3. ADMISSION TO ME/MTech PROGRAMME

Mode of Program: Regular

3.1 ELIGIBILITY FOR ADMISSION

Admission to all the ME/MTech programmes shall be made on the basis of valid GATE Score in respective discipline. First preference will be given to GATE qualified candidates and who have obtained at least 60% (55% for SC/ST) marks in the aggregate in the qualifying examination from a recognised University.

After offering seats to the GATE qualified candidates, for seats remaining vacant (if any), the admission will be made on the basis of following method:

(1) In ME/M.Tech programs offered by CSED, MED, CED and ECED. The seats remaining vacant after offering to the GATE qualified candidates shall be filled by conducting offline test. Admission to ME/MTech programme shall be open to candidates who obtain at least 60% (55% for SC/ST/Industry sponsored) marks in the aggregate in the qualifying examination from a recognised University.

(2) In other departments/schools, remaining vacant seats shall be filled on the basis of merit prepared by giving 30% weightage to 12th marks and 70% weightage to BE/BTech marks (upto end of pre-final year). Overall minimum 60% (55% for SC/ST/Industry sponsored) in BE/BTech shall be required to be eligible for admission.

Or

In case MSc is qualifying exam, the seats remaining vacant shall be filled on the basis of merit prepared by giving 50% weightage to BSc marks and 50% weightage to MSc marks (upto end of pre-final year). Overall minimum 60% (55% for SC/ST/Industry sponsored) in MSc shall be required to be eligible for admission.

Qualifying examination for ME/MTech programme in various disciplines is as under:

ME – CAD/CAM Engineering/ Production Engineering/ Thermal Engineering
BE/BTech degree in Mechanical/Production/Industrial/Mechatronics/ Automobile/ Marine/ Petroleum/Chemical/Metallurgy/Heat power/Aeronautical Engineering and Equivalent.

ME – Civil Infrastructure Engineering
BE/BTech in Civil Engineering, BE/BTech in Infrastructure Engineering

ME – Structural Engineering
BE/BTech degree in Civil Engineering.

ME – Computer Science & Engineering*
BE/BTech degree in any discipline of Engineering OR MSc in Mathematics/ Statistics/ Computer Science/ Electronics/ Physics/ Operations Research/ Information Science/ Information Technology OR MCA OR Equivalent

ME – Information Security*
BE/BTech degree in any discipline of Engineering OR MSc in Mathematics/ Statistics/ Computer Science/ Electronics/ Physics/ Operations Research/ Information Science/ Information technology OR MCA OR Equivalent.

ME – Software Engineering*
BE/BTech degree in any discipline of Engineering OR MSc in Mathematics/ Statistics/ Computer Science/ Electronics/ Physics/ Operations Research/ Information Science/ Information Technology OR MCA OR Equivalent

MTech – Computer Applications*

BE/BTech Degree in any discipline of Engineering OR M.Sc. in Mathematics /Statistics /Operation Research/Computer Science/Electronics/Information Technology/ Information Science/Physics OR MCA OR equivalent.

* Gate qualified candidates with valid gate score in "Computer Science/ Information Technology" shall only be considered for admission on the basis of GATE score.

ME – Electronics & Communications Engineering#

BE/BTech degree in Electronics & Communication

MTech – VLSI Design

BE/BTech degree in Electronics / Computer Science/ Electronics & Communication / Electronics (Instrumentation & Control) / Electrical Engineering OR MSc in Computer Science/ Electronics / Physics with Electronics / Instrumentation with Mathematics as one of the subjects in B.Sc.

ME – Wireless Communications#

B.E / B.Tech or equivalent, Applied Electronics & Telecommunication / Electronics Telecommunication / Telecommunication Engineering / Electronics & Telematics / Electronics and Communication Engineering / Electrical and Electronics.

Gate Qualified candidates with BE/BTech in Electronics and Communication shall only be considered for admission on the basis of GATE score.

ME – Electronic Instrumentation & Control Engineering

BE/BTech degree in Electrical/Electronics/Instrumentation Engineering OR MSc Physics with Electronics

ME – Power Systems

BE/BTech in Electrical Engineering
BE/BTech in Electrical Engineering or BE/BTech Electrical & Electronics Engg.

