

**Johns Hopkins University
School of Education**

893.515.9B Hardware, Operating Systems and Networking for Schools & Organizations

Semester: Summer 2008, Session 1

Dates: May 20, 2008 – June 26, 2008

Location: Crossroads Center
11640 Crossroads Circle
Baltimore, MD 21220

Instructor: Ryan Schaaf

Cell Phone: 410-274-7814

Phone & Fax: 410-796-6589

E-Mail(s): ryan_schaaf@hcpss.org
RyanLSchaaf@gmail.com

Office hours: by appointment

Credit Hours: 3

Class Days / Times: (Schedule 1 / May 20th -June 10th) Tuesdays 4:45PM - 8:45PM
(Schedule 2 / June 17th -June 26th) Tuesday & Thursday 3:00PM- 6:00PM

Course Description:

This course will examine major computer hardware, operating systems, and networking used in educational settings. Topics include system architecture, central processing unit capacities, communication standards, storage mediums, features of operating systems, applications of electronic mail and databases, and the fundamentals of networking and the use of classroom computers connected to local area networks and wide area networks. Students learn how to design, manage, and evaluate a variety of hardware configurations for labs, classrooms, and media centers.

Course Standards and Objectives:

Upon successful completion of this course, the student will be able to:

- Provide a working knowledge of the operation and functionality of computer hardware and associated components.
- Use technically correct terminology to identify, describe and relate the function of computer system components and peripherals.
- Summarize, contrast and compare current computing platforms and common operating systems.
- Describe, contrast and compare networking devices and options commonly used in an educational setting.
- Design a computer system to meet specific educational or curricular needs.
- Develop selection criteria/ rationale, specifications, budgets and implementation plans for computing facilities relevant to an educational setting.
- Evaluate the impact of a computing environment.
- Find resources to troubleshoot basic system configuration and network problems.
- Examine and evaluate a variety of uses for computer technology in an educational environment.
- Recognize and articulate to others the benefits and potential pitfalls of computers in an educational setting.
- Discuss current issues and emerging trends in computer technologies.

- Develop a systematic process for staying informed about current and emerging trends in network technologies that potentially will have an impact on future educational strategies.
- Establish and develop management systems for projects, resource collection, and planning ahead for professional growth.

Assignments

Assignments #1A,1B,1C,1D – Homework & Article Reviews (20 Points)

Students will complete introductory homework assignments to familiarize themselves with the fundamentals of computer hardware, software, and networks. Also, students will review two(2) articles on cutting-edge technology issues that could impact the education field and create a technology brief.

Assignment #2 – School Computer Lab Visit (20 points)

Students will visit and observe an existing computer lab. The lab should service the students and/or faculty of a school. During the visit, students will record their observations of the lab, take digital pictures, and critique the general lab configuration. Students will observe some of the following lab components: computer type(s), network type, peripherals, ergonomics, software, and learning environment in a two-page summary. Accompanying the summary, will be a +/- chart of the lab set-up.

Assignment #3 - Technology Topic Presentation and Paper (20 pts.)

Students will work in teams of two or three to design a presentation and lesson that actively engages the class in learning one of the following topics: Storage Devices, Peripherals, Operating Systems for PC and MAC, Networking, Internet Systems, Firewalls/Security, or Mobile Computing. Research based instructional strategies are encouraged and each topic will require a 2 page technical brief that connects the technology to its application in an educational setting. The presentation materials and paper will be collected upon completion of the lesson.

Assignment#4 - Terminology and Concept Examination (10 pts.)

This will be a summative assessment completed in class on the content that has been presented in class lecture, student presentations, and group discussions.

Assignment #5 - Final Project & Paper (30 points)

Describe the need for the facility and the intended general purpose. Prepare the specifications, budget and configurations of the computer facility; it can be a computer lab, media center, faculty development center etc. (The type of facility needs to be cleared by the instructor.) The proposal should contain everything you would need to make the facility operational. For example you should include; computer requirements, software needs, furnishings, all peripherals, networking, training and ongoing maintenance. The presentation should be completed using PowerPoint or organized into a neat, orderly manner.

