



Course Specifications

Course Title:	Number Theory
Course Code:	263Math-3
Program:	B.Sc. Mathematics
Department:	Mathematics
College:	Arts and Sciences
Institution:	Najran University



Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description.....	3
2. Course Main Objective	4
3. Course Learning Outcomes.....	4
C. Course Content.....	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods.....	4
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	5
2. Facilities Required	6
G. Course Quality Evaluation.....	6
H. Specification Approval Data	6



A. Course Identification

1. Credit hours:			
2. Course type			
a.	University <input type="checkbox"/>	College <input type="checkbox"/>	Department <input checked="" type="checkbox"/>
	Others <input type="checkbox"/>		
b.	Required <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>	
3. Level/year at which this course is offered: 2/4			
4. Pre-requisites for this course (if any):Non			
5. Co-requisites for this course (if any):Non			

6. Mode of Instruction (mark all that apply)

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

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	45
2	Laboratory/Studio	---
3	Tutorial	---
4	Others (Exams)	3
	Total	48
Other Learning Hours*		
1	Study	30
2	Assignments	10
3	Library	10
4	Projects/Research Essays/Theses	---
5	Office hours	15
	Total	113

*The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course will cover the foundations of Number Theory. The main focus of this course is on Basic concepts and properties of Number Theory, : Divisibility, prime numbers and their properties, congruences and its properties, some numerical functions, and the Pythagorean triplets



2. Course Main Objective

This course aims to give the student the basic concepts and properties of integers.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge:	
1.1	Recognizes the basic concepts and principles of number theory.	
1.2	State famous elementary results of number theory theory	
2	Skills :	
2.1	Solves a system of linear equations using the properties of congruence.	
2.2	Distinguish prime numbers using the Euclid algorithm	
3	Competence:	
3.1	Work as part of a team and independently	
3.2	Present the main concepts of Numbers theory to others, both in oral and written form confidently.	

C. Course Content

No	List of Topics	Contact Hours
1	The first and second principle in mathematical induction, and the well ordering principle	6
2	Primes numbers and their distribution	6
3	Linear Diophantine equations	6
4	Linear Congruences and the Chinese Remainder Theorem.	6
5	Fermat's Little Theorem.	6
6	Euler theorem, and Wilson theorem	3
	Number-Theoretic Functions.	6
	Pythagoras Trilogy and some cases of the recent Fermat theorem	6
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		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.1	Define the basis terminology of Numbers theory	At the beginning of each lecture, some examples will be presented and discussed with students to encourage them to discover related concepts and provide definitions	Oral Exam Written Exam
1.2	State famous elementary results of Numbers theory		Oral Exam Written Exam
...	---		---
2.0	Skills		
2.1	Solves a system of linear equations using the properties of congruence..	Discussion and exercises during lecture time	Quiz Written Exam Homework
2.2	Distinguish prime numbers using the Euclid algorithm.	Discussion and exercises during lecture time	Quiz Written Exam Homework
2.4			
3.0	Competence		
3.1	Work as part of a team and independently	Group problems solving during tutorial	Rubrics
3.2	Present the main concepts of Numbers theory to others, both in oral and written form confidently.	Homework and discussions in the classes	Oral Exam Rubrics
...	---	---	---

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Exercises, Homework & Assignments	Open	10%
2	Oral Exam	14 th Week	5%
3	Quizzes	Open	5%
4	Written Test(1)	7 th Week	15%
5	Written Test(2)	13 th Week	15%
6	Final Exam	End of Semester	50%

*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 :

- Introducing the course syllabus, grading scale and the distribution of marks for the course in the first lecture of the course.
- The office hours for this course are 3 hours/ week.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	فوزي الذكير، معروف سمحان، مقدمة في نظرية الأعداد ، مطبوعات جامعة الملك سعود
--------------------	---

Essential References Materials	- Elementry number theory ,6 th Edition ,by Burton
Electronic Materials	<ul style="list-style-type: none"> • Lectures on the Department of Mathematics YouTube Channel • Other electronic materials available on the internet
Other Learning Materials	- Non

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom with suitable seats
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Datashow • Smart Board • Wi Fi
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	<ul style="list-style-type: none"> • None

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student course evaluation survey at the end of semester.	Students	Questionnaire (Indirect)
Effectiveness of teaching and assessment	Peer Reviewer	Rubrics (Indirect)
---	---	---
---	---	---
---	---	---
---	---	---
---	---	---

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	