ME – Power Electronics and Drives
BE/BTech in Electrical Engineering or BE/BTech Electrical & Electronics Engg

MTech – Biotechnology

BE/BTech Degree in Biotechnology/Chemical / Industrial Biotechnology / Biochemical Engineering /Bio-Medical Engineering / Bio-Informatics or a Bachelor's Degree in Pharmacy or M.Sc. Degree in Biochemistry / Biotechnology / Microbiology / Bio-Physics / Biology / Botany / Zoology/ Genetics / MBBS / M.Sc.(Ag) & M.V.Sc.

MTech – Chemical Engineering

BE/BTech (Chemical Engineering/Technology, Environmental, Biotechnology, Pulp and Paper Technology/Polymer Technology/Metallurgy/Materials/ Mechanical/ Ceramics Engineering or allied discipline) or M.Sc. (Applied /Industrial Chemistry) with Mathematics upto B.Sc. level.

MTech – Energy Technology and Management

BE/BTech in any branch of Engineering / Technology OR MSc in Physics or Chemistry with Mathematics at graduation level.

MTech – Environmental Science & Technology
BE/BTech degree in any branch of Engineering or Technology, OR MSc in Chemistry/ Biochemistry/ Biotechnology/ Life Sciences (including Botany and Zoology) / Atmospheric Sciences.

MTech – Metallurgical & Materials Engineering
BE/BTech degree in any branch of Engineering OR MSc in Materials Science/Physics/ Chemistry (with Physics and Mathematics at BSc Level)

Note: Candidate who has passed Section B of the Institution of Engineers (India) or Grade IETE and has three years of professional experience in reputed organization are also eligible for admission to ME/MTech programme in respective disciplines.

Sponsored Candidates with 55% marks in the qualifying examination are eligible for admission. Such candidates must have a minimum of two years of full time work experience in a registered firm/ company/ industry/ educational and research institutions/any Government Department of Government Organization in the relevant field in which admission is being sought. The employer in the sponsorship certificate must indicate that the fee will be borne by the sponsoring organization and the candidate will not be withdrawn before the completion of the programme. **The fee of the sponsored candidates shall be paid by the sponsoring agency from the company's bank account.**

Candidates who are appearing in the final exam of the qualifying degree are eligible to apply. Such candidates have to furnish following undertaking at the time of document checking/'In-Person' counselling.

"I am applying on my own risk and responsibility as my final result of the qualifying exam has not been declared by the University.

I do hereby declare that I do not have any backlog paper in any of the previous semesters (Years) of study of the qualifying exam and also I do not expect any backlog in my final exam.

I assure you that I will produce the proof of passing of my qualifying examination with the minimum percentage of marks required on or before December 31, 2016, failing which my admission shall stand cancelled and I shall not claim any right on any count whatsoever."

3.2 NUMBER OF SEATS
The University offers PG programme of four semesters (regular) leading to ME/MTech degree. The distribution of seats discipline-wise is as under:

Regular Programs:

Programme	Name of the Deptt/School	Number of Seats		
		Open	Sponsored	SC/ST
ME – CAD/CAM Engineering	MED	19	5	6
ME – Production Engineering		19	5	6
ME – Thermal Engineering		19	5	6
ME – Civil Infrastructure Engineering	CED	19	5	6
ME – Structural Engineering		19	5	6
ME – Computer Science & Engineering	CSED	42	5	13
ME – Information Security		19	5	6
ME – Software Engineering		19	5	6

MTech – Computer Applications		19	5	6
ME – Electronic Instrumentation & Control Engineering	EIED	19	5	6
ME – Power Systems		19	5	6
ME – Power Electronics and Drives		19	5	6
ME – Electronics & Communication Engineering		19	5	6
ME – Wireless Communications	ECED	19	5	6
MTech – VLSI Design		19	5	6
MTech – Biotechnology	BTD	19	5	6
MTech – Chemical Engineering	CHED	19	5	6
MTech – Energy Technology and Management	SEE	11	5	4
MTech – Environmental Science & Technology		19	5	6
MTech – Metallurgical & Materials Engineering	SPMS	19	5	6
Total		**395**	**100**	**125**

In addition to above seats, 1% over and above seats are reserved for children of employees of Thapar University. The candidates seeking admission under this category are required to satisfy the eligibility as mentioned above at 3.1.

5 seats in each regular discipline of ME/MTech programme are available for FN/NRI candidates. Refer section 10 for eligibility and other conditions.

Seats, if any in the sponsored category remained unfilled; such vacant seat(s) shall be filled by General category candidates.

