DETAILED OUTLINE OF CLASS B: PHYSICS

B PHYSICS
B2 . *Common subdivisions*
* As AY2; eg
B29 A . Social aspects of physics
X . Physics as a discipline... Philosophy...
B2M . Mathematical physics... Statistics in physics
* As AM.
. *Operations & agents of operations*
B32 . . Research in physics (general)
C . . . Methodology...
. . . *Types of investigation*
B36 . . . . Practical physics
* As for Practical science/technology AY36/7, with adjustments.
B37 . . . . . Unwanted effects... Safety precautions...
B3B . . . . . Equipment & materials
D . . . . . (Operations on)... Handling...
B3R . . . . . Materials (general)
B3U . . . . . Equipment & plant (general)
B4 . . . . . Instrumentation (general)
B45 . . . . . Instrument components
B5 . . . . . *Types of instruments*
B62 . . . . . Investigative techniques in physics
. . . . . *Serving all techniques & objectives*
B63 . . . . . Data processing & recording...
. . . . . *By scale*
B67 . . . . . Microtechniques...
B69 . . . . . Physical methods, physical techniques
* As BA/BW, with amendments & additions.
B6B . . . . . Mechanical... Vibration techniques...
B6G Y . . . . . Electromagnetic & electrical techniques
B6H I . . . . . Electrial techniques
B6I B . . . . . Electronics
* Divided as in Technology U.
C . . . . . Semiconductors...
P . . . . . Superconductors...
B6J . . . . . Magnetic techniques
B6K . . . . . Radiation, wave & pulse techniques
Q . . . . . Microwave & optics (together), quantum optic techniques
R . . . . . Masers... Lasers...
U . . . . . Telecommunications techniques
V . . . . . Microwave techniques... Radar...
B6L . . . . . Optical techniques...
W . . . . . Radiological techniques
X . . . . . X-rays... Gamma rays...
B6M . . . . . Particle physics techniques...
B6N P . . . . . Electron techniques...
B6O . . . . . Nuclear reaction techniques...
B6R . . . . . Bulk matter techniques
GH . . . . . Acoustic techniques... Ultrasonic...
GP . . . . . Thermal techniques... Cryogenic...
NR . . . . . Phase translation techniques
TCW . . . . . Gas dynamic... Hydrostatic...

PHYSICS B
Operations & agents of operations
. . . Practical physics B36
. . . . . Physical methods B69
. . . . . Gas dynamic... Hydrostatic... B6R TCW

B6X . . . . . Chemical techniques...
. . . . . *Techniques by action on phenomena*
B73 . . . . . Production techniques... Observing...
B76 . . . . . Measurement... Counting...
B7A . . . . . Testing & evaluation...
B7C . . . . . Monitoring...
B7F . . . . . Simulating, modelling...
B7H . . . . . Visualizing & imaging techniques
B7J . . . . . Microscopy... Holography...
B7K T . . . . . Photography... Radiography...
B7M . . . . . Spectroscopy, spectrography
B7N . . . . . Spectrometry
* If distinguished from spectroscopy.
B7P . . . . . Tracer techniques... Isotopes...
. . . *Investigations by special environment*
B7X . . . . Vacuums... Subsurface... Space...
N . . . . Non-experimental
B82 . . . . Experimental research
* If distinguished from practical physics.
. . . *Investigations by objective*
B85 . . . . Fundamental research... Oriented...
. . . *Investigations by methods, techniques*
B8B . . . . Theoretical physics (general)
. . . . . Particular theories
* Theories restricted to a specific field go with that field.
B8D . . . . . Classical, Newtonian... Statistical mechanics...
B8F . . . . . Field theory (general)
B8H . . . . . Relativity theory (general)
B8M . . . . . Quantum theory (general)
N . . . . . Quantization, quantum numbers (general)
B8P . . . . . Wave mechanics... Matrix mechanics...
B9 *General processes & properties*
* B92/99 are for use only as qualifiers.
* As AY92/99.
B92 . Distribution... Change.. Cyclical change...
B94 . *Conditions, parameters, influences*
K . . Isobaric... Isothermal...
B9B . Physical dimensions... Similarity...
B9C . . Time... Horology... Duration...
B9D . . Space... Size...
F . . . One-dimensional... Radius... 3-d, bodies...
B9G . Systems characteristics
* As AYG/R Systems theory.
V . . Conservation laws (general)
B9J . . Structure... Symmetry...
B9K V . . Continuous systems... Non-linear systems...
BAE Energy & matter (together)
9GW . Equivalence of energy & matter

