Visiting Team Worksheet - Baccalaureate Level
2006 Handbook

Industrial Technology

Visiting Team Report
for the
National Association of Industrial Technology

Institution: California State University Chico
President or CEO: Paul Zingg, Ph.D.
City & State: Chico, California

Previous NAIT Accreditation(s):

Visiting Team Members:

Name: Seth Bates (Team Chair)
Organization: San Jose State University

Name: Amy Frank
Organization: East Carolina University

Name: Ron Williams
Organization: Minnesota State University
Moorhead

Current Accreditation Request Date:

Date of Accreditation Self-Study Report:
December, 2007

Date of Visiting Team Report:

Program Reviewed (no Options):
Program: B. S. in Manufacturing Technology
Options(s): no options
I. The On-Site Visit

A. Date of the Visit March 2-4, 2008

B. The Visiting Team (provide names, addresses, and telephone numbers)

Dr. Seth P. Bates, Team Chair
San Jose State University
Aviation and Technology Dept.
One Washington Square
San Jose, CA 95192-0061
Voice 408-924-3227 email: sbates@sjsu.edu

Amy R. Frank
East Carolina University
College of Technology & Computer Science
Science & Technology Building, Suite 100
Greenville, NC 27858
252-328-9754 (voice) email: franka@ecu.edu

Dr. Ronald K. Williams
Minnesota State University, Moorhead
1104 7th Avenue South
Moorhead, MN 56563
Voice 218-477-2480 email: williams@mnstate.edu

C. On-Site Visit Agenda (provide the specific agenda followed during the visit)

Sunday, March 2, 2008

5:00 pm Dinner (casual)
Dr. Seth P. Bates, Dr. Amy R. Frank, Dr. Ronald K. Williams (team members)
Kenneth Derucher (Dean), Ron Roth (Department Chair),
Daren Otten (Program Coordinator), Mike Ward (Associate Dean)
Location: Johnnie’s Restaurant/Diamond Hotel

Monday, March 3, 2008

8:00 am Tour of facilities Bates, Frank, Williams, Roth, Otten
O’Connell 436
9:00 am Meet with faculty Bates, Daren Otten (Program Coordinator)
Williams, Dirk Vanderloop (Associate Professor)
O’Connell 427
O’Connell 423
9:00 am Observe class Frank, MfgT 386 Manufacturing Automation Systems (Fallscheer)
O’Connell 436
10:00 am Meet with faculty Bates, Ron Roth (Department Chair)
Frank, Leonard Fallscheer (Associate Professor)
O’Connell 419A
O’Connell 425
10:00 am Observe Lab Williams, MfgT 160 Manufacturing Processes (Brogden)
Langdon 120
11:00 am Observe class: Bates, MfgT 201 Graphic Applications for Manufacturing (Fallseer)

11:00 am Meet with Faculty: Frank, Joe Green (Professor), Williams, Scott Brodgen (Lecturer)

12 noon Lunch: Bates, Frank, Williams, MATLAB Members John Chochońak, John Dahlgren, Employer: Advanced Light Technologies President Brian Pierce

1:00 pm Observe class: All MfgT 350 Industrial Supervision (Vanderloop)

2:00 pm Meet with students: Bates, Frank, Williams, 3 Students (Freshman/Sophomore)

3:00 pm Meet with students: Bates, Frank, Williams, 3 Students (Junior/Senior)

4:00 pm Resource Room: Bates, Frank, Williams

5:00 pm Observe Class All MfgT 218 Polymer Materials (Cotten)

Tuesday, March 4, 2008

8:00 am Meet with Dean: Bates, Frank, Williams, Kenneth Deracher (Dean)

9:30 am Phone calls: Bates, Frank, Williams

10:15 am Placement: Bates, Frank, Williams, Megan Odom (Career Planning and Placement)

11:30 am Internships: Bates, Frank, Williams, Ken Naes (Director of Internships)

12 noon Box lunch: Bates, Frank, Williams

12:30 pm Meet with Associate Dean - Bates, Frank, Williams, Mike Ward (Associate Dean)

2:00 pm Exit interview: Bates, Frank, Williams, Sandra Flake (Provost), Deracher, Roth, Otten, Ward

2:30 pm Team departs

D. Current Accreditation Status of Programs (provide the current accreditation status of all programs and program options under consideration)

Bachelor of Science in Manufacturing Technology
Accredited for six years by NAIT in Fall, 2002.

II. General Information

A. The Institution (summarize the information about the institution included in the self-study report)

1. Name and Address

   California State University, Chico
   400 W. First Street
   Chico, CA 95929
2. **Number of Students Enrolled**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total (Fall 2007)</td>
<td>17,034</td>
</tr>
<tr>
<td>Full-time Equivalent (FTE)</td>
<td>15,828</td>
</tr>
</tbody>
</table>

3. **Total Full-Time Equivalent Faculty**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Fall 2007</td>
<td>733 FTEF</td>
</tr>
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</table>

4. **Operating Budget**

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>General Fund Budget ($)</th>
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<tbody>
<tr>
<td>2007-08</td>
<td>174,111,095</td>
</tr>
<tr>
<td>2006-07</td>
<td>173,717,689</td>
</tr>
<tr>
<td>2005-06</td>
<td>166,435,657</td>
</tr>
<tr>
<td>2004-05</td>
<td>155,332,710</td>
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<tr>
<td>2003-04</td>
<td>151,283,756</td>
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<td>152,021,559</td>
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<td>145,315,130</td>
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<td>141,006,391</td>
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<td>1999-00</td>
<td>135,318,340</td>
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<td>1998-99</td>
<td>127,120,029</td>
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<td>1997-98</td>
<td>116,002,564</td>
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<tr>
<td>1996-97</td>
<td>110,202,980</td>
</tr>
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</table>

5. **Institutional Accreditation Organization and Dates of Accreditation**

California State University, Chico is accredited by the Western Association of Schools and Colleges (WASC). The University was last reaccredited by WASC in 1996, and is currently going through a reaccreditation self-study and series of visits that include a “Capacity and Preparatory Review” and an “Educational Effectiveness Review.” The Capacity and Preparatory Review was concluded in Spring 2007, while the Educational Effectiveness Review is to be conducted two years following. The self-study and visitation reports may be viewed on the web at the following website: [http://www.csuchico.edu/vpaa/wasc/visitation/index.html](http://www.csuchico.edu/vpaa/wasc/visitation/index.html)

6. **History of Accreditation by the National Association of Industrial Technology**

The major in Industrial Technology was formally approved by the Chancellor of the California State University as a Bachelor of Science Degree in July 1968. NAIT accreditation was requested in 1980 and was granted for the maximum four years. Reaccreditation was requested in 1984, 1990, 1996, 2002, and now in 2008. Each time, the maximum six years was granted.
In August 1992, the Industrial Technology program received a Show-Cause notice from the University following severe budget reductions in the California State University system that seriously undermined the program. An on-site visit was mandated by NAIT at their hearings in October 1992. Following an on-site visit conducted by Dr. Brad Lawson, Assistant Dean, School of Technology, Indiana State University in spring 1993, the program was granted full accreditation through October 1996. After the 1996 visit, the program was granted Accreditation-Provisional for six years with a report due in 1998 to address several standards which were found to be in partial compliance or noncompliance. As a result of that 1998 report, the program was granted full accreditation through October 2002. The 2002 visit led to a report in 2004 which successfully addressed the standards for full accreditation through 2008.

