VITMEE

VIT
UNIVERSITY
(Estd u/s 3 of UGC Act 1956)
www.vit.ac.in

VITMEE - 2017

(VIT Master's Entrance Examination)

Information Brochure

Admissions to MCA/M.Tech/M.Tech (by Research)/ Integrated Ph.D Degree Programmes (2017 – 2018)

VIT- A place to learn; A chance to grow

VITMEE – 2017

(VIT Master's Entrance Examination)

Admission to M.C.A. / M.Tech / M.Tech (by Research) /

Integrated Ph.D Programmes

(2017 -18)

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CONTENTS

1. INTRODUCTION

VIT University was founded in 1984 as Vellore Engineering College by the Chancellor, Dr. G. Viswanathan. From its humble beginnings, the institution has grown exponentially to that of more than 35,000 students. It was conferred the University status in 2001 in recognition of its excellence in academics, research and extracurricular initiatives. Currently, VIT has two campuses - one in Vellore and another in Chennai. New campuses at Amaravati in Andhra Pradesh and at Bhopal, Madhya Pradesh are in the offing. VIT has been consistently ranked among the best institutions of the country, and is aspiring to emerge as a global leader. The National Institutional Ranking Framework (NIRF) of the MHRD, Government of India, has identified VIT as the best Private Engineering Institution in India. It has been awarded 4-Star by QS STARS the International University Ranking agency.

VIT offers bachelors, masters and research programmes in engineering, management, sciences and humanities including law. VIT is making rapid strides in research by increasing the quality and quantity of research publications. The University grooms students for the challenges and demands of modern-day professional life through innovative initiatives such as Fully Flexible Credit System (FFCS), Curriculum for Applied Learning (CAL) and Project Based Learning (PBL). Application of class-room learning to real-life issues is at the core of education at VIT.

With students from all the states of India and from more than 50 countries, the cosmopolitan VIT University provides an appropriate ambience for holistic learning and comfortable living. Sports, games and cultural activities are an integral part of student life on campus. VIT holds an exemplary placement record by consistently placing more than ninety percent of the students in good companies. The University's international linkages provide ample opportunities for students and faculty to gain global exposure. VIT alumni, spread across the world, are serving the most advanced as well as the most deprived societies.

2. PROGRAMMES OFFERED for M.Tech / MCA

Vellore Campus	Chennai Campus
Master of Computer Applications [MCA] – 2 years (4 semesters)	**Master of Computer Applications [MCA] – 2 years (4 semesters)**
M.Tech. Programmes – 2 years (4 semesters) Automotive Electronics Automotive Engineering Biomedical Engineering Biotechnology Communication Engineering Computer Aided Design/Computer Aided Manufacturing Computer Science and Engineering (CSE) CSE (Big data Analytics) CSE (Information Security) Computer and Communication Engineering Control and Automation Embedded Systems Energy and Environmental Engineering Information Technology [Networking] Mechatronics Manufacturing Engineering Nanotechnology [Supported by Nanomission, DST] Power Electronics and Drives Sensor System Technology Structural Engineering VLSI Design (Very Large Scale Integration Design) M.Des - Industrial Design	**M.Tech. Programmes – 2 years (4 semesters)** Computer Aided Design / Computer Aided Manufacturing Computer Science and Engineering (CSE) CSE (Big Data Analytics) CSE (Cloud Computing) Communication Engineering Embedded Systems Mechatronics Power Electronics and Drives Structural Engineering VLSI Design (Very Large Scale Integration Design) **VIT, Bhopal (MP)** **Master of Computer Applications [MCA] – 2 years (4 semesters)**

2.1 PROGRAMMES OFFERED for M.Tech (by Research) & Integrated Ph.D.

(Application should be made in Research Admissions (http://vtop2.vit.ac.in:8080/RESEARCH/) and the copy of application and enclosures need to be sent on or before 19.5.2017)

School / Centre	Int. Ph.D	M.Tech by Research
School of Bio Sciences and Technology	✔	✔
School of Computing Science & Engg.	✔	✔
School of Electrical Engg.	✔	✔
School of Electronics Engg.	✔	✔
School of Information Tech & Engg.	✔	✔
School of Mechanical Engg.	✔	
School of Civil and Chemical Engg.	✔	✔
Centre for Bio separation Technology	✔	
Centre of Disaster Mitigation and Mgnt	*	✔
CO2 Research and Green Technologies	*	✔
TIFAC-CORE in Automotive Infotronics	*	✔

School / Centre	Int. Ph.D	M.Tech by Research
School of Computing Science & Engg.	*	✔
School of Electrical Engg.	*	✔
School of Electronics Engg.	*	✔
School of Mechanical & Buldg Sciences	*	✔

✔ - Degree Offered;   * - degree not offered   Int. Ph.D—Integrated Ph.D

2.2 TUITION AND SPECIAL FEES for M.Tech by Research & Integrated Ph.D

Programme	Registration Fee (Rs.)	Tuition Fee (Rs.)	Thesis Fee (Rs.) *
Integrated Ph.D with Research Assistantship	900	5,000	10,000
Integrated Ph.D without Research Assistantship	900	20,000	10,000
M.Tech by Research with Research Assistantship	900	5,000	8,000
M.Tech by Research without Research Assistantship	900	15,000	8,000

3. COLLABORATIVE PROGRAMMES

VIT has signed MoUs with Foreign Universities / Indian Research Centres for faculty and student exchange in the following M.Tech. programmes:

Automotive Electronics	*TIFAC-CORE & Industries; UPAEP, Mexico; ESIGELEC Graduate School of Electrical Engineering, Rouen, France; UAS Esslingen, Germany; Kookmin University, Korea.*
Automotive Engineering	*Automotive Research Association of India (ARAI), Pune; University of Applied Science, Esslingen & Dresden, Germany; Montreal, Canada; UPAEP, PUEBLA, Mexico, French Institute for Advance Mechanics (IFMA), France, Kookmin University, Korea*
Bio-Medical Engineering	*University of Aberdeen, Scotland, UK; Cheju National University, Cheju, Korea; Strathclyde University, UK, ESIGELEC, France, Waterford Institute of Technology (WIT), Ireland; Stafford Shire University, UK*
Biotechnology	*University of Coimbra, Portugal; Universita 'Degli Studi Della Tuscia Di Viterbo, Viterbo, Italy; University of Miyazaki, Japan; Staffordshire University, UK; Plymouth University, Plymouth, UK; Leibniz University of Hannover, Germany; Shanghai University, China; Sejong University, South Korea; University of Maribor, Slovenia; Umea University, Umea, Sweden; Norwegian University of Life Sciences, Oslo; KTH Royal Institute of Technology, Stockholm, Sweden; Laval University, Quebec, Canada; Waterford Institute of Technology (WIT), Waterford, Ireland; Dublin city University, Dublin, Ireland; North Dakota State University , USA; West Virginia University, USA; Florida State University, USA.*
Communication Engineering	*University of Applied Sciences, Darmstadt, Germany, ISEP, France.*
CAD / CAM	*Technical University, Dresden, Germany; Queensland University of Technology, Australia*
Computer Science and Engineering	*TU, Dresden; Leibniz University Hannover, Germany; RMIT, Australia, University of Malaya, Malaysia; ANU, Australia.*
Energy and Environmental Engineering	*University of Applied Sciences, Aachen, Germany; Technical University, Eindhoven, Netherlands; Leibniz University Hannover, Germany; Deakin University, Australia, Plymouth University, UK, Umea University, Sweden*
Information Technology/ Computer and Communication Engineering	*University of Science & Technology, China; Kookmin University, Seoul, Korea; Leibniz University of Hannover, Hannover, Germany; University of Information Technology Management in Rzeszow, Poland, RMIT, Australia; EFREI, France; Deakin University, Australia; ISEP, France; EFREI, France, Umea University, Sweden*
Mechatronics	*Purdue University, USA; Deakin University, Australia; University of Applied Science, Karlsruhe, Germany; Queensland University of Technology (QUT), Australia.*
Nanotechnology	*Plymouth University, UK; Korea Institute of Energy research, South Korea; CINVESTAV, Mexico; Max Planck Institute for metals research, Stuttgart, Germany.*
Power Electronics and Drives	*Australian National University, Australia, Oklahama State University, USA.*
Sensor System Technology	*University of Applied Science, Karlsruhe, Germany.*
Control and Automation	*Oklahoma State University, USA, Australian National University, Australia.*

4. ELIGIBILITY

4.1.Nationality

The applicant for admission should be a Resident Indian National and should have graduated from Institutions located in India. Foreign and NRI/ PIO applications are to be made separately. Please visit the International Relations tab in VIT website.

4.2. Eligibility Criteria

♦ Candidates should have graduated with a full-time degree from any recognized University with a minimum aggregate of 60% for MCA and M.Tech. degree programmes.

♦ Consistent Record in X and XII Std is required.

♦ Candidates appearing for their final degree exam / final semester exam in the current year are also eligible to apply.

♦ Candidates should have completed their final Semester/year exams before the selection interview at VIT University.

♦ The candidates should produce statement of final year marks and Provisional degree certificate before **August 15th, 2017**, failing which admission will be cancelled with the forfeit of admission fee.

Placement Requirements: **Industries offering Placement at VIT have stipulated a minimum of 60% Marks for candidates in their undergraduate programmes and in class X and XII. Maximum of 2 years of academic gap is permitted.**

4.3. Academic Qualifications

For detaills of academic qualification, please see page 10

5. ADMISSION PROCEDURE

The applicants should apply online in the respect link provided in the website (www.vit.ac.in) by paying a non-refundable application of Rs.950/- (Rupees Nine Hundred Fifty only).

The applicants should register for VITMEE for a Computer Based Objective test at indicated test centres.

The list of short-listed candidates will be published in the website or personal SMS to the registered mobile number for an interview/ counselling .

Candidates selected will have to pay a deposit of **Rs. 10,000/-** towards counselling fee. Counselling fee is Non-Refundable, but it will be adjusted in the tuition fees once the candidate joins the university. This amount should be paid by demand draft drawn in favour of **"VIT University"**, payable at Vellore (only computerised DD will be accepted). Candidates who fail to pay the advance at the Counselling will not be considered for Admission.

5.1. Other general information

5.2 Pattern of the Question Paper

The computer based test (CBT) objective question Paper consists of 100 questions with a maximum of 100 marks among which 80 will be from the chosen technical subject and 20 will be from English communication. NO negative marks for wrong answers.

6. APPLICATION FORMS

♦ Candidates can apply through online at http://vtop.vit.ac.in:8080/VITMEE/ following the steps given.

♦ The applicants should also have their photo and signature ready to upload.

♦ The payment can be either made by online using net banking/ credit/ debit cards.

♦ The filled in application may be downloaded and stored for future reference. **NO NEED TO SEND THE FILLED-IN APPLICATION FORM / CERTIFICATES BY POST.**

6.1 Industry Sponsored Candidate

There are a few seats reserved for candidates sponsored by Research Organizations / Industries for the M.Tech. degree programmes.

Sponsored candidates should submit their applications through the proper channel in a proforma given in Appendix-II.

The Candidates send the sponsorship letter/certificate along with a copy of the downloaded application by post on or before last date.

