IEEE Taxonomy: A Subset Hierarchical Display of IEEE Thesaurus Terms

The IEEE Taxonomy comprises the first three hierarchical 'levels' under each term-family (or branch) that is formed from the top-most terms of the IEEE Thesaurus. In this document these term-families are arranged alphabetically and denoted by boldface type. Each term family's hierarchy goes to no more than three sublevels, denoted by indents (in groups of four dots) preceding the next level terms. A term can appear in more than one hierarchical branch and can appear more than once in any particular hierarchy. The IEEE Taxonomy is defined in this way so that it is always a subset of the 2022 IEEE Thesaurus.

Aerospace and electronic systems
....Aerospace control
.......Air traffic control
.......Attitude control
.......Ground support
...Aerospace engineering
....Aerospace biophysics
....Aerospace electronics
....Aerospace safety
.....Air safety
.....Aerospace simulation
.....Aerospace testing
....Wind tunnels
....Artificial satellites
.....Earth Observing System
.....Low earth orbit satellites
....Military satellites
....Space stations
....Space technology
....Payloads
....Space debris
.....Space exploration
...Aerospace materials
....Aerospace components
...Aircraft manufacture
...Aircraft navigation
...Aircraft propulsion
....Propellers
...Command and control systems
...Electronic warfare
....Electronic countermeasures
....Jamming
....Radar countermeasures
...Military equipment
....Military aircraft
....Payloads
....Military satellites
....Military vehicles
....Weapons
....Guns

........Missiles
........Nuclear weapons
........Projectiles
....Radar
.......Airborne radar
.......Bistatic radar
.......Cognitive radar
.......Doppler radar
.......Ground penetrating radar
.......High frequency radar
.......Laser radar
.......Meteorological radar
.......Millimeter wave radar
.......Multistatic radar
.........MIMO radar
.......Passive radar
.......Quantum radar
.......Radar applications
.........Radar countermeasures
.........Radar detection
.........Radar imaging
.........Radar measurements
.........Radar polarimetry
.........Radar remote sensing
.........Radar tracking
.........Radar clutter
.......Radar cross-sections
.......Radar equipment
.......Radar theory
.......Spaceborne radar
.......Spread spectrum radar
.......Synthetic aperture radar
.........Inverse synthetic aperture radar
.........Polarimetric synthetic aperture radar
.......Ultra wideband radar
....Sensor systems
.........Activity recognition
.........Gunshot detection systems
....Sonar
.........Sonar applications
Antennas and propagation

- Antennas
  - Antenna accessories
  - Radomes
  - Antenna arrays
    - Adaptive arrays
    - Butler matrices
    - Linear antenna arrays
    - Log periodic antennas
    - Microstrip antenna arrays
    - Microwave antenna arrays
    - Phased arrays
    - Planar arrays
    - Antenna radiation patterns
    - Near-field radiation pattern
  - Antenna theory
    - Frequency selective surfaces
    - Apertures
    - Aperture antennas
    - Aperture coupled antennas
    - Broadband antennas
    - Ultra wideband antennas
    - Vivaldi antennas
    - Dielectric resonator antennas
    - Dipole antennas
    - Directional antennas
    - Directive antennas
  - Feeds
    - Antenna feeds
    - Fractal antennas
    - Helical antennas
    - Horn antennas
    - Leaky wave antennas
    - Loaded antennas
    - Log-periodic dipole antennas
    - Microstrip antennas
    - Microwave antennas
    - Mobile antennas
    - Multifrequency antennas
    - Omnidirectional antennas
    - Patch antennas
    - Radar antennas
- Receiving antennas
  - Rectennas
  - Reflector antennas
  - Satellite antennas
  - Slot antennas
  - Steerable antennas
  - Transmission line antennas
  - Transmitting antennas
  - UHF antennas
  - Yagi-Uda antennas
- Electromagnetic propagation
  - Electromagnetic diffraction
  - Optical diffraction
  - Physical theory of diffraction
  - X-ray diffraction
  - Electromagnetic propagation in absorbing media
    - Electromagnetic reflection
    - Optical reflection
    - Microwave propagation
    - Millimeter wave propagation
    - Optical propagation
    - Optical surface waves
    - Optical waveguides
    - Propagation constant
    - Propagation losses
    - Radio propagation
    - Radiowave propagation
    - NVIS
    - Submillimeter wave propagation
    - UHF propagation
  - Radio astronomy

Broadcast technology

- Broadcasting
  - Digital audio broadcasting
  - Digital audio players
  - Digital Radio Mondiale
  - Digital multimedia broadcasting
  - Digital video broadcasting
  - Motion pictures
  - NVIS
  - Radio broadcasting
  - Frequency modulation
  - Radio networks
  - Satellite broadcasting
  - Web TV
### Circuits and systems

- Circuits
  - Active circuits
  - Active inductors
  - Gyroscopes
  - Operational amplifiers
  - Adders
- Analog circuits
  - Analog integrated circuits
  - Analog processing circuits
  - Application specific integrated circuits
  - System-on-chip
- Asynchronous circuits
- Bipolar transistor circuits
  - BiCMOS integrated circuits
  - Bipolar integrated circuits
- Bistable circuits
- Latches
- Bridge circuits
- Charge pumps
- Circuit analysis
  - Circuit analysis computing
  - Coupled mode analysis
  - Nonlinear network analysis
  - Circuit faults
  - Electrical fault detection
- Circuit noise
- Thermal noise
- Circuit simulation
- Circuit synthesis
  - High level synthesis
- Integrated circuit synthesis
- Coprocessors
- Counting circuits
- Coupling circuits
- Digital circuits
  - Circuit topology
  - Digital integrated circuits
  - Digital signal processors
  - Distributed parameter circuits
  - Driver circuits
- Electronic circuits
  - Breadboard
  - Central Processing Unit
  - Multivibrators
  - Stripboard circuit
  - Equivalent circuits
- Feedback
  - Feedback circuits
  - Negative feedback
  - Neurofeedback
- Hybrid integrated circuits
- Integrated circuits
- Analog integrated circuits
- Analog-digital integrated circuits
- Application specific integrated circuits
- CMOS integrated circuits
- Coprocessors
- Current-mode circuits
- Digital integrated circuits
- FET integrated circuits
- Field programmable gate arrays
- Hybrid integrated circuits
- Integrated circuit interconnections
- Integrated circuit modeling
- Integrated circuit noise
- Integrated circuit synthesis
- Large scale integration
- MESFET integrated circuits
- Microprocessors
- Microwave integrated circuits
- Millimeter wave integrated circuits
- Monolithic integrated circuits
- Photonic integrated circuits
- Power integrated circuits
- Radiofrequency integrated circuits
- Submillimeter wave integrated circuits
- Superconducting integrated circuits
- Thick film circuits
- Thin film circuits
- Three-dimensional integrated circuits
- Through-silicon vias
- UHF integrated circuits
- Ultra large scale integration
- Very high speed integrated circuits
- Very large scale integration
- Wafer scale integration
- Isolators
- Large scale integration
- Ultra large scale integration
- Wafer scale integration
- Linear circuits
- Logic arrays
- Programmable logic arrays
- Logic circuits
- Combinational circuits
- Logic arrays
- Programmable logic arrays
- Superconducting logic circuits
- Magnetic circuits
- Microprocessors
Automatic logic units
Biomimetics
Coprocessors
Microcontrollers
Microprocessor chips
Vector processors
Microwave circuits
Millimeter wave circuits
Millimeter wave integrated circuits
Millimeter wave integrated circuits
MIMICs
Monolithic integrated circuits
MIMICs
MMICs
MOSFET circuits
CMOSFET circuits
MOS integrated circuits
Power MOSFET
Multiplying circuits
Neural circuits
Nonlinear circuits
Nonlinear network analysis
Passive circuits
Phase shifters
Phase transformers
Power dissipation
Power integrated circuits
Printed circuits
Flexible printed circuits
Memory modules
Surface mount technology
Programmable circuits
Field programmable analog arrays
Programmable logic arrays
Programmable logic devices
Programmable logic devices
Programmable logic devices
Programmable logic devices
Pulse circuits
Flip-flops
Quantum circuit
Radiation detector circuits
Rail to rail operation
Rail to rail amplifiers
Rail to rail inputs
Rail to rail outputs
Rectifiers
RLC circuits
Sampled data circuits
Sequential circuits
Silicon-on-insulator
Silicon on sapphire
Submillimeter wave circuits
Submillimeter wave integrated circuits
Summing circuits
Switched circuits
Switched capacitor circuits
Switching circuits
Choppers (circuits)
Logic circuits
Switching converters
Zero current switching
Zero voltage switching
Thick film circuits
Thin film circuits
Thyristor circuits
time varying circuits
Trigger circuits
UHF circuits
UHF integrated circuits
UHF integrated circuits
Ultra large scale integration
Very large scale integration
Neuromorphics
Wafer scale integration
VHF circuits
Voltage multipliers
Capacitors
Diodes
Wafer scale integration
Contacts
Brushes
Contact resistance
Ohmic contacts
Filtering
Filters
Active filters
Anisotropic
Bragg gratings
Channel bank filters
Comb filters
Digital filters
Equalizers
Filtering theory
Gabor filters
Harmonic filters
IIR filters
Kalman filters
Low-pass filters
Matched filters
Microstrip filters
Nonlinear filters
Notch filters
Particle filters
Power filters
Resonator filters
Spatial filters
Superconducting filters
Transversal filters
Information filtering
Information filters
Recommender systems
Integrated circuit technology
Beyond CMOS
CMOS technology
CMOS process
Silicon on sapphire
Moore’s Law
Logic devices
Logic gates
Programmable logic devices
Oscillators
Digital-controlled oscillators
Injection-locked oscillators
Local oscillators
Microwave oscillators
Phase noise
Ring oscillators
Voltage-controlled oscillators
Single electron devices
Single electron memory
Hetero-nanocrystal memory
Single electron transistors
Tunable circuits and devices
RLC circuits
Tuned circuits