In 1998 the name of the program was changed to Manufacturing Technology which more accurately reflects its emphasis and strengths.

7. Administration of the Institution

Head: Paul J. Zingg, Ph.D.
President

Chief Academic Officer: Sandra Flake, Ph.D.
Provost and Vice President for Academic Affairs
California State University, Chico
400 W. First Street
Chico, CA 95929

8. Major Academic Units within the Institution

The College of Agriculture
The College of Behavioral and Social Sciences
The College of Business
The College of Communication and Education
The College of Engineering, Computer Science, and Construction Management
The College of Humanities and Fine Arts
The College of Natural Sciences
The School of Graduate, International, and Sponsored Programs

9. Institutional Mission and Goals

Our Mission

California State University, Chico is a comprehensive university principally serving Northern California, our state and nation through excellence in
instruction, research, creative activity, and public service. The University is committed to assist students in their search for knowledge and understanding and to prepare them with the attitudes, skills, and habits of lifelong learning in order to assume responsibility in a democratic community and to be useful members of a global society.

Our Vision

California State University, Chico sees its distinctive residential context as an opportunity to create an active, diverse, healthy, caring, innovative, and green learning and working environment. We aim to create a vital and collaborative living and learning experience for students, who will appreciate and embrace the local, regional, and global communities of which we are all a part. We have a well respected and dedicated faculty, a superior staff, and committed leadership together with cutting-edge learning and information resources. All of these assets are placed within a beautiful and engaging physical environment. We are a place devoted to the academy’s most fundamental tenets: reason, respect, civility, and community. We are a place where the passion of our commitments and clarity of our values find expression every day in the community of learning and serving we have fashioned. As surely as we are a special place of people and ideas, as boldly as we are the “University of the North State,” we aspire to be the “University of Choice” for all those who wish to share our vision and values.

Our Strategic Priorities

1. Believing in the primacy of learning, we will continue to develop high-quality learning environments both inside and outside the classroom.

2. Believing in the importance of faculty and staff, and their role in student success, we will continue to invest in faculty and staff development.

3. Believing in the wise use of new technologies in learning and teaching, we will continue to provide the technology, the related training, and the support needed to create high quality learning environments both inside and outside of the classroom.

4. Believing in the value of service to others, we will continue to serve the educational, cultural, and economic needs of Northern California.

5. Believing that we are accountable to the people of the State of California, we will continue to diversify our sources of revenue and strategically manage the resources entrusted to us.

6. Believing that each generation owes something to those which follow, we will create environmentally literate citizens, who embrace sustainability as a way of living. We will be wise stewards of scarce resources and, in seeking to develop
the whole person, be aware that our individual and collective actions have economic, social, and environmental consequences locally, regionally, and globally.

10. Relationship of Institution to Superior Governing Body

California State University, Chico (CSUC) is one of 23 campuses of the California State University system. Responsibility for the California State University is vested in the Board of Trustees, whose members are appointed by the Governor of the State of California. The Trustees appoint the Chancellor, who is the chief executive officer of the system, and the Presidents, who are the chief executive officers of the respective campuses.

The Trustees, the Chancellor, and the Presidents develop system-wide policy, with actual implementation at the campus level taking place through broadly based consultative procedures. The Academic Senate of the California State University, made up of elected representatives of the faculty from each campus, recommends academic policy to the Board of Trustees through the Chancellor.

B. Administrative Unit(s) Information (include specific organization and personnel information about the department, college, and division housing the programs being evaluated)

1. Name and Address of College and/or Department Administrative Unit(s)

   College of Engineering, Computer Science, and Construction Management
   California State University, Chico
   400 W. First Street
   Chico, CA  95929-0003
   Voice 530-898-5963
   Fax 530-898-4070
   Office: O’Connell Hall 410
   www.eest.csuchico.edu

   Department of Mechanical Engineering, Mechatronic Engineering, and Manufacturing Technology
   California State University, Chico
   400 W. First Street
   Chico, CA  95929-0789
   Voice 530-898-5346
   Fax 530-898-4070
   Office: O’Connell Hall 419
   Email: mem@csuchico.edu
   web: www.csuchico.edu/mem/

2. Name(s) of Dean and/or Department Head
Kenneth N. Derucher, Ph.D., P.E., Dean  
College of Engineering, Computer Science, and Construction Management  
Office: O'Connell Hall 410  
Voice 530-898-5963  
email: KDerucher@csuchico.edu  

Michael G. Ward, Ph.D., P.E., Associate Dean  
College of Engineering, Computer Science, and Construction Management  
Office: O'Connell Hall 407  
Voice 530-898-4888  
email: MWard@csuchico.edu  

3. Names of other Departments in Administrative Unit

- Department of Civil Engineering  
- Department of Computer Science  
- Department of Construction Management  
- Department of Electrical and Computer Engineering  

4. Name of Program Head(s)

Ronald Roth, Ph.D., Chair  
Department of Mechanical Engineering, Mechatronic Engineering, and Manufacturing Technology  
Office: O'Connell Hall 419A  
Voice 530-898-4960  
email: RRoth@csuchico.edu  

5. Names and Titles of Others with Program Administration and/or Coordination Responsibility

Daren M. Otten, Program Coordinator  
Office: O'Connell Hall 427  
Voice 530-898-4316  
email: DMOtten@csuchico.edu  

Joseph P. Greene, Ph.D., Scholarship/Internship Coordinator  
Office: O'Connell Hall 422  
Voice 530-898-4977  
email: JPGreene@csuchico.edu  

6. Titles of Degrees, Programs, and Concentrations for which Accreditation is being Requested

Bachelor of Science in Manufacturing Technology
III. Compliance with Standards (describe how each program and option complies with, or fails to comply with each standard - the final line shall indicate whether the program or option is in non-compliance, partial compliance, or compliance)

6.1 Preparation of Self-Study Report

Self-Analysis: The Self-Study Report shall follow the guidelines and be completed by a representative portion of the institutions administrative staff, teaching faculty, and students.

The Self-Study Report follows the NAIT Accreditation guidelines and there is ample evidence that contributions have been made by all regular faculty, many part-time faculty, and by students, as well as by the dean of the academic unit that houses the program. Additional contributions were made by specific university service entities outside the department and college.

Program/Option: **BS Manufacturing Tech.** [X] Compliance [ ] Partial Compliance [ ] Non-Compliance

6.2 Philosophy and Objectives

6.2.1 Mission: The department, college, and institutional missions shall be compatible with the approved definition of Industrial Technology.

The missions of the department program under review is articulated and is compatible with the approved definition of Industrial Technology. The missions of the College and University are also presented in the self-study and are appropriate to support the program mission.

Program/Option: **BS Manufacturing Tech.** [X] Compliance [ ] Partial Compliance [ ] Non-Compliance

6.2.2 Program Definition: The major program definition and purpose shall be compatible with the approved definition of Industrial Technology.

The major program definition and purpose is clearly stated and is compatible with the approved definition of Industrial Technology.

