

Long Term Plan Year 12 Motor Vehicle Engineering



Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver (rename)	Anticipated misconceptions	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
HT1	Health & Safety	HASAWA 1974, COSHH EPA, Manual Handling, PPE, Consumable materials, Fire classifications & extinguishers	Reading regulations & legislation, measuring data, reading charts and graphs		Knowing regulations and legislations, identification of fires, ergonomic load, consumable materials	Health & Safety Tools, Equipment & Materials	Unit ref: GA102 GA3 GA4 LVMS	Research the HSE			https://wow.acity.camart.co.uk/world-of-work
HT2	Braking systems	Drum brakes: leading and trailing shoe construction, self-servo action, automatic adjusters, backing plates, parking brake system, electrical and electronic components	Measuring devices, reading data, checking volume, reading manufacturers settings, testing		Use of brake bleeding kit, use of vernier & micrometer gauges, brake boiling teste	Health & Safety Tools, Equipment & Materials	Unit ref: GA102 GA3 GA4 LVM02.1 LVM02.3	Calculating brake efficiency			https://wow.acity.camart.co.uk/world-of-work
HT3	Wheels and	Radial, cross	Measuring		Use of tyre	Health &	Unit ref:	Wheel rim			https://wow.acity.camart.co.uk/world-of-work

	Tyres	ply, bias belted, tread patterns, tyre mixing regulations, tyre markings: tyre and wheel size markings, speed rating, direction of rotation, profile load rating, ply rating, tread-wear indicators	devices, reading data, checking pressures, reading manufacturers settings and specifications		removal machine, balancing wheels, measuring tread depth	Safety Tools, Equipment & Materials	GA102 GA3 GA4 LVMS LVM04	markings, UK repair standards			utocty.com.ar/t.co.uk/world-of-work
HT4	Steering & Suspension	Steering geometry: castor angle, camber angle, kingpin or swivel pin inclination, negative offset, wheel alignment (tracking) (toe in and toe out, hydraulic, hydro-pneumatic, hydraulic dampers, trailing arms, wishbones, ball joints, track control arms, bump stops, anti-roll bars, stabiliser bars, swinging arms	Measuring devices, reading data, checking height, reading manufacturers settings, testing components under load		Use of wheel alignment tracking gauges, steering systems components, use of spring compressor, suspension system components	Health & Safety Tools, Equipment & Materials	Unit ref: GA102 GA3 GA4 LVM02.3 LVM04	Steering geometry tasks, calculating ride height			https://www.utocty.com.ar/t.co.uk/world-of-work
HT5	Electrical	Operation of vehicle lighting systems,	Measuring devices, reading data,		Use of multimeters, measuring	Health & Safety	Unit ref: GA102 GA3	Measuring inductive wavelengths,			https://www.utocty.com.ar/t.co.uk/world-of-work

		batteries, wiring, wiring terminals, fuse, switch, relay, lighting bulb,	checking levels, reading manufacturers settings, testing batteries and alternators under load		data from scan tools, electronic system components	Tools, Equipment & Materials	GA4 LVM03	inspecting cells and electrolyte			of-work
HT6	Lubrication	Splash and pressurised systems, pumps, pressure relief valve, engine oil: full-flow, hydrodynamic, boundary, viscosity, multi-grade, natural and synthetic oil	Reading indexes, measuring levels, reading manufacturers specifications, checking volumes and capacities		Use of oil draining pan, vacuum bottle, disposal of waste oil, environmental impact	Health & Safety Tools, Equipment & Materials	Unit ref: GA102 GA3 GA4 L2LVMS LVM02.1 LVM02.2	SAE viscosity index graphs			https://wow.automocity.comar.t.co.uk/world-of-work