

REVISED SYLLABUS FOR WORKSHOP CALCULATION & SCIENCE - ENGINEERING TRADES						
NAME OF TRADE : ARCHITECTURAL DRAUGHTSMAN (1st Year)						
Sr. No.	Title of the Exercise	NIMI Books' Page No.	NIMI Books' Exercise No.	To be Retained / Deleted	Revised Hours	Remarks/ Justification
I	Unit, Fractions				4	
1	Classification of unit system	1	1.1.01	Retained		
2	Fundamental and Derived units F.P.S, C.G.S, M.K.S and SI units	2--3	1.1.02	Retained		
3	Measurement units and conversion	4--13	1.1.03	Retained		
4	Factors, HCF, LCM and problems	14	1.1.04	Retained		
5	Fractions - Addition, subtraction, multiplication & division	15--16	1.1.05	Retained		
6	Decimal fractions - Addition, subtraction, multiplication & division	17-19	1.1.06	Retained		
7	Solving problems by using calculator	20-26	1.1.07	Retained		
II	Square root, Ratio and Proportions, Percentage				6	
1	Square and square root	27	1.2.08	Retained		
2	Simple problems using calculator	28	1.2.09	Retained		
3	Applications of Pythagoras theorem and related problems	29	1.2.10	Retained		

4	Ratio and proportion	30-31	1.2.11	Retained		
5	Ratio and proportion - Direct and indirect proportions	32-35	1.2.12	Retained		
6	Percentage	36-38	1.2.13	Retained		
7	Percentage - Changing percentage to decimal and fraction	39	1.2.14	Retained		
III	Material Science				6	
1	Types metals, types of ferrous and non ferrous metals	40 -41	1.3.15	Retained		
2	Physical and mechanical properties of metals	42-44	1.3.16	Retained		
3	Introduction of iron and cast iron	45-47	1.3.17	Retained		
4	Difference between iron & steel, alloy steel and carbon steel	48-49	1.3.18	Retained		
5	Properties and uses of rubber, timber and insulating materials	50-52	1.3.19	Partially retained		
IV	Mass, Weight, Volume and Density				4	
1	Mass, volume, density, weight and specific gravity	53-54	1.4.20	Retained		
2	Related problems for mass, volume, density, weight and specific gravity	55-60	1.4.21	Deleted		
V	Speed and Velocity, Work, Power and Energy				0	
1	Speed and velocity - Rest, motion, speed, velocity, difference between speed and velocity, acceleration and retardation	61-64	1.5.22	Deleted		

2	Speed and velocity – Related problems on speed & velocity	65-68	1.5.23	Deleted		
3	Work, power, energy, HP, IHP, BHP and efficiency	69-71	1.5.24	Deleted		
4	Potential energy, kinetic energy and related problems with assignment	72-73	1.5.25	Deleted		
VI	Heat & Temperature and Pressure				6	
1	Concept of heat and temperature, effects of heat, difference between heat and temperature, boiling point & melting point of different metals and non-metals	74-75	1.6.26	Retained		
2	Scales of temperature, Celsius, Fahrenheit, kelvin and conversion between scales of temperature	76-77	1.6.27	Retained		
3	Heat & Temperature - Temperature measuring instruments, types of thermometer, pyrometer and transmission of heat - Conduction, convection and radiation	78-79	1.6.28	Retained		
4	Co-efficient of linear expansion and related problems with assignments	80-81	1.6.29	Retained		
5	Problem of heat loss and heat gain with assignments	82-85	1.6.30	Deleted		
6	Thermal conductivity and insulators	86-87	1.6.31	Deleted		
7	Concept of pressure – Units of pressure, atmospheric pressure, absolute pressure, gauge pressure and gauges used for measuring pressure	88-97	1.6.32	Deleted		
VII	Basic Electricity				0	