Program/Option: **BS Manufacturing Tech.** [X] Compliance [ ] Partial Compliance [ ] Non-Compliance
6.2.3 Program Acceptance: Each major program shall be understood and accepted by appropriate individuals and representative groups within the internal university community and the external business and industrial community.

There are opportunities to extend the visibility and reputation of the program across the campus and the community, particularly with high schools. However, it was evident from all interviews that students, faculty, and administrative personnel from all over the university recognize and respect the program under review. The program has a high profile with local industry and the campus community, in part due to a long-term and successful internship program. Successful leadership and competition at the annual SME WESTEC event contribute positively to this reputation and regard. Regionally and nationally the program is recognized in its specific areas of expertise, which include the plastics industry.

Program/Option: BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance

6.2.4 Program Goals: Each major program shall have: (1) clearly written short and long range goals and objectives, which are consistent with the mission statements; and (2) plans for achieving them.

Both long-term and short-term goals have been identified in the self-study, with specific timelines and benchmarks. These are consistent with the mission statements.

Program/Option: BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance

6.3 Major Program(s)

6.3.1 Program Name: Each major program and/or program option shall have appropriate titles (titles such as business, engineering, or education that imply the focus of the program is in a related field of study are not appropriate).

There is only one program under review. This program has an appropriate title.

Program/Option: BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance

6.3.2 Program Level: The major program shall lead to the baccalaureate degree, and not less than the junior and senior years of baccalaureate level study shall be offered by the institution seeking accreditation. Appropriate lower division requirements may be offered by the same institution or may be transferred from other institutions including community colleges and technical institutes.

The program meets this standard. Articulation programs for area community colleges and other transfer institutions are in place.

Program/Option: BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance
6.3.3 Program Definition: The major program may have more than one option, specialization, or concentration; but specific course requirements for each option shall be clearly specified, and all program options shall meet or exceed NAIT standards. Certain standards, such as follow-up studies of graduates, may not be appropriate for new options within established major programs and a waiver may be granted by the Board of Accreditation upon the recommendation of the visiting team.

There are no options. This standard is met.

Program/Option: **BS Manufacturing Tech.**  [X] Compliance  Partial Compliance  Non-Compliance

6.3.4 Program Emphasis: Primary emphasis in the major program shall reflect the technology of contemporary industry.

There was ample evidence, through the lab visits, classroom visits, industry advisory board interviews, and other sources, that the Manufacturing Technology program is constantly updated to match developing technologies and practices in industry.

Program/Option: **BS Manufacturing Tech.**  [X] Compliance  Partial Compliance  Non-Compliance

6.3.5 Foundation Requirements: Major programs shall be a minimum of 120 semester hours (or equivalent) and must meet the minimum foundation requirements shown in Table 6.1. Programs may exceed the maximum foundation requirements specified in each area, but appropriate justification shall be provided for each program and/or program option that exceeds the maximum limits. A specific list of courses and credit hours that are being counted toward each category shall be included in the Self-Study Report.

The Manufacturing Technology program requires 128 semester units to complete. The program meets each NAIT requirement in this standard with the exception of the Technical area, which exceeds the NAIT requirement by 3 units. This is justified in the report by the fact that this is a broad-based program with no concentrations. Thus, the hours are needed to assure that each of the three technical areas in the program (graphics and automation, manufacturing processes, and polymer technology) can be covered.
## Foundation Requirements

<table>
<thead>
<tr>
<th>Foundation Area</th>
<th>Chico Courses – semester hours in ( )</th>
<th>Chico Semester Hours</th>
<th>NAIT Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>CMST 131 or 152(3); CMST 255 or PHIL 102(3); ECON 102(3), 103(3); ENGL 130(3); HIST 130(3); Hum/Fine Arts (3); Lifelong Learning (3); Life Science (3); POLS 155(3); Upper Division Theme (6)</td>
<td>36</td>
<td>18-36</td>
</tr>
<tr>
<td>Mathematics</td>
<td>MATH 105(3), 119(4)</td>
<td>7</td>
<td>6-18</td>
</tr>
<tr>
<td>Physical Science</td>
<td>CHEM 107(4), 108(4); PHYS 202A(4), 202B(4)</td>
<td>16</td>
<td>6-18</td>
</tr>
<tr>
<td>Management</td>
<td>ACCT 201(3); SCMS 306(3), SCMS 442 or 445(3); MfgT 350(3), 352(4), 451(3), 454(2), 458(3)</td>
<td>24</td>
<td>12-24</td>
</tr>
<tr>
<td>Technical</td>
<td>EECE 110(3); MECH 100(2); 200(2); MfgT 160(3), 201(2), 216(3), 218(3), 260(3), 310(3), 360(4), 386(3), 454(2), 464(3), 468(4), 490(1)</td>
<td>39</td>
<td>24-36</td>
</tr>
<tr>
<td>Electives</td>
<td>Two MfgT-designated courses (3+3)</td>
<td>6</td>
<td>6-18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>128</td>
<td>≥120</td>
</tr>
</tbody>
</table>

This standard is found to be in compliance.

### Table 6.1 - Major Programs

**Minimum - Maximum Foundation Requirements (semester hours)**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Required Hours</th>
<th>Pro/Opt 1 Mfg Tech</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Ed</td>
<td>18-36</td>
<td>36</td>
</tr>
<tr>
<td>Mathematics</td>
<td>6-18</td>
<td>7</td>
</tr>
<tr>
<td>Physical Sci</td>
<td>6-18</td>
<td>16</td>
</tr>
<tr>
<td>Management</td>
<td>12-24</td>
<td>24</td>
</tr>
<tr>
<td>Technical</td>
<td>24-36</td>
<td>39</td>
</tr>
<tr>
<td>Electives</td>
<td>6-18</td>
<td>6</td>
</tr>
</tbody>
</table>

Program/Option: **BS Manufacturing Tech.**  X Compliance  Partial Compliance  Non-Compliance

**6.3.6 Course Sequencing:** There shall be evidence of appropriate sequencing of course work in each major program to ensure that advanced level courses build upon concepts covered in beginning level course work.
Advising of students is guided by a program flowchart that shows all prerequisites and corequisites. This assures that students follow the appropriate sequencing of courses and allows advanced courses to build on basic and introductory courses in a systematic way.

Program/Option: **BS Manufacturing Tech.**  **X Compliance**  Partial Compliance  Non-Compliance

### 6.3.7 Application of Mathematics and Science: Appropriate applications of the principles of mathematics and science shall be evident in technical course work.

Courses in each area of the program implement mathematics and science principles. Examples were provided in the report and cross the entire manufacturing curriculum.

Program/Option: **BS Manufacturing Tech.**  **X Compliance**  Partial Compliance  Non-Compliance

### 6.3.8 Computer Applications: The major program shall include instruction on computer applications and the use of computers for information retrieval and problem solving.

Instruction and implementation in computer technology and applications were evident in every aspect of this program, and in almost every course. They are used extensively for both specific computer solutions (programs), as analytical tools, and for homework.

Program/Option: **BS Manufacturing Tech.**  **X Compliance**  Partial Compliance  Non-Compliance

### 6.3.9 Communications: Oral presentations and technical report writing shall be evident in course requirements.

Course materials and student work provided to the team showed extensive technical report writing, and oral presentations are required in many classes. In addition, the program requires a course in speech communication fundamentals or in small group communications, as part of the student’s general education program. As with other programs in the California State University System, an upper division writing course is a university graduation requirement.

