for desktop and laptop systems are available in Appendix D of the current Technology Master Plan (IIIC3_1).
> 2. Standards for smart classrooms/presentation systems are available in Appendix E of the current Technology Master Plan. Depending on space requirements, lecterns may be substituted with desks.
> 3. These five locations are connected to centralized network and identity management systems through the District's active directory systems. All five locations have the "PCC_Campus" and "PCC_Staff" wireless networks. AP 3720 covers Computer and Network use polices across the campuses (IIIC3_2)

ITS offers specialized support for departments on new software implementation, testing upgrades and working through defects/errors. Requests for support are submitted through the ITS Help Desk notification system.

ITS has standardized lab images to include the most assistive technology (NVDA, JAWS, Kurzweil, ZoomText, Fusion). ITS regularly communicates with DSPS to determine if updates are necessary. Site licenses for software suites are industry standard.

Additionally, DSPS maintains some loaner equipment, to provide disadvantaged students with disabilities access to technology. Currently DSPS has 20 iPads, about 10 digital voice recorders, and a variety of devices like braille displays, etc. The DSPS in consultation with the District Technology Committee is advocating for an Accessibility specialist outside DSPS. ITS implemented a purchasing process which includes an accessibility review of software prior to purchase.

In addition to institutional funding, grant funding (IIIC3_X) has been used to support the College's technology needs for specific programs outlined in the grant, with careful attention paid to long-term sustainability. The flexibility of this alternate funding model allows departments to obtain hardware sooner than the typical annual cycle and to order items not part of the standard list of vendors.

Analysis and Evaluation

Pasadena City College meets the standard. Through institutional planning both short and long-range, financial resources have been allocated to implement and maintain the technology resources necessary for its courses, programs, and services. PCC's ITS offers the same level of

access, safety, and security across all sites through seamless network integration. All critical applications are centrally managed and then distributed.

> C4. The institution provides appropriate instruction and support for faculty, staff, students, and administrators, in the effective use of technology and technology systems related to its programs, services, and institutional operations.

Evidence of Meeting the Standard

PCC provides appropriate instruction and support to students, faculty, staff, and administrators in the use of technology and technology systems as it relates to College programs, services, and institutional operations through the following activities:

1. Professional Development Day training workshops every semester (individual sessions as well as department-initiated training sessions)
2. In-person and online workshops and seminars offered by the Distance Education Department. Offerings include DE certification courses and instructional technology workshops. Faculty also participate in @One course offerings (ex. 2019 – Training Opportunities | PCC Online – Faculty Resources) (IIIC4_1)
3. YouTube training videos (such as the "Smart Podium Faculty Training" playlist) (IIIC4_3)
4. ITS Helpdesk-both online help and phone-based help
5. LinkedIn Learning (formerly Lynda.com) for online training for software applications.
6. Tailored information literacy research sessions for courses in all disciplines, reaching over 10,000 students per year. The library offers a broad range of electronic resources, instruction in using those resources, and offers one-on-one technology support for students in its computer labs. (IIIC4_4)
7. College 1 course for new students; Entering students are provided an orientation to the College, including the use of technology. (IIIC4_5)
8. A Pasadena City College Distance Education Handbook, with information on Instructional Technology for Distance Education faculty
9. Training for faculty teaching online through @One courses or PCC's in-house Online Teaching Certification course

The Professional Development Day committee creates the agendas and organizes the Professional Development Day workshops each semester for all employees. Following the day's activities, evaluations are disseminated to all participants. From these evaluations, needs are assessed, and new trainings are developed for faculty and staff every year. Professional Development Days are addressed in the EMP section B (IIIC4_9).

The Faculty Professional Learning Committee is a standing committee of the Academic Senate and its purpose is to review and approve faculty professional growth activities. They review and approve the flex contracts, co-curricular, and individual professional development plans.

Technology trainings that include flex credit are initiated by the instructors and coordinated between the Vice President/Chief Instructional Officer and the Teaching and Learning Center (TLC). Professional Learning Day workshops are included in flex contracts and these trainings are frequently focused on technology (IIIC4_6).

In December of 2019, PCC invested over $200,000 to launch a new Student Call Center that provides 24/7 (phone and email) support on a variety of questions that arise on Admissions, Financial Aid, Enrollment, LancerPoint, the Learning Management System (Canvas) and much more (Evidence Contract B200020). The Student Call Center also serves as a communication platform that disseminates important campus information.

