

First-Year Scheme & Syllabus for B.Voc.
Degree Programme in

Industrial Tool Manufacturing

[\(Dr Babasaheb Ambedkar Technological University, Lonere\)](#)

Semester I

Sr. No	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks		
			L	T	P	IA	MSE	ESE				
General Education												
Theory												
1	BVTMC101	Machine Tool Technology	3	0	0	25	0	25	3	50		
2	BVTMC102	General Mechanical Engineering - II	3	0	0	25	0	25	3	50		
3	BVTMC103	Industrial Engineering	3	0	0	25	0	25	3	50		
4	BVTMC104	Metrology and Measuring Instruments	3	0	0	25	0	25	3	50		
Total									12	200		
Skill Components												
Lab/Practical												
5	BVTML105	Metrology and Measuring Instruments Lab	0	0	1	25	0	25	1.5	50		
6	BVTML106	Machine Tool Technology Lab.	0	0	1	25	0	25	1.5	50		
On-Job-Training (OJT)/Qualification Packs (Any One)												
Evaluation Scheme												
						IA	ESE					
7	BVTME117	Metal Arc Welding (CSC/Q0204)	50						150		15	200
8	BVTME128	MIG MAG or GMAW Welder (CSC/Q0209)										
9	BVTME139	Assistant TIG Welder (CSC/Q0212)										
10	BVTME140	CNC Setter Cum Operator (CSC/Q0120)										
11	BVTME151	CNC Operator – VMC (CSC/Q0116)										
Total									30	300		

Semester II

Sr. No	Course Code	Name of the Course	Teaching scheme			Evaluation Scheme			Credits	Total Marks	
			L	T	P	IA	MSE	ESE			
General Education											
			Theory								
1	BVTMC201	Industrial Management	3	0	0	25	0	25	3	50	
2	BVTMC202	Total Quality Management	3	0	0	25	0	25	3	50	
3	BVTMC203	Entrepreneurship	3	0	0	25	0	25	3	50	
Total									9	150	
Skill Components											
			Lab/Practical								
5	BVTML204	Project	0	0	3	75	0	75	6	150	
On-Job-Training (OJT)/Qualification Packs (Any one more QP to be opted from the QPs mentioned in the semester I)											
			Evaluation Scheme								
						IA		ESE			
7	BVTME117	Metal Arc Welding (CSC/Q0204)	50			150		15		200	
8	BVTME128	MIG MAG or GMAW Welder (CSC/Q0209)									
9	BVTME139	Assistant TIG Welder (CSC/Q0212)									
10	BVTME140	CNC Setter Cum Operator (CSC/Q0120)									
11	BVTME151	CNC Operator – VMC (CSC/Q0116)									
Total									30	350	

Semester
I
Syllabus

Subject Name: Machine Tool Technology

Course Code : BVTMC101	Semester: I
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	CENTRE LATHE	08
	The centre lathe and its principle of working, Types of lathes, Lathe specification and size, Features of lathe bed, Head stock and tail stock, Feed mechanism and change-gears. carriage saddle, Cross slide, Compound rest, Tool post, Apron mechanism, lathe accessories, Chucks, Face plate, Angle plate, Driving plate, Lathe dogs, mandrils, Steady rest, Lathe attachments, Lathe operations-plane and step turning, Taper turning, Screw cutting, Drilling, Boring, reaming, Knurling, Parting off, Under cutting, Relieving, Types of lathe tools and their uses, Brief description of semi automatic lathes such as capstan and turret lathes, their advantages and disadvantages over centre lathe, types of job done on them. General and periodic maintenance of a centre lathe.	
Unit – II	SHAPING, PLANING & SLOTTING MACHINES	07
	Working principles of planer, shaper and Slotter, Differences and similarities among them, quick return mechanism applied to the machines. types of work done on them, types of tools used, their geometry, General and periodic maintenance of a shaper. DRILLING & BORING MACHINES: Types of tools used in drilling and boring. Classification of drilling and boring machines, principle of working and constructional details of simple and radial drilling M/C and general and periodic maintenance. Operations like facing, counter boring, tapering.	
Unit – III	MILLING MACHINES	07
	Types of milling machines, constructional features of horizontal milling M/C. general maintenance of the machine, types of milling cutters, milling operations like plane milling, space milling, angular milling form milling, straddle milling, gang milling, Negative rake milling, cutting speed and speed for different tools in up and down milling. Simple, compound and differential indexing, milling of spur gears and racks.	
Unit – IV	GRINDING MACHINES	07
	Common abrasives, grinding wheel materials, Bonds, Grain and grit of abrasive, Grain structure and shapes of common wheels, various speeds and feeds, Use of coolants, Methods of grinding, Types of grinding machines, precision finishing operations like honing. BROACHING MACHINES: Types of work done on broaching machine. Simple types of broaches and their uses, Types of broaching machines.	
Unit – V	JIGS AND FIXTURES	07

