“Virtual Regional Campus”

SCLTM Education in the Piedmont Triad (A Triad-Wide Articulation Program)

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Acknowledgements

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Piedmont Triad Logistics and Distribution Roundtable
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# Table of Contents

**Executive Summary** ................................................................................................................................. 3

**Course Descriptions** ................................................................................................................................. 6

- Database Management ............................................................................................................................... 6
- Warehousing and Distribution ..................................................................................................................... 7
- Introduction to Transportation .................................................................................................................... 8
- Introduction to Supply Chain ...................................................................................................................... 9

**Virtual Campus Recruitment Plan** ........................................................................................................ 11

- Overall Plan Objective ............................................................................................................................. 11
- Target Audience Recommendations ......................................................................................................... 11
- Recruiting Materials Recommendations .................................................................................................. 12
- Copy Content Recommendations ........................................................................................................... 12
- Scholarship Recommendation .................................................................................................................. 13
- Communications Plan Recommendations ............................................................................................. 13
- Social Media Recommendations .............................................................................................................. 13
- Public Relations Initiatives ....................................................................................................................... 14
- Student Recruitment Initiatives ............................................................................................................... 14
- Advertising Media Recommendations ..................................................................................................... 15
- Budget Recommendation ......................................................................................................................... 15
- Summary ................................................................................................................................................... 15

**Sample Letter of Intent** .......................................................................................................................... 16

- Course Articulation Table ......................................................................................................................... 18

**Replication Process** ................................................................................................................................ 19
Executive Summary

In 2009, the Piedmont Triad Partnership awarded UNCG’s Bryan School of Business and Economics and Guilford Technical Community College a research grant to develop a “Virtual Regional Campus” for Supply Chain, Logistics and Transportation Management (SCLTM) education in the Piedmont Triad Region.

Project coordinators first assembled a team, representative of the entire Piedmont Triad Region, that included members from Community Colleges, public/private four-year academic institutions, and private sector professionals employed in SCLTM. The team conducted research to identify current SCLTM course offerings, not only within the Piedmont Triad Region, but also at other recognized North Carolina educational institutions in addition to nationally respected leaders in the SCLTM field, such as the University of Memphis and Georgia Tech. Upon reviewing these offerings, key faculty representatives from area institutions with the largest SCLTM programs along with business representatives set out to develop a core set of SCLTM courses that collectively impart skills qualifying students for entry-level SCLTM positions within the Triad or provide current employees, already in the SCLTM field, with post-employment career advancement opportunities. With considerable deliberation, the team decided upon a four-course curriculum that will provide students with the skills they need to enter or advance in the SCLTM field. The courses selected are: 1. Introduction to Supply Chain 2. Transportation 3. Warehousing 4. Database Skills. When students complete the four core courses, they qualify for a “Certificate of Career Readiness in Supply Chain, Logistics and Transportation” that will be issued by the North Carolina Center for Global Logistics.

The team also developed an articulation agreement among the participating institutions for these core courses. By doing this, students can take the four core courses at any of the participating institutions in the Region and then apply the credits toward a two year or four year degree program at any one of these same institutions. Articulation of these courses is also beneficial to the participating institutions as they can offer students an expanded offering of coursework relevant to this industry without expanding resources. As opportunities within the SCLTM field continue to grow, non-participating PTR educational institutions can join the consortium and help the PTR better prepare the local workforce for anticipated SCLTM growth.

Once the team developed the four core courses and the articulation process, they presented the proposal to the Region-wide team for review and comment. Incorporated into the proposal were suggested changes. Once amended, the team distributed the proposal to all interested educational
institutions in the Region for evaluation and action. Seven Piedmont Triad Region institutions elected to participate in the Virtual Campus and completed “Letters of Intent” (LOI).

The “Letters of Intent” require each signatory to name a school advocate that will promote the “Virtual Campus” project. The advocate will also incorporate and articulate these courses into the institution’s curriculum. Each “LOI” includes an articulation plan that demonstrates how each of the four core courses will integrate within each institution’s current course offerings. The institution’s advocate will also provide semi-annual updates on course offerings to the Virtual Regional Campus Program Coordinator. Finally, the advocate will meet annually with the Program Coordinator to monitor the articulation agreement and assure continuous improvement of the program and core courses. This agreement provides the necessary structure to assure continuity of the program and a procedural framework for continuous improvement of the program. The participating schools are: 1. Davidson County Community College 2. Forsyth Technical Community College 3. Guilford Technical Community College 4. North Carolina Agricultural and Technical University 5. Randolph County Community College 6. Rockingham County Community College 7. University of North Carolina at Greensboro.