The paper should be a minimum of 12 pages, double-spaced and follow the APA format for style. The 12-page minimum is for full page written text. If you choose to compose some of the paper in outline format and include cut sheets and/or graphics, the overall length must compensate in terms of the written text format, which is required. The PowerPoint presentation time will be determined by the class size.

Handing-in of Assignments

Assignments need to be received in two formats. One hard copy needs to be handed to me in class. The second electronic copy needs to be submitted to the Blackboard Digital Dropbox in the following format: **(LastName_Assignment)**. For example: **(Schaaf_Brief2)**

Evaluation and Grading

Assessment Method	Total Points
Homework & Article Reviews	20
School Lab Visit	20
Subject Presentation & Paper	20
Terminology and Concept Exam	10
Final Presentation and Paper	30
Total Points	100

Course Schedule

Date	Topic	Due Next Class
Session 1 May 20	<ul style="list-style-type: none"> • Cohort Introductions • Pre-assessment / Goal Setting • Blackboard Introduction & Set-up • Class Presentation Sign-up • Brief Requirements • Hardware Presentation 	<ol style="list-style-type: none"> 1. About My Computer Summary 2. Brief #1
Session 2 May 27	<ul style="list-style-type: none"> • Hardware Presentation (cont'd) • Build a Computer Practice • Hands-on Hardware Activity • Review Brief #1 • Team Projects / Staff Development • Team work time 	<ol style="list-style-type: none"> 1. Build an Instructionally Valid Computer Virtually
Session 3 June 3	<ul style="list-style-type: none"> • Team 1-Storage Devices: 3 ½ floppy, zip, CD, DVD, flash drive, memory cards, hard drives, network file storage... • Team 2-Peripherals: Monitors, Keyboards, Printers, Mouse, Scanners, Digital Cameras, LCD Projectors... • Team work time 	<ol style="list-style-type: none"> 1. Brief #2 2. Team 1 Presentation/Paper 3. Team 2 Presentation/Paper
Session 4 June 10	<ul style="list-style-type: none"> • Review Brief #2 • Team 3- Firewalls, Anti-Virus Software, Data Removal & Retrieval Software, Troubleshooting Software & Equipment • Team 4-Operating Systems: DOS, Windows, & Mac platforms, how they have evolved, advantages and disadvantages between the 2, how they work in a network environment. • Team work time 	<ol style="list-style-type: none"> 1. Team3 Presentation/Paper 2. Team 4 Presentation/Paper

Session 5 June 17	<ul style="list-style-type: none"> • Team 5- Internet & E-mail Systems, Routers, Modems, Web 2.0, Blogging, School Websites, Classroom Applications, Website Filter Systems • Team 6-Mobile Computing: Laptops, wireless routers, storage & charging units, advantages & challenges. • Team work time 	<ol style="list-style-type: none"> 1. Team 5 Presentation/Paper 2. Team 6 Presentation/Paper
Session 6 June 19	<ul style="list-style-type: none"> • Team 7- Networking: Ethernet, LAN, WAN, WiFi • Team 8 - Ergonomics • Course Review 	1. Team 7 Presentation/Paper
Session 7 June 24	<ul style="list-style-type: none"> • Student Presentations • Summative Assessment • Course Evaluation 	1. Student Presentation & Paper (Day 1 Presenters)
Session 8 June 26	<ul style="list-style-type: none"> • Student Presentations 	<ol style="list-style-type: none"> 1. Lab Visit Summary/Critique 2. Student Presentation & Paper (Day 1 Presenters)

Grading will be based on a scale of 100 pts. Broken down as follows:

100 – 93 pts. = A	79 – 77 pts. = C+
92 – 90 pts. = A-	76 – 73 pts. = C
89 – 87 pts. = B+	72 – 70 pts. = C-
86 - 83 pts. = B	69 – below = F
82 – 80 pts. = B-	I = Incomplete

The grades of D+, D, and D- are not awarded at the graduate level.

