رَبِّ اشرَح لِي صَدرِي

وَيَسِّر لِي أَمرِي

بِحَمْدِهِ تَعَالَى

Cairo University
Faculty of Engineering

Electronics and Electrical Communications Engineering Department

Advanced Topics in Logic Design

4th Year Two-Semester B.Sc. Program
in Electronics and Electrical Communications Engineering
1435-1436 H (2014-2015) Academic Year – 1st Semester

Course Lecturer

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Assistant Professor of Computers and Electronics

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Office: 2nd Floor, Electrical Engineering Building

Office Hours: To Be Announced

Advanced Topics in Logic Design

Course Objectives

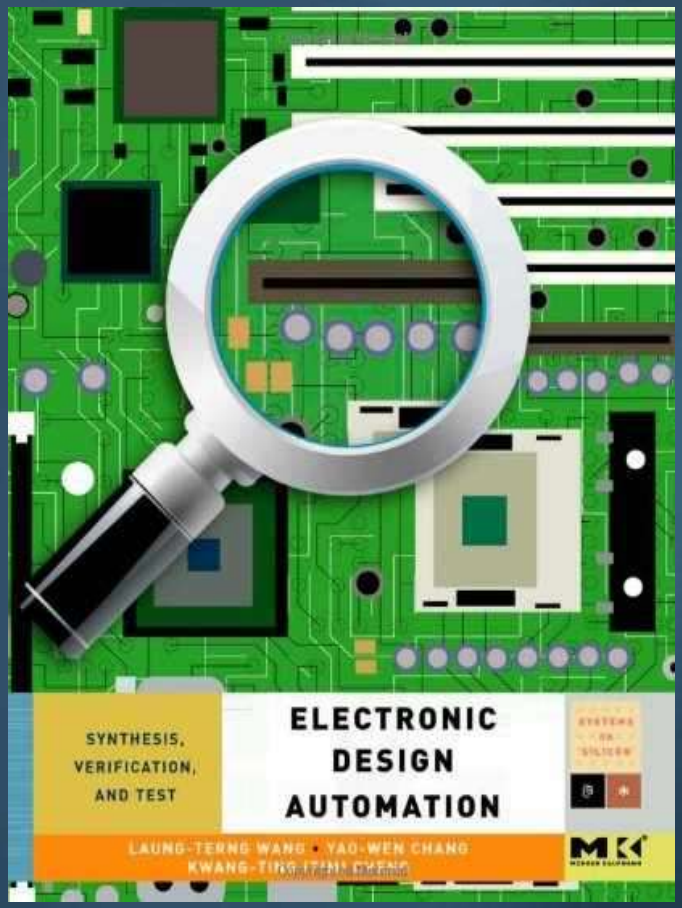
The course aims at introducing advanced topics in the latest technology and state-of-the-art in logic design and their application in the development of Electronics Design Automation (EDA) tools.

Course Outline

Unit 1. Fundamental Principles in Discrete Math & Algorithms
Unit 2. Logic Decomposition
Unit 3. Boolean Satisfiability
Unit 4. Boolean Matching
Unit 5. Logic Optimization
Unit 6. ROBDD & AIG

