<table>
<thead>
<tr>
<th>#</th>
<th>Programme</th>
</tr>
</thead>
</table>
| 1  | Welcome Address by Assoc Prof TT Tay, Chairman of Joint Academic Committee (JAC)  
    *Presentation of “Top Year 1 CEG Student” trophy* |
| 2  | Briefing on Academic Matters by Assoc Prof LF Cheong, CEG Year 2 and Year 3 Coordinator |
| 3  | Talk on Student Exchange Programme (SEP) by Assoc Prof M Tulika |
| 4  | Talk on Long term IA by Dr YJ Ha |
| 5  | Talk on NOC/iLead Programme by Ms Sereen Zheng, College Programme Officer |
| 6  | Tea refreshment |
JAC named

Nguyen Quoc Phong

the Top Year 1 Computer Engineering (CEG) Student for Academic Year 2009/2010
# Full Degree Programme Requirements

<table>
<thead>
<tr>
<th>Programme Requirements</th>
<th>University Level Requirements</th>
<th>Unrestricted Elective Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>121 MCs</td>
<td>20 MCs</td>
<td>19 MCs (20 MC for AY2010 Poly)</td>
</tr>
<tr>
<td></td>
<td>▪ 2 GEMs</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 prgm</td>
</tr>
<tr>
<td></td>
<td>▪ (includes PC1222 for Poly)</td>
<td>▪ minor programmes</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 Communications  
▪ 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  
▪ CG1102 Data Struct & Algo  
▪ CG1108 Electrical Engg  
▪ CG2007 MicroP Systems  
▪ CG2271 RTOS  
▪ CG3207 Computer Arch  
▪ EE2005 Electronics  
▪ EE2006 Digital Design  
▪ EE2009 Signals  
▪ EE3204 CCNI  
▪ ST2334 Prob & Statistics | 65 |
| **Projects**                                  | ▪ CG2001 Embedded Systems Design Project  
▪ EE3001 Project  
▪ CG4001 BEng Dissertation | 22 |
| **Technical Electives**                      | Minimum 6 modules, at least 3 must be at the depth level                  | 24 |
| **Total MCs for Programme Requirements**      |                                                                         | 121 |
### Possible Schedule for CEG AY2009/10 Direct Intake (without IA)

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Sem 3</th>
<th>Sem 4</th>
<th>Sem 5</th>
<th>Sem 6</th>
<th>Sem 7</th>
<th>Sem 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS / EG1471</td>
<td>CS1231 Discrete Structures</td>
<td>CG2271 RTOS</td>
<td>GEM 2</td>
<td>EG2401 Engrg Profsm.</td>
<td>BREADTH ELECTIVE</td>
<td>UEM 3</td>
<td>UEM 5</td>
</tr>
<tr>
<td>ULR 1</td>
<td>CG1413 ETC</td>
<td>GEM 1</td>
<td>UEM 1</td>
<td>UEM 1</td>
<td>ULM 2</td>
<td>UEM 2</td>
<td>UEM 4 (3MC)</td>
</tr>
</tbody>
</table>