	<p>Object of Jigs and Fixture, Difference between jigs and fixtures, Principle of location, Principle of clamping, Locating and clamping devices. Types of jigs - Simple open and closed (or box) jigs. Drill jigs- bushes (Fixed, Liner, Renewal, Slip). Template, Plate jigs. Channel jigs, Leaf jigs, Simple example of milling, turning, grinding, horizontal boring fixtures and broaching fixtures. Welding fixtures</p> <p>COOLING PROCESS: Cooling and cutting fluids, difference between coolant and cutting fluid, function and action of cutting fluids, Requirement of good cutting fluids, their selection for different materials and operations</p> <p>AUTOMATION OF MACHINE TOOLS: Introduction to CNC lathe (Computer Numerical Control Lathe) and FMS (Flexible Manufacturing System) Introduction only.</p>	
--	--	--

Books

Name of Authors	Title of the Book	Publisher
Jain & Gupta	Production Technology	Khanna
J K Kumar	Machine Tool Technology (Hindi)	
Hazra & Choudhary	Workshop Technology Vol. II	Tata MCGraw Hill
P C Sharma	Production Technology	S Chand

Subject Name: General Mechanical Engineering - II

Course Code : BVTMC102	Semester: I
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	Basics of Thermodynamics	08
	Basic definition of heat, work, Thermodynamic process, parameters of working body and their units, Equation of state, Universal gas constant, Relation between heat capacity and temperature. Determination of quantity of heat.	
Unit – II	Laws of Thermodynamics	07
	Elementary concept of laws of thermodynamics, first law and second law, Graphical representation of process, The work of expansion and compression of a gas, Change in the state of ideal gas-Isochoric, Isothermal and Adiabatic process, Carnot-cycle.	
Unit – III	IC ENGINES	07
	External & internal combustion engines, working of diesel and petrol engine, horse power of IC engines.	
Unit – IV	Steam Generators & Condensers	07
	Construction and working of Babcock & Wilcox boiler, Cochran boiler, Steam condenser & its types.	
Unit – V	Steam & Gas Turbines	07
	Steam turbine, classification and principle of operation, gas turbine.	

Books

Name of Authors	Title of the Book	Publisher
Khurmi & gupta	Mechanical engineering	S Chand
Jk Kapoor	General mechanical engineering	
P k nag	Basic applied thermodynamic	Tata MCGraw Hill
Khurmi & gupta	Thermal engineering	S Chand