Communications technology
Communication equipment
Auditory displays
Codecs
Speech codecs
Video codecs
Modems
On board unit
Optical communication equipment
Optical transmitters
Radio communication equipment
Base stations
Ham radios
Land mobile radio equipment
Radio transceivers
Transponders
Receivers
Optical receivers
RAKE receivers
Receiving antennas
Repeaters
Speech codecs
Telephone equipment
Cellular phones
Landline
Telephone sets
Vocoders
Transceivers
Radio transceivers
Transmitters
Auxiliary transmitters
Diversity methods
Neurotransmitters
Optical transmitters
Radio transmitters
Transmitting antennas
Transponders
TV equipment
Large screen displays
TV receivers
Video codecs
Video equipment
Optical projectors
Video codecs
Videos
Vocoders
Communication switching
Code division multiplexing
Electronic switching systems
Frame relay
Handover
Multiprotocol label switching
Packet switching
Burst switching
Frame relay
Multiprotocol label switching
Packet loss
Communication systems
ARPANET
Biomedical communication
Biomedical telemetry
Telemedicine
Broadband communication
B-ISDN
Broadband amplifiers
Communication networks
Central office
Cyberspace
Industrial communication
Maritime communications
Radio access technologies
Relay networks (telecommunication)
Virtual links
Communication system control
Telecommunication control
Communication system security
Denial-of-service attack
Impersonation attacks
Quantum key distribution
Radio communication countermeasures
Communication system signaling
Received signal strength indicator
Communication system software
Streaming media
Communication system traffic
Communication system traffic control
Computer networks
Ad hoc networks
Computer network management
Content distribution networks
Cyberspace
Diffserv networks
Domain Name System
Ethernet
Heterogeneous networks
Internet
Intserv networks
IP networks
Metropolitan area networks
Multiprocessor interconnection networks
Network function virtualization
Network servers
Next generation networking
Overlay networks
Peer-to-peer computing
Software defined networking
Storage area networks
Token networks
Unicast
Virtual private networks
Wide area networks
Wireless access points
Cross layer design
Data buses
Backplanes
Data communication
Asynchronous communication
Asynchronous transfer mode
Data transfer
Telemetry
Telemetry
Visible light communication
Device-to-device communication
Digital communication
Baseband
DICOM
Digital audio broadcasting
Digital images
Digital multimedia broadcasting
Digital video broadcasting
DSL
ISDN
Passband
Portable media players
SONET
Spread spectrum communication
Duplex communication systems
Full-duplex system
Half-duplex system
Facsimile
FDDI
Indoor communication
Indoor environment
Internet
Bot (Internet)
Botnet
Cloud computing
Crowdsourcing
Instant messaging
Internet of Things
Internet privacy
Internet security
Internet telephony
Internet topology
Linked data
Middleboxes
Semantic Web
Social computing
Web 2.0
Web services
IP networks
TCP/IP
ISDN
B-ISDN
Local area networks
Wireless LAN
Low latency communication
Ultra reliable low latency communication
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<td>Analog TV</td>
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<td>Cable TV</td>
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<td>Mobile TV</td>
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<td>Smart TV</td>
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<td>Three-dimensional television</td>
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<td>UHF technology</td>
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Components, packaging, and manufacturing technology

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<th>Component architectures</th>
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<td>Power capacitors</td>
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<td>Varactors</td>
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<td>Coils</td>
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<td>Superconducting coils</td>
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<td>Connectors</td>
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<td>Plugs</td>
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<td>Sockets</td>
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<td>Diodes</td>
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<td>Active matrix organic light emitting diodes</td>
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<td>Diode lasers</td>
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<td>Light emitting diodes</td>
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<td>Organic light emitting diodes</td>
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<td>P-i-n diodes</td>
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<td>Semiconductor lasers</td>
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<td>Fuses</td>
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<td>Thick film inductors</td>
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<td>Structural plates</td>
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Computational and artificial intelligence

Artificial intelligence
Affective computing
AI accelerators
Autonomous robots
Bio-inspired computing
Cognitive systems
Commonsense reasoning
Context awareness

Cooperative systems
Decision support systems
Intelligent systems
Autonomous systems
Collective intelligence
Hyper-intelligent systems
Intelligent automation
Intelligent robots
Knowledge based systems
Expert systems
Mobile agents
Knowledge engineering
Inference mechanisms
Knowledge acquisition
Knowledge discovery
Knowledge representation
Learning (artificial intelligence)
Distance learning
Naive Bayes methods
Nearest neighbor methods
Learning systems
Backpropagation
Cognitive systems
Electronic learning
Hybrid learning
Learning automata
Learning management systems
Semisupervised learning
Supervised learning
Unsupervised learning
Machine learning
Adversarial machine learning
Boosting
Deep learning
Dimensionality reduction
Random forests
Reinforcement learning
Relevance vector machines
Representation learning
Robot learning
Statistical learning
Transfer learning
Prediction methods
Linear predictive coding
Predictive coding
Predictive encoding
Predictive models
Virtual artifact
Autonomous mental development
Computational intelligence
Computation theory
Computational complexity
Concurrent computing
Greedy algorithms
Support vector machines
Evolutionary computation
Evolutionary robotics
Particle swarm optimization
Fuzzy systems
Fuzzy control
Fuzzy neural networks
Hybrid intelligent systems
Genetic algorithms
Logic
Fuzzy logic
Takagi-Sugeno model
Multivalued logic
Proabilistic logic
Sufficient conditions
Machine intelligence
Pattern analysis
Neural networks
Artificial neural networks
Convolutional neural networks
Hebbian theory
Long short term memory
Residual neural networks
Self-organizing feature maps
Biological neural networks
Cellular neural networks
Feedforward neural networks
Extreme learning machines
Multilayer perceptrons
Graph neural networks
Multi-layer neural network
Neural network compression
Neural network hardware
Radial basis function networks
Recurrent neural networks
Hopfield neural networks
Learning management systems
Computer generated music
Computer integrated manufacturing
Control engineering computing
Green computing
High energy physics instrumentation computing
Linear particle accelerator
Knowledge management
Knowledge transfer
Mathematics computing
Matlab
Medical information systems
Electronic medical records
Military computing
Mobile applications
Physics computing
Power engineering computing
Power system analysis computing
Publishing
Bibliometrics
Desktop publishing
Electronic publishing
Journalism
Open Access
Scientific publishing
Scientific computing
Telecommunication computing
Internetworking
Soft switching
Virtual assistants
Virtual enterprises
Virtual manufacturing
Virtual machining
Web sites
Uniform resource locators
Web design
World Wide Web
Bot (Internet)
Mashups
Computer architecture
Accelerator architectures
Data structures
Arrays
Binary decision diagrams
Null value
Octrees
Persistent identifiers
Table lookup
Tree data structures
Dynamic voltage scaling
Memory architecture
Memory management
Neural network compression
Multiprocessor interconnection
Hypercubes
Parallel architectures
Multicore processing
Reconfigurable architectures
Reconfigurable intelligent surfaces
Computer interfaces
Application programming interfaces
Restful API
WebRTC
Browsers
Field buses
Firewire
Haptic interfaces
Data gloves
Force feedback
Grasping
Tactile Internet
Hypertext systems
Input devices
Interface phenomena
Network interfaces
Interface states
Musical instrument digital interfaces
Ports (computers)
System buses
Computer networks
Ad hoc networks
AODV
Mesh networks
Mobile ad hoc networks
Vehicular ad hoc networks
Computer network management
Computer network reliability
Disruption tolerant networking
Management information base
Middleboxes
Network address translation
Network synthesis
Content distribution networks
Cyberspace
Cyberbullying
Diffserv networks
Domain Name System
Ethernet
Energy efficient ethernet
EPON
Heterogeneous networks
Internet
Bot (Internet)
Botnet
Cloud computing
Crowdsourcing
Instant messaging
Internet of Things
Internet privacy
Internet security
Internet telephony
Internet topology
Linked data
Middleboxes
Semantic Web
Social computing
Web 2.0
Web services
Intserv networks
IP networks
TCP/IP
Metropolitan area networks
Multiprocessor interconnection networks
Network function virtualization
Cloud radio access networks
Network servers
Next generation networking
Overlay networks
Peer-to-peer computing
Software defined networking
Service function chaining
Storage area networks
Token networks
Unicast
Virtual private networks
Extranets
Wide area networks
Low-power wide area networks
Wireless access points
Computer performance
Computer errors
Computer crashes
Hardware acceleration
Performance loss
Computer peripherals
Disk drives
Keyboards
Modems
Printers
Laser printers
Computer science
Computational neuroscience
............Data collection
............Data integration
............Data preprocessing
............Data transfer
............Information exchange
............Spreadsheet programs
............Text processing
............Virtual enterprises
............Data warehouses
............Database machines
............Digital systems
............Digital preservation
............Digital storage
............Solid state drives
............Digital transformation
............Fourth Industrial Revolution
............Internet
............Bot (Internet)
............Botnet
............Cloud computing
............Crowdsourcing
............Instant messaging
............Internet of Things
............Internet privacy
............Internet security
............Internet telephony
............Internet topology
............Linked data
............Middleboxes
............Semantic Web
............Social computing
............Web 2.0
............Web services
............ISDN
............B-ISDN
............Local area networks
............Wireless LAN
............Metropolitan area networks
............Token networks
............Virtual artifact
............Distributed computing
............Client-server systems
............Middleware
............Servers
............Cluster computing
............Collaborative work
............Collaborative intelligence
............Cooperative communication
............Crowdsourcing
............Social computing
............Decentralized applications
............Diffserv networks
............Distributed databases
............Blockchains
............Distributed information systems
............Publish-subscribe
............Internet
............Bot (Internet)
............Botnet
............Cloud computing
............Crowdsourcing
............Instant messaging
............Internet of Things
............Internet privacy
............Internet security
............Internet telephony
............Internet topology
............Linked data
............Middleboxes
............Semantic Web
............Social computing
............Web 2.0
............Web services
............Metacomp
Object detection
Subtraction techniques
Image annotation
Image capture
Image coding
Image color analysis
Image decomposition
Image denoising
Image enhancement
Image filtering
Image fusion
Image recognition
Image edge detection
Image reconstruction
Image registration
Image representation
Digital representation
Image resolution
High-resolution imaging
Spatial resolution
Superresolution
Image restoration
Image sampling
Image segmentation
Image sequences
Image stitching
Image synthesis
Human image synthesis
Image texture
Machine vision
Object recognition
Object segmentation
Morphological operations
Optical feedback
Pansharpening
Saliency detection
Smart pixels
Spatial coherence
Structure from motion
Table lookup
Thresholding (Imaging)
Memory
Analog memory
Associative memory
Cache memory
Cache storage
Content addressable storage
Flash memories
Flash memory cells
Magnetic memory
Floppy disks
Hard disks
Memory management
Neural network compression
Nonvolatile memory
Phase change memory
Phase change random access memory
Random access memory
DRAM chips
Phase change random access memory
Resistive RAM
SDRAM
SRAM cells
SRAM chips
Read only memory
PROM
Read-write memory
Registers
Shift registers
Scanning probe data storage
Semiconductor memory
Integrated memory circuits
Mobile computing
Multi-access edge computing
Wireless access points
Molecular computing
Multitasking
Parametric study
Open systems
Open Access
Public domain software
Open Educational Resources
Physical layer
Physical layer security
Optical computing
Parallel processing
Multiprocessing systems
Data flow computing
Processor scheduling
Systolic arrays
Multithreading
Parallel algorithms
Pipeline processing
Pattern recognition
Active shape model
Activity recognition
Character recognition
Clustering methods
Pattern clustering
Data mining
Anomaly detection
Association rules
...Data privacy
...Text analysis
...Text mining
...Web mining
...Face recognition
...Fingerprint recognition
...Gesture recognition
...Sign language
...Handwriting recognition
...Forgery
...Nearest neighbor methods
...Pattern matching
...Image matching
...Speech recognition
...Automatic speech recognition
...Speech analysis
...Text recognition
...Pervasive computing
...Ubiquitous computing
...Context-aware services
...Wearable computers
...Smart glasses
...Petascale computing
...Platform virtualization
...Probabilistic computing
...Probability computing
...Quantum computing
...Quantum algorithm
...Quantum annealing
...Quantum cellular automata
...Quantum chemistry
...Quantum circuit
...Quantum networks
...Quantum simulation
...Qubit
...Real-time systems
...Telexistence
...WebRTC
...Software
...Anti-virus software
...Application software
...Decentralized applications
...Embedded software
...Freeware
...Malware
...Computer viruses
...Computer worms
...Ransomware
...Rootkit
...Trojan horses
...Middleware
...Mediation
...Message-oriented middleware
...Web services
...Open source software
...Optical character recognition software
...Privacy-invasive software
...Spyware
...Public domain software
...Python
...R language
...Soft sensors
...Software agents
...Agent-based modeling
...Autonomous agents
...Botnet
...Intelligent agents
...Software as a service
...Software debugging
...Software design
...Software maintenance
...Software packages
...EMTDC
...PSCAD
...SPICE
...Software performance
...Software quality
...Software reusability
...Software safety
...Software systems
...Software tools
...Authoring systems
...System software
...File systems
...Operating systems
...Program processors
...Utility programs
...Software engineering
...Capability maturity model
...Computer aided software engineering
...Formal verification
...Programming environments
...Release engineering
...Runtime
...Dynamic compiler
...Runtime environment
...Software architecture
...Client-server systems
...Deep architecture
...Dew computing
...Microarchitecture
...Representational state transfer
......Restful API
......Software libraries
......Software product lines
...System recovery
......Checkpointing
......Core dumps
......Debugging
...Time sharing computer systems
......Virtual machine monitors