7. ADMIT CARD

- ♣ Admit cards can be downloaded from www.vit.ac.in. Admit Card will not be faxed or sent by post or e-mail personally.
- ♣ The candidates must not mutilate the Admit card or alter any entry made therein.
- ♣ The Admit card is not transferable to any other person. Impersonation is a legally punishable offence.
- ♣ The Admit card will contain your name, registration number, photograph, Signature, your postal address, slot, date of examination and also the address of your test centre, test schedule and set of instructions for the test.
- ♣ The candidate should carefully examine the Admit card once received. Any discrepancy should be immediately brought to the notice of the Director (PG Admissions). **pgadmission@vit.ac.in or +91-416-2204600**.
- ♣ Applicants Will not be permitted to write the test without a valid admit Card. The Admit Card should be presented to the invigilators at the test centre for verification.
- ♣ The candidates must sign the attendance sheet at the appropriate places at the test centre. **The finger print of the candidate writing the examination will be recorded and later verified during the counselling time.**
- ♣ **The Admit Card should be preserved and produced for verification at the time of Interview / admission.**
- ♣ **Candidates are not eligible for admission in case the applicant violates any instruction or involves unfair means in the examination hall.**

8.COUNSELLING

The candidate should produce the admit card at the time of interview. Candidates will be short-listed for counselling on the basis of their performance in the VIT Master's Entrance Examination (VITMEE) Rank. Attending counseling process alone will not assure admission since the seat allotment is based on the merit list and there is a chance that some may not get admission if the seats are filled before their rank/ turn comes.

Selected candidates should pay an advance of Rs. 10,000/- towards counselling fee. The counselling fees is Non-Refundable, but it will be adjusted in the tuition fees once the candidate joins the University. (Only Computerised DD will be accepted payable to **"VIT University"**, at Vellore). The candidate's name will be removed from the admission list, if he / she fails to pay the advance at the time of the Interview.

8.1. Documents to be produced at the time of counselling / interview

The Candidate shall produce the following documents in original for verification, along with one-set of photocopies while reporting for counselling. Candidates will not be allowed to participate in the interview without these documents.

- ♦ Admit Card of the Entrance Examination
- ♦ X and XII Std. Marks statement
- ♦ Mark Sheets of all semesters / years of the qualifying examination up to pre-final / final year as applicable
- ♦ Qualifying Degree / Provisional Certificate (If already received)
- ♦ Transfer/Migration Certificate obtained from the Institute last studied (If already received)
- ♦ Valid GATE score card for Candidates applying for M.Tech. (if applicable)
- ♦ Service Certificate/ No Objection Certificate issued by the Employer. (For sponsored candidates for M.Tech. Programmes only)
- ♦ Community Certificate (for all categories except OC/ General).
- ♦ DEMAND DRAFT for Rs. 10,000, drawn in favour of **"VIT University"**, payable at Vellore.

Only after verification of these documents, the candidate will be allowed to participate in the counselling. Authentic records pertaining to marks sheet of the qualifying examination and state of eligibility, as indicated in section 4, will be checked. If a candidate fails to produce any of the above documents, he/she will not be considered for admission.

After remittance of the non-refundable deposit and obtaining the provisional admission letter, **if the candidate fails to qualify in the prescribed qualifying examination, the provisional admission accorded will be cancelled with the forfeit of fee**.

The seat and campus for a programme once allotted is final and cannot be changed under any circumstances.

9. DOCUMENTS TO BE SUBMITTED AT THE TIME OF ADMISSION

The following documents in original are required to be submitted at the time of Admission:

♦ X and XII Std. Marks statement
♦ Mark Sheets of all semesters / years of the qualifying examination upto pre-final / final year as applicable
♦ Qualifying Degree / Provisional Certificate (If already received)
♦ Transfer Certificate obtained from the Institute last studied. (If already received)
♦ Migration Certificate
♦ Valid GATE score card for Candidates applying for M.Tech.
♦ Service Certificate issued by the Employer. (For sponsored candidates - for M.Tech. programmes only)
♦ Community Certificate (for all categories except OC / General)
♦ Conduct Certificate
♦ Student Profile (https://academics.vit.ac.in/studentprofile/)
♦ Physical Fitness Certificate (http://vit.ac.in/files/admissions/PhysicalFitness_Certificate.pdf)
♦ Advance Fee Receipt
♦ Admission letter and a photocopy of the programme fee receipt
♦ Four copies of recent passport size colour photograph
♦ An undertaking for good conduct and behavior in a prescribed form(to be issued by the University at the time of admission)
♦ Affidavit to be signed separately by the student & parent in Rs. 20/- Stamp Paper (Format available at www.vit.ac.in)
♦ Two copies and notified of all original certificates (Candidates are advised to make required number of photocopies for their future use before handing over their originals to the Admissions Office).
♦ University Registration Number/ID will be generated to the candidates those who have submitted the above documents only.

Original certificates once submitted will be returned only after completion of / withdrawal from the programme.

10. TUITION AND SPECIAL FEES for M.Tech & MCA (in INR for the first year)

MCA	M.Tech Biomedical Engg. CAD / CAM Mechatronics Power Electronics and Drives Control and Automation Sensor System Energy & Environmental Engg. Structural Engineering M.Des (Industrial Design)		M.Tech Automotive Engg.# Automotive Electronics Nanotechnology Manufacturing Engg. Communication Engg. Biotechnology		M.Tech CSE CSE (Cloud Computing,) CSE (Big Data Analytics) CSE (Information Security) VLSI Design Information Technology Computer & Communication Engg. Embedded Systems	
	Category 1	Category 2	Category 1	Category 2	Category 1	Category 2
1,30,000	1,43,000	2,23,000	1,73,000	2,53,000 2,89,000* (*Biotech)	1,83,000	2,92,000

Note: 1) One time payment for Category 1 and Category 2; •   Admission fee Rs. 5,000;
• Caution Deposit (refundable) Rs. 2,000
Fee includes Tuition fee, Placement fee and Special fee (Examination, Library etc.,)
: For M.Tech. in Automative Engg. Only first category is available.

10.1 MODE OF PAYMENT

All payments are to be made only in the form of a crossed Demand Draft drawn in favour of **"VIT University"**, payable at Vellore (only computerized DD is accepted). Various tiers of scholarships and teaching assistantships are available for high scores in valid G ATE.

10.2. SCHOLARSHIPS

♦ Monthly stipend of R s . 4000/- for top six GATE Qualified Scores in each M.Tech. Programme.
♦ Top VITMEE / GATE scorers will get a stipend of 3600 Euros **(i.e. R s . 2.40 lakhs)** for a double degree programmes in Communication Engineering from UAS, Darmstadt, Germany (under DADD fellowship) and in Sensor Systems from UAS, Karlsruhe.
♦ For M.Tech (Nanotechnology) - Student Fellowship of **Rs. 12,400/-** p.m per student and a Contingency of **Rs. 15,000/-** p.a per student will be given for the first 20 students admitted to M.Tech Nanotechnology, provided by DST (Nano Mission Council).

10.3. Refund of Fees

If for any reason the candidate withdraws from the programme, the refund will be made as per the norms of the UGC. & University guidelines

10.4. Submission of 'No Dues' Certificate

Certificate from his/her respective Director to get back the certificates. This should be accompanied by the application for withdrawal and the original fee receipt and original provisional admission letter. The certificates will be issued only on production of 'NO DUES' Certificate in the prescribed form, obtained from the PG Admission Section.

11. HOSTEL – Bhopal, Chennai & Vellore Campuses

Hostel accommodation is available for both men and women separately at Bhopal, Vellore and Chennai campuses. For details please log on to VIT Website: www.vit.ac.in for particular campus.

GENERAL DISCIPLINE

All candidates admitted to the University shall maintain good conduct, pay the requisite tuition fees and other charges by the due dates, attend their classes regularly and abide by the rules and regulations of the Institution. If at any point of time, the conduct and character of a candidate is not satisfactory or is of a suspicious nature, the management reserves the right, without assigning any reason, to make him / her vacate the hostel or expel him / her from the University.

12. IMPORTANT INSTRUCTIONS PERTAINING TO CONDUCT OF COMPUTER BASED TEST (CBT) ENTRANCE EXAMINATION

DATE : 3rd and 4th June, 2017

TIME : 10.00 am – 12.00 noon   &   02.30 pm – 04.30 pm

- ◆ Candidate is expected to arrive at the examination hall at least 1 hour before the start of examination, with Admit Card (hard copy). If the candidate does not report on time, they are likely to miss the general instructions given in Exam Hall.
- ◆ Candidate will not be permitted to enter into examination hall after 10:15 am / 2: 45 pm
- ◆ Candidate will not be permitted to leave the exam hall until 12 noon/ 4.30 pm, even if the exam were completed.
- ◆ Candidates are requested to keep the Admit Card safely with them and bring it during the Admission Process. Candidate should produce it on demand.
- ◆ A candidate who does not possess the admit card issued by VIT Institute shall not be permitted to attend VITMEE exam under any circumstances.
- ◆ Candidate is instructed to complete Registration
- ◆ Process with the help of Hall Invigilators
- ◆ Candidate will be allotted a computer system by Hall Invigilator to attend the Computer Based Test (CBT)
- ◆ Candidate is not permitted to carry any text material (printed / written), slide rulers, log tables, electronic watches , mobile phones or any other electronic devices.
- ◆ Scientific calculators without programming facility are permitted.
- ◆ Candidate should bring a pencil or pen to carry out any rough calculations.
- ◆ Test will start exactly at the time specified in Admit Card and an announcement will be made by Hall Invigilator to start and stop the exam.
- ◆ During the exam process, the Hall Invigilator can request the admit card to verify the candidate.
- ◆ Under any circumstances the candidate may not be permitted to take an extra time, unless otherwise permitted by Center Superintendents.
- ◆ The Candidate will be permitted to attend a mock test (online) as mentioned in Admit Card / VIT web site. (Candidates are required to check the VIT web site for regular updates)
- ◆ Exam would comprise of multiple choice questions with question number appearing at the top center of computer screen and the time left for the exam to be completed.
- ◆ For each question, candidate will has to select the right option using the mouse.
- ◆ Candidates will be allowed to change their answer any time during the exam duration.

Test Slot booking instructions:

1. VITMEE 2017 test slot booking is a web based online scheduling system.

2. Once the candidate submits the online application, the candidate will receive an e-mail (as per the id specified in the VITMEE-2017 online application form) with a website link and the corresponding login credentials (user id & password)

3. Candidates are required to check the VIT website (www.vit.ac.in) on a regular basis for any important updates.

4. The online test slot booking will be opened during the last week of May 2017 and the exact date will be announced in VIT Website

5. Candidates can then login to the link, choose from the available options on test schedule (date & time), test center and book the test slot.

6. The slot booking will be done on first-come- first serve basis, subject to the availability of slots / seats

7. A slot once booked cannot be changed. Requests for change of date, slot or test center will not be entertained under any circumstances.

8. In case of non availability of slots in a center of choice, the candidates may choose to book a slot in another center of his / her choice.

9. It is the responsibility of the candidates to book their test schedule for VITMEE-2017 in the given time frame. VIT will not be held accountable for the non booking of test slot by the candidate.

10. A confirmation mail will be automatically sent to the e-mail address of the candidate, who has booked his/her schedule through the VITMEE-2017 booking system.

