



UNIVERSITY OF CALCUTTA

Faculty of Engineering and Technology

A. Regulations for 2-year 4-semester M. Tech. program

(With effect from the academic year 2024 – 2025)

These regulations provide a common framework for curricula of all the technology degrees offered under Faculty of Engineering and Technology, University of Calcutta. These common regulations are to be read along with the detail curriculum/syllabus of a particular M.Tech. degree program for complete CSR of that degree.

1. Degrees Offered

- The Faculty of Engineering and Technology, University of Calcutta shall provide instructions leading towards the 2-year, 4-semester M.Tech. degree program in different **Engineering/ Technology** subjects as mentioned in TABLE-1.
- The mode of instruction for all the programs will be in English only.

TABLE-1

Sl. No.	Degree offered	Degree Code (CCC)
1	M.Tech in Radio Physics and Electronics (RPE) Specializations (SSSS): - Space Science and Microwaves - Nanoelectronics and Photonics	101
2	M. Tech in VLSI Design Section A (VLSI)*: Regular Students Section B (VLSI-WP)*: Working Professionals.	Section A: 102 Section B: 103
3	Computer Sc. & Engineering (CSE)	104
4	Information Technology (IT)*	105
5	Computer Engineering & Application (CEA-WP)*	106
6	M.Tech in Electrical Engineering Specializations (SSSS): - Smart Grid Systems - Control and Robotics Section A (EE): Regular Students Section B (EE-WP)*: Working Professionals.	Section A: 107 Section B: 108
7	M.Tech in Instrumentation and Control Engineering Section A (ICE): Regular Mode Section B (ICE-WP)*: Working Professionals.	Section A: 109 Section B: 110
8	M.Tech in Optics and Optoelectronics (OO)	111
9	M.Tech in Biomedical Instrumentation (BMI)*	112
10	M.Tech in Chemical Engineering (CE)	113
11	M.Tech in Polymer Science & Technology (PST)	114
12	M.Tech in Ceramic Engineering (CR)	115
13	M.Tech in Oil Technology (OT)	116
14	M.Tech in Petrochemical & Petroleum Refinery Engineering (PE)	117
15	M.Tech in Pharmaceutical Technology (PT)	118
16	M. Tech. Course in Textile Technology (Technical Textiles) (TT)	119

* Self Financed Course

WP-Working Professionals

In general, the duration of study is of two years comprising four semesters, each semester being of six months' duration.



2. Eligibility for Admission

General eligibility criterion:

i) B.Tech / B.E./M.Sc./ MCA / AMIE Degree from any UGC/ AICTE recognized University/ Institute or equivalent.

ii) No age bar.

iii) At least First class or its equivalent grade in B.Tech/ B.E./M.Sc./MCA/AMIE level. Relaxation for the reserved category students will be as per AICTE/UGC rule.

(a) The eligibility for admission to the 2-Year 4-Semester M.Tech.in Radio Physics and Electronics (RPE) with specializations in (i) Space Science and Microwaves, or (ii) Nanoelectronics and Photonics program will be as specified below:

i) B.Tech / B.E./ AMIE/equivalent degree in Electronics & Communication Engineering / Radio physics & Electronics / Electronics & Communication / Electronics & Telecommunication Engg. / Instrumentation Engg. / Electronics & Instrumentation Engg. / Optics & Optoelectronics from recognized University.

ii) M.Sc. degree in Electronic Science (with Physics and Mathematics as subjects at the B. Sc. level) /Physics.

iii) M.Sc. degree in Physics (specialization in Electronics)

(b) The eligibility for admission to the 2-Year 4-Semester M.Tech. in VLSI Design (VLSI and VLSI-WP) program will be as specified below:

i) B.Tech / B.E./ AMIE/equivalent degree in Electronics & Communication Engineering / Radio physics & Electronics / Electronics & Communication / Electronics & Telecommunication Engg. / Instrumentation Engg. / Electronics & Instrumentation Engg. / Computer Sc. & Engg./ Information Technology

ii) M.Sc. degree in Electronic Science with Physics and Mathematics as subjects at the UG level / Computer Science with Physics & Mathematics as subjects at UG level / Physics (specialization in Electronics).

iii) MCA degree with Physics and Mathematics at undergraduate level.

(c) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Computer Sc. & Engg. (CSE) program will be as specified below:

i) B.E./ B. Tech. Degree in Computer Science & Engg / Computer Science & Technology / Computer Science / Information Technology / Any equivalent degree

ii) M.Sc. Degree in Computer Science / Computer & Information Science (with B.Sc. Honours in Computer Science) from C.U./ Computer Science / Computer & Information Science (with B.Sc. Honours in Computer Science) from another university with valid GATE qualified score from any UGC / AICTE recognized University / Institute or equivalent.

(d) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Information Technology (IT) program will be as specified below:

i) B.E./ B. Tech. Degree in: Information Technology/ Computer Science & Engineering/ Data Science / CSBS / AI / ML / Block chain / IoT / Embedded Systems / Cyber Security or equivalent.

ii) M.Sc. in Computer Science / Computer & Information Science with B.Sc.(Hons.) in Computer Science.

iii) M.C.A. with B.Sc. Honours in Computer Science / Physics / Mathematics / Electronics / Statistics from any UGC / AICTE recognized University / Institute or equivalent

iv) MCA with Computer Application (major) from University of Calcutta.

Additional Criteria:

i) All the candidates should have mathematics as one of the subject at UG level and at least 60% marks in Mathematics at (10+2) level

ii) Candidate with BCA at Graduation level is not eligible.

(e) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Computer Engineering & Application (CEA-WP) program will be as specified below:

i) Any Engineering Graduate

ii) MCA with Mathematics as one of the subject at B.Sc (Hons.) level

iii) MCA with BCA at the undergraduate level with 60% marks each in Mathematics and Physics in (10+2) level

iv) Master Degree holder in Science with Mathematics as one of the subject at B.Sc. (Hons.) level or any equivalent degree from any UGC approved University / AICTE recognized institute is eligible to



apply for admission in the said courses.

(f) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Electrical Engineering (EE and EE-WP) with Specializations in (i) Smart Grid Systems, or (ii) Control and Robotics program will be as specified below:

i) For Smart Grid Systems: B.Tech / B.E./ AMIE/equivalent degree in Electrical Engineering / Power Engineering/ Electrical & Electronics Engineering.

ii) For Control and Robotics: B.Tech / B.E./ AMIE/equivalent degree in Electrical Engineering/ Electrical & Electronics Engineering/Instrumentation Engineering or its equivalent/ Electronics and Communication Engineering or its equivalent/ Robotics Engineering or its equivalent/ Control Engineering or its equivalent.

(g) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Instrumentation and Control Engineering (ICE and ICE-WP) program will be as specified below:

B.Tech / B.E./ AMIE/equivalent degree in Instrumentation Engineering/ Instrumentation & Control Engineering/ Applied Electronics & Instrumentation Engineering/ Electronics & Instrumentation Engineering/ Instrumentation & Electronics Engineering/ Electronics & Electrical Engineering/ Electrical & Electronics Engineering/ Electronics & Communication Engineering/ Electronics & Telecommunication Engineering/ Electronics Engineering/ Biomedical Engineering.

(h) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Optics and Optoelectronics (OO) program will be as specified below:

i) B.Tech in Optics & Optoelectronics Engg/Electronics & Communication Engg/ Electronics & Instrumentation Engg/ Electrical and Electronics Engg/Instrumentation Engg OR equivalent degree from any Institute/University recognized by AICTE/UGC

ii) M.Sc. in Physics/ Electronics/Photonics OR equivalent from any Institute/ University recognized by AICTE/UGC

(i) The eligibility for admission to the 2-Year 4-Semester M.Tech.in Biomedical Instrumentation (BMI) program will be as specified below:

i) B.Tech in Biomedical Instrumentation Engg/ Optics & Optoelectronics Engg/Electronics & Communication Engg/ Electronics & Instrumentation Engg/ Electrical and Electronics Engg/Instrumentation Engg/Biomedical Engg OR equivalent degree from any Institute/University recognized by AICTE/UGC

ii) M.Sc. in Physics/ Electronics/Photonics/Biomedical Instrumentation OR equivalent from any Institute/ University recognized by AICTE/UGC

(j) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Chemical Engineering (CE) program will be as specified below:

B.E./ B. Tech. Degree in Chemical Engineering or equivalent degree from other Universities, IIT's & NIT's duly approved by the AICTE.

(k) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Polymer Science & Technology (PST) program will be as specified below:

i) B.E./ B. Tech. Degree in Polymer Science and Technology / Polymer Engineering & Technology / Polymer Science & Rubber Technology / Polymer & Surface Engineering / Paint Technology / Material Science / Material Engg. / Chemical Engg. / Chemical Technology with specialization in Ceramic Engineering/ Oil Technology/ Petroleum Refinery Engineering/ Pharmaceuticals & Fine Chemicals Technology / Jute & Fibre Technology /

ii) M.Sc. in Polymer Science / Polymer Chemistry / Applied Chemistry / Material Science.