The Information Technology Services (ITS) Helpdesk is a single point of contact for technology support for District employees. The Helpdesk provides a variety of IT support services, including phone support, dispatching technicians, directing employees to support resources and facilitating the purchase of technology. The Helpdesk operates each weekday with limited weekend hours during the first week of the semester as well as during finals.

Student can access technology support on the Distance Education Tech support webpage (IIIC.4_10_Online Tech support). Student can also request technology support through the college's central technology helpdesk and through an online service request dedicated to online education (helpdesk@pasadena.edu, pcconline@pasadena.edu) On campus computer labs are staffed with personnel that can provide technical assistance.

PCC ITS has developed draft Service Level Agreements (SLAs) that will be implemented to ensure high levels of in-house Helpdesk support and services. The purpose of the SLAs is to define acceptable service levels provided to the PCC faculty and staff by ITS. SLA's can be found in Appendix C in the TMP. (IIIC4_7)

The Distance Education Department provides the following programs: ((IIIC4_2)

> Professional Development/Training: The DE Dept. delivers online teaching/learning and instructional technology training that supports College DE outcomes and student success. The DE Dept. has a partnership with @One to offer a range of online training (and DE certification) for faculty. The department covers the cost of registration for these training courses for both full-time and adjunct PCC faculty. https://onlinenetworkofeducators.org/course-cards/ (IIIC4_8)

> Distance Education Technology: The Distance Education Department assesses, implements, and manages the instructional technology needs and requirements of Distance Education faculty and students. There is a continuous review of technology usage and feedback from faculty and students (during support/training sessions) to assess cost-benefit and effectiveness in supporting teaching and learning. The Distance Education Department provides all technology support/helpdesk services for both faculty and students for Canvas and all associated to integrated technologies. Faculty and students also have 24/7 access to Instructure's Canvas support services.

Distance Education Offerings: The Distance Education Department supports the development and assessment of learner-centered fully online and hybrid AA, Transfer, CTE and basic skills courses.

Student Access & Equity (SEA): SEA focuess on tools, resources, services, and strategies to increase access, success, retention, and accessibility for all students using the Canvas system.

Compliance: The Distance Education program is accountable to many external guidelines and regulations. These include ACCJC Accreditation requirements, Title 5 requirements, Chancellor's Office guidelines, Department of Education guidelines, and 508 Compliance requirements. The Department requires a Voluntary Product Accessibility Template (VPAT) for all technology acquisitions/integrations.

Communication & Shared Governance: The Distance Education Department communicates with stakeholders through a variety of channels, including a general distance education website targeted to new and continuing DE students. The department also maintains a faculty facing site that provides access to the DE Faculty handbook, information about instructional technology, the process to become a trained DE instructor, other professional development offerings, access to tech and course design support, and which courses are currently approved to teach in a fully online/hybrid format.

College 1, the seminar course (required for Pathways students) teaches incoming students how to use software such as Canvas and the use of the library for research and other classwork. https://pasadena.edu/academics/support/pathways/college-one/ (IIIC4_5)

Analysis and Evaluation

The College meets the standard. PCC provides a variety of training opportunities to support students, faculty, staff and managers on the College hardware and software products. By providing a range of instructional formats, the PCC community can choose the best way to learn to use the necessary software and hardware. The course contents are regularly updated and reviewed based on surveys given out to users as well as student success metrics.

> C5. The institution has policies and procedures that guide the appropriate use of technology in the teaching and learning processes.

Evidence of Meeting the Standard

The Pasadena Area Community College District (PACCD) has appropriate Board policies and administrative procedures in place to guide the use of technology in the teaching and learning processes. Board Policy (BP) 3720 lays out the rationale for having policies related to the acceptable use of PACCD computers and networks. (IIIC5_2). Administrative Procedure (AP)

3720 is PACCD's computer and network use policy. It outlines acceptable use of PACCD computer equipment and systems, and it has sections dedicated to ownership, security, enforcement, and privacy. This procedure clarifies that users of PACCD computers and networks are bound by applicable federal, state, and other laws. (IIIC5_1)

Other District Administrative Procedures related to the use of technology include:

- AP 3721 Electronic Communications
- AP 3722 Data Classification Standards
- AP 3723 Remote Access
- AP 6365 Accessibility of Information Technology: (IIIC5_4)

PCC ITS is developing a Security Incident Response manual to provide guidance and procedural steps that will enable a quick and effective recovery from unplanned technological security incidents throughout the District.

