

## Part A: Communication Theory and Systems

1. Communication theory	40. Space-time codes
2. Digital modulations and demodulations	41. MIMO techniques
3. Coding theory	42. Multi-user/multi-points transmission
4. Channel codes	43. Interference alignment
5. Turbo codes	44. OFDM
6. LDPC codes	45. CDMA
7. Polar codes	46. Spread spectrum technologies
8. Information theory	47. Multiple access
9. Cryptography	48. Power control
10. Physical-layer security	49. Cognitive radios
11. Radio propagation	50. Software defined radios
12. Channel modeling and characterization	51. Intelligent/smart radios
13. Antennas	52. Cooperative communications
14. Antenna systems	53. Relay systems
15. Radio frequency	54. Spectrum sensing
16. RF front-end circuitries and modules	55. Mobile communications
17. Up/down frequency converters	56. Wireless communications
18. Radio frequency synthesizers/oscillators	57. Broadcasting
19. Carrier frequency analogue modulations/demodulations	58. Power line communications
20. Intermediate frequency	59. Satellite communications
21. Micro-/Millimeter-wave circuits and systems	60. Spectrum resource management
22. Wireless power transfer	61. Interference analysis
23. EMI/EMC & SI/PI	62. Optical communications
24. Analogue-to-digital/digital-to-analogue converters	63. Cellular systems
25. Signal sampling	64. Interference management
26. Communication components and materials	65. Physical-layer network coding
27. Speech and acoustic signal processing	66. UWB communication systems
28. Image signal processing	67. Collaborative signal processing
29. Image and video coding	68. Space communication
30. Visual analysis and content management	69. Data storage for information and communications
31. 3D rendering and processing	70. Wireless multimedia communications
32. Signal processing for communications	71. Embedded systems for information and communications
33. Signal processing theory	72. Sub-systems for communications
34. Detection and estimation	73. Computational intelligence
35. Iterative processing	74. Nature/bio-inspired communication technologies
36. Synchronization	75. Green communications
37. Equalization	76. Bio communications
38. Beamforming	77. Medical/bio signal processing
39. Smart antennas	

## Part B: Networks and Services

1. Ad hoc mobile networks	44. Nano(scale) networks
2. Addressing and location management	45. Network applications and services
3. Bio/nature-inspired networking	46. Network architectures
4. Body area networks	47. Network coding
5. Broadband access technologies	48. Network control
6. Capacity planning	49. Network economics
7. Cellular and broadband wireless networks	50. Network management
8. Cloud computing and data center	51. Network science
9. Cognitive networks	52. Network security, vulnerability, and defenses
10. Communication reliability	53. Network simulation and emulation
11. Congestion control	54. Network software
12. Content-based network service	55. Network virtualization
13. Content-centric networks	56. Optical networks
14. Content distribution network (CDN)	57. Peer-to-peer networks
15. Cross-layer design and optimization	58. Personal area networks
16. Cyber-physical systems and networking	59. Performance evaluation
17. Delay/disruption tolerant networks	60. Power control and management
18. Device-to-device communications	61. Power line networking
19. Distributed networks	62. Pricing, billing, and business model
20. Dynamic spectrum management	63. Quality of service/Quality of experience
21. Embedded systems	64. Resource allocation and management
22. Future Internet	65. RFID networks and protocols
23. Green networks	66. Routing and switching
24. Grid and cloud computing	67. Scheduling and buffer management
25. Heterogeneous networks	68. Self-organizing networks
26. Home area networks	69. Sensor networks
27. Implementation and experimental testbeds	70. Smart grid networks
28. Information security	71. Service overlays
29. Internet of things (IoT)	72. Service platforms
30. Local area networks	73. Social computing and networks
31. Location and context aware services	74. Software-defined networking
32. Machine-to-Machine networking	75. Software for communications
33. Media streaming	76. Standardization activities
34. Medium access control	77. Topology characterization and inference
35. Middleware support for networking	78. Traffic measurement and analysis
36. Mobile ad-hoc networks	79. Traffic engineering and control
37. Mobile cloud computing	80. Underwater networks
38. Mobile computing	81. Ubiquitous/pervasive computing
39. Mobility models and management	82. Vehicular networks
40. Multicast, broadcast and anycast	83. Virtual and overlay networks
41. Multimedia protocols and networks	84. Web services and performance
42. Multimedia services and applications	85. Wireless local area networks
43. Multi-hop wireless networks	86. Wireless mesh networks and protocols

## Part C: Convergence Technologies

1. ITS/Telematics	25. IT for livestocks
2. U-health [Smart care, smart living, u-health infrastructure, u-health applicatins]	26. IT for forestry
3. Ambient intelligence	27. IT for aviations
4. Ubiquitous applications	28. Brain-IT convergence
5. Convergence of securities	29. Convergence software
6. Policy for convergence	30. Information security
7. Context-awareness	31. Green communications
8. 3D Image convergence	32. Military and tactical communications
9. RFID/USN Convergence	33. Multimedia entertainment
10. Broadcasting and communications convergence	34. Game
11. Smart grid	35. Mobile robots
12. IT for defence	36. Cloud computing services
13. M2M convergence	37. TV and multi-screen
14. Energy-IT convergence	38. Mobile apps. for smartphones
15. Mechanics-IT convergence	39. Hybrid apps. (Incl. HTML5)
16. Marine-IT convergence	40. Big data
17. Illumination-IT convergence	41. Smart services
18. Medical and Bio-IT convergence	42. Location-based services (LBS)
19. Car and vehicular IT	43. Smartphone applications
20. IT for ships	44. IT-Empowered systems and services
21. IT for constructions	45. Positioning and navigations applications
22. IT for fabrics	46. Smart home appliances
23. IT for finances	47. Profile-based services
24. IT for agricultures	