



University
of Glasgow

Electronic System Design

UESTC 3003

Lecture 1.1 Course Overview

Dr Duncan Bremner

**WORLD
CHANGING
GLASGOW**



Also known as:- ...the Design Wizard conversion course

- *What is System Design?*
- *You will learn real circuit and system design tricks*
- *You will learn when a design is 'good enough'*
- *You will learn how to read datasheets*
- *You will learn how to deal with small signals*
- *You will learn the importance of good design*

ESD3 consists of 4 main topics:

1. What is System Design and how to do it properly
2. System Design with Static Errors
3. System Design with Dynamic Errors
4. Noise and low noise design

Course does not cover some **important** things:

Statistical design methods; High frequency / dynamics; Passive component characteristics;
Drift of errors; Micropower / Single supply design...

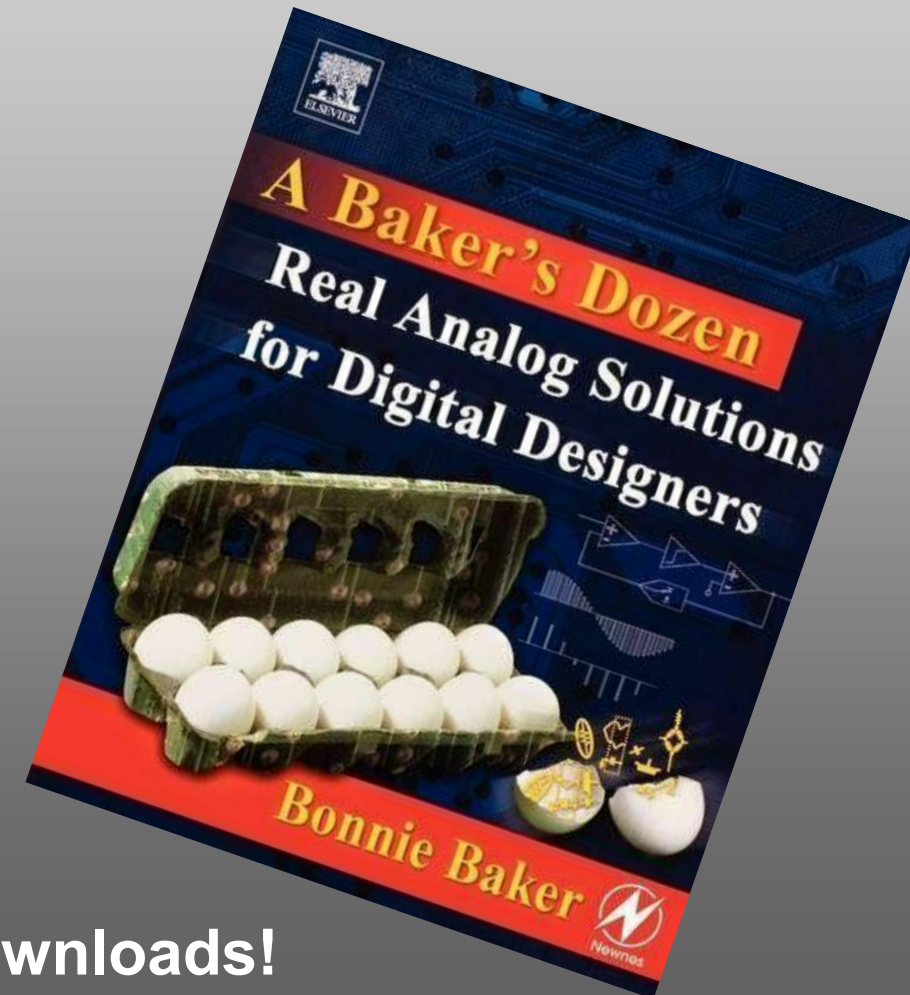
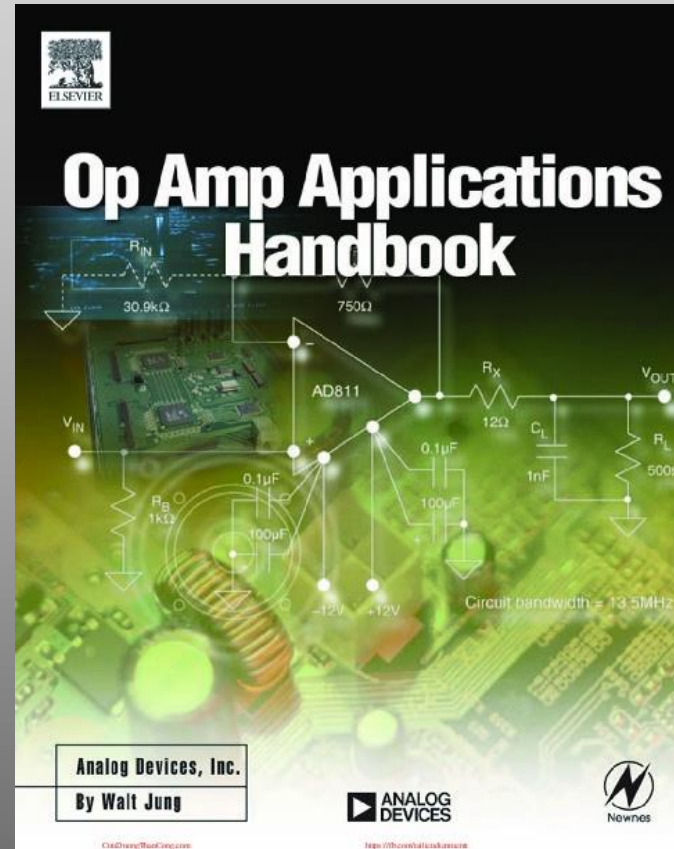