Energy interactions & forms

PHYSICS B
Energy & matter BAE
. Equivalence of energy & matter BAE 9GW

BAF Energy interactions & forms
BAG . Thermodynamics
* Interactions between energy systems and their effect on the states of the systems. For thermal phenomena narrowly, see Bulk matter physics BRG P.
BAH . . Principles & laws of thermodynamics
. . *Properties & processes*
BAP J . . . Internal energy... Free energy...
BAT . . . Transport processes (general)...
BB . Mechanics
BB8 B . . *Theory*
* Classical, relativistic, quantum mechanics, etc are treated as theories of general physics and are preferred at B8B. This location is an alternative.
BBB . . Energy... Potential energy... Kinetic...
BBG . . Force(s)... Moment, torque...
. . . *Types of forces*
BBJ . . . . Pressure...
BBK . . . . Deformation... Stress... Strain...
* The detailed schedule is at BRB K under bulk matter (which is usually implied).
BCB . . . . Elasticity
BCE L . . . . Couple... Attraction.. Repulsion...
BCF . . . *Forces special to a context*
* Eg, energy loss (particles) BMC F.
BCH . . Statics
BCI . . . Inertia... Mass... Density...
BCN . . . Equilibrium... Stability... Instability...
BCS . . Motion... Momentum...
BCX . . Dynamics
BDA . . . Kinematics, pure motion... Displacement...
BDC . . . . Velocity... Acceleration...
BDE . . . Kinetics
. . . *Forms of motion*
BDK B . . . . Of points... Of extended figures...
BDM . . . . Circular motion... Rotation... Spin...
BDP . . . . . Vortices...
BDS . . . . Periodic motion... Harmonics...
BE . . . . . Oscillation & vibration
* Add to BE letters A/V following BF; eg
BEB . . . . . Harmonics... Frequency...
. . . . . *Types of oscillation & vibration*
BEX C . . . . . *By degree of freedom*
. . . . . *By external/internal origin*
H . . . . . Forced vibration...
BEY . . . . . Radiation (general)
* If distinguished from wave motion (BF). For electro-magnetic radiation, see BK.

PHYSICS B
Energy interactions & forms BAF
. . . . Periodic motion... Harmonics... BDS
. . . . . Radiation BEY

BF . . . . . Waves, wave motion
* Add to BFA letters A/E following B.
. . . . . *Properties & processes*
BFB . . . . . Harmonics
BFC . . . . . Propagation, transmission...
BFD . . . . . Frequency... Spectra...
BFF . . . . . Coherence... Emission...
BFL . . . . . Absorption... Refraction...
BFN . . . . . Reflection... Resonance...
BFP . . . . . Polarization...
BFQ . . . . . Diffraction... Interference...
BFS . . . . . Collision...
BFT . . . . . Scattering... Diffusion (waves)...
. . . . . *Types of radiation/wave motion*
BFV V . . . . . *By property*
* As BF; eg polarized waves BFV VP.
. . . . . *By directional & transience factors*
BFW C . . . . . Isotropic waves... Waveforms...
BFY G . . . . . Standing waves... Continuous...
R . . . . . Transverse waves (general)...
U . . . . . Longitudinal waves (general)...
BGA . . . . . Shock waves... Blast waves...
BGB . . . . . Beams... Rays...
BGH . . . . Acoustic properties... Thermal properties...
* See Bulk matter, BRG H.
Special energy forms
BGR . Gravitation... Gravitational waves... Ballistics...
BGY . Electricity & magnetism...
* The main schedule for this class is under bulk matter at BRG Y. All the details there are available here.
BH . . Elecromagnetism... Electromagnetic field...
BHI . . Electricity, electrical properties
BHK . . . Charge... Voltage...
BHN . . . Electrostatics... Electrodynamics...
BHP . . . Current... Circuits... Conduction...
* For semi-conductors, see solid state BVI; for electronics in general, see Techniques B6I B.
. . . *Interactions with other energy forms*
BIU B . . . . Mechanoelectric effects... Photoelectric effects...
BJ . . Magnetism
BJK . . . Magnetic flux... Magnetization...
BJQ . . . Diamagnetism... Paramagnetism...
BK . . Electromagnetic radiation
BKF C . . . Propagation, transmission
O . . . Polarization
. . . *By product*
BKJ . . . . Ionizing radiation... Non-ionizing...

