College of Information Technology and Computing
Department of Information Technology

SYLLABUS
Course Title: **Information Assurance and Security1**
Course Code: **IT311**
Credits: 3 units (2 hours Lecture, 3 hrs Laboratory)

USTP Vision

A nationally-recognized Science and Technology (S&T) university providing the vital link between education and the economy

USTP Mission

- Bring the world of work (industry) into the actual higher education and training of the students;
- Offer entrepreneurs of the opportunity to maximize their business potentials through a gamut of services from product conceptualization to commercialization;
- Contribute significantly to the national development goals of food security and energy sufficiency through technology solutions.

Semester/Year: **1st Semester SY2020-2021** Class Schedule: Bldg./Rm. No. ICT Building 9	Prerequisite(s): **IT207 – Information Management, IT208-Networking 2, IT209 – Web Systems and Technologies 1** Co-requisite(s):
Instructor: **Jay Noel N. Rojo** Email: jaynoel.rojo@ustp.edu.ph Mobile No.:	Consultation Schedule: Bldg.Rm. No.: Bldg 09 Office Phone No./Local: (088) 856 1739 local 154

I. Course Description:

This course provides an in depth investigation into meeting security needs of modern IT systems. Students will be expected to demonstrate an ability to establish security policies and configure security devices and software. Topics covered include fundamental concepts, security mechanisms/countermeasures, compliance with regulations and standards, risk assessment and mitigation.

II. Course Outcomes:

Course Outcomes (CO)	Program Outcomes (PO)														
	01	02	03	04	05	06	07	08	09	10	11	12	13		
CO1: Examine the relationship between threats, vulnerabilities, countermeasures, attacks, compromises and remediation throughout the entire system life cycle.	E		E				E	E	E	E					
CO2: Explain the key factors involved in authentication and how they are used to verify, identify and grant access to the system															

Program Educational Objectives:	**CO3:** Describe the legal and ethical considerations related to the handling and management of enterprise information assets.	E	E	E	E			E	E	E	E	E	E	E		
	CO4: Develop an incident handling and reporting process and recommend appropriate operational and managerial processes to mitigate security and information assurance issues based on a business impact analysis report.	D	D	D	D	D	D	D	D	D	D	D	D	D		

PEO1: Graduates are proficient in the IT field and able to engage constantly in technological and professional advancement by pursuing a higher academic level and practicing quality improvement in their career and personal lives.

PEO2: Graduates are competent in generating new ideas and innovations in Information Technology with more emphasis on technopreneurship, management, IT solutions and the likes through research collaborations.

PEO3: Graduates are practicing professionals in the field of Information Technology who can contribute significantly to human development, socio-economic transformation, and patriotic initiatives.

III. Course Outline:

Allotted Time	Course Outcomes (CO)	Intended Learning Outcomes (ILO)	Topic/s	Suggested Readings	Teaching-Learning Activities	Assessment Tasks/Tools	Grading Criteria	Remarks
Week 1 3 hrs			Course Orientation (Class Policies & requirements) Orientation on the USTeP portal Creation of online student account.	Student Handbook Course Syllabus	1. Orientation Walk-through on the Information Assurance and Security Curriculum	1. Online Registration Online student enrolment to USTeP portal Social media group page.		
Week2-4 15 hrs		1. Briefly describe the history of the field of Information Assurance and Security. 2. Explain the security mindset	✓ History and Terminology ✓ Security Mindset ✓ Design principle	Principles of Information Security 4th Edition Security Engineering: A Guide to Building Dependable	- Lecture/seminar - Videos - Interactive Activities - Lecture/seminar - Videos	- online self-assessment test		

Program Outcomes: .**PO1:** Identify, select and apply appropriate knowledge of computing, science and mathematics in solving computing problems. **PO2:** Understand, apply and integrate best practices and standards in solving computing problems by evaluating their applications			**CO1**	3. Outline the system life-cycle and its relationship to security. 4. Prepare a threat analysis 5. Describe a disaster recovery scenario	✓ System/security life cycle ✓ Security implementation and mechanisms ✓ Information assurance analysis model ✓ Disaster recovery	Distributed Systems 2nd Edition	- Interactive Activities Case-study analysis Discussion	- Case-study report/analysis 1 Case-study report/analysis 2 -		

PO3: Work collaboratively among members of the team to analyze complex problems by applying analytical and quantitative reasoning; and define the computing requirements appropriate to its solution.