3.3 LEAVE RULES

ME/MTech regular students getting scholarship shall be entitled for leave for a maximum period of thirty days per year in addition to general holidays but not entitled to vacation, e.g., summer, winter, etc. The students must apply for leave in advance and obtain the sanction from the concerned Head of the Department/School. The student shall be required to give an undertaking to the effect that he/she would not leave the course midway or appear in any competitive examinations, etc., not related to Engineering & Technology, in order to be eligible to receive this scholarship.

3.4 DURATION OF PROGRAMME

The normal duration of programme leading to the ME/MTech degree shall be four semesters for regular students, which includes course work of twelve subjects, seminar, minor project and Dissertation. The maximum duration for regular programmes is six semesters.

3.5 SCHOLARSHIPS/ASSISTANTSHIP

The candidates admitted in ME/MTech with valid GATE score will be considered to receive scholarships only if approved and amount released by AICTE or any other funding agency (applicable only for intake approved by AICTE). It will be obligatory for every post-graduate student to undertake 8-10 hours per week of work related to teaching and research activities as assigned to him/her by the University. This could include conduct of tutorial classes/laboratory classes/development and maintenance of laboratories/assistance in research and development activities undertaken by faculty members/maintenance and operation of computers/other central facilities/assistance in library etc.

A scholarship of Rs. 6,000/- per month (for 10 months) shall be given to 2 (two) GATE/Non-GATE students in each discipline of ME/MTech as per the merit prepared on the basis of GATE

Score/ TU Entrance Test Score. This shall be subject to the condition that there are at least 10 students enrolled in respective discipline. Further, for continuation of this scholarship a minimum CGPA of 7.0 must be maintained by the students availing this scholarship. It will be obligatory for post-graduate students who are availing this scholarship to undertake teaching load of 8-10 hours per week.

GATE qualified candidates belonging to categories other than SC/ST, if admitted against vacant seats reserved for SC/ST or Industry sponsored seats or admitted in Non-AICTE approved branch and not getting GATE scholarship from AICTE despite being GATE qualified shall be offered a scholarship of Rs. 8,000/- per month for 10 months in an academic year. It will be obligatory for post-graduate students who are availing this scholarship to undertake teaching load of 8-10 hours per week.

3.6 ME/MTech Admission Schedule:

There will be Offline Entrance Test for admission to vacant seats left in various disciplines of ME/MTech offered by CSE, ME, CE and ECE departments after offering these seats to GATE qualified candidates and counselling shall be as per given schedule.

Note:

i.   No TA/DA will be paid for appearing in the Entrance Test/Interview etc.

ii.   For all the ME/MTech programs offered by a particular department/school single application form is required to be filled. However, if candidate want to apply for ME/MTech program of other department/school also, he/she is required to fill separate application form alongwith requisite application fee.

iii.   Candidates are advised to browse www.thapar.edu

ME/MTech Admission Schedule:

Counselling Schedule including deposit of fee for GATE Qualified Candidates:

Programme	*Name of the Deptt/School*	Date of counselling including deposit of fee	Time of interview
ME – Computer Science & Engineering	CSED	June 20, 2016	09:00 AM
ME – Software Engineering			
ME – Information Security			
MTech – Computer Applications			
MTech – VLSI Design	ECED	June 20, 2016	02:00 PM
ME – Electronics & Communication Engineering			
ME – Wireless Communications			
ME – Electronic Instrumentation & Control Engineering	EIED	June 21, 2016	09:00 AM
ME – Power Systems			
ME - Power Electronics and Drives			
ME – CAD/CAM Engineering	MED	June 21, 2016	11:00 AM
ME – Production Engineering			
ME – Thermal Engineering			

ME – Structural Engineering	CED	June 21, 2016	02:00 PM
ME – Civil Infrastructure Engineering			
MTech – Biotechnology	BTD	June 21, 2016	02:30 PM
MTech – Environmental Science & Technology	SEE	June 21, 2016	03:00 PM
MTech – Energy Technology & Management			
MTech – Chemical Engineering	CHED	June 21, 2016	04:00 PM
MTech – Metallurgical & Materials Engineering	SPMS	June 21, 2016	04:30 PM

Display of number of vacant seats in various disciplines of ME/MTech after offering seatsto GATE qualified in above mentioned schedule   :   June 22, 2016

The following is the schedule of Offline Entrance Test for admission to vacant seats left in various disciplines of ME/MTech offered by CSE, ME, CE and ECE departments after offering these seats first to GATE qualified candidates:

Programme	Name of the Deptt/School	Date & Time of Offline Entrance Test
ME – Computer Science & Engineering	CSED	June 26, 2016 03:00 – 04:30 PM
ME – Software Engineering		
ME – Information Security		
MTech – Computer Applications		
ME – Electronics & Communication Engineering	ECED	June 26, 2016 12:00 NOON – 01:30 PM
ME – Wireless Communications		
MTech – VLSI Design		
ME – CAD/CAM Engineering	MED	
ME – Production Engineering		
ME – Thermal Engineering		
ME – Structural Engineering	CED	
ME – Civil Infrastructure Engineering		

Counselling Schedule including deposit of fee for the vacant seats:

Programme	Name of the Deptt/School	Date of counselling/Interview & deposit of fee	Time of interview
ME – Computer Science & Engineering	CSED	July13, 2016	09:00 AM
ME – Software Engineering			
ME – Information Security			
MTech – Computer Applications			
MTech – VLSI Design	ECED	July13, 2016	11:30 AM
ME – Electronics & Communication Engineering			

ME – Wireless Communications			
ME – Electronic Instrumentation & Control Engineering	EIED	July14, 2016	09:00 AM
ME – Power Systems			
ME - Power Electronics and Drives			
ME – CAD/CAM Engineering	MED	July14, 2016	11:00 AM
ME – Production Engineering			
ME – Thermal Engineering			
ME – Structural Engineering	CED	July14, 2016	02:00 PM
ME – Civil Infrastructure Engineering			
MTech – Biotechnology	BTD	July14, 2016	02:30 PM
MTech – Environmental Science & Technology	SEE	July14, 2016	03:00 PM
MTech – Energy Technology & Management			
MTech – Chemical Engineering	CHED	July14, 2016	04:00 PM
MTech – Metallurgical & Materials Engineering	SPMS	July14, 2016	04:30 PM

Last Round of counselling for vacant seats, if any   : July 26, 2016

Note: In all the rounds of counselling, the GATE qualified candidates shall get first preference based on merit. Those who missed the earlier round can attend any counselling held later but their admission will be on merit & subject to availability of seat.

GENERAL INFORMATION REGARDING ME/MTECH ENTRANCE TEST INCLUDING ENTRANCE TEST SYLLABUS

Duration of Test:90 minutes (75Questions)
Negative marking: ¼marksshall be deducted for each wrong answer.

ME – CAD/CAMENGINEERING/THERMAL ENGINEERING/PRODUCTIONENGINEERING

Design: Solid Mechanics, Machine Design, Theory of Machines, Mechanical vibrations, Machine Drawing, Computer Aided Design.

Thermal Engineering: Thermodynamics, Thermodynamics Cycles (Carnot, Otto, Diesel, Rankine, Braytan) IC Engines and Gas Turbines, Turbo Machines, Fluid Mechanics and Machinery, Refrigeration and Air Conditioning, Heat and Mass Transfer, Power Plant Engineering, Non-conventional Sources of Energy

Production and Industrial Engineering: Industrial Engineering, Plant layout, Production Management, Work Study, Inspection and Quality Control, Manufacturing Processes/Technologies, Machining Science, Computer Aided Manufacturing, Robotics, Measurement Techniques, Industrial Automation, Material Science and Metallurgy

Scholastic Aptitude: Reasoning, current affairs etc.

Entrance test exam for admission to ME (CAD/CAM Engg./Production Engg./Thermal Engineering) shall consists of 75 questions from the above given syllabus. There will be 20 questions each from Design, Thermal, Production and Industrial Engg. Section. Remaining 15 questions will be from Scholastic Aptitude section.

