**EC 551 Telecommunication System Engineering**

C O U R S E I N F O R M A T I O N

| Prerequisites | Academic Year & Level | | Teaching Methods | | | Credit Hrs. |
|---|---|---|---|---|---|---|
| | Year | Semester | Lecture | Tutorial | Laboratory | |
| EC 422 | 5 | 9-10 (elective) | 2 | 2 | 0 | 3 |

C O U R S E A I M

To give an overall view on the different aspects concerning the telecommunication systems including Principles, Technologies, system architectures, standards, and market issues

C O U R S E W E E K L Y C O N T E N T S

| | |
|---|---|
| 1 | GSM - The Signaling System Number 7 - The GSM Subsystems - The Network Subsystem - The Base Station Subsystem (BSS). |
| 2 | GSM - Mobility Management and Call Control - The Mobile Station - The SIM card - The Intelligent Network Subsystem and CAMEL - Questions. |
| 3 | GPRS - The GPRS Air Interface - The GPRS State Model - GPRS Network Elements - GPRS Radio Resource Management. |
| 4 | GPRS - GPRS Interfaces – GPRS Services |
| 5 | UMTS - CDMA - UMTS Channel Structure on the Air Interface - The UMTS Terrestrial Radio Access Network (UTRAN). |
| 6 | Core Network Mobility Management - High Speed Downlink Packet Access (HSDPA) - UMTS Release 6: High Speed Uplink Packet Access (HSUPA). |
| 7 | WLAN - The MAC Layer - The Physical Layer - Wireless LAN Security - Comparison of Wireless LAN and UMTS |
| 8 | 802.16 and WiMAX |
| 9 | Security - Advanced 802.16 Functionalities - Mobile WiMAX: 802.16e - WiMAX Network Infrastructure - Comparison of 802.16 with UMTS, HSDPA and WLAN |
| 10 | QoS in telecommunication systems |
| 11 | IP networking |
| 12 | Multimedia networking - Internet Protocol Version 4 (IPv4) - Internet Protocol Version 6 (IPv6) - Multicast Support. |
| 13 | Internet Telephony |
| 14 | Resource allocation and management |
| 15 | Sensor networks |
| 16 | Final Exam. |

S T U D E N T G R A D I N G & A S S E S S M E N T

| Weeks | Exams | | Assign. | Quizzes | Reports | Present. | Lab. | Total |
|---|---|---|---|---|---|---|---|---|
| 1 to 7 | 20 | Midterm | ← | 1 0 | M A R K S | | → | 30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | To be freely distributed among possible assessments | | | | | |
| **8 to 12** | ← | | 2 0 | M A R K S | | → | **20** |
| **13 to 15** | ← | | 1 0 | M A R K S | | → | **10** |
| **16 or 17** | **40** | **Final** | | | | | **40** |
| **Total** | **Exams** | **Assign.** | **Quizzes** | **Reports** | **Present.** | **Lab.** | 100 |

R E F E R E N C E S


**Textbook** • Martin Sauter, "Communication Systems for the Mobile Information Society"