Our Programmes in a Glance

- Artificial Intelligence
  - Software Engineering
  - Robotics
  - Multimedia Information Retrieval
  - Marketing Analytics

- Fintech
  - Parallel Computing
  - Game Development
  - Digital Innovation
  - Database Systems

- Cybersecurity
  - Financial Analytics
  - Programming Languages
  - Internet of Things
  - Distributed Systems

- Computer Science
  - Computer Graphics

- Information Systems
  - Information Security

- Business Analytics
  - Electronic Commerce

- Computer Engineering
  - Big Data Analytics
Any sufficiently advanced technology is indistinguishable from magic.

- Arthur C. Clarke
COMPUTING'S REACH

The alarm rings. We reach for our mobile phones to turn it off and check for messages. At breakfast, we scroll through news headlines and social media news feeds. When we step out the door, an app tells us when the next bus will arrive. On our daily commute, we respond to emails, catch up on our reading or try to get to the next level of that addictive game. And then we get to work and turn on our computers...

We are living in the Age of Computing, and yet people seem unaware of how extensively we rely on Computing, how quickly it is developing, and its awe-inspiring potential to revolutionise every aspect of life as we know it. **Computing is enjoyed by most, but understood by few.** Everyone uses Computing to communicate, work, travel, spend, invest, heal, build, entertain... and every industry is using Computing to enhance performance and productivity. With its inevitable ubiquity, understanding Computing will be as critical as literacy, even if most people don't realise it yet.

As did steam power, electricity, and the internal combustion engine before it, Computing is the new general purpose technology that is allowing us to re-imagine the way we live, work, connect, and create.
The All-Access Pass

We are only just beginning to see Computing’s impact on our lives. The advent of autonomous cars and accurate computerised translations are only the first examples of the kinds of revolutionary technology that will emerge as Computing’s astounding exponential growth continues. Every day, Computing experts are revealing machines and software that are successfully performing tasks that were unachievable only a few years ago. Since Computing is fundamentally about helping people solve problems with technology, it can exist anywhere and in any field.

With that kind of growth, and its pervasiveness, there is a massive demand for Computing talent across all industries, across the globe. Computing is one of the few disciplines that can blend with and complement any other field to potentially propel performance to new heights. No other discipline affords access into all industries like Computing does. The problem is that there just aren’t enough people who are trained with these skills today. There is a dearth of computing talent. Supply is not meeting demand. Correspondingly, many Computing jobs are consistently listed, not only as the best paid, but also simply the best jobs to have in Singapore, and the world.
NOT JUST GEEKS

Because Computing can exist in and augment all Industries, we need Computing experts of all types. Entrepreneurs, Math-Whizzes, Artists, Doctors, Builders, Business Executives, Scientists, Writers, Athletes, Musicians, Designers, Film-Makers, Conservationists, Farmers, Teachers, Inventors, Financiers... whatever your propensity, Computing will teach you how to think and equip you with the skills that will give you an edge in whatever you do.

When you enter one of our many comprehensive programmes, which range from Business Analytics to Computer Engineering, you will be part of a diverse community made up of enthusiastic, well-rounded, and versatile students, alumni, and faculty, of myriad personalities, aptitudes, and interests.

With Computing, you could write lines of code or design systems that will impact the lives of millions. Computing offers the fastest and simplest way to transform an idea in your mind into a physical, functioning product, and then share it with millions around the world, in a click. If you can create technology, you can change the world.

Some people say it’s the closest thing we have to a superpower.

Back in Year 1, I struggled a little at the start because I had no prior programming experience but I was really excited to write my first programme and to see it run successfully. Knowing you have the ability to create something that can benefit many people is an empowering feeling, and that is something that I enjoy being a part of NUS Computing.
We are consistently ranked among the world’s leading computing schools.