Program/Option: **BS Manufacturing Tech.**  **X Compliance**  Partial Compliance  Non-Compliance

### 6.3.10 Industrial Experiences: Each major program shall include appropriate industrial experiences such as industrial tours, work-study options and cooperative education, or senior seminars focusing on problem-solving activities related to industrial situations. The industrial experiences shall be designed to provide an understanding of the industrial environment and what industry expects of students upon employment.
The program has a long-term reputation for its connectedness with local and regional industries. This is supported by tours and industry speakers in many courses, not only from the local area, but even from as far away as the San Francisco Bay/Silicon Valley region. Well planned and documented internships at a wide variety of companies from all over Northern and Central California, usually earning competitive entry level salaries, are encouraged for program elective credit.

Program/Option: BS Manufacturing Tech.  X Compliance ______ Partial Compliance ______ Non-Compliance

6.3.11 Competency Identification: Competencies shall be identified for each major program, including all available options, which are relevant to the employment opportunities available to graduates.

The competencies expected for graduates of this program are published on the department web site as program outcome goals. They are also listed in the self-study. Routinely, the SME Fundamentals of Manufacturing Exam is used to assess student achievement of many of these goals.

Program/Option: BS Manufacturing Tech.  X Compliance ______ Partial Compliance ______ Non-Compliance

6.3.12 Competency Validation: Validation of major program outcomes/student competencies shall be an on-going process and shall be accomplished through a combination of external experts, an industrial advisory committee(s), and follow-up studies of program graduates. Documentation of this validation shall be provided in the Self-Study Report.

The department faculty identified the SME Fundamentals of Manufacturing Exam as the primary means of competency validation about 8 years ago. A year later, a one-unit required course was added to the program to review the exam expectations and content with the students and to administer a practice exam. While seniors in their last semester are required to take the SME examination, the exam results are used only in program assessment and not as part of student grading for any course. Details of student performance on this exam are presented in the self-study. The program has a high pass rate for its students, but performance of the students in 2007 has raised some questions about correct administration and grading of the examination in that year. They noted that SME has contracted with a new company to administer and score the exam. The faculty continue to study these most recent results and will be watching the spring 2008 results with interest.

Competencies are also validated through both formal and informal review by industry professionals, including the department’s Manufacturing Technology Advisory Board (MTAB). About half of all students in the program undertake an industry internship. Exit questionnaires of the students’ performance in these internships is also used for program assessment. Specific recommendations from this process are included in the self-study and are the subject of current program review.
6.3.13 Program Development, Revision, and Evaluation: Major program development, revision, and evaluation shall involve currently enrolled students, individuals responsible for instruction, program graduates, and representative employers.

The department holds annual “town hall” style meetings for the purpose of gathering input about areas for program improvement from students. Students are also invited to attend a meeting of the MTAB to discuss their ideas and concerns. Exit surveys of graduates are also used. These are administered and analyzed by the University Institutional Research Office. The faculty meet frequently, primarily to discuss program improvement using feedback from the measures listed here and others presented in the self-study.

6.3.14 Transfer Course Work: Institution and/or department policies shall be used to evaluate course work transferred from other institutions. All programs/options, including those with a significant amount of transfer course work, must meet the minimum credit hour foundation course requirements (Tables 5.1 and 6.1) in each category.

Formal articulation agreements with many local and regional community colleges involve regular assessment of transfer course work from those institutions. Course substitutions are handled at the department level assuring that such decisions are made by informed persons. The program and the university are part of a systemwide articulation system that provides articulation agreements between the CSU campuses and over 100 community colleges.

6.3.15 Upper Division Course Work: Students shall successfully complete a minimum of 15 semester hours of junior or senior level major courses at the institution seeking program accreditation.

Students must perform satisfactorily in a minimum of 40 units of upper division work. Of these, at least 18 units must be in the major (for a B.S. degree).

6.3.16 Program Publicity - Adequate and Accurate Public Disclosure: Institutions shall broadly and accurately publicize, particularly to prospective students: (a) Industrial Technology program goals and objectives, (b) preadmission testing or
evaluation requirements and standards, (c) assessment measures used to advance students through the program(s), (d) educational achievement rates of graduates, and (e) fees and other charges.

The program provides information about its offerings through a variety of mediums including program brochures, internet/web presentation, the university catalog (in both hard copy and web format), and flyers used for mailings and open house events. Mailed materials are sent each year to area community colleges and to undeclared majors at campus. Faculty also visit and make presentations at area community colleges and high schools.

Recently, working with their MTAB, the department established a committee to aid in the marketing of the MfgT program. This work is underway.

Program/Option: **BS Manufacturing Tech.  X Compliance** Partial Compliance Non-Compliance

**6.3.17 Legal Authorization:** Only institutions legally authorized under applicable state law to degree provide a program beyond the secondary level and that are recognized by the appropriate regional accrediting agency are considered for accreditation.

The California State University (CSU) is authorized to grant baccalaureate level degrees under state law. This program is authorized to offer the B.S. in Manufacturing Technology under the authority of the CSU Trustees.

Program/Option: **BS Manufacturing Tech.  X Compliance** Partial Compliance Non-Compliance

**6.4 Instruction**

**6.4.1 Study Guides:** Course Syllabi which clearly describe appropriate course objectives, content, references utilized, student activities, evaluation criteria, and a range of examples of students graded work shall be available for each course.

Course binders were provided in the Resource room for the majority of the MfgT courses and the two required MECH courses. Although syllabi formats were not consistent, they did provide the information required for this standard.

No course syllabi/binders were provided for required courses offered outside the department (ACCT 201, ECON 102, 103, CHEM 107, 108, ECEE 110, MATH 105, 119, PHYS 202, SCMS 306, 442, 443).

Program/Option: **BS Manufacturing Tech.  X Partial Compliance** Non-Compliance

**6.4.2 Reference Materials:** Appropriate reference books, library materials such as periodicals, audio-visual materials, and computer application software (when appropriate) shall be utilized for each course or series of courses to supplement
textbooks or course packs.

Use of reference material was evident in some MfgT course syllabi. An extensive list of reference materials available in the university library was provided in the self-study appendices. Discussion with program students provided proof the students were using these resources for research projects, presentations, and article reviews of new technology.

6.4.3 Program Balance: Appropriate laboratory activity shall be included in the program(s) and a reasonable balance must be maintained in course work between the practical application of ‘how’ and the conceptual emphasis of ‘why’.

The majority of the major courses required in this program include a lecture with corresponding laboratory activities. The university catalog and syllabi clearly state the required hours of discussion and hours of laboratory. For example, MfgT 218 Polymer Materials, a 3-unit course, requires 2.0 hours for lecture/discussion and 3.0 hours of laboratory.

Feedback from interviews with students clearly indicate that the hands-on component of the labs is one of the main draws to this program.

In terms of program balance between the application of how and the conceptual emphasis of why, very few course syllabi of courses with a laboratory component indicated separate course objectives for the lab. No statement on this balance was mentioned in the self-study report, although the review of information in the course binders as well as classroom observations indicated an appropriate balance of ‘why’ within the classroom activities/assignments and ‘how’ in the lab activities.