ACADEMIC QUALIFICATIONS

PROGRAMMES	ELIGIBILITY
MCA	Recognized Bachelor's Degree of Minimum 3 Yrs duration in BCA, B.Sc (IT/Computer Science) with Mathematics as a course at 10+2 level or at Graduate Level. Obtained at least 60% at the qualifying Examination.
M.TECH PROGRAMMES	
Automotive Engineering in collaboration with Automotive Research Association of India, (ARAI), Pune	B.E/B.Tech. Degree in Mechanical / Automobile / Production / Manufacturing Engineering or Mechatronics or any equivalent degree.
Computer Aided Design / Computer Aided Manufacturing	B.E/B.Tech. Degree in Mechanical / Automobile or Production Engineering or any equivalent degree.
Energy and Environmental Engineering	B.E/B.Tech. in Civil / Mechanical / Biotechnology / Chemical / Electrical / Biochemical / Environmental / M.Sc in Chemistry, Microbiology, Environmental Science, Biotechnology, Biochemistry.
Mechatronics	B.E/B.Tech. Degree in Mechanical / Automobile / Manufacturing / Production / Electrical & Electronics / Electronics & Communication / Electronics & Instrumentation / Instrumentation & Control / Computer Science / Information Technology / Mechatronics or any equivalent degree
Manufacturing Engineering	B.E/B.Tech. Degree in Mechanical / Production / Manufacturing / Automobile Engineering or any equivalent degree
Structural Engineering	B.E/B.Tech. Degree in Civil Engineering / Civil & Structural Engineering or any equivalent degree

Information Technology [Networking]	B.E/B.Tech in any branch / MCA / M.S / M.Sc in Computer science / IT / Software Engg. or any other equivalent degree
Nanotechnology	B.E / B.Tech. Degree in ECE / EEE / E&I /Mechanical engineering/Chemical Engineering/ Metallurgical Engineering/ Nanotechnology/ Tele. Comm. Engg ; M.Sc. Physics/ Electronics/ Material Science/ Solid State Physics/ Nanoscience and Nanotechnology / or any equivalent degree.
Communication Engineering	B.E/B.Tech. Degree in Electrical / Electronics / EEE/ ECE/ Telecommunication, E&I/ **Computer Sciences*** / M.Sc. Physics with Electronics spl. / Electronics or any equivalent degree **(* Bridge course needed)**
Sensor System Technology	B.E/B.Tech. Degree in EEE / ECE / E&I / CSE / Instrumentation & Control / Bio-Medical / Mechatronics / M.Sc. Degree in Electronics / Physics with Electronics or any equivalent degree
VLSI Design (Very Large Scale Integration Design)	B.E/B.Tech. Degree in Electrical / Electronics / EEE / ECE / E&I or any equivalent degree
Automotive Electronics in collaboration with TIFAC-CORE industry partners	B.E/B.Tech. Degree in ECE / Telecommunication / CSE / EIE / IT / EEE / Mechatronics or any equivalent degree
Power Electronics and Drives	B.E/B.Tech. Degree in Electrical / Electronics / EEE / ECE / E&I or any equivalent degree
Computer Science and Engineering	B.E/B.Tech. Degree in any branch / M.S / M.Sc. Computer Science or IT or Software Engineering / MCA or any other equivalent degree
CSE in Cloud Computing / Big Data Analytics/ Information security	B.E/ B.Tech Degree in any Branch / MCA or any other equivalent degree.
Biotechnology	B.E/B.Tech. Degree in Biotechnology/Industrial Biotechnology/Bio-chemical/Bio-Medical/ Bio-Informatics/Chemical/Leather Technology/ or a Bachelor's Degree in Pharmacy or M.Sc. Degree in any branch of life sciences /MBBS/M.Sc.(Ag) & M.V.Sc.
Embedded Systems	B.E/B.Tech. Degree in ECE/EEE/Mechatronics/EIE/CSE/IT/Telecommunication/Control & Instrut.
Control and Automation	B.Tech(EEE)/ B.Tech(ECE)/ B.Tech(E&I)/any other Equivalent UG degree/ Instrumentation/ Electronics/Control.
Biomedical Engineering	B.E/B.Tech Degree in Bio-Medical Engg/Bio-Medical Instrumentation/Medical Electronics/ECE/ EIE/EEE/**Biotechnology*/Bio-Informatics***/Mechanical/M.Sc in Biophysics/ Electronics/Physics/ Bio-Medical Sciences/ Bio-medical Instrumentation or any equivalent degree **(* Bridge courses needed)**
Computer and Communication Engineering	B.E/B.Tech in any branch / MCA / M.S / M.Sc in Computer science / IT / Software Engg. / Electronics / Applied Electronics / Physics Spec. with Electronics or any other equivalent degree
M.Des (Industrial Design)	B.E/B.Tech in any branch or any other equivalent degree

SYLLABUS for ENTRANCE EXAMINATION

BM - BIO-MEDICAL ENGINEERING

Mathematics : Linear algebra, calculus, differential equations, numerical methods, probability theory.

Basics of Circuits: Kirchoff 's laws, mesh and nodal Analysis. Circuit theorems. One port and two-port Network Functions. Static and dynamic characteristics of Measurement Systems. Error and uncertainty analysis. Statistical analysis of data and curve fitting.

Transducers and Measurement : Resistive, Capacitive, Inductive and piezoelectric transducers. Measurement of displacement, velocity and acceleration (translational and rotational), force, torque, vibration and shock.

Analog Electronics : Characteristics of diode, BJT, JFET and MOSFET. Diode circuits. Transistors at low and high frequencies, Amplifiers, single and multi- stage . Feedback amplifiers. Operational amplifiers, characteristics and circuit configurations. Instrumentation amplifier. Precision rectifier. V-to-I and I-to-V c onverter. Op-Amp based active filters . Oscillators and signal generators.

Digital Electronics : Combinational logic circuits, minimization of Boolean functions. IC families, TTL, MOS and CMOS. Arithmetic circuits. Comparators, Schmitt trigger, timers and mono-stable multi-vibrator. Sequential circuits, flip-flops, counters, shift registers. Multiplexer, S/H circuit. Analog-to-Digital and Digital-to- Analog converters. Basics of number system. Microprocessor applications, memory and input-output interfacing. Microcontrollers.

Signals, Systems and Communications : Periodic and aperiodic signals. Impulse response, transfer function and frequency response of first- and second order systems. Convolution, correlation and characteristics of linear time invariant systems. Discrete time system, impulse and frequency response. Pulse transfer function. IIR and FIR filters. Amplitude and frequency modulation and demodulation. Sampling theorem, pulse code modulation. Frequency and time division multiplexing. Amplitude shift keying, frequency shift keying and pulse shift keying for digital modulation.

Electrical and Electronic Measurements : Bridges and potentiometers, measurement of R, L and C. Measurements of voltage, current, power, power factor and energy. A.C & D.C current probes. Extension of instrument ranges. Q-meter and waveform analyzer. Digital voltmeter and multimeter. Time, phase and frequency measurements. Cathode ray oscilloscope. Serial and parallel communication. Shielding and grounding.

Analytical, Optical and Biomedical Instrumentation : Mass spectrometry. UV, visible and IR spectrometry. X- ray and nuclear radiation measurements. Optical sources and detectors, LED, laser, photo-diode, photo-resistor and their characteristics. Interferometers, applications in metrology. Basics of fiber optics. EEG, ECG and EMG, Clinical measurements, Ultrasonic transducers and Ultrasonography. Principles of Computer Assisted Tomography.

CI – CIVIL ENGINEERING

STRENGTH OF MATERIALS & STRUCTURAL ANALYSIS

Strength of Materials: Bending moment and shear force in statically determinate beams. Simple stress and st rain relationship Stress and strain in two dimensions, principal stresses, stress transformation, Mohr's circle. Simple bending theory, flexural and shear stresses, unsymmetrical bending, shear centre. Thin walled pressure vessels, uniform torsion, buckling of column, combined and direct bending stresses.

Structural Analysis: Analysis of statically determinate trusses, arches, beams, cables and frames, displacements in statically determinate structures and analysis of statically indeterminate structures by force / energy methods, analysis by displacement methods (slope deflection method), influence lines for determinate andindeterminate structures. Basic concepts of matrix methods of structural analysis.

Reinforced Concrete Structures: Concrete Technology- properties of concrete, basics of mix design. Concrete design-basic working stress and limit state design concepts, analysis of ultimate load capacity and design of members subjected to flexure, shear, compression and torsion by limit state methods. Basic elements of pre-stressed concrete, analysis of beam sections at transfer and service loads.

Steel Structures

Analysis and design of tension and compression members, beams and beam columns, column bases. Connections simple and eccentric, beam-column connections, plate girders and trusses. Plastic analysis of beams and frames.

GEOTECHNICAL ENGINEERING

Soil Mechanics

Origin of soils, soil classification, three - phase system, fundamental definitions, relationship and interrelationships, permeability and seepage, effective stress principle, consolidation, compaction, shear strength.

Foundation Engineering

Sub-surface investigations- scope, drilling bore holes, sampling, penetration tests, plate load test. Earth pressure theories, effect of water table, layered soils. Stability of slopes-infinite slopes, finite slopes. Foundation types foundation design requirements. Shallow foundations bearing capacity, effect of shape, water table and other factors, stress distribution, settlement analysis in sands and clays. Deep foundations - pile types, dynamic and static formulae, load capacity of piles in sands and clays, negative skin friction.

WATER RESOURCES ENGINEERING

Fluid Mechanics and Hydraulics

Properties of fluids, principle of conservation of mass, momentum, energy and corresponding equations, potential flow, applications of momentum and Bernoulli's equation, laminar and turbulent flow, flow in pipes, pipe networks. Concept of boundary layer and its growth. Uniform flow, critical flow and gradually varied flow in channels, specific energy concept, hydraulic jump. Forces on immersed bodies, flow measurements in channels, tanks and pipes. Dimensional analysis and hydraulic modeling. Kinematics of flow, velocity triangles and specific speed of pumps and turbines.

Hydrology

Hydrologic cycle, rainfall, evaporation, infiltration, stage discharge relationships, unit hydrographs, flood estimation, reservoir capacity, reservoir and channel routing. Well hydraulics.

Irrigation

Duty, delta, estimation of evapo-transpiration. Crop water requirements. Design of lined and unlined canals, waterways, head works, gravity dams and spillways. Design of weirs on permeable foundation. Types of irrigation system, irrigation methods. Water logging and drainage, sodic soils.

ENVIRONMENTAL ENGINEERING

Water requirements: 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, sludge disposal, effluent discharge standards. Domestic wastewater treatment, quantity of characteristics of domestic wastewater, primary and secondary treatment Unit operations and unit processes of domestic wastewater, sludge disposal.

Air Pollution: Types of pollutants, their sources and impacts, air pollution meteorology, air pollution control, air quality standards and limits.

Municipal Solid Wastes: Characteristics, generation, collection and transportation of solid wastes, engineered systems for solid waste management (reuse/ recycle, energy recovery, treatment and disposal).

Noise Pollution: Impacts of noise, permissible limits of noise pollution, measurement of noise and control of noise pollution.

TRANSPORTATION ENGINEERING

Highway Planning: Geometric design of highways, testing and specifications of paving materials, design of flexible and rigid pavements.

Traffic Engineering: Traffic characteristics, theory of traffic flow, intersection design, traffic signs and signal design, highway capacity.

CE – CHEMICAL ENGINEERING

Process Calculation and Thermodynamics : Laws of thermodynamics - reversible and irreversible process - concept of ideal gas and real gas - equations of states - Maxwell relations - adiabatic and isothermal compression - phase equilibrium - Gibbs phase rule - system of variable composition - vant Hoffs equation - applications of Gibbs - Duhem equation.

Law of conservation of mass and energy - material balance energy balance and their applications - unit operation and unit process - psychrometry - combustion calculations.

Momentum Transfer : Classification of fluids - fluid statics - basic equations of fluid flow - Bernoulli's equation - laminar flow – friction in flow through beds of solids - packed beds - fluid moving machinery - classification of pumps and its characteristics.

Particle Technology : Introduction to particulate solids - particle separation - size reduction - motion of a particle through fluid - classification of particulate solids - centrifugal classifier - sedimentation techniques - flotation - filtration equipments - agitation and mixing of liquids.

Heat Transfer and Chemical Reaction Engineering : Fourier's law of heat conduction - concept of thermal conductivity - heat transfer through fins - convective heat transfer - transfer of heat in flowing fluids - laminar and turbulent flow - heat transfer with and without phase change - types of evaporators - multiple effect evaporators.

Differential and integral method of analysis of rate data - ideal reactor design - Residence time distribution - C, E and F curves.

