



**CITY UNIVERSITY  
LONDON**

Academic excellence for  
business and the professions

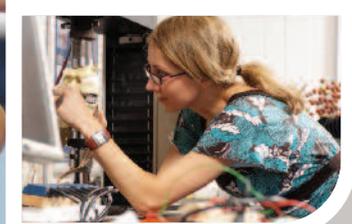
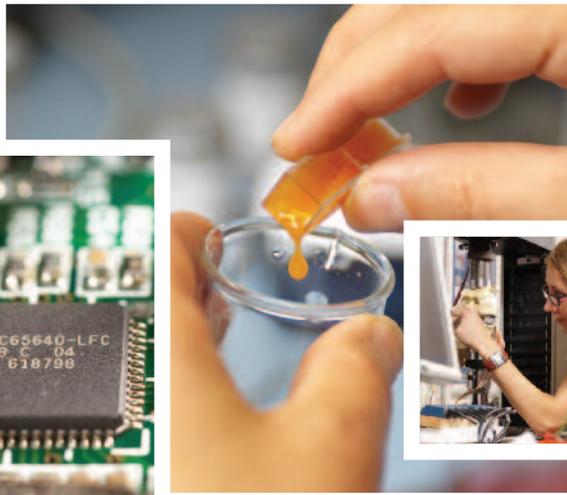
**SCHOOL OF ENGINEERING AND MATHEMATICAL SCIENCES**

**Electrical and Electronic Engineering**

**Biomedical Engineering**

**Engineering with Management  
and Entrepreneurship**

**UNDERGRADUATE COURSES**



# Courses

## SCHOOL OF ENGINEERING AND MATHEMATICAL SCIENCES

### ELECTRICAL AND ELECTRONIC ENGINEERING

BEng Computer Systems Engineering

BEng/MEng Electrical and Electronic Engineering

BEng Telecommunications

### BIOMEDICAL ENGINEERING

BEng Biomedical Engineering

### ENGINEERING WITH MANAGEMENT AND ENTREPRENEURSHIP

BEng Engineering with Management and Entrepreneurship

### AERONAUTICAL AND AIR TRANSPORT

BEng/MEng Aeronautical Engineering

BEng/MEng Air Transport Engineering

BSc Air Transport Operations with ATPL

### CIVIL ENGINEERING

MEng/BEng Civil Engineering

MEng/BEng Civil Engineering with Architecture

MEng/BEng Civil Engineering with Surveying

### MATHEMATICS

BSc/MMath Mathematical Science

BSc/MMath Mathematical Science with Computer Science

BSc/MMath Mathematical Science with Finance and Economics

BSc/MMath Mathematical Science with Statistics

BSc/MMath Mathematics and Finance

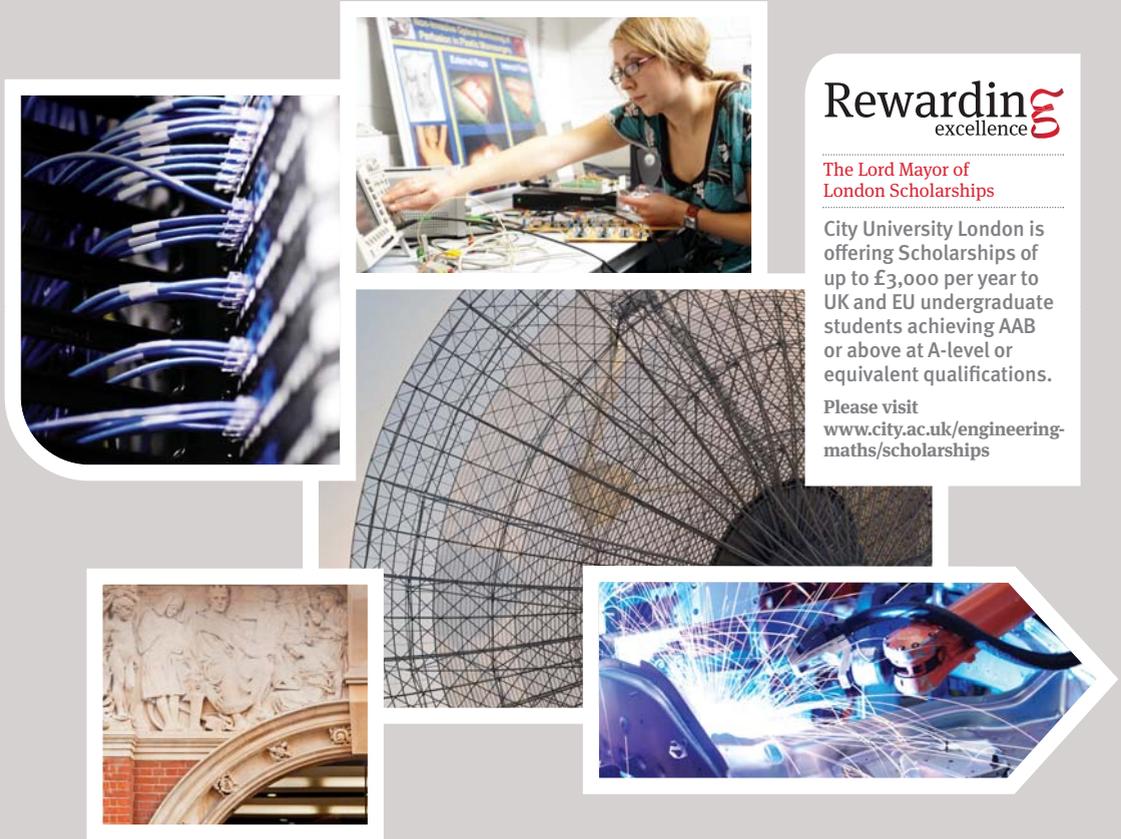
### MECHANICAL, ENERGY AND AUTOMOTIVE

BEng/MEng Automotive and Motorsport Engineering

BEng/MEng Energy Engineering

BEng/MEng Mechanical Engineering

# Contents



**Rewarding**  
excellence

**The Lord Mayor of London Scholarships**

City University London is offering Scholarships of up to £3,000 per year to UK and EU undergraduate students achieving AAB or above at A-level or equivalent qualifications.

Please visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)

## CONTENTS

|  |    |  |    |
|--|----|--|----|
| Welcome  | 2  | Biomedical Engineering   | 14 |
| Why study at City?   | 3  | Computer Systems Engineering   | 16 |
| Research in the School of Engineering and Mathematical Science     | 4  | Telecommunications   | 18 |
| A truly international outlook                                      | 5  | Engineering with Management and Entrepreneurship                         | 20 |
| Employability through experience                                   | 6  | Meet the Electrical, Electronic and Biomedical Engineering academic team | 22 |
| Talking about work placements                                      | 7  | Working in Electrical, Electronic and Biomedical Engineering             | 26 |
| Discover Electrical, Electronic and Biomedical Engineering at City | 8  | Student life at City   | 27 |
| Course structure   | 10 | How to apply   | 28 |
| Courses  |    | Map and contacts   | 29 |
| Electrical and Electronic Engineering                              | 12 |  |    |

# Welcome to the School of Engineering and Mathematical Sciences



Engineering has been a driver of the progress of mankind for centuries, offering unprecedented benefits to our society in areas such as communications, transport, energy, health and security.

Engineering allows for discovery and innovation in science and medicine to be developed into practical applications that affect all of us and it has created the means to unlock the world's natural resources, from which we all benefit.

Engineering is an engine of wealth creation – allowing business and enterprise to turn research and the innovative ideas that spring from it into jobs and profitability.

It is not surprising that the engineering sector makes up nearly a fifth of the UK economy, employing over 4.5 million people playing a vital role in rebalancing the economy – and many millions more worldwide.

At its heart, engineering is truly international in its scope, its impact and in the people who undertake it – engineering developments shared across the interconnected and intertwined world we live in are at the forefront of saving lives and making

people's lives better, contributing enormously to making our modern world what it is. Fundamentally, engineering is about the high-level strategic thinking that underpins innovation in technology – but yet engineers have a real sensitivity to how every project they are involved with impacts on people and our environment.

I am delighted that you are considering studying engineering to become involved in one of the most dynamic, exciting, international and indeed people-focused professions today. A degree in engineering from City University London will equip you for that role and to be a driver of future change in this century and allow you to make your mark on a rapidly changing world. That builds on our long and distinguished tradition, stretching back for nearly 120 years, of training the best engineers at City University London to change the world – we are

immensely proud of the way that our graduates have been at the forefront of industry and academia in the UK and worldwide over that time.

Engineers trained at City University London – whatever their first degree discipline – inhabit the real world which throws up a breadth of engineering challenges and which arise from the combination of the disciplines we often simply label as civil, electrical, aeronautical or mechanical engineering. Building a broad understanding and seeking technical mastery of the field is essential for engineers to make their mark on the world. Most especially, a training in engineering is a path to be a leader in tomorrow's complex world – a leader in technical expertise, a leader in strategic thinking, a leader in innovation and a leader in communication. Our role at City University London is to develop and instill those skills in our graduates and fit them for that opportunity.

