COURSE SYLLABUS
Intro EMC/NetApp Storage and Management
ITNW-1492-73426
Spring 2014 Online
Business/Information Technology Learning Center
(972) 273-3450/ Room T119

This course syllabus is intended as a set of guidelines for Intro EMC/NetApp Storage Management. Both North Lake College and your instructor reserve the right to make modifications in content, schedule, and requirements as necessary to promote the best education possible within prevailing conditions affecting this course.

Instructor Information:
Professor: Greg Newman
Email: gnewman@dcccd.edu
Phone Contact: 972-273-3191 Leave message
Office Location: North campus
Office Hours: TBD

Course Information:
Course title: Intro EMC/NetApp Storage Management
Course number: ITNW 73426
Sections number: 1492
Credits: 4
Online Course

Course description: Information Storage and Management is the only course of its kind to fill the knowledge gap in understanding the varied components of a modern information storage infrastructure. Developed in association with EMC Corporation, the world leader in information storage and management solutions, it provides a comprehensive introduction to storage technology. This course will include NetApp Technology course ware.

Course Prerequisites: Must have industry experience in Microsoft Windows Server, XP, Unix, and networking.

Required or Recommended Textbooks and Materials:
EMC
Information Storage and Management Second Edition

Course Objectives:
<table>
<thead>
<tr>
<th><strong>Introduction to Information Storage and Management</strong></th>
<th>Information Storage, Evolution of Storage Technology and Architecture, Data Center Infrastructure.</th>
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</thead>
<tbody>
<tr>
<td><strong>Storage Systems Environment</strong></td>
<td>Components of a Storage System Environment, Disk Drive Components, Disk Drive Performance.</td>
</tr>
<tr>
<td><strong>Data Protection: RAID</strong></td>
<td>Implementation of RAID, RAID Array Components, RAID Comparison.</td>
</tr>
<tr>
<td><strong>Intelligent Storage System</strong></td>
<td>Components of an Intelligent Storage System, Intelligent Storage Array, Concept in Practice: EMC Clarion and Symmetrix</td>
</tr>
<tr>
<td><strong>Direct-Attached Storage and Introduction to SCSI</strong></td>
<td>Type of DAS, DAS Benefits and Limitations, Disk Drive Interfaces, Introduction to Parallel SCSI, SCSI Command Model</td>
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<tr>
<td><strong>Storage Area Networks</strong></td>
<td>Fiber Channel: overview, The SAN and Its Evolution, Components of SAN, FC Connectivity.</td>
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<tr>
<td><strong>Network-Attached Storage</strong></td>
<td>General-Purpose Services vs. NAS Devices, Benefits of NAS, NAS File I/O, Components of NAS, NAS Implementation.</td>
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<tr>
<td><strong>IP SAN</strong></td>
<td>iSCSI, FCIP.</td>
</tr>
<tr>
<td><strong>Content-Address Storage</strong></td>
<td>Fixed Content and Archives, Types of Archives, Features and Benefits of CAS.</td>
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<tr>
<td><strong>Storage Virtualization</strong></td>
<td>Forms of Virtualization, SNIA Storage Virtualization, Storage Virtualization Configuration.</td>
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<tr>
<td><strong>Business Continuity</strong></td>
<td>Backup and Recovery, Intro to Business Continuity, Local Replication, Remote Replication,</td>
</tr>
<tr>
<td><strong>Storage Security and Management</strong></td>
<td>Securing the Storage Infrastructure, Managing the Storage Infrastructure.</td>
</tr>
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**SCANS COMPETENCIES:**

<table>
<thead>
<tr>
<th>Resource</th>
<th>C1.1,C1.3,C1.4,</th>
<th>Allocates Time, Allocates Materials and Facility Resources,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal</td>
<td>C2.1,C2.2,C2.3,C2.4,C2.5</td>
<td>Participates as team member, teaches others, serves clients/customers, exercises leadership, negotiates</td>
</tr>
<tr>
<td>Information</td>
<td>C3.1,C3.2,C3.3</td>
<td>Acquires and evaluates information, Organizes and maintains information, uses computer to process information</td>
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<tr>
<td>Systems</td>
<td>C4.1,C4.2,C4.3</td>
<td>Understands systems, monitors and correct performance, improves and designs systems,</td>
</tr>
<tr>
<td>Technology</td>
<td>C5.1,C5.2,C5.3</td>
<td>Selects technology, applies tech to task, maintains and troubleshoots.</td>
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</tbody>
</table>

**SCANS FOUNDATION SKILLS:**
---|---|---
Thinking Skills | F7.1,F7.2,F7.3,F7.4,F7.5,F7.6 | Creative thinking, decision making, problem solving, mental visualization, know how to learn, reasoning.

