American Public University System

The Ultimate Advantage is an Educated Mind

School of Science and Technology
Department of Information Technology
ISSC322 Computer Systems Organization: Advanced
3 Credit Hours
8 Week Course
Prerequisite(s): ISSC322 (Advanced)

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Instructor Information

Instructor: (Bio)

Email: Phone: Office hours:

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Course Description (Catalog)

The course is an advanced study of computer systems and subsystems, processor design, CPU architecture, number systems used in computing, storage subsystems, and memory subsystems, This course also examines the OSI model, networking, , security, performance management, and capacity planning. This course covers the CompTIA A+ Certification curriculum.

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Course Scope

This course meets the A+ Certification Essentials of the topical requirements of the 8570.1M Technical I category. The CompTIA A+ certification is the industry standard for computer support technicians. The international, vendor-neutral certification proves competence in areas such as installation, preventative maintenance, networking, security and troubleshooting. CompTIA A+ certified technicians also have excellent customer service and communication skills to work with clients.

The latest version of CompTIA A+ is CompTIA A+ 2009 Edition. Two exams are necessary to be certified: CompTIA A+ Essentials, exam code 220-701; and CompTIA A+ Practical Application, exam code 220-702.

(Note to Students: The Resources, assignments, learning outcomes, and expectations in this upper level undergraduate course assume that the student has completed all lower level general education and career planning coursework necessary to develop research, writing, and critical thinking skills. Students who have not fulfilled all general education requirements through courses or awarded transfer credit should strongly consider completing these requirements prior to registering for this course.)

Required software: Microsoft Office 2007 or newer, Adobe Acrobat Reader (Click here for free download) and Microsoft Visio (Click here for a free trial version).

The A+ series include:

CompTIA A+ Essentials measures the necessary competencies of an entry-level IT professional with at least 500 hours of hands-on experience in the lab or field. It tests for the fundamentals of computer technology, networking and security, as well as the communication skills and professionalism now required of all entry-level IT professionals.

CompTIA A+ Practical Application is an extension of the knowledge and skills identified in CompTIA A+ Essentials, with more of a "hands-on" orientation focused on scenarios in which troubleshooting and tools must be applied to resolve problems.

Disclaimer Statement: While this course uses CompTIA approved curriculum and is intended to teach the material tested on the exam, it is still the student's responsibility to study and prepare appropriately for the exam. The student is not guaranteed to pass the exam by dint of taking these courses alone.

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Course Objectives

The successful student will fulfill the following learning objectives:

- CO1. Evaluate the organization and subsystems of a computer system
- CO2. Analyze the process to troubleshoot and rectify computer systems
- CO3. Evaluate CPU architectures and evaluate the organization of the motherboard
- CO4. Profile data storage subsystems, and the basic input-output subsystems
- CO5. Assess the history and evolution of bus structures and memory subsystems.
- CO6. Evaluate the processes for monitoring and managing Windows client operating systems

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Course Delivery Method

Resources and access to an online learning management system will be made available to each student. **Online assignments are due by the last day of each week (Sunday)** and include Forum questions (accomplished in groups through a threaded Forum), examinations (graded electronically), written textbook assignments and other written assignments as assigned and submitted for review by the Faculty Member. Assigned faculty will support the students throughout this eight-week course.

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Resources

Required Text

CompTIA A+ 220-702 (Available as an eBook in the Resources Section) - CompTIA A+ Certification: Practical Applications 09 +CERTBLASTER - E-book links provided inside the classroom. Axzo Press ISBN: 1426021763

Software Requirements

- Microsoft Word Office 2007 or newer)
- Adobe Acrobat Reader (Click here for free download)
- Microsoft Vision

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Evaluation Procedures

Your final course grade will be based upon the following:

Weekly Assignments (8)	64
Forum Participation Points (8)	16
Quizzes (2)	20
Total	100

Assignments

The assignments will follow each of the major milestones of the course. These assignments will be problems or questions from the text. They are a combination of Lesson Reviews and Lesson Activities and/or Labs. They are selected to provide the student with information to understand the concepts discussed. Assignments should be prepared in Microsoft Word and uploaded as an assignment. Visio diagrams should be incorporated within the Word document as part of the document.

Quizzes

The online quizzes comprise multiple-choice and true/false questions covering the material in Weeks 1-8 and will be taken during Week 4 and 8 of the course.