Consumer electronics
...Ambient intelligence
...Audio systems
......3D audio
......Audio tapes
......Audio-visual systems
......Auditory displays
......Headphones
......Immersive audio
......Loudspeakers
......Microphones
..........Microphone arrays
......Pitch control (audio)
......Portable media players
......Sonification
......Spatial audio
......Video description
...Home automation
......Portable media players
......Refrigerators
......Smart homes
......Washing machines
...Home computing
...Low-power electronics
...Microwave ovens
...Multimedia systems
......Multimedia communication
.........Hypermedia
.........Multimedia computing
.........Multimedia databases

Control systems
...Automatic control
......Power generation control
...Automatic generation control
...Automotive control
...Autopilot
...Bidirectional control
...Block signalling

Brakes
......CAMAC
......Centralized control
......Control design
......Control engineering
..........Control system security
.........Physical unclonable function
......Control equipment
..........Actuators
..........Dielectric elastomer actuators
..........Electrostatic actuators
..........Electrothermal actuators
..........Hydraulic actuators
..........Intelligent actuators
..........Microactuators
..........Piezoelectric actuators
..........Pneumatic actuators
......Fasteners
......Microcontrollers
......Regulators
......Remote control
......Servosystems
..........Servomotors
......Switches
..........Contactors
..........Microswitches
..........Optical switches
..........Switchgear
..........Circuit breakers
..........Relays
.........Telecontrol equipment
.........Thermostats
......Control system synthesis
......Controllability
......Cruise control
......Decentralized control
..........Consensus control
..........Distributed parameter systems
......Delay systems
.........Added delay
.........Delay lines
......Digital control
..........Programmable control
.........Flow graphs
......Fault tolerant control
......Feedback
..........Feedback circuits
.........Output feedback
.........Negative feedback
..........Neurofeedback
....Feedback linearization
....Fluid flow control
....Fluidics
.......Microfluidics
.......Nanofluidics
....Gaze tracking
.......Electrooculography
....Homeostasis
....Linear feedback control systems
.......Frequency locked loops
.......Phase locked loops
.......State feedback
.......Tracking loops
....Magnetic variables control
....Mechanical variables control
.......Displacement control
.......Force control
.......Level control
.......Gyrosopes
.......Motion control
.......Collision avoidance
.......Collision mitigation
.......Kinetic theory
.......Motion planning
.......Path planning
.......Visual servoing
.......Pitch control (position)
.......Position control
.......Nanopositioning
.......Shape control
.......Size control
.......Strain control
.......Stress control
.......Thickness control
.......Torque control
.......Velocity control
.......Angular velocity control
.......Vibration control
.......Weight control
...Medical control systems
...Missile control
...Moisture control
.......Humidity control
...Motion compensation
...Networked control systems
...Nonlinear control systems
...Open loop systems
...Optical control
.......Lighting control
.......Optical variables control
.......Optogenetics
....Optimal control
.......Bang-bang control
.......Infinite horizon
...PD control
...PI control
...Pneumatic systems
...Positive train control
...Pressure control
...Proportional control
...Radio control
...Robot control
.......Robot motion
...SCADA systems
...Sensorless control
...Sliding mode control
...Supervisory control
.......SCADA systems
...Thermal variables control
.......HVAC
.......Temperature control
.......Cooling
.......Heating systems
.......Thermal analysis
.......Thermomechanical processes
....Traffic control
.......Queueing analysis
.......Road traffic control
.......Vehicle routing

Dielectrics and electrical insulation
....Dielectrics
.......Dielectric constant
.......High-k gate dielectrics
.......Dielectric devices
.......Capacitors
.......Ferroelectric devices
.......Piezoelectric devices
.......Pyroelectric devices
.......Dielectric losses
.......Dielectric substrates
.......Dielectrophoresis
.......Electrohydrodynamics
.......Electrokinetics
.......Electrostriction
....Electric breakdown
.......Avalanche breakdown
.......Corona
.......Dielectric breakdown
.......Arc discharges
.......Discharges (electric)
Electrostatic discharges
Flashover
Glow discharges
Partial discharges
Surface discharges
Vacuum breakdown
Sparks
Insulation
Cable insulation
Power cable insulation
Ceramics
Bioceramics
Porcelain
Gas insulation
Sulfur hexafluoride
Insulators
Metal-insulator structures
Plastic insulators
Rubber
Topological insulators
Trees - insulation
Isolation technology
Oil insulation
Oil filled cables
Plastic insulation

Electronic learning
Mobile learning
Engineering education
Biomedical engineering education
Communication engineering education
Computer science education
Control engineering education
Electrical engineering education
Electronics engineering education
Engineering students
Physics education
Power engineering education
Student experiments
Systems engineering education
Training
Certification
Industrial training
Management training
On the job training
Qualifications
Vocational training

Electromagnetic compatibility and interference
Electromagnetic compatibility
Immunity testing
Reverberation chambers
Electromagnetics
Electromagnetic analysis
Air gaps
Characteristic mode analysis
Computational electromagnetics
Delay effects
Electromagnetic fields
Electromagnetic forces
Electromagnetic refraction
Permeability
Spark gaps
Time-domain analysis
Electromagnetic coupling
Mutual coupling
Optical coupling
Electromagnetic devices
Baluns
Electromagnetic induction
Eddy currents
Inductive power transmission
Electromagnetic metamaterials
Terahertz metamaterials
Electromagnetic radiation
Bremsstrahlung
Correlators
Electromagnetic wave absorption
Frequency
Gamma-rays
Line-of-sight propagation
Terahertz radiation
Electromagnetic radiation
Cable shielding
Magnetic shielding
Electromagnetic transients
EMP radiation effects
EMTDC
EMTP
Power system transients
Surges
Proximity effects
Interference
Clutter
Crosstalk
Diffraction
Echo interference
Electromagnetic interference
Radiofrequency interference
Specific absorption rate
Electromagnetic radiative interference
Electrostatic interference
Immunity testing
Interchannel interference
Interference cancellation
Interference channels
Interference constraints
Interference elimination
Interference suppression
Intersymbol interference
Rain fading
Terrain factors
TV interference

Electron devices
Cathode ray tubes
Electron guns
Electron multipliers
Electron tubes
Field emitter arrays
Klystrons
Magnetrons
Thyratrons
Traveling wave tubes
Mechatronics

Biomechatronics
Microelectromechanical systems
Microelectromechanical devices
Microactuators
Micromotors
Micropumps
Microvalves
Radiofrequency microelectromechanical systems
Microfluidics
Micromechanical devices
Biomedical microelectromechanical systems
Fluidic microsystems
Microfabrication
Photoelectricity
Photovoltaic effects
Shunts (electrical)
Photovoltaic cells
Light trapping
Quantum computing
Quantum algorithm
Quantum annealing
Quantum cellular automata
Quantum chemistry
Quantum circuit
Quantum networks
Quantum simulation
Qubit
Quantum well devices
Quantum well lasers
Quantum cascade lasers
Quantum wells
Two dimensional hole gas
Semiconductor devices
Flip-chip devices
Gunn devices
Hall effect devices
Junctions
Heterojunctions
Hybrid junctions
P-n junctions
Waveguide junctions
MIS devices
Charge coupled devices
MOS devices
MONOS devices
Piezoresistive devices
P-i-n diodes
Power semiconductor devices
Power transistors
Power semiconductor switches
Bipolar transistors
Thyristors
Quantum dots
Quantum well lasers
Quantum cascade lasers
Schottky diodes
Semiconductor counters
Semiconductor detectors
Semiconductor device modeling
Semiconductor device noise
Semiconductor diodes
P-i-n diodes
Schottky diodes
Semiconductor-metal interfaces
Superluminescent diodes
Varactors
Semiconductor lasers
Laser tuning
Quantum dot lasers
Quantum well lasers
Semiconductor laser arrays
Semiconductor optical amplifiers
Surface emitting lasers
Semiconductor waveguides
Semiconductor-insulator interfaces
Silicon devices
SONOS devices
Superluminescent diodes
Surface emitting lasers
Vertical cavity surface emitting lasers
Thermistors
Transistors
Field effect transistors
Heterojunction bipolar transistors
Millimeter wave transistors
Phototransistors
Static induction transistors
Single electron devices
Single electron memory
Hetero-nanocrystal memory
Single electron transistors
Thick film devices
Thin film inductors
Film bulk acoustic resonators
Thin film inductors
Thin film transistors
Organic thin film transistors
Tunneling
Gate leakage
Josephson effect
Magnetic tunneling
Resonant tunneling devices
Superconductive tunneling
Tunneling magnetoresistance
Vacuum technology
Photomultipliers
Vacuum electronics
Vacuum systems
Gettering

Electronic design automation and methodology
Design automation
CADCAM
Logic design
Reconfigurable logic
PSCAD
Design methodology
Design for disassembly
Design for experiments
Design for manufacture
Design for quality
Design for testability
Design standards
Design tools
Graphics
Animation
Art
Character generation
Computer graphics
Engineering drawings
Layout
Shape
Symbols
Virtual reality
Visualization
Green design
Ecodesign
Green computing
Integrated design
Process design
Pattern formation
Process modeling
Product design
Prototypes
Breadboard
Rapid prototyping
Technical drawing
Time to market
User centered design
Virtual prototyping

