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# CALCULUS AND LINEAR ALGEBRA

Mathematics Course for First Semester B.E.  
as per Choice Based Credit System (CBCS) of VTU



**Mrs. Bhagyalakshmi Adiga**

**Calculus and Linear Algebra**

(For VTU First Semester B.E. Course)

By **Bhagyalakshmi Karanth (Adiga)**, M.Sc., M. Tech. in Mathematics

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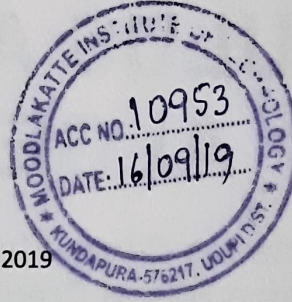
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# **CALCULUS AND LINEAR ALGEBRA**

**(As per New Syllabus of VTU w.e.f. 2018-19 for 1<sup>st</sup> Semester B.E.Course)**

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**Dedicated to**  
**GOD**  
**&**  
**My Beloved Family**  
**(Barkur Ramesh Adiga and Kaikere Sooryanarayana Karanth)**

**Brothers**  
**Mr. Naveen B.M.,**  
**Mr. Varun Kumar Bhat, Mr. Balanageshwara S.**

**Mrs. Pushpa Ramesh Sukthankar,**  
**(Retd. Professor of Mathematics, Sahyadri Science College, Shimoga)**

**and**

**Students**



## Preface

This book is prepared in accordance with latest syllabus prescribed by VTU under Choice Based Credit System (CBCS) Scheme for the First Semester B.E. Course.

This book is to familiarize with the important tools of Calculus and Linear Algebra that are essential for all the branches of Engineering.

In each module of this book, all concepts and definitions have been discussed in detail and also have been explained with suitable illustrative examples. Emphasis has been laid on basic terms, principles, equations and on their applications. Each module includes varieties of solved questions from old question papers of VTU till 2019. It is sincerely hoped that carefully selected examples consisting of detailed step-by-step solutions would help the students to prepare adequately for the examinations.

Every effort has been made to keep the book error free. In spite of this, if you come across any errors, I would be extremely thankful, if the same are brought to my notice through email to “bhagyakaranth@gmail.com”.

Suggestions for further improvement of the book will be gratefully acknowledged.

- Bhagyalakshmi Karanth(Adiga)