**Specific Course Learning Outcomes:**

Upon successful completion **EMC Information Storage and Management Course**, you should be able to:

- Storage Systems Environment,
- Data Protection: RAID
- Direct-Attached Storage and Introduction to SCSI
- Storage Area Networks
- Storage Virtualization
- Business Continuity
- Storage Security and Management

**Course Outline:**

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Chapters</th>
<th>Weekly Labs</th>
<th>Exam/Chapter Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Ch 1 - Intro to Information Storage and Management</td>
<td></td>
<td>Quiz 1</td>
</tr>
<tr>
<td></td>
<td>Ch 2 - Data Center Environment</td>
<td></td>
<td></td>
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<tr>
<td>3 &amp; 4</td>
<td>Ch 3 - Data Protection RAID</td>
<td>Labs 1 &amp; 2</td>
<td></td>
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<tr>
<td></td>
<td>Ch 4 - Intelligent Storage System</td>
<td></td>
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<td></td>
<td>Ch 5 - Fiber Channel Storage Area Network (FC SAN)</td>
<td></td>
<td></td>
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<tr>
<td>5 &amp; 6</td>
<td>Ch 6 - IP SAN and FCoE</td>
<td>Labs 3 &amp; 4</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>7 &amp; 8</td>
<td>Ch 7 - Network-Attached Storage</td>
<td>Ch 8 - Object-based and Unified Storage</td>
<td></td>
</tr>
<tr>
<td>7 &amp; 8</td>
<td>Ch 9 - Introduction to Business Continuity</td>
<td>Labs 5 &amp; 6</td>
<td>Mid Term Exam</td>
</tr>
<tr>
<td>9 &amp; 10</td>
<td>Ch 10 - Backup and Archive</td>
<td>Ch 11 - Local Replication</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>9 &amp; 10</td>
<td>Ch 12 Remote Replication</td>
<td>Labs 7 &amp; 8</td>
<td></td>
</tr>
<tr>
<td>11 &amp; 12</td>
<td>Ch 13 Cloud Computing</td>
<td>Ch 14 - Securing the Storage Infrastructure</td>
<td>Quiz 4</td>
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<tr>
<td>13 &amp; 14</td>
<td>Ch 15 - Managing the Storage Infrastructure</td>
<td></td>
<td>Final Exam</td>
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<tr>
<td>15 &amp; 16</td>
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</table>
Means of Assessment of Course Learning Outcomes:
Your understanding of the course material and your grade will be determined as follows:

Chapter Quizzes

Five (4) quizzes will be given each covering two (2) chapters from the previous week. You may not use your book or any online resource and must be present at the prescribed room for this course to take the quiz. You may make up a missed quiz. All quizzes are worth **25% of your grade**.

Lab Exercises

Each week you will be required to complete the lab exercises in the Lab Manual. There are 8 labs for the EMC and 12 for the NetApp which is worth **25% of your grade. Each student is required to complete 35 lab hours**.

Mid-Term Exam

The mid-term exam will cover the first six (7) chapters and is a true/false, short answer, multiple guess examination to be completed at the prescribed room for this course. The mid-term exam is worth **25% of your grade**.

Final Exam

The final exam will cover the remaining (7) chapters. The final exam is worth **25% of your final grade**.

Grading Scale

Your understanding of the course material and your grade will be determined as follows:

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Percent of Total Grade</th>
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<tbody>
<tr>
<td>Quizzes</td>
<td>25%</td>
</tr>
<tr>
<td>Lab Exercises</td>
<td>25%</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading Scale</th>
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</thead>
<tbody>
<tr>
<td>90 – 100 = A</td>
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<tr>
<td>80 – 89 = B</td>
</tr>
<tr>
<td>70 – 79 = C</td>
</tr>
<tr>
<td>60 – 69 = D</td>
</tr>
<tr>
<td>&lt; 60 = F</td>
</tr>
</tbody>
</table>
Discipline/ Course/ Department/Policies

Behavior/Classroom Decorum: Disruptive, rude and or inappropriate behavior is unacceptable (i.e. excessive noise, chatting/ loud talk during lecture, eating). Please turn off your cell phones, pagers and beepers prior to lecture. Seek your instructor’s permission before tape recording lectures. Sleeping in class is not tolerated it is considered rude and distracting to others. “If you are well enough to come to class, then you are well enough to stay awake.” If you feel that you must spend our class time studying or doing homework, please go to the library. Any student caught in violation of these rules, may be removed from the classroom and may face further disciplinary actions at the instructor’s discretion.

Test/Assignment Format: All tests/quizzes comprise of various formats including multiple-choice, true/false. These tests are given in class (see reading assignments) except in cases where a student has a special need to take the test elsewhere (See Americans with Disabilities Act.) Only in such situations will test be given in the testing center. District Policy is that final Exams will not be given in the testing center.

Exams and assignments are designed to assess your some basic learning skills: Knowledge, Comprehension, Application, Analysis and Evaluation of the materials covered in this course.