Particle physics

PHYSICS B
Special energy forms
. . . By product
. . . . Ionizing radiation... Non-ionizing... BKJ

. . . *By wavelength & frequency*
BKM . . . . Radiofrequency waves, Hertzian waves...
BKQ . . . . Microwave & optics (together)
* For masers and lasers, see stimulated emission of radiation (techniques) B6K R.
BKU . . . . Microwaves... UVH... SHF...
BL . . . . Optics
* The main schedule is under bulk matter, at BRL. All the details there are available here.
. . . . . *Properties & processes*
BLF . . . . . Wave motion Physical optics...
C . . . . . Propagation, transmission
BLG C . . . . . Rays Geometrical optics...
BLH . . . . . Electrooptics...
. . . . . *Special properties & processes*
BLL . . . . . Luminosity... Colour...
* See Bulk matter BRL L
BLP . . . . . *Types of light by wave property*
* As BF; eg
F . . . . . Coherent light...
. . . . . *By wavelength & frequency*
BLU . . . . . Infra-red radiation...
BLV . . . . . Visible light... Ultra-violet...
BLW Y . . . . Radiology
BLX . . . . . X-rays... Gamma rays...
BLY Matter

BM Particle physics, nuclear physics (broadest sense)
* For elementary particles specifically, see BNB.
BM3 6 . Practical & experimental High energy physics
. . *Investigative operations*
BM7 3 . . . Particle production... Separation...
4G . . . Detecting & indicating...
5 . . . Counting & detecting...
. . . . Instruments
54 . . . . . Ionization counters... Scintillation counters...
H . . . Track visualization... Cloud chambers...
IJ . . . Beam handling, particle optics...
T . . . Acceleration... Accelerators... Cyclotrons...
BM8 B . Theory
FG . . Unification theories... Gauge theories...
M . . Quantum theory
MJF . . . Relativistic quantum field theory
N . . . Quantum numbers
* Use to qualify properties quantized (if not already provided for).

PHYSICS B
Particle physics BM
Theory BM8 B
. . Quantum numbers BM8 N

Processes & properties
BMA F . Energy interactions & forms Particle interactions
BMB B . . Energy
C . . . Energy ranges... Low... High energy...
D . . . Energy levels & states
E . . . . Stationary state... Excited state...
EM . . . . Bound state...
F . . . Energy bands
* See condensed matter BTX BF
BMC F . . . Energy loss of particles...
X . . Dynamics
BMD N . . . Rotation...
* For angular momentum, spin, etc, see special quantum properties BMM D.
BMF . . . Wave properties
G . . . . Emission... Decay...
S . . . . Collision... Scattering...
UR . . . . Capture... Annihilation...
BMH . . Electromagnetic properties...
* For charge, see special quantum properties BMM M.
BMJ . . . Magnetism
. . *Special particle processes & properties*
BMM B . . . Symmetry...
D . . . Quantum number properties
E . . . . Parity... Spin... Magnetic moment...
RU . . . . Charm... Strangeness...
. . *Interactions by energy expenditure*
BMN J . . . Superhigh energy... Inclusive interactions...
V . . Basic interactions
X . . . Exchange forces, field particle exchange
BMO . . . . Exchange particles, gauge bosons, field particles (general), quasi-particles
BMP G . . . Gravitational interaction
J . . . Electroweak forces
. . . . Elecromagnetic interactions
* See charged particles, BNG.
L . . . . Weak interactions
N . . . . Strong interactions
* See Hadrons BNQ PN
BMQ . . *Interactions with another particle*
* This class appears only under specific particles as required and is divided like BN. See BNQ for examples.
BMV *Parts of particles*
BMW . Composite particles, composite models...
BNB *Types of particles) Elementary particles (types*
* For exchange particles, see BMO.
* Each type of particle is divided as follows (where - represents the particle's classmark):
* Add to - letters A/Q following BM (for Processes & properties);
* Add to -QY letters V/Y following BM (for Parts);

Atomic & nuclear physics

PHYSICS B
Particle physics BM
Types of particles) Elementary particles (types BNB

* Add to -R letters A/X following BN (for types by other particles); eg BPR Q Hadronic atoms;
* Add to -S letters O/Q following B (continuing types by other particles;
* Use letters T/Y for types special to a given particle; eg BNT T Dibaryons.

