TRB Polytechnic College Lecturer Exam

Name of Field/Subject	Prescribed Syllabus

Civil Engineering	○ Engineering Mathematics
	  ○ Linear algebra
	  ○ Calculus
	  ○ Differential equations
	  ○ Complex variables
	  ○ Probability and statistics
	  ○ Numerical methods
	○ Mechanics
	○ Structural analysis
	○ Concrete structures
	○ Steel structures
	○ Soil mechanics
	○ Foundation engineering
	○ Fluid mechanics, machines, and hydrology
	○ Water supply and waste disposal
	○ Highway engineering

Mechanical Engineering	○ Engineering Mathematics o Linear algebra o Calculus o Differential equations o Complex variables o Probability and statistics o Numerical methods ○ Applied mechanics and strength of materials Theory of machines and design o Theory of machines o Vibrations o Design of machine elements ○ Fluid mechanics and hydraulic machinery ○ Heat transfer ○ Thermodynamics ○ Manufacturing Engineering o Engineering materials o Metal casting o Forming o Joining

	○ Machining and machine tool operations o Metrology and inspection o Computer integrated manufacturing ○ Production planning and control ○ Operation research

Electrical and Electronics Engineering	Engineering Mathematics o Linear algebra o Calculus o Differential equations o Complex variables o Probability and statistics o Numerical methods Electric circuits and fields ○ Digital signal processing ○ Electrical machines ○ Power systems ○ Protection and switchgear ○ Control system ○ Electrical and electronics measurements ○ Analog and digital electronics ○ Power electronics and drives
Electronics and Communication Engineering	○ Engineering Mathematics o Linear algebra o Calculus o Differential equations o Complex variables o Probability and statistics o Numerical methods o Networks Electromagnetics

	○ Electronic devices and circuits ○ Digital circuits ○ CMOS VLSI systems ○ Signal processing ○ Control systems ○ Analog and digital communication systems ○ Computer communication

Instrumentation and Control Engineering	Engineering Mathematics ○ Linear algebra ○ Calculus ○ Differential equations ○ Complex variables ○ Probability and statistics ○ Numerical methods ○ Circuit theory ○ Analog and digital electronics ○ Electrical and electronic measurements ○ Control systems ○ Transducers and smart sensors ○ Industrial and analytical instrumentation ○ Digital signal processing

	○ Process control ○ Logic and distributed control system
Computer Science Engineering	○ Engineering Mathematics o Linear algebra o Calculus o Differential equations o Complex variables o Probability and statistics o Numerical methods o Digital logic and computer architecture o Data structures and algorithms ○ System programming and operating systems ○ Database systems ○ Theory of computation and compiler design ○ Computer networks ○ Computer graphics and multimedia ○ Software engineering ○ Web technologies
Information Technology	○ Engineering Mathematics o Set theory and algebra o Calculus o Combinatorics o Graph theory o Probability o Numerical methods

	○ Mathematical logic ○ Theory of computation ○ Digital logic ○ Computer organization and architecture

	○ Programming and data structures ○ Algorithms ○ Operating system ○ Databases ○ Information systems and software engineering ○ Computer networks
Production Engineering	○ Engineering Mathematics o Linear algebra o Calculus o Differential equations o Complex variables o Probability and statistics o Numerical methods o Engineering materials and engineering mechanics o Theory of machines and design o Fluid mechanics and thermal engineering ○ Metal casting and forming ○ Metal joining processes ○ Machine and machine tool operations ○ Metrology and inspection

	○ Powder metallurgy and newer production processes ○ Quality control, process analysis, and modern manufacturing systems
Textile Technology	○ Raw materials ○ Fiber to yarn conversion ○ Yarn/filament to fabric ○ Wet processing ○ Manufacture of filament yarns ○ Mathematics and computation in textiles ○ Mechanics of textile machinery ○ Textile physics ○ Textile chemistry

Printing Technology	○ Designing and basic concept ○ Pre-press ○ Image preparation ○ Press ○ Post-press and converting operations ○ Printing materials ○ Package materials and technology ○ Advertising, scheduling, and cost estimation ○ Quality control in printing

English	○ Chaucer to Shakespeare ○ Jacobean to Augustan age ○ Romantic period ○ Victorian age ○ Modern and contemporary periods ○ American literature ○ Indian and English literature ○ Language and linguistics ○ Criticism and literary theories ○ Post-colonial literature and European literature in translation
Mathematics	○ Real analysis and complex analysis ○ Algebra ○ Topology ○ Measure theory and functional analysis ○ Differential equations ○ Mechanics and continuum mechanics ○ Mathematical statistics and numerical methods ○ Differential geometry and graph theory differential ○ Mathematical programming and fluid dynamics
Physics	○ Mathematical methods ○ Classical mechanics and relativity ○ Quantum theory and its applications ○ Electromagnetic theory ○ Thermodynamics and statistical mechanics ○ Atomic and molecular physics ○ Condensed matter physics ○ Nuclear and particle physics

	○ Electronics ○ Experimental physics
Chemistry	○ Analytical chemistry and techniques ○ Structure and bonding, acids and bases, redox reactions ○ Nuclear chemistry and chemistry of non-transition elements ○ Chemistry of transition elements, spectroscopy Chirality ○ Mechanism of reactions ○ Organic synthesis ○ Quantum chemistry ○ Chemical kinetics ○ Group theory ○ Electrochemistry and photochemistry
Modern Office Practice	○ Accounts and finance ○ Financial management ○ Human resource management ○ Economics ○ Marketing ○ Income tax and tax planning ○ International trade ○ Research methodology and quantitative techniques ○ Banking and financial institutions ○ Computers in business