Chemical Technology : Basic principles of unit operation and unit process - schematic representations of unit operations - manufacture of sulfur, hydrochloric acid, cement, glass, products used in photography, ceramics and refractory, industrial gases, paints, pigments, fertilizers - fermentation process for the production of ethanol - manufacture of citric acid, antibiotics, penicillin, soaps, detergents – petroleum refining process - process for the production of petrochemical precursors - production of resins, nature and synthetic rubber.

Mass Transfer : Diffusion in liquids - development of rate equation for mass transfer - contracting devices for improving mass transfer characteristics - humidification, drying and crystallization - distillation, continuous rectification operation, absorption, liquid -liquid extraction and leaching - fundamental principles and design of the pressure, reaction vessels and related equipments in the above process.

Biochemical Engineering : Overview of industrial biochemical processes – industrially important microbial strains - enzymes used in industry, medicine and food - industrial production, purification and immobilization of enzymes - reactors types, characteristics and design - growth characteristics of microbial cells - free cell and immobilized cell reactors - downstream processing and effluent treatment.

CH – CHEMISTRY

Atomic Structure: Planck's quantum theory - wave particle duality - Heisenberg's principle - Schrodinger wave equation – particle in a box and hydrogen atom - VB and MO theories.

Spectroscopy: Rotational and vibrational spectra - harmonic anharmonic oscillator and Rigid Rotor - selection rules - fundamentals, overtones and combinational bands - calculation of force constants (diatomic molecules) - Group frequencies - electronic spectroscopy - potential energy diagram – term symbols - selection rules – L-S and J-J coupling – Frank Condon principle - oscillator's strength - effect of solvents on spectra.

Thermodynamics: Laws of thermodynamics – First law - second law - third law (terms and their relations). Chemical kinetics and equilibrium. Rate constant of chemical reactions, temperature dependence, collision and transition state theories - consecutive and parallel reactions - chemical equilibrium and response of chemical equilibrium to temperature and pressure.

d and f block elements: General characteristics of d and f block elements; Coordination chemistry; structure and isomerism; stability; theories of metal-ligand bonding (CFT and LFT); mechanisms of substitution and electron transfer reactions of coordination complexes. Electronic spectra and magnetic properties of transition metal complexes, lanthanides and actinides. Metal carbonyls, metal- metal bonds and metal atom clusters, metallocenes; transition metal complexes with bonds to hydrogen, alkyls, alkenes and arenes; metal carbenes; use of organometallic compounds as catalysts in organic synthesis. Bioinorganic chemistry of Na, K, Mg, Ca, Fe, Co, Zn, Cu and Mo.

Solid State: Crystal systems and lattices, Miller planes, crystal packing, crystal defects; Bragg's law, ionic crystals, band theory, metals and semiconductors, different structures of AX, AX2, AX3 compounds, spinels.

Instrumental methods of analysis: Atomic absorption and emission spectroscopy including ICP-AES, UV-Visible spectrophotometry, NMR, Mass, Mossbauer spectroscopy (Fe and Sn), ESR spectroscopy, chromatography including GC and HPLC, electroanalytical methods (coulometry, cyclic voltammetry, polarography - amperometry, and ion selective electrodes). Structural determination of organic and inorganic compounds using UV-Visible, IR, NMR and mass spectroscopy.

Stereochemistry: Chirality of organic molecules with or without chiral centres. Specification of configuration in compounds having one or more stereogenic centres. Enantiotopic and diastereotopic atoms, groups and faces. Stereospecific synthesis. Conformational analysis of acyclic and cyclic compounds. Geometrical isomerism. Configurational and conformational effects on reactivity and selectivity / specificity.

Reaction Mechanism: Electrophilic and Nucleophilic substitution reactions in aliphatic and aromatic compounds and their mechanisms - Addition and Elimination reactions and their mechanisms - Reaction intermediates carbocations, carbanions, carbenes, nitrenes and free radicals.

Organic synthesis: Synthesis, reactions, mechanisms and selectivity involving the following - alkenes, alkynes, arenes, alcohols, phenols, aldehydes, ketones, carboxylic acids and their derivatives, halides, nitro compounds and amines. Use of compounds of Mg, Li, Cu, B and Si in organic synthesis. Concepts in multistep synthesis - retrosynthetic analysis, disconnections, synthons, synthetic equivalents, umpolung in chemistry, selectivity, protection and deprotection of functional groups.

Heterocyclic compounds: Structure and reactions of furan, pyrrole, thiophene, pyridine, indole and their derivatives.

Biomolecules Structure, properties and reactions of mono- and disaccharides, physicochemical properties of amino acids, chemical synthesis of peptides, structural features of proteins, nucleic acids, steroids, terpenoids, carotenoids, and alkaloids.

EE – ELECTRICAL AND ELECTRONICS ENGINEERING

ENGINEERING MATHEMATICS

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coeffi-

cients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary value problems, Partial Differential Equations, Method of separation of variables.

Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent' series, Residue theorem, solution of integrals.

Probability and Statistics: Sampling theorems,Conditional probability, Mean, median, mode and standard deviation, Random variables, Discrete and continuous distributions, Poisson, Normal and Binomial distributions, Correlation and regression analysis.

Numerical Methods: Matrix inversion, solutions of non-linear algebraic equations, iterative methods for solving differential equations, numerical integration, regression and correlation analysis.

Transform Theory: Fourier transform, Laplacetransform, Z-transform.

ELECTRICAL ENGINEERING

Electric Circuits: Voltage and current sources: independent, dependent, ideal and practical; v-I relationships of resistor, inductor, mutual inductor and capacitor; transient analysis of RLC circuits with dc excitation. Kirchoff's laws, mesh and nodal analysis, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems. Peak-, average– and rms values of ac quantities; apparent-, active– and reactive powers; phasor analysis, impedance and admittance; series and parallel resonance, locus diagrams, realization of basic filters with R, L and C elements. One-port and two-port networks, driving point impedance and admittance, open-, and short circuit parameters, Three phase circuits, Power and power factor in ac circuits.

Signals and Systems: Representation of continuous and discrete-time signals, Shifting and scaling operations, Linear Time Invariant and Causal systems, Fourier series representation of continuous periodic signals, Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.

Electromagnetic Fields: Coulomb's Law, Electric Field Intensity, Electric Flux Density, Gauss's Law, Divergence, Electric field and potential due to point, line, plane and spherical charge distributions, Effect of dielectric medium, Capacitance of simple configurations, Biot-Savart's law, Ampere's law, Curl, Faraday's law, Lorentz force, Inductance, Magnetomotive force, Reluctance, Magnetic circuits, Self and Mutual inductance of simple configurations.

Electrical Machines: Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors; Three phase induction motors: principle of operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control; Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines.

Power Systems: Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, Gauss-Seidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion.

Control Systems: Mathematical modeling and representation of systems, Feedback principles, transfer function, Block diagrams and signal flow graphs, transient response, steady-state-errors, Bode plot, phase and gain margins, Routh and Nyquist criteria, root loci, design of lead, lag and lead-lag compensators, state-space representation of systems; time-delay systems; mechanical, hydraulic and pneumatic system components, synchro pair, servo and stepper motors, servo valves; on-off, P, P-I, P-I-D, cascade, feed forward, and ratio controllers.

Electrical and Electronic Measurements: Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.

Analog and Digital Electronics: Characteristics of diodes, BJT, MOSFET; Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: Biasing, Equivalent circuit and Frequency response; Oscillators and Feedback amplifiers; Operational amplifiers: Characteristics and applications; Simple active filters, VCOs and Timers, Combinational and Sequential logic circuits, Multiplexer, Demultiplexer, Schmitt trigger, Sample and hold circuits, A/D and D/A converters, 8085Microprocessor: Architecture, Programming and Interfacing.

Power Electronics and Drives: Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.

EI – INSTRUMENTATION ENGINEERING

ENGINEERING MATHEMATICS

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary value problems, Partial Differential Equations and variable separable method.

Complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent' series, Residue theorem, solution integrals.

Probability and Statistics: Sampling theorems,Conditional probability, Mean, median, mode and standard deviation, Random variables, Discrete and continuous distributions, Poisson, Normal and Binomial distribution, Correlation and regression analysis.

Numerical Methods: Solutions of non-linear algebraic equations, single and multi-step methods for differential equations.

Transform Theory: Fourier transform, Laplacetransform, Z-transform.

INSTRUMENTATION ENGINEERING

Basics of Circuits and Measurement Systems: Kirchoff's laws, mesh and nodal Analysis. Circuit theorems. Oneport and two-port Network Functions. Static and dynamic characteristics of Measurement Systems. Error and uncertainty analysis. Statistical analysis of data and curve fitting.

Transducers, Mechanical Measurement and Industrial Instrumentation: Resistive, Capacitive, Inductive and piezoelectric transducers and their signal conditioning. Measurement of displacement, velocity andacceleration (translational and rotational), force, torque, vibration and shock. Measurement of pressure, flow, temperature and liquid level. Measurement of pH, conductivity, viscosity and humidity.

Analog Electronics: Characteristics of diode, BJT, JFET and MOSFET. Diode circuits. Transistors at low and high frequencies, Amplifiers, single and multi-stage. Feedback amplifiers. Operational amplifiers,characteristics and circuit configurations.Instrumentation amplifier. Precision rectifier. V-to-I and I-to-V converter. Op-Amp based active filters. Oscillators and signal generators.

Digital Electronics: Combinational logic circuits, minimization of Boolean functions. IC families, TTL, MOS and CMOS. Arithmetic circuits. Comparators, Schmitt trigger, timers and mono-stable multi-vibrator. Sequential circuits, flip-flops, counters, shift registers. Multiplexer, S/H circuit. Analog-to-Digital and Digitalto- Analog converters. Basics of number system.Microprocessor applications, memory and input-output interfacing. Microcontrollers.

Signals, Systems and Communications: Periodic and aperiodic signals. Impulse response, transfer function and frequency response of first- and second order systems. Convolution, correlation and characteristics of linear time invariant systems. Discrete time system, impulse and frequency response. Pulse transfer function. IIR and FIR filters. Amplitude and frequency modulation and demodulation. Sampling theorem, pulse code modulation. Frequency and time division multiplexing. Amplitude shift keying, frequency shift keying and pulse shift keying for digital modulation.

Electrical and Electronic Measurements: Bridges and potentiometers, measurement of R, L and C.Measurements of voltage, current, power, power factor and energy. A.C & D.C current probes. Extension of instrument ranges. Q-meter and waveform analyzer. Digital voltmeter and multimeter. Time, phase and frequency measurements. Cathode ray oscilloscope. Serial and parallel communication. Shielding and grounding.

Control Systems and Process Control: Feedback principles. Signal flow graphs. Transient Response, steadystate- errors. Routh and Nyquist critera. Bode plot, root loci. Time delay systems. Phase and gain margin. State space representation of systems. Mechanical, hydraulic and pneumatic systemcomponents. Synchro pair, servo and step motors. On- off, cascade, P, P-I, P-I-D, feed forward and derivative controller, Fuzzy controllers.

Analytical, Optical and Biomedical Instrumentation: Mass spectrometry. UV, visible and IR spectrometry. X- ray and nuclear radiation measurements. Optical sources and detectors, LED, laser, photo-diode, photo-resistor and their characteristics. Interferometers, applications in metrology. Basics of fiber optics.

Biomedical instruments, EEG, ECG and EMG. Clinical measurements. Ultrasonic transducers and Ultrasonography. Principles of Computer Assisted Tomography.

EC – ELECTRONICS AND COMMUNICATION ENGINEERING

ENGINEERING MATHEMATICS

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary Value problems, Partial DifferentialEquations and variable separable method.

Complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent' series, Residue theorem, solution integrals.

Numerical Methods: Solutions of non-linear algebraic equations, single and multi-step methods for differential equations.

Transform Theory: Fourier transform, Laplacetransform, Z-transform.

NETWORK

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 Nortan'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 equation for networks.

