



NYU

TANDON SCHOOL  
OF ENGINEERING

## Course Syllabus

Computer Science and Engineering  
Information Systems Security Eng & Mgt

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### Course Information

#### Course Prerequisites

This course will not be about the technologies of information security, but how those technologies are integrated into a system and managed. A broad (but not detailed) knowledge of information security technologies is assumed. A working understanding of common security threats and defensive technology from professional experience is sufficient.

#### Course Description

This course presents a system and management view of information security: what it is, what drives the requirements for information security, how to integrate it into the systems-design process and life-cycle security management of information systems. A second goal is to cover basic federal policies on government information security and methodologies. Topics include information-security risk management, security policies, security in the systems-engineering process, laws related to information security and management of operational systems.



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## Course Objectives

By the end of this course students should be able to:

- Describe a management view of cybersecurity
- Enumerate and illustrate the general principles of risk analysis
- Explain the fundamentals of business continuity management and how it can help address security incidents
- Analyse security components within organisational context: identity and access management, data protection, security operations, etc.
- Create a plan for the third party risk assessments
- Apply this course knowledge to develop the system security strategy in practical cases

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## Course Structure

Online Format course, each week of the course will be aligned to modules.

Breakdown:

Project: 40%

Homework: 40%

Participation: 15%

Reading/Attendance: 5%

Requirements:

Homework

Threaded Discussions- once or twice a week



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## Weekly Structure

### **1. Introduction**

- Fundamentals of information security management - course overview and expectations.
- Term project approach goals, teaming, and expectations.
- Weekly discussion topic and assignment.
- ISM & Law

### **2. IS program, policy management, and security governance. Information security program**

- Security policy management.
- Security governance.

### **3. Business priorities, secure development, and training & awareness**

- Business priorities and information security risks.
- Integrating security into software development process.
- Security training and awareness.

### **4. Cyber threats and information security risks**

- Cyber Threats, including motivation, trends, and threat monitoring
- General principles of risk analysis

### **5. IT risk analysis, risk management, and security risk metrics**

- Major steps of risk analysis (probability, impact, prioritization, etc.).
- Approaches to managing risks (reduction, mitigation transfer, and acceptance).
- Managing risk with metrics.

### **6. Identity and access management (IAM)**



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- What is it? Identity and access management approach.
- IAM service components (manage access, enforce access, report access)
- IAM reference architecture and strategy

### **7. Data protection**

- Identifying critical assets / data classification (data elements, PII, process)
- Data loss prevention (data in motion, data at rest, and data at endpoint)
- Data privacy (privacy laws, data flow, data inventory, integrated framework)

### **8. Incident response planning and business continuity**

• Security incident response planning (prepare, identify, assess, contain, investigate, resolve, learn).

• Business Continuity Planning: making sure the organization can continue functioning after a security incident.

### **9. Term Project Preliminary Gate Review**

• Each team will present their preliminary (high level) project approach for instructor feedback

and guidance.

### **10. Third party risk management**

- Third party risk management.
- Third party risk assessment.

### **11. Security monitoring**

- Security monitoring overview and how it can help manage risk.



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- Overview of security monitoring data, logging requirements, and monitoring tools

**12. Cloud security models (SaaS, PaaS, IaaS)**

- Cloud security concerns and risks.
- Which applications and data can be migrated to the Cloud?
- Impact to traditional security management.

**13. Mobile security, outsourcing, auditing**

- Approaches to securing mobile devices
- Emerging challenges, including Bring your own device (BYOD)
- Overview of managed security services.
- Evaluation and assurance and information security audits.

**14. Term Project Final Gate Review:** each team will present their final (detailed) project design for class discussion and instructor feedback. Final deliverable will be a 20-page executive summary presentation.

- This review is essentially an outline of the project final report.
- Complete Term Project Report is due during the week following the final project presentation.

**Total Lessons: 14**

Learning Time Rubric



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<b>Learning Time Element</b>	<b>Asynchronous* / Synchronous**</b>	<b>Time on Task for Students (weekly)</b>	<b>Notes</b>
Reading Assignments / Recorded Lecture	Asynchronous	2.5 hours	Video format. Expect quizzes throughout the module or weekly chapter readings
Weekly Discussion Board	Asynchronous	1.5 hours	Students are expected to post initial response to weekly topic questions. See Interaction Policy.
Assessment (Labs and Programming assignments)	Asynchronous	2 hours	Students submit their assignments by [the end of the week]
Reading Assignment	Asynchronous	2 hours	Reading assigned textbook chapters and journal articles.
Live webinars	Synchronous	2 hours	Group discussion in class, live, overly weekly chapter



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## Course Communication

### Announcements

#### **WEEKLY VIRTUAL OFFICE HOURS**

Professor normally will be available electronically to answer questions, resolve problems, and provide guidance Wednesday (6pm – 8pm EST), and other times as his schedule permits.

Please do not post questions to the weekly required discussion topic boards each week—they should only be used for the specific discussion questions. Please send course related email that is not of interest to the class to professor at [mjv312@nyu.edu](mailto:mjv312@nyu.edu)

TA Name - Anshita Lalwani

Availability – Tuesday – Saturday (5pm-8pm EST) TA email – [al5764@nyu.edu](mailto:al5764@nyu.edu)

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## Readings

Textbooks: There is no textbook that covers even most of the material in this course in a complete manner. One book is useful for both the material in this course, and as valuable references for security professionals. Reading assignments will be made in each of these books, and other references will be found on the web.

Required: Whitman and Mattord, *Management of Information Security*, Sixth Edition, ISBN-13: 978- 1337405713, ISBN-10: 133740571X, Cengage Learning, 2019.





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- A good, general reference for risk analysis, policy, standard security management processes
  - In my view, does not properly reflect the system view
- Other References: Various web sites, etc. are listed on a per lecture basis.

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## Assignments and Exams

### Exams Administered and Proctored Online

Exams in this course are administered through NYU Classes. You are required to arrange an online proctor for your exams via ProctorU. More information on ProctorU and scheduling proctoring sessions can be found on [Tandon Online's website](#).

### Exams Administered On Paper and Proctored Remotely

Exams in this course are administered via paper and pencil. If you are not able to attend an exam session on-campus, you are required to secure in-person proctoring arrangements near your location. Tandon Online's website.

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## University Policies

### Moses Center Statement of Disability

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu)) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.



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## NYU Tandon School of Engineering Policies and Procedures on Academic Misconduct<sup>1</sup>

- A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.
- B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:
- a. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.
  - b. Fabrication: including but not limited to, falsifying experimental data and/or citations.
  - c. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
  - d. Unauthorized collaboration: working together on work that was meant to be done individually.
  - e. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express

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<sup>1</sup> Excerpted from the [Tandon School of Engineering Student Code of Conduct](#)



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and prior permission has been received from the course instructor(s) or research adviser involved.

- f. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.