20 MCs 21 MCs 20 MCs 20 MCs 21 MCs 20 MCs 20 MCs 18 MCs

**TOTAL GRADUATION REQUIREMENTS = 160 MCs**
# Possible Schedule for CEG AY2009/10 Direct Intake (with 6 months IA)

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Sem 3</th>
<th>Sem 4</th>
<th>Sem 5</th>
<th>Sem 6</th>
<th>Sem 7</th>
<th>Sem 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG1101 Programming Methodology</td>
<td>CG1102 Data Structures &amp; Algorithms</td>
<td>CS2103 Software Enggr</td>
<td>UEM 2 (3MC)</td>
<td>CG3207 Computer Architecture</td>
<td>BREADTH ELECTIVE</td>
<td>DEPTH ELECTIVE</td>
<td></td>
</tr>
<tr>
<td>SS / EG1471</td>
<td>CS1231 Discrete Structures</td>
<td>CG2271 RTOS</td>
<td>ULR 2</td>
<td>EG2401 Engrg Profsm.</td>
<td>BREADTH ELECTIVE</td>
<td>DEPTH ELECTIVE</td>
<td></td>
</tr>
<tr>
<td>ULR 1</td>
<td>UEM 1</td>
<td>EE2009 Signals</td>
<td>EE3001 Project</td>
<td>GEM 1</td>
<td>HR2002 Human Capital in Organizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CG1413 ETC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 MCs</td>
<td>25 MCs</td>
<td>20 MCs</td>
<td>19 MCs</td>
<td>21 MCs</td>
<td>12 MCs</td>
<td>21 MCs</td>
<td>22 MCs</td>
</tr>
</tbody>
</table>

**TOTAL GRADUATION REQUIREMENTS = 160MCs**
Possible Schedule for CEG AY2009/10 Poly Intake (without IA)

* For Poly students who are exempted from CG1108

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Sem 3</th>
<th>Sem 4</th>
<th>Sem 5</th>
<th>Sem 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA1301¹ (UEM)</td>
<td>MA1505 Math I</td>
<td>MA1506 Math II</td>
<td>EG2401 Engrg Profsm.</td>
<td>CG4001 FYP</td>
<td>CG4001 FYP</td>
</tr>
<tr>
<td>PC1222² (ULR)</td>
<td>PC1432 Physics IIE</td>
<td>CS2103 Software Engrg</td>
<td>ST2334 Probability &amp; Statistics</td>
<td>EE3204 Computer Comms Networks</td>
<td>DEPTH ELECTIVE</td>
</tr>
<tr>
<td>CG1101 Programming Methodology</td>
<td>CG1102 Data Structures &amp; Algorithms</td>
<td>CG2271 RTOS</td>
<td>EE2009 Signals</td>
<td>CG2001 Design Project</td>
<td>DEPTH ELECTIVE</td>
</tr>
<tr>
<td>EE2006 Digital Design</td>
<td>CS1231 Discrete Structures</td>
<td>1 SS</td>
<td>BREADTH ELECTIVE</td>
<td></td>
<td>1 UEM</td>
</tr>
<tr>
<td>EG1471</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>20 MCs</td>
<td>21 MCs</td>
<td>20 MCs</td>
<td>23 MCs</td>
<td>20 MCs</td>
<td>22 MCs</td>
</tr>
</tbody>
</table>

TOTAL GRADUATION REQUIREMENTS = 160MCs
Possible Schedule for CEG AY2009/10 Poly Intake *(without IA)*

