BSc in Mathematics and Information Engineering

Mathematical Analysis
Algebra & Geometry
Differential Equations
Mathematical Modeling
Stochastic Processes
Probability

Mathematical and Engineering Knowledge
Analytical Problem Solving
Innovative & Creative Solutions
Communication Skills & Professional Ethics

Networking
Big Data Systems
Multimedia Processing
Communication Systems
Software Engineering
Cyber Security

An interdisciplinary programme jointly offered by Department of Mathematics and Department of Information Engineering
This is an interdisciplinary programme jointly offered by the Faculty of Engineering and the Faculty of Science, with the Department of Information Engineering and the Department of Mathematics being responsible for the management and actual running of it. The programme is designed to equip students with fundamental knowledge in both mathematics and engineering, providing a solid foundation for further studies at the graduate school level or pursuing independent research or careers in various sectors.

**Programme Features**

This programme places strong emphasis on research and encourages independent studies under the supervision of professors from either departments. Students who excel in their studies will have opportunities to take up research work during their later years of study. A first-year student in this programme may follow the general Engineering study scheme or the “Enrichment Mathematics” study scheme.

**Curriculum**

### Information Engineering + Mathematics

**Major Requirement including Faculty Package (81 units)**

<table>
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<tr>
<th>Year</th>
<th>Courses</th>
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<tr>
<td>Year 4</td>
<td>Final Year Project I and Final Year Project II plus major electives</td>
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<tr>
<td>Year 3</td>
<td>Info &amp; Software Engg Practice Computer Networks Info Infrastructure Design Lab Communications Lab Mathematical Analysis I Complex Variables with Applications Linear Algebra II Algebraic Structures plus Major Elective Courses</td>
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<tr>
<td>Year 2</td>
<td>Programming Lab Basic Analog &amp; Digital Circuits Data Structures Signals and Systems Foundation of Modern Math Advanced Calculus I &amp; II Introductory Probability plus an Extra Foundation Course &amp; Major Elective Courses</td>
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<td>Year 1</td>
<td>Engineering Faculty Package or Enrichment Mathematics Study Scheme plus Extra Foundation Courses</td>
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**Wide Range of Electives**

- Web-scale Information Analytics
- Programming Big Data Systems
- Internet of Things
- Building Scalable Internet-based Services
- Social Media & Human Info Interaction
- Image & Video Processing
- Multimedia Coding and Processing
- Simulation & Statistical Analysis
- Intro to Stochastic Processes
- Digital Communication
- Applied Cryptography
- Cyber Security
- Graph Theory
- Numerical Analysis
- Linear Programming
- Mathematical Modeling
- Networks: Technology, Economics, & Social Interactions
- and MORE!

*Plus University Core Requirement, including English Language, Chinese Language, General Education, Physical Education & IT Training.*

**Admission**

For further details, please refer to the brochure of the Faculty of Engineering or the Faculty of Science, or visit the websites at [http://www.erg.cuhk.edu.hk](http://www.erg.cuhk.edu.hk) or [http://www.math.cuhk.edu.hk](http://www.math.cuhk.edu.hk)

**Contact Persons / Enquiries**

**Professor Chandra NAIR**
Department of Information Engineering
The Chinese University of Hong Kong
chandra@ie.cuhk.edu.hk
Tel: 3943-8467

**Professor Jun ZOU**
Department of Mathematics
The Chinese University of Hong Kong
zou@math.cuhk.edu.hk
Tel: 3943-7988

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