*This exam is not proctored; and is open book, open note. Remember that you have a one hour to complete each exam and your time starts the first time you open or access the exam. You may only open the test once.

Forum Participation Points

Classroom interaction is a vital part of the online experience. Valuable knowledge can be gained from understanding the experiences of other class participants. You will earn participation points for activity in the Forums.

I monitor the Forums for participation so there is no reason for you to submit your comments and peer reviews as separate assignments.

Each week one or more questions will be posted in the Forum. Each student will provide at a minimum a two hundred-word response to answer the Forum questions. Additionally, you must provide a peer review of similar length in response to another student's Forum input. Your peer review will review/analyze an input and provides justification why you agree/disagree with the information in the student input. You must always be courteous (professional) even in disagreement. Information from personal experience and other reading is encouraged.

Instructions to submit a Forum input:

- 1. Log into the classroom
- 2. Click the "Forum" link
- 3. Click the appropriate Forum under the column labeled "group name."
- 4. Click the message labeled "instructions."
- 5. Click on the "reply to this message" link.
- 6. Provide your input.
- 7. Click the "submit" button.

Submission of Textbook Assignments and Project Documents

Please include your name, course number, student and assignment name at the top of your submissions.

Upload assignments per the instructions below.

NOTE: Uploaded files are time stamped using Eastern Standard Time (EST). This time stamp is used to determine if an assignment is submitted on time. If you live in another time zone, keep this in mind when uploading your assignments. Use the time zone converter at this link http://www.timezoneconverter.com/cgi-bin/tzc.tzc to help you submit assignments in a timely manner.

Weekly Textbook Assignment and Project Document submission instructions:

- 1. Log into the classroom.
- 2. Click the "my profile" link.
- 3. Click the appropriate project assignment in the grade builder summary.
- 4. Click on the "Optional File Upload" and choose the correct file to upload. Submit final paper in word document (*.doc), text document (*.txt) or spreadsheet.
- 5. Check the box "submit for grading."
- 6. Click the "submit" button.

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Grading

Please see the Student Handbook to reference the University's Grading Scale.

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Course Outline

Week	Topics	Learning Objectives	Readings	Assignments
1	Power systems CPUs and motherboards	CO1 Weekly LOs: Given a scenario, install, configure and maintain personal computer components. Detect problems, troubleshoot and repair/replace personal computer components. Select and use the appropriate tools.	Unit 1 and 2 Review Week 1 A/B/C PowerPoint Briefs (Found in the Resources Section)	Complete Week 1 Assignment Complete Week 1 Forum Input/Peer Review
2	Memory systems Expansion cards	CO2 Weekly LOs: Given a scenario, install, configure and maintain personal computer components. Detect problems, troubleshoot and repair/replace laptop components. Select and use system utilities/tools and evaluate the results. Detect problems, troubleshoot and repair/replace personal computer components.	Units 3 and 4 Review the Week 2 A/B PowerPoint Briefs (Found in the Resources Section)	Complete Week 2 Assignment Complete Week 2 Forum Input/Peer Review
3	Data storage devices Printers and scanners	CO3 Weekly LOs: Given a scenario, install, configure and maintain personal computer components. Select the appropriate commands and options to troubleshoot and	Unit 5 and 6 Review the Week 3 A/B/C PowerPoint Briefs	Complete Week 3 Assignment Complete Week 3 Forum Input/Peer

