



**NPTEL ONLINE CERTIFICATION COURSES**

# **COMMUNICATIONS NETWORK**

**Dr. Goutam Das**

**G. S. Sanyal School of Telecommunications, IIT KHARAGPUR**

**Module 03 : Circuit Switched Networks**

**Lecture No 10 : Time Switch**

# Concepts Covered

- Space and Time Switching
- Synchronization
- Multiplexing

NPTEL

## Space Switching

**Local Loop:** Two wire switching matrix (a) square (b) Triangular (folded)

**Trunk:** (a) Rectangular crosspoint array, (b) Graded rectangular switching matrix

### **Limitations:**

High number of cross points – most of them are not utilized (no sharing)

Capacitive load effect

### **Design Challenges:**

Sharing – availability issue – how to make it non blocking

### **Solution:**

Multi stage switching – Clos switch

## Space Switch Control

1. Input Associated Control
2. Output Associated Control

NPTEL

# Conclusion

NPTEL



# References

Book: Digital Telephony – J. Bellamy

NPTEL



**NPTEL ONLINE CERTIFICATION COURSES**

# **COMMUNICATIONS NETWORK**

**Dr. Goutam Das**

**G. S. Sanyal School of Telecommunications, IIT KHARAGPUR**

**Module 03 : Circuit Switched Networks**

**Lecture No 11 : Space Time Switch**

# Concepts Covered

- Space and Time Switching
- Synchronization
- Multiplexing

NPTEL

## Space Switching

**Local Loop:** Two wire switching matrix (a) square (b) Triangular (folded)

**Trunk:** (a) Rectangular crosspoint array, (b) Graded rectangular switching matrix

### **Limitations:**

High number of cross points – most of them are not utilized (no sharing)

Capacitive load effect

### **Design Challenges:**

Sharing – availability issue – how to make it non blocking

### **Solution:**

Multi stage switching – Clos switch

## Space Switch Control

1. Input Associated Control
2. Output Associated Control

NPTEL

# References

Book: Digital Telephony – J. Bellamy

NPTEL



**NPTEL ONLINE CERTIFICATION COURSES**

# **COMMUNICATIONS NETWORK**

**Dr. Goutam Das**

**G. S. Sanyal School of Telecommunications, IIT KHARAGPUR**

**Module 03 : Circuit Switched Networks**

**Lecture No 12 : Space Time Switch cont'd**

# Concepts Covered

- Space and Time Switching
- Synchronization
- Multiplexing

NPTEL

## Space Switch Control

1. Input Associated Control
2. Output Associated Control

NPTEL

# References

Book: Digital Telephony – J. Bellamy

NPTEL