I challenge you to come on the journey that will take you to become a leader in a field that will change the world in the twenty first century – through equipping yourself with the breadth of skills you will need and that a City University London degree in engineering will give you. I challenge you to make the most of the opportunities that this can offer and to recognise the crucial and transformative role that being an engineer can make to your life.

I look forward to welcoming you as an engineering student of the School of Engineering and Mathematical Sciences at City University London.

**Professor Kenneth Grattan FEng**  
Dean of the School of Engineering and Mathematical Sciences

# Why study at City? About the School of Engineering and Mathematical Sciences

City University London is different. We provide exceptional graduate employment prospects as a result of our commitment to academic excellence, focus on business and the professions and the benefits of our central London location.

## TRADITION AND HERITAGE

Engineering and mathematical sciences have been taught at City for over 100 years. We are the pioneers of aeronautics and received the first-ever grant to build an aeroplane.

## CENTRAL LONDON LOCATION

We are located in the heart of London, close to the capital's leading institutions. Many of the most renowned engineering companies are located within two miles of the University. Both professionally and personally, you will have the opportunity to benefit from all that London has to offer.

For more information please visit [www.city.ac.uk/visit](http://www.city.ac.uk/visit)

## PROFESSIONAL ACCREDITATION

Most of our courses are accredited by professional bodies.

## EXCEPTIONAL EMPLOYMENT PROSPECTS

We are ranked 10th in the UK for both graduate employability (*The Times Good University Guide 2011*) and graduate starting salaries (*The Sunday Times University Guide 2011*).

## INDUSTRY LINKS

The School has professional links with industries across the globe.

## ACADEMIC EXCELLENCE AND RESEARCH

Our staff and students are actively involved in pioneering research. In the Government's latest Research Assessment Exercise (RAE), our research in fifteen subject areas was rated by expert panels as amongst the best in the world.

Find out more at [www.city.ac.uk/engineering-maths/research](http://www.city.ac.uk/engineering-maths/research)

## INTERDISCIPLINARY

The School strongly promotes the interdisciplinary approach to engineering and mathematics. It reflects the requirements of industry and the job market today, in its undergraduate teaching, in the breadth of its postgraduate programmes and especially in its research which recognises that much innovation and excitement lies at the interfaces of traditional disciplines.

## EXCELLENT FACILITIES

The School of Engineering and Mathematical Sciences' extensive laboratories enable our students to put theory into practice. Our facilities include flight simulators, wind tunnels, structural testing equipment, an electronics lab, a dedicated Formula Student workshop and a centrifuge that creates forces of up to 200 times gravity.

## EXCELLENT BURSARY/SCHOLARSHIP PROVISIONS

We offer a range of merit-based scholarships, bursaries and awards for students who demonstrate exceptional potential. They not only recognise outstanding ability but enable students experiencing financial hardship to study at City. Our scholarships are made possible thanks to companies such as Caterpillar Ltd.

For more information go to [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)

## REWARDING EXCELLENCE

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# Research in The School of Engineering and Mathematical Sciences

Through five research centres, the School of Engineering and Mathematical Sciences aims to tackle the big issues facing society today, from sustainability to national security. Our work is interdisciplinary and often conducted with industry.



The School promotes interdisciplinary and single discipline activities and offers considerable opportunities for the future in both basic and applied research.

Nationally and internationally reputed research in the School features close links with industry, exhibits a strong interdisciplinary character and encompasses comprehensive basic and applied components.

Keenly aware of its central location in London, the School has recognised five areas of significant internal strength and distinction, which provide the main framework for its continued growth and development. The School promotes research excellence in the following research centres:

- Applied Mathematics
- Construction Processes
- Energy and Transport
- Instrumentation and Sensors
- Systems and Control.

These research centres have international reputation in their fields. This structure is seen as a launching basis for future research activities.

For more information please visit [www.city.ac.uk/engineering-maths/research](http://www.city.ac.uk/engineering-maths/research)

Electrical engineering is a vibrant branch of engineering with a history of continuous innovation. Research in electrical engineering at City is organised in two research centres – Instrumentation and Sensors, and Systems and Control. Major research activities and expertise are in the areas of measurement and instrumentation, control theory and design, photonics, biomedical engineering, decision theory, machine vision, information engineering, networks and security. These are reinforced by strengths in systems modeling and systems engineering which enable the development of interdisciplinary activities.

The promotion of interdisciplinary activities is the distinctive feature of our vision. Our graduates are successful in the job market, because of the breadth of skills and experience they gain at City during their degrees.

# A truly international outlook



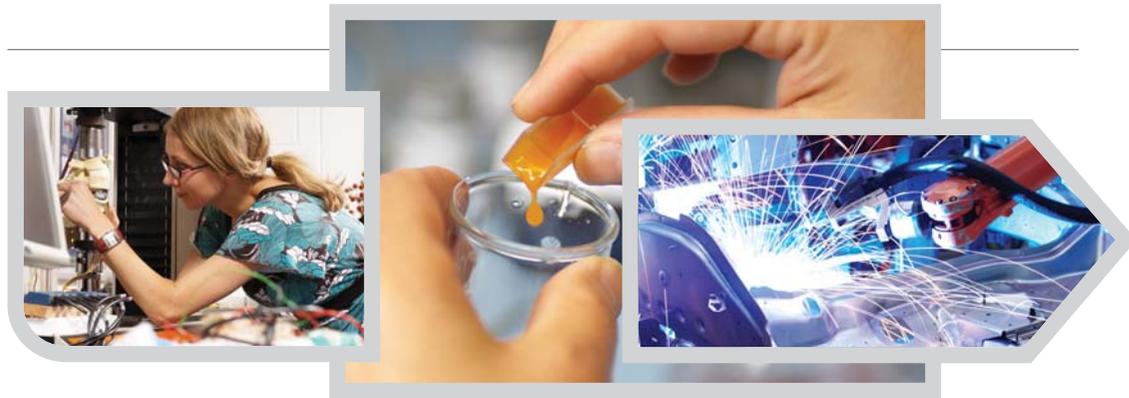
We offer an internationally focused learning environment. This is primarily achieved by establishing flagship partnerships in teaching and research with appropriate high profile international organisations in countries and regions of strategic importance.

The School has extensive partnerships with high profile overseas institutions engaging in a wide range of collaborative activities in undergraduate taught programmes, Continuing Professional Development, joint research, student and staff exchanges.

These include working with key partners in China, India, Russia, Korea, USA, Hong Kong and most of the EU countries. Such links provide students with excellent opportunities to take part in international exchange programmes, placement opportunities, joint research and other similar provisions that are becoming vitally important for 21st century graduates operating in an increasingly global employment market.



# Employability through experience



## INDUSTRIAL PLACEMENTS

Our one year industrial placement scheme enables you to apply the skills and knowledge that you have developed at University to manage real challenges in the workplace.

A year spent in industry is a valuable opportunity to develop your technical skills and business knowledge and it can often lead to sponsorship and future graduate employment.

After the successful completion of your second year of study you can opt to undertake a period of paid work lasting between nine and twelve months. Salaries vary but you would typically be paid between £15,000 and £22,000 pro rata per year while on placement. You will then return to University to complete your studies.

We find that placement students return to University with more maturity, motivation, and a much better understanding of key concepts, having applied them on placement. This often leads to the attainment of a higher class of degree.

## FREQUENTLY ASKED QUESTIONS

### What support is there for finding a placement?

Our dedicated team of placement specialists, the Professional Liaison Unit (PLU), have extensive experience in helping students to secure placement employment across a range of industries.

The PLU sources exclusive opportunities with a wide range of employers as well as advertising vacancies from the major recruiters. Placements are not guaranteed, you will need to apply directly to companies that interest you.

The unit runs workshops and one-to-one guidance sessions to prepare you for making successful applications and preparing for interviews.

### What support is provided while I am on placement?

Your personal tutor will meet with you twice during the year to help you to maximise your professional and academic achievements and ensure that you are undertaking properly supervised work that will contribute towards the experience required for Chartered Engineer status.

**“Placement and internship programmes were an important source of fresh talent in 2009. 84.3% of AGR employers converted some of their students or interns into graduate recruits.”**

*The AGR Graduate Recruitment Survey 2010 Summer Review*

**“Placement students were more likely to be employed six months after graduating and to have higher salaries than the average.”**

*Attainment in higher education Erasmus and placement students. HEFCE November 2009*

# Talking about work placements



## Absar Shafiq

*BEng Electrical and Electronic Engineering*

*Completed a placement as a Software Engineer for IBM*

“I spent my placement year working as a Software Engineer for IBM. I was responsible for the testing and development of the IBM Tivoli Network Manager software. It was a great learning experience and I thoroughly enjoyed working for IBM. My role in IBM was very technical and revolved around programming and software development. It instilled a good sense of business knowledge in me and helped me understand the business and transferable aspect of my job role. I highly recommend students to take an industrial placement as it helps a student to gain some invaluable technical and transferable skills.”