6.4.4 Problem-Solving Activities: Emphasis in instruction shall be appropriately focused on problem-solving activities which reflect contemporary industrial situations.

Two courses within the program require group projects which incorporate real, industry-supplied projects that allow students to investigate, analyze, and solve, as well as the opportunity to present their findings directly to industry. One of these is a capstone course, Project Management, which was recently added to the curriculum due to feedback from MfgT alumni.

Interviews with currently enrolled students made it clear that these real, industry-supplied projects are a valuable learning experience.
6.4.5 Motivation of Students: Effective motivation of students shall be evident.

Students are drawn to this program for the hands-on experiences, which start in the first major course they enroll in and continue into the majority of the upper level major courses. Their thirst for these hands-on, real-world experiences keep them motivated and is evident by the active participation of what seems to be about 40-50% of the MfgT students in the program’s professional student organizations (SME and SPE). Field trips, such as plant tours, conferences, and student competitions, seem to invigorate the students to get the most from their classes and experiences.

Program/Option: **BS Manufacturing Tech. X Compliance** Partial Compliance Non-Compliance

6.4.6 Supervision of Instruction: Appropriate supervision of instruction shall be evident throughout the program.

CSU Chico faculty policies and standards require classroom observations and evaluations by senior faculty. Student-based evaluation of the instructor is required each spring by the University. Interviews with students indicated some instructors used their own student opinion evaluations within their classes.

Though not mentioned within the self-study report, laboratories are supervised by instructors during class time. Student workers are utilized for open lab hours. Lab safety was a concern of the Manufacturing Technology Advisory Board in the past, but those issues have been addressed. While the visiting team did not visit an active laboratory in the machine processes laboratory, they were concerned about the congestion of equipment in this one lab, caused in part by the move from an earlier lab to the current lab space (see section 6.8). This lab should be redesigned and reconfigured for safety with only as much equipment as the laboratory can safely support.

Program/Option: **BS Manufacturing Tech. X Compliance** Partial Compliance Non-Compliance

6.4.7 Scheduling of Instruction: The organization and scheduling of instruction shall allow adequate time for completion of appropriate homework assignments and laboratory problem-solving activities.

Schedules of class and lab activities, homework, and projects that were prepared by instructors were included in the course binders. Lab sections are scheduled to complete laboratory assignments. Open lab is available in most labs when not in use by a class. Faculty seems to be available to assist with anyone needing assistance or more time to complete the assignments.

The team would have like to see examples and/or a summary of student feedback from the university’s student evaluation of faculty.
6.5 Faculty

6.5.1 Full-Time Faculty: Each major program and program option shall have an adequate number of appropriately qualified full-time faculty. Faculty qualifications shall include emphasis upon extent, recency, and pertinence of: (a) academic preparation, (b) industrial professional level experience (such as technical supervision or management), (c) applied industrial experience (such as technical applications), (d) membership and participation in appropriate Industrial Technology professional organizations, and (e) scholarly activities.

The self-study lists 5 full-time faculty members. Scott Brogden has a BS degree, and although currently a candidate for an MS degree, is not qualified as defined in 6.5.2. Dr. Joe Greene is heavily involved in research and taught no regular classes for MfgT in 2007-08. Dr. Dirk Vanderloop taught half-time in MfgT in 2007-08, with a half-time assignment to coordinate a new program in Concrete Industry Management. Dr. Ronald Roth is the Department Chair, and does not teach in MfgT.

The two full-time faculty members who teach full loads, Brogden and Fallscheer, appear to have very full teaching loads. In addition to a 100% teaching load, Mr. Brogden has supervisory responsibility for students using the labs outside of regular class. Mr. Fallscheer appears to have a 100% teaching load for Spring 2008, and has advising responsibilities.

Although the list of full-time faculty seems adequate, the majority of the teaching appears to be done by two faculty members, one of whom currently does not meet minimum faculty qualifications. The team supports the intention stated by the Dean to move one or both of the current lecturer positions filled by Mr. Brogden and Mr. Otten to tenure-track positions, and to increase the position filled by Mr. Otten to full-time, in the near future.

6.5.2 Minimum Faculty Qualifications: The minimum academic qualifications for a tenure track faculty member (except in unusual circumstances which must be individually justified) shall be a bachelors and masters degree in a discipline closely related to the faculty members instructional assignments.

All tenure-track faculty meet the minimum qualifications for this standard. Mr. Fallscheer has a Master’s degree, and Drs. Greene and Vanderloop have earned doctorates.
6.5.3 Academic Preparation of Faculty: A minimum of fifty percent of the regular full-time faculty members assigned to teach in the major program(s) shall have an earned doctorate (exceptions to this standard will be granted only for unique programs such as Marine Transportation). If more than one major program exists at an institution, this standard will apply to all regular full-time faculty assigned to teach major programs in Industrial Technology at the institution. Exceptions may be granted to this standard if the institution has a program in place that will bring the institution into compliance within a reasonable time.

Of the 5 full-time faculty listed, Dr. Ronald Roth does not teach for MfgT. Although Dr. Greene is listed as a regular faculty member in MfgT, he has a regular teaching assignments in Mechanical Engineering, and did not teach any classes for MfgT in 2007-08. One of the courses, MECH 100, is required for MfgT students, but is delivered by a different program.

The 50% standard is only met if Dr. Greene’s assignment to the program is in fact a teaching assignment.

Program/Option:  **BS Manufacturing Tech.  **Compliance  [X] Partial Compliance  ____ Non-Compliance

6.5.4 Selection and Appointment Policies: Policies and procedures utilized in the selection and appointment of regular faculty shall be clearly specified and shall be conducive to the maintenance of high quality instruction.

The processes described in the self-study appear to be both clearly specified and supportive of high quality instruction.

Program/Option:  **BS Manufacturing Tech.  **[X] Compliance  ____ Partial Compliance  ____ Non-Compliance

6.5.5 Tenure and Reappointment Policies: Faculty tenure and reappointment policies and procedures shall be comparable to other professional program areas in the institution. Requirements in the areas of teaching, service, and scholarly activity shall be clearly specified for faculty in Industrial Technology.

The University’s Faculty Personnel Policies and Procedures Manual requires that policies and procedures be comparable for all programs at CSU-Chico, including MfgT. The requirements for teaching, service, and scholarly activities for MfgT faculty are spelled out in the Departmental RTP Policy.

Program/Option:  **BS Manufacturing Tech.  **[X] Compliance  ____ Partial Compliance  ____ Non-Compliance

6.5.6 Faculty Loads: Faculty teaching, advising, and service loads shall be comparable to the faculty in other professional program areas at the institution. Consideration shall be given in faculty teaching load assignments to high contact hours.
resulting from laboratory teaching assignments.

Mr. Brogden and Mr. Fallscheer appear to be reaching and exceeding the load limitations described in the self-study. Mr. Brogden, Mr. Fallscheer, and Mr. Otten also are given supervisory responsibility for labs outside of their scheduled lab and lecture time. Although this makes the labs available for students outside of class, it puts a significant additional time load to their schedule.

Loads in the program may be dictated by large amounts of reassigned times given to the tenure-track positions. Dr. Vanderloop has a half-time reassignment to the Concrete Industry Management program, and Dr. Greene has bought out enough of his load for research so that he has not taught in MfgI in 2007-08.

