# Full Degree Programme Requirements
(for AY2010 direct intake & AY2011 Poly intake)

<table>
<thead>
<tr>
<th>Programme Requirements</th>
<th>University Level Requirements</th>
<th>Unrestricted Elective Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>122 MCs</td>
<td>20 MCs</td>
<td>18 MCs</td>
</tr>
<tr>
<td></td>
<td>• 2 GEMs (at least 1 must be from Grp B)</td>
<td>May include:</td>
</tr>
<tr>
<td></td>
<td>• 1 Singapore Studies Module</td>
<td>• internships</td>
</tr>
<tr>
<td></td>
<td>• 2 breadth modules outside Faculty</td>
<td>• other enhancement prog</td>
</tr>
<tr>
<td></td>
<td>(includes PC1222 for Poly)</td>
<td>• Minor prog</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• unrestricted modules</td>
</tr>
</tbody>
</table>

Total MCs = 160

[http://www.ceg.nus.edu.sg/students/FFG_Checklists.html](http://www.ceg.nus.edu.sg/students/FFG_Checklists.html)
# Major Programme Requirements

<table>
<thead>
<tr>
<th>Programme Components</th>
<th>Modules</th>
<th>MC</th>
</tr>
</thead>
</table>
| Non-technical requirements common to all BEng students | ▪ CG1413 Effective Team Communication  
▪ HR2002 Human Capital in Organizations  
▪ EG2401 Engineering Professionalism     | 10  |
| Core Modules                                  | ▪ MA1505 Mathematics I  
▪ MA1506 Mathematics II  
▪ PC1432 Physics IIE  
▪ CS1231 Discrete Structures  
▪ CS2103 Software Engrg  
▪ CG1101 Prog Methodology  
▪ CG1103 Data Structures  
▪ CG1108 Electrical Engrg  
▪ CG2007 MicroP Systems  
▪ CG2271 RTOS  
▪ CG3207 Computer Arch  
▪ EE2020 Digital Electronics  
▪ EE2021 Devices & Circuit  
▪ EE2023 Signals & Systems  
▪ EE2031 Circuit & Systems Design Labs  
▪ EE3204 CCNI  
▪ ST2334 Prob & Statistics | 66  |
| Projects                                       | ▪ CG3002 Embedded Systems Design Project  
▪ EE3001 Project  
▪ CG4001 BEng Dissertation | 22  |
| Technical Electives                           | Minimum 6 modules, at least 3 must be at level 4 Depth modules | 24  |
|                                               | **Total MCs for Programme Requirements** | **122** |
Considerations for Planning

- Core Modules harder than Electives
- Honours Classification: CAP not years
- Maximum Candidature: 5 years
- Strategy in Planning for Borderline Cases
- Special Terms
- Industrial Attachment: May take (up to) 2 evening modules

Refer to: http://www.eng.nus.edu.sg/undergrad/epmc/iap.html
Grade Point System

Grade Point (GP):

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+/A</td>
<td>5.0</td>
</tr>
<tr>
<td>A-</td>
<td>4.5</td>
</tr>
<tr>
<td>B+</td>
<td>4.0</td>
</tr>
<tr>
<td>B</td>
<td>3.5</td>
</tr>
<tr>
<td>B-</td>
<td>3.0</td>
</tr>
<tr>
<td>C+</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>D+</td>
<td>1.5</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

**CAP – Cumulative Average Point**

\[
\text{CAP} = \frac{\sum \text{MC}_i \times \text{GP}_i}{\sum \text{MC}_i}
\]

**Honors Classification**

- **1st Class Honors**: \( \text{CAP} \geq 4.5 \) & min A- for FYP
- **2nd Class (Upper)**: \( \text{CAP} 4.0 \) to 4.49
- **2nd Class (Lower)**: \( \text{CAP} 3.5 \) to 3.99
- **3rd Class**: \( \text{CAP} 3.2 \) to 3.49
- **Pass**: \( \text{CAP} 2.0 \) to 3.19
Specialization in CEG fields achieved through 24MCs of technical **breadth**/depth **electives** from following concentrations:

- Communications
- Networking
- Embedded Systems
- Multimedia Processing
- Control & Energy Management

**Breadth** elective provides broad understanding of concepts while depth elective provides greater depth & coverage.
# CEG Technical Electives

## Embedded Systems
- CS3210 Parallel Programming
- CS3211 Parallel and Concurrent Programming
- CS3217 Software Engrg on Modern Appli Platforms
- CS3271 Software Engineering for Reactive Sys
- CS4211 Formal Methods for Software Engrg
- CS4223 Parallel Computer Architecture
- CS4231 Parallel and Distributed Algorithms
- CS4271 Critical Systems and Their Verification
- EE4214 Real-time Embedded Systems
- EE4218 Embedded Hardware System Design
- EE4415 Integrated Digital Design

