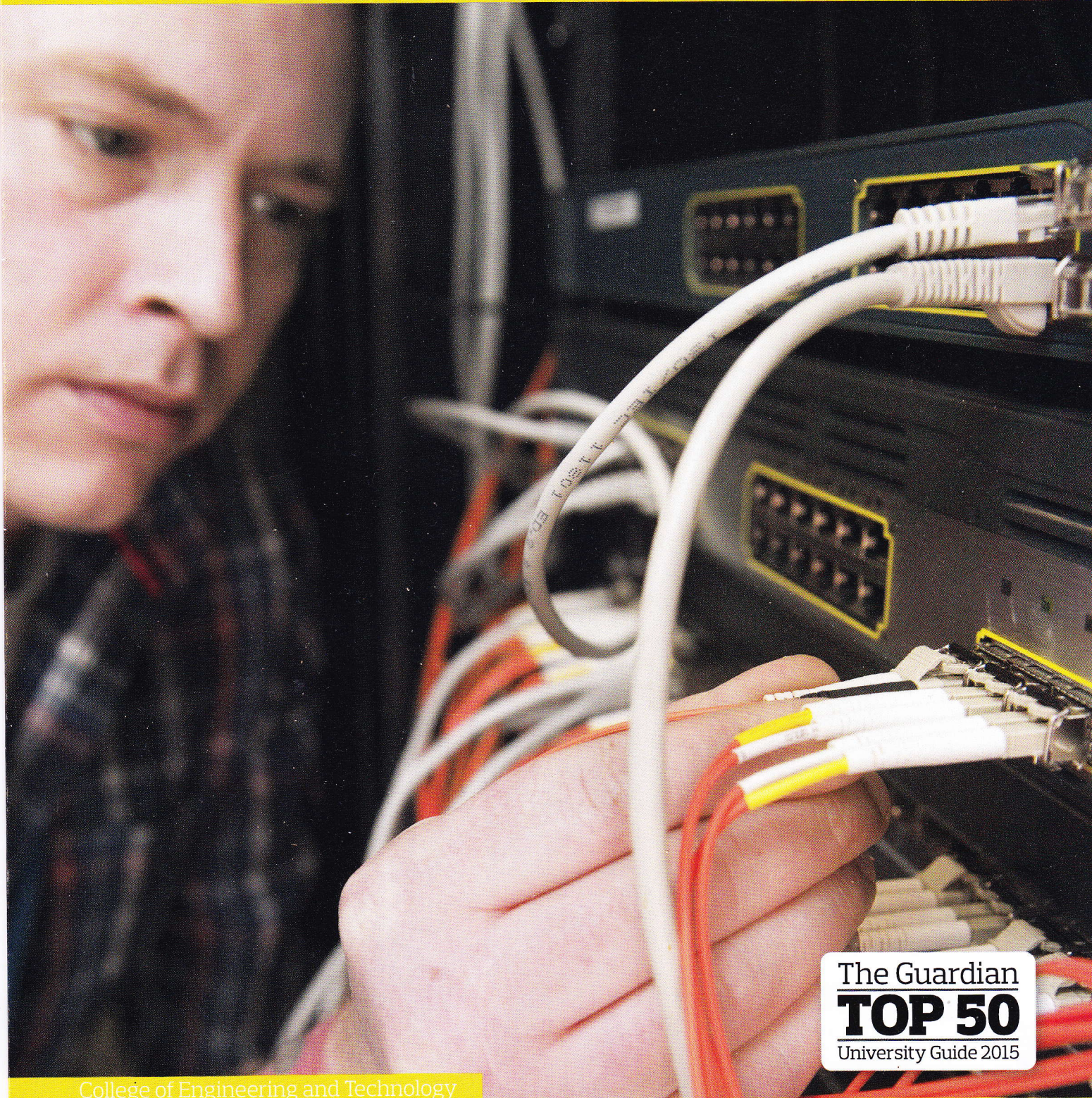


# Advanced Computer Networks

## MSc



The Guardian  
**TOP 50**  
University Guide 2015

College of Engineering and Technology



UNIVERSITY  
of DERBY

[www.derby.ac.uk/engtech](http://www.derby.ac.uk/engtech)



## Essential Information

### Location

Derby campus, Kedleston Road

### Duration

One year full time or three years part time

### Start dates

September and January

### Entry requirements

An undergraduate degree (at least second class) or an equivalent qualification.

### Entry requirements for EU/International students

As above (or international equivalents). If English is not your first language, you will need to hold IELTS 6.5 or above.

