University of Pretoria Yearbook 2016

Information security 780 (ETH 780)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	32.00
Prerequisites	No prerequisites.
Contact time	32 contact hours per semester
Language of tuition	English
Academic organisation	Electrical, Electronic and Com
Period of presentation	Semester 1

Module content

Number theory: prime numbers, congruences, modular arithmetic, Euclid’s algorithm, Fermat’s theorem, Euler’s theorem, Euler’s phi-function. Block ciphers: Feistel cipher, DES, AES. Public key cryptography: RSA, Diffie-Hellman, digital signatures. Hash functions: MD 5, SHA-1, MAC, HMAC. Protocols: identification, authentication, key exchange, X.509. PGP, S/MIME, IPSec, SSL, VPN. Authentication protocols, key distribution, key management, random number generation.

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