

January 6, 2010

MEMORANDUM

TO: State Board of Regents

FROM: William A. Sederburg

SUBJECT: Dixie State College–Associate of Applied Science in Operations Management–Action Item.

Issue

Officials at Dixie State College request approval to offer an Associate of Applied Science Degree in Operations Management, effective Fall Semester 2010. This program was approved by the Dixie State College Institutional Board of Trustees on September 18, 2009, and was approved by the Regents' Program Review Committee on November 18, 2009.

Background

Dixie State College proposes to expand its business-related programs by developing an Associate of Applied Science Degree in Operations Management. This AAS degree is designed to provide students with a strong applied foundation in the management of activities and processes directly associated with the conversion of inputs (materials, labor, and energy) into outputs (good and services). Operations management focuses on carefully managing the processes that produce and distribute products and services.¹ It encompasses a wide variety of activities, including strategic planning, new product or service development, production, distribution, work design, supply chain management, recycling and sustainability, customer service, storage, transportation, and logistics. The impetus is on efficiency and effectiveness.² With approximately 50% of all jobs being directly related to operations, the addition of this degree helps meet real and urgent business need.

The main purpose of an AAS degree in Operations at Dixie State College is to respond to the needs and demands of Washington County businesses, particularly in the manufacturing and service industries, to obtain or develop qualified operations managers. The AAS in Operations Management has been designed By Dixie State College (DSC) to build on a Manufacturing Technology Certificate that is being offered by the Dixie Applied Technology College (DXATC). A number of Manufacturing

¹ McNamara, C., 2009.

² http://managementhelp.org/ops_mgnt/ops_mgnt.htm

programs in the Washington County area have chosen employees to attend the Manufacturing Technology program at DXATC in order to gain additional skills. Students completing the Manufacturing Technology program would then have the opportunity to complete an AAS Degree in Operations Management at DSC and ultimately an emphasis in Operations Management in the proposed DSC Integrated Studies B.S. Degree.

Policy Issues

Other Utah System of Higher Education institutions have reviewed this proposal, have given input, and are generally supportive of Dixie State College offering this degree.

Commissioner's Recommendation

The Commissioner recommends that the Regents approve the Request to Offer an Associate of Applied Science in Operations Management at Dixie State College, effective Fall Semester, 2010.

William A. Sederburg, Commissioner

WAS/GW
Attachment

Academic, Career and Technical Education and Student Success Committee

Action Item

Request to Offer an Associate of Applied Science Degree

in Operations Management

Dixie State College

Prepared for
William A. Sederburg
By
Gary Wixom

January 6, 2010

Section I

Dixie State College of Utah requests approval to offer an Associate of Applied Science Degree in Operations Management, effective Fall Semester 2010. This program was approved by the Institutional Board of Trustees on 09/18/09.

Section II: Program Description

Complete Program Description: Dixie State College proposes to expand its business-related programs by developing an Associate of Applied Science Degree in Operations Management. This AAS degree is designed to provide students with a strong applied foundation in the management of activities and processes directly associated with the conversion of inputs (materials, labor, and energy) into outputs (good and services). The most unique feature of Dixie State College's program will be the career ladder approach to education and training that is specifically designed to prepare non-management employees for supervisory and management positions. The degree is in response to expressed need and demand of local manufacturers and other industries, K-12 educators, the Dixie Applied Technology College, the Department of Workforce Services, and the community, including those responsible for encouraging economic development.

Operations management focuses on carefully managing the processes that produce and distribute products and services.³ It encompasses a wide variety of activities, including strategic planning, new product or service development, production, distribution, work design, supply chain management, recycling and sustainability, customer service, storage, transportation, and logistics. The impetus is on efficiency and effectiveness.⁴ With approximately 50% of all jobs being directly related to operations, the addition of this degree helps meet real and urgent business need.

The AAS in Operations Management will include 30 credit hours in core operations courses, 17 credit hours in general education courses, and 16 credit hours of electives. The program provides courses in operations management, quality control, safety, leadership, applied business finances; as well as courses specific to an emphasis area, such as manufacturing, construction or service operations. Students will be encouraged to continue on the education and career ladder track to a bachelor's degree. Elective courses in baccalaureate pre-requisites and business-related areas will be recommended.

The Dixie State College Associate of Applied Science in Operations provides four important elements:

1. An associate of applied science (AAS) degree with an emphasis in operations management.
2. A career ladder model of development and seamless educational progression that takes students from their current work to an associate of applied science, and then for those wishing to pursue further education, on to a bachelor's degree. Students will be able to acquire practical, applied management skills throughout the process. For students choosing to further their management education and credentials, it is anticipated that a baccalaureate degree in Integrated Studies with an emphasis in Operations Management will be developed at DSC.
3. Partnerships with local industry to provide education and training for outstanding incumbent workers, enabling them to progress to management level positions.

³ McNamara, C., 2009.

⁴ http://managementhelp.org/ops_mgnt/ops_mgnt.htm

4. Expansion of partnerships with Washington County School District and Dixie Applied Technology College to develop articulated technical management career pathways for grades 9-12 and ATC students interested in applied technical fields that can serve as stepping-stones to baccalaureate college degrees.

Education and training in Operations Management is designed to lead to employment or advancement to managerial positions in any organization concerned with efficient production of quality goods and services. The DSC program will also prepare students to work in specialized production and service fields such as planning, inventory control, quality control, lean manufacturing, and purchasing/supply management.