### Suitable for applicants from



# Advanced Computer Networks

MSc

## The course aims to

- **Equip you for a successful career as a network manager with the skills to be able to develop, maintain and manage computer networks – or to pursue further research leading to a PhD.**
- **Develop your understanding of the relevant, modern theories associated with practical expertise in networking technologies and applications.**
- **Advance your practical skills by following the syllabus of the Cisco Certified Network Professional (CCNP).**

## About the course

At a time when communication networks increasingly link the worlds of computing and telecommunications, professionals skilled in computer networking, the internet and mobile communications are highly sought after by employers.

The MSc Advanced Computer Networks offers a structured environment in which to develop your critical understanding of networking technologies and applications in a wide range of contexts, providing you with the ideal preparation for employment.

The course follows the syllabus of the Cisco Certified Network Professional (CCNP) qualification for those who have already obtained the Cisco Certified Network Associate (CCNA) qualification. If you're not already qualified to CCNA level, we offer you the opportunity to self-study the CCNA syllabus at the same time.

In developing this MSc, we have consulted with leading employers in the industry to ensure the content is relevant and contemporary. You'll look at the latest trends and issues in distributed computer architecture and implementation; explore network management and maintenance; and learn about the methodologies and approaches used to plan, configure and verify the implementation of complex enterprise LAN and WAN routing solutions.

You'll study the methods and tactics used in the implementation of complex enterprise switching and routing solutions and will

develop a critical and in-depth awareness of the theory, methods and issues involved in the design, development and deployment of modern wireless networks. You'll also focus on secure systems and look at advanced concepts in ethical systems penetration, attack signature detection and mainstream host-based and network-based protection methods.

The whole course is brought together by an in-depth project during the Independent Scholarship module. This will cover a theme of your choice, which may be focused on your current role, if you're studying part time, or which could be in an area where you see your career developing.

You'll develop your theoretical and practical skills in our dedicated networking laboratory.

## Course content

The course is made up of three stages – Postgraduate Certificate, Postgraduate Diploma and MSc.

### Postgraduate Certificate and Postgraduate Diploma

You'll study three of these modules to achieve the Postgraduate Certificate and the remaining three to achieve the Postgraduate Diploma:

### Studying at Masters Level and Research Methods

This module will develop your skills to study at masters level within the computing discipline and will help you to plan and execute a research project.

### Network Management Concepts

You'll gain an in-depth awareness of the issues involved in the management of large scale computer networks. This module looks in detail at the underlying concepts of network management and associated models. It examines how these concepts are implemented, not only to improve the day-to-day running of a network but also to prevent network failures. You'll also explore how, in the event of a failure, network management can assist in fault finding and bringing the network back into working order.

## Advanced Network Switching

The emphasis of this module is on designing and evaluating switching in complex enterprise networks. You'll also cover the secure integration of VLANs, WLANs, voice and video into enterprise networks. The module sets your decision making within the context of developing and evidencing appropriate professional skills.

## Securing Networks

You'll focus on protecting a network from external and internal threats. Different methods of system breach will be discussed, together with the mechanisms for detecting and protecting against them, such as firewalls, anti-malware and Intrusion Detection and Prevention Systems (IDPS). You'll be assessed on your understanding of how attacks can be perpetrated and detected.

## Advanced Network Routing

You'll develop your abilities to design and evaluate network configurations in an enterprise network. This module concentrates on software optimisation techniques as well as alternative and complementary protocols. It sets your decision making within the context of developing and evidencing appropriate professional skills.

## Mobile and Wireless Routing

This module equips you with the knowledge and understanding of the processes involved in the design and implementation of wireless networks. It looks in depth at the theory behind wireless networks and shows how this theory affects their design. It also considers site surveys and discusses how building design factors affect the design of wireless networks.

## MSc

To complete your MSc you'll study this module:

## Independent Scholarship

This triple module gives you the opportunity to consolidate what you've already learned on the course and to extend your understanding, skills and knowledge in information security. You'll formulate, research and resolve a commercial IT problem, usually working in partnership with industrial collaborators to help focus

attention on specific and real applications.

Your project will normally be closely related to the University's own research activity within computing. You'll present your findings and solution in the form of a dissertation, through which you'll demonstrate your ability to apply your learning in an independent and rigorous fashion.

## Similar courses:

- MSc Cyber Security
- MSc Information Technology
- MSc Mobile App Development

## Essential Information

### How To Apply

[www.derby.ac.uk/applyonline](http://www.derby.ac.uk/applyonline)

### Fees for UK/EU students

2014/15 fees were £755 per 20 credit module. You'll study the equivalent of nine 20 credit modules in total.

### Fees for international students

2014/2015 fees were £11,260 per year.

### Contact us

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The information in this leaflet was correct at the time of printing;  
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