## Dragan Gavrilov

*BEng Electrical and Electronic Engineering*

*Completed a placement at Buhler Sortex Ltd in the Hardware Engineering team*

“I am very grateful for being able to do my placement at Buhler Sortex Ltd. I worked in the Hardware Engineering team and my main responsibility was the development of test equipment. I had the opportunity to learn from senior engineers how they approach and solve problems in a very efficient way.

I feel much more confident expressing and defending my ideas and also giving advice and I am more organised in terms of project planning.”

# Discover Electrical, Electronic and Biomedical Engineering at City



## PROFESSIONAL ACCREDITATIONS

For specific accreditation details, see relevant course pages.



City University London has a long tradition of providing courses in the area of electrical, electronic and biomedical engineering. We have been teaching electrical and electronic engineering since the early years of the 20th century and computer systems engineering since 1973. In the late 1990s we became one of the first UK universities to provide BEng degrees in Biomedical Engineering.

Electrical and biomedical engineers today work in a range of industries. Their problem-solving skills and multidisciplinary education are well known and well respected in the industry in the UK and abroad. At City University London we are aware of the importance of practical skills for engineering students. In order to help students compete for jobs, in addition to academic knowledge, we provide students with a range of practical, transferable skills. Students learn from Year one to work in groups, to solve problems and present their solutions in a professional way. Close links with industry enable us to quickly adapt our programmes to its needs.

## ELECTRICAL AND ELECTRONIC ENGINEERING

Electrical engineers design, build and manage a large range of engineering systems, ranging from tiny sensor networks to large national power grids.

Being an electrical engineer provides a career that is continuously changing, and is full of new discoveries. Electrical engineers develop devices and systems which have a huge impact on our everyday lives. They are responsible for developing wireless communication systems, medical imaging machines, and control systems which manage operation of large industrial processes.

## BIOMEDICAL ENGINEERING

Biomedical engineering is a relatively young branch of electrical engineering, focused completely on the design of electronic systems with medical applications.

Modern provision of healthcare depends greatly on biomedical engineers, and this area of human development has only started. Becoming a biomedical engineer today promises an exciting career, bridging the advances in biomedical sciences with practical skills in delivering engineering projects in a growing field.

## ENGINEERING WITH MANAGEMENT AND ENTREPRENEURSHIP

The operational model of the engineering industry is changing and the engineers of tomorrow need to work in a complex multi-disciplinary environment. In today's market, companies are continually forced to innovate to maintain their competitive advantage.

Engineering with Management and Entrepreneurship is a unique multi-disciplinary course which brings different engineering disciplines (i.e. electrical, mechanical and energy) together to educate you with management and entrepreneurial skills. This course will teach you the fundamentals of engineering but also the art and science of planning, the organisation and allocation of resources, the exciting world of commercialisation, or how to launch your own business or technical innovation within the commercial arena.

## We offer the following courses:

- **ELECTRICAL AND ELECTRONIC ENGINEERING** BEng/MEng
- **BIOMEDICAL ENGINEERING** BEng
- **COMPUTER SYSTEMS ENGINEERING** BEng
- **TELECOMMUNICATIONS** BEng
- **ENGINEERING WITH MANAGEMENT AND ENTREPRENEURSHIP** BEng

The School of Engineering and Mathematical Sciences has excellent facilities for electrical and biomedical engineering students. Our modern Electrical and Biomedical Engineering laboratory was opened in 2009 and is named after the late Professor Ludwik Finkelstein, one of the pioneers of the field of measurement in the UK.

The laboratory provides an excellent environment for practical and project work for our students. Our teaching staff are internationally recognised researchers in their field, bringing state-of-the-art knowledge to students.

# Course structure

**BEng/MEng ELECTRICAL AND ELECTRONIC ENGINEERING**  
**BEng COMPUTER SYSTEMS ENGINEERING**  
**BEng TELECOMMUNICATIONS**

| YEAR ONE             | YEAR TWO                    | YEAR THREE   | TOPICS   | YEAR FOUR (MEng only)                           |
|----------------------|-----------------------------|--|--|---|
| MATHEMATICS          | MATHEMATICS                 | INDIVIDUAL PROJECT   | * <i>Electrical and Electronic Engineering:</i><br>Power Systems<br>Signal Processing<br>Systems Engineering<br>Electric and Magnetic Fields | DESIGN PROJECT                                  |
| DESIGN               | ENGINEERING MANAGEMENT      |  |  |   |
| ELECTRONICS          | ELECTRONICS                 | ENGINEERING MANAGEMENT   | ** <i>Computer Systems Engineering:</i><br>Software Engineering<br>Java Programming<br>Computer Systems<br>Internet Engineering              | RESEARCH PROJECT                                |
|                      |                             | EMBEDDED AND REAL-TIME SYSTEMS   |  | ENGINEERING MANAGEMENT                          |
| COMPUTER PROGRAMMING | CONTROL ENGINEERING         | ADDITIONAL TOPICS FOR SPECIALISATION IN ELECTRICAL AND ELECTRONIC ENGINEERING* | † <i>Tele-communications</i><br>Wireless Communications<br>Optical Communications<br>Broadcasting<br>Digital Communications                  | WIDE CHOICE OF SPECIALISED MASTER-LEVEL MODULES |
| SIGNALS AND SYSTEMS  | OBJECT-ORIENTED PROGRAMMING | ADDITIONAL TOPICS FOR SPECIALISATION IN COMPUTER SYSTEMS ENGINEERING**         |  |   |
| DIGITAL LOGIC        | DIGITAL COMMUNICATIONS      |  |  |   |
| SCIENCE              | NUMERICAL COMPUTING         | ADDITIONAL TOPICS FOR SPECIALISATION IN TELE-COMMUNICATIONS†                   |  |   |

**BEng BIOMEDICAL ENGINEERING**

**BEng ENGINEERING WITH MANAGEMENT AND ENTREPRENEURSHIP**

| YEAR ONE               | YEAR TWO                 | YEAR THREE                                  | YEAR ONE                        | YEAR TWO                  | YEAR THREE                              | *ELECTIVES   |
|------------------------|--------------------------|---|---------------------------------|---------------------------|---|--|
| MATHEMATICS            | INSTRUMENTATION          | INDIVIDUAL PROJECT                          | ENGINEERING PRACTICE            | MATHEMATICS & COMPUTATION | INDIVIDUAL PROJECT                      | Energy Utilisation and Management<br>Optical & Wireless Communications<br>Digital Communications Technology<br>Entrepreneurship Systems<br>Reliability and Introduction to Sustainable Engineering<br>Corporate Responsibility |
| DESIGN                 |                          |   |                                 |                           |   |  |
| ELECTRONICS            | OPTICS                   | RESPIRATORY AND CARDIOVASCULAR MEASUREMENTS | ENGINEERING MATHEMATICS         | ENGINEERING MANAGEMENT    | ENGINEERING MANAGEMENT                  |  |
|                        | PATHOLOGY AND HEALTHCARE |   | ELECTRONICS                     | ENGINEERING PRACTICE      | ENGINEERING SYSTEMS                     |  |
| ANATOMY AND PHYSIOLOGY | COMPUTER PROGRAMMING     | IMAGING                                     |                                 | CONTROL ENGINEERING       | RENEWABLE ENERGY                        |  |
| BIOMEDICAL ENGINEERING | MATHEMATICS              |   | SIGNALS AND SYSTEMS             | ELECTRONICS               | ELECTRICAL AND ELECTRONIC POWER SYSTEMS |  |
| DIGITAL LOGIC          |                          | ENGINEERING MANAGEMENT                      | MANAGEMENT AND ENTREPRENEURSHIP |                           | ELECTIVE 1*                             |  |
| SCIENCE                | ENGINEERING MANAGEMENT   | SENSORS AND INSTRUMENTS                     | INTRODUCTION TO MICRO-ECONOMICS | ACCOUNTING AND FINANCE    | ELECTIVE 2*                             |  |

# BEng, MEng Electrical and Electronic Engineering

This course provides a strong foundation for those wishing to pursue a career in electrical engineering, communications, control systems, robotics or sensor systems, through a diverse range of theoretical skills and practical experience, presented in the context of real applications and design experience.



Jakov Kolesnik  
BEng Electrical and  
Electronic Engineering

*"I am working through the FDM Academy at Nomura investment bank. I am a financial software developer, working on real time trade feeds.*

*I do believe that my time at City was a great boost to my career, not only in providing academic qualification, but also giving me a great understanding of my abilities, what I can (and cannot) do in strict time limits and generally improving my learning and time management skills."*

Electrical and Electronic Engineering at City University London has a long-standing tradition of excellence.