BNC . *By quantum property*
* As BMM; eg
AS . . Conserved particles...
. *By source*
BND A . . Particle accelerator particles... Cosmic rays...
. *By aggregation*
RD . . Many-particle systems...
. *By lifetime*
RH . . Stable particles... Resonances...
. *By relation between quantum numbers*
BNF . . Antiparticles...
. *By charge*
X . . Electromagnetic field particles, charged particles
BNG . . . Electromagnetic interaction (particles)
O . . . . Exchange particles Photons
BNH . . . Electrically charged particles...
BNI . . . Magnetically charged, magnetic monopoles
. *By spin*
BNJ . . Fermions... Bosons...
. *By energy characteristics*
BNL C . . Monoenergetic... High energy particles...
. *By mass*
Q . . Light particles... Heavy particles...
. *By strength of interaction*
BNM . . Leptons
BNN . . . Muons... Neutrinos...
BNP . . . Electrons... Positrons...
BNQ . . Hadrons
MC . . . Symmetry Unitary symmetry...
MRW . . . Strangeness...
PN . . . Strong interactions (general)
Q . . . *Interactions with other particles*
QP . . . . Electron-hadron interactions
. . . *Types of hadrons*
T . . . . Multiplets... SU3 groups...
BNR . . . . . Quarks
. . . . . *Properties*
MRR . . . . . Colour... Charm...
. . . . . *Types of quarks*
RF . . . . . Antiquarks... Flavours...
BNS . . . . Mesons
T . . . . . Pions... Kaons... Eta-mesons...
BNT . . . . Baryons
BNU . . . . . Nucleons... Protons... Neutrons...
BNX . . . . . Hyperons... Lambda particles... Sigma ...

PHYSICS B
Particle physics BM
Types of particles) Elementary particles (types BNB
. . . . . Hyperons... Lambda particles... Sigma ... BNX

BNY Atomic & nuclear physics (together)
BO . Nuclei, nucleus, nuclear physics
. . *Operations*
BO7 H . . . Track visualization
. . Theory, models
BO8 VC . . . Unified model... Liquid drop model...
. . *General properties*
BO9 JV . . . Shape, configuration
BOA F . . Energy interactions & forms
* For nuclear reaction in the narrower sense (usually assumed) see BOR.
BOB B . . . Nuclear energy
D . . . . Nuclear energy levels...
DN . . . . . Transitions
G . . . Forces Nuclear forces...
GH . . . . Binding energy
BOC X . . . Dynamics
. . . . Radiation
BOF J . . . . . Decays
K . . . . . Radioactivity... Beta decay...
S . . . . . Collisions... Scattering...
BOH . . . Electromagnetism
* For nuclear magnetic moment, see BOM NJ
. . *Special nuclear processes & properties*
. . . *Quantum number properties*
BOM B . . . . Symmetry... Parity...
NJ . . . . Nuclear magnetic moment
O . . . . . Nuclear magnetic resonance, NMR...
BON V . . . Basic interactions
BOQ . . . *Interactions with other particles*
M . . . . Lepton-nucleus reactions
U . . . . Nucleon-nucleus reactions
BOR . . . Nuclear reactions
* Between nucleus and bombarding particles.
* The provisions indicated at BNB for the subdivision of any particle are modified here in order to provide more room for special nuclear reactions. Types of nuclei follow at BOX D.
* For constituents of reactions (collision, scattering, etc.) see BOF.
BB . . . . Energy Nuclear reaction energy, Q-factor
. . . . *Types of nuclear reactions*
PN . . . . . Natural... Artificial...
Q . . . . . Chain reaction... Cyclic...
BOS . . . . . *By product nucleus*
HD . . . . . Deuteron... Helium 4...
. . . . . *By emitted radiation/particle*
T . . . . . Gamma particle product reaction...
BOT . . . . . *By projectile, incident radiation*
HD . . . . . Deuteron... Alpha particle...
BOU . . . . . *By incident & emitted radiation/particle combined*
V . . . . . Proton (incident & emitted)

Particle physics BM
Atomic & nuclear physics BNY
Nuclei BO
. Special nuclear processes & properties
. . . . By incident & emitted radiation/particle combined BOU
. . . . . Proton BOU V