Recall/Knowledge – Tests how well you have read the book. It includes questions on technology, specific facts, and knowledge of theories and graphs. Remembering previously learned information.

Comprehension – Tests your ability to use the information in a slightly different context and to demonstrate that you understand it. For instance, I would ask you to explain the relationship between the marginal cost and the supply curve of the firm in the short run or the relationship between the money supply and the interest rate (Macro). Explain the elasticity of demand and supply on distribution of tax burden.

Application – Test your ability to apply the knowledge gained from the text to new situations. For example how would you use the concept of asset management to understand a real world problem such as the savings and loan crisis of the 1980s or how would you apply the concept of elasticity of demand to revenue determination in every market situation?

Analysis- Test your ability to break down the information into its separate components so that its structure can be understood.

Evaluation- Provide valued judgment of the material based on any given criteria. You ability to assess, compare and contrast information or materials covered.

WHAT YOU CAN EXPECT FROM ME:
Clear statements of your responsibility and grading standard.
Efficient and organized use of your time in class
Clear communication of subject matter.
Willingness to meet with you during office hours or other times by appointment if need be.
Fair test and evaluations.
Diligence in preparation and grading/ timely delivery

WHAT I CAN EXPECT FROM YOU:
At least Twelve to fifteen hours of study per week.
Active listening and participation in class.
Timely completion of work
Talk with me about class problem before they get out of hand.
eCampus For tutorials, please go to: http://ecampus.support.dcccd.edu/Tutorials/eCampusTutorials2/ecampustutorials.html
Or you may copy and paste to your browser if you are unable to click on the link above

To log on to eCampus please go to http://ecampus.dcccd.edu
Type an "e" followed by your seven digit Student ID# for BOTH the USERNAME and the PASSWORD.
Example: username: e3456789
password: e3456789
The eCampus login is NOT the same as the eConnect login.

After your initial login, please change your Password and update your Email address by clicking on "Personal Information" (found under the "Tools" box under the left hand side of the "My DCCCD" tab) and selecting the appropriate links.

If you still cannot login, please contact Technical Support at ecampus.support@dcccd.edu.

Progress: Students are advised to keep track of their progress reports. Your instructor will make available the test scores. Feel free to discuss your progress report with your instructor and please note that the time to be concerned about your grade is not in the last week (Exam week) of the semester.

STUDENTS WHO HAVE DONE WELL IN THE PAST HAVE THIS TO SAY:
Read the chapter twice: once before class and again after the lecture
Do not get behind in the reading or you may not catch up.
Summarize, don’t highlight compare your summary with the text summary
Attempt to answer end of chapter questions
Use the study guide on pages (back) after you read the chapter.
Study in groups rather than alone; this is a good time to compare class notes.
Ask questions, visit with the professor/tutor if you do not understand any material

ATTENDANCE/CLASS PARTICIPATION POLICY.
Participation is not being disruptive, disrespectful, sleeping or coming late to class. (just to mention a few).
Your regular and punctual attendance to all classes and your, meaningful contribution to the learning either individually or as a group contribute to participation grade. (3 points each class meeting). Other participation activities are at you instructor’s discretion.
Please plan your schedule well to avoid conflict and do not ask your professor if he/she will be covering any thing important on each day as to decide whether to be present or not. The course is carefully planned out and every day is important. If emergencies arise that require an absence from a session, be sure to get the notes and all other information that was covered in class from a colleague. Expecting your professor to outline the class session in an independent message to you is not realistic as your professor typically has approximately 100+ students in his/her classes each semester.
Student requesting excused absence must have proper documentation to support their reasons for absence.

Tutoring: Please endeavor to make use of our Cisco lab assistants available on campus in T250. For tutoring schedule, please contact the lab.

Extra Credit is available at your instructor’s discretion. For example, your instructor will notify you of the topic for a mini paper in class if need be. Please identify your self properly. Paper should be typed and submitted via the digital drop box, email or in class where applicable. Unidentified work will not be graded.

Project/class activity: Students will be expected to work individually or in small groups. Teamwork is encouraged. To make it easier you may be allowed to choose your own group. A mini research paper may be assigned to you in this course.

LATE HOMEWORK IS UNACCEPTABLE.
The rules of the syllabus, content of the exam, lectures, and the calculation of the grade you earned are not a starting point for negotiations. While I am willing to work with students on an individual basis, I cannot negotiate individual terms with each student.

INSTITUTIONAL POLICIES

ACADEMIC DISHONESTY:
You are required to do your own work except in cases of approved group assignment. The Student Code of Conduct prohibits academic dishonesty and prescribes penalties for violations. According to this code, which is printed in the college catalog, "academic dishonesty", includes (but is not limited to) cheating, fabrication, facilitating academic dishonesty, plagiarism, and collusion". Academic dishonesty may result in the following sanctions, including, but not limited to:
1. A grade of zero or a lowered grade on the assignment or course.
2. A reprimand.
3. Suspension from the college.

