|  |  |
| --- | --- |
| **Course Title:** | **Fundamentals of Cybersecurity** |
| **Course Code:** | **501MYR-3** |
| **Program:** | **Professional Master of Cybersecurity** |
| **Department:** | **Information Systems** |
| **College:** | **College of Computer Science and Information Systems** |
| **Institution:** | **Najran University** |

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# Course Identification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1. Credit hours:** | |  | | |
| **2. Course type** | | | | |
|  | Required | | Elective | |
| **3. Level/year at which this course is offered:** | | | | **Level 1** |
| **4. Pre-requisites for this course** (if any)**:** | | | | |
| **5. Co-requisites for this course** (if any)**:** | | | | |
|  | | | | |

**6. Mode of Instruction** (mark all that apply)

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | ✓ | 80 |
| **2** | **Blended** |  |  |
| **3** | **E-learning** | ✓ | 20 |
| **4** | **Distance learning** |  |  |
| **5** | **Other** |  |  |

**7. Actual Learning Hours** (based on academic semester)

|  |  |  |
| --- | --- | --- |
| **No** | **Activity** | **Learning Hours** |
| **1** | **Lecture** | 45 |
| **2** | **Laboratory/Studio** |  |
| **3** | **Seminars** |  |
| **4** | **Others** (specify) |  |
| **Total** | | 45 |

# 

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description This course introduces the concept of cyber security, its interdisciplinary nature and its relation to nation, businesses, society and people. Participating students would gain knowledge of various cyber security terminologies, technologies, protocols, threat analysis, security principles, security mechanisms, policies, forensics, incidence response and methods/practices to secure systems. |
|  |
| 2. Course Main Objective To understand the main concepts of cybersecurity and their laws. |
|  |

## 3. Course Learning Outcomes

| **Course Learning Outcomes (CLOs)** | | **Aligned****PLOs\*** |
| --- | --- | --- |
| 1 | **Knowledge and Understanding** |  |
| 1.1 | Ability to understand and explain fundamental security concepts | K1, K2 |
| 1.2 | Ability to Identify and describe key issues associated with IAS | K1 |
| 1.3 |  |  |
| 1... |  |  |
| **2** | **Skills :** |  |
| 2.1 | Explain potential threats, risks and attacks to information assets | S2, S3 |
| 2.2 | Describe the lifecycle of information security systems | S2, S3 |
| 2.3 |  |  |
| 2... |  |  |
| **3** | **Values:** |  |
| 3.1 | Discuss various security methods, procedures and tools for detection and reaction to threats | V2 |
| 3.2 | Describe various administrative, legal, ethical and professional issues and liabilities related to IAS | V2 |
| 3.3 |  |  |
| 3... |  |  |

\* Program Learning Outcomes

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
| 1 | Course Delivery | 3 |
| 2 | Introduction To Information Security | 6 |
| 3 | The Need for Security | 3 |
| 4 | Legal, Ethical, And Professional Issues in Information Security | 3 |
| 5 | Planning For Security | 3 |
| 6 | Risk Management | 3 |
| 7 | Security Technology: Firewalls And VPNS | 6 |
| 8 | Security Technology: Other Tools | 3 |
| 9 | Cryptography | 3 |
| 10 | Physical Security | 3 |
| 11 | Implementing Information Security. | 6 |
| 12 | Project Presentation | 6 |
| **Total** | | 48 |

# D. Teaching and Assessment

## 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

| **Code** | **Course Learning Outcomes** | **Teaching Strategies** | **Assessment Methods** |
| --- | --- | --- | --- |
| **1.0** | **Knowledge and Understanding** | | |
| 1.1 | Ability to understand and explain fundamental security concepts | Lectures, Demonstrations, Group Discussions | Quiz, Mid Exam, Final Exam |
| 1.2 | Ability to Identify and describe key issues associated with IAS | Lectures, Demonstrations, Group Discussions | Quiz, Mid Exam, Final Exam |
| … |  |  |  |
| **2.0** | **Skills** | | |
| 2.1 | Explain potential threats, risks and attacks to information assets. | Lectures, Lab Demonstrations, Group Discussions | Quiz, Mid Exam, Final Exam |
| 2.2 | Describe the lifecycle of information security systems | Lectures, Demonstrations, Group Discussions | Quiz , Mid Exam , , Final Exam |
| … |  |  |  |
| **3.0** | **Values** | | |
| 3.1 | Discuss various security methods, procedures and tools for detection and reaction to threats |  | Course Project |
| 3.2 | Describe various administrative, legal, ethical and professional issues and liabilities related to IAS | Lectures, Demonstrations, Group Discussions |  |
| … |  |  |  |