6.6 Students

6.6.1 Admission and Retention Standards: Admission and retention standards shall be used to ensure that students enrolled are of high quality. These standards shall compare favorably with the institutional standards. Sources of information may include admission test scores, secondary school rankings, grade point averages, course syllabi, course examinations, written assignments, and oral presentations.

The manufacturing technology program use the institution’s admission standards and retention policies for the university. The university’s admission standards for freshman utilize an eligibility index based on SAT or ACT scores, a high school level diploma, and completion of college preparatory subject requirements.

The self-study report did not include information on transfer student admission policies though they can be found in the academic catalog.

For retention, the university as well as the manufacturing technology program requires a minimum cumulative 2.0 GPA and a minimum major GPA of 2.0 upon graduation. The self-study report did not include information and data on academic probation, disqualification, and intervention strategies for their students.

6.6.2 Scholastic Success of Students: Students in Industrial Technology shall have scholastic success comparable to those in other curricula in the institution. Grading practices in Industrial Technology courses shall be comparable to other departments and/or programs in the institution. Evidence shall be presented to indicate the scholastic achievement level of Industrial Technology students in both basic studies and major course work.
A history of manufacturing majors' grade point averages compared to the unit averages as well as the university as a whole were provided in the self-study report. It is evident that this data is shared with the Manufacturing Industrial Advisory Board in 2002 and efforts were made the manufacturing technology GPA more comparable to the College and University averages. No data was provided for major GPAs even though major GPAs are calculated as part of the graduation requirement.

Program/Option: BS Manufacturing Tech. X Compliance ___ Partial Compliance ___ Non-Compliance

6.6.3 Placement of Graduates: The initial placement, job titles, job descriptions, and salaries of graduates shall be consistent with the program(s) goals and objectives. The advancement of graduates within organizations shall be tracked to ensure advancement to positions of increasing responsibility. Industry's reaction to graduates as employees must be favorable. Follow-up studies of graduates shall be conducted every two to five years. Summary statistics relating to follow-up studies of graduates shall be made available to prospective students. These statistics shall include placement rates as well as salary levels of program graduates.

Manufacturing Technology graduates seem to have the highest documented placement of graduates within the College of ECC. Students are encouraged by program faculty and staff to register with the CSUC Career Planning and Placement Center (PLC). This PLC office does their best to keep track of 'offers' and 'accepts' by major as well as starting salaries for each of their registrants. A table comparing placement and starting salaries of other programs within the College of ECC as well as a table of the CSU College of Business was provided in the self-study report by this PLC office.

Progression of graduates' salaries and employment feedback can be found in alumni surveys as referenced in the self-study report but the return rate of alumni surveys are between 14 to 18% (2 to 5 surveys returned). Surveys were sent annually until 2005 for graduating classes 3 years out and 6 years out. For the alumni surveys that were returned, feedback was shared with faculty and the manufacturing advisory board members. Typical position titles of program graduates as provided in the self-study report from alumni surveys align with the program goals and objectives. Starting salaries are included in recruitment documentations as well as the university catalog.

Proof of industry feedback of graduate placement and skills was only found in a sampling of internship feedback forms. This feedback as well as support from the Advisory Board seems to support favorable reaction of graduates from employers.

Program/Option: BS Manufacturing Tech. X Compliance ___ Partial Compliance ___ Non-Compliance

6.6.4 Graduate Studies: If an objective of the program(s) is to prepare students for graduate studies, then the success of Industrial Technology graduates in graduate programs shall be tracked and confirmed.
Graduate studies is not an objective of this program.

Program/Option: BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance

6.6.5 Student Evaluation of Program(s): Evaluations of the Industrial Technology program(s) shall be made by its graduates on a regular basis (two to five years). Their reactions and recommendations shall be considered in program revisions.

Graduating seniors are required to complete an exit survey to allow feedback to the manufacturing program administrators and faculty. Feedback provided by these students are reviewed annually by the department and seem to be taken seriously as evident in changes made to the program over the last couple of years. The department seems to depend more on these exit surveys more so than alumni surveys.

Alumni surveys were sent annually up to 2005 for graduating classes 3 years out and 6 years out as referenced in the self-study report but the return rate of alumni survey returns rate is between 14 to 18% (2 to 5 surveys returned). For the alumni surveys that were returned, feedback was shared with faculty and the manufacturing advisory board members to be used in curriculum development.

More effort is needed by the university to provide support of programs to track their alumni. Mailings of alumni surveys needs to be sent on a regular schedule. Contact information of graduates needs to be improved and the low return rates need to be addressed.

Program/Option: BS Manufacturing Tech. Compliance X Partial Compliance Non-Compliance

6.6.6 Student Enrollment: Enrollment shall be adequate in each program area to operate the program(s) efficiently and effectively. The level of available resources shall be considered as a constraint on the maximum number of qualified students to be admitted to the program(s). Enrollment shall be tracked, and factors affecting enrollment patterns shall be identified and analyzed. Enrollment projections shall be made which relate closely to short and long-range goals and resource needs.

Enrollment is adequate for the operation of this program. Goals were not quite met from past years though efforts were made to recruit from feeder community colleges and high schools. Even though the engineering programs within the College of ECC seems to be the interest of most new students, the MfgT program benefits from their appeal of the engineering programs by drawing students to the MfgT program with their hands-on applied learning.

An enrollment goal has been set for future terms as well as a plan of action to improve recruitment from high schools with the support of their industrial advisory board.
Resources such as classroom and laboratory space for future growth is in the College of ECC’s long term goals.

Program/Option: BS Manufacturing Tech. **X Compliance** Partial Compliance Non-Compliance

6.6.7 Advisory and Counseling Services: Adequate and timely advising and counseling services shall be available for students.

Students are assigned a MfgT faculty member to be their academic advisor. Recently the College of ECC requires mandatory advising for students to meet with their advisors at least once a year. The goal of this new requirement is to improve intervention for those struggling academically and to ensure each advisee is on the correct path towards graduation. The program advisor provides students with a degree requirement flowchart, degree check-sheet, and a proposed four year plan.

Before registration, students are encouraged to sign for a 30 minute appointment with their advisor. Reviews of sample student advising records indicates that the students complete and track their own four year plan and then copies are keep in the student’s advising folder filed in the department’s office.

Interviews with students provided evidence that students were meeting with their advisors typically once a semester before registration and receiving feedback on their proposed plan towards graduation as well as career mentoring.

Program/Option: BS Manufacturing Tech. **X Compliance** Partial Compliance Non-Compliance

6.6.8 Ethical Practices: Ethical practices shall be fostered, including equitable student tuition refunds and nondiscriminatory practices in admissions and employment.

Ethical practices are mandated and adhered to by the California State University system.

The MfgT faculty also teach students good ethical practices by including lessons dedicated to this subject within two of their major courses.

Program/Option: BS Manufacturing Tech. **X Compliance** Partial Compliance Non-Compliance

6.7 Administration

6.7.1 Program Administration: Programs in Industrial Technology are expected to have an identifiable, qualified individual with direct responsibility for program coordination and curriculum development. This individual should be a full-time employee of the institution.
Dr. Ron Roth chairs the Department housing MfgT, and is a tenured faculty member in the Mechanical Engineering program. Mr. Daren Otten is identified as the “Program Coordinator,” but is not full-time, and was not identified as faculty in the Section 6.5 of the self-study. The delineation of administrative duties between these two individuals is not clear, and thus the requirement for “direct responsibility for program coordination” by a full-time employee of the institution is not clearly met.