## YEARS ONE AND TWO

The first two years of this course are shared with BEng in Computer Systems Engineering and BEng in Telecommunications. The focus is on fundamental principles of engineering and applied physics, modules provide an essential insight into electronics, design and computing:

### Core modules:

- Circuit theory
- Communications systems
- Computer programming (C/C++/Java)
- Dynamics and control
- Electronics
- Engineering design
- Engineering mathematics
- Signals and systems.

In addition, engineers require managerial skills, the ability to communicate effectively and an awareness of the economic, environmental and social implications of their activity. Our modules are designed to provide excellent training in all these areas.

## YEAR THREE

### Core modules:

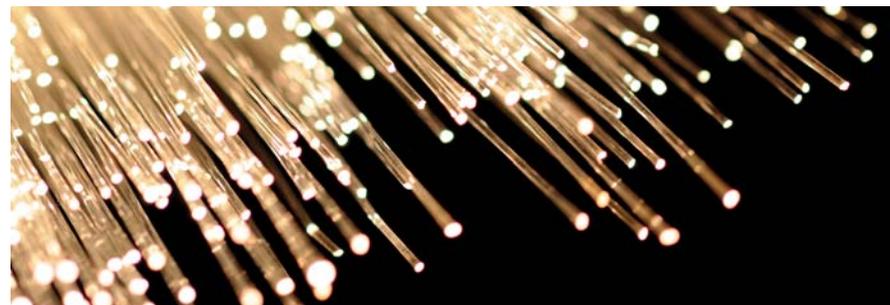
- Electrical and electronic power systems
- Electromagnetic fields
- Embedded real time systems
- Engineering systems
- Signal processing.

All students are required to undertake a project. This is often associated with the design, construction and costing of an electrical device to satisfy a given specification, or it may be a more fundamental investigation connected with one of our research groups' interests. Project work normally requires the equivalent of more than one day per week spent in the laboratory. Recent student projects include the design of control systems, image-based lane following in autonomous vehicle navigation, neural networks for financial forecasting and optical fibres instrumentation.

Additional material in Engineering Systems is covered by the MEng students and the individual project is more scientifically/research oriented.

## YEAR FOUR (MEng only)

In their final year the MEng students undertake an interdisciplinary industrial project and a research-based individual project. They also have a choice of four



## PROFESSIONAL ACCREDITATION

This course is accredited by the major professional engineering bodies – the Institution of Engineering and Technology (IET) and the Institute of Measurement and Control (InstMC) with whom we maintain close professional links.

## CAREER OPTIONS

The electrical and electronic engineering field offers exciting employment opportunities in areas such as research and development, consultancy, software engineering, design, electronics, power systems

advanced modules in control engineering, telecommunications and power engineering.

## TEACHING

The course is mainly taught by staff from the School of Engineering and Mathematical Sciences. The course also includes lectures by experts from the industrial sector who explain how technologies are currently being used in industry to solve real world problems. The course is taught in formal lectures, seminars and tutorials, supplemented by an engineering applications course, involving laboratory and group projects.

## ASSESSMENT

The course is assessed through examinations, coursework and laboratory reports. The final degree classification is based on marks obtained in the second and final academic years. The final academic year contributes twice as much as the second year to the total.

## PLACEMENT YEAR (OPTIONAL)

You are strongly encouraged to seek a placement after your second year. Another option is to spend a year studying in North America or Europe. The placement will give you the opportunity to learn more about industry, take on graduate level responsibilities and, in some cases, work as part of a multinational

workforce. You will receive a salary and may go on to be employed by the placement company after graduation.

## THE LORD MAYOR OF LONDON SCHOLARSHIPS

City University London is offering Scholarships of up to £3,000 per year to UK and EU undergraduate students achieving AAB or above at A-level.

For further information on all University Scholarships please visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)

## BEng, MEng Electrical and Electronic Engineering

### ENTRY REQUIREMENTS 2012/13

Typical offers require one of the following:

**A/AS-level:**  
**MEng:** 360 UCAS tariff points.  
**BEng:** 340 UCAS tariff points.  
For both programmes A-level mathematics and physics required with a minimum of grade B in A-level mathematics. Point scores exclude general studies and key skills.

**BTEC:** DDD in a relevant subject, including D in L3 mathematics or (MEng only) B for A-level mathematics.

**IB:** 32 (MEng), or 30 (BEng), including 5 in High Level mathematics and physics.

**14-19 Advanced Diploma:** Engineering at grade A/300 (MEng), B/250 (BEng); A-level mathematics at B/100.

### English language requirements:

- IELTS: 6.0
- TOEFL: 87 internet-based total
- GCSE: English language grade C.

### UCAS CODE

H602 BEng, H642 BEng with professional placement, H607 MEng, H609 MEng with a professional placement.

### DURATION

BEng, Full-time: Three years or four years including a professional placement. MEng, full-time: Four years or five years including a professional placement.

### NEXT STEPS

**Open Days:** Visit [www.city.ac.uk/engineering-maths/undergraduate/opendays](http://www.city.ac.uk/engineering-maths/undergraduate/opendays)

**How to apply:** Refer to information on page 28.



# BEng Biomedical Engineering

Biomedical Engineering applies the principles of science, engineering and medicine directly to the complex medical technologies used in the prognosis, diagnosis, monitoring and treatment of the sick and injured. The area is growing exponentially and the demand for biomedical engineers is increasing rapidly.



Tamanna Hafiz  
BEng Biomedical Engineering

*"I am currently working as a Managed Equipment Engineer for Siemens Healthcare based in an NHS hospital and I still use all the theory that I learnt at City. I was fortunate enough to be offered the first graduate job that I applied for. I think that my summer placement at the Royal Brompton Hospital really helped to give me the edge. Spending three years at City really prepared me to go into the big wide world."*

This course covers the range of engineering applications that are relevant to the needs of the healthcare industry and draws on the University's long-standing expertise in technology and healthcare.

#### YEARS ONE AND TWO

You will study the fundamental principles of engineering that underpin the design of medical equipment.

#### The core modules include:

- Analogue and digital electronics
- Circuit theory
- Computer technology and programming
- Engineering design
- Engineering science
- Mathematics
- Signals and systems.

In addition you will also study specialist biomedical engineering modules to help you gain sufficient familiarity with physiological concepts and the language of medicine.

#### Year one covers:

- Anatomy and physiology
- Introduction to biomedical engineering.

#### Year two covers:

- Biomedical instrumentation
- Biomedical optics
- Pathology and Healthcare.

Biomedical engineers require managerial skills, the ability to communicate effectively, a good measure of human understanding and an awareness of the economic, environmental and social implications of their activity. Our modules are designed to provide excellent training in all those areas.

#### YEAR THREE

You have the opportunity to take an increasing number of specialist biomedical engineering modules such as:

- Digital image processing
- Medical imaging
- Medical ultrasound
- Respiratory and cardiovascular measurement
- Sensors and sensing systems in biomedical engineering.

During the final year you will undertake individual project work. Recent topics have included the design of infrared instrumentation for the detection of blood gases; the analysis of physiological signals from patients undergoing open heart surgery; and the effect of lasers in medical applications.



#### PROFESSIONAL ACCREDITATION

The BEng Biomedical Engineering is accredited by the major professional engineering bodies – The Institution of Engineering and Technology (IET), the Institute of Measurement and Control (InstMC) and the Institute of Physics and Engineering in Medicine (IPEM) – with whom we maintain close professional links.

#### CAREER OPTIONS

The biomedical engineering field is very wide and graduates can find employment in areas such as the medical technology industry, pharmaceutical industry, Department of Health and other health related departments and biomedical research.

The project gives you an excellent opportunity to participate and work in a team environment. You will have the chance to interact with members of the School's various research or clinical teams, working alongside experienced researchers.

#### TEACHING

The course is interdisciplinary and is taught by staff from the School of Engineering and Mathematical Sciences, the School of Health Sciences and the School of Informatics, as well as hospital

consultants and experts from the medical industry. Teaching methods include lectures, seminars and tutorials, supplemented by laboratory-based or theoretical coursework.

#### ASSESSMENT

Assessment is based on marks obtained throughout each year for coursework and for the mid-year and end-of-year examinations. The final degree classification is based on marks obtained in the second and final academic years.

#### PLACEMENT YEAR (OPTIONAL)

You are strongly encouraged to undertake a one year, industrial training placement prior to the final year of academic study. You will be paid a salary while on your placement and, as this forms an integral part of the course, overseas students are eligible.

**THE LORD MAYOR OF LONDON SCHOLARSHIPS**  
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#### BEng Biomedical Engineering

#### ENTRY REQUIREMENTS 2012/13

#### Typical offers require one of the following:

##### A/AS-level:

340 UCAS tariff points, with two A-levels in science subjects; preferably mathematics or physics, plus GCSE mathematics grade B if not A-level in mathematics. Point scores exclude general studies and key skills.

**BTEC:** DDD in a relevant subject, including D in L3 mathematics.

**IB:** 30, including 5 in High Level mathematics and one other science subject.

**14-19 Advanced Diploma:** Engineering at grade B/250; A-level mathematics at grade B/100.

#### English language requirements:

- IELTS: 6.0
- TOEFL: 87 internet-based total
- GCSE: English language grade C.