* For Poly students who are NOT exempted from CG1108

<table>
<thead>
<tr>
<th></th>
<th>Sem 1</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MA1301(^1) (UEM)</td>
<td>MA1505 Math I</td>
<td>MA1506 Math II</td>
<td>EG2401 Engrg Profsm.</td>
<td>CG4001 FYP</td>
<td>CG4001 FYP</td>
</tr>
<tr>
<td></td>
<td>PC1222(^2) (ULR)</td>
<td>PC1432 Physics IIE</td>
<td>CS2103 Software Engrg</td>
<td>ST2334 Probability &amp; Statistics</td>
<td>EE3204 Computer Comms Networks</td>
<td>DEPTH ELECTIVE</td>
</tr>
<tr>
<td>1 SS</td>
<td>CS1231 Discrete Structures</td>
<td>EE2005 Electronics</td>
<td>EE2009 Signals</td>
<td>CG3207 Computer Architecture</td>
<td>DEPTH ELECTIVE</td>
<td></td>
</tr>
<tr>
<td>1 GEM</td>
<td>CG1108 Electrical Engineering</td>
<td>EE2006 Digital Design</td>
<td>BREADTH ELECTIVE</td>
<td>BREADTH ELECTIVE</td>
<td>1 UEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EG1471</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 MCs</td>
<td>21 MCs</td>
<td>20 MCs</td>
<td>23 MCs</td>
<td>24 MCs</td>
<td>22 MCs</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL GRADUATION REQUIREMENTS = 160MCs
<table>
<thead>
<tr>
<th></th>
<th>Sem 1</th>
<th>Sem 2</th>
<th>Sem 3</th>
<th>Sem 4</th>
<th>Sem 5</th>
<th>Sem 6</th>
<th>Sem 7</th>
<th>Sem 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG</td>
<td><strong>MA1505 Math I</strong></td>
<td><strong>MA1506 Math II</strong></td>
<td><strong>EE2006 Digital Design</strong></td>
<td><strong>CG2007 MicroP Systems</strong></td>
<td><strong>CG3207 Computer Architecture</strong></td>
<td><strong>EE3001 Project</strong></td>
<td><strong>CG4001 FYP</strong></td>
<td><strong>CG4001 FYP</strong></td>
</tr>
<tr>
<td></td>
<td>PC1431 (ULR 1)</td>
<td></td>
<td><strong>EE2005 Electronics</strong></td>
<td><strong>ST2334 Probability &amp; Statistics</strong></td>
<td><strong>CG2001 Design Project</strong></td>
<td>BREADTH ELECTIVE</td>
<td>HR2002 Human Capital in Organizations</td>
<td>DEPTH ELECTIVE</td>
</tr>
<tr>
<td></td>
<td>MLE1101 (UEM 1)</td>
<td></td>
<td><strong>CS1231 Discrete Structures</strong></td>
<td><strong>EE2009 Signals</strong></td>
<td><strong>EE3204 Computer Comms Networks I</strong></td>
<td>BREADTH ELECTIVE</td>
<td>DEPTH ELECTIVE</td>
<td>DEPTH ELECTIVE</td>
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<tr>
<td></td>
<td>EG1109 Statics &amp; Mechanics of</td>
<td><strong>EG1108 Electrical Engrg (map to CG1108)</strong></td>
<td><strong>CG2271 RTOS</strong></td>
<td><strong>CS2103 Software Engrg</strong></td>
<td>EG2401 Engrg Profsm.</td>
<td>BREADTH ELECTIVE</td>
<td>UEM 3</td>
<td>UEM 5</td>
</tr>
<tr>
<td></td>
<td>Materials (ULR 2)</td>
<td>EG1471</td>
<td><strong>CS1102C Data Structures &amp; Algorithms (map to CG1102)</strong></td>
<td>SS</td>
<td>GEM 1</td>
<td>UEM 2</td>
<td>UEM 4</td>
<td>GEM 2</td>
</tr>
<tr>
<td></td>
<td><strong>16 MCs</strong></td>
<td><strong>19 MCs</strong></td>
<td><strong>21 MCs</strong></td>
<td><strong>19 MCs</strong></td>
<td><strong>22 MCs</strong></td>
<td><strong>20 MCs</strong></td>
<td><strong>21 MCs</strong></td>
<td><strong>22 MCs</strong></td>
</tr>
</tbody>
</table>

**TOTAL GRADUATION REQUIREMENTS = 160 MCs**

* EG1108 = 3 MCs but CG1108 = 4 MCs; top up with UEMs i.e. require to take 20 MCs of UEMs
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: Can take 2 Modules at night

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

CAP

\[ \frac{\sum MC_i \times GP_i}{\sum MC_i} \]

Honors Classification

1st Class Honors  \[ \text{CAP } \geq 4.5 \text{ } \& \text{ min A- for FYP} \]
2nd Class (Upper) \[ \text{CAP } 4.0 \text{ to } 4.49 \]
2nd Class (Lower) \[ \text{CAP } 3.5 \text{ to } 3.99 \]
3rd Class \[ \text{CAP } 3.2 \text{ to } 3.49 \]
Pass \[ \text{CAP } 2.0 \text{ to } 3.19 \]
## Borderline Case

<table>
<thead>
<tr>
<th>Start</th>
<th>CAP=1.8; MC=40</th>
<th>CAP=1.8; MC=40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module1</td>
<td>C+</td>
<td>C+</td>
</tr>
<tr>
<td>Module2</td>
<td>C+</td>
<td>C+</td>
</tr>
<tr>
<td>Module3</td>
<td>C+</td>
<td>C+</td>
</tr>
<tr>
<td>Module4</td>
<td>C+</td>
<td>C+</td>
</tr>
<tr>
<td>Module5</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>End</td>
<td>CAP=2.0; MC=56</td>
<td>CAP=2.0; MC=60</td>
</tr>
</tbody>
</table>
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**.
You can choose electives from any concentration areas.