Subject Name: Industrial Engineering

Course Code : BVTMC103	Semester: I
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	Inspection and quality control	08
	Inspection: Inspection and its objective, Types of inspection, Inspection standards, Duties of inspection foreman. Quality control: Concept of quality control, Elements of quality control, quality control groups, objectives of quality control. Statistical quality control, objectives of S.Q.C. Inspection by variables & attributes, Frequency distribution, mean, median & mode, standard deviation, X-R charts, P-Charts, C-Charts and acceptance sampling (i) I.S.O. 9000 (ii) KAIZEN (iii) Six Sigma (iv) 5S (v) TQM system, concept & brief idea only.	
Unit – II	Work study	07
	Method study-Process chart, Flow process chart, Flow diagram, Man and Machine chart, gang process chart, Work Measurement-Time study, Tools used in time study, Performance rating, Allowance and use of time standard, Time and Motion Study. Principles of human motion economy, Micro-motion study, Memo motion study, Therbligs, left hand and right hand chart.	
Unit – III	CPM & PERT	07
	Introduction to CPM, language of CPM net work, Diagram map for CPM chart, arrow diagram method of CPM, Programme Evaluation & Review Technique (PERT) Activity event net work (simple manual cases only). Project scheduling with CPM & PERT.	
Unit – IV	Plant layout	07
	General plant location factors, Influence of location on plant layout, selection of plant site, Product layout, Process layout. Advantages and disadvantages of process layout and product layout, GENERAL: Standardization, sources of standard, value of standardization. Production Planning & Control-Introduction, concept of planning, scheduling routing & dispatching and follow up functions, Need for Production, Planning and Control.	
Unit – V	Material handling	07
	Material Handling & material handling equipment, factors in material handling problems, cost reduction through improved material handling, Reduction in time of material handling, Material handling equipment-Idea about lifting lowering devices, Transportation devices, combination devices, Maintenance of material handling equipment.	

Books		
Name of Authors	Title of the Book	Publisher
Banga, Sharma & Agrawal	Industrial Engineering & Management	
Hemendra Dutt Sharma	Industrial Engineering Safety & Pollution (Hindi)	
O P Khanna	Industrial Engineering & Management	Dhanapar Rai and Sons
L C Zamb	Industrial Engineering	Everest

Subject Name: Metrology and Measuring Instruments

Course Code : BVTMC104	Semester: I
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	INTRODUCTION	08
	<p>Meaning and scope of metrology in field of engineering, Standards and types of measurements (Line and Wave, length, Primary, Secondary and Tertiary measurement concept only). Limits, Fits and Tolerances, Interchangeability, precision and accuracy, Sources of error</p> <p>Principles And Classifications Of Measuring Instruments:</p> <p>(a) Principle of Mechanical Measuring Instruments: Lever method, Vernier method, screw and screw nut method, compound gearing and helical spring methods.</p> <p>(b) Principles of Optical Instruments: Reflection, Refraction, Interference, Polarisation, Optical prisms, Lenses and Optical projectors.</p> <p>(c) Principles of Electrical measuring Instruments.</p> <p>(d) Principles of Hydraulic and Pneumatic Instruments.</p>	
Unit – II	COMPARATORS	07
	<p>General principles of constructions, balancing and graduation of measuring instruments, characteristics comparators, use of comparators, difference between comparators, limit gauges and measuring instruments. Classification of comparators, construction and working of dial indicator, mechanical comparator, mechanical-optical, zeiss optotest, electro limit, electromechanical electronics, pneumatic comparators, gauges, tool makers microscope.</p>	
Unit – III	SURFACE FINISH	07
	<p>Geometrical characteristics of surface roughness- Wavyness, layflaws, Effect of surface quality on its functional properties. Factor affecting the surface finish, Drafting symbols for surface roughness, Evaluation of surface finish RMS and CLS values, Methods of measuring surface roughness qualitative and quantitative methods, Comparison of surface produce by common production methods.</p>	
Unit – IV	VARIOUS TYPES OF INSTRUMENTS USED FOR	07
	<p>(i) (a) Physical Measurements such as-Length, distance, height, Thickness, Gaps, Curvature, Angle, Taper, Area, Undulations, Surface finish, Thread and Gear measurement (b) Liquid Level & Viscosity-Liquid level measuring methods and devices, Viscometer - Plate and cone Viscometer, Two float viscometer, Rheo viscometer.</p> <p>(ii) Mechanical Quantities: (a) Displacement. velocity, acceleration, space troque-Use of transducers and electronic count stroboscope, vibrating reeds and technometers (b) Pressure and Vacuum - Idea of atmosphere pressure, Gauge pressure and vacuum - Use of instruments such as manometers and those use elastic elements such as diaphragm, capsule Bellows, Bourdon tube and various transducers thermo couple, vacuum gauges (c) Strain - Use of Strain gauge and load cells (d) Mechanical Power - Dynamometers - absorption and transmission type both. (Reference Only).</p> <p>TEMPERATURE MEASUREMENT: Various types other mometers, thermocouples, pyrometers (Radiation and optical type both).</p>	

