Jamaica D. Patac System Administration

BSIT 4R1-1st semester

LECTURE SUMMARY OF INTRODUCTION TO SYSTEM ADMINISTRATION

Key Aspects of Systems Administration

SA Responsibilities

Systems administrators are responsible for making computing systems work effectively and efficiently for users. Their tasks include:

1. User Management: Adding and removing users.
Insight: As a student, I see this as similar to managing group members in a project—everyone needs the right access to contribute effectively.

2. Hardware and Software Management: Configuring, maintaining, installing, and reinstalling hardware and software, and managing resources like disks, memory, and CPU.
Insight: This reminds me of maintaining my own laptop or apps for school; keeping things updated and functional avoids problems later.

3. Security Management: Securing the entire computing environment.
Insight: Just like I protect my personal files with passwords, administrators must ensure that bigger systems stay safe from threats.

4. System Monitoring and Troubleshooting: Performing backups and restores, monitoring usage and performance, detecting and correcting problems, and optimizing performance.
Insight: In my experience, troubleshooting teaches patience—it's like debugging code, where persistence eventually leads to a solution.

5. Documentation and Help Desk: Providing general user support, answering questions, and maintaining documentation and licenses.
Insight: This is like sharing notes with classmates; clear documentation helps everyone understand and prevents repeated mistakes.

6. Automation, Planning, Policies, and Auditing: System planning, scaling, assessing new technologies, anticipating problems, writing programs for automation, enforcing usage policies, and educating users.
Insight: I see this as preparing ahead, like making a study schedule—it saves effort in the long run and keeps things organized.

Required Skills

Effective systems administrators need a range of skills and qualities:

Patience: Especially with oneself, as systems administration can be challenging.
Insight: I relate to this whenever I face errors in coding; staying calm is key to learning.

Tenacity: Essential for overcoming difficult problems.
Insight: For me, this is like not giving up on solving a tough math problem even after several tries.

Strong Organizational Skills: To stay focused and manage time, energy, and resources effectively.
Insight: Just like managing deadlines and multiple subjects in school, organization prevents chaos.

Well-developed Logic, Reasoning, and Critical Thinking: To anticipate outcomes and make sound decisions.
Insight: I use this when deciding how to approach a research project or solve programming tasks.

Ability to Read and Comprehend Technical Information.
Insight: As a student, I often need to interpret manuals or research papers, which strengthens this skill.

Ethical Behavior: Characterized by honesty, fairness, and respect for individuals and groups within the organization.
Insight: I see ethics as important not only in IT but also in group work, where fairness builds trust.

The "Good, Bad, and Ugly" of SA

The role offers variety, challenges, and good compensation, making it a highly employable field that encourages independent learning and organized work habits.
Insight: This shows me that the career is rewarding but also requires constant growth, much like continuous studying as a student.

However, it can be annoying due to user, management, and vendor expectations, leading to frustration and long working hours.
Insight: I can relate this to balancing school requirements, where multiple expectations can become stressful.

The "ugly" aspects include a lack of understanding from others about the job, unnoticed successes, and high stress when problems arise, often leading to blame until issues are resolved. Strategies for dealing with these challenges include documenting everything, not panicking, viewing problems as challenges, admitting when you don't know something, and seeking allies.
Insight: This reminds me of group projects where efforts sometimes go unnoticed, but teamwork and documentation make a big difference.

Professional Organizations and Principles

The Systems Administrators Guild (SAGE), established in 1992, aims to increase the visibility and recognition of systems administration as a profession. SAGE provides guidelines, including a creed, code of ethics, and mantra, emphasizing professionalism, integrity, privacy, and adherence to laws and policies.
Insight: This makes me realize that even technical careers require ethical standards, just like students follow academic integrity.

Key principles for systems administration include:

1. Policy as Foundation.
Insight: Rules provide structure, just like classroom policies keep students on track.

2. Predictability as a goal.
Insight: In studies, having predictable habits like regular reviews makes learning more effective.

3. Scalability for growing enterprises.
Insight: This is like adjusting study methods as subjects become more difficult over time.

4. Minimum Privilege to protect systems from damage.
Insight: Similar to sharing only what’s necessary in group work to avoid confusion or misuse.

5. Uniformity to increase predictability and decrease costs.
Insight: This relates to keeping consistent study methods, which saves time and effort.

6. Resource Mapping to increase predictability and remove ambiguity.
Insight: Just like planning out available time and materials before exams to avoid last-minute stress.

Machine States and Transitions

The SAMRUDE model summarizes the basic components of an organization and SA responsibilities: Software, Users, Machines, Create, Read, Update, Delete.

Systems administrators should be familiar with five states of a machine:

New: A newly acquired machine.
Insight: Like getting a brand-new notebook, ready to be used.

Clean: OS installed but not configured for the environment.
Insight: Similar to having a blank notebook page—you still need to fill it with useful content.

Configured: Correctly set up according to environment requirements.
Insight: Like preparing your study notes in an organized way so they're ready to use.

Unknown: Misconfigured, outdated, or problematic.
Insight: This is like when my notes are messy or incomplete, making it hard to study.

Off: Retired or surplus.
Insight: Just like old notebooks that are no longer used but may still hold past learnings.