Engineering – general
Acoustical engineering
Agricultural engineering
Bio-inspired engineering
Bio-inspired computing
Bio-inspired control
Bio-inspired robotics
Chemical engineering
Civil engineering
Geotechnical engineering
Excavation
Geotechnical structures
Dams
Railway engineering
Railway safety
Structural engineering
Offshore installations
Concurrent engineering
Design engineering
Design tools
Electrical engineering
Electrical engineering computing
Engineering profession
Professional aspects
Environmental engineering
Maintenance engineering
Maintenance management
Predictive maintenance
Preventive maintenance
Condition monitoring
Systems support
Mechanical engineering
Mechanical power transmission
Torque converters
Mechanical systems
Mechanical energy
Micromechanical devices
Suspensions (mechanical systems)
Optical engineering
Precision engineering
Production engineering
Production planning
Capacity planning
Materials requirements planning
Process planning
Research and development

Translational research
Reverse engineering
Sanitary engineering
Standardization
Formal specifications
Guidelines
Standards
Standards categories
Standards organizations
Standards publications
Thermal engineering

Engineering in medicine and biology
Biology
Biochemistry
Amino acids
Biochemical analysis
Peptides
Proteins
Receptor (biochemistry)
Biodiversity
Biogeography
Bioelectric phenomena
Electric shock
Biological cells
Cell signaling
Cells (biology)
Chromosome mapping
Endothelial cells
Fibroblasts
RNA
Stem cells
Biological information theory
Biological processes
Biological interactions
Chronobiology
Circadian rhythm
Coagulation
Molecular biology
Symbiosis
Biological system modeling
Biological systems
Anatomy
Molecular communication (telecommunication)
Organisms
Biology computing
Biophotonics
Biophysics
Aerospace biophysics

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Laparoscopes
Ventilators
Biomedical imaging
Angiocardiography
Angiography
Biomedical optical imaging
Cardiology
Echocardiography
Electrocardiography
Phonocardiography
DICOM
Elastography
Encephalography
Mammography
Medical diagnostic imaging
Anatomical structure
Molecular imaging
Phantoms
Photoacoustic imaging
Bionanotechnology
Bioterrorism
Computational biology
Computational biochemistry
Computational biophysics
Computational systems biology
Genetic engineering
Medical services
Assisted living
Ambient assisted living
Catheterization
Clinical diagnosis
Clinical neuroscience
Cybercare
Electronic healthcare
Health information management
Hospitals
In vitro
In vitro fertilization
In vivo
Medical conditions
Aneurysm
Aterophy
Autism
Blindness
Cataracts
Congestive heart failure
Cybersickness
Deafness
Depression
Diabetes
Diseases
Hemorrhaging
Hypertension
Hyperthermia
Injuries
Kidney stones
Obesity
Paralysis
Pregnancy
Sleep apnea
Stroke (medical condition)
Thrombosis
Tumors
Medical diagnosis
Autopsy
Bronchoscopy
Colonography
Computer aided diagnosis
Medical signal detection
Nanomedicine
Plethysmography
Sensitivity and specificity
Medical tests
Amniocentesis
Biopsy
Cancer detection
Colonoscopy
Pregnancy test
Medical treatment
Anesthesia
Angioplasty
Brachytherapy
Brain stimulation
Cancer treatment
Chemotherapy
Clinical trials
Cryotherapy
Defibrillation
Dentistry
Electrical stimulation
Electronic medical prescriptions
Electroportion
Embolization
Fibrillation
Geriatrics
Hepatectomy
Hospitals
Hyperthermia
Intubation
Lithotripsy
Magnetic stimulation
Neuromuscular stimulation
Neutron capture therapy
Noninvasive treatment
Orthopedic procedures
Orthotics
Patient rehabilitation
Pharmaceuticals
Precision medicine
Proton therapy
Surgery
Occupational medicine
Organ transplantation
Point of care
Prosthetics
Artificial biological organs
Artificial limbs
Neuroprostheses
Prosthetic hand
Prosthetic limbs
Visual prosthesis
Public healthcare
Sensory aids
Hearing aids
Smart healthcare
Vaccines
X-rays
X-ray applications
X-ray detection
X-ray scattering
X-ray tomography
Medical specialties
Anesthesiology
Cardiology
Cardiac tissue
Dermatology
Gastroenterology
Gerontology
Gerontechnology
Gynecology
Neonatology
Neurology
Oncology
Ophthalmology
Pathology
Histopathology
Neuropathology
Pathological processes
Pediatrics
Pulmonology
Nuclear medicine
Synthetic biology

Engineering management
Business
Business data processing
Business intelligence
Disruptive innovation
Entrepreneurship
Franchising
Industrial relations
Management
Asset management
Best practices
Building management systems
Business continuity
Business process management
Business process re-engineering
Communication system operations and management
Conference management
Content management
Contingency management
Contract management
Contracts
Customer relationship management
Decision making
Dependability management
Distributed management
Enterprise resource planning
Facilities management
Financial management
Governmental factors
Human resource management
Information management
Interface management
International collaboration
Knowledge management
Marketing management
Organizational aspects
Outsourcing
Process planning
Production management
Program management
Project management
Public relations
Quality management
Requirements management
Research and development management
Resource management
Risk analysis
Safety management
Security management
Geoscience and remote sensing

...Environmental factors

......Biosphere

......Climate change

......Global warming

......Ecology

......Ecosystems

......Wetlands

......Environmental economics

......Carbon tax

......Emissions trading

......Environmental monitoring

......Global warming

......Green manufacturing

......Green products

......Green buildings

......Green cleaning

......Green transportation

......Pollution

......Air pollution

......Emissions trading

......Industrial pollution

......Land pollution

......Oil pollution

......Radioactive pollution

......Thermal pollution

......Urban pollution

......Water pollution

...Geographic information systems

......Geospatial analysis

......Gunshot detection systems

...Geophysical measurement techniques

......Geophysical image processing

......Geophysical measurements

......Geodesy

......Level measurement

......Sea measurements

......Geoaoustic inversion

......Seismic measurements

......Geophysical signal processing

......Geoscience

......Antarctica

......South Pole

......Arctic

......North Pole

......Atmosphere

......Air quality

......Atmospheric modeling

......Atmospheric waves

......Biosphere

......Continents

Africa

Asia

Australia

Europe

North America

South America

Cyclones

Hurricanes

Tropical cyclones

Earth

Earthquakes

Earthquake engineering

Forestry

Geochemistry

Geoengineering

Geography

Rural areas

Urban areas

Geology

Landslides

Minerals

Rocks

Geophysics

EMTDC

Extraterrestrial phenomena

Geodynamics

Geophysics computing

Meteorology

Moisture

Seismology

Surface waves

Well logging

Ice

Ice shelf

Ice surface

Ice thickness

Sea ice

Lakes

Land surface

Levee

Meteorological factors

Oceanography

Ocean circulation

Oceans

Ocean salinity

Ocean temperature

Sea coast

Sea floor

Sea level

Sea surface

Tides
Rivers
Sediments
Soil
Soil moisture
Soil properties
Soil texture
Tornadoes
Tsunami
Volcanoes
Volcanic activity
Volcanic ash
Wetlands
Land surface temperature
Photometry
Radar
Airborne radar
Bistatic radar
Cognitive radar
Doppler radar
Ground penetrating radar
High frequency radar
Laser radar
Meteorological radar
Millimeter wave radar
Multistatic radar
MIMO radar
Passive radar
Quantum radar
Radar applications
Radar countermeasures
Radar detection
Radar imaging
Radar measurements
Radar polarimetry
Radar remote sensing
Radar tracking
Radar clutter
Radar cross-sections
Radar equipment
Radar theory
Spaceborne radar
Spread spectrum radar
Synthetic aperture radar
Inverse synthetic aperture radar
Polarimetric synthetic aperture radar
Ultra wideband radar
Radiometry
Microwave radiometry
Radiometers
Spectroradiometers
Remote sensing
Hyperspectral sensors
Hyperspectral imaging
Passive microwave remote sensing
Quantum radar
Remote monitoring
Terrain mapping
Digital elevation models
Terrestrial atmosphere
Clouds
Global warming
Ionosphere
Magnetosphere
Vegetation mapping
IEEE organization
IEEE activities
IEEE Awards activities
IEEE Corporate awards
IEEE Society awards
IEEE Standards awards
National Society Agreement awards
IEEE Conference activities
IEEE Corporate activities
Humanitarian activities
IEEE Educational activities
IEEE Intersociety activities
IEEE Local activities
IEEE Member and Geographic activities
IEEE Professional activities
IEEE publishing
IEEE Standards activities
IEEE Technical activities
IEEE United States activities
IEEE entities
IEEE Boards
IEEE Center for the History of Electrical Engineering
IEEE Chapters
IEEE Committees
IEEE Communities
IEEE Computer Society Press
IEEE Councils
IEEE Foundation
IEEE Press
IEEE Regions
IEEE Sections
IEEE Societies
IEEE governance
IEEE bylaws
IEEE Constitution
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<th>Category</th>
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<td>Anatomical structure</td>
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<td>Molecular imaging</td>
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<td>Phantoms</td>
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<td>Photoacoustic imaging</td>
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<td>Cameras</td>
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<td>Webcams</td>
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<td>Focusing</td>
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<td>Holography</td>
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<td>Image converters</td>
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<td>Image intensifiers</td>
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<td>Image sensors</td>
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<td>Night vision</td>
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<td>Magnetic resonance imaging</td>
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<td>Diffusion tensor imaging</td>
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Industrial electronics

Assembly systems
Flexible electronics
Robotic assembly
Computer aided manufacturing
CADCAM
Silicon compiler
Cryogenic electronics
Industrial control
Process control
Predictive control
Three-term control
Two-term control
Production control
Continuous production
Lot sizing
Optimized production technology
Scheduling
Integrated manufacturing systems
Machine control
Machine vector control
Manufacturing automation
Computer aided manufacturing
CADCAM
Silicon compiler
Computer integrated manufacturing
Computer numerical control
Flexible manufacturing systems
Testing
Aerospace testing
Wind tunnels
Automatic testing
Automatic test pattern generation
Ring generators
Benchmark testing
Built-in self-test
Circuit testing
Integrated circuit measurements
Conformance testing
Electronic equipment testing
Immunity testing
Error analysis
Bit error rate
Finite wordlength effects
Error-free operations
Failure analysis
Equipment failure
Semiconductor device breakdown
Frequency response
Impulse testing
Insulator testing
Insulation testing
Integrated circuit testing
Integrated circuit yield
Logic testing
Life testing
Materials testing
Accelerated aging
Acoustic testing
Adhesive strength
Bonding forces
Delamination
Elastic recovery
Nondestructive testing
Optical fiber testing
Remaining life assessment
Ring generators
Semiconductor device testing
Software testing
Combinatorial testing
Fuzzing
System testing
Model checking
Test equipment
Automatic test equipment
Test facilities
Anechoic chambers
Laboratories
Large Hadron Collider
Open area test sites
TEM cells
Wind tunnels