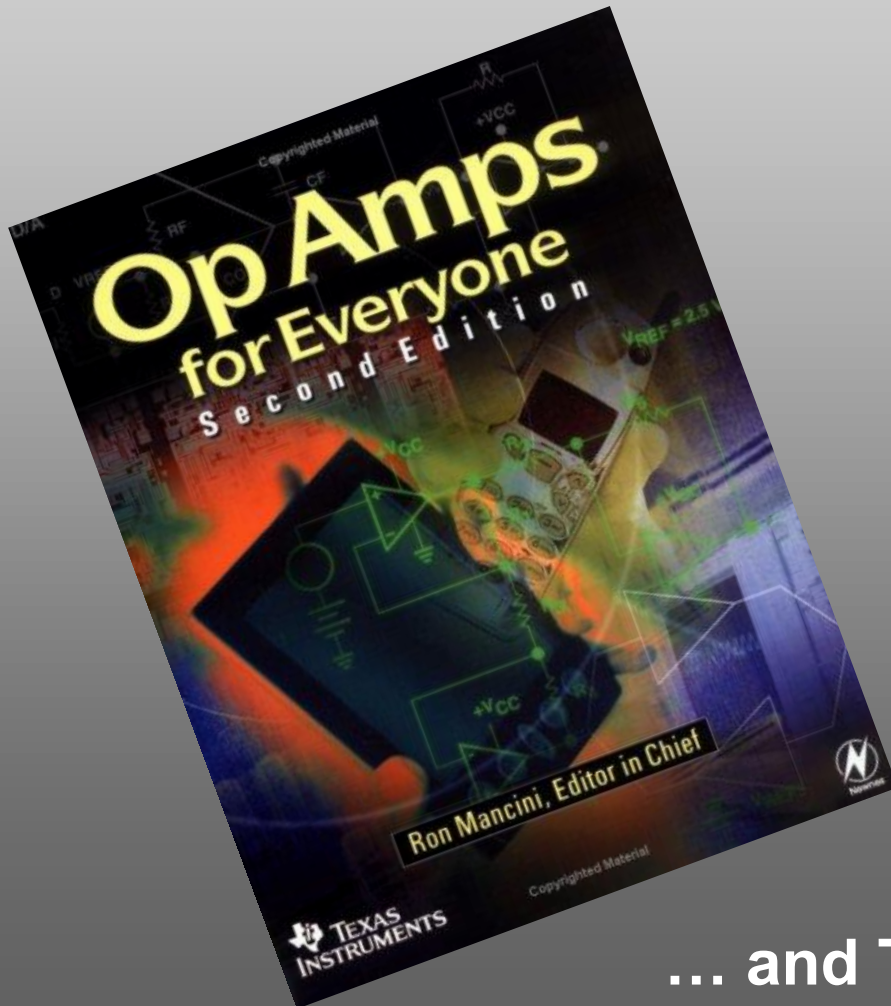
Course Documentation and Texts

- Course is based on course developed in Glasgow by Prof Jon Weaver
- Modified & improved to meet the needs of UESTC Joint School
- Most material will be available on Moodle (Lecture Notes, Labs, datasheets etc.
 - *You need to **attend** class to understand the notes!!*
- Textbooks:
 - Microelectronic Circuits (7th Edition); Sedra, A and Smith, K; Oxford University Press, 2016
 - Opamps for Everyone R. Mancini (Ed) **FREE** TI Download
<https://focus.ti.com/lit/an/slod006b/slod006b.pdf>
 - Op Amp Applications Handbook (Analog devices pub. Walt Jung Ed.) **FREE** Download
<http://www.analog.com/en/education/education-library/op-amp-applications-handbook.html>
 - A Baker's Dozen: Real Analog Circuits for Digital Engineers; (Newnes) B. Baker
ISBN: 978-0-7506-7819-3



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Reference books to keep throughout your career...