(l) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Ceramic Engineering (CR) program will be as specified below:

i) B.Tech. in Chemical Technology in Ceramic Engg. of Calcutta University

ii) BE/B.Tech. in Ceramic Technology/ Material Sc. & Tech. from any recognized Univ./AICTE recognized Institution equivalent to C.U. B.Tech. in Chemical Technology (Ceramic Engineering).

(m) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Oil Technology (OT) program will be as specified below:

i) B.Tech. in Chemical Technology in Oil Technology of Calcutta University



ii) BE/B.Tech. degree in Oil Technology / Food Technology from any recognized Univ./AICTE recognized Institution or its equivalent to C.U. B.Tech. in Chemical Technology (Oil Tech).

(n) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Petrochemical & Petroleum Refinery Engineering (PE) program will be as specified below:

- i) B.Tech. in Chemical Technology in Petrochemical & Petroleum Refinery Engg. of Calcutta University
- ii) BE/B.Tech. degree in Chemical Technology from any recognized University /AICTE recognized Institution or its equivalent to C.U. B.Tech. in Chemical Technology (Petrochemical & Petroleum Refinery Engineering).

(o) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Pharmaceutical Technology (PT) program will be as specified below:

- i) B.Tech. in Chemical Technology in Pharmaceutical & Fine Chemical Tech. of Calcutta University
- ii) B.E./B.Tech./B.Pharm. degree from any recognized Univ./AICTE recognized Institution or its equivalent to C.U. B.Tech. in Chemical Technology (Pharmaceutical & Fine Chemical Technology).

(p) The eligibility for admission to the 2-Year 4-Semester M.Tech. in Textile Technology (Technical Textiles) (TT) program will be as specified below:

- i) B.Tech. in Jute & Fibre Technology of University of Calcutta.
- ii) M.Sc. in Textile and Clothing.
- iii) B.Des (with specialization in Textile and Clothing / Textile Design etc.)
- iv) Degree from other Universities, IIT's & NIT's duly approved by the AICTE equivalent to B.Tech in JFT of C.U.

3. Admission

(a) Admission to a program will be based on marks/grades obtained in the Examinations of the last Degrees along with a suitable admission test, to be decided by the Board of PG Studies in respective program/University of Calcutta, conducted amongst the candidates possessing eligibility qualifications and short-listed for such test.

Candidates applying for Section B must be employed or working in a Sponsored Research Project during the time of admission. Candidate cannot be enrolled in any other full-time academic program. Preference will be given to candidates working in program related fields. Candidates must submit relevant valid Certificates from their Employers/Principal Investigators in case of Sponsored Research Project.

(b) Relaxation of cut-of marks in General Eligibility of reserve category candidates will be as per admission rule of University of Calcutta.

(c) Guideline for Foreign National/ INTERNATIONAL Candidate

For the Foreign Nationals, one needs to consult the admission guidelines published on the University of Calcutta website: www.caluniv.ac.in

4. Courses of the Program

The M.Tech. academic program will generally have the following components. However, a few program specific components may be added and that will get reflected in the program specific course structure:

- i) Theory/Laboratory based papers/courses comprising of Lectures (L), Tutorials (T) and Practical (P).
- ii) Sessional Lab/Mini Project with Seminar.
- iii) Term paper leading towards Thesis (Research Methodology and Literature Review)
- iii) Dissertation/ Thesis, Phase-I: Foundation and Phase-II: Final.
- iv) General Viva Voce.

The course structure of each semester of each program is to be provided by the individual department.

5. Credits of the Program and Class Hours of a Course/Paper

Each course will have a certain number of credits assigned to it depending upon the academic load of the program assessed on the basis of *weekly contact hours* of lecture, tutorial and laboratory classes, assignments or field study.

- a) Generally, each course shall have an integer number of credits reflecting its weight. The number of credits in a semester shall ordinarily be calculated as described below and also given in TABLE-4.
 - i) **Lecture (L):** For each theory course, one lecture hour per week shall normally be equivalent to one credit.



ii) **Tutorial (T):** One hour of tutorial per week shall be equivalent to one credit.

iii) **Practical (P):** For each laboratory course, three hours shall be equivalent to two credits.

For determining the credits of a theory course, both lectures and tutorials should be added.

For determining the credits of a practical course, both tutorials and practical should be added.

The credits for each course/paper shall be defined in L-T-P format as given in TABLE-3. For example, 3-1-0 will mean that it is a lecture-based course and has 3 lectures, 1 tutorial, and no practical assigned to it. Similarly, a course with 0-0-4 means that it is a practical course with 4 hours of practical work.

TABLE-3

	Hrs./week	Credits assigned
Lectures (L)	1	1
Tutorials (T)	1	1
Practical (P)	4	2

- b) The Total Credits of a M.Tech. program will be 80. The Year/ Semester-wise distribution of credits will be as follows.

TABLE-4

Year	Total Credits of the Year
First Year (Semester I and Semester II)	40
Second Year (Third and Fourth Semester)	40
Total =	80

6. Credit-Based Evaluation

- A student will be evaluated with the end semester examinations.
- A student earns the credits assigned to a course/ paper when he/she satisfies the performance criteria as shown in Table-5.
- Each theoretical course/paper will be evaluated over a total of 100 marks bearing two distinct components: (i) Internal Assessment (IA) of 30 marks (ii) End-Semester Examination (ESE) of 70 marks. Each Lab/Practical course/paper will be evaluated over a total of 100 marks. The Internal Assessment may be done through class-test(s)/assignment(s)/flipped-classroom technique etc.
- The End-Semester Examination of 70 marks will be of 3 hours duration.
- Evaluation of practical course/paper will be based on sessional work/continuous assessments as well as with end-semester examination. The continuous assessment marks will be of 60 and end examination marks will be of 40 out of total 100 marks of that course/ paper.
- A student has to submit a report on Mini Project through the respective Supervisor (s) and defend the same in a Seminar.
- For Dissertation Phase-I and Dissertation Phase -II examinations, a student has to submit a Foundation Report and a complete report respectively through the respective Supervisor(s), and defend the same through presentation at the end semester examinations. In general, the complete report of Dissertation Phase -II should contain both Dissertation Phase -I and Dissertation Phase -II report.
- For Dissertation Phase -I and Dissertation Phase -II, 50% of the notional full marks will be set aside for the Sessional Work/continuous assessment (overall performance of a candidate in identifying the problem based on literature survey, formulation of the problem, proposal of solutions, reporting of these in the Foundation Report) and 50% for the Dissertation Phase-I report and Viva Voce examination.
- The practical course/paper and papers of Mini project, dissertation phase-I and Dissertation phase-II will be evaluated by a board of examiners consisting of internal faculty member(s) and/or external examiner(s), as recommended by the Board of Post Graduate Studies of the concerned Department.
- For Dissertation Phase – II, if the performance of the student is found unsatisfactory, he/she may be advised to reappear before the examination board once again within the next 8 weeks for final evaluation.

7. Marks, Grades and Percentages

- The performance of a student in a Course/Paper, Mini Project, Dissertation Phase-I and Phase-II and General Viva Voce will be evaluated in terms of “Grades” and “Grade Points” earned by the student. The equivalence



between “Grade”, “Grade Point” and the “Percent Marks” (out of notional full marks) is tabulated below.

TABLE-5

Grade (G)	Grade Point (GP)	Equivalence with Percentage (%) of marks	Credit Obtained
Ex	10	≥ 90	Full
A	9	≥ 80 and <90	Full
B	8	≥ 70 and <80	Full
C	7	≥ 60 and <70	Full
D	6	≥ 50 and <60	Full
F	0	< 50	Zero

Grade “F” implies failure to earn the corresponding credits. Grades higher than “F” and $GP \geq 6$ indicate successful clearing of a unit that will earn the student the corresponding Grade Point (P) and the Credits (C) assigned to that unit.

(b) The performance of a candidate in n^{th} semester examination, who earns all the Credit of that semester, will be assessed by the ‘Semester Grade Point Average’ (SGPA), ‘ S_n ’ to be computed as:

$$SGPA, [S_n] = \frac{\sum_k [C_k GP_k]}{\sum_k C_k}$$

where, ‘ k ’ denotes the number of papers/courses in a particular semester,

C_k denotes the credit allotted to k^{th} paper,

$\sum_k C_k$ denotes the total credits of particular semester and

GP_k denotes the grade point of k^{th} course/paper.

The course structure and the credits assigned to each semester of each program are to be provided by the individual department.

(c) On completion of a M.Tech. program, the overall performance of a candidate will be assessed by the ‘Cumulative Grade Point Average’ (CGPA) to be computed as:

$$CGPA = \frac{\sum_n [C_n S_n]}{\sum_n C_n}$$

where, $C_n = \sum_k C_k$ and $\sum_n C_n$ denotes total credits of all the semesters, i.e., 80.

