

REVISIONS TO DISCIPLINES LIST FORM – FINAL REVISED

PLEASE TYPE

(Note: Only typed forms will be accepted.)

DATE SUBMITTED: Original submitted on 9/30/14. Revision submitted on 10/13/14
(Deadline for submission is September in even years)

DISCIPLINES LIST TITLE: Supply Chain Technology

This proposal is for a New discipline
 Revision to existing discipline

Reason for the proposal Create a new discipline
 Update language in existing discipline to reflect new terminology
 Make minimum qualifications in existing discipline more restrictive
 Make minimum qualifications in existing discipline less restrictive

PROPOSAL LANGUAGE: (If this is an existing minimum qualification, please include the original language and change using strikeouts and *italics*).

The minimum proposed qualifications for faculty teaching this discipline are a bachelor's degree and two years of relevant professional experience; or an associate degree in supply chain technology (preferred), automated systems technician, mechatronics or related discipline and six years of professional experience related to the field. All degrees and units used to satisfy minimum qualifications shall be from accredited institutions. The professional experience required must be directly related to the faculty member's teaching assignment.

PROPOSAL EVIDENCE: Any Disciplines List proposal must have the following evidence, which is essential because it provides the rationale about why the change is needed as well as inform the field that the research has been completed to ensure that the change is necessary. A lack of documentation about the need of Discipline List Revision may cause the proposal to be delayed or rejected by the Executive Committee. Please use the following check list to ensure all you have conducted all necessary research.

Required investigation of the following and statement of findings:

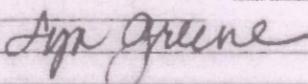
- Contacted an associated professional organization to determine support of proposal
- Included evidence of degrees within the proposed revision of the discipline or new discipline.
- Provided a list of the titles of the degrees and programs to document the need for a new or revised discipline using the below criteria:
 - Minimum of three degrees
 - Regionally accredited institutions (all public institutions in California)
 - Disciplines in the Master's List requires evidence of the availability of masters degrees
 - Disciplines in the Non-masters List requires evidence of the availability of degree, certification, and/or professional experience, if necessary
- Provided statewide need documented by evidence to show a change is necessary and not merely a response to a unique need of one college, district or region. Demonstrated a balance of need across the state and included a discipline seconder from another district.
- Explained the impact of proposal across the state using a list the pro and con arguments and including refutation of the con arguments
- Provided other evidence such as significant changes to the field that requires a change to the Disciplines List.

SUBMISSION

Once a proposal is received by the Senate Office, it is reviewed by staff to ensure that all the information is complete and includes the revision, contact information, appropriate signatures and rationale. The Senate Office will also check to ensure that the proposal has not previously been considered and rejected by the delegates at a plenary session or, if it has, it is supported by a new rationale. The proposal is then sent to the S&P Chair to review the Senate Office information and to ensure that the proposal meets the initial requirements of the Disciplines List review process as well as to verify that the proposal is not being submitted to deal with a district-specific problem that does not apply broadly. If there are any concerns with the proposal, the S&P Chair, working with the S&P Committee, will immediately follow up with the initiator.

The contact person (or a designee) will be required to attend hearings where the proposal is presented. These hearings are typically held at the ASCCC plenary sessions. It should be noted that the contact person is responsible for investigating and documenting the need for changes to the Discipline List.

Please reference the Disciplines List Handbook for information about the process including the role of the initiator, the Standards and Practices Committee, the Executive Committee, and the delegates. This handbook can be found on our website at <http://asccc.org/disciplines-list>.

Contact person (author of proposal) Paul VanHulle
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Seconder (must be from another District) Andrew Henderson
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Signature of College Academic Senate President 
College Norco College
Email lyn.greene@norcocollege.edu Date approved by College Academic Senate 5/5/14
OR
Organization _____
President _____
Date Approved by Organization _____ Phone for President _____


Andrew C. Henderson
Supply Chain Management
Barstow Community College

RETURN FORM TO:

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Rationale for Proposed Change to Discipline List

Purpose of the Request

The purpose of this proposal is to request the addition of Supply Chain Technology as a discipline, whose curricular content would address currently unmet needs within the supply chain technology profession.