#### UCAS CODE

BH81 BEng,  
BHV1 BEng with a professional placement.

#### DURATION

Full-time: Three years or four years including a professional placement

#### NEXT STEPS

##### Open Days:

Visit [www.city.ac.uk/engineering-maths/undergraduate/opensdays](http://www.city.ac.uk/engineering-maths/undergraduate/opensdays)

##### How to apply:

Refer to information on page 28.



Email enquiries:  
[semsug@city.ac.uk](mailto:semsug@city.ac.uk)

Phone enquiries:  
+44 (0) 20 7040 6050

Find out more at:  
[www.city.ac.uk/engineering-maths/undergraduate](http://www.city.ac.uk/engineering-maths/undergraduate)

# BEng

## Computer Systems Engineering

This course meets the increasing need for engineers who can contribute to both hardware and software design of computer systems, with special emphasis on the emerging systems of smart mobile devices. The course provides applied and theoretical knowledge and skills in computing, electronics and embedded systems.



Trilesh Bhurtun  
BEng Computer Systems Engineering

*"I thoroughly enjoyed my time at City. My course tutor was immensely helpful throughout my student years – he gave me useful advice when I was completing my final year project and he always lent a patient ear. The careers service also proved to be extremely valuable during the placement application process. Since graduating with a first class degree, I have broadened my skill set by working as a Graduate Software Developer for Telereal Trillium and in my current role as a Junior Consultant at Capacitas."*

### YEARS ONE AND TWO

The first two years of this course are shared with BEng in Electrical and Electronic Engineering and BEng in Telecommunications. They cover aspects of electronics, computer systems, engineering mathematics and software engineering, including:

- Circuit theory
- Communications systems
- Computer programming (C/C++/Java)
- Dynamics and control
- Electronics
- Engineering design
- Engineering mathematics
- Signals and systems.

In addition, engineers require managerial skills, the ability to communicate effectively, a good measure of human understanding and an awareness of the economic, environmental and social implications of their activity. Our courses are designed to provide excellent training in all these areas.

### YEAR THREE

You will have an opportunity to take modules covering advanced issues in modern computer systems including:

- Computer systems and networks
- Embedded and real time systems
- Java programming
- Software engineering.

A popular feature of this course is the individual project, which runs throughout the final year.

This may be a detailed design study, an experimental and/or theoretical investigation, or a critical review of a topic in computer systems engineering. You will have the opportunity to interact with members of the School's various research teams, working alongside experienced researchers on highly relevant and exciting projects.



### PROFESSIONAL ACCREDITATION

This course is accredited by the major professional engineering bodies, the Institution of Engineering and Technology (IET) and the Institute of Measurement and Control (InstMC) with whom we maintain close professional links.

### CAREER OPTIONS

The degree will enable graduates to pursue a diverse range of careers in electronic engineering, computer science and computer networks.

### TEACHING

You will be taught by staff from the School, with lectures from external experts who explain how technologies are currently being used in practice. The modular structure covers the design of modern electronic equipment and appropriate computer systems. There is a strong emphasis on computer programming and computer networking. Teaching methods include lectures, seminars and tutorials, supplemented by an engineering applications course involving laboratory and group projects.

### ASSESSMENT

The final degree classification is based on marks obtained in the second and final academic years. The final academic year contributes twice as much as the second year to the total. Coursework and engineering applications account for approximately 30 per cent of the total.

### PLACEMENT YEAR (OPTIONAL)

You are strongly encouraged to seek placements after your second year. The placement will give you the opportunity to learn more about industry, take on graduate level responsibilities and, in some cases, work as part of a multinational work force. As this forms an integral part of

the course, overseas students are eligible for placements. You will receive a salary and may go on to be employed by the placement company after graduation.

### THE LORD MAYOR OF LONDON SCHOLARSHIPS

City University London is offering Scholarships of up to £3,000 per year to UK and EU undergraduate students achieving AAB or above at A-level.

For further information on all University Scholarships please visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)

### BEng Computer Systems Engineering

### ENTRY REQUIREMENTS 2012/13

Typical offers require one of the following:

#### A/AS-level:

340 UCAS tariff points, A-level mathematics and physics required with a minimum of grade B in A-level mathematics. Point scores exclude general studies and key skills.

**BTEC:** DDD in a relevant subject, including D in L3 mathematics.

**IB:** 30, including 5 in High Level mathematics and physics.

**14-19 Advanced Diploma:** Engineering at grade B/250; A-level mathematics at grade B/100.

### English language requirements:

- IELTS: 6.0
- TOEFL: 87 internet-based total
- GCSE: English language grade C.

### UCAS CODE

H600 BEng,  
H601 BEng with a professional placement.

### DURATION

Full-time: Three years or four years including a professional placement.

### NEXT STEPS

**Open Days:**  
Visit [www.city.ac.uk/engineering-maths/undergraduate/opensdays](http://www.city.ac.uk/engineering-maths/undergraduate/opensdays)

**How to apply:**  
Refer to information on page 28.



# BEng Telecommunications

This course has been designed in a systematic way, from fundamental training in engineering science, electronics and computing, to more specialised and photonics focused modules with a strong emphasis on applications and case studies.



Ninghui Wang  
BEng Telecommunications

*"I liked City not only because of its vibrant academic atmosphere and eminent scholars, but also because of the perfect career service and scientific curriculum closely connected to industry."*

*The BEng Telecommunications gave me a chance to integrate new technology with application of learnt knowledge to real projects. The supportive and helpful lecturers are also good at explaining facts and making the lectures interesting."*

This course offers many exciting employment opportunities in the fields of telecommunications, the laser engineering industry, research and development sectors and the electronics industry.

## YEARS ONE AND TWO

The first two years of this course are shared with BEng Electrical and Electronic Engineering and BEng Computer Systems Engineering. The fundamental principles of engineering and applied physics, that underpin the design of electrical and electronic equipment, are studied in the first two years.

Modules provide essential insight into electronics, design and computing, as well as specialised electrical and electronic engineering courses:

- Circuit theory
- Communications systems
- Computer programming (C/C++/Java)
- Dynamics and control
- Electronics
- Engineering design
- Engineering mathematics
- Signals and systems.

In addition to this, engineers require managerial skills, the ability to communicate effectively, a good measure of human understanding and an awareness of the economic, environmental and social implications of their activity. Our courses are designed to provide excellent training in all these areas.

## YEAR THREE

In the final year you have the opportunity to take an increasing number of advanced specialist communications modules such as:

- Digital broadcasting technology
- Digital communications
- Optical and wireless communications
- Signal processing.

All students in the final year are required to undertake a project, which is often associated with the design, construction and evaluation of an electrical or communication device, to meet a given specification, it could also include fundamental research into technologies to address current industrial needs.

## BEng Telecommunications

### ENTRY REQUIREMENTS 2012/13

Typical offers require one of the following:

**A/AS-level:**  
340 UCAS tariff points, A-level mathematics and physics required with a minimum of grade B in A-level mathematics. Point scores exclude general studies and key skills.

**BTEC:** DDD in a relevant subject, including D in L3 mathematics.

**IB:** 30, including 5 in High Level mathematics and physics.

**14-19 Advanced Diploma:** Engineering at grade B/250; A-level mathematics at grade B/100.

### English language requirements:

- IELTS: 6.0
- TOEFL: 87 internet-based total
- GCSE: English language grade C.

**UCAS CODE**  
H645 BEng,  
H646 BEng with a professional placement.

**DURATION**  
Full-time: Three years or four years including a professional placement.

### NEXT STEPS

**Open Days:**  
Visit [www.city.ac.uk/engineering-maths/undergraduate/opensdays](http://www.city.ac.uk/engineering-maths/undergraduate/opensdays)

**How to apply:**  
Refer to information on page 28.



### PROFESSIONAL ACCREDITATION

The BEng Telecommunications is accredited by the major professional engineering bodies, the Institution of Engineering and Technology (IET) and the Institute of Measurement and Control (Ins+MC). City's graduates are highly sought after in industry.

### CAREER OPTIONS

Our graduates follow careers in telecommunications, laser engineering, research and development, IT, design, consultancy or education.

### TEACHING

The course is taught by staff from the School of Engineering and Mathematical Sciences and some of the lectures are given by consultants and experts from the industrial sector. Teaching methods include formal lectures, seminars and tutorials, supplemented by an engineering applications course, involving laboratory and group projects.

### ASSESSMENT

The final degree classification is based on marks obtained in the second and final academic years. The final academic year contributes twice as much as the second year to the total. Coursework and engineering applications account for approximately 30 per cent of the total.

### PLACEMENT YEAR (OPTIONAL)

You are strongly encouraged to undertake a one year industrial training placement prior to the final year of academic study. You will receive a salary while on your placement and as this forms an integral part of the course, overseas students are eligible for placements.