Purpose of Degree

The main purpose of an AAS degree in Operations at Dixie State College is to respond to the needs and demands of Washington County businesses, particularly in the manufacturing and service industries, to obtain or develop qualified operations managers. In an effort to increase educational and training opportunities, support economic development, and expand operations management capacity in Southern Utah, Dixie State College proposes a program that will:

- Goal 1. Provide industry standard, applied operations management education and training;
- Goal 2. Provide a career ladder approach to operations management education, beginning at the applied management level and advancing to the baccalaureate level;
- Goal 3. Partner with local firms in providing industry responsive, practical, in-class and on-the job training and education related to operations management;
- Goal 4. Partner with the Washington County School District and the Dixie Applied Technology College to develop articulated career pathways to degree programs for students in grades 9-12 and at the ATC.

The anticipated outcomes are in line with the stated goals. Short-term outcomes are: to increase educational and training opportunities in Washington County; to increase partnerships with local industry; to increase future employment possibilities for middle, high school and ATC students with interests in operations management. Intermediate outcomes are: to satisfy local industry needs for managers that not only have industry-related technical skills, but also sophisticated operations management skills, and to provide a career ladder for employees working in technical fields. Long-term outcomes are: to increase economic development in Washington County by attracting businesses to an area that proactively supports industry with education, and to increase the productivity and global market competitiveness of local businesses.

Institutional Readiness

Dixie State College has a long history of providing excellent technical and business management courses. DSC is a state designated provider of post-secondary technical education for Washington County. The success of the program is dependent on existing strong community support and partnerships. DSC has established extensive partnerships with local businesses, having developed workers and training to meet their needs. With the intent to strengthen its service, DSC plans to expand its business programs to include additional courses in operations-related specialties.

For the AAS in Operations Management, Dixie State College will offer the introductory operations courses, while also offering the option for a seamless transition from DXATC, with minimal redundancy of coursework, for those completing the DXATC manufacturing program. DSC will also promote continuation on the career and educational track for development of managers with technical and operations management skills. Based on its capacity and designated authority, DSC will award the related associate of applied science and bachelor's degrees. An anticipated Integrated Studies baccalaureate degree emphasis area in Operations Management will provide the necessary flexibility and practicality of a baccalaureate degree that suits clientele needs and the industry model of career development.

Dixie State College's AAS in Operations Management will be developed and supervised by the Dean of the Udvar-Hazy School of Business. This position is currently held by Dr. William Christensen. Dr. Christensen has a doctorate in Business Administration with a specialization in supply chain management, logistics, management and international business. He also has extensive experience working as an operations manager for several Fortune 500 companies and teaching operations management courses at Michigan State University, Oklahoma State University, and DSC. The Chair of the Business Department, Dr. Philip Lee, is also a veteran of business education and will be involved in developing the program's business management courses.

Faculty

The students needing general education courses at DSC can be assimilated into regular general education classes. The operation management courses will be taught by existing faculty, as long as the teaching load can be sustained. One additional faculty position is made available for two years by a manufacturing training grant from the Department of Labor. As enrollments continue to increase, additional business faculty will be needed. Special technically related management courses in manufacturing may require DSC to contract with qualified adjuncts.

Staff

Current secretarial staff from the Udvar-Hazy Business School will be able to fulfill office duties for the AAS in Operations Management program. With the addition of program students, the Business School's student advisors' workloads will be monitored to determine if additional advisement staff will be needed.

Library and Information Resources

Dixie State College already has a bachelors in business administration for which it has fully developed library resources. Due to the pre-engineering and business courses already in place, the College also has sufficient materials to cover the general science, mathematics, and other lower division course needs of related specialty areas in manufacturing. DSC has a modest collection to support specific related topic information for operations management, mechanical engineering, human resources management, manufacturing, business law, safety, and business computer applications.

Students can access online library resources from home, work or on campus. There are ten-student computer labs on-campus with full internet capabilities. Available online databases in which students can access full text articles include Academic Source Premier, Business Source Premier, Science Citation Index, Web of Science, JSTOR, Global Search, Computer Source, LexisNexis Academic, *ProQuest* newspapers, *Salt Lake Tribune*, and *Vocational and Career Collection*. Most academic and professional literature related to operations management is included in the Business Source Premier and Academic Source Premier. Students are also able to borrow from other Utah libraries through Utah's Catalog.

The library liaison to the Business Department provides assistance for faculty in making new library acquisitions, orienting students to accessing databases, and developing discipline-specific reference handouts. Reference librarians are available online for students 24 hours a day, 7 days a week. The library budget for management-related resources will be periodically assessed and updated to include new relevant resources.

Admission Requirements

Admission requirements for entering the AAS in Operations Management will be the same as those required to enter Dixie State College. Transcripts from high school and previously attended institutions of higher education, plus ACT or SAT test scores are required. There is no minimum GPA or SAT/ACT test score requirement. There is an admission application and fee.

Student Advisement

In close collaboration with the local school district and applied technology college, students will be able to access advisement related to the AAS in Operations Management program from middle school counselors all the way through to Dixie State College (DSC) advisors and faculty. At DSC, each division has discipline-specific advisors who can provide detailed and current information to prospective and attending students. The School of Business also tracks and mentors declared business students.

Justification for Graduation Standards and Number of Credits

The AAS degree in Operations requires 63 credits, which is within the 63 to 69-credit range of Regent policy R401.6.5. The credit hours also satisfy all the DSC general education requirements for an Associate of Applied Science degree. The program's required courses cover generally recognized areas of competency for operations management. Competencies were developed referencing the Department of Labor's advanced manufacturing competency model.

External Review and Accreditation

DSC, the Department of Workforce Services, DXATC, outside industry trainers, and local manufacturing industry upper-level management were involved in program skill and competency identification and standards development. The competencies of the AAS in Operations Management were presented to the Department of Labor for its Community-based Job Training Grant in Advanced Manufacturing and approved, as receipt of the grant award of \$2,000,000 would indicate. The AAS in Operations Management also meets all of the Northwest Commission on Colleges and Universities' standards.