Industry applications

...Accident prevention
...Accidents
........Aerospace accidents
........Electrical accidents
........Industrial accidents
........Marine accidents
........Railway accidents
........Road accidents
...Chemical technology
.....Chemical reactors
..........Bioreactors
..........Catalysis
..........Continuous-stirred tank reactor
........Ignition
..........Chemical sensors
..........Crystallizers
........Distillation equipment
........Fluidization
..........Pharmaceutical technology
..........Vitrification
......Cryogenics
........Liquid nitrogen
...Electrochemical devices
.........Amperometric sensors
.........Batteries
............Lead acid batteries
............Lithium batteries
............Lithium-ion batteries
............Lithium-sulfur batteries
.............Nickel cadmium batteries
............Solid state batteries
......Battery management systems
........Fuel cells
............Supercapacitors
...Electrochemical processes
...Electromechanical systems
......Cruise control
......Electromechanical devices
......Armature
..........SAW filters
...Electrostatic devices
...Electrostatic precipitators
...Electrostatic processes
....Aerosols
.........Electrophotography
.........Electrostatic analysis
.........Electrostatic induction

........Electrostatics
..........Electrostatic levitation
........Particle charging
........Particle production
........Space charge
........Surface charging
..........Triboelectricity
..........Triboelectricity
....Engines
..........Heat engines
..........Steam engines
..........Stirling engines
..........Internal combustion engines
..........Diesel engines
........Ignition
........Jet engines
...Environmental management
..........Biodegradation
..........Biodegradable materials
........Land use planning
........Pest control
........Pollution control
........Recycling
..........Renewable energy sources
..........Biomass
..........Sustainable development
........Waste management
........Waste disposal
........Waste handling
........Waste recovery
........Waste reduction
..........Water conservation
..........Desalination
..........Water resources
..........Desalination
..........Reservoirs
..........Water monitoring
...Food technology
..........Food preservation
........High-temperature techniques
..........Rapid thermal processing
...Industrial engineering
........Industrial communication
.....Industries
........Agriculture
..........Agricultural products
..........Aquaculture
..........Digital agriculture
..........Fertilizers
..........Greenhouses
..........Irrigation
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......Belts
......Cams
......Engine cylinders
......Exhaust systems
......Impellers
......Intake systems
......Manifolds
......Mechanical splines
......Pistons
......Rotors
......Shafts
......Valves
......Motors
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......Brushless motors
......Commutation
......DC motors
......Electric motors
......Hysteresis motors
......Induction motors
......Micromotors
......Permanent magnet motors
......Servomotors
......Traction motors
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......Robotic assembly
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......Bonding processes
......Microfabrication
......Optical device fabrication
......Soldering
......Welding
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......Colloidal lithography
......Extreme ultraviolet lithography
......Interferometric lithography
......Nanolithography
......Soft lithography
......Stereolithography
......X-ray lithography
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......Ceramic products
......Chemical products
......Consumer products
......Electrical products
......Food products
......Fuels
......Glass products
......Mechanical products
......Metal products
......Paper products
......Paper pulp
......Plastic products
......Rubber products
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......Textile products
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......Windows
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......Cellular manufacturing
......Flow production systems
......Food manufacturing
......Forging
......Glass manufacturing
......Integrated manufacturing systems
......Intelligent manufacturing systems
......Job production systems
......Joining processes
......Layered manufacturing
......Lean production
......Manufacturing processes
......Mass production
......Melt processing
......Pulp manufacturing
......Sheet metal processing
......Thermoforming
......Three-dimensional printing
......Mass customization

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Smart manufacturing
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Encapsulation
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Labeling
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Compression molding
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Fats
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Food waste
Sugar
Group technology
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Etching
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Machining
Melt processing
Plasma materials processing
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Pressing
Punching
Refining
Shearing
Smelting
Softening
Swaging
Mechanical products
Automotive components
Axles

Bellows
Blades
Brakes
Couplings
Fasteners
Flanges
Gears
Hoses
Machine components
Mechanical guides
Needles
Orifices
Pistons
Pressure vessels
Seals
Springs
Steering systems
Structural shapes
Tires
Vents
Wheels
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Business process integration
Business process management
Cause effect analysis
Root cause analysis
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Continuous production
Lot sizing
Optimized production technology
Scheduling
Production engineering
Production planning
Production equipment
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Fixtures
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Mining equipment
Molding equipment
Packaging machines
Paper making machines
Polishing machines
Soldering equipment
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Industrial facilities
Industrial plants
Machine shops
Paper mills

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Inventory management

Lead time reduction

Logistics

Process planning

Production planning

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Electrostatic discharge protection

Explosion protection

Lightning protection

Radiation protection

Radiation safety

Radiation protection

Radiofrequency safety

Safety devices

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Lane detection

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Multi-factor authentication

Passwords

Alarm systems

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Capability-based security

Computer security

Application security

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Cloud computing security

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Cyber espionage

Cyber warfare

Cyberattack

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Honey pot (computing)

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Mobile security

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Penetration testing

Permission

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...Audio coding
...Biological information theory
...Channel coding
......Block codes
.........Linear codes

Codes

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......Reflective binary codes
...Convolutional codes
......Cyclic redundancy check codes
...Error correction codes
......Reed-Muller codes
......Reed-Solomon codes
...Parity check codes
......Iterative decoding
......Product codes
...Bar codes
......Space-time codes
......Zero correlation zone
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......Channel allocation
.........Spectral efficiency
...Channel capacity
......Channel estimation
......Channel models
......Channel spacing
......Channel state information
......Gaussian channels
......AWGN channels
......Multipath channels
......Multiuser channels
......Partial response channels
......Quantum channels
......Throughput
......Time-varying channels
...Decoding
......Maximum likelihood decoding
...Encoding
......Audio coding
......Channel coding
..........Block codes
.........Combined source-channel coding
.........Turbo codes
......Code refractoring
......Digital representation
.........Entropy coding
.........Huffman coding
......Precoding
......Source coding
......Speech coding
......Transcoding
......Error compensation
......Genetic communication
Hamming distance
Hamming weight
Information entropy
Mutual information
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Rate distortion theory
Channel rate control
Rate-distortion
Source coding
Speech coding
Technology acceptance model

Instrumentation and measurement
Computerized instrumentation
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Parasitic capacitance
Quantum capacitance
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Photoconductivity
Semiconductivity
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Bioprocess
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Fault currents
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Threshold current
Current-voltage characteristics
Electric potential
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Impedance matching
Baluns
Inductance
Permittivity
Piezoresistance
Q-factor
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Piezoresistance
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Compass
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Goniometers
Potentiometers
Radiometers
Tachometers
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Voltmeters
Watt hour meters
Wattmeters
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Electron microscopy
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Scanning probe microscopy
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Telescopes
Theodolites
Tuners
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Accelerometers
Acoustic measurements
Antenna measurements
Anthropometry
Area measurement
Atmospheric measurements
Atomic measurements
Bathymetry
Biomedical measurement
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Biomedical monitoring
Electroencephalography
Electromyography
Electrooculography
Graphical representation of measurement categories:

- **Electrophysiology**
- **Photoplethysmography**
- **Plethysmography**
- **Pulse oximeter**
- **Sensitivity and specificity**
- **Calorimetry**
- **Coordinate measuring machines**
- **Density measurement**
- **Hydrometers**
- **Distance measurement**
- **Euclidean distance**
- **Distortion measurement**
- **Total harmonic distortion**
- **Doppler measurement**
- **Dosimetry**
- **Dynamic range**
- **Electric variables measurement**
- **Admittance measurement**
- **Ammeters**
- **Attenuation measurement**
- **Capacitance measurement**
- **Conductivity measurement**
- **Current measurement**
- **Dielectric measurement**
- **Electrical resistance measurement**
- **Electrostatic measurements**
- **Energy measurement**
- **Impedance measurement**
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- **Partial discharge measurement**
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- **Q measurement**
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- **Gas chromatography**
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- **Geophysical measurements**
- **Geodesy**
- **Sea measurements**
- **Seismic measurements**
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- **Fabry-Perot**
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- **Radio interferometry**
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- **Displacement measurement**
- **Force measurement**
- **Motion measurement**
- **Position measurement**
- **Rotation measurement**
- **Strain measurement**
- **Stress measurement**
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- **International System of Units**
- **Nanometers**
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- **Linear velocity**
- **Displacement measurement**
- **Force measurement**
- **Motion measurement**
- **Position measurement**
- **Rotation measurement**
- **Strain measurement**
- **Stress measurement**
- **Thickness measurement**
- **Torque measurement**
- **Velocity measurement**
- **Vibration measurement**
- **Volume measurement**
- **Weight measurement**
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- **Moisture measurement**
- **Humidity measurement**
2022 IEEE Taxonomy

Noise measurement
Multiple signal classification
Noise figure
Noise shaping
Nuclear measurements
Particle tracking
Optical variables measurement
Ellipsometry
Photometry
Reflection coefficient
Refractive index
Particle beam measurements
Particle measurements
Performance evaluation
Key performance indicator
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Phase measurement
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Pollution measurement
Pressure measurement
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Tire pressure
Pulse measurements
Reflectometry
Replicability
Reproducibility of results
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Sensitivity analysis
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Size measurement
Functional point analysis
Software measurement
Soil measurements
Salinity (geophysical)
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Spectroscopy
Deep level transient spectroscopy
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Resonance light scattering
Thermal variables measurement
Temperature measurement
Time measurement
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Time dissemination
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Viscosity
Wavelength measurement
Wide area measurements
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Environmental monitoring
Load monitoring
Patient monitoring
Process monitoring
Radiation monitoring
Radiation dosage
Remote monitoring
Surveillance
Infrared surveillance
Video surveillance
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Course correction
Dead reckoning
Indoor navigation
Inertial navigation
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<td>Plasma transport processes</td>
</tr>
<tr>
<td>Ion implantation</td>
<td>Plasma-assisted combustion</td>
</tr>
<tr>
<td>Plasma immersion ion</td>
<td>Radiation effects</td>
</tr>
<tr>
<td>implantation</td>
<td>Biological effects of radiation</td>
</tr>
<tr>
<td>Nuclear electronics</td>
<td>Gamma-ray effects</td>
</tr>
<tr>
<td>Nuclear imaging</td>
<td>Ion radiation effects</td>
</tr>
<tr>
<td>Energy resolution</td>
<td>Neutron radiation effects</td>
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<tr>
<td>Ion emission</td>
<td>Scintillators</td>
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<tr>
<td>Nuclear medicine</td>
<td>Single event latchup</td>
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<tr>
<td>Nuclear physics</td>
<td>Space radiation</td>
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<tr>
<td>Alpha particles</td>
<td>Terahertz radiation</td>
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<tr>
<td>Beta rays</td>
<td>Total ionizing dose</td>
</tr>
<tr>
<td>Ignition</td>
<td>Radiation hardening (electronics)</td>
</tr>
<tr>
<td>Ion sources</td>
<td>Radiation monitoring</td>
</tr>
<tr>
<td>Isotopes</td>
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<tr>
<td>Nuclear thermodynamics</td>
<td></td>
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<tr>
<td>Relativistic effects</td>
<td></td>
</tr>
<tr>
<td>Optical flow</td>
<td></td>
</tr>
<tr>
<td>Particle accelerators</td>
<td></td>
</tr>
<tr>
<td>Accelerator magnets</td>
<td></td>
</tr>
</tbody>
</table>
Radiation dosage
Radiation safety
Radiation protection
Radiofrequency safety
Reactor instrumentation
Scintillation counters
Solid scintillation detectors
Thermionic emission

