Lecture 01

Introduction to Course

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Outline

- Grading Policy
- Academic Honesty
- Few Things to Remember
- Introduction to the Course
- Course Content
- Why This Course?
- Books & Resources
- What is an SA?
- Basic Principles
- Summary

Grading Policy

Classification	
Assignments & Quizzes	10 Marks
Attendance & Class Behavior	10 Marks
Mid-term Exam	20 Marks
Final-term Exam	40 Marks
Semester Project, Report and Presentation	20 Marks
Total	100 Marks

Academic Honesty

- Your work in this class **must** be your own
- If students are found to have collaborated excessively or to have cheated (e.g. by copying or sharing answers during an examination), all involved will at a minimum receive grades of "0" for the first violation
- Further violations will result in failure in the course.

Few Things to Remember

- Attendance will be taken with in 5 minutes at the start of class
- Students are allowed to enter into class with in 15 minutes at the starting of class
- **Zero tolerance policy** on attendance, discipline of class during lectures!
- Assignments must be submitted on time, no late submissions
- In case of copied assignment both parties will be given **zero!**
- Projects, Presentation, Quizzes, Assignments, Class participation are very important.
- Don't miss your Classes, Quizzes, Presentations, Assignments and Projects!

1. Introduction to the Course

The challenge for a course in System and Network Administration is to practically help the students to understands the system administration problems and their generic solution on unaccustomed level of abstraction. We will see the system and network administration from a holistic point of view. To help meet this challenge, this course includes enough hands-on practical exercises and examples.

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This course is not about how to configure or debug a particular OS and will not tell you how to recover the shared libraries or DLLs when someone accidentally moves them. Some excellent books cover those topics, and I refer you to many of them throughout. Instead, we discuss the principles, both basic and advanced, of good system administration. These principles apply to all OSs. Following them well can make your life a lot easier. If you improve the way you approach problems, the benefit will be multiplied.

2. Course Content

- Introduction To System Administration. SA Components. Server Environment (Microsoft and Linux).
- Reliable Products, Server Hardware Costing, Maintenance Contracts and Spare Parts, Maintaining Data Integrity, Client Server OS Configuration, Providing Remote Console Access.
- Comparative Analysis of OS: Important Attributes, Key Features, Pros and Cons. Linux Installation and Verification, Configuring Local Services and Managing Basic System Issues.

Continued…

- Administer Users and Groups. Software Management. Managing Network Services and Network Monitoring Tools.
- Boot Management and Process Management. IP Tables and Filtering. Securing Network Traffic.
- Advanced File Systems and Logs. Bash Shell Scripting. Configuring Servers (FTP, Samba, DHCP, DNS and Apache).

3. Why This Course?

This course is designed for system administrators at all levels. It gives junior SAs insight into the bigger picture of how sites work, their roles in the organizations, and how their careers can progress.

Intermediate SAs will learn how to approach more complex problems and how to improve their sites and make their jobs easier and their customers happier.

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What is behind your day-to-day work, to learn the things that you can do now to save time in the future, to decide policy, to be architects and designers, to plan far into the future, to negotiate with vendors, and to interface with management. These are the things that concern senior SAs.

4. Books & Resources

- **Visit: http://www.mubashirali.com/systems-and-network-administration/**

5. What is an SA?

If you asked six system administrators to define their jobs, you would get seven different answers. The job is difficult to define because system administrators do so many things. An SA looks after computers, networks, and the people who use them. An SA may look after hardware, operating systems, software, configurations, applications, or security. A system administrator influences how effectively other people can or do use their computers and networks.

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A system administrator sometimes needs to be a business-process consultant, corporate visionary, software engineer, electrical engineer, economist, or psychiatrist.

As a result, companies calls SAs different names. Sometimes, they are called network administrators, system architects, system engineers, system programmers, operators and so on.

6. Basic Principals

1. Simplicity means that the smallest solution that solves the entire problem is the best solution. It keeps the systems easy to understand and reduces complex component interactions that can cause debugging nightmares.

2. Clarity means that the solution is straightforward. It can be easily explained to someone on the project or even outside the project. Clarity makes it easier to change the system, as well as to maintain and debug it. In the system administration world, it's better to write five lines of understandable code than one line that's incomprehensible to anyone else.

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3. Generality means that the solutions aren't inherently limited to a particular case. Solutions can be reused. Using vendor-independent open standard protocols makes systems more flexible and makes it easier to link software packages together for better services

4. *Automation* means using software to replace human effort. Automation is critical. Automation improves repeatability and scalability, is key to easing the system administration burden, and eliminates tedious repetitive tasks, giving SAs more time to improve services.

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5. Communication between the right people can solve more problems than hardware or software can. You need to communicate well with other SAs and with your customers. It is your responsibility to initiate communication. Communication ensures that everyone is working toward the same goals. Lack of communication leaves people concerned and annoyed. Communication also includes documentation. Documentation makes systems easier to support, maintain, and upgrade. Good communication and proper documentation also make it easier to hand off projects and maintenance when you leave or take on a new role.

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6. Basics first means that you build the site on strong foundations by identifying and solving the basic problems before trying to attack more advanced ones. Doing the basics first makes adding advanced features considerably easier and makes services more robust. A good basic infrastructure can be repeatedly leveraged to improve the site with relatively little effort. Sometimes, we see SAs making a huge effort to solve a problem that wouldn't exist or would be a simple enhancement if the site had a basic infrastructure in place. This book will help you identify what the basics are and show you how the other five principles apply. Each chapter looks at the basics of a given area. Get the fundamentals right, and everything else will fall into place.

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