

## 2024 Inspec Thesaurus and Classification Code Changes

### **About Thesaurus and Classification Codes**

The Inspec Thesaurus and Classification scheme are valuable search tools to help you refine your search results.

The Thesaurus contains over 10 000 Index Terms and is a terminology based subject index. The Index Terms are themselves interrelated to allow you either to find the most exact term(s) to add to your search or to broaden out your search with additional terms.

The Inspec Classification is a subject categorisation scheme containing over 3600 Classification Codes. These codes can be used to specify a subject area without needing to specify all the sub-concepts that might be used to define it, and to restrict the results of Index Term searches which may cross subject areas.

### **About Revisions**

Inspec regularly assesses and updates these taxonomies in line with advances in scientific and technological terminology and changes in the focus of research.

New Classification Codes may be added to allow access to formerly hard to access concepts and codes may be amended to reflect changes in terminology or to make explicit indexing practice. For 2024, 13 new codes are being added and 1 code is being retired.

Similarly new Index Terms may be introduced to allow new concepts to be specified, to subdivide growing research areas, or to match changes in the terminology of the material being indexed. 42 new Index Terms are being introduced for 2024. In addition, 121 concepts are being added which are synonyms, or explain, and lead to the Index Terms to use for those concepts. There are also a number of corrections and additions to the inter-term and code-term relationships. There are no Index Terms being retired.

The improved Thesaurus and Classification tools containing all these changes will be available in January in time for the first update of 2024.

### **Changes for 2024**

If your Saved Search (or Alert) contains Full Terms or Classification Codes from the following lists, you may wish to consider the related new concepts for addition into your strategy.

#### List of New Classification Codes linked to Pre-2024 Practice

Pre 2024 Code	New Code	New Code Text
A7830G	A7830D	Infrared and Raman spectra of elemental semiconductors
A7830G	A7830F	Infrared and Raman spectra of II-VI and III-V semiconductors
A7830E	A7830K	Infrared and Raman spectra of metals, semimetals, and alloys
A7840H	A7840J	Visible and ultraviolet spectra of organic compounds and polymers
A7840H	A7840L	Visible and ultraviolet spectra of amorphous and glassy inorganics

A7855H	A7855J	Photoluminescence in metals, semimetals, and alloys
B6210	B6210S	Network security
C0130	C0160	Security aspects of control and robotics
C6160Z	C6160V	Very large databases
C6160Z	C6160T	Temporal databases
C7100	C7101	Human resource management
C7400	C7435	Digital twins
C7440	C7475	Automotive computing
C7445	C7475	Automotive computing

List of New Index Terms Linked to Pre-2024 Terms

Pre 2024 Index term	Relationship	New 2024 Index term
aerospace engines	Narrow term	aircraft engines
aerospace propulsion	Related term	aircraft engines
aircraft	Related term	aircraft engines
blades	Related term	aircraft engines
combustion	Related term	aircraft engines
compressors	Related term	aircraft engines
gas turbines	Related term	aircraft engines
hypersonic vehicles	Related term	aircraft engines
jet engines	Related term	aircraft engines
atom probe field ion microscopy	Narrow term	atom probe tomography
tomography	Narrow term	atom probe tomography
advanced driver assistance systems	Related term	automotive computing
automobiles	Related term	automotive computing
automotive components	Related term	automotive computing
automotive control	Related term	automotive computing
automotive electric vehicles	Related term	automotive computing
automotive electrics	Related term	automotive computing
automotive electronics	Related term	automotive computing
automotive engineering	Narrow term	automotive computing
automotive materials	Related term	automotive computing
driver information systems	Related term	automotive computing
intelligent transportation systems	Related term	automotive computing
mechanical engineering computing	Related term	automotive computing
road traffic	Related term	automotive computing
road vehicle radar	Related term	automotive computing
traffic engineering computing	Related term	automotive computing
environmental economics	Narrow term	carbon emissions trading
environmental management	Related term	carbon emissions trading
pollution	Related term	carbon emissions trading
recycling	Related term	carbon emissions trading