... and TWO of them are free downloads!

- **75%: Written Exam**
 - *4 question exam format (4 topics = 4 exam questions)*
- **10% Set Exercise: Online course quiz (in lab session 4)**
 - *Demonstrate your understanding using MCQs*
- **10%: Design study project**
 - *A practical system design exercise using real problem data*
- **5% Practical Skills Assessment: Lab**
 - *There will be 3 compulsory labs over the semester*

Course Requirements: *‘Students must submit at least 75% by weight of the components (including examinations) of the course’s summative assessment. In addition, students must submit work for assessment for the course laboratory or a grade of credit withheld will be given’*

Course delivery format

- This course will be delivered via **12 on-line lectures** over the first semester of AY2020-21
- Each Lecture is ~90 minutes and will consist of live lecturing, video tutorials, in-class exercises, and worked examples
- I will use live lectures to highlight the connections between the different sections of the lecture;
- I will use recorded lectures for technical material because:
 - a. I have checked the recorded material carefully for errors,
 - b. the material is delivered more clearly in the recordings using animations to emphasise key points,
 - c. you will get transcripts of the material plus the recordings for revision and private study. You should use the transcripts to **make notes** of important points.
- I will use in-class exercises to emphasise the learning and points in the lectures
- I will use worked examples to demonstrate how to approach certain problems. Often these worked examples will be recorded to avoid me making embarrassing errors in class! *(yes, I make mistakes too!)*
- Labs will be run using lab sheets and with the help of GTAs. Labs are unseen problems and should not be attempted beforehand.

Background of Dr Duncan Bremner

Not a conventional academic...

>35 years in the Semiconductor Industry in Design & Development

~ 19 patents as lead inventor



National Semiconductor:

Member of Technical Staff (best engineering staff)

Telecommunication products: Analog Chip Designer, System Engineer, Marketing



Intel Corporation:

Development Director; High Speed Communications (10Gbps)

Member of Chief Technical Office (Communications Products)

Have been working with and in China since 1985...

I teach ESD3 (S1) and Eng Proj Management & Finance (S2)



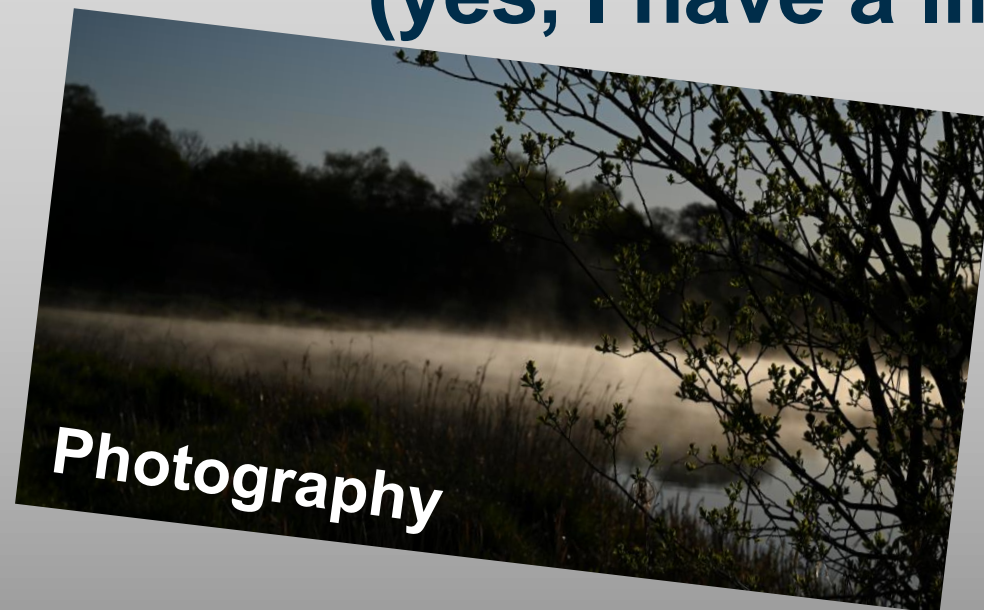


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What I do when I'm not teaching... (yes, I have a life!)



Building an
automated
home brewery



Photography



Restoring
Classic Cars





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Thank you
谢谢

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PEOPLE

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