|  |  |
| --- | --- |
| **Course Title:** | **Research Methodology** |
| **Course Code:** | **597 PMIS-3** |
| **Program:** | **MSc in Cybersecurity MCYR** |
| **Department:** | **Information Systems** |
| **College:** | **Computer Science and information systems** |
| **Institution:** | **Najran University** |

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# A. Course Identification

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1. Credit hours:3** | | | |  | | | | | | | | | | | | |
| **2. Course type** | | | | | | | | | | | | | | | | |
| **a.** | University | |  | | College | | | Ö | Department | | | | Ö | Others |  |  |
| **b.** | | Required | | | | Ö | Elective | | |  |  | | | | | |
| **3. Level/year at which this course is offered:** | | | | | | | | | | | | **Year 1 – level 2** | | | | |
| **4. Pre-requisites for this course** (if any)**:** | | | | | | | | | | | | | | | | |
| **5. Co-requisites for this course** (if any)**: NA** | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |

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

| **No** | **Mode of Instruction** | **Contact Hours** | **Percentage** |
| --- | --- | --- | --- |
| **1** | **Traditional classroom** | 45 | 100% |
| **2** | **Blended** |  |  |
| **3** | **E-learning** |  |  |
| **4** | **Distance learning** |  |  |
| **5** | **Other** |  |  |

**7. Contact Hours** (based on academic semester)

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

# B. Course Objectives and Learning Outcomes

|  |
| --- |
| 1. Course Description This course focuses on the methodology of doing scientific research. Topics covered include: the research problem, review of literature, conceptual modelling and research design, case study research, questionnaire design for survey, collection of data, analysis methods including qualitative, quantitative and mixed data analysis, research ethics, reporting the results and publishing. |
|  |
| 2. Course Main Objective |
| After successful completion of this course students should be able to:   * describe the contents and process of proposal development * describe the areas of cybersecurity * describe the difference between graduate and undergraduate work in cybersecurity * list and describe different approaches to research * conduct a literature search on a specific topic * design and validate an experiment * collect experimental data, analyze it, and present it. * write a paper to the standards of a selected publication |

## 3. Course Learning Outcomes

| **CLOs** | | **Aligned****PLOs** |
| --- | --- | --- |
| 1 | **Knowledge and Understanding** |  |
| 1.1 | describe the contents and process of proposal development | K3 |
| 1.2 | describe the areas of cybersecurity | K2 |
| 1.3 | describe the difference between graduate and undergraduate work in cybersecurity | K1 |
| 1.4 | list and describe different approaches to research | K3 |
| 1.5 |  |  |
| **2** | **Skills** |  |
| 2.1 | collect experimental data, analyze it, and present it. | S1, C2 |
| 2.2 | write a paper to the standards of a selected publication | S5 |
| 2.3 | conduct a literature search on a specific topic | C3 |
| 2.4 | design and validate an experiment | S2 |
| **3** | **Competences:** |  |
| 3.1 |  |  |
| 3.2 |  |  |
| 3.3 |  |  |
| 3... |  |  |

# C. Course Content

|  |  |  |
| --- | --- | --- |
| **No** | **List of Topics** | **Contact Hours** |
| 1 | Course introduction and overview | 3 |
| 2 | Masters project process overview; Generating research ideas | 3 |
| 3 | Structure of research papers, | 3 |
| 4 | Current research in IT and security, Part I, Research Design | 3 |
| 5 | Current research in IT and security, Part II, Research Design Part II | 3 |
| 6 | Research methodology in IT and security I, Research Methodology | 3 |
| 7 | Research methodology in IT and security II, Research Questions | 3 |
| 8 | Research methodology in IT, and security III, Research Design and Methods | 3 |
| 9 | Literature searching, Part I, | 3 |
| 10 | Literature searching, Part II, Sampling Methods | 3 |
| 11 | Literature searching, Part III, Simulations As a Research Methodology | 3 |
| 12 | Scholarly publishing; Conference and journal submission, Understanding Research | 3 |
| 13 | Scholarly publishing; Conference and journal submission, Understanding Research | 3 |
| 14 | Course wrap-up | 3 |
| 15 | No class – complete all written assignments! | 3 |
| **Total** | | 45 |

# 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 | describe the contents and process of proposal development | TS-1: Relate Course  Learning Outcomes (CLOs)  to the topics  TS-2: Giving Lectures in PPT, recalling the lecture through asking Questions. Clarifying doubts on Lecture.  TS-3: Conducting a discussion of real life  problems, among teacher, students | Quiz  Assignments  Midterm Examination  Final Examination |
| 1.2 | describe the areas of networking and system administration |
| 1.3 | describe the difference between graduate and undergraduate work in networking and system administration |
| 1.4 | list and describe different approaches to research |  |  |
| **2.0** | **Skills** | | |
| 2.1 | collect experimental data, analyze it, and present it. | TS-1: Relate Course  Learning Outcomes (CLOs) to the topics  TS-2: Giving Lectures in PPT, recalling the lecture through asking Questions. Clarifying doubts on Lecture.  TS-3: Conducting a discussion of real-life problems, among teacher, students  TS-4: Cooperative learning among the students. Encourage students to browse different journals, seminars or websites at their leisure time to have a better understanding about the course | Quiz  Assignments  Midterm Examination  Final Examination, |
| 2.2 | write a paper to the standards of a selected publication | Quiz, Assignments  Final Examination |
| 2.3 | conduct a literature search on a specific topic | Quiz  Assignments  Final Examination |
| 2.4 | design and validate an experiment | Lab Assignments,  Midterm Examination, |
| 2.5 |  | Final Examination |
| **3.0** | **Competences** | | |
| 3.1 |  |  |  |
| 3.2 |  |
| … |  |

## 2. Assessment Tasks for Students

| **#** | **Assessment task\*** | **Week Due** | **Percentage of Total Assessment Score** |
| --- | --- | --- | --- |
| **1** | Quiz | TBA | 5% |
| **2** | Midterm (In Class or Take-home Exam) | TBA | 30% |
| **3** | Project | TBA | 10% |
| **4** | Assignments | TBA | 5% |
| **7** | Final Presentation | TBA | 10% |
| **8** | Final Exam | TBA | 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 :** |
| * Weekly office hours + Appointments * Weekly academic advising hours * Extra weekly 2 office hours prior to exams. * Tutorials are also provided to the students |

# F. Learning Resources and Facilities

## 1.Learning Resources

|  |  |
| --- | --- |
| **Required Textbooks** | None |
| **Essential References Materials** |  |
| **Electronic Materials** |  |
| **Other Learning Materials** |  |

## 2. Facilities Required

| **Item** | **Resources** |
| --- | --- |
| **Accommodation**  (Classrooms, laboratories, demonstration rooms/labs, etc.) | Room B-58  Laboratory A-16L |
| **Technology Resources**  (AV, data show, Smart Board, software, etc.) | Data show, PCs. |
| **Other Resources**  (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list) | * Printer is important in the lab to print reports and some snapshots. * Projector and PC for the lab instructor is required |

# G. Course Quality Evaluation

| **Evaluation**  **Areas/Issues** | **Evaluators** | **Evaluation Methods** |
| --- | --- | --- |
| Online course survey | Students | Indirect |
| Focus group discussion with small groups of students. | Instructor | Direct |
| Extent of achievement of course learning outcomes | instructor | Direct |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Evaluation areas** (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** |  |
| **Reference No.** |  |
| **Date** |  |