



# **SYLLABUS**

FOR

## **DIPLOMA IN MECHANICAL ENGINEERING (FULL TIME, PART-TIME & SANDWICH)**

[DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY]

### **N-20 SCHEME**

IMPLEMENTED FROM 2020-2021



**TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE  
(AUTONOMOUS)**

**MADURAI-625011**

**TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (Autonomous)  
MADURAI- 11**

**N-20 SCHEME**

(Implemented from the Academic Year 2021 - 2022 onwards)

**CHAIRPERSON**

**Tmt. J. VIJAYA**

Principal

Tamilnadu Government Polytechnic College, Madurai-11

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MADURAI- 11**

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**TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE (AUTONOMOUS), MADURAI - 11**  
**DIPLOMA COURSES IN ENGINEERING/TECHNOLOGY**  
(SEMESTER SYSTEM)

**N-20 SCHEME**  
(Implemented from 2020 - 2021)

**REGULATIONS\***

**1. Description of the Course:**

**a. Full Time (3 years)**

The Course for the Full Time Diploma in Engineering shall extend over a period of three academic years, consisting of 6 semesters\* and the First Year is common to all Engineering Branches.

**b. Sandwich (3½ years)**

The Course for the Sandwich Diploma in Engineering shall extend over a period of three and half academic years, consisting of 7 semesters\* and the First Year is common to all Engineering Branches. The subjects of three years full time diploma course being regrouped for academic convenience.

During 4<sup>th</sup> and/or during 7<sup>th</sup> semester the students undergo industrial training for six months / one year. Industrial training examination will be conducted after completion of every 6 months of industrial training.

**c. Part Time (4 years)**

The course for the Part Time Diploma in Engineering shall extend over a period of 4 academic years containing of 8 semesters\*. The subjects of 3 years full time diploma courses being regrouped for academic convenience.

**\* Each Semester will have 16 weeks duration of study with 35 hrs. / Week for Regular Diploma Courses and 18 hrs. / Week for Part Time Diploma Courses.**

## 2. Conditions for Admission:

Condition for admission to the Diploma courses shall be required to have passed in The S.S.L.C Examination of the Board of Secondary Education, Tamil Nadu.

(Or)

The Anglo Indian High School Examination with eligibility for Higher Secondary Course in Tamil Nadu.

(Or)

The Matriculation Examination of Tamil Nadu.

(Or)

Any other Examinations recognized as equivalent to the above by the Board of Secondary Education, Tamil Nadu.

Note: In addition, at the time of admission the candidate will have to satisfy certain minimum requirements, which may be prescribed from time to time.

## 3. Admission to Second year (Lateral Entry):

A pass in HSC (academic) or (vocational) courses mentioned in the Higher Secondary Schools in Tamil Nadu affiliated to the Tamil Nadu Higher Secondary Board with eligibility for University Courses of study or equivalent examination & Should have studied the following subjects.

A pass in 2 Years ITI with appropriate Trade or Equivalent examination.

Sl. No	Courses	H.Sc Academic	H.Sc Vocational		Industrial Training Institutes Courses
		Subjects Studied	Subjects Studied		
			Related subjects	Vocational subjects	
1	All the Regular and Sandwich Diploma Courses	Physics and Chemistry as compulsory along with Mathematics / Biology	Maths / Physics / Chemistry	Related Vocational Subjects Theory & Practical	2 years course to be passed with appropriate Trade

- For the Diploma Courses related with Engineering/Technology, the related/equivalent subjects prescribed along with Practicals may also be taken for arriving the eligibility.
- Branch will be allotted according to merit through counseling by the respective Principal as per communal reservation.

- **Age Limit:** No Age limit.

- **Medium of Instruction:** English

- **Eligibility for the Award of Diploma:**

No candidate shall be eligible for the Diploma unless he/she has undergone the prescribed course of study for a period of not less than 3 academic years in any institution affiliated to the State Board of Technical Education and Training, Tamil Nadu, when joined in First Year and two years if joined under Lateral Entry scheme in the second year and passed the prescribed examination.

The minimum and maximum period for completion of Diploma Courses are as given below:

<b>Diploma Course</b>	<b>Minimum Period</b>	<b>Maximum Period</b>
Full Time	3 Years	6 Years
Full Time (Lateral Entry)	2 Years	5 Years
Sandwich	3½ Years	6½ Years
Part Time	4 Years	7 Years

This will come into effect from N-20 Scheme onwards i.e. from the academic year 2020-2021.

- **Subjects of Study and Curriculum outline:**

The subjects of study shall be in accordance with the syllabus prescribed from time to time, both in theory and practical subjects.

The curriculum outline is given in Annexure – I.