Unit – V	INSPECTION OF GEOMETRICAL ERRORS	07
	Construction and working of auto collimeter, checking of straightness, flatness, squareness and parallelism, circularity (By dial gauge and telerod). MAINTENANCE OF MEASURING INSTRUMENTS: Defects likely to occur in measuring instruments and their remedies. General maintenance of measuring instruments	

Books		
Name of Authors	Title of the Book	Publisher
RK Jain	Engineering Metrology	Khanna
RK Jain	Mechanical Measurement	
M Mahajan	A text book of metrology	Dhanapat Rai and Sons

**Subject Name: Metrology and Measuring Instruments
lab**

Course Code : BVTML105	Semester: I
Weekly Practicals: PR: 01 Tut: 00	Scheme of Marking TH: --
TH Exam Duration: --	Scheme of Marking PR: 25 , IA: 25 , Total: 50
Credit: 1.5	

Content

Content

1. Measurement of angle with the help of sine bar/ Vernier Bevel protractor.
2. Study and sketch of various types of optical projectors.
3. Study and sketch of various types of comparators and use them for comparing length of given piece.
4. To measure the diameter of a hole with the help of precision balls.
5. To measure external and internal taper with the help of taper gauges, precision rollers.
6. To test the squareness of a component with auto-collimeter.
7. To measure the pitch, angle and form of thread of a screw.
8. To measure the geometry of a gear having involute profile.
9. To measure the straightness of the edge of a component with the help of auto-collimeter.
10. To measure the length, breadth, thickness, depth, height with micrometer.
11. To measure the length, breadth, thickness, depth, height, with height gauge and Vernier calipers.
12. Calibration of Vernier calipers/micrometers.
13. Calibration of height gauge/depth gauge.
14. Study of a tool maker's microscope.
15. Checking of accuracy of snap gauge with slop gauge.
16. Checking of accuracy of a plug gauge with micrometer.
17. Measurement of areas by polar planimeter.
18. Use of feeler, wire, radius and fillet gauges measurement of standard parameters.

Minimum 10 Practical Should be Conducted

Subject Name: Machine Tool Technology Lab

Course Code : BVTML106	Semester: I
Weekly Practicals: PR: 01 Tut: 00	Scheme of Marking TH: --
TH Exam Duration: --	Scheme of Marking PR: 25 , IA: 25 , Total: 50
Credit: 1.5	

Contents

(A) MACHINE SHOP

1. (a) Square thread cutting (internal and external) - 2 jobs
- (b) Multi-start thread cutting - 1 job
- (c) Eccentric Turning - 1 job
2. Making utility job - Planner, Shaper, Slotter - 1 job
3. Group work on milling machine involving up & down milling in:
 - (a) Gang milling - 1 job
 - (b) Spur gear cutting - 1 job
 - (c) Helical gear cutting - 1 job

(B) FITTING SHOP

1. To make a cut and cup tool - 1 job
2. To make blank and pierce tool - 1 job
3. To make a male and female fitting jobs - 1 job
4. To grind a lathe/shaper/planer tool - 1 job
5. To make different types of keys - 3 jobs
6. To make complete gauge - 2 jobs

Minimum 5 jobs should be prepared from each of above group

Group GTM1 of Qualifier Packs

Subject Name: Metal Arc Welding (CSC/Q0204)	
Course Code : BVPTE117	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/MMAW%20L3.pdf	

Subject Name: MIG MAG or GMAW Welder (CSC/Q0209)	
Course Code : BVPTE128	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/MIG_MAG%20or%20GMAW%20Welder.pdf	

Subject Name: Assistant TIG Welder (CSC/Q0212)	
Course Code : BVPTE139	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/Assisstant%20Tungsten%20Inert%20Gas%20Welder%20(Final).pdf	

Subject Name: CNC Setter Cum Operator (CSC/Q0120)	
Course Code : BVPTE140	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/CNC%20Setter%20cum%20operator%20-%20Turning.pdf	

Subject Name: CNC Operator – VMC (CSC/Q0116)	
Course Code : BVPTE151	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/CGSC%20CNC%20Operator%20-%20Vertical%20Machining%20Centre.pdf	

*Skill Practical assessment will be done rules/ procedure of respective Skill Sector Council of India.