PO4: Communicate effectively with users to identify their needs and apply critical and creative thinking skills to do analysis and take them into account in the selection, creation, evaluation and administration of computer-based systems.

PO5: Creatively design, implement and evaluate using different computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints

PO6: Properly integrate IT-based solutions using various methods, policies and processes into the user environment effectively.

PO7: Apply and demonstrate knowledge through the use of current techniques, skills, tools, methods, theory and practices necessary for the IT profession with diversity and multicultural competencies to promote equity and social justice in the community.

Week5 - 7 12 hrs	CO2,	6. Identify the difference between symmetric and asymmetric cryptosystems, e.g., number of keys required, the types of algorithms used 7. Explain what is meant by integrity, confidentiality, and authentication	Cryptography Authentication	Principles of Information Security 4th Edition Security Engineering: A Guide to Building Dependable Distributed Systems 2nd Edition	- Lecture/seminar - Interactive Activities - Basic Java/C++/python Program - Basic Encryption Program - group activities - module quizzes	- online self-assessment test - online chapter Quiz - hands-on/ practical assessment 1 (basic Encryption) - hands-on/ practical assessment 2 (Basic Decryption)		
2 hrs			Prelim Exam			Test Questionnaire		
Wk 8-9 12 hrs	CO3	8. Explain how public key infrastructure works 9. Identify risks associated with disasters and disruptions and specify key mitigation strategies	✓ Auditing ✓ Cost/benefit analysis	Lecture Slides Videos:	- Lecture/ seminar - Interactive Activities -Brute force program/ Algorithm	- online self-assessment test - online chapter quiz -hands-on/ practical assessment3 (Ceasar Cipher) -hands-on/ practical assessment4 (Brute force)		

			10. Identify the types of company assets to be protected by a security plan.	✓ Asset management ✓ Legal Issues			- hands-on/ practical assessment5 (Out of the box Encryption software ex.MD5)		
	Week 9 5 hrs	MIDTERM EXAMINATION							

PO8: Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings by developing and contributing positively to the accomplishment of team goals through collaborative process, developing and practicing effective interpersonal skills

PO9: Assist in the creation of an effective IT Project Plan by evaluates as individual and team's values and sense of responsibility through participation in a range of learning contexts.

PO10: Communicate effectively in English (and as much as possible using local language and Filipino) with the computing community and with society at large about complex computing activities through interviewing, logical and ethical writing, presentations, and clear instructions

PO11: Able to work collaboratively and respectfully as members and leaders of diverse teams and communities in analyzing, understanding, and assessing societal issues and act

Week 10-14 23 hrs	CO4	11. Specify the key aspects of physical site security 12. Describe the purpose and elements of the key types of security audits. 13. Discuss the importance of utilizing standards and key standard processes currently utilized in information assurance and their areas of relevance.		Principles of Information Security 4th Edition Security Engineering: A Guide to Building Dependable Distributed Systems 2nd Edition	Lecture/ seminar Interactive Activities - module quizzes Case study	- online self-assessment questionaire - online chapter Quiz - hands-on/ practical assessment Case study report/analysis4 Case study report/analysis5		

responsibly in making design and implement decisions considering the result of the research relevant to the local and global impact on computing information technology on the Filipino culture, individuals, organizations, and society. **PO12:** Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.	2 hrs			Semi-Finals			Test Questionnaire		
	Week 15-17 18 hrs	CO4	14. Describe the importance of and the key elements involved in incident tracking to develop an incident handling and reporting process 15. Create a business impact analysis report that itemizes costs associated with incidents	Enforcement Information Assurance analysis model Business impact analysis report	Lecture Slides	Lecture/ seminar Interactive Activities module quizzes	-online self-Assessment - final case study/analysis		
	Week 18	**FINAL EXAMINATION**							

PO13: Apply professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology. Understand, assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice

PO14: Participate in generation of new knowledge or in research and development projects aligned to local and national development agenda or goals

PO15: Graduates are able to apply and demonstrate sufficient expertise in the field of Information Technology with the end view of contributing to the local and national economy.

