**ANNEXURE – I**

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TAMILNADU**

**DIPLOMA IN ENGINEERING / TECHNOLOGY SYLLABUS**

**N - SCHEME**

(Implements from the Academic year 2019-2020 onwards)

Course Name : All branches of Diploma in Engineering and Technology and Special

Programmes except DMOP, HMCT and film & TV.

Subject Code : 40022

Semester : II Semester

Subject Title : **APPLIED MATHEMATICS**

**TEACHING AND SCHEME OF EXAMINATION**

Number of weeks per semester: 15 weeks

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| --- | --- | --- | --- | --- | --- | --- |
| Subject | Instructions | | Examination | | | |
| APPLIED MATHEMATICS | Hours / Week | Hours / Semester | Marks | | | Duration |
| 6 Hrs. | 90 Hrs. | Internal Assessment | Board Examination | Total |
| 25 | 100 \* | 100 | 3 Hrs. |

\* Examination will be conducted for 100 Marks and it will be reduced to 75 Marks.

**Topics and Allocation of Hours:**

|  |  |  |
| --- | --- | --- |
| **UNIT** | **Topic** | **Time** |
| 1 | Application of Vectors | 16 Hrs. |
| 2 | Probability Distribution | 16 Hrs. |
| 3 | Application of Differentiation | 15 Hrs. |
| 4 | Application of Integration | 17 Hrs. |
| 5 | Differential Equations | 16 Hrs. |
|  | REVISION, ASSESMENT TEST AND MODEL EXAM | 10 Hrs. |
|  | **Total** | **90 Hrs** |

**40022 APPLIED MATHEMATICS**

**DETAILED SYLLABUS**

**Contents: Theory**

|  |  |  |
| --- | --- | --- |
| UNIT | *NAME OF TOPICS* | Time |
| I | *APPLICATION OF VECTOR*  1.1 APPLICATION OF SCALAR AND VECTOR PRODUCT OF TWO VECTORS: Definition of Work done by force, moment of a force. Simple Problems.  1.2 PRODUCT OF THREE VECTORS: Definition of scalar product of three vectors – Geometrical meaning - Coplanar vectors. Simple Problems. Definition of vector product of three vectors. Simple Problems.  1.3 PRODUCT OF FOUR VECTORS: Definition of Scalar and Vector Product of Four Vectors. Simple Problems. | 6 Hrs.  5 Hrs.  5 Hrs. |
| II | PROBABILITY DISTRIBUTION  2.1 RANDOM VARIABLE: Definition of Random Variable – Types – Probability mass function – Probability density function. Simple Problems.  2.2 MATHEMATICAL EXPECTATION: Mathematical Expectation of discrete random variable, mean and variance. Simple Problems.  2.3 BINOMIAL AND POISSION DISRTIBUTION: Definition of Binomial and Poission distribution. where x=0,1,2.. Statement only – Expressions of Mean and variance - Simple problems. | 5 Hrs.  6 Hrs.  5 Hrs. |
| III | APPLICATION DIFFERENTIATION  3.1 VELOCITY AND ACCELERATION: Definition of Velocity and Acceleration – Simple Problems.  3.2 TANGENT AND NORMAL: Definition of Tangent and Normal – Simple Problems.  3.3 MAXIMA AND MINIMA: Definition of increasing and decreasing functions and turning points. Maxima and Minima of single variable only – Simple Problems. | 5 Hrs.  5 Hrs.  5 Hrs. |
| IV | APPLICATION OF INTEGRATION  4.1 INTEGRATION BY PARTS: Integrals of the forms: . Simple problems.  4.2 BERNOULLI’S FORMULA: Evaluation of the integrals and where m≤2 - Simple problems.  4.3 DEFINITE INTEGRALS: Definition of definite integrals. Properties of definite integral. Area of a circle and Volume of a sphere and cone – Simple problems. | 5 Hrs.  6 Hrs.  6 Hrs. |
| V | *DIFFERENTIAL EQUATIONS*  5.1 FIRST ORDER DIFFERENTIAL EQUATION: Solution of first order variable separable type differential equation. Simple problems.  5.2 SECOND ORDER DIFFERENTIAL EQUATION – I: Solution of second order differential equation with constant co-efficient in the form a+b+cy=0 where a, b and c are constants. Simple problems.  5.3 SECOND ORDER DIFFERENTIAL EQUTION – II: Solution of second order differential equation with constant co-efficient in the form a+b+cy=f(x) where a, b and c are constants f(x)= k. Simple problems. | 5 Hrs.  6 Hrs.  5 Hrs. |