Semester

II

Syllabus

Subject Name: Industrial Management

Course Code : BVTMC201	Semester: II
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	Introduction	08
	Growth of industry, The management of men, materials and machines, the art of management, Sources of capital- industrial individual enterprise, private partnership and private Ltd. Co., Joint Stock Co. shares, debentures, financial agencies and their role in promoting industries. Break even analysis.	
Unit – II	Private sector and public sector	07
	Public sector enterprise, merits and demerits of public sector industry and private sector industry, Line, staff and functional organizations, reasons for the choice of various types of organization, functions of different departments, viz. stores, purchase and sales departments relationship between individual departments.	
Unit – III	MILLING MACHINES	07
	Definition of wages, real wage and nominal wage, systems of wage payment, incentives, financial and non - financial incentives, Essentials of a good wage plan, essentials of a good incentive scheme. Introduction to elements of cost & indirect expenses, Material cost, labour cost, fixed and variable overheads, components of cost, selling price, Factory expenses, administrative expenses, selling & distribution expenses, depreciation, obsolescence, interest on capital, Idleness, Repair and maintenance.	
Unit – IV	Labour, industrial & tax laws	07
	Evolution of industrial law, factory act, workmen compensation act, payment of wages act, employee's state insurance act, Industrial dispute act. Role of technician in industry: Position of technician in various engineering departments, Role of a supervisor in industry, Foremanship, duties and qualities of a good foreman.	
Unit – V	Material management	07
	Introduction, Scope of Material Management selective control techniques-ABC analysis, Material handling, inventory control, Essential steps in inventory control, quality standards.	

Books

Name of Authors	Title of the Book	Publisher
O P Khanna	Industrial Engineering and Management	Dhanapat Rai and Sons
M Mahajan	Industrial Engineering	Dhanapat Rai and Sons
L C Zamb	Industrial Engineering	Everest

Subject Name: Total Quality Management

Course Code : BVTMC202	Semester: II
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	Introduction, Basic concepts of total quality management	08
	Introduction to Quality, Dimensions of Quality, Quality Planning, Concept and definition of quality cost, Determinants of Quality, Optimum cost of performance, Principles of TQM, Pillars of TQM, Introduction to leadership and Leadership roles, Quality council and Quality statement, Strategic Planning Process, Deming philosophy.	
Unit – II	Continuous process improvement	07
	Input /output process Model, Juran trilogy, PDCA Cycle, 5 –‘S’ Housekeeping principle, Kaizen Seven tools of Quality (Q-7 tools), Check Sheet, Histogram, Cause and effect diagram, Pereto diagram, Stratification analysis, Scatter diagram, Control charts, Control chart for variables & process capability, Control chart for attributes.	
Unit – III	Management planning tools & Bench marking	07
	Affinity diagram, Relationship diagram, Tree diagram, Matrix diagram, Matrix data analysis, Arrow Diagram, Process decision programme chart (PDPC), Concept of bench marking, Reason to bench marking, Bench marking process, Types of bench marking, Benefits of bench marking.	
Unit – IV	Just in time (JIT)	07
	JIT philosophy, Three elements of JIT, Principles of JIT Manufacturing, JIT Manufacturing building blocks, JIT benefits, Kanban & 2 Bin Systems.	
Unit – V	Total productive maintenance (TPM)	07
	Concept of Total Productive Maintenance, Types of maintenance, OEE (Overall Equipment Efficiency), Stages in TPM implementation, Pillars of TPM, Difficulties faced in TPM implementation.	

