

Fall 2014

- [1] Course Analog IC Design (類比積體電路設計)
Class time Monday 2:10 ~ 5:00PM, i.e. 6 ~ 8節
Classroom 電機系館一樓 靄雲廳, i.e. Room # 92119
講義及作業題目 <http://msic.ee.ncku.edu.tw>
首頁 → IC設計課程 → 研究所課程 → 類比積體電路設計
公告及作業繳交 <http://moodle.ncku.edu.tw/>
- [2] Professor: Dr. Tai-Haur Kuo (郭泰豪 教授) (06) 2757575 ext. 62389
助教 黃思衡、賴柏宇 (06)2757575 ext.62400-2889
Office hour Monday 5:00 ~ 6:00PM, Friday 2:00 ~ 3:00PM and more at
奇美樓三樓 95304 小間會議室
- [3] Textbook Tony Carusone, David Johns and Kenneth Martin, “*Analog Integrated Circuit Design*”, John Wiley & Sons, New York, 2nd edition, 2012.
Reference Paul R. Gray and Robert G. Meyer, “*Analysis and Design of Analog Integrated Circuits*”, 5th edition, John Wiley & Sons, New York, 2010.
- [4] Grade factor Homework-25%, Homework Bonus-6%, Midterm-35%, Final-40%
(HW#1-10%, HW#2-15%, Bonus(HW3~)-6%)
- [5] Purposes
1. Provide enough knowledge and understanding for the design of analog front-end and back-end ICs.
2. Facilitate ready access to the relevant literature if more sophisticated designs are called for.

Course Outline

- Introduction to Semiconductor
- Semiconductor Devices and Models
- Component Matching Issues
- Noise Analysis and Modeling
- Current Mirrors
- Operational Amplifiers
- Comparators
- Sample and Hold (S/H)
- System Considerations
- Filters
- Data-Converter Fundamentals
- D/A Converters
- A/D Converters

1st and 2nd Awards of Analog IC Contest by Ministry of Education

- NCKU EE won almost all 1st and 2nd awards, which are much more than the total awards won by NTU, NCTU and NTHU.

| Year | 1 st award | | 2 nd award | | total number of 1 st and 2 nd awards | Won by NTU, NCTU and NTHU | Won by NCKU |
|------|-----------------------|-------------|-----------------------|-------------|--|---------------------------|-------------|
| | total number | Won by NCKU | total number | Won by NCKU | | | |
| 2014 | 1 | 1 | 2 | 1 | 3 | 0 | 2 |
| 2013 | 1 | 1 | 2 | 1 | 3 | 1 (NTU) | 2 |
| 2012 | - | - | 4 | 3 | 4 | 1 (NTHU) | 3 |
| 2011 | 1 | 1 | 1 | 0 | 2 | 1 (NTHU) | 1 |
| 2010 | - | - | 4 | 4 | 4 | 0 | 4 |

All Awards of Analog IC Contest by Ministry of Education

- NCKU, NTU, NCTU and NTHU won almost all awards, and other universities won only a few 3rd awards.
- NCKU EE won almost all 1st and 2nd awards.

| Year | 1 st award | | | 2 nd award | | | 3 rd award | | | Total awards | Won by NTU, NCTU, NTHU | Won by NCKU |
|------|-----------------------|------------------------|-------------|-----------------------|------------------------|-------------|-----------------------|------------------------|-------------|--------------|------------------------|-------------|
| | Total | Won by NTU, NCTU, NTHU | Won by NCKU | Total | Won by NTU, NCTU, NTHU | Won by NCKU | Total | Won by NTU, NCTU, NTHU | Won by NCKU | | | |
| 2014 | 1 | 0 | 1 | 2 | 0 | 1 | 7 | 2 | 3 | 10 | 2 | 5 |
| 2013 | 1 | 0 | 1 | 2 | 1 | 1 | 6 | 3 | 3 | 9 | 4 | 5 |
| 2012 | - | - | - | 4 | 1 | 3 | 7 | 1 | 4 | 11 | 2 | 7 |
| 2011 | 1 | 0 | 1 | 1 | 1 | 0 | 6 | 2 | 2 | 8 | 3 | 3 |
| 2010 | - | - | - | 4 | 0 | 4 | 10 | 4 | 2 | 14 | 4 | 6 |