GUJARAT TECHNOLOGICAL UNIVERSITY

Wireless Communications Networks and Systems (EC)

M.E. Semester: II

Subject Name: **Radio Network Planning and Optimization (Major Elective II)**

Sr. No.	Course Content
1.	Introduction to Radio Network Planning and Optimization - Future Trends - Towards a Service driven Network Management - Wireless Local Area Networks (WLANs) - Next-generation Mobile Communication
2.	WCDMA Radio Network Planning: Dimensioning - Detailed Planning - Verification of Dimensioning with Static Simulations - Verification of Static Simulator with Dynamic Simulations - Optimization of the Radio Network Plan.
3.	WCDMA–GSM Co-planning Issues - Radio Frequency Issues - Radio Network Planning Issues; Coverage and Capacity Enhancement Methods - Techniques for Improving Coverage - Techniques for Improving Capacity .
4.	Radio Resource Utilization: Introduction to Radio Resource Management - Power Control - Handover Control - Congestion Control - Resource Management; RRU for High-speed Downlink Packet Access (HSDPA) - Impact of Radio Resource Utilization on Network Performance.
5.	Radio Network Optimization Process - Introduction to Radio Network Optimization Requirements - Introduction to the Telecom Management Network Model - Tools in Optimization; Advanced Analysis Methods and Radio Access Network Auto tuning - Advanced Analysis Methods for Cellular Networks - Automatic Optimization.

Reference Books:

1. "Radio Network Planning and Optimisation", Edited by Jaana Laiho, Achim Wacker & Tomas Novosad, John Wiley, 2006.
2. Morten Tolstrup, "Indoor Radio Planning: A Practical Guide for GSM, DCS, UMTS and HSPA", John Wiley, 2008.
3. Iana Siomina, "Radio Network Planning and Resource Optimization", Printed by LiUTryck, Link¨oping, Sweden, 2007.