Course Title	Data Gathering & Recovery In Computer Systems
Course Code	ITEC543
Type	Full Time
Semester	Fall/Spring
Category	Area Elective
Workload	150 Hours
EMU Credit	(3,0,0) 3
Prerequisite	-
Language	English
Level	Graduate
Teaching Format	3 Hours Lecture per week
ECTS Credit	5
Course Web Site	http://staff.emu.edu.tr/husnubayramoglu

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Course Description

Data gathering and recovery in computer systems often involves a process of search and discovery of data. The process of search and discovery involves the analysis of data storage and communication systems. The analysis of data storage includes the retrieve of the deleted data in computer systems and constructs evidences of past actions.

Good backup and recovery strategies are key to the health of any organization. Designing realistic recovery solutions is very important. Medium- to very-large-scale systems administrators have to protect large amounts of critical data as well as design backup solutions that are scalable and optimized to meet changing conditions. The main of this course focuses on the implementation of 21st century architectures that provides the framework for meeting the requirements of data protection for the organization.

Continuous data protection and remote replication strategies are also addressed as they are integrated within backup strategies.

General Learning Outcomes

On successful completion of this course students should be able to:
- Describe the elements of a backup environment and applications of those elements
- Discuss new technologies within the backup technology area and their impact on design
- Identify combinations of both hardware and software configurations that are scalable from small to large environments
- Discuss designs that address physical and virtual backup environments
- Describe new media technologies
- Report requirements that will assist in maintaining application backup strategies
- Identify sample backup environments

Teaching Methodology / Classroom Procedures

- The course has three hours of lectures in a week mainly held in the form of a seminar.
- There is no lab works or tutorials.

- There will be one written midterm exam and one written final exam.
- There is an individual term project.
  - You should find a recent conference/journal paper (published in the last 5 years) related to Data Backup and Recovery in Computer Systems.
  - The selected paper should be sent as an e-mail to husnu.bayramoglu@emu.edu.tr and wait for the confirmation.
  - Once the topic is confirmed, you can start studying the topic and prepare a written report.
  - The printed report should be submitted before the announced deadline.
  - Late submissions will not be accepted.
  - Project grade is out of 20%.
  - The report should be between 3500-4000 words with the format provided in the report template on the web site.
  - Turnitin plagiarism test must be obtained before submission.
  - The plagiarism test result should be less than 20%.
  - No reports will be accepted for consideration with higher plagiarism test result.
  - An account will be created for you to make the plagiarism test through Turnitin.
  - The work done for the project should be presented.
  - The duration will be about 15 minutes for each student.
  - Presentation grade is out of 10%.
- Class attendance is compulsory.
- Course related materials will be posted on the course web site.

Course Materials / Main References
Text Book:
Steven Nelson, *Pro Data Backup and Recovery-Expert's Voice in Data Management*, Apress, 2011, ISBN-13: 978-1430226628
Lecture Notes:
Lecture notes are available on the course web site in PDF format.

Weekly Schedule / Summary of Topics	
Week 1	Distinction Between Backup and Archive
Week 2	Backup Softwares: Commvault Simpana and Symantec BackupBackup
Week 3	Physical Backup Media: Tape Characteristics, RAID Implementations, Network Attached Storage
Week 4	Virtual Backup Media: Virtual Tape Libraries, Storage Virtualization
Week 5	New Media Technologies: Deduplication Techniques, Continuous Remote Replication, Cloud Storage
Week 6	Storage Policies for CommVault Simpana
Week 7-8	Midterm Exams
Week 9	Storage Policies for Symantec NetBackup
Week 10-11	Application Backup Strategies: File systems, Databases, Mail Servers
Week 12	Putting It All Together: Sample Backup Environments
Week 13	Remote Office Deployments
Week 14	Presentations for Term Projects
Week 15	Presentations for Term Projects
Week 16-18	Final Examinations

Requirements
• Each student can have only one make-up exam. One who misses an exam should provide a medical report within 3 days after the missed exam. • The make-up exam will be organized at the end of the term after the finals and will cover all the topics. • No make-up exam will be given for any quiz or assignment. • Once the grades are announced, the students have only one week to do objection about their grades. • It is the students' responsibility to follow the announcement in the course web site. • Students who do not pass the course and fail to attend the lectures regularly may be given NG grade.

	Method of Assessment		
Evaluation and Grading	**Term Project**	**Midterm Exam**	**Final Exam**
Percentage	30 %	30 %	40 %

Grading Criteria *											
A	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D+**	**D**	**D-**	**F**
90 -100	85 - 89	80 - 84	75 - 79	70 - 74	65 - 69	60 - 64	56 - 59	53 - 55	50 - 52	40 - 49	0 – 39

* Letter grades will be decided upon after calculating the averages at the end of the semester and distribution of the averages will play a significant role in the evaluation of the letter grades.