ME – STRUCTURALENGINEERING/CIVIL INFRASTRUCTURE ENGINEERING and ME – CIVIL INFRASTRUCTUREENGINEERING

Structural Engineering: Bending moment and shear force diagrams. Analysis of pin jointed and rigid plane frames. Influence lines. Concrete Technology: Concept of quality control. Concrete making materials. Properties of fresh and hardened concrete. Methods of concrete mix design.
Reinforced Concrete Design: Limit state design methods for flexure, shear, bond and torsion. Design of basic elements using IS: 456-2000.
Design of Steel Structures: Design of tension and compression members. Design of beams and columns (including bases and foundations as per IS: 800-2007). Welded and riveted joints. Earthquake resistant design of structures
Geotechnical Engineering: Soil classification, engineering properties of soil, permeability and seepage, effective stress principle: consolidation, compaction, shear strength. Sub-surface investigation, earth pressure theories, foundation design requirements, bearing capacity, shallow and deep foundations, load capacity of piles in sands and clays.
Highway & Transportation Engineering: Highway planning, Geometric design of Highways, Testing and specifications of paving materials, Design of flexible and rigid road pavements as per IRC guidelines, Geometric design of runway & taxiways, Pavement markings & lighting, FAA method of runway & taxiway pavement design, Marshall method of mix designing, Geometric & structural design of Permanent way as per Indian Railways guidelines.
Water Resources and Hydraulics: Hydrostatics, applications of Bernoulli equation, laminar and turbulent flow in pipes, critical flow and gradually varied flow in channels, hydraulic jump, dimensional analysis and hydraulic modelling. Hydrologic cycle, rainfall, evaporation infiltration, unit hydrographs, flood estimation, Irrigation methods, Duty, delta, estimation of evapo-transpiration, crop water requirements, design of lined and unlined canals.

Environmental Engineering: Quality standards, basic unit processes and operations for water treatment. Drinking water standards, water requirements, basic unit operations and unit processes for surface water treatment, distribution of water. Sewage and sewerage treatment, quantity and characteristics of wastewater. Primary, secondary and tertiary treatment of wastewater, effluent discharge standards.

Surveying & Construction Management: Principles of surveying; Errors and their adjustment; Maps - scale, coordinate system; Distance and angle measurement - Levelling and trigonometric levelling; Traversing and triangulation survey. Types of construction projects, Tendering and construction contracts, Rate analysis and standard specifications, Cost estimation of building & road projects, Project planning and network analysis - PERT and CPM.

Entrance Test exam for admission to ME (Structural Engineering & Civil Infrastructure Engineering) shall consists of 75 question. There will be 30 questions from Structural Engineering, 10 questions from Geotechnical Engineering, 10 questions from Highway & Transportation Engineering, 10 questions from Water resource & Hydraulic Engineering and 15 questions from Environmental Engineering, Surveying & Construction Management.

ME – ELECTRONICS& COMMUNICATION ENGINEERING/WIRELESS COMMUNICATIONS and MTech – VLSI DESIGN

Communication Systems: Fourier analysis of signals amplitude, phase and power spectrum, Autocorrelation and cross-correlation and their Fourier transforms. Signal transmission through linear time-invariant (LTI) system, impulse response and frequency response, group delay and phase delay. Analog modulation systems-amplitude and angle modulation and demodulation systems, spectral, analysis of operations, super heterodyne receivers, elements of hardware realizations of analog communication systems. Basic sampling theorem. Pulse code modulation (PCM), differential pulse code modulation (DPCM), delta modulation (DM), amplitude, phase and frequency shift keying schemes (ASK, PSK, FSK). Multiplexing time-division and frequency division, Additive Gaussian noise characterization using correlation. Probability density function (PDF), power spectral density (PSD). Signal to noise ratio (SNR) calculation for amplitude modulation (AM) and frequency (FM)for low noise conditions.

Electromagnetism Antennas: Elements of vector calculus: gradient, divergence and curl; Gauss' and Strokes' theorems, Maxwell's equations: differential and integral forms. Wave equation. Pointing vector Plane waves: propagation through various media; reflection; phase and group velocity; Skin depth Transmission lines: Characteristics impedance; impedance transformation, Smith Chart, Impedance matching pulse excitation. Modes in rectangular waveguides; Boundary conditions; Cut-off frequencies; Dispersion relations. Dipole antennas; antenna arrays; radiation pattern; reciprocity theorem; antenna gain.

Analog and Digital Circuits: Characteristics and equivalent circuits (large and small signal) of diodes, BJTs, JFETs and MOSFETs Simple diode circuits: clipping, clamping, rectifier Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single and multi-stage, differential, operational; feedback and power. Amplifiers; frequency response of amplifiers. Simple op-amp circuits. Filters, Sinusoidal oscillators: criterion for oscillation; single-transistor and op-amp configurations. Function generators & wave-shaping circuits Power supplies, Boolean algebra; minimization of Boolean functions; logic gates, Digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinational circuits; arithmetic circuits, code converters, multiplexers and decoders. Sequential circuits; latches and flip-flops, counters and shift registers. Comparators, timer, multi-vibrators. Sample and hold circuits, ADCs and DACs. Semiconductor memories.

