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|---|---|
| **Faculty: Information Technology** | |
| **Department: Cybersecurity** | **Program: Master** |
| **Academic year:** | **Semester:** |

# Course Plan

## First: Course Information

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|---|---|---|---|---|
| ***Course No.:*** ***1506723*** | ***Course Title:*** **Cybersecurity Risk Management** | ***Credit Hours: 3*** | ***Theoretical: 3*** | ***Practical: 0*** |
| ***Prerequisite No. and Title:*** | | ***Section No.:*** | ***Lecture Time:*** | |
| ***Level in JNQF*** | ***9*** | | | |
| ***Type Of Course:*** | ☐ ***Obligatory University Requirement*** ☐ ***Elective University Requirement*** ☐ ***Obligatory Faculty Requirement*** ☐ ***Elective Faculty Requirement*** ☐ ***Obligatory Specialization Requirement*** ■ ***Elective Specialization Requirement*** ☐ ***Ancillary course*** | | | |
| ***Type of Learning:*** | ☐ ***Face-to-Face Learning*** ■ ***Blended Learning (2 Face-to-Face + 1 Asynchronous)*** ☐ ***Online Learning (2 Synchronous+ 1 Asynchronous)*** | | | |

## Second: Instructor's Information

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|---|---|---|---|
| ***Course Coordinator:*** | | | |
| ***Name:*** | ***Academic Rank:*** | | |
| ***Office Number:*** | ***Extension Number:*** | ***Email:*** | |
| ***Course Instructor:*** | | | |
| ***Name:*** | ***Academic Rank:*** | | |
| ***Office Number:*** | ***Extension Number:*** | ***Email:*** | |
| ***Office Hours:*** | ***Sunday*** ***Monday*** ***Tuesday*** ***Wednesday*** ***Thursday*** | | |

## Third: Course Description

This course covers the professional practice of cyber security risk management considered from the perspective of enterprise governance. It encompasses cyber security risk identification, classification, measurement, remediation, monitoring and reporting. Concepts are explained with examples and illustrations to accelerate the learning process.

## Fourth: Course Objectives

1. Introducing the student to the concepts, theories, principles and practices of Risk Management.
2. Developing the student's ability to deal with Risk Management in Cyber Security.
3. Analyze the cyber security threats, vulnerabilities and risks faced by an organization
4. Assess the cyber security posture of an organization and recommend and implement appropriate solutions
5. Test, monitor and continually improve the effectiveness of an organization's cyber security defense mechanisms.
6. Formulate cyber security and data protection policies and procedures for an organization.

## Fifth: Learning Outcomes

| *Level descriptor according to (JNQF)* | *CILOs Code* | *CILOs*<br>If any CLO will not be assessed in the course, mark NA. | *Associated PILOs Code*<br>*Choose one PILO for each CILO** | *Assessment method*<br>*Choose at least two methods* |
|---|---|---|---|---|
| **Knowledge** | **K1** | Provide the students with the basic and advanced practice of Risk Management in Cyber Security | **PK1** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **K2** | Describe the underlying principles of risk analysis and management | **PK2** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **K3** | Recognize the difference between vulnerabilities and threats | **PK3** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **K4** | Classify and describe a number of different risk assessment/management methodologies | **PK4** | • Mid-term Exam<br>• Final Exam<br>• Research |
| **Skills** | **S1** | Identify and explain various threat sources and the impacts that their materialization may manifest | **PS1** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **S2** | Describe the risk management process, as it pertains to the protection of assets | **PS2** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **S3** | Evaluate and select appropriate risk treatment options according to the combination of impacts and probabilities that the risk analysis has produced. | **PS3** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **S4** | Conduct independent research to better comprehend a certain topic or stay current with field developments. | **PS4** | • Mid-term Exam<br>• Final Exam |

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| | | | | • Research |
| **Competencies** | **C1** | Utilize different techniques for dealing with risk management in cyber security. | **PC3** | • Mid-term Exam<br>• Final Exam<br>• Research |
| | **C2** | Develop effective communication skills with the students in the proper way to deliver the required skills and providing them with knowledge about risk management | **PC4** | • Mid-term Exam<br>• Final Exam<br>• Research |

*CILOs: Course Intended Learning Outcomes; PILOs: Program Intended Learning Outcomes; For each CILO, the PILO could be the same or different.