Books		
Name of Authors	Title of the Book	Publisher
M Mahajan	Industrial Engineering	Dhanapat Rai and
RK Jain	Engineering Metrology	Khanna

Subject Name: Entrepreneurship

Course Code : BVTMC203	Semester: II
Weekly Teaching Hours: TH: 03 Tut: 00	Scheme of Marking TH: 25 , IA: 25 , Total: 50
TH Exam Duration: 01 Hours	Scheme of Marking PR: --
Credit: 3	

Content		Hours
Unit – I	Entrepreneurship and entrepreneur	08
	Need of Employment and Opportunities, Essential Characteristics of a good Entrepreneur, Industrial Policy, Classification of industries- Micro, small scale ,Medium scale, Large scale, Type of industries- Production, Job based & Service.	
Unit – II	Entrepreneurial Development	07
	Product identification/ selection, Site selection, Plant layout, Institutional support needed, Pre-market survey.	
Unit – III	Entrepreneurship Support System and Start-ups	07
	Introduction to start-up's, Role of District Industries Centre in setting up industry, Function of NSIC, SISI, NISIET, NRDC, SSIC, SIDO, NMTC, KVIC, RSMML, Role of state finance corporation, state electricity corporations, pollution control board, BIS, I.S.O. etc.	
Unit – IV	Introduction to Tax System, Insurance and Acts	07
	Idea of income tax, sales tax, excise duty and custom duty, Industrial and fire insurance, procedure for industrial insurance, Introduction to Industrial acts, factory act, Workmen's compensation act 1923, Apprentices act 1961, Environmental protection act 1986.	
Unit – V	Project Report Preparation	07
	Procedure of preparing a project report, Format of project report, Preparation of project report, Introduction to ISO: 9000 Series of Quality System.	

Books

Name of Authors	Title of the Book	Publisher
E Gordon, K Natarajan	Entrepreneurship Development	Himalaya House
Dr R K Singal, Shruti Singal	Entrepreneurship Development	Katson Books
Robert A Baron	Entrepreneurship	E E Pub.

Subject Name: Project

Course Code : BVTML204	Semester: II
Weekly Practicals: PR: 03 Tut: 00	Scheme of Marking TH: --
TH Exam Duration: --	Scheme of Marking PR: 75 , IA: 75 , Total: 150
Credit: 6	

Content

On the basis of learning in the vocational diploma, a project to be taken up by the student strengthening his/ her vocational skills.

Group GTM2 of Qualifier Packs

Subject Name: **Metal Arc Welding (CSC/Q0204)**

Course Code : BVPTE117	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM2 of Qualification Packs other than that selected in GTM1.
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/MMAW%20L3.pdf	

Subject Name: **MIG MAG or GMAW Welder (CSC/Q0209)**

Course Code : BVPTE128	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM2 of Qualification Packs other than that selected in GTM1.
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/MIG_MAG%20or%20GMAW%20Welder.pdf	

Subject Name: **Assistant TIG Welder (CSC/Q0212)**

Course Code : BVPTE139	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM2 of Qualification Packs other than that selected in GTM1.
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/Assisstant%20Tungsten%20Inert%20Gas%20Welder%20(Fin).pdf	

Subject Name: CNC Setter Cum Operator (CSC/Q0120)	
Course Code : BVPTE140	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM2 of Qualification Packs other than that selected in GTM1.
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/CNC%20Setter%20cum%20operator%20-%20Turning.pdf	

Subject Name: CNC Operator – VMC (CSC/Q0116)	
Course Code : BVPTE151	Semester: I
Weekly Skilling Hours: PR: 24 Tut: 00	Scheme of Marking TH: 00 , IA: 00 , Total: 00
PR Exam Duration: 06 Hours	Scheme of Marking PR: 150 , IA: 50 , Total: 200
Credit: 15	Choose any one from specified Group GTM1 of Qualification Packs other than that selected in GTM1.
Syllabus for this qualifier Pack is available on http://www.cgsc.in/pdf/CGSC%20CNC%20Operator%20-%20Vertical%20Machining%20Centre.pdf	

*Skill Practical assessment will be done rules/ procedure of respective Skill Sector Council of India.