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		resolve problems. Select and use system utilities/tools and evaluate the results. Detect problems, troubleshoot and repair/replace personal computer components. Select and use the following tools. Detect and resolve common printer issues. Evaluate and resolve common issues.	(Found in the Resources Section)	Review
4	Mobile computing Windows management	CO3 cont Weekly LOs: Given a scenario, detect problems, troubleshoot and repair/replace laptop components. Select the appropriate commands and options to troubleshoot and resolve problems. Differentiate between Windows operating system directory structures (Windows 2000, XP and Vista). Select and use system utilities/tools and evaluate the results. Select and use system utilities/tools and evaluate the results. Evaluate and resolve common issues.	Unit 7 and 8 Review the Week 4 A/B PowerPoint Briefs (Found in the Resources Section)	Complete Week 4 Assignment Complete Week 4 Forum Input/Peer Review
5	Windows maintenance SOHO networking	CO4 Weekly LOs: Given a scenario, select and use system utilities/tools and evaluate the results. Evaluate and resolve common issues. Install and configure a small office/home office (SOHO) network.	Unit 9 and 10 Review the Week 5 A/B/C Briefs (Found in the Resources Section)	Complete Week 5 Assignment Complete Week 5 Forum Input/Peer Review
6	Network troubleshootin g Security	CO5 Weekly LOs: Given a scenario, select and use the following tools. Select the appropriate commands and options to troubleshoot and resolve problems. Troubleshoot client-side connectivity issues using appropriate tools. Given a scenario, prevent, troubleshoot and remove viruses and malware. Evaluate and resolve common issues. Implement security and troubleshoot common issues.	Unit 11 and 12 Review the Week 6 A/B PowerPoint Briefs (Found in the Resources Section)	Complete Week 6 Assignment Complete Week 6 Forum Input/Peer Review
7	Binary, octal and hexadecimal numbering CompTIA A+ acronyms	CO6 Weekly LOs: Understanding the binary, octal and hexadecimal systems. Acronyms and abbreviations appearing on the CompTIA A+ exams covering 2009 objectives.	Appendix A and B	Complete Week 7 Assignment Complete Week 7 Forum Input/Peer Review Complete First Quiz
8	Certification exam objectives map Course summary	CompTIA A+ Essentials (2009) Edition exam objectives with references to corresponding coverage in your course manual. Use summary text to reinforce what you've learned in class. Determine the next courses in this series (if any), as well as any	Appendix C and S	Complete Week 8 Assignment Complete Week 8 Forum Input/Peer Review

other resources that might help you prepare for the CompTIA A+ Essentials exam.	Complete Second
	Quiz

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Policies

Please see the <u>student handbook</u> to reference all University policies. Quick links to frequently asked question about policies are listed below.

Drop/Withdrawal Policy
Plagiarism Policy
Extension Process and Policy

WRITING EXPECTATIONS

All written submissions should be submitted in a font and page set-up that is readable and neat. It is recommended that students try to adhere to a consistent format, which is described below.

- Typewritten in double-spaced format with a readable style and font and submitted inside the
 electronic classroom (unless classroom access is not possible and other arrangements have
 been approved by the professor).
- Arial 11 or 12-point font or Times New Roman styles.
- Page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations and online submission variances.

CITATION AND REFERENCE STYLE

Assignments completed in a narrative essay or composition format must follow APA guidelines. This course will require students to use the citation and reference style established by the American Psychological Association (APA), in which case students should follow the guidelines set forth in *Publication Manual of the American Psychological Association* (6th ed.). (2010). Washington, D.C.: American Psychological Association.

LATE ASSIGNMENTS

Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals I understand you must manage competing demands on your time. Should you need additional time to complete an assignment please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade. Assignments submitted late without a prearranged extension will be subject to a 10% late penalty. **No late assignments will be accepted after the last day of the course.**

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Academic Services

ONLINE LIBRARY RESEARCH CENTER & LEARNING RESOURCES

The Online Library Resource Center is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Center provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed to orc@apus.edu.

- Charles Town Library and Inter Library Loan: The University maintains a special library with a limited number of supporting volumes, collection of our professors' publication, and services to search and borrow research books and articles from other libraries.
- *Electronic Books:* You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- *Electronic Journals:* The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- Turnitin.com: <u>Turnitin.com</u> is a tool to improve student research skills that also detect plagiarism. Turnitin.com provides resources on developing topics and assignments that encourage and guide students in producing papers that are intellectually honest, original in thought, and clear in expression. This tool helps ensure a culture of adherence to the University's standards for intellectual honesty. Turnitin.com also reviews students' papers for matches with Internet materials and with thousands of student papers in its database, and returns an Originality Report to instructors and/or students.

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Selected Bibliography

ISSA. (2008). International systems security association home page. Retrieved October 28, 2008, from http://www.issa.org/.

SANS. (2008). Infosec reading room. Retrieved October 28, 2008, from http://www.sans.org/rr/.

TechTarget. (2008). Information security magazine. Retrieved October 28, 2008, from http://informationsecurity.techtarget.com/.