Program/Option: **BS Manufacturing Tech.**  
Compliance [X] Partial Compliance [ ] Non-Compliance

### 6.7.2 Administrative Leadership: Individuals assigned to administer Industrial Technology programs must demonstrate effective leadership and satisfactory support for Industrial Technology.

Faculty, administrators, students, and University support staff all identified Mr. Otten as the person they seek out to resolve difficulties or answer questions for the program. All were complimentary of his leadership and support of the program.

Program/Option: **BS Manufacturing Tech.**  
[X] Compliance [ ] Partial Compliance [ ] Non-Compliance

### 6.7.3 Administrative Support: There must be appropriate support for Industrial Technology from the personnel holding leadership positions in the departments and colleges where Industrial Technology is administratively located.

The Dean, Associate Dean, and Department Chair all spoke highly of the program, its faculty and its students. All were strong proponents of the program’s on-going need for laboratory space, for equipment, and for qualified faculty.

Program/Option: **BS Manufacturing Tech.**  
[X] Compliance [ ] Partial Compliance [ ] Non-Compliance

### 6.8 Facilities and Equipment

#### 6.8.1 Adequacy of Facilities and Equipment: Physical facilities and equipment, which are suitable to serve the goals and objectives of the program(s), shall be available for each program option. Where facilities and equipment appear to be minimal to support a quality program(s), comparisons with support levels for other relevant programs at the institution will be made by the visiting team.

The lab facilities that recently moved from Plumas Hall to Langdon Hall have been relocated into a much smaller space. Program administrators state that given current enrollments, the available square footage of program space is only at 88% of that allowed under their space allocation formula, and that that formula does not adequately reflect the needs for space in a laboratory-intensive program like MfgT. Plans for the continuing remodel and expansion of Langdon and O’Connell Halls need to reflect the need for more space for program laboratories.
Program administrators and faculty, and particularly the students, expressed frustration that the move of equipment and labs happened without apparent planning or immediate need. The labs in Plumas were vacated long before the University was ready to make new use of the space. This has separated related processes into labs in two buildings, adding difficulty to the process of overseeing student use of labs – a piece that was cast in Plumas might need to be machined or finished in Langdon, but whereas in the past one faculty member could oversee two adjacent labs, it now requires two faculty, or the students must schedule activities at different times.

The labs that remain in Plumas are dark, dirty, and crowded with extra items not yet moved to Langdon. Program administrators indicate that those labs will not move until new spaces to be added or remodeled in Langdon Hall are fully complete and ready, a decision the team solidly supports. However, these moves are possibly as much as 2 years out. The team recommends that, although the labs in Plumas will eventually be remodeled for use by other departments, the University should clean and paint these spaces now to provide adequate laboratory spaces in the interim.

The value of laboratory space for use by students outside of class cannot be overstated. The assignment of faculty to oversee open labs for use by students, although challenging to those who schedule faculty loads, is a commendable process. We also applaud the practice of making laboratory space available to student clubs for use in developing projects like WESTEC and Mini Baja. These projects contribute greatly to the visibility of the program, the Department and the University.

Program/Option: **BS Manufacturing Tech. X Compliance** Partial Compliance Non-Compliance

6.8.2 Support for Facilities and Equipment: Facility and equipment needs shall be reflected in the long range goals and objectives for the program(s), and sources of potential funding shall be identified.

The Department and program faculty and administrators have been successful in finding outside funding sources to provide a range of new equipment in the program laboratories. The long-range goals and objectives address continuing efforts to provide that funding on a continuing basis, given that internal funding through the University is and will be inadequate to meet those needs. Donations and in-kind support from alumni and industry supporters will continue to be critical, and their goals and objective high-light efforts to increase those gifts.

Although the facilities and equipment are marginally adequate to support a program with 72 majors, their goals and objectives indicate an intention to have 110 majors by Fall 2010. An 50% increase in majors will certainly require more space and equipment. The team recommends that the planning for space utilization in the remodeled Langdon and O’Connell Halls, be based on the program size identified in their goals as time progresses.
6.8.3 Appropriateness of Equipment: Equipment shall be appropriate to reflect contemporary industry.

Although some of the equipment is older, it all appears to be well-maintained and well used. More contemporary equipment is also a part of the mix, including a range of polymer processing equipment and a complement of CNC equipment. Program faculty and administrators shared very viable plans to add more state-of-the-art CNC equipment in the near future.

6.9 Computer Systems

6.9.1 Availability of Computer Systems: Appropriate computer systems shall be available to students and faculty to cover appropriate functions and applications in each program area. These systems may be on or off-site and centralized or decentralized as long as the systems are accessible to students and faculty by means of remote terminals and/or input-output devices.

A 27-station computer lab is available for students within the department though some courses are scheduled in this lab. The university replaces computers on a five year rotation. Computers in this lab are now four years old and new computers have been ordered and will be replaced by the end of the term. The university does provide a computer lab with 24 hour/7 day access in their library. Other laboratories with computers are available with limited access within the College of TECs. Most of the specialized computer applications have site licenses of which students can access a limited number of licenses from any networked computer on campus.

Interviews with students indicated no problems/concerns with availability of computers.

6.9.2 Utilization of Computer Systems: Evidence shall be available which indicates students and faculty are making adequate and appropriate use of computer systems.

Most of the courses and labs taught in the program utilize various computer applications and systems. Examples were provided in the course binders.

6.10 Financial Resources
6.10.1 Financial Support: The budget for the Industrial Technology program(s) shall be adequate to support program objectives. When judging sufficiency, the visiting team may wish to make comparisons with the support levels given to other professional programs at the institution.

The funding support provided by the University to the program is not adequate to support laboratories and facilities, but is comparable with other programs in the College and the University. Program administrators and faculty have done an admirable job in finding other sources to meet those needs. (The team notes that the table on page 41 on the self-study has some obvious errors. If the program wishes to comment on this section, they may wish to revisit that table.)

The funding of faculty and staff is adequate for the current size of the program. However, should the program be successful in meeting its goals of increasing the number of students by 50% in the next 3 years, additional funding for faculty must be provided. Any reduction in staffing in response to financial constraints would likely compromise the team’s evaluation that the funding levels as stated are in compliance with this standard.

Program/Option: **BS Manufacturing Tech. X Compliance** Partial Compliance Non-Compliance

6.10.2 External Financial Support: There shall be evidence of external support for the program(s) in Industrial Technology. However, this external support shall be treated as supplementary support and be used to achieve and maintain a high level of excellence. This external support shall not be used to displace funding support normally provided by the institution.

The program’s administrators and faculty have done an admirable job of seeking and finding external funding from Alumni, regional industry, graduate employers, and the federal government, both through grants and direct support from legislators. Their goals and objectives reflect an planned intention to grow that support.

Program/Option: **BS Manufacturing Tech. X Compliance** Partial Compliance Non-Compliance

6.11 Library Services

6.11.1 Library Resources: The administrative unit containing the Industrial Technology program(s) and/or the institutional library shall maintain a collection of Industrial Technology literature and reference materials adequate to meet the curriculum and research needs of students and faculty.