Degree Programmes

Bachelor of Computing in **Computer Science** (with Honours*)
- Turing Programme

Bachelor of Computing in **Information Systems** (with Honours*)

Bachelor of Engineering in **Computer Engineering** (with Honours*)

Bachelor of Science in **Business Analytics** (with Honours*)
- Co-Operative Education Programme (Co-Op)

Bachelor of Computing in **Information Security** (with Honours*)
- Co-Operative Education Programme (Co-Op)

Double Bachelor’s Degree Programmes (DDP)
- Bachelor of Computing in **Computer Science / Information Systems**
  - Bachelor of Business Administration, with NUS Business School
- Bachelor of Computing in **Computer Science / Information Systems**
  - Bachelor of Business Administration (Accountancy**), with NUS Business School
- Bachelor of Computing in **Computer Science**
  - Bachelor of Science in Mathematics/Applied Mathematics, with NUS Faculty of Science

**subject to meeting CAP requirements after first year**

Concurrent Bachelor’s & Master’s Degree Programmes (CDP)
- Bachelor of Computing in **Information Systems**
  - Master of Science in Engineering & Technology Innovation Management, with Carnegie Mellon University
- Bachelor of Computing in **Computer Science / Information Systems**
  - Master of Science (Management), with NUS Business School

Bachelor’s & Double Master’s Degree Programmes
- Bachelor’s & Master’s degrees in **Computer Science / Information Systems / Information Security / Computer Engineering / Business Analytics**
  - French Grandes Écoles Diplôme d’Ingénieur

*subject to meeting requirements
**DOUBLE MAJORS & MINORS (DIRECT ENTRY)**

**Bachelor of Computing in Computer Science**
- a second major in Mathematics, with Faculty of Science
- a second major in Statistics, with Faculty of Science
- a minor in Interactive Media Development, with Faculty of Arts & Social Sciences
- a minor in Entrepreneurship, with NUS Business School
- a minor in Management, with NUS Business School
- a minor in Mathematics, with Faculty of Science
- a minor in Statistics, with Faculty of Science

**Bachelor of Computing in Information Systems**
- a second major in Economics, with Faculty of Arts & Social Sciences
- a minor in Economics, with Faculty of Arts & Social Sciences
- a minor in Interactive Media Development, with Faculty of Arts & Social Sciences
- a minor in Entrepreneurship, with NUS Business School
- a minor in Management, with NUS Business School

**Bachelor of Engineering in Computer Engineering**
- a second major in Management, with NUS Business School
- a second major in Innovation & Design, with Faculty of Engineering
- a second major in Systems Engineering, with Faculty of Engineering
- a second major in Mathematics, with Faculty of Science
- a second major in Statistics, with Faculty of Science
- a minor in Economics, with Faculty of Arts & Social Sciences
- a minor in Entrepreneurship, with NUS Business School
- a minor in Management, with NUS Business School
- a minor in Financial Mathematics, with Faculty of Science
- a minor in Statistics, with Faculty of Science

**Bachelor of Science in Business Analytics**
- a second major in Economics, with Faculty of Arts & Social Sciences
- a second major in Mathematics, with Faculty of Science
- a second major in Statistics, with Faculty of Science
- a minor in Economics, with Faculty of Arts & Social Sciences
- a minor in Entrepreneurship, with NUS Business School
- a minor in Information Security, with School of Computing
- a minor in Real Estate, with School of Design & Environment
- a minor in Financial Mathematics, with Faculty of Science
- a minor in Statistics, with Faculty of Science

**Bachelor of Computing in Information Security**
- a second major in Mathematics, with Faculty of Science
- a second major in Statistics, with Faculty of Science
- a minor in Entrepreneurship, with NUS Business School
- a minor in Management, with NUS Business School
- a minor in Financial Mathematics, with Faculty of Science
- a minor in Mathematics, with Faculty of Science
- a minor in Statistics, with Faculty of Science

Alternatively, pair any non-Computing NUS degree programme with a second major or minor in **Computer Science / Information Systems / Business Analytics / Information Security**.

