

Information Technology (ITEC)

Information Technology (ITEC) Courses

ITEC 5000 [0.5 credit]

Analytical Methods for Information Technology

Analytical techniques for algorithms, data structures, statistical analysis methods for IT problems, research methods, and research writing.

ITEC 5001 [0.0 credit]

Information Technology Seminars

A seminar based course where the students make the presentations and participate in discussions. Some seminars done by guest lecturers. Graded Sat/Uns.

ITEC 5100 [0.5 credit]

Planning and Design of Computer Networks

Planning process of computer networks; needs and technical requirements; modeling of different network planning problems; exact and approximate algorithms; topological planning and expansion problems; equipment (switch, router) location problem; approximate and optimal routing algorithms; presentation of various case studies.

ITEC 5101 [0.5 credit]

Cross Layer Design for Wireless Multimedia Networks

Quality of service measures at different layers. Parameter adaptation, trade-offs, and optimization at physical, data-link, network, transport, and application layers. Cross-layer design in cellular, ad hoc, sensor, local area, green, and cognitive radio networks.

ITEC 5102 [0.5 credit]

Designing Secure Networking and Computer Systems

Network security with coverage of computer security in support of networking concepts. Security issues in data networks at different protocol layers. Routing security, worm attacks, and botnets. Security of new mobile networks and emerging networked paradigms such as social networks and cloud computing.

ITEC 5103 [0.5 credit]

Cloud and Datacentre Networking

Special issues of the networking requirements in datacentres and cloud computing environments. Performance, power requirements, redundancy of datacentre networks.

ITEC 5110 [0.5 credit]

Emerging Network Technologies

Overview of technologies, protocols and techniques related to Information Technology networking that are either in their early stage of adoption or are not yet mainstream (i.e. beta or prototype stage). Focus will vary from year to year to reflect the evolutionary nature of this domain.

Also offered at the undergraduate level, with different requirements, as NET 4000, for which additional credit is precluded.

ITEC 5111 [0.5 credit]

Multimedia Networking

Audio and video compression. H.261, JPEG, MPEG and DVI. Accessing audio and video from a web server. Real Time Streaming Protocol (RTSP). Multimedia operating systems. Multimedia database. Network support for multimedia applications. Multimedia synchronization. Also offered at the undergraduate level, with different requirements, as NET 4007, for which additional credit is precluded.

ITEC 5112 [0.5 credit]

Secure Mobile Networking

The concept, principle and rationale of mobile networking. Mobile network architecture, protocols, mobility management, routing and mobile TCP/IP; Security challenges, vulnerabilities and threats in mobile networks; Security defense techniques and countermeasures in mobile networks.

Also offered at the undergraduate level, with different requirements, as NET 4010, for which additional credit is precluded.

ITEC 5113 [0.5 credit]

Network Simulation

Introduction to discrete event simulation; fundamental stochastic models for networking; queueing theory; deterministic algorithms for networking; confidence intervals; introduction to network modeling. Simulation exercises including traffic monitoring, congestion, routing protocols, resource utilization and growth planning using OPNET simulation tool.

Also offered at the undergraduate level, with different requirements, as NET 4001, for which additional credit is precluded.

ITEC 5114 [0.5 credit]

Networked Applications

Architectures for computing in modern data networks that adopt the Internet architecture. Topics covered include socket programming, RPC and RMI. Client-server and peer-to-peer models. Emerging application architectures. Also offered at the undergraduate level, with different requirements, as NET 4005, for which additional credit is precluded.

ITEC 5200 [0.5 credit]**Entertainment Technologies**

Advanced topics in entertainment technologies including web-based, film and television, video games and interactive systems.

ITEC 5201 [0.5 credit]**Computer Animation Technologies**

Advanced topics in computer animation: full body motion capture, space-time systems, physics-based animation, realistic rendering techniques, industry methods for large scene animations and live action integration; behavioural animation.

ITEC 5202 [0.5 credit]**Visual Effects Technologies**

Advanced look at the processes and technologies in visual effects, specifically in advanced processing of virtual sets (e.g. using chroma-keying), lighting and colour integration, filming technologies, motion tracking, and the integration of 3D objects/elements into real scenes.

ITEC 5203 [0.5 credit]**Game Design and Development Technologies**

Advanced technologies in the development of computer game systems and gaming experiences; the production process from idea to design: story, level, and character development. Games, game engine, theory and methodology.

ITEC 5204 [0.5 credit]**Emerging Interaction Techniques**

Advanced interaction styles and their associated technologies. Topics may include hand held and gestural interactions, ubiquitous computing, deformable user interfaces, physiological computing and tangible user interfaces.

ITEC 5900 [0.5 credit]**Directed Studies**

A course of independent study that fits the student's area of interest under the supervision of a faculty member of the School.

ITEC 5905 [1.0 credit]**Network Technology Project**

Students pursuing this degree will conduct a networking study, analysis, and/or design project under the supervision of a faculty member in the area of networks.

ITEC 5909 [2.5 credits]**Master's Thesis****ITEC 5910 [0.5 credit]****Selected Topics in Network Technologies**

Recent and advanced topics in network technologies. Trends in wireless networking, software defined networks, power-line networking. Students may be expected to contribute to lectures or seminars on selected topics.

ITEC 5920 [0.5 credit]**Selected Topics in Digital Media**

Recent and advanced topics in Digital Media. Students may be expected to contribute to lectures or seminars on selected topics.

ITEC 6200 [0.5 credit]**Introduction to Interdisciplinary Research in Digital Media**

Introduction to concepts and practices for research in digital media. Understanding the defining properties of digital media and related technologies. Emphasis on bringing together skills related to technology, people and content in order to solve problems and explore new possibilities.

ITEC 6900 [0.5 credit]**Directed Studies**

A course of independent study that fits the student's area of interest under the supervision of a faculty member of the School.

ITEC 6907 [0.0 credit]**Doctoral Comprehensive**

Ph.D. comprehensive examination in the student's field. The exam consists of a written submission and an oral examination.

ITEC 6908 [0.0 credit]**Doctoral Proposal**

Ph.D. thesis proposal. Defending a proposal consists of a written submission and an oral examination. Prerequisite(s): ITEC 6907 and permission of the School.

ITEC 6909 [8.5 credits]**Doctoral Thesis in Digital Media**

Prerequisite(s): ITEC 6908 and permission of the School.

ITEC 6920 [0.5 credit]**Selected Topics in Digital Media**

Recent and advanced topics in Digital Media. Students are expected to contribute to lectures or seminars.

Summer session: some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at central.carleton.ca

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current session and to determine the term of offering, consult the class schedule at central.carleton.ca