**THE LORD MAYOR OF LONDON SCHOLARSHIPS**  
City University London is offering Scholarships of up to £3,000 per year to UK and EU undergraduate students achieving AAB or above at A-level.

For further information on all University Scholarships please visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)



Email enquiries:  
[semsug@city.ac.uk](mailto:semsug@city.ac.uk)

Phone enquiries:  
+44 (0) 20 7040 6050

Find out more at:  
[www.city.ac.uk/engineering-maths/undergraduate](http://www.city.ac.uk/engineering-maths/undergraduate)

# BEng Engineering with Management and Entrepreneurship

This is a unique multi-disciplinary course, which offers a mix of engineering, business, entrepreneurial and management topics and a solid grasp of mathematical principles. It responds to the engineering industry's changing business model and demand for professional skills.



Aseel Mustafa  
BEng Engineering with Management and Entrepreneurship,  
Year one student

*"What I like the most about City is that it is a cutting edge learning institution yet it has a laid back vibe to it and its graduate employability is very good."*

*"Regarding the course, it is the best of both worlds. It is unique because it provides you with all the technical knowledge you need as an engineer, whilst enhancing your management skill and your entrepreneurial perspective."*

*"If you want to have all the tools you need to run your own business, then this is the course to do!"*

The principal aims of the course are firstly, to develop future engineering managers, by equipping you with specialist technical knowledge of engineering principles, mathematical concepts and a sound understanding of effective management techniques. Secondly, to promote opportunities for team-based learning and problem-solving, using real-life industrial scenarios skills. It also enables you to develop business-thinking, creativity and innovation.

## YEARS ONE AND TWO

In years one and two fundamental principles of engineering, mathematics and business are studied, providing a strong background and tools for more advanced specialisations in the final year.

### Modules offered include:

- Accounting and finance
- Dynamics and control
- Electronic circuit design
- Engineering management
- Engineering mathematics and computation
- Engineering practice
- Introduction to microeconomics
- Management and entrepreneurship
- Systems, modelling and control.

These modules will help you apply knowledge of engineering principles and mathematical concepts to identify and solve problems using engineering and project management tools. You will also gain insight into the main challenges engineering managers and entrepreneurs face in building teams, raising finance, influencing negotiations and managing conflict effectively.

## YEAR THREE

In year three you will gain in depth, advanced knowledge and understanding of engineering systems principles together with management, sustainability and corporate responsibility issues and the technological entrepreneurship skills required for a successful career in business. The major individual project undertaken will enable you to analyse and understand a full engineering life cycle from requirements elicitation through to design and product development to bringing the product to market.

### Modules offered include:

- Electrical and electronic power systems
- Engineering management
- Engineering systems
- Major individual project
- Renewable energy.



## PROFESSIONAL ACCREDITATION

This is a new course for which will be seeking accreditation by the Institute of Electrical Technology and Institute of Engineering and Technology (IET) with whom we maintain close professional links.

## CAREER OPTIONS

After graduation, students will have varied and exciting career and employment opportunities available as: engineering managers, financial and business analysts, design engineers, system engineers, energy engineers.

## Elective modules:

- Corporate responsibility
- Digital communications
- Energy utilisation and management
- Optical and wireless communications
- Systems reliability, safety and sustainability
- Technology entrepreneurship.

## TEACHING

A range of methods are used, including formal lectures, tutorials, laboratories, seminars, case studies, problembased learning, presentations and group work. Additional lectures

are delivered by engineering leaders from industry all of whom have extensive engineering and management expertise.

## ASSESSMENT

The course is assessed through written examination, coursework, presentations, laboratory work, group work and an individual project. The final degree classification is based on marks obtained in the second and final academic years. The final academic year contributes twice as much as the second year to the total.

## PLACEMENT YEAR (OPTIONAL)

You are strongly encouraged to seek a placement after your second year through the industrial placement officer.

## THE LORD MAYOR OF LONDON SCHOLARSHIPS

City University London is offering Scholarships of up to £3,000 per year to UK and EU undergraduate students achieving AAB or above at A-level.

For further information on all University Scholarships please visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships)

## BEng Engineering with Management and Entrepreneurship

### ENTRY REQUIREMENTS 2012/13

Typical offers require one of the following:

#### A/AS-level:

340 UCAS tariff points, A-level mathematics required with a minimum of grade B. Point scores exclude general studies and key skills.

**BTEC:** DDD in a relevant subject, including D in L3 mathematics.

**IB:** 30, including 5 in High Level mathematics.

**14-19 Advanced Diploma:** Engineering at grade B/250; A-level mathematics at grade B/100.

Direct entry into Part 2 is possible following successful completion of Part 1 of a comparable BEng or BSc course. Suitable HND and HND equivalents (e.g., equivalent overseas qualifications) are also considered. However, in all cases the final decision is subject to the satisfactory evaluation of prior qualifications by the Admissions Tutor.

### English language requirements:

- IELTS: 6.0
- TOEFL: 87 internet-based total
- GCSE: English language grade C.

UCAS CODE  
H1N2

DURATION  
Full-time: Three years.

### NEXT STEPS

**Open Days:**  
Visit [www.city.ac.uk/engineering-maths/undergraduate/opendays](http://www.city.ac.uk/engineering-maths/undergraduate/opendays)

**How to apply:**  
Refer to information on page 28.



Email enquiries:  
[semsug@city.ac.uk](mailto:semsug@city.ac.uk)

Phone enquiries:  
+44 (0) 20 7040 6050

Find out more at:  
[www.city.ac.uk/engineering-maths/undergraduate](http://www.city.ac.uk/engineering-maths/undergraduate)

# Meet the Electrical, Electronic and Biomedical Engineering academic team



## **PROFESSOR SANOWAR KHAN** DEPUTY DEAN AND PROFESSOR OF INSTRUMENTATION AND SENSORS

Professor Khan heads the Computer Aided Modelling and Design (CAMAD) group which has a proven reputation for innovative and applied research in collaboration with UK industry, in areas of CAD and mathematical modelling of sensors, actuators and devices for over three decades. Professor Khan is an Honorary Professor of St Petersburg State Polytechnic University, a Fellow of The Institution of Engineering and Technology (IET), the Institute of Measurement and Control (InstMC). He is currently Vice-President (Membership) of InstMC. He is an Associate Editor of the journal Measurement and a member of the Journal Editorial Committee of Measurement and Control.

## **PROFESSOR PANICOS KYRIACOU** ASSOCIATE DEAN FOR POSTGRADUATE STUDIES AND PROFESSOR OF BIOMEDICAL ENGINEERING

Professor Kyriacou received a BEng degree in Electrical Engineering from the University of Western Ontario, Canada, and an MSc and PhD degree in Medical Electronics and Physics from St. Bartholomew's Medical College, University of London. He is Professor of Biomedical Engineering and Director of BEng in Biomedical Engineering and of the Biomedical Engineering Research Group. Professor Kyriacou's main research activities are primarily focused upon the understanding, development and applications of instrumentation, sensors and physiological measurements to facilitate the prognosis, diagnosis and treatment of disease or the rehabilitation of patients.

## **DR ARTI AGRAWAL** LECTURER IN PHOTONICS

Dr Agrawal is a recipient of a prestigious Royal Society Postdoctoral Fellowship and graduated PhD from the Indian Institute of Technology Delhi, India. Her research interests include numerical modelling methods, simulation of a wide range of photonic devices such as PCF, Photonic Crystals, sensors and solar cells. She also employs a bio-mimetic approach in design of photonic devices and enjoys applying concepts and ideas from other disciplines into Physics.

## **DR DANIEL NANKOO** LECTURER IN ELECTRONICS

Dr Daniel Nankoo received a BEng degree in Control Engineering and an M.Sc. in Information Engineering from City University London. He then worked as a research assistant for the Control Engineering Centre and completed an EPSRC funded Ph.D. in Linear Systems and Control Structure Selection. He has been lecturing since 2005, delivering modules on Electronics, Electrical and Power Systems. He manages the MSc in Power Systems and Energy Management, and coordinates undergraduate projects in the Electrical and Electronic Engineering area. His research interest involves railway systems and hybrid vehicles.

## **PROFESSOR TONG SUN** PROFESSOR OF SENSOR ENGINEERING

Professor Tong Sun is currently the Director of Instrumentation and Sensors Research Centre and Course Director of BEng Telecommunications. She was awarded a BEng, MEng and DEng from Harbin Institute of Technology, China in 1990, 1993 and 1998 respectively and a PhD at City University London in 1999. Prof Sun is leading a research team focused on developing a range of optical fibre sensors for a variety of industrial applications funded by Research Councils in the UK and at EU. She has authored or co-authored some 190 scientific and technical papers and an inventor of 8 patent applications.



