

3 ADMISSION TO M.E./M.Tech. PROGRAMME

Mode of Program: Regular

3.1 ELIGIBILITY FOR ADMISSION

Admission to all the M.E./M.Tech. 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/Industry sponsored) 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:

- I. In M.E./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 entrance test. Admission to M.E./M.Tech. 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.
- II. 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 B.E./B.Tech. marks (upto end of pre-final year). Overall minimum 60% (55% for SC/ST/Industry sponsored) in B.E./B.Tech. shall be required to be eligible for admission.

OR

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

Qualifying degree for M.E./M.Tech. programme in various disciplines is as under:

M.E. – CAD/CAM Engineering/Production Engineering/ Thermal Engineering

B.E./B.Tech. degree in Mechanical/Production/Industrial/Mechatronics/ Automobile/ Marine/ Petroleum/Chemical/Metallurgy/Heat power/Aeronautical Engineering and Equivalent.

M.E. – Infrastructure Engineering

B.E./B.Tech. in Civil Engineering, B.E./B.Tech. in Infrastructure Engineering

M.E. – Structural Engineering

B.E./B.Tech. degree in Civil Engineering.

M.E. – Computer Science & Engineering*

B.E./B.Tech. degree in any discipline of Engineering OR M.Sc. in Mathematics/ Statistics/ Computer Science/ Electronics/ Physics/ Operations Research/ Information Science/ Information Technology OR MCA OR Equivalent

M.E. – Software Engineering*

B.E./B.Tech. degree in any discipline of Engineering OR M.Sc. in Mathematics/ Statistics/ Computer Science/ Electronics/ Physics/ Operations Research/ Information Science/ Information Technology 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.

M.E. – Electronics & Communications Engineering#

B.E./B.Tech. degree in Electronics & Communication

M.Tech. – VLSI Design

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

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

M.E. – Electronic Instrumentation & Control Engineering

B.E./B.Tech. degree in Instrumentation & Control/ Electronics/ Electrical/ Electronics & Computer/ Computer/ Information Technology/ Mechatronics Engineering or equivalent OR

M.Sc. in Instrumentation/ Electronics/ Computer/ Information Technology/ Physics with Electronics or equivalent

M.E. – Power Systems

B.E./B.Tech. degree in Electrical/ Electrical & Electronics/ Electrical & Computer Engineering or equivalent

M.Tech. – Biotechnology

B.E./B.Tech. 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.

M.Tech. – Environmental Science & Technology

B.E./B.Tech. degree in any branch of Engineering or Technology, OR M.Sc. in Chemistry/ Biochemistry/ Biotechnology/ Life Sciences (including Botany and Zoology) / Atmospheric Sciences.

M.Tech. – Chemical Engineering

B.E./B.Tech. (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.

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 M.E./M.Tech. 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 withdraw 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.**

3.2 NUMBER OF SEATS

The Institute offers PG programme of four semesters (regular) leading to M.E./M.Tech. 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
M.E. – CAD/CAM Engineering	MED	19	5	6
M.E. – Production Engineering		10	5	3
M.E. – Thermal Engineering		19	5	6
M.E. – Infrastructure Engineering	CED	19	5	6
M.E. – Structural Engineering		19	5	6
M.E. – Computer Science & Engineering	CSED	42	5	13
M.E. – Software Engineering		19	5	6
M.E. – Electronic Instrumentation & Control Engineering	EIED	10	5	3
M.E. – Power Systems		19	5	6
M.E. – Electronics & Communication Engineering	ECED	19	5	6
M.Tech. – VLSI Design		19	5	6
M.Tech. – Biotechnology	BTD	10	5	3
M.Tech. – Environmental Science & Technology	SEE	10	5	3
M.Tech. – Chemical Engineering	CHED	10	5	3
Total		244	70	76

In addition to above seats, 1% over and above seats are reserved for children of employees of Thapar Institute of Engineering & Technology. 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 M.E./M.Tech. 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.

The program will run only if minimum 10 students are admitted in it.

3.3 DURATION OF PROGRAMME

The normal duration of programme leading to the M.E./M.Tech. 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.

3.4 SCHOLARSHIPS/ASSISTANTSHIP

The candidates admitted in M.E./M.Tech. will be eligible for the scholarship as per the following:

I. **Scholarship from AICTE:** - Candidates 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).

II. **Scholarship from TIET:** -

Candidates with valid GATE score who are getting scholarship from AICTE or from any other funding agency as mentioned at 'I' above, shall also be eligible for **additional scholarship** of Rs. 5000/- per month from TIET.

Candidates with valid GATE score who are not getting scholarship from AICTE or from any other funding agency as mentioned at 'I' above, shall be offered a scholarship of Rs. 12,400/- per month.