Oceanic engineering and marine technology
Marine navigation
Marine technology
Marine equipment
Marine transportation
Marine vessels
Underwater cables
Underwater communication
Underwater equipment
Rebreathing equipment
Underwater structures
Underwater technology
Marine robots
Underwater communication
Underwater equipment
Underwater structures
Ocean temperature
Oceanographic techniques
Water pollution
Marine pollution

Power electronics
Adiabatic
Converters
AC-AC converters
DC-AC power converters
Digital-to-frequency converters
Frequency conversion
Mixers
Optical frequency conversion
Multilevel converters
Power conversion
AC-AC converters
AC-DC power converters
DC-AC power converters
DC-DC power converters
Matrix converters
Power conversion harmonics
Voltage-source converters
Pulse width modulation converters
Resonant converters
Static power converters
Voltage-source converters
Wavelength converters
Current limiters
Fault current limiters
Gate drivers
Inverters
Multilevel inverters
Pulse inverters
Resonant inverters
Voltage source inverters
Phase control
Power conditioning
Power smoothing
Power semiconductor devices
Power transistors
Power semiconductor switches
Bipolar transistors
Insulated gate bipolar transistors
Kirk field collapse effect
Thyristors
Photothyristors
Snubbers
Three-phase electric power

Power engineering and energy
Electric variables control
Current control
Electric current control
Electrical ballasts
Gain control
Power control
Power system control
Bidirectional power flow
Load flow control
SCADA systems
Reactive power control
Voltage control
Automatic voltage control
Energy
Energy barrier
Energy capture
Energy consumption
Energy conversion
Batteries
Fuel cells
Motors
Photovoltaic cells
Potential well
...Solar heating
...Thermoelectricity
...Waste heat
...Wave energy conversion
...Wind energy conversion
...Energy dissipation
...Energy exchange
...Inductive charging
...Energy harvesting
...Nanogenerators
...Energy management
...Demand side management
...Energy conservation
...Energy efficiency
...Energy informatics
...Energy management systems
...Load management
...Transactive energy
...Energy resources
...Fuels
...Geothermal energy
...Nuclear fuels
...Solar energy
...Wave power
...Wind energy
...Wind farms
...Energy states
...Effective mass
...Orbital calculations
...Polaritons
...Surface states
...Energy storage
...Batteries
...Flywheels
...Fuel cells
...Hydrogen storage
...Supercapacitors
...Supercconducting magnetic energy storage
...Power engineering
...Ferroresonance
...High-voltage techniques
...Power engineering computing
...Power system simulation
...Power generation
...Automatic generation control
...Cogeneration
...Distributed power generation
...Virtual power plants
...Geothermal power generation
...Hydroelectric power generation
...Hydroelectric-thermal power generation
...Microhydro power
...Picohydro power
...Wave energy conversion
...Magnetohydrodynamic power generation
...Nuclear power generation
...Fission reactors
...Fusion power generation
...Power generation control
...Power generation dispatch
...Power generation planning
...Power generation reliability
...Solar power generation
...Maximum power point trackers
...Photovoltaic systems
...Solar panels
...Trigeneration
...Turbomachinery
...Turbines
...Turbogenerators
...Wind energy generation
...Wind energy integration
...Wind power generation
...Wind energy conversion
...Power systems
...Data center power
...Hybrid power systems
...Industrial power systems
...Power distribution
...DC distribution systems
...Power distribution control
...Power distribution faults
...Power distribution lines
...Power distribution networks
...Power distribution planning
...Power distribution reliability
...Power grids
...Microgrids
...Smart grids
...Power supplies
...Battery chargers
...Charging stations
...Current supplies
...Emergency power supplies
...Inductive charging
...Islanding
...Power demand
...Power quality
...Power system restoration
...Switched mode power supplies
...Traction power supplies
Umbilical cable
Power system analysis computing
Power system dynamics
Power system economics
Low-carbon economy
Power system faults
Power system harmonics
Power harmonic filters
Power system management
Load flow
Power system measurements
Meter reading
Power system planning
Power demand
Power distribution planning
Power system protection
Electrical safety
Substation protection
Surge protection
Power system reliability
Power distribution reliability
Power system stability
Power transmission
Common Information Model (electricity)
DC power transmission
Flexible AC transmission systems
HVDC transmission
Inductive power transmission
Static VAr compensators
Transmission lines
Wireless power transmission
PSCAD
Pulsed power systems
Pulsed power supplies
Reactive power
Substations
Substation automation
Substation protection
Transformers
Baluns
Current transformers
Flyback transformers
High-frequency transformers
Instrument transformers
Phase transformers
Power transformers
Pulse transformers
Tap changers
Uninterruptible power systems
Wind energy integration

Product safety engineering
Consumer protection
Power system protection
Electrical safety
Fault protection
Grounding
Substation protection
Surge protection
Arresters
Safety
Aerospace safety
Air safety
Domestic safety
Fall detection
Emergency services
Explosion protection
Fire safety
Hazards
Biohazards
Chemical hazards
Explosions
Fires
Flammability
Floods
Hazardous areas
Hazardous materials
Toxicology
Health and safety
Occupational health
Occupational safety
Personal protective equipment
Marine safety
Product safety
Protection
Electrostatic discharge protection
Explosion protection
Lightning protection
Radiation protection
Radiation safety
Radiation protection
Radiofrequency safety
Safety devices
Eye protection
Fire extinguishers
Protective clothing
Safety management
Vehicle safety
Advanced driver assistance systems
Lane departure warning systems
Lane detection
Vehicle crash testing
Professional communication

Collaboration

Collaborative tools

Call conference

Collaborative software

Videoconferences

Discussion forums

Teamwork

Virtual groups

Communication aids

Closed captioning

Communication effectiveness

Communication symbols

Semiotics

Pragmatics

Semantics

Syntactics

Context

Databases

Database systems

Audio databases

Deductive databases

Image databases

Indexes

Multimedia databases

NoSQL databases

Object oriented databases

Query processing

Deductive databases

Distributed databases

Blockchains

Image databases

Image retrieval

Multimedia databases

Object oriented databases

Relational databases

Spatial databases

Transaction databases

Itemsets

Visual databases

Point cloud compression

Global communication

Cross-cultural communication

Geographic information systems

Geospatial analysis

Gunshot detection systems

Grammar

Information analysis

Decision analysis

Indexing

Information integrity
Data compression
Data conversion
Data engineering
Data handling
Data processing
Data warehouses
Database systems
Audio databases
Deductive databases
Image databases
Indexes
Multimedia databases
NoSQL databases
Object oriented databases
Query processing
Distributed information systems
Distributed management
Publish-subscribe
Identity management systems
Informatics
Bioinformatics
Cognitive informatics
Energy informatics
Neuroinformatics
Information architecture
Enterprise architecture management
Information management
Common Information Model (computing)
Common Information Model (electricity)
Competitive intelligence
Digital preservation
Document handling
Enterprise architecture management
Information security
Information sharing
Knowledge transfer
Information processing
Digital agriculture
Electronic healthcare
Informatics
Information exchange
Sonification
Management information systems
Portals
Medical information systems
Electronic medical records
Information technology
Bring your own device
Information age
Information and communication technology
Ambient assisted living
Information representation
Digital representation
Printing
Digital printing
Ink jet printing
Teleprinting
Three-dimensional printing
Semantic technology
Service computing
Service level agreements
Telematics
Universal Serial Bus
Manuals
Meetings
Conferences
Oral communication
Public speaking
Speech
Hate speech
Plagiarism
Portfolios
Professional societies
Public speaking
Rhetoric
Writing
Abstracts
Bibliographies
Biographies
Autobiographies
Dictionaries
Documentation
Point of care
Grammar
Readability metrics
Resumes
Reviews
Thesauri
Reliability
Availability
Fault diagnosis
Dissolved gas analysis
Fault location
Fault tolerance
Fault tolerant control
Redundancy
Fluctuations
Integrated circuit reliability
Maintenance
....Maldistribution
....Materials reliability
....Reliability engineering
....Reliability theory
....Robustness
....Semiconductor device reliability
....Software reliability
....Stability
......Circuit stability
......Robust stability
......Stability analysis
........Stability criteria
......Thermal stability
...Telecommunication network reliability
......Diversity schemes

Resonance
....Ferroresonance
....Magnetic resonance
.....Antiferromagnetic resonance
.....Ferromagnetic resonance
.....Nuclear magnetic resonance
.....Paramagnetic resonance
...Resonance light scattering
...Stochastic resonance

Robotics and automation
....Animatronics
....Automation
......Automated highways
......Automatic generation control
......Automatic testing
........Automatic test pattern generation
......Ring generators
......Building automation
......Fourth Industrial Revolution
......Intelligent automation
......Manufacturing automation
......Computer aided manufacturing
......Computer integrated manufacturing
......Computer numerical control
........Flexible manufacturing systems
......Office automation
........Workflow management software
......Storage automation
......Vehicular automation
....Autonomous systems
....Autonomous robots
....Autonomous vehicles
       ...Autonomous aerial vehicles
       ...Autonomous automobiles
       ...Autonomous driving
       ...Autonomous underwater vehicles
       ...Multi-robot systems
       ...Swarm robotics
       ...Robots
       ...Agricultural robots
       ...Androids
       ...Aquatic robots
       ...Automata
       ...Turing machines
       ...Autonomous robots
       ...Bio-inspired robotics
       ...Cognitive robotics
       ...Computer vision
       ...Active appearance model
       ...Blob detection
       ...Corner detection
       ...Face detection
       ...Feature detection
       ...Interest point detection
       ...Smart cameras
       ...Visual odometry
       ...Educational robots
       ...Evolutionary robotics
       ...Humanoid robots
       ...Intelligent robots
       ...Manipulators
       ...End effectors
       ...Manipulator dynamics
       ...Micromanipulators
       ...Marine robots
       ...Medical robotics
       ...Rehabilitation robotics
       ...Military robotics
       ...Mobile robots
       ...Climbing robots
       ...Legged locomotion
       ...Orbital robotics
       ...Parallel robots
       ...Quadrupedal robots
       ...Rehabilitation robotics
       ...Rescue robots
       ...Robot control
       ...Robot motion
       ...Robot kinematics
       ...Motion analysis
       ...Robot learning
       ...Robot programming
       ...Robot sensing systems
Robot vision systems
Simultaneous localization and mapping
Tactile sensors
Service robots
Snake robots
Soft robotics
Telerobotics
Teleoperators
Visual odometry
Wearable robots

