

# Case Study

## PROJECT OVERVIEW

- 8,000 point Category 5e and 6 installation
- 15 kms of Fibre & 200 kms of UTP cable
- Largest single-site university in South India
- Ongoing project since 1999

## Total Connectivity Solutions IIT Madras

The Indian Institute of Technology, Madras (IITM) has been a prestigious client of Molex Premise Networks since 1999, when Molex passive network products were implemented throughout the entire Campus network during its initial build, with a continued supply of networking capabilities to mirror the evolving campus network requirements

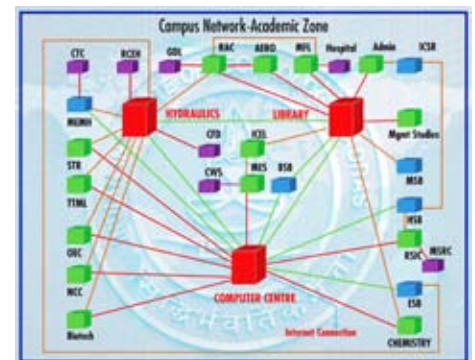
Indian Institute of Technology Madras is among one of the foremost institutes of national importance in higher technological education, focused on basic, applied research, graduate and post graduate engineering degrees. IITM is a residential institute with nearly 460 faculty, 5000 students and 1250 administrative & supporting staff located in a sprawling, beautiful wooded land of about 250 hectares. IITM has established itself as a premier centre for teaching, research and industrial consultancy in the country.

The Institute has sixteen academic departments and a few advanced research centres in various disciplines with nearly 100 laboratories organised in a unique pattern of functioning. The entire Academic zone, including administrative buildings, consists of approximately 30 buildings and 17 hostels having more than 5000 rooms wired throughout and connected to the Campus Network. The Campus Network has been fully implemented and maintained by the Computer Centre of the Institute. The main objective of the Computer Centre was to provide total reliable Internet/Intranet facility to students and the faculty/staff

The IITM Campus Network has evolved from a simple twisted pair telephone cable network to a 100% connected high speed Campus Network on Fibre Backbone with a fully functioning Data Centre housing high performance servers and the 'heart' of the campus network. Molex was tasked to provide a vigorous and robust 10 Gigabit network upgrade that could be rolled out without any disruption to the network or daily campus life. The sheer size of the campus and the future proof design of the layout make this a very unique site.

A Hierarchically Structured with optimal and scalable design was employed for the initial implementation of the fibre backbone considering critical factors, such as fibre usage, backbone location in each of the buildings, reliability, scalability, and cost effectiveness. The backbone consists of three core locations and six nodal locations, and the hostel zone has 3 nodal locations which primarily constitute the backbone of the campus network. The backbone was upgraded with a dual link to each building within the academic zone exploiting the optimal design using minimum resources. All of the other buildings and hostels are connected to a core and/or nodal location.

Dr. S Jayaprakash M.S., Ph. D., Computer Centre, IIT Madras and his team takes care of all the networking requirement of the IITM campus. The decision for high speed backbone implementation across the IITM campus and for the high bandwidth Internet connectivity was taken in 1996. The major contribution was for the actual design of the campus network, including the optimal design for campus backbone, each building LAN and hostel intra network and finalising the bill of material for implementation. Over the years IIT Madras has developed great affinity with Molex Premise Networks as a partner and solution provider. Molex was one of the preferred structured cabling manufacturers because "the solutions, products, performance and services have been consistent and satisfactory at every stage and IITM have great confidence in the supporting network of Molex CS Integrators, M/s Gigas Networks, Chennai - they have never failed to deliver."



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Other important features of the implementation included using Composite Fibre Optic cable for the backbone and the optimal design of backbone using fibre links limited to 300 meters back in 1999, proved successful in the future proofing of the IITM campus.

Dr. Jayaprakash commented: "It was great foresight on Molex's part to provide more network bandwidth to support the ever-increasing usage and network demands. The changeover from ATM technology to Gigabit Technology and Multimode link to Singlemode link were efficiently executed on each occasion without disrupting, redesigning or relaying of cables. Through their consultative approach they realised a complete, evolving solution to meet the campus' needs".

### The Story so far

Since the on-going upgrade implementation, Molex's Structured Cabling products are used to connect more than 8000 information outlets in the various buildings. Approximately 15000 metres of Composite, Multimode and Singlemode fibre cable was used to future proof the Backbone that connects all of the building blocks. The Local Area Network for each departmental building in the academic zones and all student hostels was optimally designed and implemented using about 200 kilometres of UTP copper cable. The copper component consists of 70% PowerCat 5e and 30% of PowerCat 6 deployed over a period of nearly 10 years and each new building thereafter are all wired using PowerCat 6. Molex's future plans for the IITM campus would be to deploy additional PowerCat 6 Voice and Data solutions and to fully migrate the Data Centre over to Category 6A.

### Conclusion

The Indian Institute of Technology Madras Campus Network has grown and evolved over ten years, employing Molex along each step of the way to mirror and support the ever changing campus requirements. The capabilities, confidence and solutions instilled along the way has set the standard and paves the way for Molex to propose the IITM model to the rest of the Indian and International Institutions.



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