ME/MTech Candidates who are not GATE qualified, shall be offered Rs. 10,000/- per month for 10 months in an academic year. A minimum 70% (65% for SC/ST) of marks in qualifying degree (as mentioned at 3.1) will be required to avail these scholarships. For continuation of Scholarship in second year, minimum 8.00 CGPA at the end of first year will be required with no backlog.

It will be obligatory for every ME/MTech student to undertake 8-10 hours per week of work related to teaching and research activities as assigned to him/her by the Institute. 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.

3.5 LEAVE RULES

M.E./M.Tech. 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.

3.6 APPLICATION FEE : Rs. 1500/-

3.7 IMPORTANT DATES

Last date for receipt of completed application forms : June 30, 2019

ME/MTech In-person counselling (For GATE candidates)

Counselling including deposit of fee* : July 4-5, 2019

*Detailed schedule shall be displayed on website.

Display of Vacant seat status : July 08, 2019

OFFLINE Tests to be conducted by TIET (For vacant seats only) : July 10, 2019

CED, ECED & MED : 12:00 noon – 02:00 pm

CSED : 03:00 pm – 05.00 pm

Venue of Offline Entrance Test : **Patiala**

Display of Result of Entrance Test : **July 15, 2019**

ME/MTech In-person counselling (For GATE/Non-GATE candidates)

Counselling including deposit of fee* : July 17-18, 2019

*Detailed schedule shall be displayed on website.

Last Round of counselling for vacant seats, if any : July 24, 2019

Commencement of Classes : **July 22, 2019**

3.8 IMPORTANT NOTE

- 1 **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.**
- 2 **If Application Fee is paid Online:** The candidates are not required to send the printout of application form but they must produce it at the time of interview.

If Application Fee is paid through DD: Please send one of the printouts by attaching DD of required amount as mentioned in filled online Application Form/Prospectus (in favour of **Thapar Institute of Engineering & Technology** and payable at Patiala) to "**In-charge Admission Cell** Thapar Institute of Engineering & Technology, Patiala (Punjab)-147 004.
- 3 For all the M.E./M.Tech. programs offered by a particular department/school single application form is required to be filled. However, if candidate wants to apply for M.E./M.Tech. program of other department/school also, he/she is required to select an additional department/school along with requisite application fee.
- 4 Candidates having any pending backlog in the qualifying degree (Graduation) shall not be considered for admission.
- 5 In case of a tie among candidates securing equal marks in the merit list, the same will be broken in accordance with the following criteria:
 - a. Candidate senior in age shall rank higher in order of merit.
 - b. In the case of a tie in age also, a candidate getting higher percentage of marks in the qualifying examination shall be ranked higher in order of merit.
 - c. In the case of a tie in percentage of marks in the qualifying examination also, a candidate securing higher percentage of marks in matriculation/secondary or equivalent examination shall rank higher in order of merit.
- 6 Percentage of marks secured at the end of pre-final year of qualifying degree shall only be considered even if the candidate has completed the degree.
- 7 Candidates appearing in the final exam of the qualifying degree are also eligible to apply. Such candidates have to furnish following undertaking at the time of counselling.
*"I am applying on my own risk and responsibility as my final result of the Qualifying Exam has not been declared.
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, 2019, failing which my admission shall stand cancelled and I shall not claim any right on any count whatsoever."

3.9 INSTRUCTIONS FOR OFFLINE ENTRANCE TEST

- 1 Entrance Test shall be conducted for only for admission to vacant seats in various disciplines of M.E./M.Tech. offered by CSED, CED, MED and ECED after offering these seats to GATE qualified candidates.
- 2 Entrance test for M.E./M.Tech shall be conducted OFFLINE.
- 3 There will be no negative marking in the test.
- 4 The Admit Cards for offline entrance test shall be sent to registered email IDs (as mentioned in online application form) of the candidates provided their DD along with print out of application form reaches Thapar Institute of Engineering & Technology within the stipulated time, in case application fee paid through DD.

Note: The Admit Card shall be issued provisionally to the candidate subject to his/her satisfying the eligibility condition.

- 5 The candidate shall take out two printouts of 'Admit Card", paste latest photograph on each and then come to the Entrance Test Centre. Along with admit cards, the candidate will also carry any one of the identity proof (Original) with him/her like Aadhar Card/Passport/Voter Identity Card/ PAN Card/ Driving License. One copy of the admit card shall be retained by the entrance test centre. The candidate shall keep the other copy (duly acknowledged by the examiner at test centre) to be shown at the time of document checking during counselling.
- 6 Electronic gadgets such as Calculators, Mobile Phones, Pagers, etc. are not permitted in the Examination Centre.
- 7 The Entrance Test shall contain 90 objective type questions. Duration of the Entrance Test will be 120 minutes.
- 8 No TA/DA will be paid for appearing in the Entrance Test/Counselling etc.