Textbook

L. Wang, Y. Chang, K. Cheng, Electronic Design Automation: Synthesis, Verification, and Test. Morgan Kaufmann, 2009.



References

S. Khatri and K. Gulati, Advanced Techniques in Logic Synthesis, Optimization and Applications, Springer, 2011.

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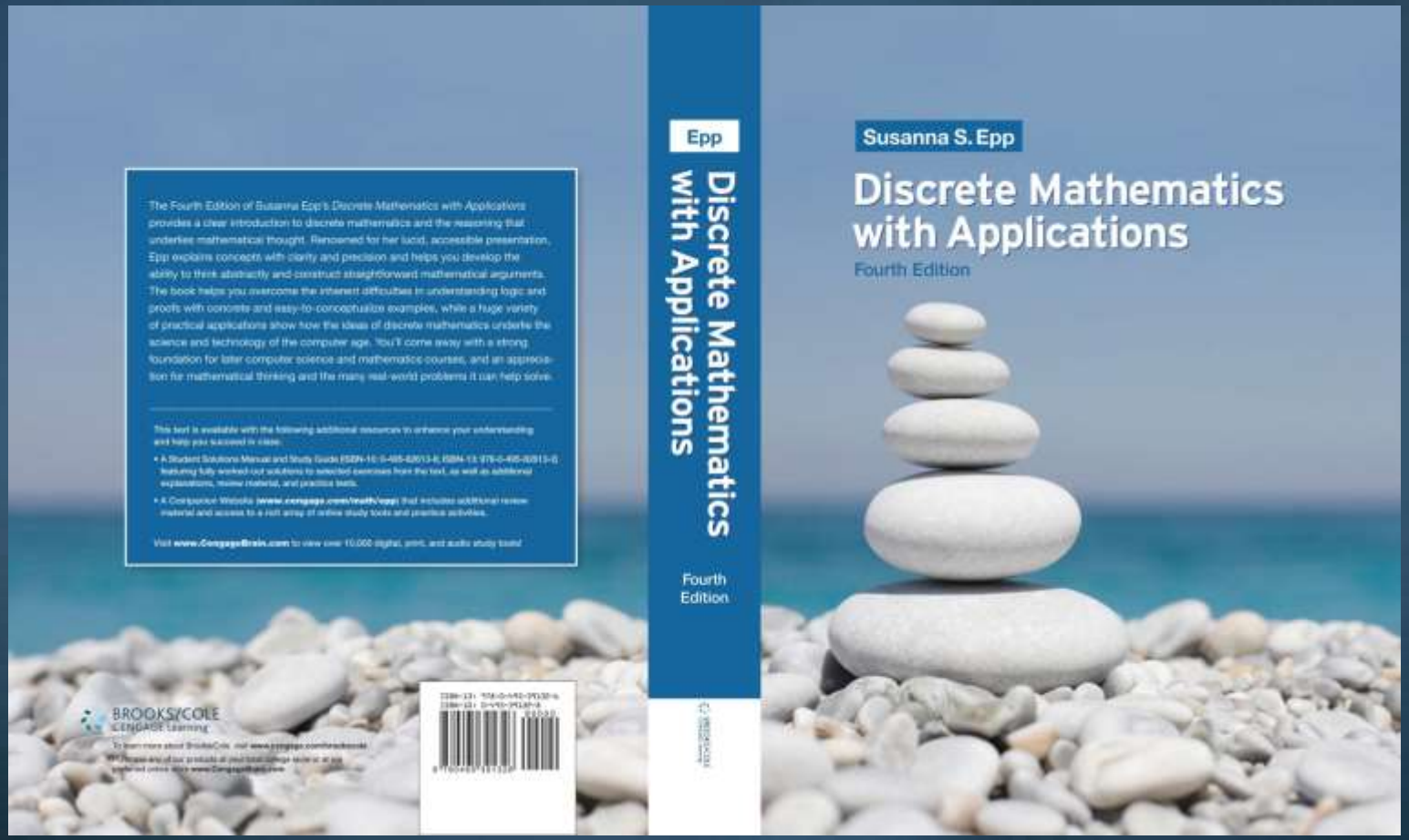
S. Epp, Discrete Mathematics with Applications, 4th Edition, Brooks/Cole Cengage Learning, 2011.



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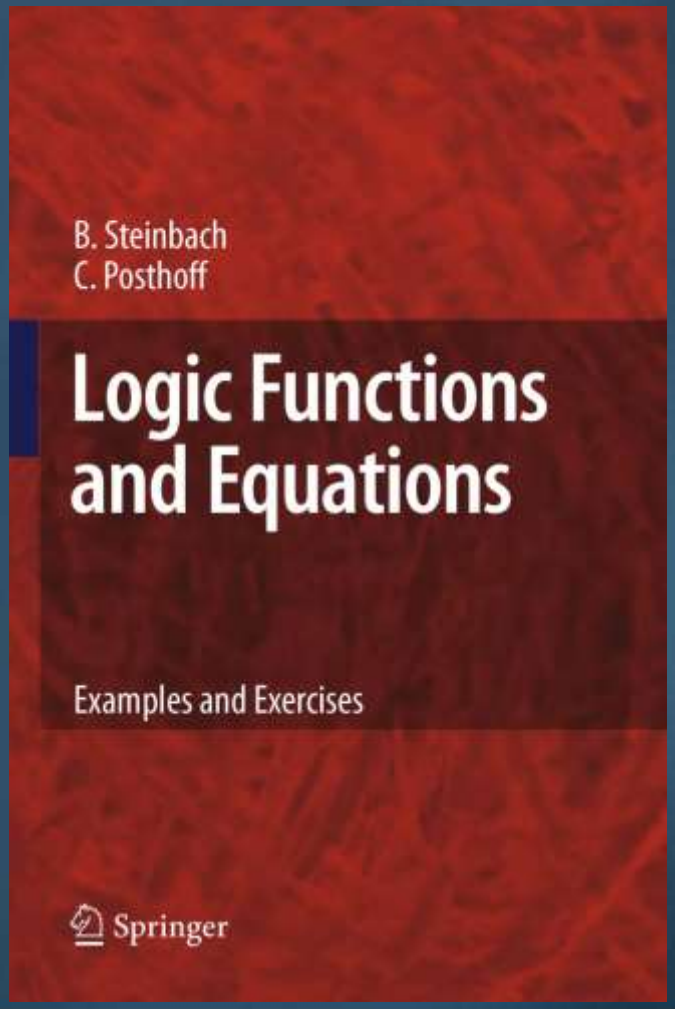
B. Steinbach and C. Posthoff, Logic Functions and Equations: Examples and Exercises, 2009.