BOU Y . . . . *By target nucleus*
* Add to BOV letters D/R following BOX; eg
BOV HD . . . . . Deuterons (targets)... Lithium...
. . . . *By mode of energy release*
BOW . . . . . Fission
3W . . . . . Reactors
BOX B . . . . . Fusion
B3W . . . . . Fusion reactors
BWB . . . . . Plasma confinement
. *Types of nuclei*
FE . . Active... Unstable, radionuclides
. . *By mass number*
GA . . . Nuclei with mass number 1-5...
. . *By host chemical element*
HB . . . Hydrogen... Deuterons... Tritons
HH . . . Helium nucleus, alpha-particles...
BOY Atoms, molecules & ions (together)
BD . Energy levels
NV . Basicinteractions
BP . Atomic physics, physics of single atoms
BPB B . . Energy
D . . . Energy levels... Transitions...
DT . . . . Atomic orbitals...
EU . . . . Multiplets... Triplet state...
BPE Y . . Radiation
BPF S . . . Collisions...Scattering...
BPG B . . . Atomic beams
. . *Interactions with other particles*
BPQ P . . . Electron-atom interaction
YP . . . Atom-atom interaction
. . *Parts*
* See Electrons BNP; Nucleons BNU; Nuclei BO
. . *Types*
* For ions, see BQU.
. . . *By mass*
BPR LS . . . . Heavy atoms...
BPV . . . Nuclides... Isotopes...
BQ . Molecules (physics), physics of single molecules
. . Energy levels
BQB D . . . Molecular electronic structure
DQ . . . . Isomerism... Molecular orbitals...
BQC F . . . Energy loss... Molecular stopping power...
BQN V . . Basic interactions
BQP L . . . Weak interactions
LBG . . . . Van der Waals forces
. . *Interactions with another particle*
BQQ W . . . Neutron-molecule interaction
. . *Types of molecules*
BQT D . . . Diatomic molecules... Conjugated...

PHYSICS B
Particle physics BM
. . . Molecules BQ
. . . . . Diatomic molecules... Conjugated... BQT D

BQU . . . Ion physics
. . . . Radiation
* For ionization, see BKJ.
F . . . . . Ion optics
. . . . . *Interactions with other particles*
QYP . . . . . Atom-ion interaction... Molecule-ion...
. . . . *Types of ions*
. . . . . *By charge state*
RHU . . . . . Cations... Anions... Paired ions...
. . . . . *By origin*
TIU . . . . . Metastable ions... Recoil ions...
BQX Vacuums

BR Bulk matter physics, macrophysics
. Energy interactions & forms
BRA G . . Thermodynamics
* For thermal properties narrowly, see BRG P.
T . . . Transport properties
BRB . . Mechanics
G . . . Forces
H . . . . Field forces
K . . . Deformation
* The full schedule for this is at BVB K.
L . . . . Stress... Strain...
BRC X . . . Dynamics
BRE . . . . Mechanical vibrations Sonics
BRG H . . . . . Acoustics, sound... Ultrasonics...
P . . . . . Thermal properties...
Q . . . . . Heat transfer... Heat loss...
V . . . . . Temperature...
. . . . . Thermal regimes
W . . . . . Low temperature physics, cryogenics
X . . . . . High temperature physics
Y . . Electrical & magnetic properties
* The full schedule for this class is at BVG Y; all its details are available here.
BRL . . Optics (bulk matter)
* This is the main schedule for optics; all its details are available at BL and in BS/BW.
4 . . . Optical instruments
F . . . Physical optics
FH . . . . Luminescence... Transparence...
GH . . . Acoustooptics... Electrooptics...
L . . . Luminosity... Colour...
. . . *Types of light*
PP . . . . Polarized light... Optical solitons...
U . . . . Infra-red light
V . . . . Visible light
W . . . . Ultra-violet light
X . . X-rays
BRM . . Particle & high energy physics in bulk matter
* Add to BRM letters M/Q following B; eg
O . . . Nuclear physics of bulk matter... Atomic...

Fluids

PHYSICS B
Bulk matter physics BR
Energy interactions & forms
. . Nuclear physics of bulk matter... Atomic... BRM O

BRN States of matter, physical phases (states)
* For chemical studies, see Chemistry C .
. *Processes*
P . . Change of state
R . . . Phase transformation, phase transition
S . . . . Latent heat... Phase equilibrium...
BRO . . . *By states involved*
* Use only when qualifying a particular state of matter; eg BUO G Liquids - Evaporation
* When two different states interact, the denser state is cited first and classmarks are built retroactively; eg liquefaction of gases goes under liquids, at BUO S.
. *Subsystems*
BRQ . . Surfaces... Interfaces... Films...
. *Systems, by number of components*
BRR N . . Single... Mixtures...
. *Systems, by number of phases*
* Phase here means a state of matters, not a chemical substance or crystal structure.
BRS N . . Homogeneous...
T . . Heterogeneous... Dispersions...
BRT V . . . Colloids... Composite materials...