## **PROFESSOR NICOS KARCANIAS** PROFESSOR OF CONTROL THEORY AND DESIGN

Professor Nicos Karcianias has a Diploma in Electrical Engineering, from NTUA Athens, M.Sc and Ph.D in Control from Manchester and has been a researcher (1974-1980) with the Control Group of University of Cambridge. Since 1980 he is with City University where he is Professor (since 1993), Associate Dean for Research and Director of Systems and Control Centre. His main research interests are in Control Theory and Design, Mathematical Systems Theory, Complex Systems and he is teaching in Control Engineering, Systems and Signals, Modelling and Mathematics. He is SMIEEE, Fellow of IET, IMA and Editor of IMA Journal on Mathematical Control Theory.

## **PROFESSOR KENNETH GRATTAN** DEAN AND PROFESSOR OF MEASUREMENT AND INSTRUMENTATION

Professor Grattan has carried out world-leading research in the field of instrumentation development and measurement, especially based on the use of laser and optical fibre techniques. He has published his research widely in the major international journals and is frequently keynote speaker at international conferences in his field. His work is interdisciplinary, and he has been pioneering recently in developing and using a variety of optical fibre sensor techniques in structural monitoring across the world. He edits the international Journal 'Measurement' and he was elected a Fellow of the Royal Academy of Engineering.

## **DR VESELIN RAKOCEVIC** SENIOR LECTURER IN WIRELESS COMMUNICATIONS

Dr Veselin Rakocevic is responsible for undergraduate courses in electrical, electronic and biomedical engineering. His research expertise is in wireless networks, especially scheduling and resource management in cellular networks. He worked on research projects to develop networking solutions for WiMAX and LTE wireless networks and published many research papers in this subject. Dr Rakocevic holds a PhD degree from University of London and has been at City University since 2002. At City University London, Dr Rakocevic teaches wireless communications, computer networks and introduction to programming and works as course director for the BEng course in Computer Systems Engineering.

## **DR EFSTATHIOS MILONIDIS** ADMISSIONS TUTOR AND SENIOR LECTURER IN CONTROL AND INFORMATION SYSTEMS

Dr Milonidis received his Diploma in Electrical Engineering from NTUA, Athens, MSc and MPhil from Cranfield University and PhD from City University. He teaches first year engineering mathematics across the School of Engineering and Mathematical Sciences, and control related subjects in undergraduate and postgraduate level. His research experience is in the areas of control systems theory and design, and algebraic control synthesis methods in particular in the area of sampled - data and discrete time systems. He has contributed in the development of a methodology for discrete time control schemes based on the problem of "Finite Settling Time Stabilisation".

# Meet the Electrical, Electronic and Biomedical Engineering academic team



## **DR GEORGE HALIKIAS READER IN CONTROL ENGINEERING**

Dr Halikias obtained his degree in Engineering Science from Magdalene College, Oxford and his MSc and PhD in Control Systems Engineering from Imperial College, London. His main research interests are in Robust Control Systems Theory, Multivariable Systems design, Model Reduction, Convex Optimisation and Modelling and Control Applications in the areas of Networks, Mechanical Systems, Business Processes and Supply Chains. He is the coordinator of mathematics across the School of Engineering and Mathematical Sciences, Academic Secretary of the IMA's Control Theory Group, and Associate Editor of the IMA Journal of Mathematical Control and Information.

## **PROFESSOR BMA RAHMAN PROFESSOR OF PHOTONICS**

Professor Rahman received his BSc and MSc from BUET, Dhaka and his PhD in Electronic Engineering from University College, London. At City University London, he leads the research group on Photonics Modelling, specialised in the development and use of the rigorous full – vectorial numerical approaches. He has published more than 300 journal and conference papers in a wide variety of photonics topics including optical waveguides, integrated optics, single polarisation guides, photonic devices narrow – band optical filters, nonlinear optical devices, photonic crystal fibres and THz waveguides. His journal papers have more than 1100 citations.

## **PROFESSOR DAVID STUPPLES PROFESSOR IN ENGINEERING SYSTEMS**

Professor David Stupples specialises in research, development, and specification of large and complex engineering systems. For a number of years he undertook research in the area at the Royal Signal and Radar Establishment at Malvern, followed by systems research for NATO, and then in systems research and development with Hughes Aircraft in the US. He has applied systems engineering to a significant number of large-scale engineering and technology systems around the world, and has particular expertise in the effective design for full lifecycle ownership including socio-economic considerations.

## **PROFESSOR PHILIP THOMAS PROFESSOR OF ENGINEERING DEVELOPMENT**

Professor Thomas worked 25 years in the chemical and nuclear industries before joining City University London in August 2000. His research interests are wide-ranging and he has published over 50 papers on control, instrumentation, nuclear decommissioning, risk assessment and project management. The Institute of Measurement and Control awarded him its prestigious ICI Prize in three occasions. His book, Simulation of Industrial Processes for Control Engineers, was praised by reviewers as the new standard text for practitioners of dynamic simulation. His work in risk analysis and management has excited the interest of the national and international press.



## **PROFESSOR PANOS LIATISIS PROFESSOR OF IMAGE PROCESSING**

Panos Liatsis is a Professor of Image Processing. He obtained the Diploma in Electrical Engineering from the University of Thrace and a PhD in Electrical and Electronic Engineering from the University of Manchester-UMIST. He is the Programme Director for the MEng/BEng in Electrical and Electronic Engineering and the MSc in Signals and Sensor Systems.

Panos leads the Information Engineering and Medical Imaging group and his expertise is in the fields of Intelligent Systems, Pattern Recognition and Imaging. He has published over 150 contributions in books, journals and international conference proceedings.

## **DR M RAJARAJAN READER IN INFORMATION SECURITY SYSTEMS**

Dr Rajarajan obtained a B.Eng. degree in Electrical and Electronic Engineering from City University London, where he was awarded his PHD. He later took a Research Fellow position at the University, working on an EPSRC/DERA funded project. In August 2000, he moved to Logica as a Network and Service Management Consultant, returning to City University London as a Lecturer in January 2002. He has published more than 60 Journal/Conference papers in the area of Photonic Devices Modeling and he is Programme Director for the BEng in Engineering with Management and Entrepreneurship.

## **DR JUSTIN PHILLIPS SENIOR LECTURER IN BIOMEDICAL ENGINEERING**

Dr Justin Phillips received a BSc degree in Physics from the University of Durham and his PhD from Barts and The London School of Medicine, Queen Mary, University of London. He started his career at Ciba Corning where he worked on the design and evaluation of prototype biomedical instrumentation. In 1997 he moved to the Respiratory Function Laboratory at Royal Brompton Hospital and then to the Anaesthetic Laboratory at St Bartholomew's Hospital. His research interests include respiratory and cardiovascular measurement, anaesthesia, biomedical optical sensors, bio-signal processing and modelling of the light-tissue interaction.

## **MR DAVID STYLES TEACHING AND INDUSTRIAL TUTOR**

Mr David Styles currently teaches Embedded & Real-time Systems, Computer Systems, Object Orientated Programming, and Java Programming. He supervises project students at both undergraduate and postgraduate levels for all the above subject areas. David Styles is also responsible for School taster days, and Industrial placements. His interests are in Embedded Systems and Software design.

# Working in Electrical, Electronic and Biomedical Engineering



When you graduate with an engineering degree from City University London you will find yourself in demand from organisations ranging from corporate industry giants to dynamic start-up companies.

Employers place great value on the professional education and quality of our graduates, recognising their intellectual skills, professionalism, industry experience and their ability to relate theory to practical problems.

Our Electrical and Electronic Engineering graduates have gone on to work for industry leaders such as National Grid, Schneider Electric, Orange Business Services, Ernst & Young, Total,

BP Exploration Operating Company, AMEC, JP Morgan, TPS Carillion, Accenture, Capita Assurance Testing, Santander, Currys, PC World, Thomson Reuters and Sainsburys in positions such as Data Analyst, Engineering Technical Officer, Senior Technician, Trainee Electrical Engineer, Drilling & Completions Manager, Graduate Electrical Design Engineer, Business Analyst, Web Developer, Trainee Test Consultant, Programmer, Project Manager and Junior IT Services Technician.

Our Biomedical Engineering graduates have gone on to work as consultants, biomedical engineers and managed equipment engineers in companies such as Cal Bay Systems, Orange Business Services and Siemens Healthcare. Many go on to work in NHS Hospital Trusts in positions such as Equipment Technologist, Medical Engineer, Managed Equipment Service Engineer, Clinical Technician, Clinical Scientist and Trainee Electrical Engineer.

**City University London ranks tenth in the UK for employability, according to *The Times Good University Guide 2011*.**

## STUDENT TESTIMONIAL

Carolina Gama  
Graduate BEng  
Biomedical Engineering  
PhD candidate at City  
University London

*"What I loved about City University London is its links to industry and job opportunities and the central London location. I really enjoyed my classes and they prepared me for clinical work. Our Course Director was incredibly supportive; it was thanks to him that I found work as a Technician in Cardio-thoracic Theatres at St Bartholomew's Hospital. He then invited me back to City to start a PhD on Dual Probe Trans Oesophageal PPG, to measure blood oxygenation in central and gastric blood circulations."*



# Student life at City



## CENTRAL LOCATION

We are located in the heart of London, close to the capital's leading financial, legal, media and medical institutions. You can take advantage of London's famous cultural, sporting and social opportunities.

