**Department/Program Review Summary**

**2015-16**

**Department:** Computer Aided Manufacturing (CAM)

**Date of Review:** March 18, 2016

**Review Team Members and Titles:**

Dave Collins, Provost

Chad Atkinson, Manager, Research, Analytics and Reporting

Chad Bridgman, Internship Coordinator, Science, Math and Engineering

Jared Cutler, Assistant Provost of Accreditation and Assessment

Mike Freed, Manager of Manufacturing Solutions, Workforce Development and

 Corporate Services

Jim Hill, Ohio TechNet Project Manager, Workforce Development & Corporate Services

Bill Kamil, Professor/Chair, Humanities, Government and Modern Languages

Rian Kyles-Stewart, Assistant Professor, Nursing

Elizabeth Orlando, Assistant Dean, Business and Public Services/Assistant Professor

 Paralegal Program

Sam Sawaya, Associate Professor, Humanities, Government, and Modern Languages

Rena Shuchat, Dean, Health Sciences

Kelly Wood, Academic Advisor, Academic Advising

**Department Members Present:**

Tony Ponder, Dean, Science, Math and Engineering

Shep Anderson, Professor/Chair, Computer Aided Manufacturing and Operations Technology

Faculty and Staff:

Keith Bernheisel

Rick Crouch

Daryl Curnutte

David Griffith

Kevin McNeeley

Natalie Royer

**Commendations**:

* The self-study that was prepared for this Program Review was extremely well-done – it provided a candid and complete overview of the department, highlighting both the strengths and challenges of the department. The department did a remarkable job of telling its story in a detailed and nuanced way within the 30 pages allotted. What emerged from the self-study was a picture of a department that benefits from creative, innovative faculty who are closely attuned to the needs of students and area employers, and that uses feedback from employers and other data to drive decisions regarding curriculum and program offerings. Several examples of data-based decision making with concrete, tangible results were provided. During the discussion with the Review Team, the department was very open and receptive to suggestions made by the Team. The department displayed a very thoughtful and reflective approach to the entire Program Review experience, and the Review Team left the meeting with the department impressed with the chairperson as well as the faculty and staff.
* Not only does the department have an excellent relationship with area employers, but it has shown a remarkable amount of flexibility and creativity in adapting to industry needs. The department has reputation for being willing to try new approaches and take bold new steps when it is warranted by feedback from area employers, particularly its Advisory Committee. The department is active with outreach to the community in events such as Test Fest, Skills USA, etc. Even though this is a small department, they are always represented at promotional events, and in this respect faculty go above and beyond the call of duty.
* The doubling of completions reported by the department in the first section of the self-study is impressive enough – but what is even more impressive is that it was such an excellent example of responsiveness to industry need. The CNC certificate was proposed by the Advisory Committee as a shorter alternative to the training provided in the STEP II program, and it has been a real win-win in terms of meeting employer needs quickly while substantially increasing completions for the department. The dynamic between the department and its Advisory Committee is exactly how these relationships ideally should function, and it is to the department’s credit that it is so open to the suggestions of its Advisory Committee and so willing to take bold steps in following those suggestions. Well done!
* This department has a unique problem – whereas other departments may struggle to place their graduates in high-paying jobs, this department provides such valuable skills that it has a difficult time retaining students to completion because the employment opportunities are so compelling. It is a strong indication that there is a need the department is meeting, that the education and training it provides are valued by local employers and making a difference in the lives of its students.
* The department has been justly praised for its work with the hybrid version of Basic Machining for the TAACCT grant. Feedback indicates that the department truly went above and beyond in developing and implementing the hybrid version of the program for the purposes of the grant.
* The department maintains a close relationship with its Advisory Committee. The level of engagement is such that the Advisory Committee had substantial input into the development of the self-study, which is highly commendable.
* When new techniques and technologies in their field arise, the faculty appear to be very good at incorporating these technologies into their courses. The prime example is the way that 3-D printing was embedded in existing courses to ensure that students in the program were exposed to it.
* The department utilizes the Division Internship Coordinator extensively, and through this collaboration they have strengthened relationships between students and potential employers. Of particular note is the Meet and Greet that was organized by the department and the Division Internship Coordinator, which brings students and employers together and is an improved approach to organizing internship opportunities for the students.
* The Review Team greatly enjoyed the demonstration of the air motor during the meeting with the department - that was a nice touch, and helped make some of the work that the department does more tangible.