Students’ rights to appeal grades and / or other disciplinary actions and the procedures which students must follow for appeals are published in the College Catalog under the Student Code of conduct and at the NLC Web Site under Operational Memoranda

NOTIFICATION OF ABSENCE DUE TO RELIGIOUS HOLY DAY(S)
Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the Student Obligations section of the college catalog for more explanation. You are required to complete any assignments or take any examinations missed as a result of the absence within the time frame specified by your instructor.

REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT
In accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, any student who feels that he or she may need any special assistance or accommodation because of an impairment or disabling condition should contact the ADA/ACCESS Office at (972) 273-3165 or visit Room A-430 at North Lake College. It is the policy of NLC to provide reasonable accommodations as required to afford equal educational opportunity. It is the student’s responsibility to contact the ADA/ACCESS Office.

DROP / WITHDRAW POLICY
The student is expected to be in class regularly and to consult with the instructor whenever an absence is necessary. If the student is unable to complete the course, official withdrawal is required by the drop date XXXXXX. Withdrawing from the course is a formal procedure, which YOU as the student must initiate; the instructor cannot do it! All Dallas County Community Colleges charge a higher tuition rate to students registering the third time for a course. This rule applies to the majority of credit and Continuing Education / Workforce Training courses. Developmental Studies and some other courses are not charged a higher tuition rate. Third attempts include courses taken at any DCCCD college since the fall 2002 semester. For further information, go online to http://www.DCCCD.edu/thirdcourseattempt.

FINANCIAL AID STATEMENT
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate are also subject to this policy. To apply for financial aid in the DCCCD, students must complete FAFSA (Free Application for Federal Student Aid) on the web at http://www.fafsa.ed.gov.

COUNSELING SERVICES
Counseling services for personal issues are provided to all students currently enrolled at North Lake College. These services are provided by licensed professionals who are bound by confidentiality (within ethical parameters) at no charge. With the assistance of a counselor, students are able to identify, understand, resolve issues and develop
appropriate skills. To make an appointment call 972-273-3333 or visit A 430.

**STOP BEFORE YOU DROP**
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop.
You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: [https://www1.dcccd.edu/6drop](https://www1.dcccd.edu/6drop)

**WRITING CENTER (A309)**
The Writing Center supports and supplements classroom instruction by providing focused, individualized writing instruction in response to the specific needs of the student. Its services are available to all North Lake students, not just those enrolled in English classes. The tutors are skilled writing specialists who can help students clarify writing tasks, understand instructors' requirements, develop and organize papers, explore revision options, detect grammar and punctuation errors, and properly use and document sources. Rather than merely editing or “fixing” students' papers, the Writing Center staff focuses on helping students develop and improve their writing skills.
Located in Room A309, the Writing Center is open 8:00 AM to 9:30 PM Monday through Thursday and 8:00 AM to 5:00 PM on Friday. Saturday hours are 9:00 AM to 2:00 PM during fall and spring semesters. Hours will vary during other sessions. Students who have scheduled an appointment in advance will have a tutor available to work with them at their scheduled time. Walk-ins are welcome, but they may have to wait for an opening or make an appointment for a later time, perhaps a later day. To schedule an appointment, come by the Writing Center, call 972-273-3089, or email nlcwritingcenter@dcccd.edu.

**NO NOTES OF ANY KIND MAY BE USED WHILE TAKING ANY EXAM**
The comprehensive final exam must be taken on the date given. If you cannot take the final exam on the date given, you should contact your instructor prior to the date of the exam. Anyone missing the exam with an unexcused absence will receive a grade of zero. Cheating will NOT be tolerated. Cheating on the final exam will result in all parties receiving a grade of zero on the exam.

**COMMUNICATIONS (Phone / E-mail Response Policy)**
Messages left with Division Office will be returned within 24 hours after the next class meeting. E-mails received from 8 am to 2pm, Monday through Friday will be answered within 24 hours. E-mails received after 2pm on Fridays and on weekends and holidays will be answered on the next class day. Please identify yourself properly by your full name as it appears on the records, class / time in all correspondence.

**INSTRUCTORS RIGHT TO AMEND SYLLABUS**
The instructor reserves the right to amend this syllabus as deemed necessary.

Please read, sign and return the Syllabus Addendum (next page) to your instructor.

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Syllabus Addendum
I have read the entire course syllabus for this course and I understand the procedures, rules and regulations as stated in the Syllabus above.
I agree to abide by all stated procedures, rules and regulations, and I hereby verify having attended this class at least once.

Date: ______________________ Course____________________

Signature: __________________________________________

Print Name: _________________________________________

Student I. D. Number_______________________________

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