*Note-An incomplete will be recorded if work to be turned-in is justifiably late (serious illness, death in the family, etc.). *Unexcused absence is not a valid reason.*

Instructional Methodology

This course will require all participants to actively participate in class. Materials will be presented by the instructor or by members of the class in a variety of formats, including lecture, individual and group activities, projects outside of class, and in class discussions. Depending on the time constraints of the class guest lecturers may be utilized to present subject matter in which they have expertise. Students are required to take an active role in researching and presenting selected topics. Due to the technical nature of this course in class discussion is essential, it is important for students to ask for clarification when needed.

Classroom Accommodations for Students with Disabilities

If you are a student with a documented disability who requires an academic adjustment, auxiliary aid or other similar accommodations, please contact Jennifer Smith in the Disability Services Office at 410-516-9728 or via email at onestop.disability@jhu.edu.

Statement of Diversity and Inclusion

Johns Hopkins University is a community committed to sharing values of diversity and inclusion in order to achieve and sustain excellence. We believe excellence is best promoted by being a diverse group of students, faculty and staff who are committed to creating a climate of mutual respect that is supportive of one another's success. Through its curricula and clinical experiences, we purposefully support the University's goal of diversity, and in particular, work toward an ultimate outcome of best serving the needs of students in diverse K-12 schools. Faculty and candidates are expected to demonstrate an understanding of diversity as it relates to planning, instruction, management, and assessment.

Writing Format

All written materials and citations will need to follow the guidelines provided by the Publication Manual of the American Psychological Association, fifth edition. This manual is available at the JHU Eisenhower Library, the JHU bookstore, and online.

Due Dates and Deadlines

The due dates and deadlines for all assignments are posted on the course itinerary. If an assignment is turned in after the due date a one letter grade reduction will be taken from the final letter grade of the assignment. In the event of an emergency, an extension may be granted on an individual basis depending on the circumstances. Please contact me by phone or e-mail to discuss and resolve the due date for an assignment if an emergency arises.

Attendance

Attendance and team collaboration is critical to the success and professional learning of the course. All students are responsible for the mastery of the content, skills, and processes learned from the course. In the event of an emergency, please contact me by phone or e-mail and let me know that you will not be able to make to class.

Cell Phone Policy

Please be considerate of your colleagues and class time. When class is in session, please place your cell phone on vibrate or silent mode to reduce interruptions. Then use your professional discretion on what phone calls will be answered and what phone calls can wait until break or after class.

Internet Resources

How Stuff Works

<http://computer.howstuffworks.com/>

Intel: The Journey Inside the Computer

<http://piotech.wsd.wednet.edu/techoneunits/1basicoperations/task1/01JourneyInside.html>

eSchool News

<http://www.eschoolnews.com/>

Wikipedia

<http://www.wikipedia.org/>

CNET Tips & Tricks

http://help.cnet.com/?tag=hd_ts

Professional Organizations

International Society for Technology in Education

<http://www.iste.org/>

Bibliography

White, Ron, (2004), How Computers Work: Seventh Edition, Indianapolis, IN QUE, (ISBN 0-7897-3033-2

Chambers, M. L. (2003). PCs for Dummies (2nd ed.). Indianapolis, Indiana: Wiley Publishing.

Norton, P. & Clark, S. H. (2002). New Inside the PC (1st ed.). Indianapolis, Indiana: SAMS.

Corder, J. & Gore, J. (2006). Successful Solutions for Technology Staff Development. Cornwall, PA: Brewer Technologies.

Lerman, J. (2006). 101 Best Websites for Teacher Tools and Professional Development (1st ed.). Washington, D.C. ISTE.