Birla Institute of Technology and Science, Pilani – KK Birla Goa/Pilani Campus
Instruction Division
Second Semester 2015-2016

Date:13/01/2016

Course Handout

Course Number : **EEE G627**
Course Title : **Network Embedded Applications**
Instructor-In-Charge : **K.R.ANUPAMA**
Instructors : **Ashish Mishra**

Course Description : This course deals with the three main application areas of Network Embedded Systems – Wireless Sensor Networks, Automotive, and Industrial Automation and relatively new subtopic of Home Automation

Scope and Objective of the course: To give an introduction to and developing deeply Embedded Systems

Prescribed Text Books

None Required

Reference Books

R1. R.Zurawski, Network Embedded Systems, CRC press, 2009.

R2. G.Pottie, W.Kaiser, Principles of Embedded Networked System Design

R3. Raj Kamal, Embedded Systems, Tata McGraw Hill, New Delhi, 2003

R4. IEEE Journals and Transactions.

R5. IETF Drafts and RFCs

R6. ACM Transactions

R7. Elsiever Journals

Lecture No.	Learning Objectives	Topics To be covered
1-2	Introduction	Network Embedded Systems an Overview
3-5	WSN-1	Introduction to WSNs
6-7	WSN-2	Architecture for WSN
8-12	Localization & Synchronization for WSN	Time Sync Issues & Resource Aware Localization
13-16	Networking in WSN	Power Aware Routing Issues & Protocols
17-20	MAC for WSN	Energy Efficient MAC Protocols
21-22	Software for WSN	TinyOS
23-26	Industrial Automation Networks	Configuration & Management of Networked Embedded Devices, Networked Control Systems for Manufacturing, Wireless LAN technology
27-30	Industrial Automation Networks	Wireless LAN,PAN, Hybrid Wired/Wireless RT-Industrial Networks, WSN for Automation
30-31	Automotive NES -1	Trend in Automotive Communication Systems
32-33	Communication in Automotive Systems	Time – Triggered Communication
34-35	Networks in Automotive Systems	Controller Area Networks, Flex Ray Communications, LIN
Self-Study	Automotive Examples	Volcano
36-38	Introduction to Industrial Automation	Field Bus, Real-Time Ethernet
39-40	Home Automation	Home Automation

Evaluation Scheme:

No	Evaluation Component & Type	Duration	Weightage	*Date, Time, Venue*	Remark
1.	Test1	1 Hr	25	During Class hour	CB
1.	Test 2	1 Hr	25	During Class hour	CB
3	Assignments – NEA Case Studies, Class Room Interaction, Prior- Preparation		30	To be evaluated throughout the semester	
4	Project		50		OB
5	Comprehensive Examination	3 hours	70	13/5 AN	CB/OB

Chamber Consultation Hour: To be announced in Class

Notices: All notices regarding the course will be put up on moodle

Make-up Policy: No make-up without prior permission.

Instructor-in-charge