Rationale for the Request

According to the U.S. Department of Commerce, 2013 retail e-commerce sales were forecasted to be \$262B and are growing at a double-digit annual rate. In the next three years, e-commerce sales will grow an additional \$75B and are forecast to make up 30% of total U.S. retail sales by 2030.¹ A recent research study, conducted by the National Center for Supply Chain Technology Education found that most firms are using logistics technologies in increasingly more comprehensive ways to meet ever evolving customer requirements.² Although the study demonstrated that the growth of e-commerce was the main factor driving this rapid technology investment forward, e-commerce order size (typically one item), mass customization and immediate delivery expectations on the part of consumers, re-shoring, consumer safety concerns, cost control and competitiveness and the flexibility automated systems provide industry were also found to be drivers in their own right. These drivers are so powerful that, according to the Motorola 2013 Warehouse Visions Report, by 2018 “66% of surveyed firms plan to equip warehouse staff with additional technology and 70% plan to have more automated processes in their warehouse operations”.³

This rapid shift in technology requires the advanced skills of a **supply chain technician**. ***This is a person who installs, operates, supports, upgrades, or maintains the software, hardware or material handling equipment which supports the supply chain.*** These individuals are highly trained, well paid and in demand. Unlike supply chain managers, who address processes, supply chain technicians need to have an understanding of tools, automation, and software systems.

The need for supply chain technicians is projected to grow significantly in the future. Nationally, industries with the potential for supply chain employment counted \$46,617,643 workers in 2013.⁴ Supply chain technology jobs will grow 1.8% nationally from 2013-2016.⁵ The top 10 states with supply chain technology jobs in 2018 (in descending order) will be: California, Texas, Florida, New York, Illinois, Pennsylvania, Ohio, Georgia, New Jersey, and Tennessee. States with the largest projected growth are: California (9.85%), Texas (9.27%), Florida (5.63%), New York (5.61%), and Illinois (5.36%). Employers in California alone estimate they currently employ 32,600 Supply Chain Technicians and employment for this occupation is expected to grow 15% by 2015 in the state.⁶ Most notably, the supply chain workforce in the California Inland Empire of Riverside and San Bernardino counties is estimated at 483,221 with projected 5.3% growth by 2016.⁷

¹ Factors Driving the Adoption of Automation in the 21st Century Warehouse, Steve Harrington, October 2013

² E-commerce & the E-tailing Revolution, Steve Harrington, 2013

³ See footnote 1

⁴ Economic Modeling Specialists International (EMSI), 2014.2

⁵ EMSI, 2014.2

⁶ California Community Colleges' Centers of Excellence Employer Survey, 2013

⁷ EMSI, 2014.2

Researchers have demonstrated that companies with well-run logistics operations and effective supply chains outperform other companies in the national business environment.⁸ Given that business is the economic engine of the national economy, and the critical relationship of supply chain technology to business performance, maintaining the critical national supply chain infrastructure and educating the current and future technician workforce is essential to the economic health of the United States.⁹

The rationale for proposing the addition of Supply Chain Technology as a discipline (as opposed to a program within another discipline) is based upon a number of factors. Its emergence as a high-demand, high-growth occupation and significance to the national economy are certainly noteworthy. The discipline has only recently been defined by the National Science Foundation's National Center for Supply Chain Technology Education after careful research conducted in concert with supply chain technology industry leaders nationwide. The National Center for Supply Chain Technology Education was established in August of 2011 through an investment made by the National Science Foundation. Hosted by Norco College, the Center's mission is to identify and develop skills-based educational pathways, facilitate professional development, and disseminate educational materials with the goal of increasing the number of skilled supply chain technicians to meet the growing national need across the private and public supply chains. The National Center for Supply Chain Technology Education wholeheartedly supports this proposal. This can be confirmed through contact with the Principal Investigator of the National Center project, Dr. Kevin Fleming (Dean of Instruction, Career and Technical Education, Norco College), who may be contacted by calling 951-739-7880 or by email at kevin.fleming@norcocollege.edu. The research conducted by the National Center has identified the requisite skill sets that serve the supply chain technology industry and is being used as a foundational base to develop level I and II national industry certifications in collaboration with Material Handling Industry¹⁰ and Manufacturing Skill Standards Council.¹¹ These skill sets have been identified by the supply chain industry as those a supply chain technician needs to have; these, then, have been incorporated into the model program of study for the very first Supply Chain Technology program in the nation at Norco College. The 37 unit model program includes the following coursework and, combined with general education requirements, will allow students to obtain an associate's degree in this newly proposed discipline.