The university library is more than adequate to meet programs needs. The department has a liaison on the library staff who works with the faculty and students to see that program and student needs are met. A full complement of online technical databases are available to students to support their studies.
6.11.2 Utilization of Library Resources: Evidence shall be available which indicates that students and faculty are making adequate and appropriate use of library resources.

Course syllabi provided to the team and interviews with students indicated that faculty regularly require students utilize the available library resources. The library does not track use of their collection by majors.

6.12 Support Personnel

Support Personnel: Personnel such as teaching assistants, student work-study assistants, secretaries and service technicians shall be adequate to support program objectives.

Computer support is provided by the College of Engineering with a full-time computer technician. The College also provides one full-time mechanical equipment technician and one full-time electronic technician. The department also hires two student assistants to help with laboratory maintenance. The labs, with some exceptions, appear clean and well maintained. It was the impression of the visiting team that some additional mechanical technician support or student assistants may be necessary to support the cleanup and moves between laboratories (see section 6.8).

6.13 Placement Services

6.13.1 Placement Services: Appropriate services shall be available to assist with the placement of program graduates. Placement of graduates shall be tracked and the effectiveness of the services shall be evaluated by the administrative unit containing the Industrial Technology program(s).

Students are encouraged by program faculty and staff at the CSUC Career Planning and Placement Center (PLC) to register with their office. This PLC office does their best to keep track of ‘offers’ and ‘accepts’ by major as well as starting salaries for each of their student registrants. The PLC office provides the program with an informative annual report that compares College of ECC placement and starting salaries to other programs within the university.
The PLC office provides a liaison to the MfgT program that seems to understand and appreciate the differences in the College of ECC disciplines and programs. This liaison works closely with the MfgT program to inform faculty and students of the benefits their office can provide. It is worth noting that a significant number of MfgT graduates find placement via informal channels and do not provide this information to the PLC.

The PLC office also conducts follow up surveys to graduates and employers who have used their services.

Program/Option: **BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance**

**6.13.2 Cooperative Education:** If cooperative education is either a required or an elective part of the program, then appropriate services shall be provided to assist with the placement and supervision of cooperative education students.

Internships and cooperative education is encouraged as a technical elective within the MfgT program. Due to the slightly remote location of this university in terms of local industry, most students pursue summer internships instead of co-op positions. This allows them to travel for the summer to undertake their internship in another part of the state. Co-op opportunities, as well as internships, are coordinated by the University’s Office of Experiential Education. Their office provides students and faculty with internship and co-op opportunities as well as access to large databases of position listings.

Program/Option: **BS Manufacturing Tech. X Compliance Partial Compliance Non-Compliance**

**6.14 Industrial Advisory Committee(s)**

**6.14.1 Program Advisory Committee(s):** An industrial advisory committee shall assist in the validation of program content. If more than one major program or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained. Evidence shall be presented to indicate the: (a) procedures used in selecting members, (b) length of appointment, (c) organization of the committee, (d) committee responsibilities, (e) frequency of meetings, and (f) methods of conducting business.

The MfgT industrial advisory board (MTAB) charter was provided in the self-study appendices and the past meeting minutes were provided in a binder in the visiting team’s resource room. No membership list of each year’s board was provided. A valid membership and the length of terms could not be validated. However, the minutes show that the MTAB is active and involved in program review and improvement.

Evidence does exist that indicates the involvement of the MTAB in validation of program content.
The MTAB charter states that this board should meet a min of twice a year but in the last several years, the board has been meeting once a year.

According to the MTAB charter, the membership should include at least ten to twelve professionals. Reviewing minutes of past meeting did not indicate consistent attendance of such professionals.

Program/Option: **BS Manufacturing Tech.**  
Compliance [X] Partial Compliance [ ] Non-Compliance

### 6.14.2 Advisory Committee Meetings: The industrial advisory committee(s) shall meet at least once each year, and appropriate minutes shall be kept of these meetings showing agenda items, actions taken, and recommendations made.

The MfgT program’s industrial advisory board (MTAB) does meet this standard’s requirement of meeting a minimum of once a year. However it is worth noting that their own charter states that this board should meet a minimum of twice a year. Past minutes of the MTAB indicate the board has been meeting once a year over the last several years.

The MTAB’s past meeting minutes were provided in a binder in the visiting team’s resource room. A more consistence format is needed as well as more details on discussions.

Program/Option: **BS Manufacturing Tech.** [X] Compliance [ ] Partial Compliance [ ] Non-Compliance

### 6.15 Educational Innovation

#### 6.15.1 Educational Innovation: There shall be evidence that innovation furthering program objectives is being carried out in the administrative unit housing the Industrial Technology program. This includes developing and testing new learning approaches and technologies and disseminating the results.

While the program appears to be actively innovative in many ways, only a little evidence of this was provided in the self-study or the materials provided to the review team. These materials described the engagement of one of the part-time faculty in industry-based problem solving for the Product Realization course (MfgT 398).

Program/Option: **BS Manufacturing Tech.** [X] Compliance [ ] Partial Compliance [ ] Non-Compliance

### 6.16 Assessment

#### 6.16.1 Assessment Plan and Integration: An assessment plan shall be comprised of, but not limited to, the following for each program: (1) program mission statement, (2) the desired program outcomes/student competencies, (3) evidence that the program incorporates these outcomes/student competencies, (4) the assessment
measures used to evaluate student mastery of the student competencies stated, (5) compilation of the results of the assessment measures, and (6) evidence that these results are used to improve the program.

The assessment plan for the program is laid out in the self-study in both broad strokes and in some detail. Faculty have worked to develop program competencies (6.3.11) and to evaluate outcomes measurement tools that would help evaluate learning. In the end, the SME Fundamentals of Manufacturing Examination was selected as the best tool overall for this purpose. It is also an external instrument that is widely used across the country. This exam has been required of all students for the past five years.

As is reported elsewhere in this report, there is ample evidence to show that the outcomes measures are used to evaluate and improve curriculum and program resources (laboratories, faculty, equipment).

Program/Option: BS Manufacturing Tech. [X] Compliance Partial Compliance Non-Compliance
IV. Summaries and Recommendations

A. Summaries:

1. Place a “C” in the appropriate space if the Program/Option meets all the criteria of the standard.
2. Place a “P” in the appropriate space if the Program/Option meets most of the stated criteria for the standard, but has weaknesses or deficiencies that need to be corrected.
3. Place an “N” in the appropriate space if the Program/Option fails to substantially meet the criteria of the standard.

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B. Visiting Team Recommendation (the recommendation should include accreditation level and conditions).

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<th>Accreditation On-Site Visit in 2 Years</th>
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C. Conditions: None

1. **Accreditation - Report in Two Years**: A written progress report is required in two years which details the corrective action taken to meet standards.

2. **Accreditation Report and On-Site Visit in Two Years**: A written progress report by the institution and an on-site visit by one of the initial visiting team members is required in two years.

3. **Non-Accreditation**: Denial of accreditation occurs when a program does not substantially comply with standards. If a program receives Non-Accreditation status, the application for reaccreditation will be considered as an initial application and the maximum period of accreditation granted will be four years.