The team also developed an integrated recruitment plan for the “Virtual Campus” that is specifically targeted at high school students and post-employment adult students interested in advancing their SCLTM careers. Anchored by a website, the plan uses a complementary combination of social networking media to “sell” the program. In fact, project team found that utilizing social networking is a crucial component in marketing to current and future prospective students. Traditional marketing materials will, however, supplement electronic and social media. Furthermore, in order for the “Virtual Campus” program to succeed, it is essential that all interested parties are aware of its existence. Therefore, spokespeople for the program must be available to the media for interviews, to visit industry in order to explain and promote the program and to speak to local economic development groups along with Chambers of Commerce and civic organizations.

In order to assist others with similar workforce development projects, the team created a replication process that outlines the formative steps necessary to develop a comparable project for different industries. The team found there were nine crucial steps necessary to replicate the process. The steps developed by the team are:

1. Select a sector that is of interest to a substantial part of the Region, which has significant infrastructure in place that can support the effort and has career growth potential.

2. Choose a team that is representative and includes major stakeholders.
3. Establish timelines and project management principles.

4. Set achievable goals that incorporate flexibility.

5. Conduct background research in the field in order to thoroughly understand the issues, challenges, and competition.

6. Create a dynamic recruitment plan relevant to your audience.

7. Establish a clearly understood and enforced process for obtaining input and feedback from internal and external stakeholders.

8. Develop an agreement that incorporates a method for continuous improvement and a structure that assures continuity.

9. Produce a well-written report and widely disseminate to all possible stakeholders.

In conclusion, not only did the project team successfully develop a four-course SCLTM curriculum along with an articulation and continuous improvement process, but they also developed a replication process to encourage other industrial clusters to copy and produce similar collaborative projects. Most importantly, seven Piedmont Triad Region institutions of higher learning now have a framework to enable the coordination of course offerings in SCLTM, assuring efficient utilization of scarce instructional resources across the Piedmont Triad Region.
# Course Descriptions

## Database Management

### Objectives
- Understand the use of database management in business decision-making.
- Describe the design and use of relational databases.
- Design and build a database using tools such as Microsoft Access.
- Use SQL to create complex queries, generate reports and administer a database.

### Contents
- Data models and basic concepts
- Database modeling
- Normalization
- SQL basics
- Single table queries
- Functions & grouping
- Joining
- Altering the database
- Sub-queries
- Complex joins
- Advanced topics
Warehousing and Distribution

**Objectives**

Describe the changing role of Distribution/Warehousing management and the key influences impacting Warehousing and Distribution as part of the total supply-chain process.

Identify the different types of warehousing and distribution facilities, their functions and operations. Understand the different operational strategies of private, public, and contract warehousing.

Describe, through Case Studies, the critical aspects of Safety, employee relations, Inventory, OSHA Regulations, Government audits, documentation and security.

Describe the technologies and systems used in warehousing and distribution management, such as WMS, Yard management systems, Bar coding, RFID, and ERP systems.

**Contents**

Distribution Centre design & Selection
Physical distribution, Layouts
Material handling
Packaging
Order fulfillment
Order picking design & methods
Customer service
Inventory management
Quality Control
Distribution center security
Global Distribution
Receiving, production stores, and returned goods.
Performance measurement
Best practices in Distribution & warehouse Mgt
# Introduction to Transportation

**Objectives**

- Describe the role of transportation in the supply chain and the economy.

- Define the modes of transportation used in Logistics operations, their cost structures, and trade-offs in choosing transportation modes.

- Understand transportation pricing, management, and strategies from a shipper’s point of view. Define documentation used in transportation

- Describe technology and systems used in transportation

## Contents

- Transportation in the Supply Chain and the Economy
- Transportation regulation and policy
- Motor Carriers
- Railroads
- Air Carriers
- Water Carriers and Pipelines
- Intermodal and special Carriers
- Global Transportation
- Costing and Pricing in Transportation
- Information Management and Technology in Transportation
- Shipper Strategies
- Global Transportation
# Introduction to Supply Chain

## Objectives

Provide an understanding of the role of supply chain management in the context of domestic and international businesses.

Understand the individual components of logistics and their interrelationships within and between firms in the supply chain.

Identify and apply the skills, analytical tools and techniques used to address supply chain management problems and opportunities.

Develop an interest in supply chain management and identify professional opportunities in the discipline.