Introduction to Automated Warehousing	3 units
Mechanics	3 units
DC Electrical	4 units
AC Electrical	4 units
Microprocessors/Microcontrollers	4 units
Technical Communications	3 units

⁸ Council of Supply Chain Management Professionals, 2009

⁹ 'Supplying' Workforce Needs: The Creation of the National Center for Supply Chain Technology Education, Kevin Fleming and Ned D. Young, Ph.D.

¹⁰ MHI is the nation's largest material handling, logistics and supply chain association. <http://www.mhi.org/>

¹¹ The Manufacturing Skill Standards Council (MSSC), a 501(c)3 non-profit, is an industry-led, training, assessment and certification system focused on the core skills and knowledge needed by the nation's front-line production and material handling workers. The nationwide MSSC System, based upon industry-defined and federally-endorsed national standards, is the gold standard for front-line industrial training. <http://www.msscusa.org/>

Blueprint Reading	2 units
Math	3 units
Occupational Safety and Health Administration	2 units
Hydraulics/Pneumatics	3 units
Welding	3 units
Logic Controllers	3 units

Many colleges offer certificates/programs that are a sub-set of the larger, more comprehensive supply chain technology discipline. An example of such programs include:

- Mechanical Maintenance Technology, offered at Long Beach City College
- Industrial Electronics, offered at Cerritos College
- Fluid Power & Automation Technology, offered at San Joaquin Delta

The Mechanical Maintenance Technology program prepares students to repair and maintain mechanical and electrical equipment. Supply chain technology trains individuals to *install, operate, support, upgrade* or maintain *the software, hardware or material handling equipment which specifically supports the supply chain*. Likewise, Industrial Electronics focuses on the electronic component, whereas supply chain technology includes the mechanical and hydraulic/pneumatic components as well. The Fluid, Power & Automation Technology program does not have the electronic component necessary to supply chain technology. The supply chain technology field of study is distinctly more comprehensive in scope and function. Due to the relationship these programs have to supply chain technology (SCT), designating SCT as a discipline would provide a more suitable place for these sub-set programs to reside. The benefit to colleges and students is that these programs would live under a discipline with which they are more closely aligned and of which they are a sub-set. The shared content would facilitate collaboration among the faculty teaching these programs and produce synergies in both instruction and course scheduling. Many of these programs only require the addition or substitution of a few courses in order to establish a new pathway in SCT.

One pro of having Supply Chain Technology as a discipline is that it would more suitably represent its importance within the state's educational system and the state economy. It would also elevate its visibility and draw attention to it as an occupation that serves a global logistics community and provides graduates with a living wage, a high growth career, and continued employment stability.

A possible con is Supply Chain Technology is such a newly emerging discipline, some may not know about it. To combat this, the National Center for Supply Chain Technology Education is working continuously to educate the educational community and others about the discipline. The Center would be willing to give a presentation at any event sponsored by the State Academic Senate.

The minimum proposed qualifications for faculty teaching this discipline are a bachelor's degree and two years of relevant professional experience; or an associate degree in supply chain technology (preferred), automated systems technician, mechatronics or related discipline and six years of professional experience related to the field. All degrees and units used to satisfy minimum qualifications shall be from accredited institutions. The professional experience required must be directly related to the faculty member's teaching assignment. The listing below shows community colleges where associate degrees in related areas are available.

- Supply Chain Technology: Norco College
- Automated Systems Technician: Norco College, Riverside City College, and Sacramento City College
- Electronics Technology : Mechatronics: Allan Hancock College
- Engineering Technology: Mechatronics: Allan Hancock College
- Mechatronics Technology: Sierra College
- Mechatronics: Solano Community College
- Industrial Maintenance Technology: College of the Sequoias
- Engineering Technology: American River College, Antelope Valley College, Bakersfield College, Cabrillo College, Chaffey College, El Camino College, Marin College, Merced College, Norco College, Riverside City College, San Francisco City College, San Mateo College, and Shasta College
- Industrial Technology: Bakersfield College, Cerro Coso, El Camino College, and Mission College

This listing demonstrates that there are many opportunities throughout the California Community College system for individuals to secure the education that is required to teach the discipline of Supply Chain Technology. It also demonstrates that there are many programs that constitute a sub-set of the SCT discipline and would suitably be placed under it.