You know that this is the Age of Computing and it permeates all fields, from the sciences, like medicine and agriculture, to the arts, like law and music. To have an edge over everyone else in your field, it makes sense to capitalise on this ubiquitous technology and pair it with your interests; it makes sense to speak the language—the lingua franca—of the modern economy.

Imagine what you could do with a killer combination like that.
Scholarships, Awards & Financial Aid

NUS Scholarships & Aid
School of Computing Scholarship
Kwan Im Thong Hood Cho Temple Computing Scholarship
Lim Hong Chin Memorial Scholarship
Asia Fusion Technology Scholarship
LBKM Future Economy Scholarship
National Infocomm Scholarship
Singapore International Pre-Graduate Award
NEW Scholarship
SingTel Analytics/Cyber Security Undergraduate Scholarship
UOB Business Analytics Scholarship
SNCF Co-Operative Scholarship
SoC Pay-It-Forward Bursary
Computing Alumni Assistance Award
Computing Student Development Fund

Internships

Advanced Technology Attachment Programme (ATAP)
Student Internship Programme (SIP)
Industry Internship Programme (IIP)
Co-Operative Education Programme (Co-Op)

Enrichment Programmes

NUS Overseas College (NOC)
Student Leadership Programme (SLP)
University Scholars Programme (USP)

Industry Exposure

SoC Term Project Showcase (STePS)
SoC Career Fair
Orbital: Independent Software Engineering (Summer) Project
Bachelor of Computing in: 
**Computer Science (CS)**

or

**Information Security (ISC)**

1. Singapore-Cambridge ‘A’-Levels:  
   H2 pass in Computing or Mathematics or Physics;  
   OR a good pass in H1 Mathematics

2. Polytechnic Diplomas: All Diplomas  
   (except Advanced Diplomas/Specialist Diplomas/Certificate Courses)

3. NUS High School Diploma:  
   A good major CAP in Mathematics or Physics

4. International Baccalaureate Diploma:  
   Pass in HL Computer Science/Mathematics/Physics;  
   OR a good pass in SL Mathematics

Bachelor of Computing in: 
**Information Systems (IS)**

1. Singapore-Cambridge ‘A’-Levels:  
   H2 pass in Computing; OR a good pass in  
   H1 Mathematics

2. Polytechnic Diplomas: All Diplomas  
   (except Advanced Diplomas/Specialist Diplomas/Certificate Courses)

3. NUS High School Diploma:  
   A good major CAP in Mathematics

4. International Baccalaureate Diploma:  
   Pass in HL Computer Science; OR a good pass in  
   SL Mathematics

Bachelor of Engineering in:  
**Computer Engineering (CEG)**

(only offered with FoE)

1. Singapore-Cambridge ‘A’-Levels:  
   H2 pass in Mathematics and either Physics*,  
   Computing or Chemistry

2. Polytechnic Diplomas:  
   Please refer to the NUS Office of Admissions website

3. NUS High School Diploma:  
   A good major CAP in Mathematics and either Physics* or  
   Chemistry

4. International Baccalaureate Diploma:  
   Pass in HL Mathematics and either HL Physics or  
   Chemistry

*Students without H1 or H2 Physics need to have an O-Level pass in Physics  
   or its equivalent and would be required to take Physics bridging modules.

#Students without Major subject in Physics need to have an O-Level Physics or  
   equivalent and would be required to take specified Physics bridging modules.

Bachelor of Science in:  
**Business Analytics (BA)**

(an interdisciplinary programme in collaboration with Biz, FoS, FASS, FoE)

1. Singapore-Cambridge ‘A’-Levels:  
   H2 pass in Mathematics

2. Polytechnic Diplomas:  
   Please refer to the NUS Office of Admissions website

3. NUS High School Diploma:  
   A good major CAP in Mathematics

4. International Baccalaureate Diploma:  
   Pass in HL Mathematics
I initially decided to pursue a degree in Computer Science to equip myself with the necessary technical skills to enter the tech industry. However, during my time in NUS, I also realized that the skills I have acquired are applicable to a diverse range of fields, making computer science graduates highly sought after by companies. With technology being a vital component in many of today's innovations, you will certainly play a part in steering the future of the world we live in today.