## Contents

- Overview of Supply Chain Management
- Role of Logistics in Supply Chains
- Global Logistics and Supply Chains
- Supply Chain Performance Measurements and Financial Analysis
- Information Technology
- Demand Management
- Customer Service
- Inventory Management
- Transportation
- Supply Chain Network Analysis and Design
- Procurement
- Supply Chain Strategy
# Common Course Framework

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Intro to Supply Chain</th>
<th>Transportation</th>
<th>Warehousing</th>
<th>Database Skills</th>
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<td>Role of Supply Chain Management</td>
<td>Role of transportation in the SC and economy</td>
<td>Role of warehousing and distribution</td>
<td>Database management in business</td>
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<tr>
<td>Understand Components of Logistics within the Supply Chain</td>
<td>Define Modes of Transportation</td>
<td>Define types of facilities, functions, and operations</td>
<td>Describe relational databases</td>
<td></td>
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<tr>
<td>Apply Supply Chain Management tools</td>
<td>Understand pricing, management, and shipper strategies</td>
<td>Understand safety, employee relations, inventory control</td>
<td>Build and use a database</td>
<td></td>
</tr>
<tr>
<td>Instill interest in SC management as a career</td>
<td>Describe technology and systems used</td>
<td>Describe technologies and systems used</td>
<td>Use SQL for complex queries and reports</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Contents</th>
<th>Intro to Supply Chain</th>
<th>Transportation</th>
<th>Warehousing</th>
<th>Database Skills</th>
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<tbody>
<tr>
<td>Supply Chain Def</td>
<td>Transportation in SC</td>
<td>Facility Location</td>
<td>Data models</td>
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<td>Logistics in the SC</td>
<td>Regulation (EPA, OSHA, etc.)</td>
<td>Distribution center layout</td>
<td>Normalization</td>
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<tr>
<td>Global Logistics</td>
<td>Motor Carriers</td>
<td>Materials Handling</td>
<td>SQL basics</td>
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<td>Performance Measures</td>
<td>Rail</td>
<td>Packaging</td>
<td>Single table queries</td>
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<tr>
<td>Systems Technologies</td>
<td>Air</td>
<td>Order Fulfillment</td>
<td>Functions &amp; grouping</td>
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<tr>
<td>Customer Service</td>
<td>Pipeline</td>
<td>Picking</td>
<td>Joining</td>
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<tr>
<td>Inventory</td>
<td>Water / Ocean</td>
<td>Customer Service</td>
<td>Altering the database</td>
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<tr>
<td>Transportation</td>
<td>Intermodal Transportation</td>
<td>Inventory Control</td>
<td>Sub-queries</td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>Global transportation</td>
<td>Security</td>
<td>Complex joins</td>
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<tr>
<td></td>
<td>Strategy</td>
<td>Performance Measurements</td>
<td>Advanced topics</td>
<td></td>
</tr>
</tbody>
</table>

**Develop Leadership and Interpersonal Skills Needed.** Examples of exercises and activities within each course to develop skills

- Video Case Studies — Interview people on jobs to create framework of problem. Have the student walk through the steps to solve the problem including how to lead the person on the video.
- Group Projects — Learn subject matter while practicing needed interdependence skills of leading and influencing.
- Interviews with people, jobs, and technology
- Case studies to develop analytical/ problem-solving skills
Virtual Campus Recruitment Plan

Prepared by:

- Bernie Yevin, Forsyth Tech Community College, Chairman of the Recruitment Plan Committee
- Sam Troy, Executive in Residence, Bryan School, UNCG

With Input from:

- Dan Freeze, Graduate Assistant, Bryan School, UNCG
- Tom Keller, Director of Marketing, Bryan School, UNCG
- Adam Arney, Instructional Technology Consultant, UNCG
- Michelle Soler, Senior Director, Division of Continuing Education, UNCG.

Overall Plan Objective

The overall objective for the Virtual Campus is to build enrollment. To facilitate enrollment building, the Virtual Campus must first:

- Demonstrate that SCLTM is a viable career path
- Build awareness and name recognition for the Virtual Campus.
- Build awareness for Supply Chain Logistics and Transportation Management (SCLTM) and related areas as viable career opportunities for:
  - High school students and their parents,
  - People who are looking for new career options, and
  - People employed in SCLTM related positions needing further education to advance.
- Show prospective students options for completing either a two and/or four year degree upon completion of the SCLTM Certificate.

Target Audience Recommendations

- High School juniors, seniors and their parents -- Looking for students that are initially unable to go to a two-year or four-year college or may not want to pursue college.
- People that are out of school – further subdivided into two categories:
  - People who want to differentiate themselves from other job seekers by taking basic courses in SCLTM so employers will recognize the Certificate as valid and pay special attention to these candidates for employment.
  - People already employed in the field:
    - Who want to advance in the field, and
    - Whose employers recognize as having promotion potential and want to give them more formal exposure to the overall SCLTM field.

It is envisioned that once students complete the four course Certificate, they will enroll in a two year or four year institution to obtain either an associates or baccalaureate degree.
**Recruiting Materials Recommendations**

**Traditional Recruiting Materials:**

Develop traditional printed enrollment materials including brochures, posters, giveaway items, postcards, etc. These materials include, but are not limited to:

- Material targeted for high school students.
- Material targeted for parents of high school students (easier to target than students as they still use email and read printed materials).
- Materials for high school Career Development Counselors.
- Materials for employers and area faculty teaching courses in the SCLTM field.
- Materials geared toward Workforce Development Offices.

