

DEPARTMENT OF ELECTRONIC SCIENCE

Item for the Academic Council

Change in the Ordinance of M.Tech.(Microwave Electronics) with respect to the scheme of examination for students admitted in July 2019 and thereafter.

For students admitted in and after July 2019, in the M.Tech.(Microwave Electronics) course will come under new ordinance scheme where scheme of examination is aligned with other science courses in the University. The rest of the syllabus and admission criteria will remain the same.

This modification will hold for students admitted after July 2019.

BACKGROUND INFORMATION

In the M.Tech. (Microwave Electronics) program, we had the promotion criteria as follows:

A student will be promoted to the second semester provided he/she has not failed in more than two theory papers and has obtained not less than 50% marks in the aggregate of theory and practicals taken together.

The student will have to essentially repeat (ER) and pass in those papers in which he/she has failed. However, the student has to appear in the carried over papers only along with the regular students of the respective semesters in the course of reading which is prescribed for the fresh students, i.e., odd semester papers in odd semesters (I/III) and even semester papers in even semesters (II/IV).

A student will be promoted to the third Semester provided he/she has not failed in more than a total of two theory papers, inclusive of Semester I and Semester II, and has obtained not less than 50% marks in the aggregate of theory and practicals taken together in the Semester II examination. The student cannot carryover more than two papers for essential repeat at any stage.

In this criteria, the failure rate is high and failed student's admitted as a regular student with the fresh batch. To avoid this we have modified the scheme of examination to aligned with other science courses in the University.

The Committee of Courses of the Department in its meeting held on 04.06.2019 approved the new scheme of examination.

PROPOSED SCHEME OF EXAMINATION

1. English shall be the medium of instruction and examination.
2. Examinations shall be conducted at the end of each Semester as per the Academic Calendar notified by the University of Delhi.
3. The system of evaluation shall be as follows
 - 3.1 Each theory paper will carry 100 marks out of which 20 marks shall be reserved for internal assessment based on test, seminar and assignments and 5 marks for attendance as per University guidelines. In the case of a student who repeats one or more theory papers, the internal assessment marks will be carried forward. The duration of written examination for each paper shall be three hours.
 - 3.2 Examinations for practicals for each semester 1 and 2 will comprise of 100 marks. Practical examination for each semester 1 and 2 would be for 6 hours duration.
 - 3.3 Examinations for practicals for third semester will comprise of 200 marks. Practical examination for third semester would be for 6 hours duration.
 - 3.4 Students will be required to work on the major project in Semester IV. The project can be carried out either completely in the Department or in collaboration with some Industry or an R & D Organization. In the later case, collaboration is to be established by the individual project supervisor.

On completion of the project work, the candidate will submit a dissertation and appear in a viva-voce examination. Total marks for dissertation shall be 400. The minimum marks required to pass the fourth Semester shall be 50% in project. A candidate, who fails in the Semester IV Examination, will be required to repeat the Project. However, he/she may be allowed to complete it in the span period.
4. Examinations for courses shall be conducted only in the respective odd and even Semesters as per the Scheme of Examination. Regular as well as Ex- Students shall be permitted to appear/reappear in courses of odd semesters only at the end of odd semesters and for even semester with the even. There will be no scope of improvement or revaluation.

PASS PERCENTAGE AND PROMOTION CRITERIA

- (a) The minimum marks required to pass any paper in a semester shall be 40% in theory and 40% in Practical, wherever applicable. The student must secure 40% in the End semester Examination (30/75) and 40% in the total of End Semester Examination & Internal Assessment of the paper in each theory paper.
- (b) No student will be detained in I or III Semester on the basis of his/her performance in I or III Semester examination; i.e. the student will be promoted automatically from I to II and III to IV semester.
- (c) A student shall be eligible for promotion from 1st year to 2nd year of the course provided he/she has passed 50% papers of I and II semester taken together. However, he/she will have to clear the remaining paper/s while studying in the 2nd year of the programme.
- (d) Students who do not fulfill the promotion criteria (c) above shall be declared fail in the Part concerned. However, they shall have the option to retain the marks in the papers in which they have secured Pass marks as per Clause (a) above.

- (e) A student who has to reappear in a paper prescribed for semester I/III may do so only in the odd semester examinations to be held in November / December. A student who has to reappear in a paper prescribed for Semester II/IV may do so only in the even Semester examinations to be held in April / May.
- (f) A student who reappears in a paper shall carry forward the internal assessment marks, originally awarded and the result will be prepared on the basis of candidate's current performance in the examination.
- (g) A student who fails in any semester's practical examination will be declared fail in that semester and will have to later re-admission in the concerned semester in the span period only.

DIVISION CRITERIA

Successful candidates will be classified on the basis of the combined results of Part I and Part II examinations as follows:

Candidates securing 60% and above	:	1 st Division
Candidates securing 50% and above but less than 60%	:	2 nd Division
Candidates securing 40% and above but less than 50%	:	3 rd Division

SPAN PERIOD

No student shall be admitted as a candidate for the examination for any of the Parts/Semesters after the lapse of **four years** from the date of admission to the Part I/Semester 1 of the M.Tech. program.