The PCC website has a section devoted to regulations for the computer labs located in the Shatford Library (https://pasadena.edu/library/using-the-library/computers-and-printing.php). These guidelines include details on who can use the lab in addition to information on the use of cell phones. The regulations reference PCC's Computer and Network Use Policy. (IIIC5_3)

Analysis and Evaluation

The College meets the standard. The College has in place Board Policies, Administrative Procedures, regulations and additional guidance on the appropriate use of technology in the teaching and learning processes. All are available on the College's website.

Conclusions on Standard III.C. Technology Resources

PCC evaluates the effectiveness of technology using various methods, such as survey results from students, staff, faculty, and input to the District Technology Committee (DTC). Technology accommodates the College's commitment to classroom-based and online modalities of student learning. The institution continuously plans for, updates and replaces technology to ensure its technological infrastructure, quality and capacity are adequate to support its mission, operations, programs, and services. Technology resources are identified through the shared governance decision-making process, and they are detailed in the 2016-2020 Technology Master Plan (IIIC1_1). The TMP is integrated with the initiatives from the College's various documents such as: the mission, Strategic Plan, Educational Master Plan, and the Facilities Master Plan.

Faculty, staff, students and administrators are provided with sufficient technology training and support. The 2016-2020 Technology Master Plan(TMP) effectively documents decision-making policies and procedures for technology resources. The TMP is currently undergoing an update by the District Technology Committee. Several Board Policies and Administrative Procedures specifically address the appropriate use of technology resources in our teaching and learning processes. The institution further demonstrates the appropriate use of technology through its

Hardware, Software, Web, and Network Management standards outlined in the Technology Master Plan.

Improvement Plan(s)

None.

Evidence List

Technology Master Plan Appendix D and E	III.C1_1Technology_Master_Plan.pdf
PCC Distance Education Evidence	III.C1_2 DE Accreditation Evidence.pdf
TMP Satisfaction Survey Results	IIIC1_3 TMP_Survey_Results_Summary.pdf
Technology Master Plan computer update cycle p11	IIIC2_1 Technology_Master_Plan.pdf
Technology Master Plan wireless network update cycle p12	IIIC2_1 Technology_Master_Plan.pdf
Employee Comp Updates 1	IIIC2_3 Employee Comp Updates1.pdf
Employee Comp Updates 2	IIIC2_4 Employee Comp Updates2.pdf
Employee Comp Updates 3	IIIC2_5 Employee Comp Updates3.pdf
Smart Room Refresh bid 2017	IIIC2_6 Smart Room Refresh 2017.pdf
Smart Room Refresh Completion 2019	IIIC2_7 Smart Room Refresh 2019.pdf
Technology Master Plan Appendix D & E	IIIC3_1 Technology_Master_Plan.pdf
AP 3720 Computer and Network Use Policy	IIIC3_2 AP 3720 Computer and Network Use Policy.pdf
Library Accreditation Evidence GEO 3.1, 3.2, 3.3	IIIC3_3 Library Accreditation Evidence.pdf
Listing of online training opportunities	IIIC4_1 2019 – Training Opportunities	PCC Online – Faculty Resources.pdf

DE accreditation evidence	IIIC4_2 DE Accreditation Evidence.pdf
YouTube playlist of PCC training videos (first lesson shown)	IIIC4_3 Smart Podium Training 01: Intro Touch Panel Overview - YouTube.pdf
Library accreditation evidence	IIIC4_4 Library Accreditation Evidence.pdf
College 1 course overview	IIIC4_5 For Students - PCC Pathways - Pasadena City College.pdf
PD committees and roles	IIIC4_6 Committees - Professional Development - Pasadena City College.pdf
SLA's in Appendix C of the TMP	IIIC4_7 Technology_Master_Plan.pdf
@One training offerings	IIIC4_8 Course Cards - Online Network of Educators.pdf
PD days mentioned in the EMP section B	IIIC4_9 PCC_EMP_executive_summary.pdf
AP 3270 Computer and Network Use Policy	IIIC5_1 AP 3720 Computer and Network Use Policy.pdf
BP 3720 Acceptable use of PACCD computers and networks	IIIC5_2 BP 3720 - Computer and Network Use.pdf
Guide to using the computers, Wi-Fi and printers at the library	IIIC5_3 Computers, Wi-Fi and Printing - Library - Pasadena City College.pdf
AP6365 Accessibility of Information Technology	IIIC5_4 AP 6365 Accessibility of Information Technology.pdf
AP XXXX Policy on electronic communication tools along with other new Policies	IIIC5_5 1372-2019-6-5-End-of-Year-Report-district-technology-standing-committee.pdf