**Non-traditional E-based Materials Include:**

- A Website (either a standalone site or part of the PTCGL – Dave Hauser prefers it be a part of the PTCGL website.)
- An E-based brochure
- A Recruitment Plan specifically utilizing social media

**Copy Content Recommendations**

```
“CONTENT IS CRITICAL AS…CONTENT IS THE NEW CURRENCY” – Adam Arney.
```

To adhere to this cryptic statement, all recruitment materials:

- Must be action oriented and grab attention quickly.
- Need to emphasize career opportunities in the SCLTM field.
- Must stress outcomes – the growing importance of SCLTM and increasing job opportunities.
- Must stress reward – starting salaries, income growth potential, and career security because of the growth of SCLTM professions.

In addition to explaining what SCLTM is, all materials should also point out what SCLTM is NOT.

Each of the participating academic partners of the Virtual Campus should be named with contact information clearly given.
**Scholarship Recommendation**
A financial aid project to locate scholarship funds is essential for generating interest in the Virtual Campus program.

- SCLTM and related industries are key sources of funding for scholarships.
- Size of the scholarships could be in the range of $500 to $600 and they should be awarded **BEFORE** enrollment.
- The annual awards made by the Piedmont Triad Transportation Association are one example of available industry scholarships.

**Communications Plan Recommendations**
Integral to developing and beginning the communications initiative, the development of traditional hardcopy target lists and e-mail lists are vital.

- Utilize commercial mailing lists for direct mailings.
- Utilize self-developed and/or purchased email lists.
- Utilize, as much as possible, existing lists from participating institutions.
- Mail recruitment materials to Chambers of Commerce, Joblink offices, Military Bases, regional Veterans Administration Offices, Regional Employment Security Commission Offices, Regional Logistics and Logistics-related trade groups, regional businesses providing Logistics and Logistics-related services, etc.
- Personally communicate by visiting High School Career Development Counselors, area businesses, etc.
- Participate in regional job and career fairs.
- Materials should be targeted to specifically identified audience segments.

**NOTE:** It is strongly recommended that the Virtual Campus use cross-marketing with all possible related businesses, institutions, etc., by “piggy-backing” on existing communications initiatives currently in place wherever possible. This will allow for broader dissemination of information about SCLTM and the Virtual Campus while maximizing the dollars invested over a broader range of communications initiatives, many of which may be currently in place.

**Social Media Recommendations**
As the targeted audiences are high school students and people just out of school, use of social media is vital to the success of the program. High School students don’t use email and have very short attention spans. UNCG experts recommend that at the very least the Virtual Campus:

- Establish a website.
• Support the use of Facebook.
• Create and maintain a blog or blogs.
• Use Twitter.

As the Recruitment Program progresses, the Virtual Campus may want to expand and use LinkedIn, YouTube, Facebook, and even “Second Life,” a virtual reality interface. **THE KEY TO THE SUCCESS OF A SOCIAL MEDIA CAMPAIGN IS THAT IT IS SUPPORTED BY PEOPLE WHO WILL UPDATE MATERIALS AND CONTENT REGULARLY.** When people talk to the Virtual Campus via social media, the Virtual Campus must talk back or efforts are wasted. **ONCE AGAIN, “Content is the new currency and authenticity is the new branding”...Adam Arney**

**Public Relations Initiatives**

- Send frequent newsworthy press releases to newspapers, TV stations, magazines, radio stations, etc.
- Have spokespeople for the program get on the regional speaking circuit.
- Establish a “news page” on the website and keep it current,
- Organize and hold high quality information events to explain the concept and obtain “buy in” to the program,
- Conduct a consistent, persistent targeted mail campaign as discussed under COMMUNICATIONS.

**Student Recruitment Initiatives**

- Develop a recruitment plan incorporating a coordinated social media effort.
- Establish an Admissions & Recruiting Office for the Virtual Campus.
- Make recruitment visits to high schools and universities.
- Make presentations at local corporations to conduct person-to-person informational meetings with key personnel for “buy in” and support.
- Attend regional education and career fairs.
- Have a presence at professional conferences.
- Establish a network of professionals and professors to serve as a referral service.
• Once the program is launched, establish a network of current students and alumni to serve as volunteer recruiters and spokespersons.

• Develop and grow the scholarship program.

Advertising Media Recommendations

Overall, an effective, low cost advertising campaign can be created for the program if electronic media is emphasized. To be cost effective, emphasis should be placed on radio, outdoor and online advertising media. Specifically:

• Develop an online advertising campaign including search engine advertising and Triad targeted media sites (not just student oriented).

• Place advertisements in student oriented media.

• If budget is available, advertise on local billboards located in high traffic areas.