Low Yang Tse

SNEAK PEEK

You’re halfway into your third year and you just attended one of your CS3244 Machine Learning lectures. Your tummy is rumbling and you are thinking about which canteen to go to for lunch when you bump into your project teammate for your next class, CS3216 Software Product Engineering for Digital Markets. You grab the opportunity to chat with her about your idea for the project—a mobile app that customers can use to place orders and make payments in restaurants, to reduce manpower needs. You discuss your concerns about the potential trade-off between customer experience and manpower savings as you enter the seminar room, just in time for the start of the class. Today’s guest speaker is an NUS Computing alumnus who describes how his studies in artificial intelligence, computational geometry, and human computer interaction allowed him to develop an intuitive gesture system for a chart-looping iPad game while he was a student here. While the speaker is describing how he founded a company to develop the game, you feel a tap on your shoulder. It’s your teammate, and she whispers, “Why not use artificial intelligence to learn the customer’s preferences so that they can order easily?” Brilliant! You just learnt a way to do that using recurrent neural networks in CS3244! Instead of compromising on service, your app may end up improving the dining experience. You realise that your class project may turn into a real, money-making, product.

Examples of What You Can Specialise In

Artificial Intelligence and Robotics: Discover the principles behind the decades-long effort in making machines as intelligent as humans, and learn how machines can represent knowledge, make plans and decisions, sense and understand the world, as well as learn new knowledge.

Big Data Management and Engineering: Study the theories and applications of data storage, management, retrieval, and analysis through topics ranging from building systems for real-time processing of streaming data, to state-of-the-art algorithms for processing social networks with billions of nodes.

Full Stack Software Engineering: Become a well-rounded full-stack software engineer with expertise in both front and back-end technologies. Learn how to design database tables, write efficient queries, speed up computation, and build friendly and pleasant-to-use user interface, through our broad selection of modules.

Sampler of Modules

CS1015 Programming Methodology
Experience our unique ‘gamified’ introductory programming course where you take on challenging missions to level up and occasionally meet Sumobots, Jedi Knights, and Darth Vader.

CS204 Programming Language Concepts
How do you design a programming language? How do you get the same programme to run on different hardware? Delve into the languages of the future.

CS2106 Introduction to Operating Systems
Understand how different processes end up in a deadlock via the adventures of dining philosophers who starve because they cannot coordinate the use of their chopsticks.

CS2107 Introduction to Information Security
How are websites hacked? Are there unbreakable codes? How are human vulnerabilities exploited in social engineering attacks? Cipher and master the intricacies of IT security.

CS3230 Design & Analysis of Algorithms
How do you design blazing fast applications? Can some well-known problems be solved quickly? Prove or disprove that and you will win the first Millennium Prize and a million dollars.

CS3243 Introduction to Artificial Intelligence
How do you build Skynet? How can machines best humans at board games? Discover how cutting edge developments in computer science have enabled machines to gain human-level intelligence!

CS3247 Game Development
Learn the underlying principles and theories that you will use to make the next great game that captures the world’s imagination!

WHAT YOU COULD BE

Software Engineer at Google
Full Stack Developer at DBS Bank
Machine Learning Engineer at Grab

Game Security Engineer at Ubisoft
Data Scientist at Shopee
Start-up Founder
INFORMATION SYSTEMS

I chose to pursue a course in Information Systems because it amazes me how technology can continue to progress and evolve to make the world a better place. There are so many different ways companies can use IT to run their businesses much more effectively and efficiently. The curriculum offered in Information Systems allows me to equip myself with the necessary skills and knowledge to contribute to the Business-IT sector.

