Faculty: Information Technology	
Department: Software Engineering	**Program: Master**
Academic year:	**Semester:**

Course Plan

First: Course Information

***Course No.:* 1503711**	***Course Title: Research Methodology***	***Credit Hours: 3***	***Theoretical: 3***	***Practical: 0***
Prerequisite No. and Title:		***Section No.:***	***Lecture Time:***	
Level in JNQF				
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 (1 Synchronous+ 1 Asynchronous)***			

Second: Instructor's Information

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 provides an integrative approach to research methodologies, particularly suited for postgraduate studies in computer science and related fields. The course focuses on understanding and applying research philosophies and methodologies, effective proposal and report writing, and essential data collection and analysis skills. It uniquely blends traditional research approaches with innovative techniques, preparing students for successful academic and professional research endeavors in the evolving landscape of trending technology.

Fourth: Course Objectives

1. Understand Research Fundamentals: Build a foundational knowledge of research principles and methodologies relevant to computer science, information systems, and cybersecurity.
2. Develop Proposal and Report Writing Skills: Gain proficiency in writing research proposals and reports, focusing on clarity, structure, and relevance.
3. Master Literature Review Techniques: Learn to conduct in-depth literature reviews, critically analyzing existing research and identifying key gaps and trends.
4. Master Data Collection and Analysis Techniques: Acquire practical skills in collecting and analyzing data, using both traditional and modern tools and techniques relevant to the technology sector.
5. Understand Research Ethics and Compliance: Grasp the ethical considerations and compliance requirements in conducting research in tech-related fields.
6. Develop Proposal and Report Writing Proficiency: Gain expertise in formulating clear and concise research proposals and reports, essential for academic and professional success.

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	*CILOs Code*	*CILOs* If any CLO will not be assessed in the course, mark NA.	*Associated PILOs Code* *Choose one PILO for each CILO**	*Assessment method* *Choose at least two methods*
Knowledge	**K1**	Understand advanced research methodologies specific to computer science, information systems, and cybersecurity.	**PK2**	• Assignments • quizzes • Research proposal • Final Exam
	K2	Grasp the ethical and legal aspects of conducting technology research.	**PK1**	• Assignments • quizzes • Research proposal • Final Exam
	K3	Ability to conduct research thorough and critical literature reviews.	**PK3**	• Assignments • quizzes • Research proposal • Final Exam
	K4	Acquire knowledge of various data analysis techniques suitable for technology research.	**PK4**	• Assignments • quizzes • Research proposal • Final Exam
Skills	**S1**	Develop the ability to design a comprehensive research proposal, effectively utilizing techniques like the funnel strategy and mind mapping.	**PS5**	• Assignments • quizzes • Research proposal • Final Exam
	S2	Acquire skills in foundational research writing, including constructing a literature review and developing an analytical framework.	**PS2**	• Assignments • quizzes • Research proposal • Final Exam

	S3	Learn to effectively collect, analyze, and present data in a manner appropriate to the fields of Computer Science, Information Systems, and Cybersecurity.	**PS1**	• Assignments • quizzes • Research proposal • Final Exam
	S4	Cultivate the ability to manage a research project from start to finish, including planning, resource management, and time management.	**PS4**	• Assignments • quizzes • Research proposal • Final Exam
Competencies	**C1**	Mastering competence in conducting research in the areas of interest	**PC3**	• Assignments • quizzes • Research proposal • Final Exam
	C2	Demonstrate ability to independently identify problems and formulate purpose and research questions/design criteria.	**PC2**	• Assignments • quizzes • Research proposal • Final Exam
	C3	Ability to write up well-documented and well-written research proposal.	**PC5**	• Assignments • quizzes • Research proposal • Final Exam