• If budget is available, use radio based on format to reach targeted audience segments most likely to be interested in SCLTM careers.

Budget Recommendation

In order to attain the adequate levels of awareness, knowledge, and recognition of SCLTM and the Virtual Campus to build and an adequate prospect pool for enrollment, an initial budget of $15,000 to $20,000 is recommended for Year 1. It is also recommended that this budget level be maintained as a minimum for subsequent years in order to maintain consistent levels of communication needed for adequate levels of recognition and awareness to grow enrollments.

Summary

Though it is impossible to create the “perfect” recruitment plan, we feel the recommended strategies and tactics are highly workable, easily implementable, manageable, and will generate initial results leading to the attainment of the identified objectives. If implemented as outlined, this plan will build acceptable levels of awareness of and prospective student interest in SCLTM careers, study at the Virtual Campus through its member academic institutions, as well as third party industry support for this initiative. Since student recruitment is an art, not a science, always keep in mind John Wannamaker’s words: “For every dollar I spend on advertising, fifty cents is wasted. I just don’t know which fifty cents it is.” Allocating the budget over a variety of media will tend to minimize impact of the "wasted fifty cents" resulting in a maximization of investment in communications vehicles by attaining broader reach of intended audiences for SCLTM and the Virtual Campus.
Sample Letter of Intent

(BELOW IS AN EXAMPLE OF A LETTER OF INTENT INDICATING THAT YOUR INSTITUTION WILL PARTICIPATE IN THE VIRTUAL CAMPUS PROJECT FOR SCLTM EDUCATION IN THE PIEDMONT TRIAD)

[Your Name]
[Your Institution]
[Street Address]
[City, ST ZIP Code]

January XX, 2010

Dr. Joy Bhadury
Associate Dean - Graduate Programs and Research
Bryan School of Business and Economics
University of North Carolina at Greensboro
P.O. Box 26165
Greensboro, N.C. 27402-6170

Dear Dr. Bhadury:

This letter is to confirm the intention of our institution, (NAME OF YOUR INSTITUTION), to participate in the Virtual Regional Campus for Supply Chain, Logistics and Transportation Management (SCLTM) Education in the Piedmont Triad. After successfully completing the four agreed upon core courses, students will be awarded a “Certificate of Career Readiness in Supply Chain, Logistics, and Transportation.” It is our understanding that the four core courses agreed upon for articulation within the Virtual Regional Campus (VRC 1-4) are as follows:

(VRC 1) Introduction to Supply Chain Management.
(VRC 2) Transportation Management
(VRC 3) Distribution & Warehousing Management.
(VRC 4) Database Management.

Students have the choice of completing these courses at any one or combination of the partner schools. Individual course grade and credit will be granted by the school where each course is successfully completed. Upon verification of successful completion of the four course sequence, the Certificate will be awarded by the Piedmont Triad Center for global Logistics.

Our participation in the Virtual Regional campus will be demonstrated as follows.
Articulation To The 4 Courses In The Virtual Regional Campus:

(PLEASE NOTE THAT THE BRYAN SCHOOL IS USED ONLY AS AN EXAMPLE. PLEASE MODIFY THE FOLLOWING SECTION TO FIT YOUR INSTITUTION.

Major Course Requirements
The Bryan School of Business and Economics offers a supply chain and logistics concentration within the B.S. in Information Systems & Operations Management major. The specific courses required for the concentration are: ISM 210 (Business Computing II), ISM 218 (Database Management), SCM 304 (Project Management), SCM 306 (Distribution & Logistics Management), SCM 402 (Logistics & Supply Chain Management), and SCM 432 (Supply Chain Management Project). In addition, a student is required to take 3 hours of electives from a list of approved courses.

Proposed Articulation
Subject to the academic regulations governing our institution, we will articulate the 4 courses VRC 1 through VRC 4 as per the attached reference table.

Thus, a student completing the four Virtual Regional Campus core courses VRC 1-4 will receive 12 credit hours toward the SCM concentration at UNCG and will be required to complete only 9 additional hours to satisfy the concentration requirements.

Maintenance of The Virtual Regional Campus
In addition to the articulation above, we also agree to do the following in order to monitor the articulation and keep the course contents updated:

- Once the courses have been finalized and agreed upon by the organizing group, our institution will name an individual to serve as an advocate at our school who will work to incorporate the Virtual Regional Campus Core Courses into our institution’s curriculum and assure articulation.
- Our institution’s Virtual Regional Campus advocate will provide updates, regarding the offering of the core courses of the Virtual Regional Campus program, to the Virtual Regional Campus program coordinator on a semi-annual basis. Hence, the Virtual Regional Campus coordinator will remain notified about the offering of the core courses at our institution during the upcoming semesters.
- Our Virtual Regional Campus advocate commits to meeting with the Virtual Regional Campus program coordinator annually to monitor the articulation agreements and to assure continuous improvement of the program and the core courses.
- Our institution will notify the Virtual Regional Campus program coordinator of any change in our assigned advocate for the program or our intention to participate in the program.
• We are aware that other academic institutions will be added under the same articulation scheme.