3.10 GENERAL INFORMATION REGARDING M.E./M.Tech OFFLINE ENTRANCE TEST INCLUDING ENTRANCE TEST SYLLABUS

Duration of Test: 120 minutes (90 Questions)

Maximum Marks: 90

Qualifying Marks: 30% (25% for SC/ST)

Components of Test:

1.	Engineering Mathematics	(Common for all)	15 Questions	} 90 Questions
2.	General Aptitude (GA)	(Common for all)	15 Questions	
3.	Subject Knowledge		60 Questions	

SYLLABUS FOR ENGINEERING MATHEMATICS (Common for all)

Linear algebra: Algebra of matrices; rank of matrix; System of linear equations; Eigen values and Eigen vectors.

Calculus: Functions of single variable; Limit, continuity and differentiability; Mean value theorems; Local maxima and minima; Evaluation of definite and indefinite integrals, application of definite integral to area; Partial derivatives; Total derivative; double and triple integrals; Gradient, Divergence and Curl, Vector identities, Directional derivatives; Line, surface and volume integrals; Gauss, Stoke's and Green 's theorem.

Ordinary Differential Equations (ODE): First order (linear and nonlinear) equations; higher order of linear Differential equations with constant coefficients; Euler – Cauchy equations.

Probability and statistics: mean, median, mode and standard deviation Definitions of probability, conditional probability, Bayes theorem; random variables, Binomial, Poisson and Normal distributions; Correlation and regression analysis.

Numerical Methods: Numerical solutions of linear and nonlinear algebraic equations; Integration by trapezoidal and Simpson's rule; numerical solution of first order differential equation by using Euler's method and fourth order Runge – Kutta method.

SYLLABUS FOR GENERAL APTITUDE (GA) (Common for all)

Verbal Ability: English grammar, sentence completion, verbal analogies, word groups, instructions, critical reasoning and verbal deduction.

Numerical Ability: Numerical computation, numerical estimation, numerical reasoning and data interpretation.

SYLLABUS FOR SUBJECT KNOWLEDGE

ME – CAD/CAM ENGINEERING/THERMAL ENGINEERING/PRODUCTION ENGINEERING

Design: Mechanics, Solid Mechanics, Machine Design, Theory of Machines, Mechanical vibrations, Machine Drawing, Computer Aided Design, Computer Aided Manufacturing, Robotics, Industrial Automation

Thermal Engineering: Thermodynamics, Thermodynamic 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, Combustion Stoichiometry

Production Engineering: Manufacturing Processes/Technologies, Machining Science, Industrial Engineering, Production Management, Inspection and Quality Control, Measurement Techniques, Material Science and Metallurgy.

Subject Knowledge component of Entrance Test for admission to ME – CAD/CAM Engineering/Thermal Engineering/Production Engineering shall consist of 60 question. Questions will be equally divided (20 each) from the three paragraphs on Design, Thermal and Production Engineering.

M.E. – STRUCTURAL ENGINEERING/INFRASTRUCTURE ENGINEERING

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.

Subject Knowledge component of Entrance Test for admission to M.E. (Structural Engineering & Infrastructure Engineering) shall consist of 60 question. There will be 24 questions from Structural Engineering, 8 questions from Geotechnical Engineering, 8 questions from Highway & Transportation Engineering, 8 questions from Water resource & Hydraulic Engineering and 12 questions from Environmental Engineering, Surveying & Construction Management.

M.E. – ELECTRONICS & COMMUNICATION ENGINEERING and M.Tech. – 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 Stokes' theorems, Maxwell's equations: differential and integral forms. Wave equation. Poynting 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, Wye-Delta Transformation Steady state sinusoidal 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.

Subject Knowledge component of Entrance Test for admission to M.E. – Electronics & Communication Engineering and M.Tech. – VLSI Design shall consist of 60 question. There will be 16 questions from Communication Systems, 8 questions from Electromagnetism Antennas, 16 questions from Analog and Digital Circuits, 12 questions from Networks, 4

questions from Fundamentals of Computer Programming and Data Structures, and 4 questions from Microprocessors and Computer Architecture.

M.E. – COMPUTER SCIENCE & ENGINEERING and SOFTWARE ENGINEERING

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.

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;

Compiler 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, file systems, 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.

Theory of Computation: Regular languages and finite automata, context free languages and pushdown automata, Turing machines.

Subject Knowledge component of Entrance Test for admission to M.E. – Computer Science & Engineering and Software Engineering shall consist of 60 question. These 60 questions will be evenly distributed among the complete syllabus of subject knowledge.