

## **CRITERION 7. FACILITIES**

### **Space**

The facilities available to the faculty and staff of the Paper Science and Engineering program are adequate for the needs of the undergraduate curriculum. The PSE department is housed in an addition to the Science building that was built in 1986. This addition is comprised of a distance learning classroom, a conference room, several laboratories, and faculty/staff office space. The laboratories include a paper testing laboratory, a paper wet lab area, a process engineering/paper machine lab and a converting lab. These laboratories are preferentially available for classroom work. They are also available for research and outside contract work.

### **PSE Staff and Faculty Offices**

The faculty offices are large, well maintained and easily located by both students and visitors. The Paper Science and Engineering Department Office (D-274 Science) is staffed by a Program Associate along with the Department Chair. There are also five faculty and staff offices. The close proximity of all the offices, the main classroom and paper testing lab allow for easy facilitation of communication between both the faculty and staff and the students.

### **Classrooms**

The PSE Department has a modern, level-4 distance education classroom (D-279 Science) that was installed in 2003. D-279 has the capability to project all forms of electronic media. Most paper science and engineering courses are taught in this room. This classroom is also used by the students as a commons area for studying or working on class projects. Other classrooms are shared with the other academic departments in the Science building and are scheduled on a semester by semester basis as needed. These classrooms are listed in Table 7-1 below.

**Table 7-1: Classrooms used for PSE required courses**

Room	Capacity	Department Responsible	Written Media	Electronic Media
A-106	25	Physics	Chalkboard	AV Screen
A-107	56	Physics	Chalkboard	Computer, DVD, AV Screen, Sound
A-109	56	Physics	Chalkboard	Computer, DVD, AV Screen, Sound
A-110	25	Chemistry	Chalkboard	AV Screen
A-111	25	Chemistry	Chalkboard	AV Screen
A-112	25	Chemistry	Chalkboard	AV Screen
A-202	44	Math	Chalkboard	Computer, DVD, AV Screen, Sound
A-207	36	Math	Chalkboard	Computer, DVD, AV Screen
A-210	49	Math	Chalkboard	Computer, DVD, AV Screen
A-225	39	Math	Chalkboard	Computer, DVD, AV Screen
B-348	28	Math	Chalkboard	AV Screen
D-228	29	Math	Chalkboard	AV Screen
D-279	39	PSE	Doc Camera	Computer, DVD, AV TV's, Sound

### PSE Conference Room

The PSE conference room (D-281 Science) is used as a faculty meeting room, an interview room, a small library, and a classroom.

### PSE Multi-Purpose Room

The PSE department has a multipurpose room (D-272 Science) that is used for departmental and student projects. The department uses this room to assemble recruitment mailings, and storing office supplies. Students use this room for student organization projects.

### Laboratories

All PSE laboratories are described in Table 7-2, with room number, size and courses taught for each room along with the condition of the laboratory and its adequacy for instruction. In addition to the laboratories listed below, space in the Waste Water treatment laboratory adjacent to D-135 is being shared as a substitute paper wet lab. This space is necessary to accommodate PAPR 210 laboratory exercises which typically involve 15 – 21 students. The current Waste Water Laboratory space will replace the wet lab located in room D-135 when a new Waste Water Laboratory is built in another building.

PSE required courses such as chemistry and physics have their own laboratories and are maintained by those departments.

**Table 7-2: Paper Science and Engineering Laboratory Facilities**

<b>Room No.</b>	<b>Purpose of Laboratory, Including Courses Taught</b>	<b>Condition of Laboratory</b>	<b>Adequacy for Instruction</b>	<b>Area (Sq. ft.)</b>
D-271	Converting Equipment PAPR 314, 355, 475.	Very Good	N/A	240
D-135	Process-Engineering/Paper Machine Laboratory PAPR 105, 210, 320, 326, 350, 355, 385, 410, 440, 445, 460, 475, 484, 486	Excellent	Excellent	3500
D-135	Paper Wet Lab Area PAPR 210, 350, 355, 440, 460, 484, 486	Good	Good for 8 students or fewer	500
D-285	Paper Testing Laboratory PAPR 210, 314, 355, 410, 475, 484, 486	Very Good	Very Good	1144

**Total Area: 5384**

### Library

The UWSP library, known as the Albertson Learning Resource Center (LRC), maintains a collection of text books, technical journals and archived information to support the Paper Science and Engineering Department. There is an annual budget for PSE faculty requests for text- and reference books. The recent average acquisition expenditure for PSE is \$1305. The library subscribes to eleven journals specifically for PSE, costing \$2654 annually. The library currently holds 338 volumes specifically related to PSE. The LRC provides library services and materials in a variety of formats, including books

(paper and electronic), serial publications, government documents, microforms, and electronic reference sources and aggregation services in a federated searching system. Library services for faculty, staff, administrators, and students are numerous and include: circulation; reference (email, telephone, and in-person); reserve (electronic and paper); interlibrary loan; document delivery; library instruction and other presentations and workshops; and assistive technology. The web site for the LRC and its services is: <http://library.uwsp.edu/>.