. *Systems by particular state of matter*
BRU . . Plasmas & fluids (together)
J . . . Magnetohydrodynamics, MHD
BRV . . Plasmas
73 . . . Plasma generation
73M . . . . Excitation, ionization... Confinement...
B . . . Flow of plasmas (general)
GY . . . Electric & magnetic properties
J . . . . Magnetohydrodynamics of plasmas
. . . *Subsystems*
PW . . . . Impurities in plasmas...
. . . *Types of plasmas*
SN . . . . Homogeneous... Heterogeneous
VB . . . . Plasmoids... Collisionless plasmas...

PHYSICS B
Bulk matter physics BR
States of matter BRN
Plasmas BRV
. . Plasmoids... Collisionless plasmas... BRV VB

BS Fluids
BSA G . Thermodynamics
* For thermal properties narrowly, see BSM GP.
T . . Transport properties... Diffusion...
W . . Viscosity, fluidity
BSB . Mechanics Flow of fluids, fluid mechanics
9BK . . Similarity parameters, dimensionless numbers
9BM . . . Mach number... Reynolds number...
G . . Forces
* Many of these are mainly associated with, or even special to, gases rather than liquids; see BTB G.
IM . . . Moments Pitching... Rolling... Yaw...
J . . . Pressure
JW . . . External forces
L . . . . Stress... Loading...
QU . . . . Buffeting... Drag...
BSC D . . . Internal forces
H . . Statics
P . . . Stability Static stability... Dynamic...
X . . Dynamics
BSD E . . . Kinetics
E8B . . . . Kinetic theory of fluids
. . . *Forms of motion*
N . . . . Rotational flow... Vortices...
BSF . . . . Waves Shock waves...
. . . *Special attributes & elements of flow*
* Normal retroactive synthesis is interrupted here to accommodate the large vocabulary of fluid flows. It is resumed at BSM.
BSG FC . . . . Suction... Wake...
L . . . . Jets... Cavities... Boundary layers...
. . . *Types of flow*
. . . . *By compressibility*
RE . . . . . Compressible...
. . . . *By viscosity*
RJ . . . . . Viscous flow... Inviscid...
. . . . *By degree of attachment*
SM . . . . . Separated flow...
. . . . *By pressure*
U . . . . . Isobaric flow...
. . . . *By velocity potential*
BSH L . . . . . Potential flow...
. . . . *By degree of mixing*
BSI . . . . . Laminar flow... Turbulent flow...
BSJ R . . . . *By speed*
. . . *Flow defined by bodies in fluid*
BSK B . . . . Bodies in fluid flow
C . . . . . Control forces... Longitudinal controls...
. . . . . *By part of body*
D . . . . . Surfaces... Corners... Holes...
. . . . . *By dimension of body*
H . . . . . Two-dimensional... Nozzles... Conduits...

Fluids

Bulk matter physics BR
States of matter BRN
Fluids BS
Mechanics Flow of fluids, fluid mechanics BSB
. Dynamics BSC X
. . . . . Two-dimensional... Nozzles... Conduits... BSK H

BSK Q . . . . . Three-d.... Bodies of revolution...
BSM . *Other energy interactions*
* Normal retroactive synthesis is resumed here after its interruption at BSG F.
* Add to BSM letters GF/Q following BR; eg
GH . . Acoustic properties
GP . . Thermal properties
M . . *Relations with particles & atomic physics*
P . . . Atoms
PBE . . . . Superfluids...
BSN P . . Change of state
Subsystems, parts
BSQ . Surfaces... Interfaces
Types of fluids
BSR D . Perfect fluids...
* For superfluids, see BSM PBE.
. *By number of phases*
BSS T . . Heterogeneous... Dispersions...
BT . Gases
BTB . . Mechanics Gas mechanics, flow of gases
3U . . . Equipment... Wind tunnels...
. . Similarity parameters
9BM . . . Mach number... Reynolds number...
G . . Forces
IM . . . Moments Pitching... Rolling... Yaw...
JW . . . External forces
Q . . . . Loads Buffeting... Lift... Drag...
BTC B . . . . Aeroelasticity (general)
X . . Aerodynamics (narrowly)
BTD V . . . Vibrations... Flutter... Buzz...
BTF . . . Waves...
BTG A . . . .)Shock waves(...
. . *Special elements & attributes of flow*
* Normal retroactive synthesis is interrupted here to accommodate the large vocabulary of gas flows. It is resumed at BTM.
FC . . .)Suction(...
FE . . . Aeronautical factors
* Alternative (not recommended) to locating in V Technology.
FH . . . . Balancing...
FP . . . Manoeuvrability forces... Downwash...
GQ . . . Slipstream... Wake...
L . . . Jets... Boundary layer...
. . *Types of gas flow*
RE . . . Compressible flow
BTI . . . Laminar flow... Turbulent flow...
BTJ S . . . Subsonic flow... Supersonic...
. . . *Defined by bodies in flow*
BTK H . . . . Two-dimensional... Nozzles... Conduits...
Q . . . . Three-d.... Bodies of revolution...