#### **4. Examinations:**

Autonomous Examinations in all subjects of all the semesters under the scheme of examinations will be conducted at the end of each semester.

The internal assessment marks for all the subjects will be awarded on the basis of continuous internal assessment earned during the semester concerned. For each subject 25 marks are allotted for internal assessment. Autonomous Examinations are conducted for 100 marks and reduced to 75.

The total marks for result are 75 + 25 = 100 Marks.

## 5. Continuous Internal Assessment:

### A. For Theory Subjects:

The Internal Assessment marks for a total of 25 marks, which are to be distributed as follows:

#### **i) Subject Attendance**

**5 Marks**

(Award of marks for subject attendance to each subject Theory/Practical will be as per the range given below)

80%	-	83%	1 Mark
84%	-	87%	2 Marks
88%	-	91%	3 Marks
92%	-	95%	4 Marks
96%	-	100%	5 Marks

#### **ii) Test #**

**10 Marks**

2 Tests each of 2 hours duration for a total of 50 marks are to be conducted. Average of these two test marks will be taken and the marks to be reduced to: 5 Marks

The Test-III is to be the Model Examination covering all the five units and the marks obtained will be reduced to:

**5 Marks**

TEST	UNITS	WHEN TO CONDUCT	MARKS	DURATION
Test I	Unit _ I & II	End of 6 <sup>th</sup> week	50	2 Hrs
Test II	Unit _ III & IV	End of 12 <sup>th</sup> week	50	2 Hrs
Test III	Model Examination: Covering all the Units. (Autonomous Examinations- question paper-pattern).	End of 16 <sup>th</sup> week	100	3 Hrs

# From the Academic Year 2020–2021 onwards.

Question Paper Pattern for the Test - I and Test — II is as follows. The tests should be conducted by proper schedule. Retest marks should not be considered for internal assessment.

#### **Without Choice:**

Part A Type questions:	6 Questions x 1 mark	06 Marks
Part B Type questions:	7 Questions x 2 marks	14 Marks
Part C Type questions:	2 Questions x 15 marks	30 Marks

**Total**

**50 Marks**

**iii) Assignment**

**5 Marks**

For each subject Three Assignments are to be given each for 20 marks and the average marks scored should be reduced for 5 marks.

**iv) Seminar Presentation**

**5 Marks**

The students have to select the topics either from their subjects or general subjects which will help to improve their grasping capacity as well as their capacity to express the subject in hand. The students will be allowed to prepare the material for the given topic using the library hour and they will be permitted to present seminar (For First and Second Year, the students will be permitted to present the seminar as a group not exceeding six members and each member of the group should participate in the presentation. For the Third Year, the students should present the seminar individually.) The seminar presentation is mandatory for all theory subjects and carries 5 marks for each theory subject. The respective subject faculty may suggest topics to the students and will evaluate the submitted materials and seminar presentation. (2½ marks for the material submitted in writing and 2½ marks for the seminar presentation). For each subject minimum of two seminars are to be given and the average marks scored should be reduced to 5 marks.

All Test Papers, Assignment Papers / Notebooks and the seminar presentation written material after getting the signature with date from the students must be kept in safe custody in the department for verification and audit. It should be preserved for one semester after publication of Autonomous Exam results and produced to the flying squad and the inspection team at the time of inspection/verification.

**B. For Practical Subjects:**

The Internal Assessment mark for a total of 25 marks which are to be distributed as follows:-

- |  |   |
|--|---|
| a) Attendance  | : 5 Marks (Award of marks as theory subjects) |
| b) Procedure/ observation and<br>tabulation/ Other Practical<br>related Work | : 10 Marks                                    |
| c) Record writing  | : 10 Marks                                    |
| <b>TOTAL</b>   | <b>: 25 Marks</b>                             |

- All the Experiments/Exercises indicated in the syllabus should be completed and the



same to be given for final Autonomous examination.

- The observation note book / manual should be maintained for 10 marks. The observation note book / manual with sketches, circuits, programme, reading and calculation written by the students manually depends upon the practical subject during practical classes should be evaluated properly during the practical class hours with date.
- The Record work for every completed exercise should be submitted in the subsequent practical classes and marks should be awarded for 10 marks for each exercise as per the above allocation.

At the end of the Semester, the average marks of all the exercises should be calculated for 20 marks (including Observation and Record writing) and the marks awarded for attendance is to be added to arrive at the internal assessment mark for Practical. (20+5=25 marks).

- Only regular students, appearing first time have to submit the duly signed bonafide record note book/file during the Practical Autonomous Examinations.

