

FINAL YEAR CURRICULUM STRUCTURE

~ for AY2013-2014 Semester 2 & AY2014-2015 Semester 1

All final year students will have to select one option group from the following:

- A. ELECTRICAL AND SYSTEMS ENGINEERING (ECAL)
- B. ELECTRONIC ENGINEERING (ENIC)
- C. INFOCOMMUNICATIONS ENGINEERING (INON)

The option group selected should be the same for both semesters. The courses to be taken in each semester are indicated in the attached tables for both BRC and Non-BRC Students.

| (NON-BRC STUDENTS) | | (BRC STUDENTS) | |
|---|---|---|---|
| <ul style="list-style-type: none"> • STUDENTS ADMITTED TO YEAR 1 ON AY2010 & BEFORE • POLY STUDENTS DIRECTLY ADMITTED TO YEAR 2 ON AY2011 & BEFORE | | <ul style="list-style-type: none"> • STUDENTS ADMITTED TO YEAR 1 ON AY2011 & AFTER • POLY STUDENTS DIRECTLY ADMITTED TO YEAR 2 ON AY2012 & AFTER | |
| ELECTRICAL & SYSTEMS ENGINEERING ELECTRONIC ENGINEERING | | ELECTRICAL & SYSTEMS ENGINEERING ELECTRONIC ENGINEERING INFOCOMMUNICATIONS ENGINEERING | |
| CORE | EE4040 ENGINEERS & SOCIETY EE4041 HUMAN RES MANAGEMENT EE4079 FINAL YEAR PROJECT HW0310 PROFESSIONAL COMMUNICATION | CORE | EE4080 FINAL YEAR PROJECT |
| DESIGN | 2 ELECTIVES | GER-CORE | EE0040 ENGINEERS & SOCIETY HW0310 PROFESSIONAL COMMUNICATION |
| TECHNICAL | 5 ELECTIVES | DESIGN | 2 ELECTIVES |
| INFOCOMMUNICATIONS ENGINEERING | | TECHNICAL | 3 ELECTIVES |
| CORE | EE4001 SOFTWARE ENGINEERING EE4040 ENGINEERS & SOCIETY EE4041 HUMAN RES MANAGEMENT HW0310 PROFESSIONAL COMMUNICATION | NOTE | |
| DESIGN | 2 ELECTIVES | DESIGN and TECHNICAL Elective Courses | |
| TECHNICAL | 4 ELECTIVES | <ul style="list-style-type: none"> • Students are required to take 2 DESIGN elective courses and 3 TECHNICAL elective courses. The design elective courses and technical elective courses offered under the different option groups are given in Tables A to C below. The design elective courses for students choosing a particular option group must be those under that option group. • Students must choose all design and technical elective courses from their chosen option group. | |
| NOTE | | | |
| DESIGN and TECHNICAL Elective Courses | | | |
| <ul style="list-style-type: none"> • ECAL and ENIC students are required to take 2 DESIGN elective courses and 5 TECHNICAL elective courses. • INON students are required to take 2 DESIGN elective courses and 4 TECHNICAL elective courses. • The design elective courses and technical elective courses offered under the different option groups and the semester(s) in which each course will be made available are given in Tables A to C below. The design elective courses for students choosing a particular option group must be those under that option group. • Students must choose all except 1(one) technical elective from their chosen option group. The 1(one) technical elective course may be chosen from the technical elective courses offered under <u>any</u> option group (including the student's chosen option group). | | | |

TABLE A: ELECTRICAL AND SYSTEMS ENGINEERING

| COURSE CODE AND TITLE | AVAILABILITY | |
|---|--------------|-----------------------------|
| | AY2013 SEM 2 | AY2014 SEM 1 (TENTATIVE) |
| DESIGN ELECTIVE COURSES | | |
| EE4207 CONTROL ENGINEERING DESIGN | | ✓ |
| EE4208 INTELLIGENT SYSTEM DESIGN | ✓ | |
| EE4503 POWER ENGINEERING DESIGN | | ✓ |
| EE4504 DESIGN OF CLEAN ENERGY SYSTEMS | ✓ | |
| EE4901 BIOMEDICAL CONTROL SYSTEM DESIGN | | ✓ |
| EE4902 DESIGN OF MEDICAL INFORMATION PROCESSING SYSTEMS | ✓ | |
| TECHNICAL ELECTIVE COURSES | | |
| EE4001 SOFTWARE ENGINEERING | ✓ | ✓ |
| EE4265 PROCESS CONTROL SYSTEMS | | ✓ |
| EE4266 COMPUTER VISION | | ✓ |
| EE4268 ROBOTICS AND AUTOMATION | ✓ | ✓ |
| EE4273 DIGITAL CONTROL SYSTEMS | ✓ | |
| EE4285 COMPUTATIONAL INTELLIGENCE | ✓ | |
| EE4530 POWER SYSTEM ANALYSIS AND CONTROL | | ✓ |
| EE4532 POWER ELECTRONICS AND DRIVES | | ✓ |
| EE4533 POWER APPARATUS AND SYSTEM PROTECTION * | ✓ | |
| EE4534 MODERN DISTRIBUTION SYSTEMS WITH RENEWABLE RESOURCES | ✓ | |
| EE4903 PHYSIOLOGICAL SYSTEMS ANALYSIS | | ✓ |
| EE4904 BIOMEDICAL INSTRUMENTATION | ✓ | |
| EE4905 BIOMEDICAL SIGNAL PROCESSING | ✓ | |
| EE4840 BIOPHOTONICS | ✓ | |

* EE4533 WILL BE OFFERED FOR THE LAST TIME IN AY2013 SEMESTER 2.