Bulk matter physics BR
States of matter BRN
Fluids BS
. . Gases BT
. . . Types of gas flow
. . . . . Three-d.... Bodies of revolution... BTK Q

BTK X . . . . . *By aeronautical structure*
* See Aeronautical engineering U; eg fixed wing, sweepback.
BTM . . . *Other energy interactions*
* Normal retroactive synthesis is resumed here after its interruption at BTG F.
* Add to BTM letters G/Q following BR; eg
GH . . . . Acoustic properties of gases...
GHT . . . . . Sonic boom...
GY . . . . Electrical & magnetic properties
HR . . . . . Electric discharge... Arc discharge...
BTN P . . . . Change of state
. . . *Subsystems, parts*
BTQ . . . . Surfaces... Films...
. . . *Types of systems*
. . . . *By number of phases*
BTR D . . . . . Perfect gases... Real gases...
BTT . . . . . Dispersions
* Gases in liquids and in solids go under liquids and solids.
BTU B . . . . . Plasmas in gases, gaseous plasmas
G . . . . . Gases in gases
. . . . *By constitution*
* For gases of particular elements and compounds, see Class C Chemistry; for air, see Earth's atmosphere DSQ.
. . Liquids
* See under BTX Condensed matter BTX.

BTX Condensed matter physics (narrowly)
* In present usage, this means liquids and solids. together. The term condensed matter is sometimes used to mean all forms of bulk matter, in which case BR should be used.
BF . Energy bands, band structure... Valence band...
BG . Forces
. . Pressure
BJQ . . . High pressure condensed matter physics
. . Deformation
BK . . . Rheology
GY . Electrical & magnetic properties
IP . . Superconductivity (general)
. *Parts*
Q . . Surfaces... Interfaces...

Solids

PHYSICS B
Bulk matter physics BR
States of matter BRN
Condensed matter physics BTX
Parts
. Surfaces... Interfaces... BTX Q

BU Liquids
* Add to BU letters A/Q following BS Fluids.
. Mechanics
BUB . Hydromechanics, flow of liquids
. . Statics
BUC H . . . Hydrostatics
. . Dynamics
X . . . Hydrodynamics
BUF . . . . Waves
. . *Special attributes & elements of flow*
* Normal retroactive synthesis is interrupted here; it is resumed at BUM.
BUG ER . . . Flow regimes... Boundary layers...
. . *Types of flow*
BUI . . . Laminar flow... Turbulent flow...
. . . *Flows defined by bodies in liquids*
BUK N . . . . Channel flow... Immersed bodies...
BUM . *Other energy interactions & forms*
* Normal retroactive synthesis is resumed here, after its interruption at BUG ER.
* Add to BUM letters GH/Q following BR; eg
GH . . Acoustic properties
M . . *Relations with particle physics*
BUN P . . Change of state
BUO E . . . Change of liquid to gas... Evaporation...
H . . . Change of gas to liquid... Condensation...
. *Subsystems*
BUQ . . Surfaces... Films...
. *Types of liquids*
. . *By simplifying assumptions*
BUR D . . . Ideal liquids...
. . *By number of phases*
BUT . . . Liquid dispersions...
BUU G . . . . Gases in liquids... Liquids in liquids...
. . *By composition*
* For liquids defined by chemical composition, see Class C; for liquid crystals, see BWU L.

PHYSICS B
Bulk matter physics BR
States of matter BRN
Condensed matter physics BTX
Liquids BU
. . By composition