Science – general
Astronomy
Astrophysics
Dark matter
Orbits
Stellar dynamics
Extrasolar planets
Exoplanet
Gravitational waves
Observatories
Radio astronomy
Solar system
Kuiper belt
Planets
Satellites
Sun
Biology
Biochemistry
Amino acids
Biochemical analysis
Peptides
Proteins
Receptor (biochemistry)
Biodiversity
Biogeography
Bioelectric phenomena
Electric shock
Biological cells
Cell signaling
Cells (biology)
Chromosome mapping
Endothelial cells
Fibroblasts
RNA
Stem cells
Biological information theory
Biological processes
Biological interactions
Chronobiology
Circadian rhythm
Coagulation
Molecular biology
Symbiosis
Biological system modeling
Biological systems
Anatomy
Molecular communication
(telecommunication)
Organisms
Biology computing
Biophotonics
Biophysics
Aerospace biophysics
Biomagnetics
Cellular biophysics
Molecular biophysics
Evolution (biology)
Memetics
Phylogeny
Genetics
DNA
Epigenetics
Gene therapy
Genetic communication
Genetic expression
Genetic programming
Genomics
Optogenetics
Homeostasis
Mechanobiology
Microbiology
Electroporation
Virology
Microinjection
Nanobiotechnology
DNA computing
Nanobiotechnology
Physiology
Action potentials
External stimuli
Neuromodulation
Predator prey systems
Synthetic biology
Systematics
Systems biology
Vegetation
Crops
Marine vegetation
Zoology
Animals
Entomology

Chemistry

Astrochemistry

Biochemistry

Amino acids

Biochemical analysis

Peptides

Proteins

Receptor (biochemistry)

Chemical analysis

Activation analysis

Chemical processes

Chemicals

Electronic noses

pH measurement

Chemical compounds

Anti-freeze

Bromine compounds

Chalcogenides

Ethanol

Methanol

Radiotracer

Electrochemistry

Electrocatalysis

Geochemistry

Inorganic chemicals

Interstellar chemistry

Organic chemicals

Hydrocarbons

Photochemistry

Photobleaching

Photocatalysis

Physical chemistry

Quantum chemistry

Electricity

Photoelectricity

Photovoltaic effects

Piezoelectricity

Piezoelectric effect

Piezoelectric polarization

Pyroelectricity

Thermoelectricity

Electrothermal effects

Peltier effect

Thermoelectric devices

Thermoelectric materials

Triboelectricity

Epidemiology

Epidemics

Pandemics

Geoscience

Antarctica

South Pole

Arctic

North Pole

Atmosphere

Air quality

Atmospheric modeling

Atmospheric waves

Biosphere

Continents

Africa

Asia

Australia

Europe

North America

South America

Cyclones

Hurricanes

Tropical cyclones

Earth

Earthquakes

Earthquake engineering

Forestry

Geochemistry

Geoengineering

Geography

Rural areas

Urban areas

Geology

Landslides

Minerals

Rocks

Geophysics

EMTDC

Extraterrestrial phenomena

Geodynamics

Geophysics computing

Meteorology

Moisture

Seismology

Surface waves

Well logging

Ice

Ice shelf

Ice surface

Ice thickness

Sea ice

Lakes

Land surface

Levee

Meteorological factors
Oceanography
Ocean circulation
Oceans
Ocean salinity
Ocean temperature
Sea coast
Sea floor
Sea level
Sea surface
Tides
Rivers
Sediments
Soil
Soil moisture
Soil properties
Soil texture
Tornadoes
Tsunami
Volcanoes
Volcanic activity
Volcanic ash
Wetlands
History
Life sciences
Metrology
Optical metrology
Neuroscience
Clinical neuroscience
Cognitive neuroscience
Computational neuroscience
Neuroinformatics
Neuroprostheses
Systems neuroscience
Transcranial direct current stimulation
Transcranial magnetic stimulation
Physics
Acoustics
Acoustic applications
Acoustic devices
Acoustic emission
Acoustic field
Acoustic noise
Acoustic phonetics
Acoustic propagation
Acoustic pulses
Acoustic waves
Acoustooptic effects
Biomedical acoustics
Cepstral analysis
Music
Nonlinear acoustics
Psychoacoustics
Reverberation
Spectral shape
Underwater acoustics
Astrophysics
Dark matter
Orbits
Stellar dynamics
Beams
Acoustic beams
Laser beams
Molecular beams
Optical beams
Particle beams
Biophysics
Aerospace biophysics
Biomagnetics
Cellular biophysics
Molecular biophysics
Dark energy
Entropy
Fluid flow
Fluid dynamics
Hydraulic diameter
Hydrology
Pipelines
Valves
Geophysics
EMTDC
Extraterrestrial phenomena
Geodynamics
Geophysics computing
Meteorology
Moisture
Seismology
Surface waves
Well logging
High energy physics
Kinetic theory
Kinetic energy
Levitation
Electrostatic levitation
Magnetic levitation
Lorentz covariance
Mechanical factors
Aerodynamics
Bending
Biomechanics
Damping
Dynamics
Fatigue
Force
Friction
Hydrodynamics
Kinematics
Lubrication
Magnetohydrodynamics
Photelasticity
Pressure effects
Shock (mechanics)
Strain
Stress
Surface cracks
Surface stress
Torque
Vibrations
Volume relaxation
Workability
Network theory (graphs)
Physics education
Quantum mechanics
Coherence time
Density functional theory
Lagrangian functions
Proton effects
Quantum capacitance
Quantum cryptography
Quantum decoherence
Quantum entanglement
Quantum information science
Quantum key distribution
Quantum optics
Quantum simulation
Quantum state
Quantum system
Relativistic quantum mechanics
Schrodinger equation
Stationary state
Teleportation
Tunneling
Rydberg atoms
Solid-state physics
String theory
Thermal factors
Temperature
Temperature dependence
Thermal conductivity
Thermal expansion
Thermal management
Thermal stresses
Thermoelasticity
Thermoelectricity
Thermolysis
Thermooptic effects
Thermoresistivity
Waves
Atmospheric waves
Berry phase
Doppler effect
Electrodynamics
Magnetostatic waves
Matter waves
Plasma waves
Propagation
Reflectivity
Seismic waves
Shock waves
Solitons
Surface acoustic waves
Wave functions
Social sciences
Behavioral sciences
Animal behavior
Cognition
Consumer behavior
Psychiatry
Psychology
Social intelligence
Journalism
Psychology
Active perception
Emotional responses
Industrial psychology
Mental health
Mood
Neuropsychology
Psychometric testing
Sociology
Digital divide
Social groups
Social intelligence
Thermodynamics
Enthalpy
Isobaric
Isothermal processes

Sensors
Acoustic sensors
Chemical and biological sensors
Biosensors
Gas detectors
Amperometric sensors
Electromechanical sensors
...Microsensors
...Force sensors
...Glucose sensors
...Inertial sensors
...Infrared sensors
...Intelligent sensors
...Intracranial pressure sensors
...Ionizing radiation sensors
...Position sensitive particle detectors
...Radiation detectors
...Bolometers
...Gamma-ray detectors
...Infrared detectors
...Photodetectors
...Semiconductor radiation detectors
...Silicon radiation detectors
...X-ray detectors
...Magnetic sensors
...Spin valves
...Mechanical sensors
...Capacitive sensors
...Multimodal sensors
...Nanosensors
...Optical sensors
...Optical detectors
...Bar codes
...Optical fiber sensors
...Optoelectronic and photonic sensors
...Pressure sensors
...Sensor phenomena and characterization
...Sensor placement
...Sensor systems and applications
...Detectors
...Envelope detectors
...Semiconductor detectors
...Electric sensing devices
...Leak detection
...Radiofrequency identification
...RFID tags
...Robot sensing systems
...Robot vision systems
...Simultaneous localization and mapping
...Tactile sensors
...Sensor arrays
...Sensor fusion
...Sensor systems
...Activity recognition
...Gunshot detection systems
...Soft sensors
...Thermal sensors
...Electrothermal actuators
...Temperature sensors
...Thermocouples
...Thermometers
...Thick film sensors
...Thin film sensors
...Vision sensors
...Wearable sensors

Signal processing
...Acoustic signal processing
...Active noise reduction
...Echo cancellers
...Speech processing
...Human voice
...Speech enhancement
...Speech synthesis
...Voice activity detection
...Adaptive signal processing
...Adaptive filters
...Adaptive signal detection
...Amplifiers
...Broadband amplifiers
...Differential amplifiers
...Distributed amplifiers
...Low-noise amplifiers
...Operational amplifiers
...Feedback amplifiers
...Power amplifiers
...High power amplifiers
...Predistortion
...Preamplifiers
...Pulse amplifiers
...Radiofrequency amplifiers
...Resonators
...Cavity resonators
...Split ring resonators
...Array signal processing
...Attenuators
...Optical attenuators
...Chirp
...Convolution
...Convolvers
...Decorrelation
...Digital signal processing
...Delta modulation
...Delta-sigma modulation
...Sigma-delta modulation
...Digital signal processing chips
...Dispersion
Chromatic dispersion
Optical fiber dispersion
Distortion
Acoustic distortion
Four-wave mixing
Jitter
Timing jitter
Nonlinear distortion
Harmonic distortion
Intermodulation distortion
Phase distortion
Error correction
Forward error correction
Fading channels
Frequency-selective fading channels
Rayleigh channels
Weibull fading channels
Filters
Active filters
Band-pass filters
Anisotropic
Bragg gratings
Fiber gratings
Channel bank filters
Comb filters
Digital filters
Finite impulse response filters
Equalizers
Adaptive equalizers
Blind equalizers
Decision feedback equalizers
Filtering theory
Collaborative filtering
Image filtering
Gabor filters
Harmonic filters
IIR filters
Kalman filters
Low-pass filters
Matched filters
Microstrip filters
Nonlinear filters
Notch filters
Particle filters
Power filters
Spurline
Resonator filters
Spatial filters
Superconducting filters
Transversal filters
Frequency locked loops
Geophysical signal processing
Limiting
Modulation
Amplitude modulation
Amplitude shift keying
Quadrature amplitude modulation
Chirp modulation
Demodulation
Digital modulation
Constellation diagram
Partial response signaling
Frequency modulation
Frequency shift keying
Magnetic modulators
Modulation coding
Interleaved codes
Optical modulation
Electrooptic modulators
Intensity modulation
Phase modulation
Continuous phase modulation
Differential phase shift keying
Phase shift keying
Pulse modulation
Pulse width modulation
Pulse width modulation inverters
Space vector pulse width modulation
Multidimensional signal processing
Video signal processing
Motion artifacts
Video coding
Video compression
Noise
1/f noise
Additive noise
Additive white noise
AWGN
Colored noise
Gaussian noise
AWGN
Laser noise
Laser feedback
Low-frequency noise
Noise cancellation
Phase noise
Signal to noise ratio
PSNR
Superconducting device noise
White noise
AWGN
Optical signal processing
Laser noise
Laser feedback
Optical wavelength conversion
Phase locked loops
Pulse compression methods
Optical pulse compression
Pulse shaping methods
Optical pulse shaping
Quantization (signal)
Vector quantization
Radar signal processing
Received signal strength indicator
Recording
Audio recording
Digital recording
Disk recording
Magnetic recording
Digital magnetic recording
Heat-assisted magnetic recording
Magnetic noise
Magneto-optic recording
Microwave-assisted magnetic recording
Perpendicular magnetic recording
Shingled magnetic recording
Optical recording
CD recording
Video recording
High definition video
Videos
Webcams
RF signals
Signal analysis
Discrete-event systems
Harmonic analysis
Parameter estimation
Amplitude estimation
Direction-of-arrival estimation
Frequency estimation
Motion estimation
Phase estimation
Time of arrival estimation
Signal mapping
Spectral analysis
Infrared spectra
Judd-Ofelt theory
Spectroradiometers
Signal design
Signal detection
Acoustic signal detection
Sonar detection
Motion detection
Multiuser detection
Optical signal detection
Phase detection
Phase frequency detectors
Radar detection
Signal generators
Noise generators
Pulse generation
Optical pulse generation
Signal integrity
Signal reconstruction
Signal denoising
Signal resolution
Diversity reception
Signal restoration
Signal sampling
Signal synthesis
Source separation
Blind source separation
Spectrogram
Tracking loops