8. Guidelines for Appearance in End Semester Examination

- To be able to apply to appear in an End Semester Examination, a candidate shall have to pursue a regular course of studies in the Semester and attend at least 75% of the total Theoretical (including Tutorials) and total Practical classes separately in the Semester. Failing to comply within the 75% attendance, the candidate will have to take admission in the same semester in the next academic session by paying the semester dues as applicable.
- In case of offering elective papers in a particular semester, the Board of PG Studies (PGBOS) of the respective program should announce the list of the papers to be offered at the commencement of that semester.
- For the Mini Project and Dissertation Phase-I and Phase-II, a certificate of satisfactory attendance need to be obtained from the Supervisor(s) prior to the form fill up for the End Semester Examination.
- A candidate who fails to earn the total credits of a semester in the first appearance in the End Semester Examination (Semesters I & II), but gets promoted to the next Semester by virtue of satisfying the clause 10(b), will not be required to attend classes in the “back” course(s)/paper(s).



9. Guidelines for Allocation and Evaluation of Mini Project and Dissertation Phase I and Phase-II.

- (a) Each student will be allotted the topic of the Mini Project at the beginning of the 2nd Semester and Dissertation at the beginning of the 3rd Semester of the program.
- (b) He/She will have to carry out the Mini Project under the supervision of one faculty member of the department/joint supervision of more than one faculty member of the Department.
- (c) He/She will have to carry out the Dissertation work for Phase-I and Phase-II under the supervision of a faculty member of the Department or the joint supervision of more than one faculty member of the Department or the joint supervision of one or more faculty member of the Department and an External Supervisor, who is a faculty member/Scientist/Technologist of another academic institution/R&D organization/relevant industry/sister department of the University of Calcutta. The names of the joint supervisors in the case of Dissertation work of a student will have to be approved by the Board of Post Graduate Studies in the specific M.Tech. program.
- (d) The Mini Project and Dissertation Phase-I and Dissertation Phase-I course/paper will be evaluated bearing two distinct components: (i) Continuous Assessment of 70% of total marks and (ii) End-Semester evaluation (Report/Presentation/ Viva-voce) of 30% of total marks. A student should comply with the standard plagiarism rule (as per UGC/ AICTE guideline) while submitting the Project/ Dissertation report.

10. Guidelines for Promotion to the Next Semester and Discontinuation from the program

- (a) A student admitted in 1st Semester of M.Tech. program will get maximum 4 consecutive academic years from his/her year of admission to pass all the 4 semesters.
- (b) A student has to secure at least 50% marks (i.e., Grade-D) in each course/paper in order to **pass the paper**. Otherwise, Grade-F will be allocated to him/her. A student remains absent in any examination, will get zero credit for that course/ paper but earmarked as absent in his/her mark sheet.
- (c) To pass a course/ paper, a student will be given a maximum of three chances as given below:
 - i. regular examination,
 - ii. supplementary examination, and
 - iii. back-paper clearing examination along with a regular end-semester examination.

The student will have to be discontinued from the program as 'Disqualified' candidate, if he/she fails to clear a course/ paper with these three chances.

- (d) A regular examination embodies internal assessment (continuous teacher's assessment along with mid-semester examination) and end-semester examination. For supplementary and back-paper clearing examinations, the internal assessment of a candidate will be carried forward.
- (e) A student, who fails to earn 50% marks or remains absent in the end semester examination of one or more paper(s), needs to appear in supplementary examination(s) for those courses / papers. If he/she still fails to clear the paper(s) or remains absent in supplementary examination(s), he/she will have to clear those paper(s) in the following year along with the regular candidates.
- (f) A student has to clear 50% of the allotted credits in 1st year (including supplementary examinations, if necessary) to enable him/her to get promoted to the 2nd year, failing which a student repeats the 1st year for the subjects with grade F. Even after repeating the 1st year, if the student is unable to earn the required credits for those course(s)/paper(s), the student will have to be discontinued from the program as 'Disqualified' candidate.
- (g) In particular, a student must have to earn the credits of the Dissertation Phase-I in the 3rd semester examination in order to be promoted to the 4th semester to continue the Dissertation Phase-II, even if he/she has earned more than 50% of the total credit. The candidate has to appear a supplementary examination to get it cleared otherwise he/she has to repeat the Dissertation-I in the next academic session as the last chance. If the candidate fails again to clear it, he/she has to leave the program as 'Disqualified' candidate.
- (h) If a student fails to earn the credits of the Dissertation Phase-II or remain absent, he/she has to appear a supplementary examination to get it cleared otherwise he/she has to repeat the Dissertation-II in the next academic session as the last chance. If the candidate fails again to clear it, he/she has to leave the program as 'Disqualified' candidate.
- (i) For appearing at any supplementary examination the unsuccessful candidate has to submit application to the Faculty Secretary through concerned HOD within ten (10) working days from the date of publication of the result of the concerned end semester examination.
- (j) If a student fails to clear all the required credits for the successful completion of M.Tech degree within the stipulated time frame of 4 years, he/ she may apply for the readmission in same program / stream of the 1st



semester of the next academic session along with fresh applicants by paying the requisite semester fees as applicable. This type of readmission shall be treated as supernumerary to the approved number of seats for that stream/ branch.

In brief: In order to obtain the M.Tech. degree of the University, a student will (i) get a maximum of 3 chances to clear a course/paper; (ii) get a maximum of ‘two year repeats’ in the entire duration of the study; (iii) have to earn a minimum of 50% of the allotted credits in each year.

11. Absent criteria

Failure to fill up the examination form shall be considered as missing a chance and such candidate shall have to appear at the same semester examination.

12. Guidelines for Re-Examination:

Candidates seeking re-examination or review may apply to the University in a prescribed form along with requisite fees within seven (7) working days from the date of issue of Grade Card subject to the following conditions:

- i) Application for review shall be restricted to theoretical courses/papers only.
- ii) A candidate will be eligible to re-examine his/her script if he/she appeared the said semester of examination as a whole but not appeared as supplementary candidate i.e. any candidate who appear some courses (but not all courses) of the concerned semester of examinations will not be eligible to re-examine his/her scripts.
- iii) Maximum three (02) theoretical courses/papers in any semester examination may be re-examined on request by the examinee subject to the condition that she / he secures a minimum of 50% marks in the rest of theoretical courses/papers in that semester.
- iv) In re-examination of course(s)/paper(s) for any semester of M.Tech Examinations, the marks awarded by the re-examiner in that particular course/paper will be taken as the final marks obtained by the examinee in that course/paper.
- v) On re-examination of a course/paper the marks may get enhanced or reduced than that awarded by the original examiner.
- vi) The re-examiner(s) shall be chosen by the BoS of the concerned Department from that Department itself other than the original examiner(s) of that particular course/paper.

13. Mark/Grade-Sheet

(a) At the end of each End Semester Examination, a Mark/Grade-Sheet showing the Semester performance (Semester Mark/Grade-Sheet) indicated by **SGPA** will be issued to the students. However, SGPA will not be calculated for those candidates who fail to earn all the credits in that semester. The merit list will be prepared on the basis of the total marks obtained.

(b) A consolidated Mark/Grade-Sheet, showing the overall performance in the M.Tech. program indicated by **CGPA**, will be issued only to those successful students who have passed all the theoretical and practical papers of all of the 4 semesters.

The consolidated Mark/Grade-Sheet shall consist of two components. The first component will have the information for the entire End Semester Examination results as mentioned in TABLE-6.

**TABLE-6**

Paper	Details of Courses	Full Marks	Marks obtained	Credit obtained	Grade	Grade Point	SGPA	Remarks

The second component (to be included only for final End Semester Examination result) will have a summary of all the semesters having the basic information as mentioned in TABLE-7.

TABLE-7

Semester	Total credit	Credit obtained	SGPA	Full Marks	Marks obtained	Cumulative statement	
						Total credit	
						CGPA	
						Full marks (Total)	
						Marks obtained	
						Result	#

The hash (#) in the last row of last column will contain the information regarding the final achievement of the candidate in all the examinations. This box will contain only one (1) of the following three (3) information: **I, II** and **F** as indicated in Table-8.

TABLE-8

CGPA obtained	Result to be awarded	To be denoted by
7.0 and above	First Class	I
6.0 and above, less than 7.0	Second Class	II
Less than 5.0	Fail	F

- c) The Mark/Grade-Sheet for all semesters should highlight the following statements as applicable:
 “M. Tech. in DDDD” with specialisation SSSS
 DDDD and SSSS: Degree with specialization offered as in TABLE-1.

14. The Degree of “**Master of Technology**” under the seal of the University shall be awarded to a successful candidate mentioning the grade and class he/she has obtained.
15. The Template of Certificate for the M.Tech. Degree will be as follows:

UNIVERSITY OF CALCUTTA



This is to certify that
 -----*(Name) obtained the degree of Two Year (Four Semester) Master of Technology in ----- with Specialization in -----*
 -- *in this University in the year -----, and was placed in the ----- Class.*

Vice Chancellor
Senate House

The ----- (Date) ----- (Month), ----- (Year)

16. Any matter arising beyond the scope of the above regulation may be referred to the Hon’ble Vice Chancellor for his/her consideration and resolution.



