



Kurdistan Region - IRAQ
Ministry of Higher Education & Scientific Research
Paitaxt Technical Private Institute



Course Book

Paitaxt Technical Private Institute

Computer Network Department

First Stage

Course Title

Basic Mathematics for Computer

Course Module URL

www.pti.edu.krd

Msc. Mardan A. Pirdawood

Assistant Lecturer

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| Course Name | Basic Mathematics for Computer |
| Academic Year | 2018-2019 |
| Teacher in Charge | Assistant Lecturer: Msc. Mardan A. Pirdawood |
| Contact details | Email: mardan.ameen@koyauniversity.org TAP: https://sites.google.com/a/koyauniversity.org/mardan-ameen/ Mobile phone: (+964) 750 490 0774 |

Time Table

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|---------|------------------------------------|
| Classes | Saturday: 12:30 – 2:30 PM (Theory) |
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Grading

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| <p>The student are required to do two closed book exams during the academic year besides the final examination:</p> <ul style="list-style-type: none">1st Participation and course work 5%,2nd Participation and course work 5%,1st Mid-term exam 15%,2nd Mid-term exam 15%,Final Examination 60% |
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Course Overview

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| <p>This course covers elementary mathematics for computer science. It emphasizes arithmetic number systems; binary, octal, decimal, hexadecimal and its arithmetic operations. The mathematical code representations; BCD, EBCD, ASCLL. Mathematical definitions and proofs as well as applicable methods. Topics include formal logic notation, proof methods; induction, well-ordering; sets, relations; elementary graph theory; integer congruence, logical gates, asymptotic notation and growth of functions; permutations. Further selected topics may also be covered, such as recursive definition and structural induction; state machines and invariants; recurrences; generating functions.</p> |
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Course Title: Control Systems

Course Code

BMCOM (click on the following link to see your course code" <https://www.pti.edu.krd> ")

No. of hours/week:

2 hrs. theory

Text Books:

1. **Seymour Lipschutz, *Schaum's Outline of Essential Computer mathematics*. McGraw Hill Professional, Apr 22, 1982.**
2. **David Makinson, *Sets, Logic and Maths for Computing*. Springer, 2nd Ed, 2012.**
3. **Roger L. Tokheim, M.S., *Schaum's Outline of Theory and Problems of Digital Principles*. McGraw Hill Professional, 3rd Ed, 1994.**
4. **Gareth J. Jancek & Mark Lemmon Close, *Mathematics for Computer Science*. Ventus Publishing, 2011.**



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Course program

Ch 1/Number Systems

- 1. Real Number System.**
- 2. Decimal, Binary, Octal, Hexadecimal Systems.**
- 3. Arithmetic Operations in each System.**
- 4. Decimal and Fractional Numbers in each System.**
- 5. Conversion from a System to Another.**

Ch 2/Sets and Relations

- 1. Sets, Set Operations.**
- 2. Algebra of Sets, Venn Diagrams.**
- 3. Classes of Sets, Partitions.**
- 4. Product Sets, Relations.**
- 5. Functions, Sequences, Series.**

Ch 3/ Logical Representations

- 1. Boolean Algebra (and, or, if...then, nor, Nand, Exclusive gates).**
- 2. Logical Gates & Circuits.**
- 3. Arithmetic Operation of Logical Gates.**
- 4. Karnough Maps.**
- 5. Data Representation Systems (BCD, EBCDIC, ASCII).**

Ch 4/ Counting

- 1. Chains of Action.**
- 2. Permutation.**
- 3. Combination.**
- 4. Counting Principle.**
- 5. Binomial Expansion.**

Ch 5/ Vectors and Matrices

- 1. Vectors.**
- 2. Matrix.**
- 3. Matrix operations.**
- 4. Type of Matrices.**
- 5. Determinates.**