Gwen Tan Xin Yi

You are close to completing your project for IS4103 Information Systems Capstone Project. You and your teammates have been enthusiastically developing a large-scale hospitality management system for an integrated resort chain. While you have always enjoyed participating in hackathons, designing and developing an enterprise-level system in a team is a completely different challenge, especially when you are incorporating blockchain technology, which you picked up in IS4302 Blockchain and Distributed Ledger Technologies, into the system architecture. You check if you have your tie for the IS4103 project presentation today. You want to look sharp, and present with confidence! After your presentation, you meet with representatives from a retail company for whom you are setting up and managing a Facebook page, as part of your IS3150 Digital Media Marketing project. You are enjoying the experience of a real-life industry project that needs not only computer coding skills, but also an in-depth understanding of the retail business and online marketing platforms. Thanks to Information Systems, you have developed the confidence to design, build and market IT solutions that can truly innovate businesses. You have no doubt that the rigorous education you are receiving now will put you in good stead for a career as a business leader with deep technology insights.

WHAT YOU CAN SPECIALISE IN

Financial Technology: Equip yourself with a solid understanding of the disruptive use of IT in the financial sector. With this specialisation, you can pursue niche jobs like “Financial IT Analyst” when you graduate.

Digital Innovation: Become the visionary who will drive the transformation of Singapore businesses with technological innovation. With this specialisation, you can consider additional career paths such as becoming a digital strategist or an IT start-up entrepreneur.

Electronic Commerce: Develop an in-depth understanding of creating, operating and delivering e-commerce systems and platforms. With this specialisation, you can consider additional career options like an e-commerce start-up entrepreneur or a digital strategist.

SAMPLER OF MODULES

IS2102 Enterprise Systems Architecture & Design
Learn the critical skillsets required to design modern large-scale Enterprise Systems that are complex, scalable, distributed, component-based, and mission-critical.

IS3103 Information Systems Leadership & Communication
Gain a deep understanding of the key drivers of strategic innovation, effective leadership, and communication skills to integrate novel technologies with business objectives.

IS3150 Digital Media Marketing
Develop the skills and know-how for social media analytics, market analysis, consumer behaviour, and customer relationship management for successful digital marketing campaigns.

IS3251 Principles of Technology Entrepreneurship
Explore current developments in entrepreneurship and learn to use tools, techniques and frameworks to develop game-changing entrepreneurial businesses.

IS4151 Pervasive Technology Solutions & Development
Study computer and network architecture for pervasive computing, wearable technologies, Internet of Things, mobile computing, and security techniques such as user authentication.

IS4234 Compliance and Regulation Technology
Develop a comprehensive understanding of the frameworks and standards relating to regulatory compliance and how technology is applied.

IS4302 Blockchain & Distributed Ledger Technologies
Gain cutting-edge knowledge and technical skills to implement blockchain and distributed ledger technologies that have disrupted the financial industry.

IS4303 IT-Mediated Financial Solutions & Platforms
Learn how to tap into the capabilities of new FinTech innovations that transform the provision of payment, loan, credit, and investment services.

WHAT YOU COULD BE

Financial Analyst at Goldman Sachs
Technical Analyst at Credit Suisse
Consultant at Accenture
Associate Consultant at KPMG

IT Specialist at IBM (Global Technology Services)
Developer Evangelist at Microsoft
Technology Associate at Singapore Exchange
**Computer Engineering**

Computer Engineering is the perfect programme that marries electrical engineering and computer science to offer the best of both worlds. It has a broad and rich curriculum that encompasses topics from small transistors, computer chip architecture to high level software paradigms, robotics, and artificial intelligence. There are also plenty of workshops and tech events for students to learn and share. I have benefited a lot from Friday Hacks and Hackerschool sessions conducted by NUS Hackers.