We look forward to advancing the project at our institution.

Sincerely, [Your Name]

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**Virtual Regional Campus In SCLTM**

**Course Articulation Table**

<table>
<thead>
<tr>
<th>Virtual Regional Campus Course</th>
<th>NC Community Colleges (NCCCS Course)</th>
<th>UNCG</th>
<th>NC A&amp;T SU</th>
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<tr>
<td>(VRC 1) Introduction to Supply Chain Management.</td>
<td>LOG 110</td>
<td>SCM 402</td>
<td>TSCM 340</td>
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<tr>
<td>(VRC 2) Transportation Management</td>
<td>LOG 125</td>
<td>3-CH ELECTIVE CREDIT</td>
<td>TSCM 360</td>
</tr>
<tr>
<td>(VRC 3) Distribution &amp; Warehousing Management</td>
<td>LOG 211</td>
<td>SCM 306</td>
<td>3-CH ELECTIVE CREDIT</td>
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<tr>
<td>(VRC 4) Database Management</td>
<td>DBA 110</td>
<td>ISM 218</td>
<td>3-CH ELECTIVE CREDIT</td>
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Replication Process

A PROCESS TO CREATE REGIONAL PROGRAMS COORDINATING EDUCATIONAL INSTITUTIONS AND INDUSTRY IN ORDER TO PROMOTE CLUSTER/SECTOR DEVELOPMENT

Introduction

In 2009, the Bryan School of Business and Economics at UNCG was awarded a research grant to develop a Virtual “Regional Campus” for Supply Chain, Logistics and Transportation Management (SCLTM) education in the Piedmont Triad Region. A carefully developed team was selected and included representatives from Community Colleges, public and private four-year institutions and private industry. The team developed an articulation program among all interested postsecondary institutions in the Piedmont Triad Region that offer educational programs in SCLTM. Key faculty representatives from area institutions along with business representatives came to an agreement about a core set of four courses that collectively impart skills qualifying students for entry-level SCLTM positions within the Triad or provide current employees, already in the SCLTM field, with post-employment career advancement opportunities. When students complete the four core courses, they qualify for a “Certificate of Career Readiness in Supply Chain, Logistics and Transportation” that will be issued by the Piedmont Triad Center for Global Logistics. Once the students have completed the core courses, they will be able to articulate them to any of the participating organizations and proceed toward obtaining a two-year or four-year degree. Also, built into the project is an agreement among the participating organizations that incorporates a method for continuous improvement and a structure that assures continuity of the program. Finally, the team developed an integrated recruitment plan for the “Virtual Campus” that is specifically targeted at high school students, and post-employment adult students interested in advancing in the SCLTM field. Anchored by a website, the plan uses a complementary combination of social networking media to “sell” the program. Traditional marketing materials will supplement electronic and social media.

Below, we present a step-by-step generalization of the research framework and methodology that was used to implement this research project; specific application of each step in the SCLTM industry research project is illustrated in italics. This framework presented can be used to research business development needs of other clusters/sectors that are of economic significance to the Piedmont Triad Region.

1. Select a sector that is of interest to a substantial part of the Region, which has significant infrastructure in place that can support the effort and has career growth potential.
• When selecting a cluster or sector, an already existing level of synergy for that cluster or sector in the region needs to exist or the project is less likely to succeed. The effectiveness of the study is enhanced if the project has a “champion.” The “champion” can be either a regional organization or an individual. The educational community, the business community, interest groups and economic development organizations must support the base project and see the need for its success. One of the best ways for this to happen is if the participants in the project recognize the success of the project will most likely result in new or better jobs for the region and create opportunities for students graduating from the local institutions of higher learning.

The SCLTM cluster is recognized in the Piedmont Triad Region as one area for job growth. As a result, it is vital to the success of our local educational institutions and to the success of the cluster itself to train students for careers in SCLTM. More importantly, every effort should be made to make it relatively easy for the students to take the courses at a number of area institutions and to make it seamless to transfer the credits among the institutions. In the case of the “Virtual Campus,” public and private institutions are partnering in the effort to create and support the project.

2. **Choose a team that is representative and includes major stakeholders.**

• The selection of the project team is critical to the success of the project and the team must be as representative as possible to include all key stakeholders (educators, industry representatives and industry groups, etc.). Members of the team must have a good working knowledge of the curriculum and be in a position to speak for the group they represent. It enhances the project if some members of the team have previously worked together on past projects.