**B. Detailed Syllabus of each M.Tech program
(Available with the respective department)**



Curriculum Structure of M.Tech in Radio Physics and Electronics

SEMESTER- I

Sl. No.		L	T	P	Credit
1	RP 4.1.1 - Applied Mathematical Methods	3	1	0	4
2	RP 4.1.2 - Applied Electromagnetics	3	1	0	4
3	RP 4.1.3 - Advanced Communications	3	1	0	4
4	RP 4.1.4 -Advanced Semiconductor Physics and Devices	3	1	0	4
5	RP 4.1.5 - Research Methodology and IPR	2	0	0	2

Total Credits = 18

SEMESTER- II

(Total 5 papers to be taken either from Group A or from Group B excluding compulsory paper RP 4.2.8)

Group A: (Specialization: Space Science and Microwaves)

Sl. No.		L	T	P	Credit
1.	RP 4.2.1 - Radar Principles and Applications	3	1	0	4
2.	RP 4.2.2 - Microwave and Wireless Antennas	3	1	0	4
3.	RP 4.2.3 - Microwave Devices, Circuits & Materials	3	1	0	4
4.	RP 4.2.4 - Microwave Propagation and Electromagnetic Compatibility	3	1	0	4
5	RP 4.2.5 - Space-borne & Terrestrial Remote Sensing	3	1	0	4
6.	RP 4.2.6 - Radio Astronomy Techniques	3	1	0	4
7.	RP 4.2.7 - GNSS Aids and Applications	3	1	0	4
8.	RP 4.2.8- Mini Project	-	-	4	2



Group B: (Specialization: Nanoelectronics and Photonics)

Sl. No.		L	T	P	Credit
1.	RP 4.2.9 - Applied Microelectronics and MEMS	3	1	0	4
2.	RP 4.2.10 - Si Photonics	3	1	0	4
3.	RP 4.2.11 - Nanoelectronic Devices and Memory elements	3	1	0	4
4.	RP 4.2.12 - Nanostructures and Nanomaterials	3	1	0	4
5.	RP 4.2.13 - Photonic Fundamentals to Advances	3	1	0	4
6.	RP 4.2.14 - Solar Photovoltaics	3	1	0	4
7.	RP 4.2.15 - Optical Communication and Networking	3	1	0	4
8.	RP 4.2.8 - Mini Project	-	-	4	2

Total Credits (Semester I + Semester II) = 40

SEMESTER-III

Sl. No.		L	T	P	Credit
1.	RP 5.1.1- Dissertation Phase – I	0	0	16	8
2.	RP 5.1.2 – Seminar	0	0	8	4
3.	RP 5.1.3 - General Viva Voce	-	-	-	4
4.	Practical Paper 1	0	0	4	2
5.	Practical Paper 2	0	0	4	2

Practical papers to be selected from the following list:

Sl. No.		L	T	P	Credit
1.	RP 5.1.4 - Measurements on Microwave Circuits, Links and Radiating system	0	0	4	2
2.	RP 5.1.5 - Measurements on Remote Sensing Communication and GNSS	0	0	4	2
3.	RP 5.1.6 - Measurements and simulations of Photonic Devices and Systems	0	0	4	2
4.	RP 5.1.7 - Optical characterization of photonic devices	0	0	4	2
5.	RP 5.1.8 - Microelectronics Processing	0	0	4	2
6.	RP 5.1.9 - Micro Electro Mechanical Systems	0	0	4	2

SEMESTER- IV

Sl. No.		L	T	P	Credit
1.	RP 5.2.1 – Dissertation Phase – II	-	-	40	20

Total Credits (Semester III +Semester IV): 4

Curriculum Structure of 2 Year (4 Semesters) M.Tech. in VLSI Design

Semester 1

Sr.	Course	Teaching Scheme	Credits
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No	Type/Code	Course Name	L	T	P	
1.	Core 1 VD1.1	Embedded Systems and Processor Design	3	1	0	4
2.	Core 2 VD1.2	Applied Digital VLSI	3	1	0	4
3.	Lab 1 VD1.3	Design Entry and RTL Simulation Lab	0	2	4	4
4.	RP4.1.5	Research Methodology and IPR	2	0	0	2
5.	Program Specific Elective (PE)-1	One Elective to be Selected from the following				
		RP4.1.4 Advanced Semiconductor Physics and Devices	3	1	0	4
		VD1.4 Reconfigurable Logic and SoC	3	1	0	4
		VD1.5 Quantum Computing	3	1	0	4
		VD1.6 Machine Learning: Algorithms and Technology	3	1	0	4
TOTAL			11	5	4	18

Semester II

Sr. No	Course Type/Code	Course Name	Teaching Scheme			Credits
			L	T	P	
1.	Core 3 RP4.2.9	Applied Microelectronics and MEMS	3	1	0	4
2.	Core 4 VD2.1	Applied Analog VLSI	3	1	0	4
3.	Lab 2 VD2.2	Device and Process Simulation Lab	0	1	4	3
4.	Lab 3 VD2.3	ASIC Design Lab	0	1	4	3
5.	Program Specific Elective (PE)-2	One Elective to be Selected from the following				
		VD2.4 Low Power Design	3	1	0	4
		VD2.5 Digital Signal and Image Processing	3	1	0	4
		RP4.2.10 Si Photonics	3	1	0	4
		VD2.6 RF IC Design	3	1	0	4
		VD2.7 Emerging Nano-scale VLSI	3	1	0	4
		RP4.2.14 Solar Photovoltaics	3	1	0	4
6.	VD2.8	Mini Project with Seminar	0	0	8	4
TOTAL			9	5	16	22

Semester-III

Sr. No	Course Type/Code	Course Name	Teaching Scheme			Credits
			L	T	P	
1.	Dissertation VD2.9	Dissertation Phase-I	0	0	24	12
2.	Lab 4 VD2.10	Microelectronics Technology Lab	0	1	4	3
3.	Lab 5 VD2.11	Embedded Processor Lab	0	1	4	3
4.	VD2.12	General Viva Vice	-	-	-	2
TOTAL			0	2	32	20

Semester-IV

Sr. No	Course Type/Code	Course Name	Teaching Scheme			Credits
1.	Dissertation VD2.13	Dissertation Phase-II	0	0	40	20
TOTAL			0	0	40	20



Curriculum for M.Tech. in Computer Science and Engineering

FIRST SEMESTER							
SL. NO.	PAPER CODE	PAPER NAME	L	T	P	CONTACT HRS./WEEK	CREDIT
01	Program Core I: CSC901	Mathematical Foundations of Computer Science	3	0	0	3	3
02	Program Core II CSC902	Advanced Algorithms	3	0	0	3	3
03	Program Elective I: CSE9xx	01. Machine Learning 02. Soft Computing	3	0	0	3	3
04	Program Elective II: CSE9xx	03: Wireless & Mobile Computing 04: Advanced Networking	3	1	0	4	4
05	CSA901	Research Methodology and IPR	3	0	0	3	3
06	CSA9xx	02. English for Research Paper Writing 03. Pedagogy Studies	2	0	0	2	0
07	Laboratory I: (from Core) CSPC901	Advanced Data Structure LAB	0	0	3	3	1.5
08	Laboratory II: (From Elective) CSPE9XX	01. Machine Learning LAB 02. Soft Computing LAB	0	0	3	3	1.5
		Total	17	1	6	24	19

SECOND SEMESTER							
SL. NO.	PAPER CODE	PAPER NAME	L	T	P	CONTACT HRS./WEEK	CREDIT
01	Program Core III: CSC1001	Advanced Database Systems	3	1	0	4	4
02	Program Core IV: CSC1002	Advanced Software Engineering	3	0	0	3	3
03	Program Elective III: CSE10XX	01. Cloud Computing 02: Internet of Things	3	1	0	4	4
04	Program Elective IV: CSE10xx	03. Computer Vision 04. Image Processing	3	1	0	4	4
05	Laboratory III: (from Core) CSPC1001	Advanced Software Engineering Lab	0	0	3	3	1.5
06	Laboratory IV: (from Elective) CSPE10XX	03. Computer Vision 04. Image Processing	0	0	3	3	1.5
07	CSP1001	Mini Project with Seminar	0	0	6	6	3
		Total	15	0	10	27	21

THIRD SEMESTER							
SL. NO.	PAPER CODE	PAPER NAME	L	T	P	CONTACT HRS./WEEK	CREDIT
01	Program Elective V: CSE11XX	01. Information Security 02. Introduction to Data Science 03.VLSI Design 04. Deep Learning 05. Natural Language Processing 06. Quantum Computing	3	1	0	4	4
02	Open Elective: CSOE11XX	01. Bio-Informatics 02. Operation Research	3	1	0	4	4
03	CSP1101	Dissertation -I	0	0	24	24	12
		Total	6	2	24	32	20