The program advisory committee includes: one DSC School of Business representative; the Director of Economic Development; one industry representative, currently the HR Director of Blue Bunny; a regional representative of Department of Workforce Services; the Director of the DXATC Manufacturing Training program; the Director of Custom Fit; the President of DXATC; and the President of SWATC.

Projected Enrollment

Initially the program will admit an annual cohort of 20 to 25 students. Each cohort, typically working fulltime and attending college halftime, is expected to take approximately 10 semesters or 3 years to complete the AAS degree. For students transferring with 30 credits from DXATC, the AAS should take approximately 5 semesters or 2 years.

Year	Student Headcount	# Faculty	Student-to-Faculty Ratio	Accreditation Req'd Ratio
1	10	1 FTE	20:1	N/A
2	20	1 FTE	20:1	N/A
3	30	1.5 FTE	20:1	N/A
4	40	2 FTE	20:1	N/A
5	40	2 FTE	20:1	N/A

Expansion or Extension of Existing Program

This program builds on the existing traditional business administration program at DSC, much like accounting or marketing. Although operations courses are currently offered as electives for business majors in the baccalaureate degree program, those courses are at the upper division level. The AAS degree in Operations will make operations management education and training available at the introductory and intermediate supervisory levels. The curriculum and pedagogical approach to this degree will be inquiry-based and applied. These features of the program are in response to local, as well as national, employer need and demand. The DSC Operations program also clearly develops or extends from the DXATC program in Advanced Manufacturing.

Section III: Need

Program Need

Since 1970, the population of Washington County has grown from 13,900 to 134,000.⁵ Washington County, Utah, for the past decade, has been one of the fastest growing counties in the nation. In 2008, St. George was ranked the second fastest growing metropolitan area in the U.S., down from the previous year's number one ranking (March, 2008, US Census). St. George consistently ranks in the top ten on lists of the best places to live and it was recently ranked as the second best city in the nation for business.⁶ Contributing factors to the region's exceptional attraction and growth are its temperate climate, low crime and pollution, beautiful scenery, recreational opportunities, redundant fiber optic voice and data communications, accessible interstate transportation, business-friendly government, and accredited technical and community/state colleges. Though the current recession has caused a slowdown of immigration, the county is still growing, and is projected to resume its exceptional growth rate when the recession is over. With population growth typically comes some measure of economic growth, with expansion of not only quantity, but types of businesses. Due to aggressive marketing, Washington County is experiencing an increase in the number of manufacturing businesses. Dixie State College must respond to increasing need and demand for highly skilled workers, particularly in technical and management areas.

⁵ Utah Office of Planning and Budget, 2008

⁶ Inc.com, July, 2008

Labor Market Demand

In 2007, Washington County and State surveys were conducted, asking businesses about their employment and training needs.⁷ Of those 345 upper-level managers surveyed, 78% for the State in total and 79% for Washington County, indicated that they had either a “somewhat hard” or “very hard” time finding qualified, skilled job applicants. The area of greatest training need indicated by both total statewide and Washington County respondents was for “professional development” which was defined as supervision, quality management and leadership training. The training level indicated was moderate to high need. The training area most likely to be outsourced by the total State (59%) respondents was ‘professional development’. For Washington County respondents, professional development training (67%) came in second behind computer skills training (70%) as the area most considered for outsourcing.

DXATC’s Custom Fit Training Director has identified manufacturing training of managers as a critical need presented to them by local manufacturing companies. In response they have developed a successful advanced manufacturing training program for local industry, for which DSC is the higher education partner. A \$2,000,000 grant awarded by the Department of Labor for this training program verifies the importance and realized need for such training.

In 2007, a leading glass manufacturer, newly established in Washington County, began to receive customized training from the Custom Fit Training arm of Dixie Applied Technology College. Encouraged by the quality of training, expertise and interest of DXATC, the company managers initiated negotiations to provide on-going, systematic training and continued education for its management capable employees. Over the past few months, other manufacturers in the area have also shown interest in the development of an advanced manufacturing skills training and education program, which will allow their star employees to advance. Of particular note by employers is the need to recruit and advance minority employees.

Advanced Manufacturing is identified by the Department of Labor as a high growth industry. The Employment and Training Administration (ETA) has, therefore invested over \$120 million in the advanced manufacturing industry in recent years. Dixie Applied Technology College and Dixie State College were awarded a \$2.16 million grant in February 2009, from the ETA to pursue development and implementation of an advanced manufacturing training and education program. A key feature of the Community-Based Job Training (CBJT) Grant that was awarded is the establishment of strong partnerships with local industry representatives. These partnerships have been established in the Southern Utah Five County area and thus far, the partnering companies have committed to leverage \$1,271,320.

The Department of Labor notes the following three reasons for establishing manufacturing training and education programs in our public colleges:

1. The manufacturing sector continues to account for 14 percent of U.S. GDP and 11 percent of total U.S. employment. Moreover, manufacturing firms fund 60 percent of the \$193 billion that the U.S. private sector invests annually in R&D. (U.S. Department of Commerce)
2. Manufacturing salaries and benefits average \$65,000, higher than the average for the total private sector. Two factors in particular attract workers to manufacturing: higher pay and benefits and opportunities for advanced education and training. (National Association of Manufacturers)

⁷ Bryant, 2008. Complete survey results are in Appendix E, page 30.

3. A 2005 survey of U.S. manufacturing employers found that 80 percent of respondents said that they had a serious problem finding qualified candidates for the highly technical world of modern manufacturing. (National Association of Manufacturers)

Appendix D includes letters supporting the need for such a program from Cabintec, Viracon, Blue Bunny, Utah Department of Workforce Services, Washington County Economic Development Council, and Dixie Applied Technology College.