ANALOG CIRCUITS: Characteristics and equivalent circuits (large and small signal) of diodes, BJT, JFETs and MOSFET 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. Analysis of amplifiers; frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators: criterion for oscillation; single-transistor and op-amp configurations. Function generators and waveshaping circuits, Power supplies.

DIGITAL CIRCUITS: 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, timers, multivibrators. Sample and hold circuits, ADCs and DACs. Semiconductor memories. Microprocessor (8085): architecture, programming, memory and I/O interfacing

CONTROL SYSTEMS: Basic control system components; block diagrammatic description, reduction of block diagrams, properties of systems: linearity, time-invariance, stability, causality. Open loop and closed loop (feedback) systems. Special properties of linear time-invariance (LTI) systems- transfer function, impulse response, poles, zeros, their significance and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI system and frequency response. Tools and techniques for LTI control system analysis: Root, loci, Routh_Hurwitz criterion, Bode and Nyquist plots; Control system compensators: elements of lead and lag compensations, elements of proportional-integral- Derivative (PID) control. State variable representation and solution of state equation for LTI systems.

COMMUNICATION SYSTEMS: Fourier analysis of signals - amplitude, phase and power spectrum, auto-correlation and cross-correlation and their Fourier transforms. Signal transmission through linear time-invariant (LTI) systems, impulse response and frequency response, group delay phase delay. Analog modulation systems-amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodynereceivers, elements of hardwares realizations of analog communication systems. Basic sampling theorems. Pulse code modulation (PCM), differential pulse code modulation (DPCM), delta modulation (DM). Digital modulation schemes: 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). Signalto- noise ratio (SNR) calculations for amplitude modulation (AM) and frequency modulation (FM) for low noise conditions.

ELECTROMAGNETICS: Elements of vector calculus: gradient, divergence and curl; Gauss and strokes theorems, maxwells equation: differential and integral forms. Wave equation. Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth Transmission lines:Characteristic impedence; impedence transformation; smith chart; impedence matching pulse excitation. Wave guides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Antennas; Dipole antennas; antenna arrays; radiation pattern; reciprocity theorem, antenna gain.

LS – LIFE SCIENCES

Biophysics: Levels of structures in Biological macromolecules. Basic strategies in biophysics. Forces that determine protein and nucleic acid structure, Prediction of protein structures nucleic acids, Properties of lipid bilayers, Biochemical Kinetics studies, unimolecular reactions, methods of determining macromolecular structures inclusive of the spectroscopic techniques like

UV-vis absorption, IR absorption, circular dichroism, fluorescence, NMR and X-ray and neutron diffraction techniques.

Biochemistry: Structure and properties, Amino acids, peptides, proteins and conjugated proteins, protein hydration, coagulation, denaturation - gelation, protein-protein interactions, cytosolic and membrane properties, purines, pyrimidines, nucleosides, nucleotides,polynucleotides, Ribonucleic acids anddeoxyribonucleic acids, TCA cycle, glycolysis, pentose phosphate pathway, Embden Meyerhof pathway, urea cycle, metabolic regulation, respiratory chain, TP cycle, energy rich compounds, integrated metabolism, Carbohydrates - linear and branched carbohydrates, N containing carbohydrates, cell wall carbohydrates, metabolism of carbohydrates, Fats and oils-structure and properties of saturated and unsaturated fatty acids, glycerolipids, phospholipids, sphingolipids, glycolipids, steroids, Vitamins and minerals-types, structure and functional properties of vitamins, utility of essential minerals sources and trace elements.

Biotechnology and Bioinformatics: Importance and economics of downstream processing in biotechnology process-problems and requirements of bioproduct purification, process design criteria, primary separation and recovery process, membrane based separations, precipitation methods, different types of purification and chromatographic techniques. Types of reactors - ideal reactors, integral method of analysis for reactions, simultaneous, consecutive and combined reactions, models for non-ideal flow. Industrial biotechnology - isolation, preservation and improvement of industrial microbes for overproduction of primary and secondary metabolites, economics of modern industrial processes, fermentation processes and biological waste treatment processes.

Introduction to bioinformatics - sequence databases, search and their use, sequence alignment, ultrasonic trees, parsimony, phylogenetic alignment, connection between multiple alignment and tree construction, DNA mapping and sequencing, sequence assembly and gene prediction, molecular predictions with DNA strings.

Cell Structure and Function of the Organelles: Eukaryotic and Prokaryotic cells, cell division, mitosis & meiosis cell cycle and molecules that control cell cycle, endocytosis and Exocytosis. Ultrastructure of cellular organelles, viz. Mitochondria, ER, Golgi, Chloroplast, plasma membrane, centriole, nuclear and membrane bound receptors, Signal Transduction, Signal Amplification Techniques of propagation of prokaryotic and Eukayotic cells, Autocrine, Paracrine and Endocrine models of action, Cell line, generation of cell lines.

Molecular Biology: Structure of DNA and histone molecules, Replication of eukaryotic chromosomes, nucleoid the complex replication apparatus, process of transcription and, Structure of tRNA, mRNA, rRNA, Deciphering of the genetic code, Translation, Mutation. General principles of cloning, inhibitors of replication, transcription and translation.

Recombinant DNA: Genetic elements that control gene expression, method of creating recombinant DNA molecules creating transgenic animals, plants microbes, safety guidelines of creating recombinant DNA research, restriction enzymes and mapping of DNA, plasmid and phage and other vectors. Construction of genomic and cDNA libraries, methods of nucleic acid. Patents and methods of application of patents, legal implications bioremediation.

Genetics: Classical genetics, Mendel's genetics, crossing over, linkage, Chromosome maps, chromosomal theory of heredity, cytoplasmic inheritance, Sex determination, sex linked inheritance, microbial genetics, population genetics, polyploidy, pedigree analysis, eugenics, mutation.

Microbiology: Basic concepts of microbiology, classification,morphology, anatomy, physiology of bacteria, viruses, fungi, parasite. Microbes of various plant and animal diseases. Industrial microbiology, Microbialbiotechnology, Microbial diversity and ecology.

Immunology: Basic concepts of immunology, types of immunity, biotechnological applications; organs of immune, response Innate and adaptive immunity, clonal selection theory, hypersensitivity, hybridomatechnology, vaccine development, epitope mapping and immunomics, immunological tolerance and transplantation biotechnology.

Plant and Environmental Sciences: Taxonomy and systematic botany, Plant structure and development, morphology and anato my, embryogenesis of mono and dicots. Phytohormones, respiration, nutrition, transpiration. Photosynthesis, C3 and C4, & CAM plants, photoperiodism, concepts of ecosystems and energy flow in biosphere. Ecosystems, energy flow, ecological succession, pollution. Conventional and Non conventional sources of energy. Bio-geo chemical cycles. Biodiversity and wild life conservation. Social issues and the environment.

ME – MECHANICAL ENGINEERING

MATHEMATICAL FUNDAMENTALS

Engineering Mathematics: Geometry Equations of straight line, common normal between straight lines in space; Equations of circles, ellipse, etc.; Parametric representation.

Linear Algebra: Matrix algebra, Systems of linear equations, Eigen values and eigenvectors.

Calculus: Functions of single variable, Limit, continuity and differentiability, Mean value theorems, Evaluation of definite and improper integrals, Partial derivatives, Total derivative, Maxima and minima, Gradient, Divergence and Curl, Vector identities, Directional derivatives,

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Cauchy's and Euler's equations, Initial and boundary value problems, Laplace transforms,Solutions of one dimensional heat and wave equations and Laplace equation.

Control Theory: Open and closed loop systems; Laplace transforms; Transfer function; Block Diagram analysis; Concepts of stability; Input signals and system response; Nyquist stability criterion; Bode plot.

Probability and Statistics: Definitions of probability and sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Permutations and combinations, Random variables, Poisson, Normal and Binomial distributions. Properties of normal curve; Statistical quality control

Algebra and Complex Analysis: Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Canonical forms, diagonal forms, triangular forms, Quadratic forms, reduction and classification of quadratic forms Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy's theorem, Cauchy's integral formula, Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations—Fourier series—harmonics.

Calculus and its Applications : Linear ordinary differential equations (ODEs), variation of parameters, Sturm-Liouville problem. Partial differential equations (PDEs) - Classification of second order PDEs, General solution of higher order PDEs with constant coefficients, Method of separation of variables for Laplace, Heat and Wave equations. Transformation techniques—Laplace transformation—Fourier transforms—z—transformation to solve differential and difference equations.

Numerical Methods: Numerical solutions of algebraic and transcendental equations iteration methods and Newton—Raphson method, Solution of systems of linear algebraic equations using Gauss elimination and Gauss-Seidel methods-Numerical differentiation and integration, Numerical solutions of ODEs and PDEs.

Descriptive statistics, Exploratory Data Analysis: Sample space, discrete probability, independent events, Bayes theorem. Random variables and distribution functions (univariate and multivariate) - expectation and moments. Independent random variables, marginal and conditional distributions. Characteristic functions. Standard discrete and continuous univariate distributions. Correlation and simple and multiple linear regression. Test of hypotheses—Large and small sample tests confidence intervals. Chi-square test goodness of fit. Simple non parametric tests for one and two sample problems, rank correlation and test for independence. ANOVA.

APPLIED MECHANICS AND DESIGN

Engineering Mechanics: Free body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact.

Strength of Materials: Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; thermal stresses; Stress concentration factor; Fatigue Strength and S-N curve; failure theories.

Theory of Machines Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; flywheels.

Vibrations: Free and forced vibration of single degree of freedom systems; effect of damping; vibration isolation; resonance, critical speeds of shafts.

Technical drafting: Engineering drawing practice; Indian standards for technical drawing. Machine Elements Basic concepts of machine elements and their design;

FLUID MECHANICS AND THERMAL SCIENCES

Fluid Mechanics: Fluid properties; viscous flow of incompressible fluids; fluid statics, manometry, buoyancy; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; flow through pipes, head losses in pipes, bends etc.

Heat-Transfer Modes of heat transfer; one dimensional heat conduction, fins; dimensionless parameters in free and forced convective heat transfer, radiative heat transfer, black and grey surfaces, shape factors; heat exchanger performance, LMTD and NTU methods.

Thermodynamics: Zeroth, First and Second laws of thermodynamics; thermodynamic system and processes; Carnot cycle. irreversibility and availability; behaviour of ideal and real gases, properties of pure substances, calculation of work and heat in ideal processes; analysis of thermodynamic cycles related to energy conversion.

Power Engineering: Steam Tables, Rankine, Brayton cycles withregeneration and reheat. I.C. Engines, air-standard Otto, Diesel cycles. Stirling cycle.

Refrigeration and air-conditioning: Vapour refrigeration cycle, heat pumps, gas refrigeration, Reverse Brayton cycle; moist air,psychrometric chart, basic psychrometric processes.

Turbo machinery: Pelton-wheel, Francis and Kaplan turbines, impulse and reaction principles, velocity diagrams.

MANUFACTURING AND INDUSTRIAL ENGINEERING

Engineering Materials: Structure and properties of engineering materials, heat treatment, stress-strain diagrams for engineering

materials.

Metal Casting: Design of patterns, moulds and cores; solidification and cooling; riser and gating design, design considerations.

Forming: Load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powdermetallurgy

Joining: Physics of welding, brazing and soldering; adhesive bonding;

Machining and Machine Tool Operations

Mechanics of machining, single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, principles of design of jigs and fixtures.

Metrology and Inspection: Limits, fits and tolerances; linear and angularmeasurements; comparators; gauge design;interferometry; form and finish measurement;alignment and testing methods; tolerance analysis in manufacturing and assembly.

Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning.

Inventory Control: Deterministic and probabilistic models; safety stock inventory control systems.