## Control & Energy Management
- EE2010 Systems & Control
- CS3243 Foundations of Artificial Intelligence
- CS3244 Machine Learning
- EE3302 Industrial Control Systems
- EE3304 Digital Control Systems
- EE3505 Electrical Energy Systems
- EE4302 Advanced Control Systems
- EE4305 Introduction to Fuzzy/Neural Sys
- EE4306 Distributed Autonomous Robotic Sys
- EE4307 Control Systems Design & Simulation
- EE4501 Power System Mgmt & Protection
- EE4502 Electric Drives and Control
- EE4505 Power Semiconductor Devices & ICs

## Communications
- EE2011 Engineering Electromagnetics
- EE3104C Intro to RF, Uwave Syst & Ckts
- EE3131C Communications Systems
- EE4101 RF Communications
- EE4104 Microwave Circuits & Devices
- EE4110 RFIC and MMIC Design
- EE4112 HF Techniques
- EE4113 Digital Communications & Coding
- EE4114 Optical Communications

## Networking
- CG3204L Computer Networks Laboratory
- CS2107 Introduction to Information & Systems Security
- CS3235 Introduction to Computer Security
- CS4222 Wireless Computing & Sensor Networks
- CS4274 Mobile and Multimedia Networking
- CS4344 Networked & Mobile Gaming
- EE4210 Computer Communication Networks II
- EE4214 Real-time Embedded Systems
Multimedia Processing

CS2102 Database Systems
CS3216 Software Dev on Evol Platforms
CS3230 Design and Analysis of Algorithms
CS3240 Human Computer Interaction
CS3241 Computer Graphics
CS3245 Information Retrieval
CS3246 Hypermedia & World Wide Web
CS3249 Elements of User Interface Design
EE3206 Intro to Computer Vision & Image Proc
EE3701 Digital Media Technologies
EE3702 Electronic Gaming
EE3731C Signal Processing Methods

CS3223 Database Systems Implementation
CS3248 Design of Interactive Systems
CS4213 Game Development
CS4221 Database Design
CS4243 Computer Vision & Pattern Recognition
CS4247 Graphics Rendering Techniques
CS4248 Natural Language Processing
CS4249 Design of Advanced User Interfaces
CS4342 3D Modeling and Animation
CS4345 General-Purpose Computation on GPU
CS4347 Sound and Music Computing
EE4212 Computer Vision
EE4213 Image Processing
EE4702 Game World Mechanics

Refer to http://www.ceg.nus.edu.sg/academic/electives.html and the master-list http://www.ceg.nus.edu.sg/students/ceg3TE/ for updates.
Final Year Project
CG4001
http://www.ceg.nus.edu.sg/CG4001/
FYP Eligibility

To bid for FYP, student must have “passed” at least 112 MCs (including modules registered in the bidding semester)

Students away on NOC/SEP etc - also eligible

Usually their MC will be under 112 (till their return and credit transfer is processed), thus provisional MCs will be added to enable them to bid.

They can access the project admin system from abroad and also consult potential supervisors via email.

Students are not allowed to do SEP / NOC / Internship with FYP concurrently
# Bidding Timeline (Sem 1)

For students starting CG4001 in S2, AY12/13; presenting in S1, AY13/14

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE / TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Round 1 Bidding Exercise</strong></td>
<td></td>
</tr>
<tr>
<td>1a. Discuss with supervisor</td>
<td>1a. Week 7 (5 days): 1 – 5 Oct</td>
</tr>
<tr>
<td>1b. Students to indicate project online after discussion with supervisors</td>
<td>1b. Week 8 (3 days): 8 – 10 Oct</td>
</tr>
<tr>
<td>1c. Staff to indicate their choice online</td>
<td>1c. Week 8 Friday: 12 Oct</td>
</tr>
<tr>
<td>1d. Update via project admin</td>
<td>1d. Week 9 Friday: 19 Oct</td>
</tr>
<tr>
<td><strong>Round 2 Bidding Exercise</strong></td>
<td></td>
</tr>
<tr>
<td>2a. Discuss with supervisor</td>
<td>2a. Week 10 (5 days): 22 – 26 Oct</td>
</tr>
<tr>
<td>2b. Students who did not succeed in round 1 to indicate project online after discussion with supervisors</td>
<td>2b. Week 11 (3 days): 29 – 31 Oct</td>
</tr>
<tr>
<td>2c. Staff to indicate their choice online</td>
<td>2c. Week 11 Friday: 2 Nov</td>
</tr>
<tr>
<td>2d. Update via project admin</td>
<td>2d. Week 12 Friday: 9 Nov</td>
</tr>
<tr>
<td><strong>Manual Registration</strong></td>
<td>Week 13 till Week 1 of sem 2, AY12/13</td>
</tr>
</tbody>
</table>
# Bidding Timeline (Sem 2)

