Engaging Students in Information Storage Management Courses

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ABSTRACT
This panel will elaborate on faculty experiences with specific ways used to engage students in the Information Storage and Management, formerly Storage Technology, and the Virtualization coursework. The emphasize of the discussion will be on the mechanisms used in engaging students in learning and on experiences with various activities helpful for varying learning preferences/modes. All invited panelists are experienced faculty involved with subject matter courses via EMC’s Academic Alliance program. The resources made available via this alliance and through exchange among the faculty involved in teaching related subjects in IT and CS programs will be discussed and evaluated. The impact on students, their satisfaction, and success via certification and internship/job placement will be elaborated as well. Furthermore the panel will invite other faculty (conference participants) interested in teaching in the same/related subject areas to participate in discussions and exchange of relevant class materials.

Categories and Subject Descriptors
D.4.2. [Storage management]: Storage Hierarchies

General Terms
Human Factors, Experimentation

Keywords
Storage, Virtualization, Education, Certification

1. INTRODUCTION
The awareness of the professional as well as academic importance of the storage related topics had been rising rapidly and relevant courses are available now in over 400 schools worldwide. The purpose of the panel is to engage faculty involved or planning to be involved with this important subject matter. After delivering a Storage Technology courses several times we reached a point at which our students are sufficiently engaged in appropriate variety of activities and learning modes so that some of our experiences may be of use to others. We will discuss, introduce and/or present a number of labs, exercises, home works, design practices, EMC certificate preparation materials used, and research projects etc., and also provide detail class materials/sources so that similar content may be replicated. Of particular value for teaching is a set of logical network diagrams together with a Visio stencil facilitating creation/editing of such diagrams using faculty developed standard set of non-proprietary symbols. We may also discuss results of student work illustrating the course achievements.

2. CONCLUSIONS
In our collective experience among the most successful were the labs that involve hands on work and immediate feedback.

3. ACKNOWLEDGMENTS
Our thanks go to the EMC Corporation for facilitating exchange of relevant teaching assets.

4. REFERENCES
Appendix- some of the labs

Lab00. Introduction to Network Diagramming using SANDS
Purpose:
- Get familiar with standardized network diagramming
- Represent a complex network using SANDS stencil

Lab01. Introduction to virtual infrastructure management
Purpose:
- Get familiar with VMware Server and VMware ESX Server
- Virtual machine deployment in ESX server and VMware Server
- Configure networking in VMware Server

Lab 02. Understanding RAID
Purpose:
- Identify the benefits of RAID configurations
- Create diagrams of different RAID configurations
- Assess the benefits of each RAID configuration

Lab03. iSCSI essentials on virtualized platforms
Purpose:
- Get familiar with MS iSCSI initiator
- FreeNAS Virtual machine deployment in ESX server
- Configure iSCSI target server and connect a Windows OS client to iSCSI target.

Lab04. NAS shares on virtualized platforms
Purpose:
1. Install and configure FreeNAS VM
2. Setup NFS share on the VM
3. Connect ESX server to NFS share

Lab05. Advanced iSCSI configurations
Purpose:
1. Install Openfiler VM on ESX server
2. Setup multiple iSCSI targets on single volume
3. Connect targets to ESX server and to a Windows PC

Lab06. Linux-based IP SAN virtualization
Purpose:
1. Install and configure virtual san appliance (VSA) on ESX
2. Create a virtual IP SAN using CMC
3. Connect ESX server to the created IP SAN

Lab07. Windows-based IP SAN virtualization
Purpose:
1. Install and configure virtualized SAN on Windows OS
2. Configure iSCSI targets from SAN
3. Connect ESX server to iSCSI target