Operations Research: Linear programming, simplex and duplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

SOMECURRENT TRENDS IN DESIGN ANDMANUFACTURING

Mechatronics System Design: Pneumatic and hydraulic systems; Eletro-pneumatic and electro-hydraulic systems; Pneumatic, hydraulic and electric motors and actutators; Concepts of microcontrollers, Feedback devices; Point-to-point, continuous-path and servo control; Types of CNC machines and robots. Programmable logic controllers; CNC and robot programming. Some current developments in modern machine tools, robotics, mechatronics; Basic topics related to micro-electro mechanical systems (MEMS).

Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools. Exchange of product design and manufacturing data; CNC and robot programming methods. CAD/CAM Software and Virtual Product Development; Rapid Manufacturing Technologies; Concepts of Machine vision and Jigless manufacturing;

Computer Aided Engineering: Finite Element Methods; Computational FluidDynamics; Mechanical Systems Simulation; Tools for conventional mechanisms and MEMS design.

Automotive Engineering: Development in Bio-fuels, other alternative fuels and hydrogen as future fuel; Emission standards; Electronic injection systems; Passenger comfort and safety devices; Indian auto industry and Automotive vehicles in Indian market.

CSE & IT – INFORMATION TECHNOLOGY AND COMPUTER & COMMUNICATION ENGINEERING

Engineering Mathematics

Mathematical Logic : Syntax of First Order Logic, Semantics of First Order Logic, a Sequent Calculus, the Completeness Theorem, the Limitations of First Order Logic.

Differential and Integral Calculus : Limit, Continuity, Differentiability, Leibniz theorem, Mean Value Theorems, Taylor's theorem, Integrals, Improper integrals, Total Differentiation, Partial derivatives ,Maxima and Minima, vector calculus, Linear differential equations.

Probability and Statistics : Probability, conditional probability, Baye's theorem, means, median, mode, moments, standard deviation. Random variables, Uniform, Binomial, Poisson, normal distributions, Correlation and regression, Sampling and Tests of significance.

Numerical Methods : Solutions to algebraic and transcendental equations (Bisection and Newton Raphson's methods), simultaneous linear algebraic equations (Gauss elimination, Crout's, Gauss seidel and relaxation), Interpolation methods (forward, backward and central), numerical integration (Trapezoidal, Simpson's and Weddle's) eigenvalues and eigenvectors, Numerical solutions to ordinary (Euler, modified Euler, Runga Kutta 4th order) and partial differential (parabolic, elliptic and Hyperbolic) equations.

Linear Algebra and Transforms : linear vector space, determinants, matrices, eigen values, eigen vectors, elements of complex analysis, Laplace transforms, Fourier analysis.

Algebra and Complex Analysis: Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Canonical forms, diagonal forms, triangular forms, Quadratic forms, reduction and classification of quadratic forms Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy's theorem, Cauchy's integral formula, Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations—Fourier series—harmonics.

Calculus and its Applications : Linear ordinary differential equations (ODEs), variation of parameters, Sturm-Liouville problem. Partial differential equations (PDEs) - Classification of second order PDEs, General solution of higher order PDEs with constant coefficients, Method of separation of variables for Laplace, Heat and Wave equations. Transformation techniques—Laplace transfor-

mation—Fourier transforms—z—transformation to solve differential and difference equations.

Numerical Methods: Numerical solutions of algebraic and transcendental equations iteration methods and Newton—Raphson method, Solution of systems of linear algebraic equations using Gauss elimination and Gauss-Seidel methods-Numerical differentiation and integration, Numerical solutions of ODEs and PDEs.

Descriptive statistics, Exploratory Data Analysis: Sample space, discrete probability, independent events, Bayes theorem. Random variables and distribution functions (univariate and multivariate) - expectation and moments. Independent random variables, marginal and conditional distributions. Characteristic functions. Standard discrete and continuous univariate distributions. Correlation and simple and multiple linear regression. Test of hypotheses—Large and small sample tests confidence intervals. Chi-square test goodness of fit. Simple non parametric tests for one and two sample problems, rank correlation and test for independence. ANOVA.

Discrete Mathematics : Sets, relations and functions, algebra of matrices and determinants, algebraic structures, Boolean algebra and applications, order relations and structures, graph theory, logic and combinatorics.

Theory of Computation: Regular languages and finite automata, context free languages and Push down automata, recursively enumerable sets and Turing machines, undecidability.

Programming Language Processors : Compiler, Interpreter, assembler, Linker, Loader, Macro processors, phases of compilers, Lexical analysis, parsing, Top-down parsing and bottom up parsing, syntax directed translation, runtime environment, Symbol table, type checking, intermediate Code generation, Code optimization, code generation.

Algorithmic Analysis and Data Structures

Analysis of Algorithms and Computational Complexity : Asymptotic analysis (best , worst, average case) of time and space, Upper and lower bounds on the complexity of specific problems, NP-completeness, code and query tuning techniques, numerical analysis, power analysis & resiliency, intractable problems.

Algorithms for Problem Solving : Tree and graph traversal, connected components, spanning trees, shortest paths, hashing, sorting, searching, design paradigms (Greedy, dynamic programming, divide and conquer).

Data Structures : Notion of abstract data types, stack, Queue, List, set, string, Tree, binary search trees, heap, graph.

Computer Architecture & Organization and Operating Systems

Electronics : Network analysis, semiconductor devices, bipolar transistors, FET's, Power supplies, amplifier, Oscillators, Operational amplifiers, elements of digital electronics, logic circuits.

Digital Logic : Number systems and codes, Gates, TTL circuits, Boolean algebra and Karnaugh maps, Arithmetic logic units, Flip flops, registers and counters, Memories, Combinational and sequential logic circuits .

Computer Architecture and Organization : Machine instructions and addressing modes, ALU and data path, Register Transfer Language , hardware and micro programmed control, memory interface, RAM, ROM I/O interface (Interrupt and DMA modes), serial communication interface, instruction pipe-lining, Cache , main and secondary memory storage, organization and structure of disk drives, RAID architectures Microprocessors: 8085, 8086, Interfacing and memory addressing.

Operating Systems : Memory management, page faults, overlay, processor management, device management, deadlocks, Process, thread and inter process communication, CPU scheduling, file systems, I/O systems, protection and security.

Software Engineering and Programming

System & Program Development Methodology : Software paradigms, principles of programming in any language, documentation, system analysis and design methodologies, User Interface Design (UID), software construction, software testing, software quality, Object Oriented Analysis and Design (OOAD) concepts.

Programming Methodology : Introduction to programming, pointers, arrays, control structures, Iterational control structures, functions, recursion, testing, debugging, code review, structures, files (C, C++, JAVA).

Computer Networks & Data Communications: Analog versus Digital communication, modems, multiplexers, and concentrators, serial versus parallel communication, simplex, duplex, and half duplex communication, synchronous and asynchronous communication, Error detection/correction methods, data link control protocols, balanced and unbalanced interfaces, communication media, ISO/OSI stack, Sliding window protocol, LAN Technologies (Ethernet, Token ring) , TCP/UDP, IP, switches, gateways, and routers, security.

Computing Technologies : Client server computing, Logical layers in client server architecture, Two-tier versus Three-tier, Distributed computing, Middle-ware, Mobile Computing, Cloud Computing.

Databases Management Systems: Data, database and DBMS, Data dictionary/directory, schema, description of database structure, forms of DBMS systems, Hierarchical, network and RDBMS, DDL, DML , stored data structure language and query language, Recent trends in database management systems, Memory management techniques used in computers, query languages (SQL), file structures (sequential files, indexing, B* trees) Transactions and concurrency control, Basic concepts of transaction processing , ACID properties of transactions, serializability of transactions, concurrency control, recovery, OLAP.

NT - NANOTECHNOLOGY

Quantum Physics: Basis of Quantum Physics, de Broglie's concept, operators, physical imperfection of wave function, normal-

ised and orthogonal wave function, Heisenberg's uncertainty Principle.

Solid State Physics: Crystal structure, Bravais lattices and its basics, Miller indices, X-ray diffraction and Bragg's law, free electron theory of metals. Fermi energy and density of states, origin of energy bands, concept of holes and effective mass. Energy levels in One Dimension, Fermi-Dirac Distribution, effect ofTemperature on the Fermi-Dirac Distribution, free electron Gas in Three Dimension, crystal imperfections: Point imperfections – Vacancy, Substitution and interstitial impurity.

Electricity and Magnetism: Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Conductors, capacitors, dielectrics,dielectric polarization, volume and surface charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction Maxwell's equations and static and time varying equations, Poynting's theorem, Lorentz Force and motion of charged particles in electric and magnetic fields. Elementaryideas about dia-,para-and ferromagnetism, Langevin's theory of paramagnetism, Curie's law.

Materials: Different types of materials: Metals, Semiconductors, Composite materials, Ceramics, Alloys, Polymers. Chemical Bonding-Atomic Bonding in solids, Types of bond: Metallic, Ionic, Covalent and van der Waals bond; Hybridisation; Molecular orbital theory

Fabrication: Nanoparticles synthesis- CarbonNanotubes, Metal nanoparticles, Q-Dots, Nanowires Thin film synthesis-Chemical Vapor Deposition, Physical Vapor Depostion, Self-Assembly, Lithography- Optical & Electron Lithography, Resists.

Characterisation: Electron microscopes, scanning electron microscopes, transmission electronmicroscope, scanning probe microscopy, atomic force microscopy, scanning tunneling microscope,Spectroscopy- FTIR, UV-Vis, Raman, NMR .

Electronics: Intrinsic and extrinsic Semiconductors. Fermi level. p-n junctions, transistors. band-gap Bipolar Junction Transistor (BJT), Junction Field Effect Transistor (JFET), Metal Oxide Semiconductor Field Effect Transistor (MOSFET) and Metal-SemiconductorJunction Field Effect Transistor (MESFET): various Structures, their functioning, I-V characteristic studies and applications, Transistor circuits in CB, CE, CC modes. Amplifier circuits with transistors. Operationalamplifiers OR, AND, NOR and NAND gates.

PM – PHARMACY

Medicinal Chemistry: Structure, nomenclature, classification, synthesis, SAR and mechanism of action of the following categories of drugs, which are official in Indian pharmacopoeia and British pharmacopoeia. Introduction to drug design. Stereochemistry of drug molecules. Analgesics - NSAIDS, Antidepressants, Anxiolytics, Neuroleptics, Hypnotics and sedative. Anti-convulsants, Antihistaminics, Local anaesthetics, Antianginal agents, Cardiotonic agent, Diuretic, Cardiovascular drugs, Anticoagulants, Coagulants, Antihypertensive drugs - Adrenergic and Cholinergic drugs Cardiotonic agents,

Hypolipidemic agents, Hypoglycemic agents, Antiplatelet agent, Chemotherapeutic agents,Antibiotics, Antibacterials, Antiprotozoal drugs, Sulphonamides, Antimalarial, Antiviral, Antitubercular, Antiamoebic drugs, Anticancer drugs, Diagnostic agents. Preparation and storage, and uses of official radio pharmaceuticals, Vitamins and Hormones,Eicosonoids and applications.

Natural Products: Pharmacognosy and Phytochemistry, Chemical tests for identification, chemistry, isolation, characterizations and estimation of phytopharmaceuticals belonging to the groups of terpenoids, steroids, Bioflavanoids, Purines, Alkaloids, Guggul lipids, Glycosides. Pharmacognosy of crude drugs that contain the above constituents. Standardization of raw materials and Herbal products, WHO guideline quantitative microscopy including modern techniques used for evaluation, Bio-technological principles and techniques for plant development, tissue culture.

Pharmaceutics: Formulation and preparation of cosmetics - lipstick, shampoo, nail preparation, creams, and dentifries, quality control of tablets, capsules, liquid dosage forms, parentral preparations of ointment and creams, suppositories, and controlled release product, Quality control of containers, closures, caps, and secondary packing material like paper and board for pharmaceuticals, safety and legislation for cosmetic products, pharmaceutical calculations, Development, Manufacturing standards, Quality control limits, labeling, as per the pharmacopoeical requirement. Storage of different dosage forms and new drug delivery systems, Biopharmaceutics and pharmacokinetics and their importance informulations.