FOURTH SEMESTER							
SL. NO.	PAPER CODE	PAPER NAME	L	T	P	CONTACT HRS./WEEK	CREDIT
01	CSP1201	Dissertation-II	0	0	36	36	18
02	CSP1202	General Viva-Voce	0	0	0	0	2
		Total	0	0	36	36	20



Course Structure for MTech in Information Technology

1st Semester: (Total 650 marks)

Theory								
Type	Code	Subject	Contacts Periods/Week				Credits	Full Marks
			L	T	P	Total		
C	MIT T11	Applied Mathematics for Computations	3	1	0	4	4	100
C	MIT T12	Design and Analysis of Algorithms	3	1	0	4	4	100
PE	MIT T13	PE I: Program Elective I	3	1	0	4	4	100
C	MIT T14	HPC & Cyber Physical System	1	1	0	2	2	100
PE	MIT T15	PE II: Program Elective II	3	1	0	4	4	100
EL	MIT P11	Machine Learning Laboratory	0	0	4	4	2	50
CL	MIT P12	Algorithm Laboratory	0	0	4	4	2	50
A	MIT A11	Scientific & Technical Writing	1	1	0	2	0	50
							0	
Total						28	22	650

*** C: Core Paper; E: Elective Paper; L: Laboratory Paper; A: Audit Course; CL: Core Lab; EL: Elective Lab; PE: Program Elective;

2nd Semester: (Total 650 marks)

Theory								
Type	Code	Subject	Contacts Periods/Week				Credits	Full Marks
			L	T	P	Total		
C	MIT T21	Cryptography and Network Security	3	1	0	4	4	100
C	MIT T22	Artificial Intelligence and Soft Computing	3	1	0	4	4	100
PE	MIT T23	PE III: Program Elective III	3	1	0	4	4	100
PE	MIT T24	PE IV: Program Elective IV	3	1	0	4	4	100
CL	MIT P21	Artificial Intelligence Laboratory	0	0	4	4	2	50
EL	MIT P22	Wireless Sensor Network Laboratory	0	0	4	4	2	50
A	MIT A21	Digital Infrastructure for Environment & Disaster Management	-	-	-	-	-	-
S	MIT S21	Mini-Project with Seminar	1	1	-	2	0	50
			0	0	4	4	2	100
Total						30	22	650

*** C: Core Paper; E: Elective Paper; L: Laboratory Paper; A: Audit Course; CL: Core Lab; EL: Elective Lab; PE: Program Elective;

List of Elective Subjects:

Program Elective I:

- i. Distributed Systems
- ii. VLSI Design
- iii. Network Performance Evaluation

Program Elective II:



- i. Machine Learning
- ii. Natural Language Processing
- iii. Computer Vision and Pattern Recognition

Program Elective III:

- i. Intelligent System
- ii. Generative AI
- iii. Statistics Methods

Program Elective IV:

- i. Wireless Sensor Network
- ii. Robotics
- iii. Internet of Things

Program Elective V:

- i. Bio-Informatics
- ii. Quantum Computing
- iii. Optimization Techniques

3rd Semester (Total 400 marks)

Theory								
Type	Code	Subject	Contacts Periods/Week				Credits	Full Marks
			L	T	P	Total		
PE	MIT T 31	PE V: Program Elective V.	3	1	0	4	4	100
S	MIT S 31	Dissertation I & Industrial Project.	0	0	24	24	12	250
S	MIT S 32	Research Methodology & IPR .	0	0	4	4	2	50
Total						32	18	400

*** C: Core Paper; A: Audit Course; CL: Core Lab; EL: Elective Lab; PE: Program Elective;
S: Sessional;

4th Semester (Total 400 marks)

Theory								
Type	Code	Subject	Contacts Periods/Week				Credits	Full Marks
			L	T	P	Total		
S	MIT S 41	Dissertation II	0	0	32	32	16	300
S	MIT S 42	General Viva-Voce	0	0	0	0	2	100
Total						32	18	400

*** C: Core Paper; A: Audit Course; CL: Core Lab; EL: Elective Lab; PE: Program Elective;
S: Sessional;



Course Structure for MTech in Computer Engineering & Application (Working Professional)

1st Semester: (Total 600 marks)

Code	Subject	Contacts Periods/Week				Credits
		L	T	P	Total	
MCEA 101A	Discrete Structures	1	1	0	2	2
MCEA 101B	Applied Mathematics for Computations	1	1	0	2	2
MCEA 102A	Formal Systems	1	1	0	2	2
MCEA 102B	Information & Coding Theory	1	1	0	2	2
MCEA 103	Design and Analysis of Algorithms	3	1	0	4	4
MCEA 104A	Object Oriented Systems	1	1	0	2	2
MCEA 104B	Software Engineering	1	1	0	2	2
MCEA 105	Algorithm & Application Laboratory	0	0	4	4	2
MCEA 106	Software Laboratory Design	0	0	4	4	2
					24	20

Every paper is of 100 marks, unless specified. If group is mentioned then every group is of 50 marks each.

2nd Semester: (Total 600 marks)

Code	Subject	Contacts Periods/Week				Credits
		L	T	P	Total	
MCEA 201A	Embedded & Real Time Systems	1	1	0	2	2
MCEA 201B	Computer Networking	1	1	0	2	2
MCEA 202	Cryptography & Networking Security	3	1	0	4	4
MCEA 203	Distributed Database & Web Data Management	3	1	0	4	4
MCEA 204	Machine Learning	3	1	0	4	4
MCEA 205	Systems & Networking Laboratory	0	0	4	4	2
MCEA 206	Machine Learning & Database Laboratory	0	0	4	4	2
					24	20

Every paper is of 100 marks, unless specified. If group is mentioned then every group is of 50 marks each.



3rd Semester: (Total 600 marks)

Code	Subject	Contacts Periods/Week				Credits
		L	T	P	Total	
MCEA 301	Computer Vision & Pattern Recognition	3	1	0	4	4
MCEA 302	Intelligent Systems	3	1	0	4	4
MCEA 303	Elective I	3	1	0	4	4
MCEA 304	Elective II	3	1	0	4	4
MCEA 305	Mini Project (Marks 200)	0	0	8	8	4
					24	20

Every paper is of 100 marks, unless specified. If group is mentioned then every group is of 50 marks each.

Elective Paper I

1. Cloud Computing
2. Mobile Computing
3. Cyber Security
4. Internet of Things

Elective Paper II

1. Bio-Informatics
2. Natural Language Processing
3. Human Computer Interaction
4. Quantum Computing

4th Semester: (Total 600 marks)

Code	Subject	Contacts Periods/Week				Credits
		L	T	P	Total	
MCEA 401A	Research Methodology	1	1	0	2	4
MCEA 401B	Seminar	-	-	-	-	
MCEA 402	Journal Study	-	-	-	-	4
MCEA 403	Project Work (300 Marks)	0	0	16	16	8
MCEA 404	General Viva-Voce	-	-	-	-	4
					18	20

Every paper is of 100 marks, unless specified. If group is mentioned then every group is of 50 marks each.



Course structure for M. Tech. Degree in Electrical Engineering with Specialization in: I. Smart Grid Technologies; II. Control and Robotics

Paper	Subjects		Periods			Evaluation Scheme				Credits
	Specialization I	Specialization II	L	T	P	TA	CT	ESE	TOTAL	
Semester I										
EE901	Computational Intelligence		3	1	-	20	10	70	100	4
EE902	Measurements and Control techniques		3	1	-	20	10	70	100	4
EE(I)903 / EE(II)903	Smart Grid Architecture	Nonlinear and Optimal Control	3	1	-	20	10	70	100	4
EE904	Research Methodology		-	-	4	50	-	50	100	2
PR(I)905 / PR(II)905	Advanced Power System Lab	Advanced Control System Lab	-	-	4	50	-	50	100	2
Semester-I Total			09	03	08	160	30	310	500	16
Semester II										
EE1001	Embedded Systems		3	1	-	20	10	70	100	4
EE1002	Condition Monitoring and Predictive maintenance		3	1	-	20	10	70	100	4
EE(I)1003/ EE(II)1003	EHVAC, HVDC Transmission	Introduction to Robotics	3	1	-	20	10	70	100	4
PE(I)1004/ PE(II)1004	Elective – I	Elective – I	4	-	-	20	10	70	100	4
PR(I)1005 / PR(II) 1005	Renewable Energy Integration Lab	Robotics Lab	-	-	4	50	-	50	100	2
PR1006	Term Paper leading towards Thesis work		-	-	4	50	-	50	100	2
PR1007	Mini Project with Seminar		-	-	4	50	-	50	100	2
Semester-II Total			13	03	12	230	40	430	700	22
Semester III										
PE(I)1101/ PE(II)1101	Elective – II	Elective – II	4	-	-	20	10	70	100	4
PR1103	Thesis Phase – I		-	6	20	100	-	200	300	16
Semester-III Total			04	06	20	120	10	270	400	20
Semester IV										
PR1201	Thesis Phase – II		-	10	20	100	-	200	300	20
	General Viva-Voce		-	-	4	-	-	100	100	2
Semester-IV Total			-	10	24	100	-	300	400	22
Grand Total			26	22	64	660	80	1310	2000	80