Networks: Network graphs; matrices associated with graphs, incidence, fundamental cut set and fundamental circuit matrices. Solution methods: nodal and mesh analysis. Network theorems: superposition, Thevenin and Norton's Maximum Power Transfer, WyeDelta

Transformation Steady statesinusoidal analysis using phasors. Fourier series. Linear constant coefficient differential and difference equations; time domain analysis of simple RLC circuits. Laplace and Z transforms; frequency domain analysis of RLC circuits. Convolution 2 port network parameters driving point and transfer functions. State equations for networks.

Fundamentals of Computer Programming and Data Structures: Basics of Computers; Operators, Datatypes, Expression, Control Flow statement, Functions, Arrays, Strings, pointers, structures, and unions. Data types, structures, stacks, queues, and linked lists. Sorting and Searching, B-trees, B+ trees and hashing.

Microprocessors and Computer Architecture: Evolution, microcomputer architecture; Intel 8085: architecture, addressing mode, Instruction set, programming technique, Interrupt Structure; Intel 8086: architecture, concept of segmented memory, addressing modes, Instruction set, programming techniques, Interrupt Structure; Interfacing devices i.e. 8255, 8279, 8257, 8253, 8259 etc. memory and I/O interfacing, read/write timing diagrams. Basic computer organization and Design, memory organization, I/O organization, I/O Devices, Data transfer techniques, Register transfer Language Microprogrammed control, CPU, Concept and CISC and RISC architecture.

Entrance Test exam for admission to ME – Electronics & Communication Engineering/Wireless Communications and MTech – VLSI Design shall consist of 75 question. There will be 20 questions from Communication Systems, 10 questions from Electromagnetism Antennas, 20 questions from Analog and Digital Circuits, 15 questions from Networks,5 questions from Fundamentals of Computer Programming and Data Structures, and 5 questions from Microprocessors and Computer Architecture.

ME – COMPUTERSCIENCE/SOFTWARE ENGINEERING/INFORMATION SECURITY and MTech – COMPUTER APPLICATIONS

Section-I: Logical Reasoning & Analytical Ability

Section-II: Mathematical Foundations of Computer Science
MathematicalLogic: Prepositionallogic,first-orderlogic,**Probability:**Random variables and expectation, conditional probability, independent random variables, frequency distributions; **Discrete Mathematics:** Sets, relations, functions, groups, lattices, boolean algebra, induction, recurrence relations; **Combinatorics:** Permutations, combinations, counting, summation; **Elementary Graph Theory:** Basic properties, graph traversals, topological sort, spanning tree, shortest paths; **Computational Techniques:** Solution of nonlinear equations, elementary concepts of linear and matrix algebra, solution of system of linear equations, curve fitting and interpolation, numerical differentiation and integration, regression and correlation analysis; **Theory of Computation:** Regular languages and finite automata, context free languages and pushdown automata, Turing machines.

Section-III: Computer Hardware
Digital Logic: Logic functions, minimization, design and synthesis of combinational and sequential circuits; **Number Representation and Computer Arithmetic**; **Computer Organization:** Machine instructions and addressing modes, ALU and data-paths, hardwired and micro-programmed control, memory interface, I/O interfaces, serial communication interface, instruction pipelining, cache, main and secondary storage.

Section-IV: Software Systems
Programming Methodology: C programming, program control, functions, recursion, scope, binding, parameter passing, pointers, array handling, structures and unions, file handling, elementary concepts of Object Oriented, Functional and Logic Programming; **Data Structures:** Notion of abstract datatypes, stacks, queues, linked lists, trees, heap, graphs; **Algorithms for Problem Solving:** Tree and graph traversals, connected components spanning

trees, shortest paths, hashing, sorting, searching; design techniques; **Complier Design:** Lexical analysis, parsing, syntax directed translation, runtime environment, code generation, linking; **Operating Systems:** Classical concepts (concurrency, synchronization, deadlock), processes, threads and inter-process communication, CPU scheduling, memory management, filesystems, I/O systems, protection and security; **Database Systems:** Relational model, ER diagram, relational algebra, database design, normalization, SQL, file structures, transactions management and concurrency control; **Computer Networks:** ISO/OSI stack, sliding window protocol, LAN technologies (Ethernet, Token ring), TCP/UDP, IP, Basic concepts of switches, gateways and routers.

Entrance Test Exam for admission to ME/MTech (CSE, SE, IS, CA) shall consists of 75 questions from the above given syllabus. There will be 10 questions from Logical Reasoning & Analytical Ability, 11 from Mathematical Foundations of Computer Science, 6 from Computer Hardware and 48 from Software Systems.