

G. S. SANYAL SCHOOL OF TELECOMMUNICATIONS

IIT KHARAGPUR

- **MIMO Communications [MIM]: (3-1-0, 4 credits), Prerequisite – Digital Communications [EC31002] or equivalent**

Interference and multipath modelling for wireless communications (06);

Modern multi-user communication technologies (8);

Cross layer procedures: Link Adaptation, HARQ, Packet Scheduling and Radio Resource allocation for Best Effort and Real Time Traffic (10);

MIMO signalling: Space Time coding, Diversity Multiplexing trade off, Multi-user MIMO and Network MIMO (16); Large MIMO (4);

Small cells, relays and het-net (6);

Green radio design considerations (4).

Reading resources:

1. Principles of Mobile Communications by G. Stuber, Springer, 2nd ed..
2. Wireless Communications by A. Goldsmith, Cambridge
3. Introduction to Space Time Wireless Communications by A. Paulraj, Nabar and Gore
4. LTE, UMTS and The Long Term Evolution by Sesia, Toufik and Baker
5. OFDM for Wireless Communications by R. Prasad
6. UMTS for LTE by Holma and Toshala
7. Adaptive PHY-MAC Design for Broadband Wireless Systems by R. Prasad, S. S. Das and Rahman
8. Single and Multi Carrier MIMO Transmission for Broadband Wireless Systems by R. Prasad, Rahman and S. S. Das.
9. Recent technical publications.