Student Demand

It is difficult to quantify the number of potential students for this program, but there are several indicators of interest among students and potential students. Construction-related businesses and the Southern Utah Builders Association state that they have a need for construction (operations) managers; they also state that they want management training for current employees. Local manufacturing companies for which manufacturing management training is being provided by the DXATC and DSC through a Department of Labor grant have waiting lists for program participation.

Similar Programs

Virtually all of the four-year colleges and the universities in Utah have management certificates and degrees. Dixie State College is expanding its management training by developing an Associate of Applied Science Degree in Operations Management. Unique features of Dixie State College's program will be the operations emphasis and the career ladder approach for training that prepares non-management employees for supervisory and management positions. DXATC provides a program that emphasizes technical competency building in special skill fields such as advanced manufacturing. They also provide introductory level supervisory or management skills. Dixie State College will provide an AAS in Operations Management that includes introductory and intermediate operations management training, as well as general education.

Other USHE AAS degrees in manufacturing operations or business are:

- Weber State College offers an AAS degree in Manufacturing Engineering Technology, which emphasizes engineering technology, rather than operations management.
- Snow College has an AAS in business management, which is aimed at students who wish to start their own business, work in a family-owned business or in a small business.
- Utah Valley University and the College of Eastern Utah have general AAS degrees in business management or administration.
- Salt Lake Community College has a general AAS in Business Management, but it also offers a degree more in line with the proposal of Dixie State College: an AAS in Business Management/Production Operations and Supply Chain Emphasis. SLCC's Production Operations emphasis focuses on general management as well as production operations, supply chain, quality and lean principles required of production of goods and services, as will Dixie's program.

The justification of Dixie State College establishing an AAS in Operations Management program is fivefold:

- 1) DSC serves an area that has been and will be among the fastest growing areas in Utah and in the nation, both in population and in businesses.
- 2) There is a local need for operations managers that is not being met by other institutions of higher education.
- 3) The program is unique in its operations management focus.

- 4) The program establishes a unique collaboration and career ladder model with Dixie Applied Technology College, the local expert in technical education.
- 5) Dixie State College appreciates the importance of working with the Washington County schools and DXATC to educate, inform and broaden career opportunities for students interested and skilled in technical fields, particularly in those careers that are high demand and high pay.

Collaboration with and impact on other USHE institutions

The AAS Operations degree was born of a cooperative effort between Dixie State College, the DXATC, and local businesses. The curriculum was established based on the expressed needs of local industry, as well as a review of similar programs in the region. The Salt Lake Community College program was particularly helpful in providing a template for the DSC proposal. Although no formal external academic review has been commissioned, the \$2 million Community-Based Job Training Grant that was obtained to assist with program development incorporated a rigorous review of the proposal.

An AAS in Operations Management program at Dixie State College will be founded on the value of collaboration with our local educational institutions, which will result in optimal education and training provided by the appropriate educational institutions at suitable times to meet the needs and abilities of interested students.

Due to the high demand for manufacturing managers, it is not foreseen that an operations management program at DSC will impact enrollment in other Utah institutions of Higher Education. Communication with other USHE institutions will be maintained so that favorable transfer of program courses is available to DSC students, as well as to students from other institutions into DSC's program.

Benefits

Benefits are closely aligned with need for and justification of the AAS in Operations Management program. Besides responding to local and national need for operations managers with additional technical skills in manufacturing, it is perceived that the format of the program will establish an exemplary model of cooperation and coordination of technical educational programs. Students will be able to enter and exit at several professional levels with valuable competencies, certificates and degrees.

Consistency with Institutional Mission

Providing students the opportunity to earn an AAS degree in Operations Management is consistent with the Dixie State College mission as a baccalaureate, associate dominant college.⁸ With its roots as a community college, DSC has long maintained a strong collaborative relationship with its community. It has been a primary mover for economic development in the area. In 1995, Dixie State College was instrumental in establishing the Washington County Economic Development Council, which has since worked closely with established and potential area employers. Partnering with local businesses for management development is a further indication of the College's connections for community service and economic growth. DSC is recognized by the local community as the primary higher educational source, but the College acknowledges that increasing training and educational opportunities for incumbent workers and supplying highly skilled employees is a needed and important part of meeting its mission to serve its community with workforce development.

⁸ DSC Mission, 2005.

Section IV: Program and Institutional Assessment

Program Assessment

Goals: College Education and Training Capacity Building in Operations. In an effort to increase educational and training opportunities, support economic development, and expand operations management capacity in Southern Utah, Dixie State College proposes a program that will:

- Goal 1. Provide industry standard applied operations management education & training;
- Goal 2. Provide a career ladder approach to operations management education beginning at the applied technology level and advancing to the baccalaureate, management level;
- Goal 3. Partner with local firms in providing industry responsive, practical, in-class and on-the-job training and education related to management;
- Goal 4. Partner with the Washington County School District and Dixie Applied Technology College to develop articulated career pathways to degree programs for grades 9-12 students.

Goal 1. Provide industry standard, applied operations management education & training.

- a. Instructional Excellence. This measure identifies the breadth, depth and quality of the instruction students receive, as well as educational opportunities provided for students.

Measurement

- 1. Faculty expertise in subject
- 2. Faculty have required qualifications
- 3. The coursework is sufficient in quality, breadth and depth
- 4. Responsiveness of program to current industry standards and needs
- 5. Assess employer satisfaction with quality of educational product

- b. Assessment. This measure is based upon the program assessment plan, as well as the assessment plan for each course offered by the program.