IV. Course Requirements:

1. Class standing (attendance, participation, etc.) policy:
   (a) Expected classroom behavior (may want to develop this with the students, e.g., What guidelines m are appropriate for behavior and participation in a large class
   - Students must come to class on time.
   - Strict observance of deadlines.
   - Class participation is encouraged.
   - Observe proper courtesy.

   (b) Ground Rules for participation in discussions or activities.
   - Only one student may talk at a time.
   - Must follow instructions for every activity given.
   - For group activity, each member must participate accordingly.

2. Course Readings/Materials:
   (a) Titles, authors, and editions of textbooks and other materials, required and recommended

   1. Security Engineering: A Guide to Building Dependable Distributed Systems 2nd Edition
   Ross J. Anderson
   ISBN - 13: 9780471389224 Copyright 2008

   2. **Principles of Information Security 4th Edition**
   Michael E. Whitman and Herbert J. Mattord
   ISBN - 13: 9781111138219 Copyright 2012

Code	Descriptor
I	Introductory Course
E	Enabling Course
D	Demonstrative Course

Code	Definition
I	An introductory course to an outcome
E	A course that strengthens the outcome
D	A course demonstrating an outcome

(b) Supplies needed (calculators, software, workbooks, disks, CDs, lab supplies, art supplies, etc.)

- Javascript/Type Scripting Software
- C/C++ Programming Software
- Python Programming Software IDE
- Java Programming (JCreator, NetBeans)
- Operating System(Windows, Linux, etc)

(c) URLs for online resources

- https://www.cl.cam.ac.uk/~rja14/book.html (down loadable ebook)
- https://www.booksfree.org/principle-of-information-security-fourth-edition-by-michael-e-whitman-pdf/
- https://www.springboard.com/blog/cryptography-basics-the-ins-and-outs-of-encryption/
- https://www.pearsonitcertification.com/articles/article.aspx?p=1680706

3. Assignments, Assessment, and Evaluation

(a) Policy concerning homework (grading, posting, late policy, etc.)

Students may share ideas as they work on their assignments but the submitted assignments must be their own work.

(b) Policy concerning make-up exams

No special examination is given unless a student has valid reasons stipulated in the Student Handbook Article 3: Excused Absences.

(c) Policy concerning late assignments/requirements

- Assignments: no assignment for a particular date, will have a grade of zero (0).
- Projects: late submission of projects will have a corresponding consequence. There will be a deduction of points for every day that the project submission will be late.

(d) Preliminary information on term papers or projects, with due dates

- Projects for midterm and finals are given ahead of time along with its corresponding due dates, rubrics, and other requirements for the completion of the projects.
- Non-submission of projects does not mean you

(e) List of assignments that will impact the final grade and % weight given each

- Portfolio: grade will be part of the PIT.

(f) Description in detail of grading processes and criteria (how many quizzes, tests, papers; weighting of each; amount of homework, etc.) or the GRADING POLICY

Grading System

Lecture Grade (67%)	
Performance Item/Criteria	**%**
Class Performance Item	10%
Quizzes (All quizzes, prelim and pre-final exams)	40%
Major Exams (i.e, Midterm and Final Exams)	30%
Performance Innovative Task / Project	20%
TOTAL	**100%**
Laboratory Grade (33%)	
Performance Item/Criteria	**%**
Laboratory Exercises/Reports	30%

Laboratory Major Exam	40%
Hands on Exercises	30%
TOTAL	**100%**

Term/Periodic Grade = 67% Lecture Grade + 33% Laboratory Grade

Options:

FINAL GRADE (FG) = 1/3 Midterm Grade (MTG)+ 2/3 Final Term Grade (FTG)

FINAL GRADE (FG) = 1/2 Midterm Grade (MTG)+ 1/2 Final Term Grade (FTG)

(Passing Percentage is 70%)
Ex. In a 10-item quiz, obtaining 7 points would be equivalent to a passing score.

Disclaimer:
Every attempt is made to provide a complete syllabus that provides an accurate overview of the subject. However, circumstances and events make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the student.

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