Course Prefix and Number:  CIT 225  Credit Hours:  3-3-0

Course Title:  Network Security Design

Course Prerequisites:  CIT 101


Software:  This course will use MindTap which helps prepare for the Security+ Certification.

Course Description:  An introduction to fundamentals on designing, planning, and executing vulnerability analysis of networks. Students will work on multiple topics to include, but not limited to: System Security, Network Infrastructure, Access Control, Assessments & Audits, Cryptography, and organizational Security. This course is mapped to the CompTIA Security+ Exam. This course is a required course for earning CNSS 4011-4016 certifications.

Learning Outcomes:
At the end of this course, the student will:
   A. recognize the basics of System Security;
   B. identify Network Infrastructure;
   C. recognize the fundamentals of Access Control;
   D. conduct assessments and audits of systems;
   E. implement basic Cryptography Skills; and
   F. implement basic Organizational Security Skills.

To achieve the learning outcomes, the students will be able to:
(The letter designations at the end of each statement refer to the learning outcome(s).)
   1. differentiate among various systems security threats (A);
   2. implement OS hardening practices and procedures to achieve workstation and server security (A);
   3. perform the appropriate procedures to establish application security (A);
   4. explain the purpose and application of virtualization technology (A);
   5. differentiate between the different ports and protocols, their respective threats and mitigation techniques (B);
   6. determine the appropriate use of network security tools to facilitate network security (B);
   7. apply the appropriate network tools to facilitate network security tools to facilitate network security (B);
   8. explain the vulnerabilities and implement mitigations associated with wireless networking and various transmission media (B);
   9. identify and apply industry best practices for access control methods (C);
10. organize users and computers into appropriate security groups and roles while distinguishing between appropriate rights and privileges (C);
11. deploy various authentication models and identify the components of each (C);
12. explain the difference between identification and authentication (ID Spoofing) (C);
13. conduct risk assessments and implement risk mitigation (D);
14. perform vulnerability assessments using common tools (D);
15. use monitoring tools on systems and networks and detect security-related anomalies (D);
16. conduct periodic audits of system security settings (D);
17. explain general cryptography, hashing and encryption concepts (E);
18. explain and implement protocols (E);
19. explain and implement PKI (E);
20. explain redundancy planning and its components (F);
21. implement disaster recovery procedures (F);
22. differentiate between and execute appropriate incident response procedures (F);
23. explain the importance of environmental controls (F);
24. identify and explain applicable legislation and organizational policies (F);
25. explain the concept of and how to reduce the risk of social engineering (F);
26. recognize INFOSEC security basics including: computer security and audit (A, D);
27. identify the NSTISS basics countermeasures including: technical surveillance countermeasures (C, F);
28. memorize the definition of manual/automated access controls (B);
29. recognize the importance of manual/automated access controls (B);
30. identify systems certifiers and accreditors in risk mitigation (D);
31. recognize the role of Information Assurance Manager (ISSM) (D); and
32. recognize the role of System Security Officer (ISSO) (D).

Course Requirements:
1. The certification exam(s) for this course is required to be taken on campus or an approved proctored environment.
2. A student must successfully complete the course with an average of 70% or above on the combined learning outcomes.
3. Each student is expected to attend classes regularly; excessive unexcused absences constitute grounds for suspension (refer to the student handbook for attendance policies).

Course Grading Scale:
90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
0 – 59 = F

Attendance Policy: The college attendance policy is available at http://www.bpcc.edu/catalog/current/academicpolicies.html

Course Fees: This course is accompanied with an additional non-refundable fee for
supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

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