carbon fibre reinforced composites	Related term	carbon nanofibres
carbon fibre reinforced plastics	Related term	carbon nanofibres
carbon fibres	Narrow term	carbon nanofibres
nanocomposites	Related term	carbon nanofibres
nanofibres	Narrow term	carbon nanofibres
biological tissues	Related term	chitosan
biomedical materials	Related term	chitosan
polymers	Narrow term	chitosan
energy resources	Related term	circular economy
environmental economics	Narrow term	circular economy
environmental management	Related term	circular economy
natural resources	Related term	circular economy
recycling	Related term	circular economy
sustainable development	Related term	circular economy
waste recovery	Related term	circular economy
waste reduction	Related term	circular economy
artificial intelligence	Related term	data science
Big Data	Related term	data science
computer science	Narrow term	data science
computer science education	Related term	data science
data analysis	Narrow term	data science
data handling	Related term	data science
data mining	Related term	data science
data preparation	Related term	data science
deep learning (artificial intelligence)	Related term	data science
DP industry	Related term	data science
feature extraction	Related term	data science
learning (artificial intelligence)	Related term	data science
neural nets	Related term	data science
pattern classification	Related term	data science
personnel	Related term	data science
statistical analysis	Related term	data science
dynamic testing	Narrow term	dynamic mechanical analysis
glass transition	Related term	dynamic mechanical analysis
stress-strain relations	Related term	dynamic mechanical analysis
viscoelasticity	Related term	dynamic mechanical analysis
battery storage plants	Related term	energy density
capacitor storage	Related term	energy density
direct energy conversion	Related term	energy density
electric vehicles	Related term	energy density
electrochemical electrodes	Related term	energy density
energy storage	Narrow term	energy density
fuel cell vehicles	Related term	energy density
hybrid electric vehicles	Related term	energy density

power capacitors	Related term	energy density
pulsed power technology	Related term	energy density
secondary cells	Related term	energy density
solar powered vehicles	Related term	energy density
supercapacitors	Related term	energy density
decision trees	Related term	ensemble learning
feature extraction	Related term	ensemble learning
image classification	Related term	ensemble learning
learning (artificial intelligence)	Narrow term	ensemble learning
neural nets	Related term	ensemble learning
pattern classification	Related term	ensemble learning
regression analysis	Related term	ensemble learning
supervised learning	Related term	ensemble learning
support vector machines	Related term	ensemble learning
unsupervised learning	Related term	ensemble learning
adaptive control	Related term	event triggered control
closed loop systems	Related term	event triggered control
control theory	Narrow term	event triggered control
distributed control	Related term	event triggered control
linear systems	Related term	event triggered control
multi-agent systems	Related term	event triggered control
networked control systems	Related term	event triggered control
nonlinear control systems	Related term	event triggered control
signal sampling	Related term	event triggered control
stability	Related term	event triggered control
time-varying systems	Related term	event triggered control
decision making	Related term	explainable AI
deep learning (artificial intelligence)	Related term	explainable AI
ethical aspects	Related term	explainable AI
knowledge engineering	Narrow term	explainable AI
learning (artificial intelligence)	Related term	explainable AI
neural nets	Related term	explainable AI
program testing	Related term	explainable AI
security of data	Related term	explainable AI
social aspects of automation	Related term	explainable AI
software performance evaluation	Related term	explainable AI
ethical aspects	Related term	fake news
feature extraction	Related term	fake news
Internet	Related term	fake news
journalism	Narrow term	fake news
learning (artificial intelligence)	Related term	fake news
natural language processing	Related term	fake news
politics	Related term	fake news
social aspects of automation	Related term	fake news