Social implications of technology
Cultural aspects
Cultural differences
Cultural differences
Environmental factors
Biosphere
Climate change
Global warming
Ecology
Ecosystems
Wetlands
Environmental economics
Carbon tax
Emissions trading
Environmental monitoring
Global warming
Green manufacturing
Green products
Green buildings
Green cleaning
Green transportation
Pollution
Air pollution
Emissions trading
Industrial pollution
Land pollution
Oil pollution
Radioactive pollution
Thermal pollution
Urban pollution
Water pollution
Ethical aspects
Ethics
Cyberethics
Machine ethics
Globalization
International relations
Peace technology
Philosophical considerations
Social factors
Demography
Developing countries
Technology social factors
Privacy
Sustainable development
Technology
Appropriate technology
Disruptive technologies
Machine ethics
Neurotechnology
Technological innovation
Technology social factors
Privacy
Technology transfer
Small business technology transfer
Telepresence
Telexistence

Solid state circuits
Circuit subsystems
Circuit theory
FET circuits
FET integrated circuits
Field effect MMIC
MESFET integrated circuits
JFET circuits
JFET integrated circuits
MESFET circuits
MESFET integrated circuits
MOSFET circuits
CMOSFET circuits
MOS integrated circuits
Power MOSFET
Gate leakage
Solid state circuit design
Transistors
Field effect transistors
CNTFETs

Double-gate FETs
FeFETs
HEMTs
JFETs
MESFETs
MISFETs
MODFETs
MOSFET
MOSFETs
MOSHFEETs
OFETs
Schottky gate field effect transistors
TFETs
Thin film transistors
Heterojunction bipolar transistors
Double heterojunction bipolar transistors
Millimeter wave transistors
Phototransistors
Static induction transistors

Superconductivity
Bean model
Critical current density
Flux pinning
Superconducting devices
Josephson junctions
SQUIDs
Superconducting coils
Superconducting magnets
Superconducting microwave devices
Superconducting photodetectors
Superconducting filaments and wires
Superconducting films
Superconducting thin films
Superconducting integrated circuits
Superconducting magnetic energy storage
Superconducting materials
Granular superconductors
High-temperature superconductors
Yttrium barium copper oxide
Multifilamentary superconductors
Niobium-tin
Type II superconductors
Superconducting transition temperature
Superconductive tunneling

Systems engineering and theory
Adaptive systems
Adaptive control
Cognitive radar
........Line enhancers
........Multi-agent systems
........Collaborative intelligence
........Variable structure systems
...Capability engineering
...Complex systems
...Configuration management
...Hierarchical systems
........Multilevel systems
...Integrated design
...Interface management
...Military systems
........Military control
........Military robotics
...Modeling
........Analytical models
........Common Information Model (computing)
........Atmospheric modeling
........Brain modeling
........Building information management
........Computational modeling
........Agent-based modeling
........Computational cultural modeling
........Computational materials science
........Reversible computing
........Context modeling
........Data models
........Data-driven modeling
........Metadata
........Data-driven modeling
........Deformable models
........Digital elevation models
........Emulation
........Graphical models
........Green's function methods
........Hidden Markov models
........Input variables
........Integrated circuit modeling
..........Cutoff frequency
.........Inverse problems
.........Deconvolution
.........Load modeling
.........Metamodelling
.........Numerical models
.........Object oriented modeling
.........Power system modeling
.........Load modeling
.........Process modeling
.........Semiconductor device modeling
.........Semiconductor process modeling
.........Signal representation
.........Simulation
.........Computer simulation
.........Digital simulation
.........Hardware-in-the-loop simulation
.........Human in the loop
.........Medical simulation
.........Mixed reality
.........Quantum simulation
.........Serious games
.........Systems simulation
.........Solid modeling
.........System identification
.........Systems modeling
.........Multidimensional systems
...Network systems
.........DC distribution systems
.........Physical design
.........Reduced order systems
.........Requirements engineering
.........Technical requirements
.........Requirements management
.........Service-oriented systems engineering
.........Solution design
.........Stochastic systems
.........System analysis and design
.........Asymptotic stability
.........Control system analysis
.........State-space methods
.........Diakoptics
.........Distributed processing
.........Dew computing
.........Edge computing
.........Message passing
.........Fault detection
.........Fault tolerant systems
.........Interconnected systems
.........Botnet
.........Large-scale systems
.........Lyapunov methods
.........Open systems
.........Open Access
.........Open Educational Resources
.........Physical layer
.........Petri nets
.........Physical design
.........Robust control
.........Scalability
.........Scattering parameters
.........Sequential analysis
.........Zero correlation zone
.........Sequential diagnosis
Systems, man, and cybernetics

Behavioral sciences

Animal behavior

Cognition

Activity recognition

Cognitive neuroscience

Cognitive processes

Commonsense reasoning

Self-aware

Consumer behavior

Psychiatry

Mental disorders

Psychology

Active perception

Emotional responses

Industrial psychology

Mental health

Mood

Neuropsychology

Psychometric testing

Social intelligence

Biological control systems

Biomarkers

Molecular biomarkers

Computational linguistics

Machine translation

Sentiment analysis

Cybernetics

Adaptive systems

Adaptive control

Cognitive radar

Line enhancers

Multi-agent systems

Variable structure systems

Cognitive informatics

Cognitive science

Human intelligence

Problem-solving

Control theory

Control nonlinearities

Iterative learning control

Observability

Decision theory

Decision trees

TOPSIS

Econophysics

Emergent phenomena

Intelligent control

Feedforward systems

Neurocontrollers

Linear feedback control systems

Frequency locked loops

Phase locked loops

State feedback

Tracking loops

Ergonomics

Job design

Smart spaces

User experience

Cyberbullying

Human factors
....Anthropomorphism
....Human augmentation
....Human image synthesis
....Human intelligence
....Digital intelligence
....Hyper-intelligence
....Mental health
....Technology acceptance model
....Identification of persons
....Biometrics (access control)
....Face recognition
....Fingerprint recognition
....Gait recognition
....Iris recognition
....Keystroke dynamics
....Palmprint recognition
....Face recognition
....Fingerprint recognition
....Handwriting recognition
....Forgery
....Speaker recognition
....Speech recognition
....Automatic speech recognition
....Speech analysis
...Man-machine systems
....Digital intelligence
....Extended reality
....Interactive systems
....External stimuli
...Natural languages
....Linguistics
....Phonetics
....Pragmatics
....Natural language processing
....Chatbots
....Machine translation
....Morphology
....Sentiment analysis
....Tokenization
....Pervasive computing
....Ubiquitous computing
....Context-aware services
....Wearable computers
....Smart glasses
...Posthuman
...Teleworking
...Transhuman
...User interfaces
....Audio user interfaces
....Brain-computer interfaces
....Data visualization
....Graph drawing
....Isosurfaces
....Emotion recognition
....Exoskeletons
....Graphical user interfaces
....Avatars
....Human computer interaction
....Affective computing
....Chatbots
....Extended reality
....Gaze tracking
....Head-mounted displays
....Head-up displays
....Human in the loop
....Immersive experience
....Telepresence
....Telexistence
....Human-robot interaction
....Human-vehicle systems
....Smart cards

Ultrasonics, ferroelectrics, and frequency control
....Ferroelectric materials
....Relaxor ferroelectrics
....Frequency control
....Automatic frequency control
....Tunable circuits and devices
....RLC circuits
....Tuned circuits
....Tuning
....Laser tuning
....Optical tuning
....Tuners
....Piezoelectricity
....Piezoelectric effect
....Piezoelectric polarization
....Pyroelectricity
....Ultrasonic imaging
....Ultrasonography
....Sonogram
....Ultrasonic transducers

Vehicular and wireless technologies
....Automotive engineering
....Automotive applications
....Automotive control
....Automotive electronics
....Power steering
Vehicle crash testing
Vehicle detection
Vehicle driving
Autonomous driving
Vehicle dynamics
Rollover
Vehicle safety
Advanced driver assistance systems
Lane departure warning systems
Lane detection
Land mobile radio equipment
Mobile antennas
Navigation
Aircraft navigation
Course correction
Dead reckoning
Indoor navigation
Inertial navigation
Marine navigation
Radio navigation
Satellite navigation systems
Global navigation satellite system
Global Positioning System
Satellite constellations
Sonar navigation
Propulsion
Aerospace propulsion
Aircraft propulsion
Propellers
Electromagnetic launching
Coilguns
Railguns
Electrothermal launching
Rockets
Vehicles
Connected vehicles
Hydrogen powered vehicles
Intelligent vehicles
Autonomous vehicles
Vehicle-to-everything
Land vehicles
Bicycles
Electric vehicles
Road vehicles
Military vehicles
Remotely guided vehicles
Drones
Remotely guided underwater vehicles
Remotely piloted aircraft
Space vehicles
Space shuttles

Wireless sensor networks
Body sensor networks
Event detections

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