

Navigation

EASA Syllabus (May 2019)

EASA publish the syllabus for each of the nine ground school subjects. Shown below is the extract that PPLmentor.com is based on. The original can be found by searching for 'Easy Access Rules EASA Part-FCL'

9.	NAVIGATION
9.1.	GENERAL NAVIGATION
	Basics of navigation
	The solar system
	Seasonal and apparent movements of the sun
	The earth
	Great circle, small circle and rhumb line
	Latitude and difference of latitude
	Longitude and difference of longitude
	Use of latitude and longitude co-ordinates to locate any specific position
	Time and time conversions
	Apparent time
	UTC
	LMT
	Standard times
	Dateline
	Definition of sunrise, sunset and civil twilight
	Directions
	True north, magnetic north and compass north
	Compass deviation
	Magnetic poles, isogonals, relationship between true and magnetic
	Distance
	Units of distance and height used in navigation: nautical miles, statute miles, kilometres, metres and ft
	Conversion from one unit to another
	Relationship between nautical miles and minutes of latitude and minutes of longitude
	Magnetism and compasses
	General principles
	Terrestrial magnetism
	Resolution of the earth's total magnetic force into vertical and horizontal components
	Variation-annual change
	Aircraft magnetism
	The resulting magnetic fields
	Keeping magnetic materials clear of the compass
	Charts
	General properties of miscellaneous types of projections
	Direct Mercator
	Lambert conformal conic
	The representation of meridians, parallels, great circles and rhumb lines
	Direct Mercator
	Lambert conformal conic
	The use of current aeronautical charts
	Plotting positions
	Methods of indicating scale and relief (ICAO topographical chart)
	Conventional signs
	Measuring tracks and distances
	Plotting bearings and distances
	DR navigation
	Basis of DR

	Track
	Heading (compass, magnetic and true)
	Wind velocity
	Air speed (IAS, CAS and TAS)
	Groundspeed
	ETA
	Drift and wind correction angle
	DR position fix
	Use of the navigational computer
	Speed
	Time
	Distance
	Fuel consumption
	Conversions
	Air speed
	Wind velocity
	True altitude
	The triangle of velocities
	Heading
	Ground speed
	Wind velocity
	Track and drift angle
	Measurement of DR elements
	Calculation of altitude
	Determination of appropriate speed
	In-flight navigation
	Use of visual observations and application to in-flight navigation
	Navigation in cruising flight, use of fixes to revise navigation data
	Ground speed revision
	Off-track corrections
	Calculation of wind speed and direction
	ETA revisions
	Flight log
9.2.	RADIO NAVIGATION
	Basic radio propagation theory
	Antennas
	Characteristics
	Wave propagation
	Propagation with the frequency bands
	Radio aids
	Ground DF
	Principles
	Presentation and interpretation
	Coverage
	Range
	Errors and accuracy
	Factors affecting range and accuracy
	NDB/ADF
	Principles
	Presentation and interpretation
	Coverage
	Range

	Errors and accuracy
	Factors affecting range and accuracy
	VOR
	Principles
	Presentation and interpretation
	Coverage
	Range
	Errors and accuracy
	Factors affecting range and accuracy
	DME
	Principles
	Presentation and interpretation
	Coverage
	Range
	Errors and accuracy
	Factors affecting range and accuracy
	Radar
	Ground radar
	Principles
	Presentation and interpretation
	Coverage
	Range
	Errors and accuracy
	Factors affecting range and accuracy
	Secondary surveillance radar and transponder
	Principles
	Presentation and interpretation
	Modes and codes
	GNSS
	GPS, GLONASS OR GALILEO
	Principles
	Operation
	Errors and accuracy
	Factors affecting accuracy