social networking (online)	Related term	fake news
socio-economic effects	Related term	fake news
text analysis	Related term	fake news
Web sites	Related term	fake news
cooperative systems	Related term	federated learning
data privacy	Related term	federated learning
deep learning (artificial intelligence)	Related term	federated learning
Internet of Things	Related term	federated learning
learning (artificial intelligence)	Narrow term	federated learning
mobile computing	Related term	federated learning
security of data	Related term	federated learning
chaos	Related term	fractional order systems
control systems	Narrow term	fractional order systems
differential equations	Related term	fractional order systems
three-term control	Related term	fractional order systems
transfer functions	Related term	fractional order systems
chemical reactions	Narrow term	hydrogen evolution reactions
electrolysis	Related term	hydrogen evolution reactions
hydrogen	Related term	hydrogen evolution reactions
hydrogen production	Narrow term	hydrogen evolution reactions
hydrogen storage	Related term	hydrogen evolution reactions
oxygen evolution reactions	Related term	hydrogen evolution reactions
reduction (chemical)	Related term	hydrogen evolution reactions
water	Related term	hydrogen evolution reactions
water splitting	BroaderTerm	hydrogen evolution reactions
flow batteries	Related term	hydrogen fuel cells
fuel cell power plants	Related term	hydrogen fuel cells
fuel cell vehicles	Related term	hydrogen fuel cells
fuel cells	Narrow term	hydrogen fuel cells
fuel gasification	Related term	hydrogen fuel cells
hydrogen production	Related term	hydrogen fuel cells
microreactors	Related term	hydrogen fuel cells
steam reforming	Related term	hydrogen fuel cells
geochemistry	Related term	inductively coupled plasma mass spectrometry
geochronology	Related term	inductively coupled plasma mass spectrometry
mass spectroscopic chemical analysis	Related term	inductively coupled plasma mass spectrometry
mass spectroscopy	Narrow term	inductively coupled plasma mass spectrometry
minerals	Related term	inductively coupled plasma mass spectrometry
plasma applications	Related term	inductively coupled plasma mass spectrometry

rocks	Related term	inductively coupled plasma mass spectrometry
factory automation	Related term	industrial communication
industrial control	Related term	industrial communication
Internet of Things	Related term	industrial communication
local area networks	Related term	industrial communication
production engineering computing	Related term	industrial communication
radio networks	Related term	industrial communication
telecommunication	Narrow term	industrial communication
wireless LAN	Related term	industrial communication
data analysis	Related term	k-means algorithms
data mining	Related term	k-means algorithms
feature extraction	Related term	k-means algorithms
learning (artificial intelligence)	Related term	k-means algorithms
nearest neighbour methods	Related term	k-means algorithms
pattern classification	Related term	k-means algorithms
pattern clustering	Narrow term	k-means algorithms
unsupervised learning	Related term	k-means algorithms
vector quantisation	Related term	k-means algorithms
optical microscopes	Narrow term	laser scanning confocal microscopes
optical microscopy	Related term	laser scanning confocal microscopes
biomedical materials	Related term	laser scanning confocal microscopy
cellular biophysics	Related term	laser scanning confocal microscopy
optical microscopes	Related term	laser scanning confocal microscopy
optical microscopy	Narrow term	laser scanning confocal microscopy
computer aided instruction	Related term	mechanical engineering education
educational courses	Related term	mechanical engineering education
engineering education	Narrow term	mechanical engineering education
mechanical engineering	Narrow term	mechanical engineering education
STEM	Related term	mechanical engineering education
teaching	Related term	mechanical engineering education
training	Related term	mechanical engineering education
force control	Narrow term	mechanical impedance control
manipulator dynamics	Related term	mechanical impedance control
manipulator kinematics	Related term	mechanical impedance control
motion control	Related term	mechanical impedance control
position control	Narrow term	mechanical impedance control
robot dynamics	Related term	mechanical impedance control
robot kinematics	Related term	mechanical impedance control
robots	Related term	mechanical impedance control
brain	Related term	mental health
cognition	Related term	mental health
employee welfare	Related term	mental health

