

Proposal for Minor Course, CSE, IIT Bombay

i.	Title of the course	Computer and Network Security
ii.	Credit Structure	3-0-0-6 (L-T-P-C)
iii.	Prerequisites	Exposure to the following topics is very desirable. Fundamentals of computer networks and TCP/IP protocols. Programming and basic data structures. Basic usage of Unix/Linux. Mathematical maturity in algebra and number theory.
iv.	Course Content	Overview of vulnerabilities, risks, security incidents and forensics for computers and networks. Operating Systems security and Secure Programming. Cryptography: secret-key, public-key and digital signatures. Authentication and authorization. Network security including VPNs, Firewalls and intrusion detection. Security of Web services, E-commerce and payment protocols. Formal Models of Security and Cryptographic protocols.
v.	Texts/References	<ol style="list-style-type: none"> 1. Menezes, Bernard. Network Security And Cryptography, 1st ed., Cengage Learning India, 2010 (ISBN 9788131513491) 2. Stallings, William. Cryptography And Network Security, Fourth Edition, Pearson, 2006 (ISBN 8177587749) 3. Garfinkel, Simson & Spafford, Gene. Practical UNIX and Internet Security, 2nd ed. Sebastopol, CA: O'Reilly, 1996 (ISBN 1565921488).
vi.	Instructor(s) name	<ol style="list-style-type: none"> 1. G. Sivakumar 2. Bernard Menezes
vii.	Other Departments to whom course is relevant	All. Hence proposed as minor course.
viii.	Justification	Internet and related technologies form part of the essential infrastructure in every field of work. Assured security of information storage and exchange is, therefore, very important. This course will prepare the students to develop security solutions for computers and networks.