



C3	Electronics controls	C3.1	Digital electronics	4	60	Logical gates, boolean expression	1. Vertical Frequency drive 2. Servo drive 3. Advanced RISC Machining (ARM) processor 4. Programmable Logic devices
						Sequential circuits	
						Combination circuits	
						Motor control circuits	
						Memory devices	
						Softskills	
		C3.2	Micro controller	4	60	Micro controller Basics	
						Programming in Intel 8031	
						Programming in Atmel 89C52	
						Programming in PIC 16F877A	
		C3.3	Power electronics control	4	60	Softskills	
						Thyristor family & Gate characteristics	
Power converters							
Power supply - SMPS & UPS							
C4	CAD	C4.1	Auto CAD Mechanical	2	30	Introduction to AutoCAD 2009	1. Introduction to CAM 2. Assembly drawing 3. Geometrical dimensioning nad tolerance
						Two dimensional drawing	
						Three dimensional drawing	
						Softskills	
						Sketcher	
		C4.2	Pro -E	5	75	Part Modeling	
						Surfacing	
						Detailing	
						Softskills	
		C4.3	Inventor - 2009	5	75	Sketcher	
						Part Modeling	
						Piping	
						Sheet metal	
						Detailing	
						Presentation	
Softskills							

C5	Introduction to Tool design	C5.1	Press Tool Design	4	60	Types of press tools	1. Jigs and Fixtures 2. Geometrical dimensions and tolerance
						Press tool operations	
						Materials	
		C5.2	Die Casting Tool Design	4	60	Softskills	
						Die casting components	
						Materials	
		C5.3	Mould design	4	60	Aluminium die casting	
						Softskills	
						Types of plastics	
C6	Fitting	C6.1	Fitting Practice and Assembly	6	90	Parts of the moulds	1. Workshop Calculations 2. Workshop Science 3. Introduction to machining
						Shrinkage	
						Softskills	
						Hand Tools	
						Marking Tools	
						Filing methods	
		C6.2	Metrology and Measuring Instruments	2	30	Drilling and Tapping	
						Assembly Techniques	
						Softskills	
		C6.3	Engineering Drawing	4	60	Linear Measuring Instruments	
						Angular Measuring Instruments	
						Limit Gauges	
						Softskills	
						Standards & Symbols	
						Free Hand Sketches	
		C7.1	Drilling operations	2	30	First Angle Projection	
						Third Angle Projection	
						Isometric views	
Assembly Drawing							
Softskills							
C7.2	Turning Operations					5	75
		Drilling operations					
		Work holding devices					
		Tool holding devices					
		Surface finishing					
		Softskills					
C7.3	Milling operations	5	75	Parts of a lathe			
				Lathe operations			
				Work holding devices			
				Tool holding devices			
				Surface finishing			
				Softskills			
C7.3	Milling operations	5	75	Parts of a milling machine			
				Milling operations			
				Work holding devices			
				Tool holding devices			
				Surface finishing			
				Softskills			

C8	Welding	C8.1	Arc welding	3	45	Arc welding equipments	1.Heat treatment 2. Submerged Arc welding 3. TIG welding 4. Non destructive testing (NDT)
						Types of joints	
						Welding methods	
						Welding defects and remedies	
		Softskills					
		C8.2	Gas welding	3	45	Gas welding equipments	
						Types of flames	
						Welding methods	
						Welding defects and remedies	
		Softskills					
		C8.3	MIG welding	3	45	MIG welding equipments	
						Electrodes	
						Types of gases	
						Welding methods	
		Softskills					
		C8.4	Spot welding	3	45	Spot welding equipments	
Welding methods							
Setting parameters							
Softskills							
C9	Electrical and Electronics	C9.1	Electrical machines and controls	4	60	Electrical Machines	1. Introduction to PLC 2. Special Electrical machines 3. Electrical CAD
						Electrical Controls	
						Softskills	
		C9.2	Electronic machines and controls	4	60	Electronic Devices	
						Electronic Controls	
						Softskills	
		C9.3	Soldering Techniques	4	60	Conventional soldering	
						Micro soldering	
						Softskills	

C10	PLC	C10.1	PLC Basics	2	30	Components of PLC	1. Programming in Allen Bradley PLC 2. Programming in Omron PLC 3. Programming in Messung PLC 4. Electropneumatics
						Input and output modules	
						PLC scan & Memory devices	
						Softskills	
		C10.2	Programming in Siemens PLC	5	75	Introduction to software step 7 micro win 32 & hardware configuration	
						Logic circuits & electrical control circuit	
						Timer	
						Comparator & Counter	
						Special instructions	
		C10.5	Programming in Fanuc PLC	5	75	Softskills	
						Introduction to software Versapro &	
						Logic circuits & electrical control circuit	
						Timer	
						Comparator & Counter	
						Special instructions	
Softskills							