- add up to at least 24 MCs, at least 3 depths
- career tracks advisory to help you, not mandatory
- Industry talks

- Roughly, Breadth=3xxx; Depth=4xxx (but exceptions!)
- CG3204L: 3MCs, sem II. Pre-req: EE3204, sem I.
- EE4702: 8 MCs (in 1 semester) counted as 2 Depths.

http://www.ceg.nus.edu.sg/academic/electives.html

CEG Technical Electives

**Embedded Systems**
- CS3211 Parallel and Concurrent Programming
- CS3271 Software Engineering for Reactive Sys
- CS4223 Parallel Computer Architecture
- CS4271 Critical Systems and Their Verification
- CS4214 Real-time Embedded Systems
- EE4218 Embedded Hardware System Design
- EE4415 Integrated Digital Design

**Communications**
- EE2011 Engineering Electromagnetics
- EE3101 Digital Signal Processing
- EE3103 Communications
- EE3104 Introduction to RF & Microwave...
- EE4101 RF Communications
- EE4104 Microwave Circuits & Devices
- EE4110 RFIC and MMIC Design
- EE4112 HF Techniques
- EE4113 Digital Communications & Coding
- EE4114 Optical Communications

**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

**Networking**
- CG3204L Title pending
- CS3235 Introduction to Computer Security
- CS4222 Wireless Computing & Sensor Networks
- CS4236 Cryptography Theory & Practice
- CS4274 Mobile and Multimedia Networking
- CS4344 Networked & Mobile Gaming
- EE4210 Computer Communication Networks II
- EE4214 Real-time Embedded Systems
Multimedia Processing

**EE3206 Intro to Computer Vision & Image Processing**
**EE3701 Digital Media Technologies**
**EE3702 Introduction to Electronic Gaming**
**EE4212 Computer Vision**
**EE4213 Image Processing**
**CS3230 Design and Analysis of Algorithms**
**CS3240 Human Computer Interaction**
**CS3241 Computer Graphics**
**CS3246 Hypermedia & World Wide Web**
**CS4243 Computer Vision & Pattern Recognition**
**CS4249 Design of Advanced User Interfaces**

**CS4247 Graphics Rendering Techniques**
**CS3248 Design of Interactive Systems**
**CS3249 Elements of User Interface Design**
**CS4248 Natural Language Processing**
**CS4341 Multimedia Technologies**
**CS4345 General-Purpose Computation on GPU**
**CS4213 Game Development**
**CS4342 3D Modeling and Animation**
**CS4347 Sound and Music Computing**
**EE4702 Game World Mechanics**

Modules outside the basket:
**CS3244 Machine Learning**
**MA2213 Numerical Analysis I**
**MA4268 Mathematics for Visual Data Processing**
**EE4604 Biological Perception in Digital Media**

Multi-view stereo
Surface modeling
Help at University Health, Wellness & Counselling Centre


Self-Help

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

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

• Personal Effectiveness
  – Decision Making, Motivation
  – Test Anxiety, Time Management
  – Challenges of University Life
Important websites:


Minor, Double Major: [http://www.ceg.nus.edu.sg/students/first_year.html](http://www.ceg.nus.edu.sg/students/first_year.html)

under ‘Acad Info/Useful link’ -> FoE UG (Special Programme)

Points of contact:

Chairman of JAC: A/Prof Tay Teng Tiow (eletaytt)

Year 2 coordinator: A/Prof Cheong Loong Fah (eleclf)

Admin: Ms Winnie Chua (cegcwn)
End of Presentation