Elective Papers:

Elective – I:

- EL11: Grid Integration of Renewable Energy Resources
- EL12: Advanced Power System Analysis
- EL13: Advanced Electric Drives
- EL14: Power System Harmonics, Quality and Reliability
- EL15: Smart Sensors and Advanced Measurement Techniques
- EL16: Navigation of Mobile Robots and Machine Vision
- EL17: Robust and Adaptive Control
- EL18: Mechatronic and Haptic Systems

Elective - II:

- EL21: Electric Vehicle
- EL22: Converters, Storage and FACTs
- EL23: Smart Grid Security and Reliability
- EL24: Power System Stability and Protection
- EL25: Intelligent Control for Robotics
- EL26: Applications of Robotic and Mechatronic Systems
- EL27: Cyber Physical Systems
- EL28: IoT and Edge Computing



**Course structure for M. Tech. Degree in Electrical Engineering for Working Professional Candidates
with Specialization in: I. Smart Grid Technologies; II. Control and Robotics**

Paper	Subjects		Periods			Evaluation Scheme				Credits
	Specialization I	Specialization II	L	T	P	TA	CT	ESE	TOTAL	
Semester I										
EE901	Computational Intelligence		3	1	-	20	10	70	100	4
EE902	Measurements and Control techniques		3	1	-	20	10	70	100	4
EE(I)903 / EE(II)903	Smart Grid Architecture	Nonlinear and Optimal Control	3	1	-	20	10	70	100	4
EE904	Research Methodology		-	-	4	50	-	50	100	2
PR(I)905 / PR(II)905	Advanced Power System Lab	Advanced Control System Lab	-	-	4	50	-	50	100	2
Semester-I Total			09	03	08	160	30	310	500	16
Semester II										
EE1001	Embedded Systems		3	1	-	20	10	70	100	4
EE1002	Condition Monitoring and Predictive maintenance		3	1	-	20	10	70	100	4
EE(I)1003/ EE(II)1003	EHVAC, HVDC Transmission	Introduction to Robotics	3	1	-	20	10	70	100	4
PE(I)1004/ PE(II)1004	Elective – I	Elective – I	4	-	-	20	10	70	100	4
PR(I)1005 / PR(II) 1005	Renewable Energy Integration Lab	Robotics Lab	-	-	4	50	-	50	100	2
PR1006	Term Paper leading towards Thesis work		-	-	4	50	-	50	100	2
PR1007	Mini Project with Seminar		-	-	4	50	-	50	100	2
Semester-II Total			13	03	12	230	40	430	700	22
Semester III										
PE(I)1101/ PE(II)1101	Elective – II	Elective – II	4	-	-	20	10	70	100	4
PR1103	Thesis Phase – I		-	6	20	100	-	200	300	16
Semester-III Total			04	06	20	120	10	270	400	20
Semester IV										
PR1201	Thesis Phase – II		-	10	20	100	-	200	300	20
	General Viva-Voce		-	-	4	-	-	100	100	2
Semester-IV Total			-	10	24	100	-	300	400	22
Grand Total			26	22	64	660	80	1310	2000	80



Elective Papers:

Elective – I:

- EL11: Grid Integration of Renewable Energy Resources
- EL12: Advanced Power System Analysis
- EL13: Advanced Electric Drives
- EL14: Power System Harmonics, Quality and Reliability
- EL15: Smart Sensors and Advanced Measurement Techniques
- EL16: Navigation of Mobile Robots and Machine Vision
- EL17: Robust and Adaptive Control
- EL18: Mechatronic and Haptic Systems

Elective - II:

- EL21: Electric Vehicle
- EL22: Converters, Storage and FACTs
- EL23: Smart Grid Security and Reliability
- EL24: Power System Stability and Protection
- EL25: Intelligent Control for Robotics
- EL26: Applications of Robotic and Mechatronic Systems
- EL27: Cyber Physical Systems
- EL28: IoT and Edge Computing



Course structure for M. Tech. Degree in Instrumentation & Control Engineering

Semester I Examination

Theoretical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIT11	Computational Methods	4			20	10	70	100	4
MIT12	Modern Control Systems	4			20	10	70	100	4
MIT13	Biomedical Measurement and Instrumentation	4			20	10	70	100	4
MIT14	Elective Paper I	4			20	10	70	100	4

Practical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP11	Advanced Control Lab	-	1	6	50		50	100	4

Semester II Examination

Theoretical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIT21	Advanced Digital Signal Processing	4			20	10	70	100	4
MIT22	Advanced Process Control	4			20	10	70	100	4
MIT23	Elective Paper II	4			20	10	70	100	4

Practical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP21	Biomedical Data Acquisition and Processing Lab	-	1	6	50		50	100	4
MIP22	Term Paper leading toward Thesis	-	2	4	50		50	100	4

Semester III Examination

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP31	Mini project with Seminar presentation	-	3	10	100	-	100	200	8
MIP32	Project Phase I	-	4	16	150	-	150	300	12

Semester IV Examination

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP41	Project Phase II	-	6	20	200	-	200	400	16
MIP42	General Viva Voce	-	2	4	-	-	-	100	4



Course structure for M. Tech. Degree in Instrumentation & Control Engineering for Working Professionals

Semester I Examination

Theoretical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIT11	Computational Methods	4			20	10	70	100	4
MIT12	Modern Control Systems	4			20	10	70	100	4
MIT13	Biomedical Measurement and Instrumentation	4			20	10	70	100	4
MIT14	Elective Paper I	4			20	10	70	100	4

Practical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP11	Advanced Control Lab	-	1	6	50		50	100	4

Semester II Examination

Theoretical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIT21	Advanced Digital Signal Processing	4			20	10	70	100	4
MIT22	Advanced Process Control	4			20	10	70	100	4
MIT23	Elective Paper II	4			20	10	70	100	4

Practical

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP21	Biomedical Data Acquisition and Processing Lab	-	1	6	50		50	100	4
MIP22	Term Paper leading toward Thesis	-	2	4	50		50	100	4

Semester III Examination

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP31	Mini project with Seminar presentation	-	3	10	100	-	100	200	8
MIP32	Project Phase I	-	4	16	150	-	150	300	12

Semester IV Examination

PAPER NO.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
		L	T	P	TA	CT	ESE	TOTAL	
MIP41	Project Phase II	-	6	20	200	-	200	400	16
MIP42	General Viva Voce	-	2	4	-	-	-	100	4



Structure of M.Tech. course in Optics & Optoelectronics

Paper Code	Paper Name	L	T	P	Credit	Full Marks
SEMESTER – 1						
OPM111	Fundamentals of Optical Design	3	0	0	3	100
OPM112	Analog and Digital Image Processing	4	0	0	4	100
OPM113	Lasers, Optoelectronic detectors and Display	4	0	0	4	100
OPM114	Nonlinear Optics	3	0	0	3	100
OPM115	Elective I*	3	0	0	3	100
OPMP11	Information Optics	0	0	8	4	100
OPMP12	Laser and Nonlinear Optics	0	0	8	4	100
		17	0	16	25	700
SEMESTER – 2						
OPM121	Advanced Optical System Design	3	0	0	3	100
OPM122	Advanced Optical Instrumentation and Measurement	4	0	0	3	100
OPM123	Optical Communication Systems	3	0	0	3	100
OPM124	Elective II*	3	0	0	3	100
OPM125	Elective III*	3	0	0	3	100
OPMP21	Photonic Systems and Design	0	0	8	4	100
OPMP22	Optical Design	0	0	8	4	100
		16	0	16	23	700
SEMESTER – B3						
OPM231	Research Methodology& IPR	1	1	0	2	100
OPM232S	General Seminar	-	-	-	3	100
OPM233D	Project-Phase I	-	-	-	5	100
OPM234I	Internship	-	-	-	3	100
		0	2	-	13	400
SEMESTER – 4						
OPM241D	Project -Phase II	-	-	-	15	300
OPM242V	Grand Viva	-	-	-	4	100
		-	-	-	19	400
	Total Credit				80	2200
	M114-Elective I	M124-Elective II		M125-Elective III		
a)	Illumination Engineering	Quantum Optics		Advanced Microscopy		
b)	Remote Sensing	Diffractive and Micro Optics		Biophotonics		
c)	Nanophotonic devices and System	Principles of Spectroscopy		Eye and Vision		

*Equivalent MOOC course are accepted for credit transfer provided appropriate permission is given by the department.



