# Advanced Postgraduate Program in in Networking and Telecommunications (APGP–NTC)

## An Autonomous Full-Time Residential Postgraduate Program (24 months)

"A world linked by high-quality personalized video generating 15 exabytes (an exabyte equals a billion gigabytes) per month in Internet traffic by 2010, using technologies such as telepresence."

**- A world envisioned by John Chambers, Chairman and CEO, Cisco System**
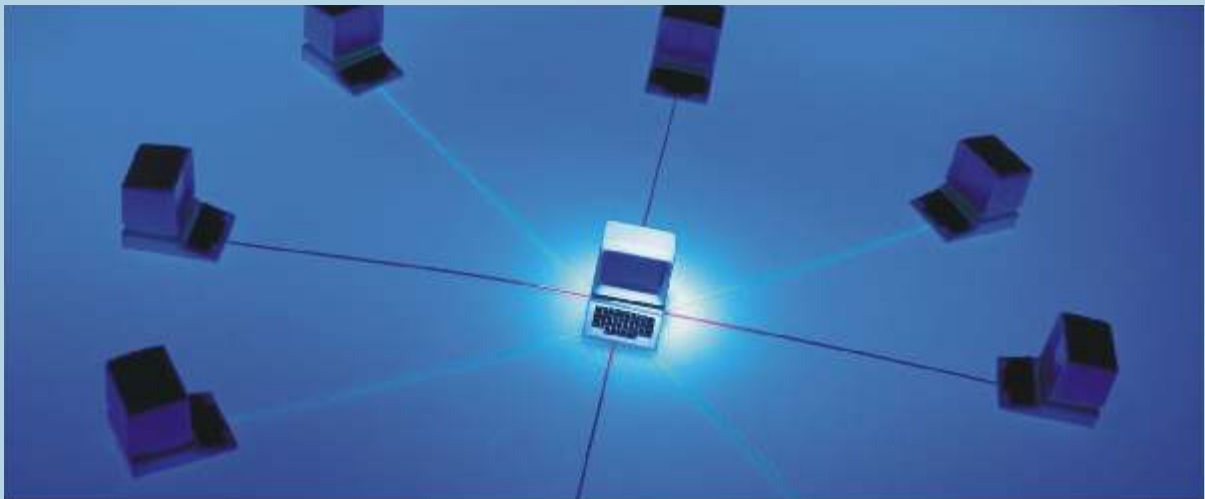


To meet increasing demands on fast growing communication infrastructures, large carrier class wire-line and wireless networks for convergence of voice, data and video are being designed. Such Wide Area Networks (WANs), Metropolitan Area Networks (MANs) and Local Area Networks (LANs) must provide multiple services with high Quality of Service (QoS) and security as demanded by corporates, institutions and individuals. Convergence is redefining the boundaries of data, voice, multimedia, and video services. Consumer market for broadband applications such as combined voice, data, multimedia, video gaming, voice over Internet Protocol (VoIP) and entertainment signal transport have gained high velocity. Service providers are actively moving towards IP-based Next Generation Networks (NGNs), where transport over existing TDM infrastructure is being replaced with transport over IP infrastructure with very high QoS quality. IP Multimedia Subsystem (IMS) is emerging as the industry standard of choice for the NGNs. The great success of the Internet and wireless communications have opened a new vista for future all-IP applications. Such convergence of communication networks is posing interesting technological and business challenges, as the deployment of broadband networks grows aggressively. Service providers are focusing on revenue enhancement opportunities by offering 'Multi Play' (data, voice, video and wireless) over broadband wired and wireless networks. As networks become more complex and use multiple converged technologies, it is now imperative for service providers to manage these networks efficiently. This advanced postgraduate program is devised to prepare the students to handle all such challenges in the fastest growing networking and telecom industry. The program provides comprehensive, theoretical, practical and real life knowledge of advanced networking and telecom technologies as demanded by the industry today and for the future.

### ELIGIBILITY

Graduates with a Bachelor's Degree in Engineering / Technology (with minimum 55 percent marks or equivalent grades) in Electrical / Electronics / Communication / Information Technology / Computer Science / Instrumentation or equivalent. Basic knowledge of Data Communication and Networking Programming, background in C and C + +

### FOCUS AREAS

- ► Internet Technologies
- ► Telecom Technologies
- ► Wireless Networking Technologies
- ► Next Generation Networks
- ► Broadband Communication Technologies
- ► Network Planning, Design, and Optimization
- ► Network Management and Security
- ► Communication Software Development

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## COURSE STRUCTURE

|  | CODE | COURSE NAME | CREDITS* |
|---|---|---|---|
| **BRIDGE** | ESD002 | Signals and Systems | |
| | AST006 | Computer Architecture and Operating Systems | |
| | NTC001 | Communication Systems | |
| | NTC002 | Computer Networks | |
| | AST007 | Database Technologies | |
| **COMMON** | COM001 | Life Skills Development - I | 2 |
| | COM002 | Life Skills Development - II | 2 |
| **FOUNDATION** | NTC501 | Statistical Signal Analysis | 2 |
| | NTC502 | Programming Methodologies | 3 |
| | NTC503 | Modern Communication Systems and Coding Techniques | 3 |
| | NTC504 | Computer Communication Networks | 3 |
| | NTC505 | Routing Algorithms and Protocols | 3 |
| | NTC506 | Wireless Communication | 3 |
| | NTC507 | Server Administration and Management Lab | 1 |
| **CORE** | NTC601 | Queuing Theory and Traffic Engineering | 3 |
| | NTC602 | Network Management and Security | 3 |
| | NTC603 | Network Programming | 3 |
| | TCM605 | Technology Management and Business Ethics | 2 |
| **ADVANCED** | NTC701 | Broadband and Multimedia Technologies | 3 |
| | NTC702 | Network Design and Optimization | 3 |
| | NTC703 | Next Generation Networks | 2 |
| | NTC704 | Protocol Architecture and Applications | 2 |
| | NTC705 | Telecom Lab | 1 |
| **ELECTIVES** **(Select any one)** | NTC811 | Wireless Networks | 3 |
| | NTC812 | Optical Networks | 3 |
| **(Select any two)** | NTC821 | Advanced Wireless Networks | 3 |
| | NTC822 | MANETs and Wireless Sensor Networks | 3 |
| | NTC823 | Telecom Software Development | 3 |
| | NTC824 | Advanced Network Management and Security | 3 |
| | NTC825 | OSS and BSS | 3 |
| | NTC826 | Storage Area Networks | 3 |
| | NTC827 | High Performance Networks | 3 |
| **PROJECT** | NTC901 | Seminar / Mini Project – I | 1 |
| | NTC902 | Research Methodology and Mini Project – II | 2 |
| | NTC903 | Project | 32 |

*1 Credit Hr = 16 Class Hrs / 32 Lab Hrs in a semester.*