**Sneak Peek**

You are in the design studio with your CG1111 Engineering Principles and Practice teammates. For the past three exciting weeks you have been working together to build an autonomous vehicle, an integral part of any Smart and Sustainable City. Today, you are adding the final modules that will allow your vehicle to navigate with only the guidance of its built-in sensors. In the near future, the use of these autonomous vehicles will make everyone more productive on the go. But wait, you also want to save the world! Now you and your team mates are enhancing your autonomous car with intelligent navigation and vision algorithms to find and rescue people trapped in rubble. Not only are you going to be saving lives, but you will also keep rescuers safe from the dangers of having to search among hazardous and unstable concrete debris. Things have never been more exciting for you – Computer Engineers are riding the wave of the computing industry’s unprecedented growth, and employment surveys indicate that you are among the best paid professionals in the country.
BUSINESS ANALYTICS

I chose Business Analytics because it provides a solid foundation of technical knowledge and analytical methods which forms the backbone of data science. It gives me great satisfaction when I am able to transform raw data into meaningful insights and present these insights using beautiful and interactive data visualisations. A Business Analytics degree will equip you with strong technical skills, hone your critical thinking ability and provide you with the domain expertise needed to build your dream career.

SNEAK PEEK

You are currently conducting extensive data analyses of a major shopping mall’s customer loyalty programme for BT3101 Business Analytics Capstone Project, and enjoying it. You are always seeing things in the news about data analysts and data scientists being in high demand. Indeed, the Harvard Business Review reported that the Data Scientist is the ‘sexiest job’ of the 21st century. Meanwhile, you are glad that you are taking BT4211 Data-Driven Marketing, where you are learning to code and estimate models that can predict customer choice behaviours and advertising responses. You finally learnt how Amazon figures out what you want even before you do! In your BT4221 Big Data Techniques & Technologies class, you discover how to conduct a linear regression statistical analysis of five billion airline transactions records in just two minutes, using Hadoop-based technology. With the ever-growing amount of consumer and business data available, you can’t help wondering about the exciting, lucrative career opportunities that lie ahead in the field of business analytics. Through this programme, you are confident that you will be well prepared with ample business domain knowledge and powerful data analytics skills.

Goh Jie Da

WHAT YOU CAN SPECIALISE IN

Financial Analytics: Learn to use the latest tools and systems for financial data modelling and metrics, perform deep dive analytics for budgetary control, portfolio, fraud detection, and develop expertise in statistical modelling and methods for quantitative trading.

Marketing Analytics: Become adept at modelling marketing data, including univariate spatial data and spatio-temporal data, and using analytical tools to draw insights on customer profiles and purchase patterns.

SAMPLER OF MODULES

BT2101 Decision Making Methods & Tools
Learn how to integrate decision making models with sophisticated technologies (neural networks, genetic algorithms, and support vector machines) to support evidence-based business decision making.

BT2102 Data Management & Visualisation
Gain practical knowledge and an understanding of data management, data warehousing, visual perception and design principles, and visualisation techniques for temporal and spatial data.

BT4013 Analytics for Capital Market Trading and Investment
Learn quantitative trading and financial portfolio optimisation to identify trading opportunities, practices, optimal execution and placements of trading on current technological platforms.

BT4014: Analytics Driven Design of Adaptive Systems
Learn how to develop adaptive analytics to sense and respond to highly dynamic commercial environments.

BT4211 Data-Driven Marketing
Learn marketing concepts, test designs, and analysis methods with statistical models to leverage on data sources, and use analytics to make more informed marketing decisions.

BT4221 Big Data Techniques & Technologies
Develop a deep understanding of how to design and apply scalable big data infrastructure, tools, and systems to support analysis of voluminous business data for corporations.

BT4222 Mining Web Data for Business Insights
Learn how to deploy and integrate text mining methodologies, web data mining techniques, social web data mining tools, and web analytics tools to accomplish business objectives.

BT4240 Machine Learning for Predictive Data Analytics
Apply machine learning methods, such as neural networks and support vector machines, to make accurate predictions of business outcomes.