Structure of M.Tech. course in Biomedical Instrumentation

Paper Code		Marks	L	P	Credits
SEMESTER - 1					
MTBBI-11	Essentials of Anatomy and Physiology (for non medical students) Applied Electronics(for medical doctors)	100	3	0	3
MTBBI-12	Automation and control in Instrumentation	100	3	0	3
MTBBI-13	Optics and imaging techniques	100	3	0	3
MTBBI-14	Sensors & Transducers for biomedical instrumentation	100	3	0	3
MTBBI-15	Digital Image Processing	100	3	0	3
PRACTICAL					
MTBBI P-I	Applied Electronics, sensors and transducers(for Doctors) Mini project based on analog electronic circuits (for non-doctors)	100	0	6	3
MTBBI P-II	Digital Electronics and microprocessor (for doctors) Mini project based logic microprocessor (for non-doctors)	100	0	6	3
		700	15	12	21
SEMESTER II					
MTBBI-21	Optical and laser based instrumentation for biomedical applications	100	3	0	3
MTBBI-22	Advanced Signal Processing	100	3	0	3
MTBBI-23	Controller and Communication protocols for Instrumentation	100	3	0	3
MTBBI-24	Analytical instruments	100	3	0	3
MTBBI-25	Clinical Laboratory Instruments	100	3	0	3
PRACTICAL					
MTBBI P-III	Optical instruments and lasers	100	0	6	3
MTBBI P-IV	Clinical Laboratory Instruments	100	0	6	3
		700	15	12	21
SEMESTER – III					
MTBBI-31	Medical imaging systems	100	3	0	3
MTBBI-32	Cardio vascular and Pulmonary Instruments	100	3	0	3
MTBBI-33	Radioisotopes and Nuclear Medicine	100	3	0	3
MTBBI-34	Urological and Renal Instrumentation	100	3	0	3
MTBBI-35	Elective Paper (Select any One) 1. Ophthalmological Instruments and advanced microscopy 2. Specifications and procurement of Biomedical Equipments 3. Pollution Control and Hospital waste management 4. Implants and artificial organs 5. Forensic science	100	3	0	3
MTBBI-36	Research Methodology and IPR	100	2	0	2
PRACTICAL					
MTBBI P-V	Patient Monitoring and Life Support System	100	0	6	3
MTBBI PJ-I	Project –preliminary	100	0	0	3
		800	15	6	23
SEMESTER IV					
MTBBI-I	Internship	100	0	0	3
MTBBI- PJ-II	Project Final: Thesis presentation	200	0	0	8
MTBBI-V	Comprehensive VIVA	100	0	0	4
		400	0	0	15
	Total	2600			80



Course Structure of M. Tech Program in Chemical Engineering

Semester I

Sr. No.	Course Type/Code	Course Name	Class per week				Credit	Marks
			L	T	P	Total		
1	Core 1 MChE 101	Mathematical and Statistical Methods in Chemical Engineering	3	1	0	4	4	100
2	Core 2 MChE 102	Advanced Separation Process	3	1	0	4	4	100
3	Program Specific Elective a) MChE 103 b) MChE 113	Elective I: <u>Any one</u> a) Chemical Reactor Analysis b) Process Design and Synthesis	3	1	0	4	4	100
4	Program Specific Elective a) MChE 104 b) MChE 114	Elective II: <u>Any one</u> a) Safety and Pollution Control in Chemical Industries b) Application of Nanotechnology in Chemical Engineering	3	1	0	4	4	100
5	Laboratory 1 MChE 105	Process Modeling and Simulation Laboratory	0	0	4	4	2	100
6	MChE 106	Research Methodology and Literature Review	2	0	0	2	2	100
7	Audit 1 MChE 107	English for Research Paper Writing	2	0	0	2	0	100*
		Total	16	4	4	24	20	600

*Marks of paper „Audit 1“- not included in the total Credits/Marks.

Semester II

Sr. No.	Course Type/Code	Course Name	Class per week				Credit	Marks
			L	T	P	Total		
1	Core 3 MChE 201	Advanced Transport Phenomena	3	1	0	4	4	100
2	Core 4 MChE 202	Advanced Reaction Engineering	3	1	0	4	4	100
3	Program Specific Elective a) MChE 203 b) MChE 213	Elective III: <u>Any one</u> a) Computational Fluid Dynamics b) Bioprocess Engineering	3	1	0	4	4	100
4	Program Specific Elective a) MChE 204 b) MChE 214	Elective IV: <u>Any one</u> a) Process Plant Design & Flow Sheetting b) Refinery & Petrochemicals	3	1	0	4	4	100
5	Laboratory 2 MChE 205	Advanced Chemical Engineering Laboratory	0	0	4	4	2	100
6	MChE 206	Mini Project	0	0	4	4	2	100
7	Audit 2 MChE 207	Constitution of India	2	0	0	2	0	100**
		Total	14	4	8	26	20	600

** Marks of paper „Audit 2“- not included in the Total Credits/Marks.



Semester III

Sr. No.	Course Type/Code	Course Name	Class per week				Credit	Marks
			L	T	P	Total		
1	Program Specific Elective a) MChE 301 b) MChE 311	Elective V: <u>Any one</u> a) Design of Experiments and Parameter Estimation b) Computer Aided Design	3	1	0	4	4	100
2	Open Elective a) MChE 302 b) MChE 312	<u>Any one</u> a) Composite Materials b) Waste to Energy	3	1	0	4	4	100
3	Dissertation MChE 303	Dissertation Phase – I	0	0	18	18	12	300
		Total	6	2	18	26	20	500

Semester IV

Sr. No.	Course Type/Code	Course Name	Class per week				Credit	Marks
			L	T	P	Total		
1	Dissertation MChE 401	Dissertation Phase – II	0	0	30	30	20	500



Course structure for M. Tech. Degree in Polymer Science & Technology

Paper	Subjects	Periods			Evaluation Scheme				Credits
		L	T	P	TA	CT	ESE	TOTAL	
Semester I									
Paper 1 Paper code: PTM101	Module I: Applied Mathematics & Statistical analysis	2	1		5	10	35	50	2
	Module II: Process Modeling & Simulation	2	1	-	5	10	35	50	2
Paper 2 Paper code: PTM102	Module I: Advanced Chemistry & kinetics of polymerization	2	1		5	10	35	50	2
	Module II: Advanced Physics of Polymerization	2	1	-	5	10	35	50	2
Paper 3 Paper code: PTM103	Module I: Advanced Polymer Synthesis	2	1		5	10	35	50	2
	Module II: Advance in Polymer Science & Technology	2	1	-	5	10	35	50	2
Paper 4 Paper code: PPM101 (Practical)	Research Methodology-I			6	50	-	50	100	4
Paper 5 Paper code: PPM102 (Practical)	Mini Lab project-I & Seminar presentation-I			6	50	-	50	100	4
Semester-I Total		12	06	12	130	60	310	500	20
Semester II									
Paper 1 Paper code:	Module I: Advanced Rubber Technology	2	1	-	5	10	35	50	2



PTM201	Module II: Advanced Plastic Technology	2	1		5	10	35	50	2
Paper 2 Paper code: PTM202	Module I: Polymer Blend & Composites	2	1		5	10	35	50	2
	Module II: Polymer reaction Engineering	2	1	-	5	10	35	50	2
Paper 3 Paper code: PTM203	Elective 1*	3	1	-	10	20	70	100	4
Paper 4 Paper code: PTM204	Elective 2**	3	1	-	10	20	70	100	4
Paper 5 Paper code: PPM201 (Practical)	Research Methodology-II			6	50	-	50	100	4
Paper 6 Paper code: PPM202 (Practical)	Mini Lab project II & Seminar presentation-II			6	50	-	50	100	4
Semester-II Total		14	06	12	140	80	380	600	24
Semester III									
Paper 1 Paper code: PPM301 (Practical)	Project Thesis-I(Dissertation)	-	04	12	100	-	200	300	16
Paper 2 Paper code: PPM302 (Practical)	General Viva-Voce	-	-	-	-	-	100	100	2
Semester-III Total			04	12	100		300	400	18



Semester IV									
Paper 1 Paper code: PPM401 (Practical)	Project Thesis- II(Dissertation)	-	04	12	200	-	200	400	16
Paper 2 Paper code: PPM402 (Practical)	Project viva	-	-	-	-	-	100	100	2
Semester-IV Total		-	04	12	200	-	300	500	18
Grand Total		26	20	48	570	140	1290	2000	80

Elective Papers:

Paper 3 (Elective – 1*)

PTM203A Adv. Polymer Characterization

PTM203B Polymer in biological applications

PTM203C Application of rheology in polymer processing

PTM203D Polymer in Automotive Industries

Paper 4 (Elective – 2*)

PTM204A Reverse Engineering in Rubber Technology

PTM204B Polymer in membrane Technology

PTM204C Conducting polymer

PTM204D Biopolymer and polymer from renewable sources



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

Course Structure for M. Tech. Course in Ceramic Engineering

1st Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
I	CHT101	Process Modelling and Simulation	3	1	-	4	30	70	100
II	CER102	Ceramic Science and Technology	3	1	-	4	30	70	100
III	CER103	Refractories & Structural Ceramics	3	1	-	4	30	70	100
Practical									
IV	CHT104	Computer Application in Chemical Industries	-	-	8	4	60	40	100
V	CER105	Chemical & Instrumental Analysis	-	-	8	4	60	40	100
		Total	9	3	16	20	310	290	500

