DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

M.Tech PROJECTS (2020)

The following projects are being offered to the ECE students in Communication & Networks.

1. Performance Analysis and QoS Management for WiFi6 and Beyond
2. Cache-aided Wireless Networks
3. Security, Privacy and Secrecy in wireless broadcasting
4. Mobile Edge Caching
5. Distributed Coded Computing
6. Device-to-Device Communication
7. Vehicular Communication (V2V, V2X, X2V)
8. Cooperative Wireless Mobile Caching: A Signal Processing Perspective
9. Devi-to-Device (D2D) Communication for Content Delivery
10. Packet-Level Erasure-Recovery Codes for Low-Latency Communication
11. Quantum Error-Correcting Codes
12. 5G/6G PHY layer algorithms
13. AI/ML algorithms for Autonomous Navigation applications
14. AI/ML algorithms for Healthcare applications
15. Orthogonal Time Frequency Space (OTFS) modulation for 6G
16. Deep Neural Networks (DNNs) for wireless transceivers
17. Reconfigurable Intelligent Surfaces (RIS) aided MIMO wireless
18. Machine/Deep Learning for V2X communications
19. Imaging studies using reconfigurable metasurfaces
20. Algorithms for Multibeam Analog and Hybrid Arrays for 5G mmwave Communications
21. Learning & Optimization in 5G network operations
22. Networked Robotics
23. Speech interface for Robots
24. Enabling coordination among access points in the next generation IEEE 802.11be WiFi standard
25. Feedback reduction techniques for 5G MIMO
26. Coding for Secure DNA-Based Data Storage
27. Hulls of Linear Codes and Their Application to (Entanglement-Assisted) Quantum Error Correction
28. Sampling from High-Dimensional Probability Distributions
29. Photonic bandgap structure based optical biochemical sensors.
30. Implementation of quantum logic gates using integrated optic ring resonators
31. Grant-free random access protocols for massive machine type communications
32. Communication via intelligent reflecting surfaces
33. Information geometry and statistical inference
34. Applications of large deviation theory -- meta-stability phenomena in engineered systems
35. Information design for socio-technical systems
36. Design and analysis of data centre networks

37. Design and analysis of distributed trust networks
38. Optimization problems in 5G
39. Real-time control over 5G for Drones/UGVs etc
40. Continuous video quality of experience assessment using transformer models
41. Domain generalization for image quality assessment in the wild
42. Machine learning for MIMO communications
43. Federated and communication-efficient learning over graphs
44. Deep unfolding for inverse problems in computational imaging
45. Graph signal processing and neural networks for healthcare
46. Federated Network Telemetry
47. Network-aware and real-time video streaming
48. Data-driven WiFi optimization
49. A privacy-preserving IoT data exchange
50. Security and Privacy in Networked Control Systems
51. Reinforcement learning
52. Quantum Control