The LRC provides the PAPERCHEM paper industry literature database (annual subscription cost \$6752) for the use of PSE students and faculty. Many other literature databases are available including ChemAbstracts.

PSE Room D-281 has a small library that contains technical and abstract journals.

### Storage

A storage room in the Science Building is used to keep paper machine parts, a lab coater and a lab de-inking floatation cell. Along with this small facility a locked area in the Facility Services Building is used to store our large paper machine spares, extra testing and laboratory equipment, piping and raw materials.

## **Resources and Support**

### Computers

Paper Science and Engineering faculty and staff have access to all computing resources at UW-Stevens Point, including the availability for desk top and/or lap top computers, printers, and any necessary software. Computers have access to the Internet through high speed wired connections. All campus buildings have both wired and wireless network connectivity. Computer service requests are processed through the campus Information Technology Department.

Paper Science and Engineering students also have access to Information Technology support as well as the university computer labs and any available software. The University Information Technologies Department will install specific engineering-related software on the servers, at the request of an individual Faculty. Computer labs can be scheduled for classroom computer exercises as needed. There are computer labs in all instructional campus buildings and the Learning Resource Center and Dreyfus University Center. The most commonly used computer lab by Paper Science and Engineering majors is room B-228 in the Science Building. This computer laboratory is split into two teaching labs with a total of 86 workstations, two teaching consoles and projectors, and standard campus software on all machines. All residence halls are wired for internet and network access.

The software that is used within the curriculum includes Microsoft Office applications, Minitab, WinGEMS, and MATLAB/Simulink. The department also licenses the use of “The Expert System for Thermodynamics” (TEST) on the web (<http://thermo.sdsu.edu/testcenter/>) for thermodynamic property evaluation and thermal systems analysis. Microsoft Office, Minitab, and WinGEMS are licensed for network use through the campus Information Technology Department. All of the computer

hardware and software systems more than adequately support the Paper Science and Engineering program educational objectives and outcomes.

The Information Technology Department has four different divisions including Information Technology, Information Systems, Telephone Support and Web and Media Services. This department has 49 full time employees and a variable number of student workers. The breadth and depth of their knowledge covers Student Technical Services, Software Contracts, Network and Infrastructure Coordination and Support, General Tech Support and Help Desk, Email Infrastructure, Computer Lab, Printer, AV and Support, Information Systems, and Electronic Media coordination and Support.

### Laboratories

The faculty and staff have very good laboratory resources in all areas of chemistry, physics and papermaking. Over the last fifteen years many donations of high-priced items have been brought to our facility, including our entire paper machine. The primary sources of funding were from donations from alumnus, paper companies, allied companies, grants and through endowments from our UWSP Paper Science Foundation. In 1992 S.D. Warren Company donated our paper machine at a value of \$2,000,000. The machine also received a WISTAR \$900,000 grant from the state and matching grants from the paper industry. George Mead from Consolidated Paper Company gifted our Foundation with an endowment of \$300,000 (\$500,000 present value) restricted to maintaining our paper machine and laboratory equipment.

We maintain our equipment and laboratory supplies by generating external revenue; companies may use our machine for production runs, and companies or individuals seeking testing or paper machine trials may use our facilities for their research.

Equipment is repaired or replaced on an as needed basis, as determined by the Laboratory Manager. The senior design projects usually are aligned with our paper machine or equipment repair, design or redesign needs. Within the upcoming year we plan to purchase a horizontal tensile tester and some new analytical balances to replace older laboratory equipment. Many of the paper machine table and guide rolls will also be reconditioned.

The Laboratory Manager is in charge of installing, maintaining, managing and running all of the equipment in all of the laboratories and supervises student employees. The lab manager also assists in the instruction of laboratory classes by demonstrating safe operations of equipment and instruments used in the Paper Science and Engineering courses, and supporting the faculty with any needs they may have for a course during the year.

Mechanical maintenance and installations are done by the lab manager with the support of about three part time student employees during the academic year and three full time student employees during the summer. The University provides maintenance and installation service on any electrical equipment, and anything that would be needed for infrastructure within the building (e.g. steam leaks or city water line repair). University support for maintenance is described further under Criterion 8.

### **Major Instructional and Laboratory Equipment**

Major pieces of instructional and laboratory equipment are listed in Appendix C with the courses that use that equipment and estimated values. The total estimated value of this equipment exceeds \$4,300,000.