Course information 2023-24
IS1181 Digital infrastructures for business

General information

COURSE LEVEL: 4

CREDIT: 30

NOTIONAL STUDY TIME: 300 hours

Summary

This course provides an introduction to the digital infrastructures upon which business, government and wider society increasingly depend. These infrastructures include the Internet and the various applications and services that it supports and enables, such as the World Wide Web, as well as other more specialised systems and services. The course prepares students for further in-depth study of digital innovation in later units.

Conditions

Exclusions: You may not register for this course in the same year as:

- IS1168 Introduction to computer systems architecture and programming

Aims and objectives

The course introduces the concepts of digital infrastructures and their core technologies. It considers how digital infrastructures are established and evolve, their design, economics, and how they support innovation and business change. It introduces models of infrastructure development including concepts of the installed base, cultivation and path dependency. The course considers the Internet and the World Wide Web (WWW) and innovations that exploit digital infrastructures, including cloud computing, mobile services and social media. The course considers the opportunities and risks that digital infrastructures present, including a consideration of regulatory issues.

Learning outcomes

At the end of the course and having completed the essential reading and activities students should be able to:

- Describe the concept of an infrastructure and relate it to digital systems and services.
- Discuss how digital infrastructures are structured and how they are used.
- Identify and apply theories and models to understand the evolution of digital infrastructures and their roles in fostering innovation.
- Analyse three contemporary examples of digital infrastructures in use: cloud computing, mobile services and social media, using relevant examples.
- Understand how and why some digital infrastructures become globally pervasive.

Please consult the current EMFSS Programme Regulations for further information on the availability of a course, where it can be placed on your programme's structure, and other important details.

- Assess relevant issues of public policy, laws and regulations in regional, national and international settings.
- Apply concepts and theories learnt to other emergent digital infrastructures.

Essential reading

For full details please refer to the reading list:

Laudon, K.C. and Laudon, J.P. Management Information Systems: Managing the Digital Firm. (Harlow: Pearson, 2019) sixteenth edition [ISBN 978-0135191798]

Zittrain, J.L. The Future of the Internet (Yale University Press & Penguin UK, 2009) [ISBN 978-0141031590]

Assessment

This course is assessed by a three-hour and fifteen-minute closed-book written examination.

Syllabus

The unit provides an introductory understanding of the concept of an infrastructure with a particular focus is on the digital infrastructures that underpin so much of business, government and social life - including the Internet and World Wide Web, and the many other systems and services that build upon these. Concepts and theories are introduced that help understand the emergence of digital infrastructures, their architecture (structure), their economics, and the kinds of services they offer including access to data services and communications capacity.

Students learn to apply a critical perspective to this topic, developing understanding in how to exploring the opportunities and risks of these infrastructures as seen by various groups of people. The course considers the issues and challenges faced by decision makers in government, businesses and infrastructure provider organisations as digital infrastructures become more central in economic and social life. This includes issues of national and international standards, laws and regulation. The course also addresses these issues as they relate to the individual user of digital services.

To provide focus and depth, the course focuses on the Internet as our most general and fundamental digital infrastructure for communication, and the World Wide Web as the core information infrastructure. It also considers three other digital infrastructures of relevance today: cloud computing, mobile devices and services, and social media. You will learn the key characteristics of the technologies that underpin each case, how these infrastructures have emerged, and how they are being used by individuals, businesses and governments. The unit allows students to obtain a robust understanding of the theoretical underpinnings of current developments in digital infrastructures and to apply this to other contemporary examples including concepts of platforms, business model innovation and the Internet of Things (IoT).

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