Course Specification
(Bachelor)

Course Title:	Research Methodology
Course Code:	Math 610
Program:	Mathematics Post Graduate Studies
Department:	Mathematics
College:	College of Science and Humanities
Institution:	Prince Sattam Bin Abdulaziz University
Version:	Version 1
Last Revision Date:	Jan 2025

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐ University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (Post Graduate)					
4. Course General Description:					
Introduction to research and the role of research in various fields. Types of Research – Experimental, Theoretical, Statistical (Survey) - The research process - Conducting a critical review of the literature - Development of research questions and objectives - Development of a theoretical framework - Sampling techniques - Decisions in developing a research design and research strategy - (eg. Case study, action research) - Research methodologies (eg. qualitative, quantitative, ethnography) - Research techniques (methods and analysis) - Ethical issues in doing research - Writing a comprehensive research proposal.					
5. Pre-requirements for this course (if any)**:**					
None					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
The main objective is to • prepare the students gain awareness about review of scientific literature, • identify scientific problem and associated research methods and writing scientific reports, • prepare them undertake independent research in their field of interest on completion of the program.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	48	100%
2	E-learning	-	-

No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid • Traditional classroom • E-learning	-	-
4	Distance learning	-	-

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures (16 X 3)**	48
2.	**Laboratory/Studio**	-
3.	**Field**	-
4.	**Tutorial**	-
5.	**Others (specify)**	-
Total		48

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recognize the importance of research.	**K1**	**Lectures Discussion Task**	**Assignments Quiz Mid and Final Exams**
1.2	Explain the importance of Literature Review	**K2**		
1.3	Identify research problems	**K3**		
2.0	**Skills**			
2.1	Select the proper sample for the research	**S1**	**Lectures Interactive Session**	**Take home assignment Exams**
2.2	Conduct scientific research effectively.	**S2**		
2.3	Use critical thinking methods in solving scientific research problems	**S3**		
3.0	**Values, autonomy, and responsibility**			
3.1	Conducting scholarly or professional activities in an ethical manner	**V2**	**Brain storming Group Discussion Task**	**Oral Presentaiton Continuous Assessment**
3.2	Work independently and in group	**V1**		

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to research and the role of research in various fields.	3
2.	Types of Research: Experimental, Theoretical, Statistical (Survey)	3
3.	The research process, Conducting a critical review of the literature.	3
4.	Development of research questions and objectives, Development of a theoretical framework.	3
5.	Sampling techniques.	6
	Decisions in developing a research design and research strategy (eg. Case study, action research).	
6.	Research methodologies (eg. qualitative, quantitative, ethnography).	6
7.	Research techniques (methods and analysis).	6
8.	Ethical issues in doing research.	6
9.	Writing a comprehensive research proposal.	6
10.	Presentations of samples of students proposals.	6
Total		48

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Mid Term Exam I	6	15%
2.	Quiz (Atleast 2 quiz)	4 & 10	10%
3.	Mid Term Exam II	13	15%
4.	Continuous Assessment, Homework, Assignment, Attendance etc.	Every week	10%
5.	End Semester Exam	17	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	**1.** Marczyk, G., DeMatteo, D&Festinger, D., Essentials of Research Design and Methodology. USA, John Wiley and Sons, Inc., 2005. **2.** Neville, C., The Complete Guide to Referencing and Avoiding Plagiarism, New York, Open University Press, 2007

Supportive References	**Computer Science Curriculum 2013** **http://cs2013.org** **ACM (Association for Computer Machinery) Curricula Recommendations** **http://www.acm.org/education/curricularecommendations**
Electronic Materials	**ACM (Association for Computer Machinery) web site** **http://www.acm.org/** **IEEE Computer Society web site** **http://www.computer.org/portal/web/guest/home** **Access to the Saudi Digital Library (SDL).** **Using the learning management system of the university Rafid System https://lms.bu.edu.sa/**
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• A classroom or lecture hall with whiteboard for 25 students. • A digital circuits laboratory.
Technology equipment (projector, smart board, software)	• A digital image projection system with connection to desktop computer and laptop computer. • High speed Internet connection. • An instructor computer station.
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Graduates	Course Evaluation and Program Evaluation Survey (Indirect)
Effectiveness of Students assessment	Program Leaders	Peer review (Direct)
Effectiveness of students' assessment	Students	Indirect
Quality of learning resources	Students, Graduates	Indirect (Program Evaluation and Alumni Survey)
Other	Faculty	Indirect (Survey)

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	**OCT 2024**