## STUDENT CENTRE

Our Student Centre offers practical help with your finances, learning, health and housing. They can also help with advice on your course, career and University facilities.

Visit [www.city.ac.uk/studentcentre](http://www.city.ac.uk/studentcentre) for more information.

## SPORTS ACTIVITIES

We support a range of sporting activities including badminton, basketball, cricket, fencing, football, hockey, netball, rugby, squash and table tennis.

## ACCOMMODATION

Whether you want to live in halls of residence or private rented accommodation, our Student Centres housing advisers can help.

For further details please visit [www.city.ac.uk/accommodation](http://www.city.ac.uk/accommodation)

## LIBRARY SERVICES

The main University library occupies five floors in the Northampton Square building. Our library stock is more than 280,000 volumes and you can borrow up to 15 books for as long as 3 weeks.

Please see [www.city.ac.uk/library](http://www.city.ac.uk/library)

## STATE-OF-THE-ART FACILITIES

We recently undertook a multi-million pound project to refit all our lecture theatres with state-of-the-art audio-visual equipment and provide over 1,000 Windows PCs, 200 Apple Macs and 57 Linux workstations.

## CAREERS SERVICES

Our professional networks help to build your skills and gain industry insights. You can discuss your career plans in one-to-one appointments and explore our extensive careers resources including computer-aided guidance packages and aptitude testing systems. In the autumn and spring terms major employers visit the University to give presentations and run skills sessions.

Find out more at [www.city.ac.uk/careers](http://www.city.ac.uk/careers)

## ALUMNI

When you embark on your course with us, you begin a lifelong association with both the University and its wider community of former students.

Find more information at [www.city.ac.uk/alumni](http://www.city.ac.uk/alumni)

## A GREAT STUDENT EXPERIENCE

We seek to provide high quality equipment and facilities to enhance your learning experience. The Students' Union organises a wide range of social events to keep you entertained and we have over 50 clubs and societies which cater for a broad range of interests. If that isn't enough the London nightlife is famous, there are many venues to visit, some of which are discounted or free for students.

# How to apply to City

Applications for degree courses *must* be made through UCAS.



You can apply through your school or college using the UCAS Apply system at [www.ucas.com/students/apply/](http://www.ucas.com/students/apply/)

## WHEN TO APPLY

Applications for entry September 2012 should arrive between 1 September 2011 and 15 January 2012.

When your application has been acknowledged by UCAS you will receive a personal identification number so that you can access your records via 'Track' at [www.ucas.com/students/track/](http://www.ucas.com/students/track/) on the UCAS website.

## ENQUIRIES

If you have any questions about the admissions process please contact the Undergraduate Admissions Office:

T: +44 (0) 20 7040 6050  
E: [semsug@city.ac.uk](mailto:semsug@city.ac.uk)

## FURTHER INFORMATION

- You can apply for up to five universities
- Take care when entering your course code
- UCAS has an 'invisibility choices' policy, meaning each university can only see their entry and not those of other universities you have chosen
- Submit your completed application to UCAS with a £21 application fee
- If you only wish to apply for City you can make a single choice application at a reduced rate of £11
- The University code for City University London is C60

## UCAS CONTACT DETAILS

Universities and Colleges Admissions Service (UCAS)  
[www.ucas.com](http://www.ucas.com)

Callers in the UK  
0871 468 0468

Callers outside the UK  
+44 (0) 871 468 0468



## INTERNATIONAL STUDENTS

We have put together some practical information to help you when planning your arrival to the UK and City University London please visit [www.city.ac.uk/international/international-students](http://www.city.ac.uk/international/international-students)

## SCHOLARSHIPS BURSARIES AND AWARDS

City University London has a range of scholarships and prizes available for undergraduate students. Some of these are generously funded by charitable foundations, former students, and other bodies and can be applied for each academic year.

Visit [www.city.ac.uk/engineering-maths/scholarships](http://www.city.ac.uk/engineering-maths/scholarships) for more information.

## FINANCIAL SUPPORT

There are a range of options available to you to help you cover your living costs while you study at City University London. For information on Government support as well as other potential sources of funding please visit [www.city.ac.uk/study](http://www.city.ac.uk/study)

# Map and contacts

## CONTACTING US

You can contact our Undergraduate Admissions team as follows:

## UNDERGRADUATE ADMISSIONS TEAM Programmes Office

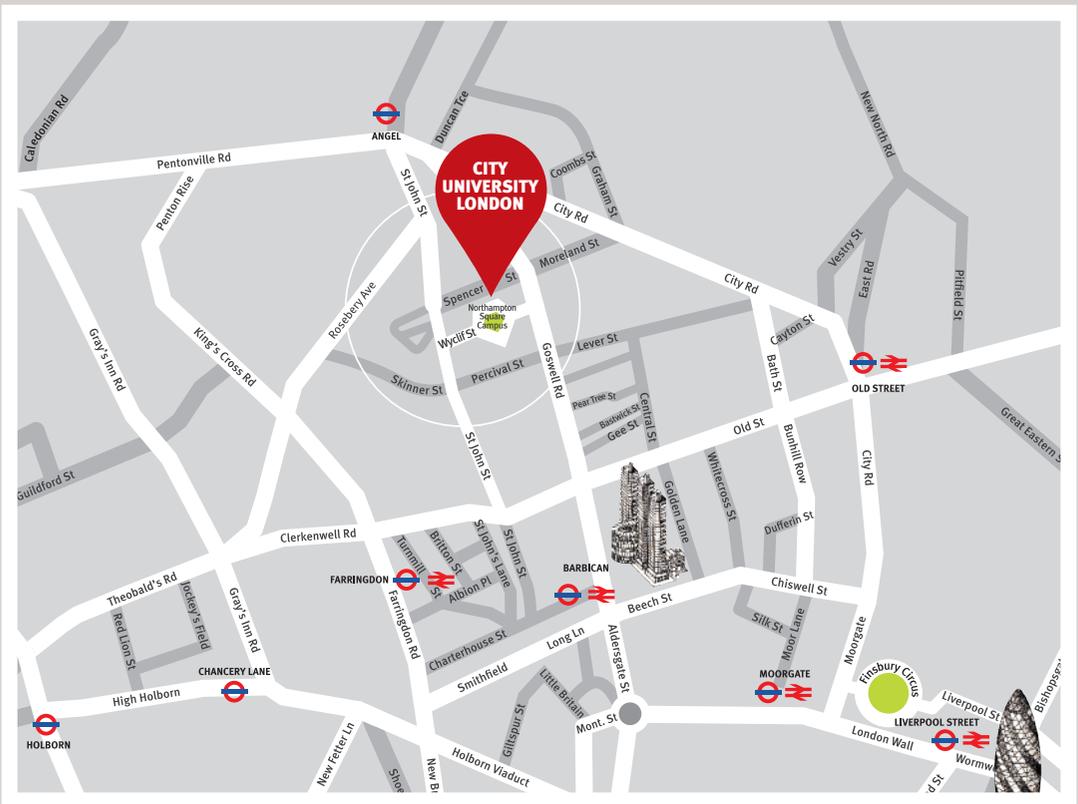
School of Engineering and Mathematical Sciences  
City University London  
Northampton Square  
London EC1V 0HB  
United Kingdom

If you are enquiring about the progress of an application you have made through UCAS, please remember to provide your UCAS application number.

## ADDITIONAL INFORMATION

You can find more information on our undergraduate web page at [www.city.ac.uk/engineering-maths/undergraduate](http://www.city.ac.uk/engineering-maths/undergraduate)

T: +44 (0) 20 7040 6050  
E: [semsug@city.ac.uk](mailto:semsug@city.ac.uk)



## DISCLAIMER

The information contained in this brochure is correct at the time of going to press (January 2012). The University reserves the right, arising from unforeseen events or circumstances beyond our control, to add to or remove courses, and to make changes in regulations, syllabuses, course options, timetables, modules and fees etc, without prior notice. Complaints concerning the accuracy of information provided by the University in this brochure and in related publications should be made to the Academic Registrar. Any persons who feel their complaints have not been dealt with satisfactorily may write to the Quality Assurance Agency for Higher Education.

General information about the University including fees, general entry requirements, accommodation and social and welfare services, is given in the undergraduate prospectus, which can be viewed or ordered online on the University's website [www.city.ac.uk/study](http://www.city.ac.uk/study).

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[www.pslondon.co.uk](http://www.pslondon.co.uk)



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Find out  
more at:  
[www.city.ac.uk/  
engineering-  
maths/  
undergraduate](http://www.city.ac.uk/engineering-maths/undergraduate)



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United Kingdom

- BEng/MEng Electrical and Electronic Engineering
- BEng Biomedical Engineering
- BEng Computer Systems Engineering
- BEng Telecommunications
- BEng Engineering with Management and Entrepreneurship