health care	Related term	mental health
human factors	Related term	mental health
medical disorders	Related term	mental health
neurophysiology	Related term	mental health
occupational health	Related term	mental health
occupational stress	Related term	mental health
patient diagnosis	Related term	mental health
personnel	Related term	mental health
psychology	Narrow term	mental health
social aspects of automation	Related term	mental health
social networking (online)	Related term	mental health
socio-economic effects	Related term	mental health
black holes	Related term	mergers (astronomical)
galaxies	Related term	mergers (astronomical)
gravitational wave sources (astronomical)	Related term	mergers (astronomical)
mergers (stars)	BroaderTerm	mergers (astronomical)
flow through porous media	Related term	microporous materials
mesoporous materials	Related term	microporous materials
porosity	Related term	microporous materials
porous materials	Narrow term	microporous materials
porous semiconductors	Related term	microporous materials
nonlinear control systems	Related term	model predictive control
optimal control	Related term	model predictive control
predictive control	Narrow term	model predictive control
process control	Related term	model predictive control
nanocomposites	Related term	nanosheets
nanofibres	Related term	nanosheets
nanoparticles	Related term	nanosheets
nanostructured materials	Narrow term	nanosheets
5G mobile communication	Related term	network slicing
bandwidth allocation	Related term	network slicing
quality of service	Related term	network slicing
resource allocation	Related term	network slicing
telecommunication computing	Related term	network slicing
telecommunication network management	Narrow term	network slicing
virtualisation	Related term	network slicing
light transmission	Related term	optical transmittance
optical constants	Narrow term	optical transmittance
optical materials	Related term	optical transmittance
anodes	Narrow term	photoanodes
photoelectricity	Related term	photoanodes
photoemission	Related term	photoanodes
photoemissive devices	Narrow term	photoanodes

CAD	Related term	point clouds
computational geometry	Related term	point clouds
computer graphics	Narrow term	point clouds
data visualisation	Related term	point clouds
feature extraction	Related term	point clouds
optical radar	Related term	point clouds
solid modelling	Related term	point clouds
Markov processes	Related term	Q-learning
mobile robots	Related term	Q-learning
multi-agent systems	Related term	Q-learning
optimisation	Related term	Q-learning
reinforcement learning	Narrow term	Q-learning
stochastic processes	Related term	Q-learning
free-space optical communication	Related term	reconfigurable intelligent surfaces
frequency selective surfaces	Related term	reconfigurable intelligent surfaces
intelligent materials	Related term	reconfigurable intelligent surfaces
metamaterial antennas	Related term	reconfigurable intelligent surfaces
MIMO communication	Related term	reconfigurable intelligent surfaces
optical metasurfaces	Related term	reconfigurable intelligent surfaces
radiocommunication	Related term	reconfigurable intelligent surfaces
terahertz metamaterials	Related term	reconfigurable intelligent surfaces
wireless channels	Related term	reconfigurable intelligent surfaces
nanowires	Narrow term	semiconductor nanowires
semiconductor materials	Related term	semiconductor nanowires
semiconductor quantum wires	Related term	semiconductor nanowires
agriculture	Related term	soil moisture
crops	Related term	soil moisture
groundwater	Related term	soil moisture
hydrology	Related term	soil moisture
irrigation	Related term	soil moisture
moisture	Narrow term	soil moisture
soil	Narrow term	soil moisture
vegetation	Related term	soil moisture
heat treatment	Related term	thermal gravimetric analysis
thermal analysis	Narrow term	thermal gravimetric analysis
convolutional neural nets	Related term	transfer learning (artificial intelligence)
deep learning (artificial intelligence)	Related term	transfer learning (artificial intelligence)
feature extraction	Related term	transfer learning (artificial intelligence)
image classification	Related term	transfer learning (artificial intelligence)
learning (artificial intelligence)	Narrow term	transfer learning (artificial intelligence)



medical image processing	Related term	transfer learning (artificial intelligence)
pattern classification	Related term	transfer learning (artificial intelligence)
agricultural robots	Related term	unmanned ground vehicles
automatic guided vehicles	Related term	unmanned ground vehicles
automobiles	Related term	unmanned ground vehicles
crops	Related term	unmanned ground vehicles
emergency management	Related term	unmanned ground vehicles
industrial robots	Related term	unmanned ground vehicles
military robotics	Related term	unmanned ground vehicles
military vehicles	Related term	unmanned ground vehicles
mobile robots	Narrow term	unmanned ground vehicles
off-road vehicles	Related term	unmanned ground vehicles
path planning	Related term	unmanned ground vehicles
planetary rovers	Related term	unmanned ground vehicles
remotely operated vehicles	Narrow term	unmanned ground vehicles
rescue robots	Related term	unmanned ground vehicles
road vehicles	Related term	unmanned ground vehicles
telerobotics	Related term	unmanned ground vehicles
tracked vehicles	Related term	unmanned ground vehicles
laser beam effects	Related term	visible light radiation effects
radiation effects	Narrow term	visible light radiation effects

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