CompTIA A+ exams, visit www.comptia.org and www.CIW-certified.com

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Appendix A – Grading Rubric

All written assignments will be assessed according to this rubric. Note that a score of 0 may be assigned in any category where your work does not meet the criteria for the beginning level.

APUS Assignment					
Rubric	EXEMPLARY	ACCOMPLISHED	DEVELOPING	BEGINNNIG	TOTAL
Undergraduate Level	LEVEL	LEVEL	LEVEL	LEVEL	POINTS
300-400	4	3	2	1	
FOCUS/THESIS	Student exhibits a defined and clear understanding of the assignment. Thesis is clearly defined and well constructed to help guide the reader throughout the assignment. Student builds upon the thesis of the assignment with well-documented and exceptional supporting facts, figures, and/or statements.	Establishes a good comprehension of topic and in the building of the thesis. Student demonstrates an effective presentation of thesis, with most support statements helping to support the key focus of assignment.	Student exhibits a basic understanding of the intended assignment, but the thesis is not fully supported throughout the assignment. While thesis helps to guide the development of the assignment, the reader may have some difficulty in seeing linkages between thoughts. While student has included a few supporting facts and statements, this has limited the quality of the assignment.	Exhibits a limited understanding of the assignment. Reader is unable to follow the logic used for the thesis and development of key themes. Introduction of thesis is not clearly evident, and reader must look deeper to discover the focus of the writer. Student's writing is weak in the inclusion of supporting facts or statements.	10
CONTENT/SUBJECT KNOWLEDGE	Student demonstrates proficient command of the subject matter in the assignment. Assignment shows an impressive level of depth of student's ability to relate course content to practical examples and applications. Student provides comprehensive analysis of details, facts, and concepts in a logical sequence.	Student exhibits above average usage of subject matter in assignment. Student provides above average ability in relating course content in examples given. Details and facts presented provide an adequate presentation of student's current level of subject matter knowledge.	The assignment reveals that the student has a general, fundamental understanding of the Resource. Whereas, there are areas of some concerning in the linkages provided between facts and supporting statements. Student generally explains concepts, but only meets the minimum requirements in this area.	Student tries to explain some concepts, but overlooks critical details. Assignment appears vague or incomplete in various segments. Student presents concepts in isolation, and does not perceive to have a logical sequencing of ideas.	20

CRITICAL THINKING SKILLS	Student demonstrates a higher-level of critical thinking necessary for 300-400 level work. Learner provides a strategic approach in presenting examples of problem solving or critical thinking, while drawing logical conclusions which are not immediately obvious. Student provides well-supported ideas and reflection with a variety of current and/or world views in the assignment. Student presents a genuine intellectual development of ideas throughout assignment.	Student exhibits a good command of critical thinking skills in the presentation of material and supporting statements. Assignment demonstrates the student's above average use of relating concepts by using a variety of factors. Overall, student provides adequate conclusions, with 2 or fewer errors.	Student takes a common, conventional approach in guiding the reader through various linkages and connections presented in assignment. However, student presents a limited perspective on key concepts throughout assignment. Student appears to have problems applying information in a problem-solving manner.	Student demonstrates beginning understanding of key concepts, but overlooks critical details. Learner is unable to apply information in a problem-solving fashion. Student presents confusing statements and facts in assignment. No evidence or little semblance of critical thinking skills.	20
ORGANIZATION OF IDEAS/FORMAT	Student thoroughly understands and excels in explaining all major points. An original, unique, and/or imaginative approach to overall ideas, concepts, and findings is presented. Overall format of assignment includes an appropriate introduction (or abstract), well- developed paragraphs, and conclusion. Finished assignment demonstrates student's ability to plan and organize research in a logical sequence. Student uses at least of 5-7 references in assignment.	Student explains the majority of points and concepts in the assignment. Learner demonstrates a good skill level in formatting and organizing material in assignment. Student presents an above average level of preparedness, with a few formatting errors. Assignment contains less than 5 resources.	Learner applies some points and concepts incorrectly. Student uses a variety of formatting styles, with some inconsistencies throughout the paper. Assignment does not have a continuous pattern of logical sequencing. Student uses less than 3 sources or references.	Assignment reveals formatting errors and a lack of organization. Student presents an incomplete attempt to provide linkages or explanation of key terms. The lack of appropriate references or source materials demonstrates the student's need for additional help or training in this area. Student needs to review and revise the assignment.	20
WRITING CONVENTIONS (GRAMMAR & MECHANICS)	Student demonstrates an excellent command of grammar, as well as presents research in a clear and concise writing style. Presents a thorough, extensive	Student provides an effective display of good writing and grammar. Assignment reflects student's ability to select appropriate word usage	Assignment reflects basic writing and grammar, but more than 5 errors. Key terms and concepts are somewhat vague and not completely explained by	Topics, concepts, and ideas are not coherently discussed or expressed in assignments. Student's writing style is weak and needs	20