Measurement

- 1. Existence of a assessment plan for program
- 2. Existence of a assessment plan for individual courses
- 3. Level at which assessment plan is followed
- 4. Evaluate evidence that assessment information is reviewed and used to make program improvements.

- c. Funding Support. This measure determines if the program receives sufficient funding to meet the needs of the program.

Measurement

- 1. Review department expenditures
- 2. Assess whether program requires funding to further its mission
- 3. Determine if program needs are in balance with other programs on campus
- 4. Assess leveraging of industry resources
- 5. Assess grant opportunities, application and award levels

Goal 2. Provide a career ladder approach to operations management education, beginning at the applied technology level and advancing to the baccalaureate, management level.

- d. Quality of career ladder
Measurement
 1. Assess development and maintenance of relevant career ladder
 2. Assess components of career ladder for functionality and quality
 3. Assess student satisfaction with program at all levels
 4. Assess employer satisfaction with student product at all levels
 5. Assess ease of entry and exit at all levels

Goal 3. Partner with local firms in providing industry responsive, practical, in-class and on-the-job training and education related to management.

- e. Development of Partnerships
Measurement
 1. Level of communication with industry members
 2. Assess relationship with Utah Manufacturers Association
 3. Determine if sufficient partnerships are developed to properly represent industry
 4. Assess level of resource leveraging needed of industry partnerships
- f. Quality of Industry Partnerships
Measurement
 1. Determine if key local industry players are partners
 2. Level of commitment of industry partners, such as paying employees' tuition for program, providing for internships, rewarding program graduates with higher salaries
 3. Level of resource leveraging provided by industry partnerships
 4. Level of expert advice and support for program development and content
 5. Number and quality of internships and externships

Goal 4. Partner with the Washington County School District and Dixie Applied Technology College to develop articulated career pathways to degree programs for grades 9-12 students.

- g. Quality of partnership with DXATC
Measurement
 1. Assess effectiveness of communication between institutions and with students
 2. Efficiency and effectiveness of program processes and policies, such as transfer of courses and credit
 3. Assess waste, such as duplication of services and coursework
 4. Assess student program transfer rates from DXATC to DSC and vice-versa
- h. Quality of Partnerships with Washington County School District
Measurement
 1. Assess development and maintenance of grades 9-12 career pathways
 2. Assess partnership with school district and local high school CTE programs
 3. Assess number, quality and success of grades 9-12 career promotion activities

4. Assess transition of students from high school to college programs

Other Assessments for Assuring a Quality Program

- i. Advisement. This measure identifies the adequacy of program advisement for students.
Measurement
 1. Availability of quality advisement at high schools, DSC and DXATC
 2. Completeness of knowledge and information dissemination of career ladder components at high schools, DSC and DXATC
 3. Availability of a lecturer/advisor and the advisor/student ratio
 4. Compare the student/advisor ratio with other departments/programs on campus
 5. Assess advising needs
 6. Assess faculty involvement in advising
- j. Student Orientation. This measure identifies the adequacy of the program's efforts to orient students to the discipline and program.
Measurement
 1. The existence of an orientation plan for new students
 2. Assess operation of the plan
 3. Assess orientation effectiveness in meeting needs of new students
- k. Student Achievement. This measure identifies the appropriate balance between rigor and student achievement.
Measurement
 1. Determine grade point averages for program courses and faculty
 2. Assess course and faculty rigor
 3. Assess student progress to degrees
 4. Assess student non-success rate (C grade or less) for courses and department
- l. Student Preparation. This measure identifies how well students are prepared for a course or for work in this department/program.
Measurement
 1. Identify and analyze relevant correlating information for student success and non-success, such as ATC scores, preparatory course standing, etc.
 2. Examine features of courses with high student failure or low success rates
 3. Assess course pre-requisite requirements and definition of 'adequate preparation' for courses and program
- m. Student Retention. This measure identifies the rate at which students drop out of a program or from courses within a program.
Measurement
 1. Existence of retention plan
 2. Compare initial and final course enrollments
 3. Assess retention rates
 4. Maintenance of follow-up statistics regarding transfer, drop-out rates
 5. Assess response to retention statistics

- n. Student Engagement. This measure identifies the extent to which students are active in the program
Measurement
1. Level of identification with cohort (if exists)
 2. Level of students' familiarity with other students and faculty
 3. Participation of students in extra-curricular program activities
- o. Facilities. This measure identifies the adequacy of facilities adequacy.
Measurement
1. Compare student numbers with existing facilities
 2. Compare existing facilities with accreditation recommendations for facilities
 3. Assess upkeep and adequacy of facilities
- p. Recruitment. This measure identifies effectiveness of recruitment practices and any potential barriers to recruitment.
Measurement
1. Identify recruitment numbers
 2. Identify student reasons for choosing and not choosing the program
 3. Assess recruitment interest, non-interest
 4. Identify recruitment barriers
 5. Existence and effectiveness of strategic planning for recruitment
- q. Post-Completion Opportunities. This measure identifies what students do after graduation from the program
Measurement
1. Educational Continuance Measurement - Percentage of graduates who go on to advanced education programs
 2. Employment, In Field Measurement - Percentage of graduates who are hired for employment within the field covered by the degree granted
 3. Employment, Out of Field Measurement - Percentage of graduates who are hired for degree requiring (or equivalent) employment outside the field covered by the degree granted
 4. Employment, None or Temporary Measurement - Identify those graduates who did not go to graduate school and wanted employment, but did not get hired or were hired in temporary positions
 5. Self-selected Unemployment Measurement - Identify those graduates who opt to not pursue graduate school or employment
- r. Economic Sufficiency. This measure identifies economic viability of the typical or average salary for employment provided by this degree.
Measurement
1. Compare salary averages of graduates employed in field with ETA common measures' average adult salary (above \$12,200 for 6 months)
 2. Compare salary averages of graduates employed in field with CIP salary ranges
- s. Alumni Loyalty. This measure identifies the amount of connection felt by program graduates to the college and/or the program.
Measurement

1. Assess percentage of responses from department/program letters, surveys, etc.
2. Dollars donated from graduates of program
3. Number of unsolicited letters of appreciation or other contact from graduates
4. Number of children of graduates who attend DSC
5. Number of graduates who return for reunion

Formative Assessment

The administration of Dixie State College will maintain continuing oversight of the AAS in operations management program, finances and personnel. Because of the pilot and response-to-industry nature of the program, ongoing communication and mentoring with participants and employers will provide formative feedback. As with all existing programs, on-going assessment of student progress will be maintained as is usual in the Business Division.