ATTENDANCE REQUIREMENT

No student shall be considered to have pursued a regular course of study and be eligible to take examination unless he/she has attended $2/3^{\text{rd}}$ of the total number of lectures and practicals conducted in each semester, during his/her course of study.

NOTE:

- a) The promotion/passing/attendance/other rules are subject to change from time to time by the University, and the rules prevailing at that time will be applicable.
- b) Scholarship will be discontinued if the student fails to score at least 60% marks in any examination.
- c) Subject to the statutes and ordinance of the University, M.Tech. Course student shall remain under the control and discipline of the Head, Department of Electronic Science.

PROGRAMME STRUCTURE

Part I: Semester I

1.1	Electromagnetic Theory and Transmission Lines	100
1.2	Microwave and MM-Wave Planar Transmission Lines	100
1.3	Microwave Measurement Techniques and Industrial Microwaves	100
1.4	Microwave Devices	100
1.5	Microwave Measurements Laboratory	100
	TOTAL	500

Part I : Semester II

2.1	Microwave Passive Components	100
2.2	Antenna Theory and Techniques	100
2.3	Communication Theory and Wave Propagation	100
2.4	Computational Electromagnetics	100
2.5	Computational Laboratory	100
	TOTAL	500

Part II : Semester III

3.1	Microwave Active Circuits	100
3.2	Communication Systems	100
3.3	Microwave Integrated Circuits (CAD, Fabrication and Measurements)	200
	TOTAL	400

Part II : Semester IV

4.1	Major Project (six months duration)	400
	TOTAL (FOUR SEMESTERS)	1800

OLD SCHEME OF EXAMINATION

Examinations

There shall be following four Semester Examinations in the course:

Semester I Examination: On completion of the course of study for the period prescribed therein in November/December of first year of the course.

A student will be promoted to the second semester provided he/she has not failed in more than two theory papers and has obtained not less than 50% marks in the aggregate of theory and practicals taken together.

The student will have to essentially repeat (ER) and pass in those papers in which he/she has failed. However, the student has to appear in the carried over papers only along with the regular students of the respective semesters in the course of reading which is prescribed for the fresh students, i.e., odd semester papers in odd semesters (I/III) and even semester papers in even semesters (II/IV).

Semester II Examination: On completion of the course of study for the period prescribed therein in April/May of the first year of the course.

A student will be promoted to the third Semester provided he/she has not failed in more than a total of two theory papers, inclusive of Semester I and Semester II, and has obtained not less than 50% marks in the aggregate of theory and practicals taken together in the Semester II examination.

The student cannot carryover more than two papers for essential repeat at any stage.

Semester III Examination: On completion of the course of study for the period prescribed therein in November/December of the second year of the course.

A student will be promoted to the fourth Semester provided he/she has not failed in more than a total of two theory papers, inclusive of Semester I, Semester II and Semester III, and has obtained not less than 50% marks in the aggregate of theory and practicals taken together in the Semester III examination. The student cannot carryover more than two papers for essential repeat at any stage.

Semester IV Examination: At the end of the fourth semester in the month of July. The minimum marks required to pass the fourth Semester shall be 50% in project.

IMPORTANT

A. A student can appear in any theory paper only twice, i.e., once in the original attempt and once in a repeat attempt.

B. The minimum marks required to pass each theory paper shall be 40% in the University Semester Examination (30/75) and 40% in the total of the University Semester Examination and the Internal Assessment taken together.

NOTE

Out of 100 marks in each theory paper, 20 marks will be reserved for sessionals (internal assessment) and 5 marks will be reserved for attendance as per University guidelines. Each theory paper shall be of three hours duration.

Each practical paper shall be of six hours duration in one day and shall carry 100 marks out of which 40 marks shall be reserved for laboratory record and 5 marks for attendance in the practical classes. Students will be required to work on the major project in Semester IV. The project can be carried out either completely in the Department or in collaboration with some Industry or an R & D Organization. In the later case, collaboration is to be established by the individual project supervisor. On completion of the project work, the candidate will submit a dissertation and appear in a viva-voce examination.

Classification of Successful Candidates

At the end of final examination, the successful candidates shall be classified on the basis mark obtained in the I, II, III and IV semester examinations taken together as follows:

First Division with distinction: 75% or more marks in the aggregate.

First Division: 60% or more marks but less than 75% marks in the aggregate.

Second Division: All others.

If a student fails in any paper, he/she will not be eligible for a merit position.

Miscellaneous

- a) The calendar for the academic year will be framed and declared at the beginning of the session.
- b) Scholarship will be discontinued if the student fails to score at least 60% marks in any examination.
- c) The span period for the M.Tech Degree will be four years.
- d) A candidate who fails in the I, II or III Semester Examination will be required to repeat that part of the course as a regular student only.
- e) There will be no provision of an ex-student.
- f) In the case of a student who repeats one or more theory papers, the internal assessment marks will be carried forward.
- g) A candidate, who fails in the Semester IV Examination, will be required to repeat the Project. However, he/she may be allowed to complete it in next six months. Such a candidate will be examined in January of that year.
- h) There will be no scope of improvement or revaluation.
- i) The medium of instruction and examination shall be English.
- j) Subject to the statutes and ordinance of the University, M.Tech. Course student shall remain under the control and discipline of the Head, Department of Electronic Science.