The “Virtual Campus” team was primarily composed of people who had worked together on related and unrelated projects. Members included people from public and private, two-year and four-year institutions along with representatives from leading private sector supply chain companies. All members have a thorough knowledge of the SCLTM sector and hold positions sufficiently high enough in their respective organizations to speak for them. Many of the members also serve on regional SCLTM related boards and economic development committees. Their service on these boards and committees allowed the team to promote/receive input on the project and obtain buy-in to the concept.
3. Establish timelines and project management principles.

- A project of this type requires the use of sound management principles. Therefore, a project manager should be carefully selected and his/her role fully defined. Ideally, the person selected is well versed in document, financial and resource management. Additionally, the project manager needs to establish open communications among the team members, maintain complete and accurate records, develop consensus and maintain momentum to keep the project moving forward. Lists of available resources should be utilized, tracking of key components such as personnel, facilities, documents, software, funding, etc. In the case of funding, a budget should allocate and track dollars over the project lifetime alongside results expected from this allocation. Each task will have a corresponding budget. The project manager will then track variances of both time and dollars. Research projects that involve industry sectors or clusters tend to require storing a large number of documents. For example, the team needs access to background material on the industry or cluster under study. They also need access to policy and academic documents often including relevant course descriptions and course offerings pertinent to the study. In addition, it is essential the team have available to them the most current versions of all the project documents under development. To fulfill the need for document storage, the project team requires access to document management software. Document management software allows team members from various institutions, private companies and organizations, to easily access, upload, review, edit, and store documents. Additionally, projects of this nature not only require the establishment of a timeline but also strict adherence to that timeline. This necessitates proper project management software or other planning tools.

The “Virtual Campus” team was given a relatively short time to accomplish their task. As a result, a project timeline was developed in two different formats, Microsoft Project and on a Gantt chart. These timeline charts clearly demonstrated that the team would have to work simultaneously on different parts of the project. As a result, each sub-team worked on various parts of the project and posted their progress on KnowledgeTree (document management software). This not only enabled every member of the team to track the progress of the overall project but also provided an easy way to comment on the specific pieces of the project. In addition, regular face-to-face meetings of the “Core” group were scheduled further facilitating discussion and input. The openness of the project helped the team more easily achieve consensus on the various parts of the project. All of these things together, timelines, a central document management system, and open communication kept the project ahead of schedule. In the case of the “Virtual Campus” project, the UNCG program
coordinators met on a weekly basis to review progress, set goals for the week ahead, and maintain momentum.

4. Set achievable goals that incorporate flexibility.

- Establishing realistic and achievable goals for a project are more likely to lead to success. Projects similar to the “Virtual Campus” often will involve multiple organizations with differing opinions. In order to overcome this reality the team must develop a consensus approach to the project and develop goals that incorporate flexibility. The stakeholders involved must agree on overall intent of the project and then figure out how to make it work for the institution they represent. While the delivery of the project may vary at each participating institution, overall goals and project deliverables are consistent.

Achieving success with the “Virtual Campus” SCLTM project required project coordinators to think “outside the box.” Some 15 institutions, all with different articulation and curriculum requirements, had the potential to participate in the project. Project coordinators quickly realized working simultaneously with all 15 was not realistic. Therefore, the coordinators decided to focus on the institutions that had the largest existing SCLTM programs, FTCC, GTCC, NC A&T and UNCG. These four institutions became the “core” members for the project along with three industry representatives. It was felt that once consensus was reached among the four core members, it should be easier to “sell” the other participants on the project and demonstrate how it could work on their campus. The other 11 institutions were not, however, left out of project design. As soon as key parts of the “Virtual Campus” were developed, core courses, recruitment plan, Letter of Intent, etc., they were shared with the other institutions for comment and feedback. As appropriate, their input was incorporated into the project. Program flexibility was also an important component of designing the “Virtual Campus.” While course content may vary slightly at each institution and the courses may articulate differently into each institution, the basic knowledge delivered will be consistent. This assures industry that students are obtaining consistent fundamental knowledge of the SCLTM sector and the students are assured they will receive credit for their work at any participating institution. Ultimately, selecting a team with a common goal and incorporating flexibility into the program allowed the team to design a four-course curriculum, leading to a “Certificate of Career Readiness in Supply Chain, Logistics and Transportation”. Finally, it is important to note that not all of the “potential” institutions ended up participating in the project but this is because they chose not to participate. In fact, until they disengaged from the process, they were continually given the opportunity to provide input into the process and will be sent the final report. As the “Virtual Campus” becomes operational, the “non-participating”
organizations will be encouraged to participate as it becomes practical for their institution.

5. Conduct background research in the field in order to thoroughly understand the issues, challenges, and competition.

- Basic background knowledge about the cluster or sector under study is vital to the successful conclusion of a project. Literature and internet searches are the primary vehicles to obtain this information.

In order to determine what should be included in the “Core” courses, the “Virtual Campus” team researched SCLTM course offerings from institutions throughout the Region, state, and nationally.