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | Quiz1 | 3rd week | 1% |
| **2** | Theory Assignment 1 | 5th week | 2% |
| **3** | Quiz 2 | 5th week | 2% |
| **4** | Theory Assignment 2 | 7th week | 3% |
| **5** | Midterm Exam-I | 9th week | 30% |
| **6** | Quiz 3 | 8th week | 2% |
| **7** | Theory Assignment 3 | 9th week | 3% |
| **8** | Theory Assignment 4 | 11th week | 2% |
| **9** | Project | Exam Week | 15% |
| **10** | Final Theory Exam | Exam Week | 40% |

**\*Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

# E. Student Academic Counseling and Support

|  |
| --- |
| **Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:** |
| * 10 weekly office hours + appointments * 3 weekly academic advising hours * Extra weekly 2 office hours prior to exams. |

# F. Learning Resources and Facilities

## 1. Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | ***Michael E. Whitman, Herbert J. Mattord, Principles of Information Security, Latest Edition. Course Technology, Cengage Learning, ISBN-13: 978- 1285448367.*** |
| **Essential Reference Materials** | * Reading Assignments and Case Studies * Computer Security: Art and Science, Matt Bishop (ISBN: 0-201-44099-7), Addison-Wesley 2003 |
| **Electronic Materials** |  |
| **Other Learning Materials** |  |

## 2. Educational and research Facilities and Equipment Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | * Lecture Rooms with appropriate number of seats, Projector with Screen and a white board or a smart board.   All the computers in all the laboratories should be installed with the latest version of the required software. |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | * One PC and one projector and data show in the lecture room * Number of PCs according to strength of students in the lab room |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | NA |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
| 1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching | * Online Course Survey: By the end of each semester, *students* give their opinions about many factors in the course. They give feedback about the teaching strategies, assessment methods, textbooks, instructor, etc.   Feedback about Course Learning Outcomes (CLOs): A course survey is distributed to *students* to take their opinions about the CLOs. | Direct |
| 2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department | * Consulting *peers* on teaching. * Discussion about the course in department. * Discussion with experienced teaching staff in the subject. * Using e-mails to receive students’ expectation in the course. | Direct |
| 3. Processes for Improvement of Teaching | * Relate CLOs to assessment methods and teaching strategies * Describe the relationships between the course's topics and CLOs. * Course syllabus must be distributed in the first week. It should contain the necessary information about the course (CLOs, assessment methods, descriptions, etc.) * Implement the improvement plan of previous semester. * Ensure that all students participate in the class. * Encourage students to attend tutorials and to benefit from office hours. * Contact lab instructor to make sure that the theory is consistent with the lab materials. | Indirect |
| 4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) | * Mid and Final exams are reviewed by *Course Coordinators* to check the compatibility between questions and CLOs. * All the exams (mid and final ) and final grade sheet will be rechecked by a *faculty member* assigned by GEC before the final result.   *HoD, Vice Dean* and *Dean* will review and approve the final grades before publishing on the internet. | Direct |
| 5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. | * Each *instructor* has to teach the course according to the previous course materials and improvement plans. * By the end of each semester, a course file containing all activities and samples must be prepared and submitted to the college. * Evaluation of CLOs can be used to compare the improvement from previous evaluation. * Improvement plan based on the online course survey must be prepared. * Action plan based on the CLOs achievements must be prepared. | Indirect |
|  |  |  |
|  |  |  |

**Evaluation Areas/Issues** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

**Assessment Methods** (Direct, Indirect)

# H. Specification Approval Data

|  |  |
| --- | --- |
| **Council / Committee** | Department of Information Systems |
| **Reference No.** |  |
| **Date** | 5/1/2022 |