

# Course List for International Master of Science (MS) Degree Program in Electrical Engineering Department, Chang Gung University

( For 2016 Calendar Year Admission), April 21th 2016

| Fields                                     | R/E | Course Title                                   | Cre-<br>dis | Year of<br>Class | 1st<br>Semester | 2nd<br>Semester | R/E | Fields                                                     | Cre-<br>dis | Year of<br>Class | 1st<br>Semester | 2nd<br>Semester | R: Required; E: Elective |
|--------------------------------------------|-----|------------------------------------------------|-------------|------------------|-----------------|-----------------|-----|------------------------------------------------------------|-------------|------------------|-----------------|-----------------|--------------------------|
| General Requirement                        | R   | Seminar (Research Project) (1)/(2)             | 2           | 1st              | 1               | 1               | E   | Biomedical Microsystem Engineering*                        | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Seminar (1)                                    | 1           | 1st              | 1               | 1               | E   | Advanced Computer Architecture                             | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Seminar (2)                                    | 1           | 1st              | 1               | 1               | E   | Low-Power System Design*                                   | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Seminar (3)                                    | 1           | 2nd              | 1               | 1               | E   | Bio-photonics Techniques*                                  | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Seminar (4)                                    | 1           | 2nd              | 1               | 1               | E   | Embedded System and Experiment*                            | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Master Thesis                                  | 6           | 2nd              | 1               | 1               | E   | Pattern Recognition                                        | 3           | 1st              | 3               | 3               |                          |
|                                            | R   | Electronics Circuits Design*                   | 3           | 1st              | 3               | 3               | E   | Biomedical Chip Design and Application                     | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | English Technical Writing                      | 2           | 1st              | 2               | 2               | E   | Biomedical Signal Analysis                                 | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Advanced English Writing                       | 4           | 2nd              | 2               | 2               | E   | Medical Physics                                            | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Practical Case Study*                          | 3           | 1st              | 3               | 3               | E   | Design and Application of Mixed-Signal Integrated Circuits | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Algorithms*                                    | 3           | 1st              | 3               | 3               | E   | Nano Circuit Design                                        | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Digital Communications*                        | 3           | 1st              | 3               | 3               | E   | Design of Micro-Sensors and Sensing Circuit Systems*       | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Random Processes                               | 3           | 1st              | 3               | 3               | E   | Medical Imaging                                            | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Digital Signal Processing*                     | 3           | 1st              | 3               | 3               | E   | VLSI Computer-Aided Design                                 | 3           | 2nd              | 3               | 3               |                          |
| Communications                             | E   | Optical Fiber Communications*                  | 3           | 1st              | 3               | 3               | E   | VLSI Digital Signal Processing Design                      | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Digital Image Processing*                      | 3           | 1st              | 3               | 3               | E   | Embedded System Programming                                | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Error-Control Coding*                          | 3           | 1st              | 3               | 3               | E   | Biomedical Imaging System                                  | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Number Theory                                  | 3           | 1st              | 3               | 3               | E   | Biophotonic Engineering and Experiments                    | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Communication Theory                           | 3           | 1st              | 3               | 3               | E   | Biomedical Information Processing                          | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Optical Fiber Communications Laboratory*       | 1           | 1st              | 1               | 1               | E   | Medical Instrumentation                                    | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Wireless Communications*                       | 3           | 1st              | 3               | 3               | E   | Power System Analysis*                                     | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Optoelectronics                                | 3           | 1st              | 3               | 3               | E   | Linear System Theory*                                      | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Detection and Estimation Theory                | 3           | 1st              | 3               | 3               | E   | Fuzzy Control                                              | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Queueing Theory                                | 3           | 1st              | 3               | 3               | E   | Advanced Power Electronics                                 | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Advanced Digital Signal Processing             | 3           | 1st              | 3               | 3               | E   | Power Electronics Laboratory*                              | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Principle and Application of Computer Vision   | 3           | 1st              | 3               | 3               | E   | Artificial Neural Network                                  | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Advanced Error Control Coding and Applications | 3           | 1st              | 3               | 3               | E   | Power System Stability and Control                         | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Wireless Network                               | 3           | 2nd              | 3               | 3               | E   | Electric Power Distribution Engineering*                   | 3           | 1st              | 3               | 3               |                          |
| Biomedical Engineering and Circuit Systems | E   | Cryptography                                   | 3           | 2nd              | 3               | 3               | E   | Solid State Energy Conversion                              | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Network Security                               | 3           | 2nd              | 3               | 3               | E   | Optimization Methods                                       | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Spread Spectrum Communications                 | 3           | 2nd              | 3               | 3               | E   | Digital Control*                                           | 3           | 1st              | 3               | 3               |                          |
|                                            | E   | Adaptive Filter Theory                         | 3           | 2nd              | 3               | 3               | E   | Nonlinear Control                                          | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Digital Signal Processing*                     | 3           | 1st              | 3               | 3               | E   | Renewable Energy Technologies                              | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Biomedical Electronics                         | 3           | 1st              | 3               | 3               | E   | Robust Control                                             | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | VLSI System Design*                            | 3           | 1st              | 3               | 3               | E   | Advanced Topics of Electric Machines and Drives            | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Software-Hardware Co-design                    | 3           | 1st              | 3               | 3               | E   | Power Quality                                              | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Digital Silicon IP Design                      | 3           | 1st              | 3               | 3               | E   | Electrical Machine Control                                 | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Introduction to System-on-Chip Design          | 3           | 1st              | 3               | 3               | E   | Electromagnetic Transients Analysis                        | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Digital Image Processing*                      | 3           | 1st              | 3               | 3               | E   | Adaptive Control                                           | 3           | 2nd              | 3               | 3               |                          |
|                                            | E   | Analog Integrated Circuits Design*             | 3           | 1st              | 3               | 3               | E   |                                                            |             |                  |                 |                 |                          |
|                                            | E   |                                                |             |                  |                 |                 | E   |                                                            |             |                  |                 |                 |                          |
|                                            | E   |                                                |             |                  |                 |                 | E   |                                                            |             |                  |                 |                 |                          |

1. Graduation credits: 34 (including 6 credits of Master Thesis)
2. Credits of Required courses: 6 (excluding Master Thesis)
3. Credits of elective courses: 22 (at least 9 credits from your field of study)
4. \* courses opened for MS students and Senior student in undergraduate program, the other courses are for students in MS and Ph.D. programs.
5. Others: A. Maximum of 9 credits from the field of Electrical Informatics (including Graduate Institute of CSIE, Electronic Engineering, and Electro-Optical Engineering) can be counted for graduation requirement credits.  
B. The credits of elective courses in the General Requirement can be considered as the credits for either in- or out- of the field of study.
6. Seminar (3) and (4) are required before graduation. If you graduate within 2 years, those two courses can be waived but minimum of 34 credits are still required for the graduation.
7. The professional courses (instructed in English) taken from other departments in the School of Engineering can be counted for required credits for graduation, but can not exceed 50% of the total required credits for graduation (excluding Master Thesis and Seminars). These taken courses have to be approved by the Committee of graduate student affairs of the department to have these credits counted as the required credits for graduation. This policy is only applied for the international graduate students admitted from International Student Admission of CGU.

Chair of Department :

Curriculum Committee :

2016/04/21