Microbiology: Principles and methods microbiological assays as per Indian pharmacopoeia, methods of preparations of official sera and vaccines, Serological and diagnostics tests, Enzymes immuno assay, concept and methodology, Sterility testing - methodology and interpretation, Applications of microorganisms in Bioconversions and in pharmaceutical industry.

Clinical Pharmacy: Adverse drug reaction, Drug - Drug interaction, and Drug - Food interactions, Medication History, interview and patient counseling. Therapeutic drug monitoring, Dosage regimen in pregenancy and lactation, pediatrics and Geriatrics, Renal and Hepatic impairment.

Pharmaceutical Analysis: Principles, Instrumentation and applications of the following, Absorption spectroscopy UV visible, IR, Flame photometry, Potentiometry, Fluorimetry, Conductometry and Polarography, Pharmacopoeial assays. Principles of NMR, ESR, Mass spectroscopy, X- ray diffraction, optical Rotatory disperssion, statistical analysis and different chromatographic methods, Quality control of Radio pharmaceuticlas and Radio Chemical methods in analysis.

Pharmaceutical Jurisprudence: Pharmaceutical Ethics, Pharmacy Acts, Drugs and Cosmetics Acts and rules with respect to manufacture, sales and storages.

Bio-chemistry: Metabolism of Carbohydrates, lipids, proteins, methods to determine, kidney and liver function, Lipid profiles, General principles of immunology, immunological, Biochemical role of Harmones, Vitamins, Enzymes, Nucleic acids, Bio energetics.

Pharmacology: Pharmacology of Autocoids, Harmones, Hormone antagonists, Chemotherapeutic agents including Anti-cancer drugs, Bioassays, Immuno Pharmacology, General Pharmacological Principles includingtoxicology, Drug interaction. Pharmacology of drug acting on central nervous systems, cardiovascular systems, Autonomic nervous systems, Gastro intestinal systems and Respiratory systems, Drug acting on the renal systems, Drug acting on the blood and blood forming organs.

PH – PHYSICS

Mathematical Physics: Fourier series - Fourier transform - properties – convolution theorem - Application to solve differential equations - Laplace 's transform - properties -application to ordinary and partial differentialequations-Cayley Hamilton Theorem - Eigen value problems

Classical Mechanics: Conservation laws; Variational principle; Lagrange's and Hamilton's formalisms; equation of motion, poisson bracket; special theory of relativity – Larentz transformations, relativistic kinematics, mass – energy equivalence.

Spectroscopy: Atomic and Molecular Physics: Spectra of one – and many – electron atoms; LS and jj coupling; hyperfine structure; Zeeman and Stark effects; electric; electric dipole transitions and selection rules; X-ray spectra; rotational and vibrational spectra of diatomicmolecules; electronic transition in diatomic molecules, Franck-Condon principle; Raman effect; NMR and ESR. Laser: Basic principle and concepts of laser - Types of Laser - Ruby laser - Nd - YAG laser - Helium - Neon laser - Carbon dioxide laser - semiconductor lasers.

Electro Magnetic Theory: Faraday's laws of induction - Maxwell's displacement current - Maxwell's equations - vector and scalar potentials - Gauge invariance - wave equation and plane wave solutions - Coulomb and Lorentz Gauges - energy and momentum of the field - Poynting's theorem.

Quantum Mechanics: Time Independent and Time Dependant Schrodinger wave equations, Justification of Schrodinger equation – the Schrodinger receipe - probabilities and normalization - Applications - particle in a box - simple harmonic oscillator – Dirac relativistic equations.

Statistical Mechanics: Equation of state - gas degeneracy - Bose-Einstein condensation - thermal properties of Bose-Einstein gas - liquid Helium-Tisza's two fluid model-Landau's theory of liquid Helium II-Black body radiation- phonons- Einstein and Debye models for lattice specific heat.

Experimental Design: Measurement of fundamental constants e, h, c - Measurement of High & Low Resistances, L and C - Detection of X-rays, Gamma rays, charged particles, neutrons etc - Ionization chamber - proportional counter - GM counter - Scintillation detectors - Solid State detectors - Measurement of Magnetic field - Hall effect, magnetoresistance - X-ray and neutrondiffraction - Vacuum Techniques - basic idea of conductance, pumping speed etc - Pumps - Mechanical pump - Diffusion pump - Gauges Thermocouple - Penning - Pirani - Hot Cathode - Low Temperature - Cooling a sample over a range upto 4 K andmeasurement of temperature.

Solid State Physics: Types of lattices - Miller indices - Simple crystal structures - Crystal diffraction - Bragg's law - Reciprocal Lattice (BCC, FCC) - Brillouin zone - Structure factor – Atomic form factor - Cohesive energy of ionic crystals – Madelung constant - Types of crystal binding. Concept of Phase diagram - phase rule - single component system - binary phase diagram - Applications of phase diagram.

Electronics: Semiconductor devices; Bipolar junction Transistors, Field effect Transistors, amplifier and oscillator circuits; operational amplifier, negative feedback circuits, active fillers and oscillators; basic digital logic circuits, sequential circuits, flip-flops, counters, registers, A/D and D/A Conversion.

MA - MATHEMATICS

Linear Algebra: Finite dimensional vector spaces; Linear transformations and their matrix representations, rank; systems of linear equations, eigen values and eigen vectors, minimal polynomial, Cayley-Hamilton theroem, diagonalisation, Hermitian, Skew-Hermitian and unitary matrices; Finite dimensional inner product spaces, Gram- Schmidt orthonormalization process, self-adjoint operators.

Complex Analysis: Analytic functions, conformal mappings, bilinear transformations; complex integration: Cauchy's integral theorem and formula; Liouville's theorem, maximum modulus principle Taylor and Laurent's series; residue theorem and applications for evaluating real integrals.

Real Analysis: Sequences and series of functions, uniform convergence, power series, Fourier series, functions of several variables, maxima, minima; Riemann integration, multiple integrals, line, surface and volume integrals, theorems of Green's, Stokes and Gauss. Metric spaces, completeness, Weierstrass approximation theorem, compactness; Lebesgue measure, measurable functions; Lebesgue integral, Fatou's lemma, dominated convergence theorem.

Ordinary Differential Equations: First order ordinary differential equations, existence and uniqueness theorems, systems of linear first order ordinary differential equations, linear ordinary differential equations of higher order with constant coefficients; linear second order ordinary differential equations with variable coefficients; method of Laplace transforms for solving ordinary differential equations, series solutions; Legendre and Bessel functions and their orthogonality.

Algebra: Normal subgroups and homomorphism theorems, automorphisms; Group actions, Sylow's theorems and their applications; Euclidean domains, Principle ideal domains and unique factorization domains. Prime ideals and maximal ideals in commutative rings; Fields, finite fields.

Functional Analysis: Banach spaces, Hahn-Banach extension theorem, open mapping and closed graph theorems, principle of uniform boundedness; Hilbert spaces, orthonormal bases, Riesz representation theorem, bounded linear operators.

Analysis: Numerical solution of algebraic and transcendental equations: bisection, secant method, Newton-Raphson method, fixed point iteration; interpolation: error of polynomialinterpolation, Lagrange, Newton interpolations Numerical differentiation; numerical integration: Trapezoidal and Simpsons's rules, Gauss Legendre quadrature, method of undetermined parameters; least square polynomial approximation; numerical solution of systems of linear equations: direct methods (Gauss elimination, LU decomposition); iterative methods (Jacobi and Gauss-Seidel); matrix eigenvalue problems: power method. Numerical solution of ordinary differential equations: initial value problems, Taylor series methods, Euler's method, Runge-Kutta methods.

Partial Differential Equations: Linear and quasilinear first order partial differential equations, method of characteristics; second order linear equations in two variables and their classification; Cauchy, Dirichlet and Neumann problems; solutions of Laplace, wave and diffusion equations in two variables; Fourier series and Fourier transform and Laplace transform methods of solutions for the above equations.

Mechanics: Virtual work, Lagrange's equations for holonomic systems, Hamiltonian equations.

Topology: Basic concepts of topology, product topology, connectedness, compactness, countability and separation axioms, Urysohn's Lemma.

Probability and Statistics: Probability space, conditional probability, Bayes theorem, independence, random variables, joint and conditional distributions, standard probability distributions and their properties, expectation, conditional expectation, moments; Weak and strong law of large numbers, central limit theorem sampling distributions, UMVU estimators, maximum likelihood estimators, testing of hypotheses, standard parametric tests based on normal, χ^2, t, F- distributions; Linear regression; Interval estimation.

Linear programming: Linear programming problems and its formulation, convex sets and their properties, graphical method, basic feasible solution, simplex method, big-M and two phase methods; infeasible and unbounded LPP's, alternate optima Dual problem and duality theorems, dual simplex method and its application in post optimality analysis; Balanced and unbalanced transportation problems, Hungarian method for solving assignment problems.

Calculus of Variation and Integral Equations: Variation problems with fixed boundaries; Sufficient conditions for extremum, linear integral equations of Fredholm and Volterra type, their iterative solutions.

MC - MCA SYLLABUS FOR ENTRANCE EXAMINATION

MATHEMATICS :

Algebra: Fundamental operations in Algebra, Expansion, factorization, quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations.

Calculus: Functions of single variable, limit, continuity and differentiability, Mean value theorems, indeterminate forms and L'Hospital rule, Maxima and minima, Taylor's series, Fundamental and mean value-theorems of integral calculus, total derivatives, Lagrange method of multipliers.

Differential Equations: Differential equations of first order and their solutions, linear differential equations with constant coefficients, homogenous linear differential equations.

Algorithms: Analysis, Asymptotic notation, Notions of space and time complexity, Worst and average case analysis; Design: Greedy approach, Dynamic programming, Divide-and conquer; Connected components, Spanning trees, Shortest paths. Asymptotic analysis (best, worst, average cases) of time and space, upper and lower bounds.

Probability: Probability theory, Dependent and independent events, frequency distributions, and measures of dispersions, Skewness and Kurtosis, random variable and distribution functions, mathematical expectations, Binomial, Poisson, normal distributions.

Algebra and Complex Analysis: Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Canonical forms, diagonal forms, triangular forms, Quadratic forms, reduction and classification of quadratic forms Analytic functions, Cauchy-Riemann equations. Contour integral, Cauchy's theorem, Cauchy's integral formula, Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations—Fourier series—harmonics.

Calculus and its Applications : Linear ordinary differential equations (ODEs), variation of parameters, Sturm-Liouville problem. Partial differential equations (PDEs) - Classification of second order PDEs, General solution of higher order PDEs with constant coefficients, Method of separation of variables for Laplace, Heat and Wave equations. Transformation techniques—Laplace transformation—Fourier transforms—z—transformation to solve differential and difference equations.

Numerical Methods: Numerical solutions of algebraic and transcendental equations iteration methods and Newton—Raphson method, Solution of systems of linear algebraic equations using Gauss elimination and Gauss-Seidel methods-Numerical differentiation and integration, Numerical solutions of ODEs and PDEs.

Descriptive statistics, Exploratory Data Analysis: Sample space, discrete probability, independent events, Bayes theorem. Random variables and distribution functions (univariate and multivariate) - expectation and moments. Independent random variables, marginal and conditional distributions. Characteristic functions. Standard discrete and continuous univariate distributions. Correlation and simple and multiple linear regression. Test of hypotheses—Large and small sample tests confidence intervals. Chi-square test goodness of fit. Simple non parametric tests for one and two sample problems, rank correlation and test for independence. ANOVA.