For students starting CG4001 in S1, AY13/14; presenting in S2, AY13/14

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE / TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Round 1 Bidding Exercise</strong> 1a. Discuss with supervisor  1b. Students to indicate project online after discussion with supervisors  1c. Staff to indicate their choice online  1d. Update via project admin</td>
<td>1a. Week 7 (5 days): 4 – 8 Mar  1b. Week 8 (3 days): 11 – 13 Mar  1c. Week 8 Friday: 15 Mar  1d. Week 9 Friday: 22 Mar</td>
</tr>
<tr>
<td><strong>Round 2 Bidding Exercise</strong> 2a. Discuss with supervisor  2b. Students who did not succeed in round 1 to indicate project online after discussion with supervisors  2c. Staff to indicate their choice online  2d. Update via project admin</td>
<td>2a. Week 10 (5 days): 25 – 29 Mar  2b. Week 11 (3 days): 1 - 3 Apr  2c. Week 11 Friday: 5 Apr  2d. Week 12 Friday: 12 Apr</td>
</tr>
<tr>
<td><strong>Manual Registration</strong></td>
<td>Week 13 till Week 1 of sem 1, AY13/14</td>
</tr>
</tbody>
</table>
FYP bidding: Round 1 Rules

All students (who have accumulated 112 MCs) are eligible to bid in round 1

Students may select up to three projects

Staff is allowed to select up to two students in this round, regardless of the number of bidders for the multiple projects proposed by the staff

System makes the final allocation based on student and staff choice
FYP bidding: Round 2 Rules

All eligible students who are unsuccessful from round 1, will continue in round 2.

Students may select up to three projects

Staff is allowed to select up to five students (including allocation from round 1)

System makes the final allocation based on student and staff choice
FYP bidding: Manual Registration

After both rounds of bidding are over, for manual registration, staff will need to send an email to FYP administrator, indicating that they are willing to assign their project(s) to student(s), with the following details:

- Project ID
- Project Title
- Student Name
- Student Number
Extended IA – Industrial FYP
Second 6-month

Refer to:
http://www.ceg.nus.edu.sg/ia/
http://www.ceg.nus.edu.sg/CG4001/proj_select/
Integrated Industrial FYP

Industrial FYPs are only for those who have done a normal 6-month industrial attachment and found a good project with the company

- Subjected to approval of JAC
- Submit proposal to JAC
  - Problem & Objectives
  - Status of work from 1st 6 month
  - Proposed methodology
  - Proposed deliverables
  - Availability of resources for work

The overall structure – similar to normal FYP, except that the timeline will be halved

2 supervisors; NUS & Industrial
  - Each contributes half of supervisor’s marks

The final presentations of industrial FYPs - same time as final presentations of normal FYPs
University Health, Wellness & Counselling Centre
http://www.nus.edu.sg/uhc/

Emotional & Psychological Well Being
• Anxiety, Depression
• Mental Health, Self-Worth, Shyness, Stress
• Eating Disorders
• Sudden Loss and Grief
• Feelings, Loneliness

Relationship Issues
• Abusive Relationships, Family Stress, Managing Conflicts, Surviving a Breakup

Personal Effectiveness
• Decision Making, Motivation, Test Anxiety, Time Management, Challenges of University Life
Student Life

Newly set up under the Office of the Deputy Head for Undergraduate Studies and Student Life

Faculty in-charge: A/P Vivian Ng (elengv@nus.edu.sg)
Admin Officer: Ms Nicole Phua (elepwqn@nus.edu.sg)

• Aims to enrich the learning experience of all ECE students
• Prepares ECE students as mature all-rounders for life after graduation.
Student Life-Services

- Student Concierge @ ECE Office
  - one-stop service station for students to come to for any form of academic advices
- Organize social activities for students & student/staff
- Provide mentorship through Academic Advisor and Senior Buddy
- Consultation sessions near exam time to help students
- Internship opportunities through tie-ups with companies
- Career planning and advising by working with alumni and industry

More information will be disseminated soon.
We would like to hear what you want!
Email us at elepwnqn@nus.edu.sg
Book your diary for **17 August 2012**!

Event: **ST Engineering Sharing on Internship & Employment Opportunities**

Time: 2 - 5 pm

Venue: to be confirmed

More details will be sent via emails! Keep a look out!
CALLING FOR STUDENT VOLUNTEERS!!!

Have you thought about making a difference for the students in ECE?
Have you thought about making the lives in here more vibrant and fun?

If you want to make a difference and contribute to making life in ECE the best it possibly can be, come and join one of the many sub-committees for various events or projects in ECE.

We are looking for volunteers to:
• Help organize the Staff Freshmen BBQ Party on 17 August
• Be Senior Buddies for Freshmen
• Be part of the Student Life body

Interested Students, please email to Ms Nicole Phua (elepwqn@nus.edu.sg)
End of Presentation