2nd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
VI	CHT201	Optimization	3	1	-	4	30	70	100
VII	CER202	Glass and Vitreous Coating	3	1	-	4	30	70	100
VIII	CER203	Electrical and Electronic ceramics	3	1	-	4	30	70	100
IX	CER204	Advanced clay-based ceramics and Ceramic Machines	3	1	-	4	30	70	100
Practical									
X	CER205	Ceramic Engineering Laboratory: Synthesis & Characterisation of ceramic materials	-	-	8	4	60	40	100
		Total	12	4	8	20	180	320	500

3rd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XI	CHT301	Research Methodology	-	2	-	2	15	35	50
XII	CER302	a. Project Feasibility – Report	-	2	8	6	90	60	150
		b. Project Feasibility – Viva Voce	-	-	-	4	-	100	100
XIII	CER303	Mini Project with seminar	-	4	-	4	-	100	100
XIV	CER304	Thesis: Foundation	-	-	-	4	-	100	100
		Total	-	8	8	20	105	405	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

4th Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XV	CER401	a. Thesis: Final-Report	-	4	16	12	-	-	300
		b. Thesis: Final-Viva Voce	-	-	-	4	-	100	100
XVI	CER 402	General Viva Voce	-	-	-	4	-	100	100
		Total	-	4	16	20	-	500	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

Course Structure for M. Tech. Course in Oil Technology

1st Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
I	CHT101	Process Modelling and Simulation	3	1	-	4	30	70	100
II	OLT102	Technology of Fats and Fat Based Products	3	1	-	4	30	70	100
III	OLT103	Technology of Surface Coating	3	1	-	4	30	70	100
Practical									
IV	CHT104	Computer Application in Chemical Industries	-	-	8	4	60	40	100
V	OLT105	Oil Technology Laboratory I	-	-	8	4	60	40	100
		Total	9	3	16	20	310	290	500

2nd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
VI	CHT201	Optimization	3	1	-	4	30	70	100
VII	OLT202	Technology of Fat Based Surfactants	3	1	-	4	30	70	100
VIII	OLT203	Technology of Essential Oils	3	1	-	4	30	70	100
IX	OLT204	Oil Technology	3	1	-	4	30	70	100
Practical									
X	OLT205	Oil Technology Laboratory II	-	-	8	4	60	40	100
		Total	12	4	8	20	180	320	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

3rd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XI	CHT301	Research Methodology	-	2	-	2	15	35	50
XII	OLT 302	a. Project Feasibility – Report	-	2	8	6	90	60	150
		b. Project Feasibility – Viva Voce	-	-	-	4	-	100	100
XIII	OLT 303	Mini Project with seminar	-	4	-	4	-	100	100
XIV	OLT 304	Thesis: Foundation	-	-	-	4	-	100	100
		Total	-	8	8	20	105	405	500

4th Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XV	OLT 401	a. Thesis: Final-Report	-	4	16	12	-	-	300
		b. Thesis: Final-Viva Voce	-	-	-	4	-	100	100
XVI	OLT 402	General Viva Voce	-	-	-	4	-	100	100
		Total	-	4	16	20	-	500	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

Course Structure for M. Tech. Course in Petrochemicals & Petroleum Refinery Engineering

1st Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
I	CHT101	Process Modelling and Simulation	3	1	-	4	30	70	100
II	PPR102	Analytical Method in Petroleum Industry	3	1	-	4	30	70	100
III	PPR103	Petrochemicals	3	1	-	4	30	70	100
Practical									
IV	CHT104	Computer Application in Chemical Industries	-	-	8	4	60	40	100
V	PPR105	Petrochemical Technology Laboratory I	-	-	8	4	60	40	100
		Total	9	3	16	20	310	290	500

2nd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
VI	CHT201	Optimization	3	1	-	4	30	70	100
VII	PPR202	Reaction Engineering & Catalyst Technology	3	1	-	4	30	70	100
VIII	PPR203	Refinery Engineering	3	1	-	4	30	70	100
IX	PPR204	High Pressure Technology	3	1	-	4	30	70	100
Practical									
X	PPR205	Petroleum Technology Laboratory II	-	-	8	4	60	40	100
		Total	12	4	8	20	180	320	500

3rd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XI	CHT301	Research Methodology	-	2	-	2	15	35	50
XII	PPR302	a. Project Feasibility – Report	-	2	8	6	90	60	150
		b. Project Feasibility – Viva Voce	-	-	-	4	-	100	100
XIII	PPR303	Mini Project with seminar	-	4	-	4	-	100	100
XIV	PPR304	Thesis: Foundation	-	-	-	4	-	100	100
		Total	-	8	8	20	105	405	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

4th Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XV	PPR401	a. Thesis: Final-Report	-	4	16	12	-	-	300
		b. Thesis: Final-Viva Voce	-	-	-	4	-	100	100
XVI	PPR402	General Viva Voce	-	-	-	4	-	100	100
		Total	-	4	16	20	-	500	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

Course Structure for M. Tech. Course in Pharmaceutical Technology

1st Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
I	CHT101	Process Modelling and Simulation	3	1	-	4	30	70	100
II	PHT102	Advanced Pharmaceuticals Analysis	3	1	-	4	30	70	100
III	PHT103	Medicinal Chemistry	3	1	-	4	30	70	100
Practical									
IV	CHT104	Computer Application in Chemical Industries	-	-	8	4	60	40	100
V	PHT105	Pharmaceutical Analysis and Quality Assurance	-	-	8	4	60	40	100
		Total	9	3	16	20	310	290	500

2nd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
Theory									
VI	CHT201	Optimization	3	1	-	4	30	70	100
VII	PHT202	Pharmaceutical Biotechnology	3	1	-	4	30	70	100
VIII	PHT203	Pharmaceuticals and Cosmetics Process Technology	3	1	-	4	30	70	100
IX	PHT204	Industrial Management and Regulatory Affairs	3	1	-	4	30	70	100
Practical									
X	PHT205	Pharmaceutical Technology Laboratory	-	-	8	4	60	40	100
		Total	12	4	8	20	180	320	500



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

3rd Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XI	CHT301	Research Methodology	-	2	-	2	15	35	50
XII	PHT302	a. Project Feasibility – Report	-	2	8	6	90	60	150
		b. Project Feasibility – Viva Voce	-	-	-	4	-	100	100
XIII	PHT303	Mini Project with seminar	-	4	-	4	-	100	100
XIV	PHT304	Thesis: Foundation	-	-	-	4	-	100	100
		Total	-	8	8	20	105	405	500

4th Semester:

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	UE	TM
XV	PHT401	a. Thesis: Final-Report	-	4	16	12	-	-	300
		b. Thesis: Final-Viva Voce	-	-	-	4	-	100	100
XVI	PHT402	General Viva Voce	-	-	-	4	-	100	100
		Total	-	4	16	20	-	500	500



Course Structure for M. Tech. Course in Textile Technology (Technical Textiles)

1st Semester

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	ESE	TM
Theory									
I	MT511	Industrial Polymers and High Performance Fibres	3	1	-	4	30	70	100
II	MT512	Advances in Spinning & Technical Yarns	3	1	-	4	30	70	100
III	MT-513	Advances in Weaving & Technical Fabrics	3	1	-	4	30	70	100
Practical									
IV	MT514	Manufacturing of Technical Yarns & their Testing	-	-	8	4	60	40	100
V	MT515	Manufacturing of Technical Fabrics & their Testing	-	-	8	4	60	40	100
		Total	9	3	16	20	210	290	500

2nd Semester

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	ESE	TM
Theory									
I	MT521	Coating, Lamination and Composites	3	1	-	4	30	70	100
II	MT522	Knitting and Non-woven Technology	3	1	-	4	30	70	100
III	MT523	Technical Textiles – I	3	1	-	4	30	70	100
Practical									
IV	MT524	Manufacturing of Coated/Laminated Textiles & Composites & their testing	-	-	8	4	60	40	100
V	MT525	Testing and Analysis of Polymers, Fibres, Composites and Technical Textiles.	-	-	8	4	60	40	100
		Total	9	3	16	20	210	290	500

3rd Semester

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	ESE	TM
Theory									
I	MT611	Clothing Science and Advances in Chemical Processing	3	1	-	4	30	70	100



Regulations for 2-Year 4-Semester M.Tech. Course (2024 – 2025)

II	MT612	Technical Textiles – II	3	1	-	4	30	70	100
Practical									
III	MT613	Chemical Processing & Functional Finishing	-	-	8	4	60	40	100
IV	MT614	Minor Project Work with Seminar	-	-	16	8	-	200	200
		Total	6	2	24	20	120	380	500

4th Semester

Paper No	Sub Code	Subject	Periods			Cr	Marks		
			L	T	P		IA	ESE	TM
I	MT621	Major Project Work (Thesis)							
		a. Thesis: Final-Report	-	4	16	8	-	200	200
		b. Thesis: Final-Viva Voce	-	-	-	8	-	200	200
II	MT622	Comprehensive Viva-Voce	-	-	-	4	-	100	100
		Total	-	4	16	20	-	500	500