Date Structures: Arrays, Stacks, Queues, linked Lists. Sorting techniques, Searching Techniques, Trees and Graph terminology and representation in memory, binary search tree, traversal techniques of graphs and Trees.

Computer Networks: Network models, Internet model, OSI model, Physical Layer - Analog and Digital Signals, Analog and Digital Transmission, Coding, Sampling. Data Link Layer - Error detection and correction, Data link control and Protocols, Stop and wait, Go-back-n, Selective repeat. Network Layer - Inter-networks, Addressing, unicast and multicast routing, Presentation Layer.

Programming in C: Data types, Declarations, Expressions, statements and symbolic constants, input-Output functions. Operators and expressions: Arithmetic, unary, logical, bit-wise, assignment and conditional operators. Control statements: While, do-while, for statements, nested loops, if else, switch, break, Continue, comma operators. Storage types: Automatic, external, register and static variables. Functions: Defining and accessing, passing arguments, Recursion.

Database Management Systems: DBMS architecture, Data models, data independence, E-R model, normalization, Relational Model: concepts, constraints, languages. Data storage, indexing, query processing, design and programming SQL.

Operating Systems: Process management, Process States, Process Control Block, Process and Threads, CPU Scheduling, Scheduling algorithm, Process Synchronization and Deadlock, Memory management, Virtual memory concepts paging and segmentation File organization, Blocking and buffering, file descriptor, File and Directory structures, I/O Devices.

Computer Architecture: Boolean algebra and computer arithmetic, flip-flops, design of combinational and sequential circuits, instruction formats, addressing modes, interfacing peripheral devices, types of memory and their organization, interrupts and exceptions. Von Neumann Computer, System Bus. Instruction Cycle, Data Representation, Machine instruction and Assembly Language.

ENGLISH COMMUNICATION
(COMMON TO ALL SUBJECTS)
20 Questions

1. Grammar
    Subject – Verb Agreement
    Tense forms
    Voices
    Articles and Preposition
Use of Conjunctions
2. Writing Technical Instructions
3. Writing Memos & Writing Minutes
4. Transcoding
5. Preparing Questionnaire
6. Proof Reading

APPENDIX – II

PROFORMA FOR SPONSORED CANDIDATES

(To be filled in by the employer sponsoring the candidate)

Name of Employee seeking admission at VIT   :..

Employee's date of birth as per company record   :..

Designation   :..

Date of joining the organization   :..

Nature of the job   : R&D / Design / Production / Marketing / Administrative/ Others

(Specify...)

Reasons for sponsorship   :..

Certified that Mr. /Ms. .... employed

as .... in this organization is sponsored for admission to M.Tech.

degree programme at VIT. He / she will be on deputation from this organization during the study period from July 2017 to May

2019. On completion of the programme, he / she will continue to be employed by our organization.

Place :

Date :

Signature of Competent Authority with seal

Name :

Designation :

APPENDIX – III
Test City Codes

The Entrance Examination will be held in the following Cities.

CITY	CODE
BANGALORE	10
BHOPAL	11
CHENNAI	12
CHANDIGARH	13
COIMBATORE	14
HYDERABAD	15
JAIPUR	16
KOCHI	17
KOLKATA	18
LUCKNOW	19
MADURAI	20
NAGPUR	21
NEW DELHI	22
PATNA	23
PUNE	24
VELLORE	25
VIJAYAWADA	26
INDORE	27

APPENDIX – IV
Entrance Examination

The question papers will have the following subjects

Code	Subjects
C I	Civil Engineering
C E	Chemical Engineering
C H	Chemistry
E E	Electrical and Electronics Engineering
E I	Instrumentation Engineering
E C	Electronics and Communication Engineering & Computer and Communication Engineering
IT	Computer Science Engineering & Information Technology
L S	Life Sciences
M E	Mechanical Engineering
N T	Nanotechnology
P M	Pharmacy
P H	Physics
M A	Mathematics
MC	Master of Computer Applications
BM	Biomedical Engineering

ANNEXURE I

AFFIDAVIT BY THE STUDENT

(This matter has to be typed on a non-judicial stamp paper of Rs.20)

I, Mr./Mrs./Ms. _____ (full name of student with admission/registration/enrolment number) s/o d/o Mr./Mrs./Ms. _____, having been admitted to _____ (name of the institution), have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the "Regulations") carefully read and fully understood the provisions contained in the said Regulations.

2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against me in case I am found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

4) I hereby solemnly aver and undertake that

a) I will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.

b) I will not participate in or abet or propagate through any act of commission or omission that may be constituted as

ragging under clause 3 of the Regulations.

5) I hereby affirm that, if found guilty of ragging, I am liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against me under any penal law or any law for the time being in force.

6) I hereby declare that I have not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, I am aware that my admission is liable to be cancelled.

Declared this   day of   month of   year.

_____

Signature of deponent

Name:

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____ (place) on this the _____ (day), of _____ (month), _____ (year).

_____

Signature of deponent

Solemnly affirmed and signed in my presence on this the _____ (day) of _____ (month), _____ (year) after reading the contents of this affidavit.

OATH COMMISSIONER / ADVOCATE AND NOTARY PUBLIC

ANNEXURE II

AFFIDAVIT BY PARENT/GUARDIAN

(This matter has to be typed on a non-judicial stamp paper of R s . 20)

1) Mr./Mrs./Ms. _____(full name of parent/guardian) father/mother/guardian of, _____ (full name of student with admission/ registration/enrolment number) , having been admitted to _____(name of the institution), have received a copy of the UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009, (hereinafter called the "Regulations"), carefully read and fully understood the provisions contained in the said Regulations.

2) I have, in particular, perused clause 3 of the Regulations and am aware as to what constitutes ragging.

3) I have also, in particular, perused clause 7 and clause 9.1 of the Regulations and am fully aware of the penal and administrative action that is liable to be taken against my ward in case he/she is found guilty of or abetting ragging, actively or passively, or being part of a conspiracy to promote ragging.

4) I hereby solemnly aver and undertake that

a) My ward will not indulge in any behavior or act that may be constituted as ragging under clause 3 of the Regulations.

b) My ward will not participate in or abet or propagate through any act of commission or omission that may be constituted as ragging under clause 3 of the Regulations.

5) I hereby affirm that, if found guilty of ragging, my ward is liable for punishment according to clause 9.1 of the Regulations, without prejudice to any other criminal action that may be taken against my ward under any penal law or any law for the time being in force.

6) I hereby declare that my ward has not been expelled or debarred from admission in any institution in the country on account of being found guilty of, abetting or being part of a conspiracy to promote, ragging; and further affirm that, in case the declaration is found to be untrue, the admission of my ward is liable to be cancelled.

Declared this ___day of _____month of _____year.

_____
Signature of deponent

Name   :

Address   :

Telephone/Mobile No.:

VERIFICATION

Verified that the contents of this affidavit are true to the best of my knowledge and no part of the affidavit is false and nothing has been concealed or misstated therein.

Verified at _____(place) on this the _____(day), of _____(month), _____(year) .

_____
Signature of deponent

Solemnly affirmed and signed in my presence on this the _____(day), of _____(month), _____(year) after reading the contents of this affidavit.

OATH COMMISSIONER / ADVOCATE AND NOTORY PUBLIC

ANNEXURE III

CERTIFICATE TO PROVE NATIVITY

(For candidates hailing from Jammu and Kashmir and the North Eastern states of

Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura)

Certified that Mr. / Ms. _____an

applicant for admission to M.Tech./MCA/M.Sc./ Integrated M.Sc./ M.Tech. (SE). Degree programme in the year _____,

son / daughter of Shri. /

Smt_____ residing at

_____

in _____District of _____State, is a native of _____State.

Signature of Tahsildar or Revenue Authority

Name   :
Designation   :
Place   :
Date   :
Office Seal   :   **Office Seal**

ANNEXURE IV

THE FORM OF CASTE CERTIFICATE FOR SC / ST

Certified that Mr. / Ms. _____an applicant for admission to M.Tech./MCA/M.Sc./ Integrated M.Sc./ M.Tech. (SE). Degree programme in the year _____, son / daughter of Shri. / Smt

_____ residing at_____

_____in _____District of

_____belongs to the _____Caste / Tribe, which is recognized as a Scheduled Caste / Scheduled Tribe under the Constitution (Scheduled Castes) Order 1950 / The Constitution (Scheduled Tribes) Order, 1950, as amended by the Scheduled Castes and Scheduled Tribes Orders amendment Act, 1976.

Signature of Competent Authority

Name   :
Designation   :
Place   :
Date   :

Office Seal

Authorities empowered to issue Scheduled Caste / Scheduled Tribe Certificate

- District Magistrate / Additional District Magistrate/ Collector / Deputy Collector / Deputy Commissioner / 1st Class Stipendiary magistrate / City Magistrate / Sub-Divisional Magistrate / Taluk Magistrate / Executive magistrate / Extra Assistant Commissioner.

- Chief Presidency Magistrate / Additional Chief Presidency Magistrate / Presidency Magistrate

- Revenue Officer not below the rank of Tahsildar

- Sub-Divisional Officer of the area where the candidate and / or his family normally resides

ANNEXURE V

CERTIFICATE OF PHYSICAL FITNESS

TO BE FILLED BY THE CANDIDATE

Name	
Application Number/Reg. No.	
Gender	
Date of Birth		Age (in years)	
Address	
Identification Marks	1.
	2.
Blood Grouping & typing	
History of Allergy if any	
History of Medical illness if any	
History of Hospitalization/Previous Surgery if any	
History of Current Medication for any illness	

History of Vaccination (Please tick whichever applicable)

Vaccine	Yes	No	Vaccine	Yes	No
BCG			Hepatitis A		
MMR			Hepatitis B		
DPT			Influenza		
Rotavirus			Meningococcal		
Typhoid			Pneumococcal		
Chicken Pox			Others if any		

Candidate's Declaration:
I declare that to the best of my knowledge, the answers to the questions in this form are correct and that I am not suffering from any disease/illness, the presence of which I have not revealed. I hereby give my consent to the medical officer for physical examination.

_____ (Candidate signature with date)

_____ (Parent signature with date)

CERTIFICATE OF PHYSICAL FITNESS

NAME OF THE CANDIDATE :   APPLICATION NO. :

Pulse		/Min	BP		Mm/Hg	Resp. Rate		/Min
Temperature			Height		Cms	Weight		Kgs
Bodily Infirmity			Build			BMI		
Communicable Disease								
Pallor		Clubbing		Cyanosis		Lymphadenopathy		Oedema		Icterus	
Tonsils			Glands			Teeth		
C V S								
R S								
G I S								
C N S								
G U S (Male)								
G U S (Female)	Menstrual History							
Skin			Hearing					
Vision					Colour Vision			
Other Findings / remarks if any								

I/We do hereby certify that I/We have examined Mr./Ms. _____ a

Candidate for student under VIT University, _____ Campus and whose signature is given above, and cannot discover that he/she has any disease, communicable, otherwise or constitutional affection or bodily infirmity or except _____ I/We do/not consider this a disqualification to undergo professional education.

Name of the Doctor   :

Signature of the Doctor   :

Designation   :

Date & Place   :

Seal with Reg No   :

Photograph of the candidate to be affixed and attested by the Doctor

Important Dates

Issue of Application form	**10th March 2017**
Last date of Apply online	**24th May 2017**
Last date of Edit Application form	**24th May 2017**
Publication of short listed applicants for counseling (Tentative)	**9th June 2017**
Dates for Counselling	**M.Tech - Automotive - 19th June 2017** **Other M.Tech - 20 & 21st June 2017** **MCA - 19th June 2017** **M.Tech (by Res.) - 24th June 2017** **Integ. Ph.D - 24th June 2017**
Last Date of Payment of Balance Fees	**07th July 2017**
Commencement of Classes	**12th July 2017**

Contact Details:

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