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

Sixth: Learning Resources

Main Reference:	***Research Techniques for Computer Science, Information Systems and Cybersecurity***		
Author: Uche M. Mbanaso, Lucienne Abrahams, Kennedy Chinedu Okafor	***Issue No.: 1th***	***Print: Springer Nature***	***Publication Year: 2023***
Additional Sources and Websites:	• Selected Research Papers • Umesh Kumar B. Dubey, D. P. Kothari - Research Methodology Techniques and Trends (2022, CRC Press_Chapman & Hall). • Zobel, J. (2014). Writing for Computer Science. Springer London. • Smith, A. (2012). Research Methodology: A Step-by-step Guide for Beginners. Nurse Education in Practice, 12. • Živančević, K., Božić, D., Baralić, K., & Đukić-Ćosić, D. (2022). The Future of Data Mining. Nova Science. • Thomas, C. (2021). Research Methodology and Scientific Writing. • Creswell, J. W. (2023). Research designs. Qualitative, quantitative, and mixed methods approaches, 6 edition.		
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	K1, s1, c1	Introduction to Scientific Research Methodology	Online - Synchronous	Lecturing	Textbook-ch1
Week 2	C2, K1, k2	• Computer Science (CS), Information Systems (IS) and Cybersecurity (CY) Research • The Intersection of CS, IS and CY Research	Online - Synchronous	Lecturing, Tools, Videos and Assignments	Textbook-ch2, Research Papers
Week 3	S2, k2, c1	• Designing the research proposal	Online - Synchronous	Lecturing, Tools, Videos	Textbook-ch3
Week 4	K2,k3,s1,s2,c2	• Writing a Short Research Proposal • How to choose	Asynchronous	Case Study, Examples, Videos and Assignment	Textbook-ch3

		a research topic Research proposal examples			
Week 5	K1, k2, s3,s4,c1	• Adopting a Funnel Strategy and Using Mind Mapping to Visualize the Research Design	Online - Synchronous	Research Case study, Lecturing, Video	Textbook-ch4
Week 6	K4, S3,s4, c2	• Citation Management Using Mendely • ystematic Literature Review (SLR) and Systematic Mapping (SM)Folder • How to Read a Journal Article	Asynchronous	Assignment, videos, examples case study Quiz	Textbook-ch3, ch4
Week 7	K4, s3,c3	• Background Discussion and Literature ReviewFile	Online - Synchronous	Lecturing, Video	Textbook-ch5
Week 8	K3,K4, s4.c2,c3	• annotated bibliography • Research Background • Literature Review • Ethics and Research Integrity	Asynchronous	Research Tools Assignments Videos Quiz	Textbook- ch4, ch5
Week 9	K2, k3 ,s2.s3	• Research Philosophy, Design and Methodology	Online - Synchronous	Lecturing, Videos	Textbook-ch6
Week 10	C4, s2,s3,s4	• How to write a research methodology | a step-by-step guide for beginners • Research Methodology Example: Step-By-Step	Asynchronous	Research Tools Assignments Videos	Textbook-ch6
Week 11	K4,s2,s3,c2,c3	• Data Collection, Presentation and Analysis • Validation Research Methods	Online - Synchronous	Lecturing, Research tools	Textbook-ch7

Week 12	K2,k2, s3,c1,c2	• How to write a well – defined research proposal • Data collection Methods | Data Science • Guide To The Data Analysis Process • How to organize, present and share data	Asynchronous	Research Tools Assignments Videos	Textbook-ch7
Week 13	S3,s4,c2,c3	• Practical Thesis Writing Approach • Proposal Write-up	Online - Synchronous	Lecturing and videos	Textbook-ch8, Research Papers
Week 14	K3,k2,s1,s2,s3,s4,c1 ,c2,c3	• How to convert a dissertation or thesis into a manuscript • How to Write a Journal Article	Asynchronous	Practice, Assignments Quiz	Textbook-ch6, ch7, ch8
Week 15	K3,k2,s1,s2,s3,s4,c1 ,c2,c3	Research proposal Dissections	Online - Synchronous	Research proposal rubric. Oral presentation	Textbook-ch1 - ch8
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 **If any CILO will not be assessed in the course, mark NA.									
				K1	K2	K3	K4	S1	S2	S3	S4	C1	C1
First Exam													
Second Exam													
Mid-term Exam													
Participation													
Asynchronous Activities	20			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quizzes	10			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Research Proposal	30			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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			