USE OF COMPUTER	understanding of word usage. Student excels in the selection and development of a well-planned research assignment. Assignment is error-free and reflects student's ability to prepare a high-quality academic assignment.	and present an above average presentation of a given topic or issue. Assignment appears to be well written with no more than 3-5 errors. Student provides a final written product that covers the above-minimal requirements.	student. Student uses a basic vocabulary in assignment. Student's writing ability is average, but demonstrates a basic understanding of the subject matter.	improvement, along with numerous proofreading errors. Assignment lacks clarity, consistency, and correctness. Student needs to review and revise assignment.	10
TECHNOLOGY/ APPLICATIONS	Student provides a high-caliber, formatted assignment. Learner exhibits excellent use of computer technology in the development of assignment. Quality and appropriateness of stated references demonstrate the student's ability to use technology to conduct applicable research. Given assignment includes appropriate word processing, spreadsheet and/or other computer applications as part of the final product.	Assignment presents an above-average use of formatting skills, with less than 3 errors. Students has a good command of computer applications to format information and/or figures in an appropriate format. Student uses at least two types of computer applications to produce a quality assignment.	basic knowledge of computer applications. Appearance of final assignment demonstrates the student's limited ability to format and present data. Resources used in assignment are limited. Student may need to obtain further help in the use of computer applications and Internet research.	develop better formatting skills. The student may need to take additional training or obtain help from the Educator Help Desk while preparing an assignment. Research and resources presented in the assignment are limited. Student needs to expand research scope. The number of formatting errors is not acceptable.	
TOTAL POINTS					100

Appendix B – Grading Rubric for Forums

All Forum assignments will be assessed according to this rubric. Note that a score of 0 may be assigned in any category where your work does not meet the criteria for the beginning level.

	Excellent	Good	Fair	Poor
Contributes to the (VC) learning community	Posting is insightful, thorough and interesting. Posted prior to the due date adding thought provoking interaction among classmates. (3)	Posting is thorough and interesting but submitted on the due date not allowing for interaction among classmates or instructor. (2)	Posting is interesting but lacks insight and depth. (1)	Posting is uninteresting and/or too brief for the assignments. (0.5)
Demonstrates Understanding of the Assignment	Posting demonstrates thorough understanding of the reading assignment and is substantiated by two (2) or more examples from the textbook and/or appropriate website. (3)	Posting demonstrates an understanding of the reading assignment and is substantiated by at least one (1) example from the textbook and/or appropriate website. (2)	Posting demonstrates understanding of the reading assignment but is not substantiated by examples from the textbook and/or appropriate website. (1)	Posting demonstrates very little understanding of the reading assignment. (0.5)
Provides Substantive Responses and Replies to Other Postings	Actively engaged in the forums with at least two (2) postings of other students in a manner that demonstrates substantive analysis and/or evaluation. (2)	Actively engaged in the forum with at least two (2) postings of other students where one (1) of the postings demonstrates substantive analysis and/or evaluation while second demonstrates constructive analysis but is not of the same quality as required for an excellent rating. (1)	Makes at least two (2) responses but responses fail to demonstrate constructive analysis or are inadequate. (0.5)	Less than acceptable responses Does not respond or responses are not related to the topic (0)
Utilizes Correct Grammar, Mechanics, Spelling and Sentence Structure	Posting is polished generally free of errors in mechanics, spelling, usage and sentence structure. (2)	Posting is adequate but may contain some errors in mechanics, spelling, usage and sentence structure but errors do not interfere with understanding. (1) 6/10	Posting is polished but may contain minor errors in mechanics, spelling, usage and sentence structure. (0.5)	Posting has numerous errors in mechanics, usage, spelling and sentence structure. Errors interfere with the readability.(0.25) 0.75/10