



**Government Degree College, Rangasaipet,
Warangal District
Department of Physical Sciences**



Department of Physics is seeking permission to introduce a certificate Course on “Essential Mathematics for Undergraduate Physics students” in this regard this department request you to permit above said course for betterment of students.

B. Rajesulu

[Signature]
Principal
GOVERNMENT DEGREE COLLEGE
WARANGAL (Rangasaipet)



**Government Degree College, Rangasaipet,
Warangal District
Department of Physical Sciences**



Department of Physics received permission to introduce a certificate Course on “Essential Mathematics for Undergraduate Physics students”.

So, all the I, II and III year students of Physical science are hereby informed to enroll in the above said course and make utilize it for career advancement.

B. Rajesulu

Principal
GOVERNMENT DEGREE COLLEGE
WARANGAL (Rangasaipet)



**Government Degree College, Rangasaipet,
Warangal District
Department of Physical Sciences**



the following students registered for the certificate Course on “Essential Mathematics for Undergraduate Physics students”.

1. K sai
2. Atikatakrim
3. Reshma
4. Nureen fathima
5. K.Bhavani
6. B. Rajkumar
7. G. Sailaja
8. Ruheena
9. A. Madhavi
10. K. Sriekha
11. G. Mounika
12. G. Sai Chaitanya

B. Rajkumar

B. Rajkumar
Principal
GOVERNMENT DEGREE COLLEGE
WARANGAL (Rangasaipet)



**Government Degree College, Rangasaipet,
Warangal District
Department of Physical Sciences**



The following students received certificate after passing the exam in “Essential Mathematics for Undergraduate Physics students”.

1. k sai
2. Atikatakrim
3. K.Bhavani
4. K. Sriekha
5. Ruheena
6. A. Madhavi
7. Nureen fathima

B. Rajesulu

B. Rajesulu
Principal
GOVERNMENT DEGREE COLLEGE
WARANGAL (Rangasaipet)

Syllabus for certificate course on “Essential Mathematics for Undergraduate Physics students”

Hours of teaching:30 Hr.

Unit -I. Vector Calculus

Definition of vector and scalar and some of its examples, notation of vector, vector representation in rectangular coordinate system, magnitude of a vector, addition of vectors, subtraction of vectors, geometrical representation of vector, multiplication of vectors: dot product and vector product.

Unit-II. Matrices

Definition Matrix, order of matrix, addition of matrix and subtraction of matrix, condition for multiplication of two matrices, multiplication of matrices, determinant of a matrix, inverse of a matrix, Transpose of a matrix, unitary matrices, complex conjugate of a matrix, Hermitian of matrix.

Unit-III Differentiation

Meaning of differentiation, fundamental formula of differentiation, some of standard forms of differentiation, differential equation, order of differential equation, some standard forms of differential equations, solution to differential equations.

Unit-IV Integration

Meaning of integration, relation between differentiation and integration, some of standard formulae of integration, integration techniques using complex numbers.

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WARANGAL (Rangasaipet)

CERTIFICATE


This is to certify that Mr./ Ms.

S/o, D/o Completed the course on

“Essential Mathematics for Undergraduate Physics students” and

secured% of marks.

B. Rajesulu


Principal
GOVERNMENT DEGREE COLLEGE
WARANGAL (Rangasipet)