Summative Assessment

In order to prepare for continuation of a quality program, summative assessment will take place at the end of the program's first years. The program will be assessed according to DSC institutional effectiveness ratings, which include evaluations of:

1. Number of participants
2. Student program continuation and completion rates
3. Value of competencies
4. Learning outcomes of participants
5. Pre- and post-assessment of participants' attitudes and knowledge
6. Quality of program content
7. Quality of program instruction
8. Value-added business assessments by participants
9. Value-added business assessments by employers
10. Level of outreach to under-represented populations
11. Number of referrals to program by participants
12. Participant job placement or job advancement rates
13. Finances
14. Personnel

Expected Standards of Performance:

Competencies for an Associate of Applied Science Degree in Operations

Management Practices and Principles

Operations and project management
 Procurement and supply chain management
 Planning and scheduling
 Cost analysis, estimating and control

Quality Management
 Customer and stakeholder service
 Human resource management
 Health and safety

Business Principles and Practices

Business and employment law
 Economics
 Applied management accounting
 Business computer proficiency

Business communications
 Basic statistics
 Ethics

Basic Workplace Supervisory Skills

Verbal and written communications
 Human relations
 Mathematical computation
 Team dynamics
 Time management
 Problem solving

Critical thinking
 Decision-making
 Conflict resolution
 Presentation
 Leadership

Section V: Finance

Budget

Financial Analysis					
	Year 1	Year 2	Year 3	Year 4	Year 5
Students					
Projected FTE Enrollment	10	20	30	40	40
Cost per FTE (est. 3% annual)	\$3,030	\$3,121	\$3,246	\$3,376	\$3,511
Student/Faculty Ratio	20:1	20:1	20:1	20:1	20:1
Projected Headcount	20	40	60	80	80
Projected Tuition					
Gross Tuition (\$2,640/1FTE)	\$26,400	\$52,800	\$79,200	\$105,600	\$105,600
Tuition to Program (est. 31%)	\$8,184	\$16,368	\$24,552	\$32,736	\$32,736
5-Year Budget Projection					
	Year 1	Year 2	Year 3	Year 4	Year 5
Expense					
Salaries & Wages	\$85,000	\$100,000	\$120,000	\$230,000	\$240,000
Benefits	\$30,000	\$35,000	\$42,000	\$80,500	\$84,000
Total Personnel	\$115,000	\$135,000	\$162,000	\$310,500	\$324,000
Current Expense	\$5,000	\$5,000	\$5,000	\$10,000	\$10,000
Travel	\$2,000	\$2,000	\$2,000	\$4,000	\$4,000
Capital	\$0	\$0	\$0	\$0	\$0
Library Expense	\$0	\$0	\$0	\$0	\$0
Total Expense	\$122,000	\$142,000	\$169,000	\$324,500	\$338,000
Revenue					
Legislative Appropriations	\$0	\$58,125	\$121,500	\$232,875	\$243,000
Grants & Contracts	\$115,000	\$57,500	\$0	\$0	\$0
Donations	\$0	\$0	\$0	\$0	\$0
Reallocations	\$0	\$0	\$7,792	\$38,681	\$42,056
Tuition to Program	\$8,184	\$16,368	\$24,552	\$32,736	\$32,736
Fees (\$505.20/1FTE)	\$5,052	\$10,104	\$15,156	\$20,208	\$20,208
Total Revenue	\$128,236	\$142,097	\$161,208	\$285,819	\$295,944
Difference					
Revenue-Expense	\$6,236	\$97	\$0	\$0	\$0
Budget Comments					
DSC does not allocate tuition revenues directly to any program.					

Funding Sources

The program will be funded through state appropriations, tuition/fees, and, initially, through a Department of Labor (DOL) grant. The DOL grant greatly assists by funding one FTE of additional faculty for the first two development years. The grant-funding year is January through December, therefore, the first half year of funding before classes are offered will be used to hire faculty to develop curricula. Grant funding is also providing equipment for two-distance learning send/receive classroom set-ups and training/supporting faculty in creating online courses for the program. The major costs associated with this program are related to instruction, with most of the infrastructure already in place. Several skilled adjuncts have already been identified and employed to teach existing operations courses at DSC (e.g., MGMT3600 Operations Management and MGMT4000 Purchasing and Supply Management) and a broader and deeper list of instructors is being prepared. Of course, in a time of normal budget availability and in keeping with accreditation guidelines an additional full-time operations faculty would be hired. However, given the dire lack of funding, but also considering the urgent and real need of students and industry, DSC will make do with existing and community resources in order to get this program started. As the program grows and as the state and national economies improve, additional state allocations for dedicated full-time faculty will be justified and required.

Reallocations

The needed reallocations for the third, fourth and fifth budget years, totaling \$83,529, will come from the gross revenue of the institution. In the third year, \$6333 will come from reallocation of revenue from the first two years of the program. This amount is part of the \$83,529 reallocation moneys.