## Sixth: Learning Resources

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|---|---|---|---|
| ***Main Reference:*** | **Cybersecurity Risk Management: Mastering the Fundamentals Using the NIST Cybersecurity Framework** | | |
| ***Author: Brian Haugli*** | ***Issue No.:1th*** | *Print:* | ***Publication Year:2021*** |
| ***Additional Sources &Websites:*** | • Research Papers<br>• How to Measure Anything in Cybersecurity Risk v2, Richard Seiersen, 1st Edition 2023, ISBN-10: 1119892309 \| ISBN-13: 978-1119892304<br>• Fundamentals of Adopting the NIST Cybersecurity Framework, David Moskowitz, Kindle Edition 2022, ISBN-13: 978-0117093706<br>• An Introduction to Computer Security: the NIST Handbook, http://csrc.nist.gov/publications/nistpubs/800-12/handbook.pdf Access on June 29, 2022<br>• Cybersecurity, http://www.windowsecurity.com/whitepaper/ Access on June 29, 2022 | | |
| ***Teaching Type:*** | ☐ ***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ■ ***MS Teams*** ■ ***Moodle*** | | |

## Seventh: Course Structure

| Lecture Date | Course Intended Teaching Outcomes (CILOs) | Topics | Teaching Procedures* | Teaching Methods** | References*** |
|---|---|---|---|---|---|
| **Week 1** | C2, K1 | An Overview of Cybersecurity Risk Management | Face-to-Face | Lecturing | Textbook-ch1 |
| **Week 2** | C2, K1 | Asset Management, Governance, Risk Assessment and Management | Face-to-Face | Lecturing, Assignments | Textbook-ch1, Research Papers |
| **Week 3** | S1, K2, K3, K4 | User and Network Infrastructure Planning and Management | Asynchronous | Assignment, videos, Quiz | Textbook-ch2 |
| **Week 4** | S1, K2, K3, K4 | Identity Management, Authentication, and Access Control, Awareness and Training | Face-to-Face | Lecturing, Assignments | Textbook-ch2 |
| **Week 5** | S1, K2, K3, K4 | Data Security, Information | Face-to-Face | Lecturing, Assignments | Textbook-ch2 |

| | | | | | |
|---|---|---|---|---|---|
| | | Protection Processes and Procedures, Word about Patch Management, Maintenance, Protective Technology | | | |
| **Week 6** | S2, K2, K3, K4 | Tools and Techniques for Detecting Cyber Incidents | Asynchronous | Assignment, videos, Quiz | Textbook-ch3 |
| **Week 7** | S2, K2, K3, K4 | Anomalies and Events, Word about Antivirus Software, Continuous Monitoring, Detection Processes | Face-to-Face | Lecturing, Assignments | Textbook-ch3, Research Papers |
| **Midterm Exam** | | | | | |
| **Week 8** | S3, K2, K3, K4 | Developing a Continuity of Operations Plan | Face-to-Face | Lecturing, Assignments | Textbook-ch4 |
| **Week 9** | S3, K2, K3, K4 | Response, Analysis, | Asynchronous | Assignment, videos | Textbook-ch4 |
| **Week 10** | S1, K2, K3, K4 | Mitigation, Recover | Face-to-Face | Lecturing | Textbook-ch4, Research Papers |
| **Week 11** | S2, K2, K3, K4 | Supply Chain Risk Management | Face-to-Face | Lecturing, Assignments | Textbook-ch5 |
| **Week 12** | C1, C2, S3, S4, K1 | Software Bill of Materials, NIST Revised Framework Incorporates Major Supply Chain Category | Asynchronous | Assignment, videos, Quiz | Textbook-ch5 |
| **Week 13** | C1, C2, S3, S4, K1 | Manufacturing and Industrial Control Systems Security | Face-to-Face | Lecturing | Textbook-ch6, Research Papers |
| **Week 14** | C1, C2, S3, S4, K1 | Essential Reading on Manufacturing and Industrial Control Security | Face-to-Face | Lecturing, Assignments | Textbook-ch6 |
| **Final Exam** | | | | | |

*Teaching procedures: (Face-to-Face, synchronous, asynchronous). ** Teaching methods: (Lecture, video….).
*** Reference: (Pages of the book, recorded lecture, video….)

## Eighth: Assessment Methods

| Methods | Online Learning | Blended Learning | Face-To-Face Learning | Specific Course Output to be assessed<br>**If any CILO will not be assessed in the course, mark NA. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | K1 | K2 | K3 | K4 | S1 | S2 | S3 | S4 | C1 | C2 |
| First Exam | | | | | | | | | | | | | |
| Second Exam | | | | | | | | | | | | | |
| Mid-term Exam | | 30 | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| Participation | | | | | | | | | | | | | |
| Asynchronous Activities | | 20 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quizzes | | 10 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Assignments/ Research | | | | | | | | | | | | | |
| Group presentation | | | | | | | | | | | | | |
| Final Exam | | 40 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Total out of 100 | | 100 | | | | | | | | | | | |

## Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

| Approval | Name | Date | Signature |
|---|---|---|---|
| **Head of Department** | | | |
| **Faculty Dean** | | | |