WHAT YOU COULD BE

Web Analyst at AC Nielsen
IT Business Analyst at Citibank Singapore
Monetization Analyst at Facebook
Data Mining Specialist at Symantec

Market Research Analyst at Singtel
Business Analyst at Deloitte Analytics
Data Scientist at Singapore Press Holdings
Healthcare Analyst at Khoo Teck Puat Hospital, Alexandra Health System
I chose to study Information Security due to the rapidly advancing nature of technology. There will be more and more ways that people can employ technology for malicious purposes, and it is to be able to detect and then mitigate these threats that knowledge in this field is given to those who need it. Studying Information Security can definitely prove to be a rewarding experience.

**Sneak Peek**

You are in the Security Teaching Lab preparing your CS4238 Computer Security Practice assignment with your teammates. Your team is carrying out vulnerability scanning on another team’s server, and to your surprise, you discover a number of vulnerabilities with just the basic tools. You immediately realise that your team’s system must be fortified because it has the same underlying configuration. While fixing the problem, your teammates suggest that you all join NUS Greyhats to participate in an upcoming Capture-the-Flag competition. You will have to decide later because you need to get to your next class, CS4238 Cryptography Theory & Practice, to give a presentation about an attack on Bitcoin mining-pools. The concepts behind the attack are tough, and you spent a lot of time working on the slides, so you’re satisfied when your classmates seem impressed. Later, as you are reading materials on legal analysis and the case of Charles vs Public Prosecutor for IFS4101 Legal Aspects of Information Security, you realise that although the language used in legal writing is different than computer source code, logic is universal. The common foyers that you are studying is becoming quite noisy due to preparations for this evening’s StePS. The bustle reminds you that you should not miss your friend’s CS3235 Computer Security project demonstration about how keyboard keystrokes can be sniffed through their electromagnetic emanations. Your train of thought is interrupted by your ringing phone. It’s Ah Kong. He accidentally clicked on a link in a spam email and is worried that it has downloaded something into his computer. “Well, this is what it’s like being the security expert in the family,” you muse.

**Sampler of Modules**

- **CS2107 Introduction to Information Security**
  How are websites hacked? Are there unbreakable codes? How are human vulnerabilities exploited in social engineering attacks? Decipher and master the intricacies of IT security.

- **CS3235 Computer Security**
  Gain a broad understanding of security elements such as intrusion detection, e-mail security, and application, system and network security. Develop invaluable security technical skills and knowledge.

- **IFS4101 Legal Aspects of Information Security**
  What can an ‘electronic’ signature certify? Are SPAM emails legal? Can a tuition centre share your email address with another centre? Learn how Information security issues influence the law from an NUS Law professor.

- **IFS4102 Digital Forensics**
  How do you uncover the trail of a cyber-criminal? How do you preserve the digital evidence of a crime? See how a crime scene investigator extracts, analyses, and preserves digital evidence.

- **IFS4103 Penetration Testing Practice**
  Is that Web app you are using everyday secure? Work with IT security professionals to ethically attack an IT system and find its vulnerabilities.

- **IS4231 Information Security Management**
  Perfect and absolute security is impossible. Rather, we must work out how to best manage threats with the resources available. Learn how to manage information security issues that can arise in enterprises.

- **CS4236 Cryptography Theory & Practice**
  Is it true that mobile call signals recorded from thin air can be decrypted? Discover the principles and concepts behind cryptography (think The Imitation Game) and the design of secure communication systems.

- **CS4238 Software Security**
  How can we discover a security loophole among millions of lines of code, before an attacker does? Discover the intricacies of software security flaws and the ingenious ways we use to find, contain, and extinguish those pesky bugs.

**What You Could Be**

- Forensic Investigator at Visa
- Computer Security Researcher at Defence Science Organisation (DSO)
- Cyber Analyst at OCBC

- Malware Analyst at Symantec
- Security Consultant at IBM
- Security Software Engineer at Centre for Strategic Infocomm Technologies (CSIT)