Impact on Existing Budgets

No other programs' base budgets will be affected by costs for this proposed program.

Appendix A: Program Curriculum

Course Prefix & Number	Course Title	Credit Hours
Core Courses (18 cr.)		
OPER 1010	Quality Systems & Processes I	3
OPER 2010	Quality Systems & Processes II	3
OPER 1020	Safety and OSHA Compliance I	3
OPER 2020	Safety and OSHA Compliance II	3
OPER 2070	Leadership, Supervision, & Resource	3
OPER 2080	Operational Management	3
	Sub-Total	18
Choose One Specialized Technical Area (12 cr.)		
Manufacturing Management	12	
MAN 1010	Manufacturing Processes I	3
MAN 2010	Manufacturing Processes II	3
MAN 1020	Industrial Maintenance I	3
MAN 2020	Industrial Maintenance II	3
	Sub-Total	12
Required General Education Courses (17 cr.)		
MATH 1010	Intermediate Algebra	3
CIS 1200	Computer Literacy	3
ENGL 1010	Introduction to Writing	3
LIB 1010	Information Literacy	1
ENGL 2010	Intermediate Writing – Special Topics	3
BUS 1060	Pre-employment Seminar	1
BUS 1370	Human Relations	3
	Sub-Total	17
Elective Courses (16 cr.) – any course designated 1000 or above		
If a student is planning of pursuing a higher degree, it is recommended that they take the required		
Social Science (3 cr.)	ECON 1010 recommended	
American Institutions (3 cr.)		
MATH 1050 or above (4 cr.)	College Algebra/Pre-Calculus	
Life Science (3 cr.)		
Physical Science (3 cr.)		
Fine Arts or Communications (3 cr.)		
Literature or Humanities (3 cr.)		
	Sub-Total	16
Tracks/Options – N/A		
	Total Number of Credits	63

Course Descriptions

CIS 1200, Computer Literacy (3 credits)

This course is designed to provide basic computer instruction to complete the computer information literacy requirement as well as the general education computer requirement at Dixie State College. Upon successful completion of the course, students should be able to use computer technology to access, create, analyze, process and deliver information. Hands-on instruction is used to develop those skills through the study of computer concepts, operating systems, e-mail, word processing, spreadsheet, and presentation software. This is also the beginning computer course for CIS and Business majors. The course is a self-paced course that provides flexibility for students to set their own daily schedule to meet section deadlines, however, the student should plan to spend 6-9 hours per week to meet course requirements.

BUS 1060, Pre-employment Seminar (3 credits)

A pre-employment seminar is offered each semester to assist Dixie College students make a successful transition from school to work. The seminar focuses on developing effective job search techniques, job winning resumes and interviews, and career advancement skills. 1 lecture hour per week.

BUS 1370, Human Relations (3 credits)

Focus on the interdependent traits that influence human behavior on and off the job. Assists students in developing interpersonal skills through self-evaluation, methods of conflict resolution, behavioral concepts, effective communication principles, etc. Combines a concern for human relations in the workplace with personal growth and career success. 3 lecture hours per week.

Courses for AAS in Operations Management

OPER 1010, Quality Systems and Processes I (3 credits)

Provides an introductory knowledge of the use of quality systems and processes in manufacturing, including an overview of the ISO 2008 and total quality management (TQM) systems. The course covers standards in evaluating quality and reducing variance in manufacturing products with related experiences focusing on Six Sigma leadership and working toward Greenbelt Six Sigma status for each student. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

OPER 2010, Quality Systems and Processes II (3 credits)

Provides an intermediate knowledge of the use of quality systems and processes in manufacturing. The course continues development of the ISO 2008 and TQM systems and further develops the Six Sigma standards in evaluating quality and reducing variance in manufacturing products. Advanced experiences focusing on Six Sigma leadership and attainment of Greenbelt Six Sigma status for each student. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

OPER 1020, Safety and OSHA Compliance I (3 credits)

Provides a general knowledge of correct safety practices in the workplace, focusing on the characteristics of an effective safety culture, management commitment to safety, defining a value system, OSHA voluntary guidelines for safety management, management leadership and employee commitment to effective safety practices. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

OPER 2020, Safety and OSHA Compliance II (3 credits)

Provides an advanced knowledge of correct safety practices in the workplace with a continued focus on the characteristics of an effective safety culture, including assigning safety responsibilities, behavior-based safety processes, developing a hazard inventory and a hazard protection and control system. Students will learn to conduct effective incident investigations, medical surveillance programs, assessments of safety and training needs, job hazard analysis, and effective measurements of safety status. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

OPER 2070, Leadership, Supervision and Resource Management (3 credits)

Provides a focus on management leadership, including development of accountability, high performing organizations, customer oriented results, shared power, higher involvement, establishing a corporate vision, situational leadership, self leadership, partnering for performance and leading change. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

OPER 2080, Operational Management (3 credits)

Provides an intermediate level knowledge on managing operations in manufacturing, construction and transportation. Topics include understanding competitiveness, strategy, productivity, forecasting products, service design, reliability, decision theory, process selection, facility layout, linear programming, learning curves, supply chain management (SCM), inventory management, scheduling and overall project management. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

Courses for AAS in Operations Management for the Specialized Technical Area of Manufacturing

MAN 1010, Manufacturing Processes I (3 credits)

Provides a general understanding of, and experiences with, commonly used manufacturing techniques including thermal mass-reducing, chemical reducing, consolidation and deformation processes. The course also contains content on the use of lean manufacturing processes and introduction to the Six Sigma standard in evaluating quality. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

MAN 2010, Manufacturing Processes II (3 credits)