*All the marks awarded for Assignments, Tests, Seminar presentation and Attendance should be entered periodically in the Personal Theory Log Book of the staff, who is handling the theory subject.*

*The marks awarded for Observation, Record work and Attendance should be entered periodically in the Personal Practical Log Book of the staff, who is handling the practical subject.*

## **6. Communication Skill Practical, Computer Application Practical and Physical Education:**

The Communication Skill Practical and Computer Application Practical with more emphasis are being introduced in First Year. Much Stress is given to increase the Communication skill and ICT skill of students.

As per the recommendation of MHRD and under Fit India scheme, the Physical education is introduced to encourage students to remain healthy and fit by including physical activities and sports.

## **7. Project Work and Internship:**

The students of all the Diploma Courses have to do a Project Work as part of the Curriculum and in partial fulfillment for the award of Diploma by the State Board of Technical Education and Training, Tamil Nadu. In order to encourage students to do worthwhile and innovative projects, every year prizes are awarded for the best three projects i.e. institution wise, region wise and state wise. **The Project work must be reviewed twice in the same semester. The project work is approved during the V semester by the properly constituted committee with guidelines.**

**a) Internal assessment mark for Project Work & Internship:**

Project Review 1	:10 marks
Project Review II	: 10 marks
Attendance	: 05 marks (Award of marks same as theory subject pattern)

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**TOTAL : 25 Marks**

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Proper record should be maintained for the two Project Reviews and preserved for one semester after the publication of Autonomous Exams results. It should be produced to the flying squad and the inspection team at the time of inspection/verification.

**b) Allocation of Marks for Project Work & Internship in Autonomous Examinations:**

Demonstration/Presentation/Viva voce	:25 marks
Report	:25 marks
Writtent test	:30 marks
Internship Report	:20 marks

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**TOTAL : 100\* marks**

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\*Examination will be conducted for 100 marks and will be converted to 75 marks.

**c) Internship Report:**

The internship training for a period of two weeks shall be undergone by every candidate at the end of IV / V semester during vacation. The certificate shall be produced along with the internship report for evaluation. The evaluation of internship training shall be done along with final year "Project Work & Internship" for 20 marks. The internship shall be undertaken in any industry / Government or Private certified agencies which are in social sector / Govt. Skill Centres / Institutions / Schemes.

**A neatly prepared PROJECT REPORT as per the format has to be submitted by individual student during the Project Work & Internship Autonomous examination.**

## 8. Scheme of Examinations:

The Scheme of examinations for subjects is given in Annexure - II.

## 9. Criteria for Pass:

1. No candidate shall be eligible for the award of Diploma unless he/she has undergone the prescribed course of study successfully in an institution approved by AICTE and affiliated to the State Board of Technical Education & Training, Tamil Nadu and pass all the subjects prescribed in the curriculum.
2. A candidate shall be declared to have passed the examination in a subject if he/she secures not less than 40% in Theory subjects and 50% in practical subjects out of the total prescribed maximum marks including both the Internal Assessment and the Autonomous Examinations marks put together, subject to the condition that he/she secures at least a minimum of 40 marks out of 100 marks in the Autonomous Theory Examinations and a minimum of 50 marks out of 100 marks in the Autonomous Practical Examinations.

## 10. Classification of successful candidates:

Classification of candidates who will pass out the final examinations from April 2023 onwards (Joined first year in 2020 -2021) will be done as specified below.

### **First Class with Superlative Distinction:**

A candidate will be declared to have passed in **First Class with Superlative Distinction** if he/she secures not less than 75% of the marks in all the subjects and passes all the semesters in the first appearance itself and passes all subjects within the stipulated period of study 2 / 3 / 3½ / 4 years [Full time(lateral entry)/Full Time/Sandwich/Part Time] without any break in study.

### **First Class with Distinction:**

A candidate will be declared to have passed in **First Class with Distinction** if he/she secures not less than 75% of the aggregate marks in all the semesters put together and passes all the semesters except the I and II semester in the first appearance itself and passes all subjects within the stipulated period of study 2 / 3 / 3½ / 4 years [Full time(lateral entry)/Full Time/Sandwich/Part Time] without any break in study.

**First Class:**

A candidate will be declared to have passed in **First Class** if he/she secures not less than 60% of the aggregate marks in all the semesters put together and passes all the subjects within the stipulated period of study 2 / 3 / 3½ / 4 years [Full time(lateral entry)/Full Time/Sandwich/Part Time] without any break in study.

**Second Class:**

All other successful candidates will be declared to have passed in Second Class.

The above classifications are also applicable for the Sandwich / Part-Time students who pass out Final Examination from October 2023 /April 2024 onwards (both joined First Year in 2020 -2021)

11. **Duration of a period in the Class Time Table:**

The duration of each period of instruction is 1 hour and the total period of instruction hours excluding interval and lunch break in a day should be uniformly maintained as 7 hours corresponding to 7 periods of instruction (Theory & Practical).

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