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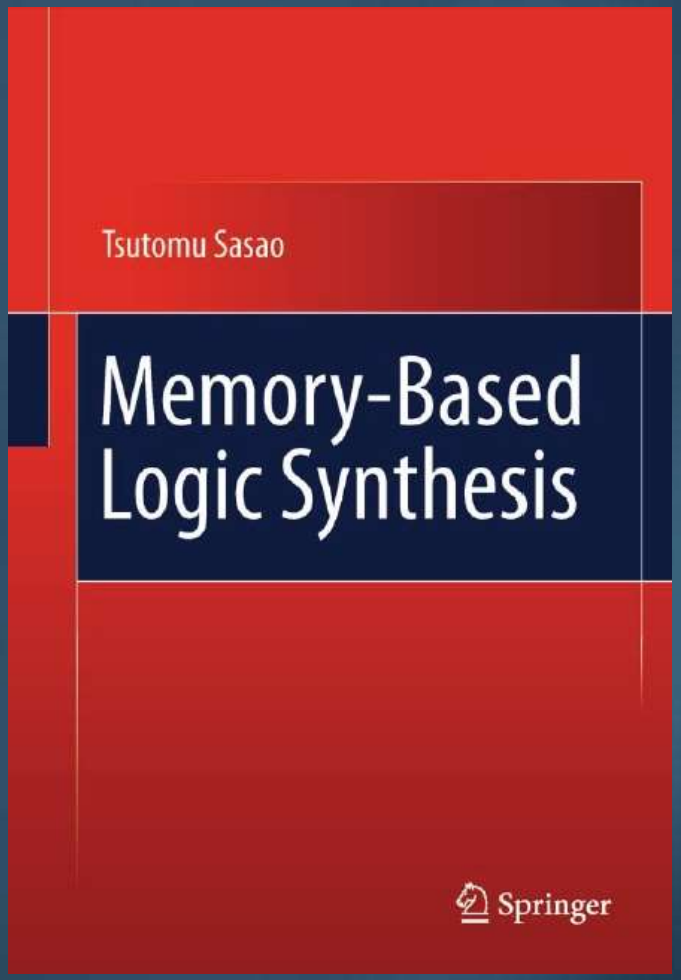
T. Sasao, Memory-Based Logic Synthesis, Springer, 2011.



Tentative Course Schedule

Weeks	Unit	Lectures + Tutorials
1 & 2	1. Fundamental Principles in Discrete Math & Algorithms	3+1
3 & 4	2. Logic Decomposition	3+1
5 & 6	3. Boolean Satisfiability	3+1
7 & 8	4. Boolean Matching	3+1
9 & 10	5. Logic Optimization	3+1
11 & 12	6. ROBDD & AIG	3+1

Active Learning

1. Read the lecture notes before lecture sessions.
2. Focus, wonder, and question about the topics.
3. Use the tutorial sessions and the office hours to gain more understanding.
4. Work in teams (4-5 members per team) to solve assignments and quizzes.
5. Write your ideas and experiment to gain practical skills and experience.
6. Show all your work in well-defined mathematical terms and proper language.
7. Evaluate fairly and objectively the work of other teams.
8. Think critically to evaluate and compare the alternatives.
9. Use the available resources in the best manner, and work hard toward excellence.

Grading Scheme

- Assignments 10%
- Quizzes & Assessment 10%
- Mid-Term Exam 10%
- Final Exam 70%

Activities To Be Done In TEAM

- Problem Assignments (One Answer Sheet/TEAM)
- Quizzes (One Answer Sheet/TEAM)
- Assessments (One Evaluation/TEAM)

For these activities, the same grades will be assigned to each team member based on the handed-in material.

Righteous Assessment

Knowledge + Justice + Good Attitude

Whenever you find good answers during the evaluation

الحمد لله الذي بنعمته تتم الصالحات ما شاء الله لا قوة إلا بالله

Whenever you find not so good answers during the evaluation

الحمد لله على كل حال ولا حول ولا قوة إلا بالله العلي العظيم

A Win-Win Process as long as each TEAM applied the rule

Never wish that other TEAMS get worse grades than your TEAM

E-mail Group of the Course

Advanced-Topics-in-Logic-Design-at-CU-1435

group

at

Yahoo! Groups

- Announcements and electronic copies of presentations and lecture notes will be posted on this group.
- When communicating personally by e-mail, please use proper English Language, refer to the course, and sign your name.

Alaaeldin Abouelkassem, Silver Medal, London 2012 Olympics

Sherif Othman, Gold Medal, London 2012 Paralympics

Hany Mohsen, Gold Medal, London 2012 Paralympics


EGYPT
Enthusiastic Great
Youthful
Powerful Team
SPIRIT


YES
WE
CAN