1	Introduction and uses of electricity, molecule, atom, how electricity is produced, electric current AC,DC their comparison, voltage, resistance and their units	98	1.7.33	Deleted		
2	Conductor, insulator, types of connections—series and parallel	102-107	1.7.34	Deleted		
3	Ohm's law, relation between V.I.R & related problems	108	1.7.35	Deleted		
4	Electrical power, energy and their units, calculation with assignments	112-114	1.7.36	Deleted		
5	Magnetic induction, self and mutual inductance and EMF generation	115-117	1.7.37	Deleted		
46	Electrical power, HP, energy and units of electrical energy	118-120	1.7.38	Deleted		
VIII	Mensuration				8	
1	Area and perimeter of square, rectangle and parallelogram	121-124	1.8.39	Retained		
2	Area and perimeter of Triangles	125-129	1.8.40	Retained		
3	Area and perimeter of circle, semi-circle, circular ring, sector of circle, hexagon and ellipse	130-137	1.8.41	Retained		
4	Surface area and volume of solids - cube, cuboid, cylinder, sphere and hollow cylinder	138-144	1.8.42	Retained		
5	Finding the lateral surface area, total surface area and capacity in litres of hexagonal, conical and cylindrical shaped vessels	145-147	1.8.43	Retained		
IX	Levers and Simple machines				0	

1	Simple machines – Effort and load, mechanical advantage, velocity ratio, efficiency of machine, relationship between efficiency, velocity ratio and mechanical advantage	148-149	1.9.44	Deleted		
2	Lever & Simple machines – Lever and its types	150-153	1.9.45	Deleted		
X	Trigonometry				6	
1	Measurement of angles	154-155	1.10.46	Retained		
2	Trigonometrical ratios	156-161	1.10.47	Retained		
3	Trigonometrical tables	162-172	1.10.48	Retained		
4	Application in calculating height and distance (Simple applications)	173-177	1.10.49	Retained		
			TOTAL REVISED HOURS		40	

REVISED SYLLABUS FOR WORKSHOP CALCULATION & SCIENCE - ENGINEERING TRADES						
NAME OF TRADE : ARCHITECTURAL DRAUGHTSMAN (2nd Year)						
Sr. No.	Title of the Exercise	NIMI Books' Page No.	NIMI Books' Exercise No.	To be Retained / Not retained	Revised Hours	Remarks/ Justification
I	Friction				0	
1	Friction - Advantages and disadvantages, Laws of friction, co-efficient of friction, angle of friction, simple problems related to friction	1--7	2.1.01	Deleted		
2	Friction - Lubrication	8--11	2.1.02	Deleted		
3	Friction - Co- efficient of friction, application and effects of friction in workshop practice	12--13	2.1.03	Deleted		
II	Centre of Gravity				6	
1	Centre of gravity - Centre of gravity and its practical application	14--23	2.2.04	Retained		
III	Area of cut out regular surfaces and area of irregular surfaces				8	
1	Area of cut out regular surfaces - circle, segment and sector of circle	24--26	2.3.05	Retained		
2	Related problems of area of cut out regular surfaces - circle, segment and sector of circle	27--28	2.3.06	Retained		
3	Area of irregular surfaces and application related to shop problems	29--31	2.3.07	Retained		
IV	Algebra				6	

1	Algebra - Addition , subtraction, multiplication & division	32--35	2.4.08	Retained		
2	Algebra - Theory of indices, algebraic formula, related problems	36--40	2.4.09	Retained		
V	Elasticity				4	
1	Elasticity - Elastic, plastic materials, stress, strain and their units and young's modulus	41-52	2.5.10	Retained		
2	Elasticity - Ultimate stress and working stress	53-55	2.5.11	Retained		
VI	Heat Treatment				0	
1	Heat treatment and advantages	56-57	2.6.12	Deleted		
2	Heat treatment – Different heat treatment process – Hardening, tempering, annealing, normalising and case hardening	58--66	2.6.13	Deleted		
VII	Profit and Loss				4	
1	Profit and loss - Simple problems on profit & loss	67--72	2.7.14	Retained		
2	Profit and loss - Simple and compound interest	73--84	2.7.15	Retained		
VIII	Estimation and Costing				8	
1	Estimation and costing - Simple estimation of the requirement of material etc., as applicable to the trade	85-91	2.8.16	Retained		
2	Estimation and costing - Problems on estimation and costing	92	2.8.17	Retained		
			TOTAL REVISED HOURS		36	