- Personal interviews with key stakeholders and experts in the field are essential to the success of the project. Initially, it is important to the success of the project to make sure all stakeholders are given the opportunity to provide input into the project. Subject experts provide the team with the knowledge they need to develop the curriculum.

The “Virtual Campus” team immediately sought out industry executives to determine what SCLTM expertise was needed when companies hire new entry-level employees. Interviews were also conducted with other stakeholders to assure courses developed filled a void that would help the economic development needs of the Region. In addition, interviews were conducted with marketing experts to assure that the recruitment plan for the program used the most effective media for the targeted audience.

6. Create a dynamic recruitment plan relevant to your audience.

- Not only does the project team need to develop an agreed upon curriculum, but they also need to figure out a way to recruit students into the program. Without students, a meaningful curriculum becomes useless. As a recruitment plan is developed, the project team needs to discover who their audience is and develop a plan directed to the targeted audience. In many cases, however, there may be multiple audiences and each of these audiences may respond to a different media form. While a targeted high school audience may respond to promotions utilizing social networking media, their parents may better respond to printed materials. The major problem is that media today is a moving target. What media is relevant today may not be relevant tomorrow; therefore, it is essential to keep up to date and alter your recruitment plan on a regular basis. Finally, an integrated
recruitment plan is key to success – every part of the plan needs to complement and support the other parts of the plan.

A key component of the “Virtual Campus” was to develop a recruitment plan to attract students to the certificate program. After talking with people currently involved in recruiting students into existing programs, it was evident that there are at least three different audiences involved in recruitment: the high school students, their parents, school counselors, and company recruiters. The team quickly learned that each audience reacts to different media. Therefore, an integrated recruitment plan was developed that utilized a wide-spectrum of diverse media. Given the fact that the students themselves are our primary target audience, social networking media is a significant part of the recruitment effort. A website for the certificate program will serve as the primary vehicle to deliver the message, but it will be supported by using a combination of blogs, Facebook and perhaps Twitter. More traditional media forms will be used for the other audiences and to supplement electronic and social media.

7. Establish a clearly understood and enforced process for obtaining input and feedback from internal and external stakeholders.

- Internally, continually post and distribute drafts of the various parts of the project as they are developed. Externally, share and seek input from outside groups to obtain input and incorporate the best ideas into the project letting contributors know you listened to their comments. Make presentations on various parts of the draft plan to related committees and boards that may have an interest to the plan. These presentations will contribute to overall buy-in on the project.

Internally, the “Virtual Campus” team was updated on the project progress by posting documents on KnowledgeTree. This document management system kept the team current on all aspects of the project. In addition, regularly scheduled meetings complemented frequent email communication and document posting. Externally, the Piedmont Triad Logistics Roundtable served as a sounding board for presenting draft parts of the project and as a vehicle to obtain feedback. Once feedback was provided, the project was revised when appropriate. The revised plans were again circulated to demonstrate the team was listening and to obtain further buy-in to the project.

8. Develop an agreement that incorporates a method for continuous improvement and a structure that assures continuity.

- If a project is to succeed for the long term, incorporate into the plan not only a structure for continuity of the program, but also a vehicle for continuous
improvement of the program. This is especially important for accredited institutions if the program is to be recognized. Continuity and continuous improvement also force the program to stay current and meaningful after the initial project is completed.

The “Letter of Intent” (LOI) created by the project team for the “Virtual Campus” requires signatories to name a school advocate that will promote the “Virtual Campus” project and assure courses are incorporated into the institution’s curriculum and assures articulation. The institution’s advocate will also provide semi-annual updates on course offerings to the Virtual Regional Campus Program Coordinator. Finally, the advocate will meet annually with the Program Coordinator to monitor the articulation agreement and assure continuous improvement of the program and core courses.

9. Produce a well-written report and widely disseminate to all possible stakeholders.

- Projects of this magnitude require a significant amount of time to develop but they are only worthwhile and meaningful if the “right” people and organizations are aware they exist. With this in mind, the final project report needs to be distributed to a wide audience; to anyone and everyone that has a stake in the project. The media should also receive copies of the report and spokespeople for the project should make themselves available to the media for interviews. In addition, spokespeople should also volunteer to speak to related organizations to get the word out. The result is that the more awareness of the project the more likely people are to let others know about the availability of the program, promote the program, and recruit students for the program.

For the “Virtual Campus” program to succeed, it is essential that all interested parties are aware of its existence. Therefore, upon completion of the project, the entire proposal including the participating institutions, core courses and the recruitment plan will be widely distributed to all stakeholders, the media, supply chain related industries and economic development groups. Spokespeople for the program will be available to the media for interviews, will visit industry to explain and promote the program and will speak to local economic development groups along with Chambers of Commerce and civic organizations.