Provides a general understanding of, and experiences with, commonly used manufacturing techniques including mechanical, thermal and chemical joining processes, annealing (softening), hardening, surface preparation and surface coating processes. The course also contains content on the use of lean manufacturing processes and Six Sigma standards. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

MAN 1020, Industrial Maintenance I (3 credits)

Provides a general understanding of, and experiences with, commonly used industrial maintenance techniques including basic maintenance principles, service and repair principles, electrical systems, electronics and programming controllers. The course also contains content on the use of total productive maintenance (TPM) and continues to develop the Six Sigma standard in evaluating quality. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

MAN 2020, Industrial Maintenance II (3 credits)

Provides a general understanding of, and experiences with, commonly used industrial maintenance techniques including refrigeration systems, boiler systems, heating, air conditioning and ventilation systems, mechanical systems, fluid power systems, and troubleshooting techniques. The course also contains content on the use of total productive maintenance (TPM) and continues to develop the Six Sigma standard in evaluating quality. The course includes lectures, site visits, laboratory work and supervised on-the-job training experiences.

Specialized Technical Areas

The College has future plans for other specialized technical areas of operations management.

**Appendix B: Program Schedule
Proposed Course Sequence for Required Courses**

Course Prefix & Number	Title	Credit Hours
First Semester		
OPER 1010	Quality Systems and Processes I	3
OPER 1020	Safety and OSHA Compliance I	3
Engl 1010		3
Lib 1010		1
MATH 1010 or higher		3
CIS 1200		3
	Sub-total	16
Second Semester		
OPER 2010	Quality Systems and Processes II	3
OPER 2020	Safety and OSHA Compliance II	3
Engl 2010		3
BUS 1370	Human Relations	3
Elective		3
	Sub-total	15
Third Semester		
MAN 1010	Manufacturing Processes I	3
MAN 1020	Industrial Maintenance I	3
OPER 2070	Leadership, Supervision and Resource Management	3
Electives		7
	Sub-total	16
Fourth Semester		
MAN 2010	Manufacturing Processes II	3
MAN 2020	Industrial Maintenance II	3
OPER 2080	Operational Management	3
BUS 1060		1
Electives		6
	Sub-total	16
	Total	63

Appendix C: Faculty

William Christensen - Program Supervisor – Dean of the Udvar-Hazy School of Business

Education

Ph.D. in Business Administration, Oklahoma State University, 2000.

Ph.D. candidate (ABD) in Supply Chain and Logistics Management, Michigan State University
California State University, Hayward

M.B.A. Management Sciences, 1981.

B.A., East Asian Studies, 1979.

Career Highlights

Dixie State College of Utah, Dean of the *Udvar-Hazy School of Business* – Strategy, Operations, Statistics (2007-present).

Dixie State College of Utah, *Business Professor* – Strategy, Operations, Statistics (2001-present).

MindFlow Technologies, *Director of Solutions Delivery* – linear programming software application for analyzing complex decisions.

Arthur Andersen, LLP *Business consulting*

Whirlpool Corporation, *International Buyer*

Key Publications & Presentations

W. Christensen, R. Germain, L. Birou, "Variance vs. Average: Supply Chain Lead-Time as a Predictor of Financial Performance," *Supply Chain Management: An International Journal* (August 2007).

"Knowledge Management," with Laura Birou, Northwest Supply Management Association, "Bridging the Northwest Supply Chain," Portland, Oregon, February 2004.

W. Christensen, R. Germain, L. Birou, "Build-to-Order and Just-in-Time as Predictors of Applied Supply Chain Knowledge and Performance," *Journal of Operations Management* (July 2005).

R. Germain, C. Dröge, and W. Christensen, "The Mediating Role of Knowledge in the Relationship of Context with Performance," *Journal of Operations Management* (July 2001).

Philip Lee – Business Department Chair - Program Co-Supervisor

Ed.D., Higher Ed. Administration, Northern Arizona University, 2001

M.S., Marketing/Distributive Ed., Utah State University, 1984

B.S., Business Administration/Business Education Composite, 1979

Selected Business Faculty:

Verl Anderson

DBA, Business Administration, Arizona State University, 1985

M.S., Library Science in Systems Management, Brigham Young University, 1973

B.S., Business Administration, Brigham Young University, 1969

Kevin S. Barrett

Ph.D., Accounting, Virginia Tech, 1991

M.B.A., Accounting, Indiana University, 1986

B.S., Accounting, Utah State University, 1982

Debra L. Bryant

Ph.D., Higher Ed. Administration, Cognate in Business Management, University of Nebraska, Lincoln, 2008

M.S.S., Human Resource Administration, 1991

B.A., Psychology, Simon Fraser University, 1980

Robert Huddleston

Ph.D., Voc. Ed./Higher Ed. Administration, Colorado State University, 1981

M.A., Business Education, Northern Arizona University, 1975

B.S., Business Administration, Northern Arizona University, 1971

Nate Staheli

MACC, Accounting, Southern Utah University, 1996

B.S., Accounting, Southern Utah University, 1995

C.P.A., 1996

William O. Stratton

Ph.D., Accounting, Claremont Graduate University, 1977

M.S.B.A., Quantitative Methods (Business), Boston University, 1970

B.S., Meteorology, Pennsylvania State University, 1968

B.S., Statistics, Mathematics, Florida State University, 1966

Adjunct Faculty with Industry & Operations Management Expertise**Steve Carwell**

B.S. in Electrical Engineering, DeVry University, 1977

Owner of Jadestone Consulting

20 years of executive manufacturing experience

Vic Hockett

B.S. Industrial Technology, Southern Illinois University, College of Engineering

Owner of DWC Management Consulting

10 years experience in manufacturing and safety management

Jordan Tracy

B.S. Computer Information Technology, Dixie State College

Six Sigma Blackbelt