**Recommendations for Action**:

* In the discussion with the Review Team, a great deal of time was devoted to discussion of the retention rates in the STEP II cohorts. This is problematic because empty seats in the cohort due to dropouts impact enrollment in subsequent courses in the program. Several possible solutions were suggested in the meeting with the Review Team, and the department is strongly encouraged to explore the best of these suggestions and pilot an approach within the next two years. One suggestion was to have a delayed start course in the Step II program that begins on a the 12 week schedule, which would allow for an additional small cohort to provide replacements for students who have dropped out, allowing the cohort to continue in the second semester with a full contingent.
* The department is in the unusual position of having too many employer needs and too few students to meet them. The faculty already go above and beyond in their involvement in recruitment activities, so what else can be done to attract more students to the department’s programs? How can we better align the number of students we are providing with the needs of employers? Given the current marketing situation at Sinclair, what innovative approaches could be adopted to make students aware of the abundant opportunities for high-paying jobs that are presented by these programs? Could Competency-Based education and/or more flexibility in scheduling labs allow the department to increase the capacity in these programs of study? Would adopting the schedule that AUT uses where students spend 8 weeks in class then 8 weeks in internships every term perhaps increase the capacity of these programs? There are strong and clear indications that there will be unmet need in local industry unless we can attract and support more students in the programs that the department currently produces.
* Given the close working relationship and valuable feedback that the department receives from its Advisory Committee, the department is encouraged to share this Commendations and Recommendations document with its Advisory Committee for their validation and input.
* With the wide open opportunities in this field of study, it is inevitable that other educational providers will begin offering programs in this area. One nearby community college already has. The department is strongly encouraged to monitor both existing and emerging competitors, and develop strategies – particularly in regards to marketing – to protect and perhaps enhance Sinclair’s market share. We should not assume that students will not select one of our competitors, even if their programs are less rigorous and do an inferior job of preparing students for the workplace.
* The Review Team wondered whether a program in 3D Printing would be appropriate. The department has done a phenomenal job of incorporating this relatively new technology into its existing course offerings, but should carefully consider whether at some point a separate program for 3D Printing would be needed to prepare students for specific high-tech jobs in the area.

**Overall Assessment of Department’s Progress and Goals**:

The department did a superb job with this Program Review. The self-study was open, honest, and provided an accurate picture of where the department is and where it is heading. There were so many things in both the self-study and the conversation with the department that the Review Team found impressive. It is a department with strong, longstanding connections to the community that closely engages its Advisory Committee and other employers and acts on the information it receives them. The department provides such valuable, marketable skills to its students that it has great difficulty retaining them to program completion because the students can get such high-paying jobs without completing their programs of study. It is a high-functioning department, that to all appearances collaborates effectively as a team. The individual faculty appear to be highly integrated, coordinated, and benefit greatly from the leadership skills of the chairperson, who has a reputation for being accommodating and easy to work with in interactions with stakeholders.

The private sector experience of the faculty is a great benefit to the students in their programs, and adds an extra dimension to the preparation that students receive. Not only are the faculty experienced, they keep abreast of new technologies as they emerge, 3D a printing being an excellent, recent example of this.

The innovation and responsiveness of the department in meeting employers' needs deserves high praise, and the Review Team found much to commend in the self-study. Most of the Recommendations the Review Team provided centered around recruiting more students and increasing program capacity to attempt to meet the extraordinary demand that is projected in the occupations the department's programs prepare students for. The department prioritized the goals and recommendations from the previous Program Review, and the Review Team has every reason to expect the same will be true of these recommendations in five years. This is a department that is doing the things it needs to be doing to remain relevant and competitive.

**Institutional or Resource Barriers to the Department’s Ability to accomplish its Goals, if any**:

* Advertising and marketing are perennial concerns for most departments undergoing Program Review, and given the shortage of students to meet industry need it is certainly true for this department. It should be pointed out, however, that Marketing at Sinclair as it is currently structured and resourced may not be positioned or empowered to provide the kind of support that departments are clamoring for. It may be time for Sinclair to have some serious conversations about the position of Marketing in the organization and whether the current structure has the capability to meet stakeholder expectations. Might devoting substantially more resources to Marketing pay dividends in terms of recruitment and enrollment growth?
* This department has noted the rise in potential competitors in the area, which is natural given the unmet industry need. How can Sinclair help its departments monitor and appropriately respond to increased competition? What guidance and resources could be provided? Given the loss of market share to competitors in recent years, our current approach may not be doing what we need it to if we are to maintain market share and be the college of choice in Montgomery County.
* The department noted opportunities for growth in Warren County - opportunities abound in that county, and Sinclair may need to carefully consider which opportunities would provide the best options that align most with the institution's mission. Given that resources are limited and Sinclair cannot pursue every good opportunity in Warren County, it will need to find ways to prioritize the best ones.
* This is a smaller department, with comparatively few resources. With all the expectations placed on chairpersons and faculty, it is easy for departments to become stretched thin. How can Sinclair help ensure that its smaller academic departments are not overburdened and pulled in too many directions?
* This is a department that does an excellent job preparing students, yet has too few students to meet employer needs in the area. What resources would be needed from the institution to help fix this bottleneck, and how can we assess in advance the return on investment for the resources we might commit to this endeavor?