TABLE B: ELECTRONIC ENGINEERING

| COURSE CODE AND TITLE | AVAILABILITY | |
|--|--------------|-----------------------------|
| | AY2013 SEM 2 | AY2014 SEM 1 (TENTATIVE) |
| DESIGN ELECTIVE COURSES | | |
| EE4303 MIXED-SIGNAL IC DESIGN | ✓ | ✓ |
| EE4304 RADIO FREQUENCY INTEGRATED SYSTEM DESIGN | ✓ | |
| EE4305 DIGITAL DESIGN WITH HDL | | ✓ |
| EE4613 CMOS PROCESS AND DEVICE SIMULATION BY TECHNOLOGY CAD | | ✓ |
| EE4614 DEVICE PARAMETER EXTRACTION AND LAYOUT IMPLEMENTATION | ✓ | |
| TECHNICAL ELECTIVE COURSES | | |
| EE4001 SOFTWARE ENGINEERING | ✓ | ✓ |
| EE4340 VLSI SYSTEMS | | ✓ |
| EE4341 ADVANCED ANALOG CIRCUITS | | ✓ |
| EE4343 RADIO FREQUENCY CIRCUITS | ✓ | |
| EE4344 ANALYSIS & DESIGN OF INTEGRATED CIRCUITS | ✓ | |
| EE4645 MICROFABRICATION ENGINEERING | | ✓ |
| EE4646 VLSI TECHNOLOGY | ✓ | |
| EE4647 MICROELECTRONIC DEVICES | | ✓ |
| EE4648 FLAT PANEL DISPLAY TECHNOLOGIES | | ✓ |
| EE4694 IC RELIABILITY AND FAILURE ANALYSIS | | ✓ |
| EE4838 LASER ENGINEERING AND APPLICATIONS | ✓ | |
| EE4839 FIBRE OPTIC COMMUNICATIONS | ✓ | |
| EE4840 BIOPHOTONICS | ✓ | |

TABLE C: INFOCOMMUNICATION ENGINEERING

| COURSE CODE AND TITLE | AVAILABILITY | |
|--|--------------|-----------------------------|
| | AY2013 SEM 2 | AY2014 SEM 1 (TENTATIVE) |
| DESIGN ELECTIVE COURSES | | |
| EE4105 CELLULAR COMMUNICATION SYSTEM DESIGN | | ✓ |
| EE4109 MICROWAVE CIRCUIT AND SYSTEM DESIGN | ✓ | |
| EE4110 OPTICAL COMMUNICATION SYSTEM DESIGN | ✓ | |
| EE4413 DSP SYSTEM DESIGN | | ✓ |
| EE4717 WEB APPLICATION DESIGN | | ✓ |
| EE4718 ENTERPRISE NETWORK DESIGN | ✓ | |
| TECHNICAL ELECTIVE COURSES | | |
| EE4151 RF AND MICROWAVE ENGINEERING | | ✓ |
| EE4152 DIGITAL COMMUNICATIONS | | ✓ |
| EE4153 TELECOMMUNICATION SYSTEMS | ✓ | |
| EE4188 WIRELESS COMMUNICATIONS | | ✓ |
| EE4189 SPREAD SPECTRUM COMMUNICATIONS | ✓ | |
| EE4190 INTRODUCTION TO MODERN RADAR | ✓ | |
| EE4455 EMBEDDED SYSTEMS | ✓ | |
| EE4475 AUDIO SIGNAL PROCESSING | | ✓ |
| EE4476 IMAGE PROCESSING | | ✓ |
| EE4478 DIGITAL VIDEO PROCESSING | ✓ | |
| EE4483 ARTIFICIAL INTELLIGENCE AND DATA MINING | | ✓ |
| EE4490 MULTIMEDIA SYSTEMS | | ✓ |
| EE4756 COMPUTER ARCHITECTURE | ✓ | |
| EE4758 COMPUTER SECURITY | | ✓ |
| EE4761 COMPUTER NETWORKING | ✓ | |
| EE4791 DATABASE SYSTEMS | ✓ | |

TABLE D: SPECIALISATION

Students who wish to pursue a more in-depth specialization within the 3 broad option groups may do so by selecting the relevant DESIGN and TECHNICAL electives courses from 8 areas of specialization under the respective option group.

| OPTION GROUP | SPECIALISATION | RECOMMENDED ELECTIVE COURSES |
|------------------------------------|---|--|
| ELECTRICAL AND SYSTEMS ENGINEERING | INTELLIGENT SYSTEMS & CONTROL ENGINEERING | EE4207, EE4208, EE4265, EE4266, EE4268, EE4273, EE4285 |
| | POWER & CLEAN ENERGY | EE4503, EE4504, EE4530, EE4532, EE4533, EE4534, EE4265, EE4273, EE4285, EE4001 |
| | BIOMEDICAL ELECTRONICS | EE4901, EE4902, EE4903, EE4904, EE4905, EE4265, EE4266, EE4840 |
| ELECTRONIC ENGINEERING | INTEGRATED CIRCUIT DESIGN | EE4303, EE4304, EE4305, EE4340, EE4341, EE4343, EE4344, EE4694 |
| | MICROELECTRONICS | EE4613, EE4614, EE4645, EE4646, EE4647, EE4648, EE4694, EE4838, EE4839, EE4840 |
| INFOCOMMUNICATIONS ENGINEERING | COMMUNICATION ENGINEERING | EE4105, EE4109, EE4110, EE4151, EE4152, EE4153, EE4188, EE4189, EE4190 |
| | COMPUTER ENGINEERING | EE4717, EE4718, EE4756, EE4758, EE4761, EE4455, EE4483, EE4490, EE4791 |
| | DIGITAL MEDIA PROCESSING | EE4413, EE4105, EE4455, EE4475, EE4476, EE4478, EE4483, EE4490 |