BV Solids, rigid bodies
* For solid state physics in the narrower sense of electric and electronic properties of solids, see BVH.
BVB H . Forces
K . . Deformation
KL . . . Stress-strain relationships
L . . . Stress... Tension... Loads...
T . . . Strain
VE . . . . Elastic deformation... Plastic...
YD . . . . Failure... Fatigue...
YK . . . . Creep... Fracture...
BVC B . . Elasticity... Plasticity...
BVG H . Acoustic properties... Thermal...
BVH . Electromagnetism
* This is the main schedule for this class, since many of its concepts are dependent on bulk matter and on the solid state in particular.
* Many of its concepts (eg circuits) also imply human artefacts and strictly speaking should go in the technology class. Locate works here only if they treat the subject from a strictly physics aspect; in cases of doubt, prefer Technology U/V.
K . . Charge... Voltage...
MC . . Power... Load...
N . . Electrostatics
NBH . . . Electrostatic field
O . . Electrodynamics
P . . . Current
S . . . . Circuits
SV . . . . . Immittance
SX . . . . . Admittance...
U . . . . . Conductivity, conduction
V . . . . . Impedance... Resistance...
* For dielectrics, see BVI S.
. . . *Electrodynamics of special materials*
BVI . . . . Semiconductors
BCX . . . . . Electron states... Energy levels...
BF . . . . . Energy bands...
E . . . . . Charge carriers...
GB . . . . . Semiconductor materials
HB . . . . . Semiconductor devices
* See Semiconductor techniques B6I HB
P . . . . Superconductors
S . . . . Dielectrics, dielectric materials
SHT . . . . . Dielectric strain, displacement...
. . *Interactions of electricity with other energy forms*
UB . . . Electromechanical effects... Piezoelectricity...
UGH . . . Acoustoelectric effects... Thermoelectric effects...

Crystallography

States of matter BRN
Condensed matter physics BTX
Solids BV
Electromagnetism BVH
. Interactions of electricity with other energy forms
. . Acoustoelectric effects... Thermoelectric effects... BVI UGH

BVJ . Magnetic properties
FO . . Resonance...
K . . Magnetic flux... Magnetization...
R . . Paramagnetism... Ferromagnetism...
. . *Interactions with other energy forms*
UB . . . Magnetomechanical effects...
UBL . . . . Magnetostriction, piezomagnetism
BVK . . Radiation
* The full schedule for this is at BK; all its details are available here if required.
BVL . Optics
* The full schedule for optics is at BRL; all the details there are available here (and at BL if applicable).
L . . Luminosity... Colour...
BVM *Relations of solids with particle physics*
BVN P Change of state of solids
BVO E . To & from gases... Sublimation...
L . To & from liquids... Melting...
Q . . Liquids to solids... Supercooling...
Subsystems
BVQ . Surfaces
CA . . Tribology, friction... Lubrication...
Systems
. *By number of phases*
BVS N . . Homogeneous
NRS . . . Solid solutions...
T . . Heterogeneous
BVT . . . Dispersions... Colloids...
BVU G . . . . Gases in solids... Solids in gases...
L . . . . Liquids in solids... Solids in liquids...
S . . . . Solid in solid systems
. *Types of solids by composition*
* See Class C Chemistry for metal physics, polymer physics, etc.
BW . Crystallography
* For chemical aspects, see Class C.
* Alternative (not recommended) is in Class C Chemistry.
BW3 6 . . Practical & experimental
BW6 K . . . Radiation techniques... Diffraction...
LX . . . . X-ray techniques...
BW7 M . . . Spectroscopy...
. . *Processes & properties*
BWA . . . Physical crystallography
BWB K . . . . Deformation
XD . . . . . Dislocation... Cleavage...
BWL . . . Optical properties
BWM . . *Relations with particle & atomic physics*
BWN P . . Change of state
R . . . Phase transitions

States of matter BRN
Condensed matter physics BTX
Solids BV
Systems
. . Change of state BWN P
. . . Phase transitions BWN R

. . *Processes special to crystallography*
* Normal synthesis as instructed at BR is interrupted here. It is resumed at BWR B.
BWO G . . . Growth, formation... Nucleation...
J . . . Crystallization... Epitaxy...
T . . Structural crystallography
BWP . . . Lattices
S . . . . Symmetry... Defects... Space groups...
. . *Subsystems*
BWQ V . . . Microstructure, grain structure
BWR B . . . Surfaces
* Normal synthesis is resumed here after its interruption at BWO.
. . *Systems, types of crystals*
M . . . Crystal systems
. . . . *By symmetry*
BWV N . . . . . Body-centred... Face-centred...
. . . . *By crystal form*
SD . . . . . Pedion... Pinacoid... Dome...
. . . . *By bonding*
BWY F . . . . . Ionic... Covalent... Metallic...
. . . . *By specific element or compound*
P . . . . . Chemical crystallography
* Alternative (not recommended) to locating in C. in C; eg metallic bond crystals BWY PHM.
BX Applied physics, physics-based technologies
* Alternative (not recommended) to locating in U/V.
* Add to BX letters following U
* Add to BY letters following V