



### PREFACE

The present thesis entitled "ON CONVERGENCE AND SUMMABILITY OF GENERAL ORTHOGONAL SERIES" is the outcome of researches carried out by me since February, 1982.

It consists of six chapters.

Chapter I introduces various definitions, e.g., definition of orthogonal series, its properties and definitions of Lebesgue functions corresponding to different types of summation processes. A historical survey of the results connected with my investigations is also presented. Chapter II deals with the generalized Nörlund summability, Nörlund summability of orthogonal series and summability of  $\mu(n)$ -lacunary orthogonal series by Nörlund method. Chapter III consists of results on degree of approximation of Nörlund and Euler means to their generating functions.

Chapter IV is devoted to estimating the order of certain summability means. The order of Lebesgue functions corresponding to Euler and Riesz summation processes and the Euler and Riesz summability of orthogonal series corresponding to polynomial-like orthonormal system are the subject of chapter V. In the last chapter we have investigated the strong summability of orthogonal series by the Cesàro, Euler and Nörlund methods.

A fairly complete bibliography of the relevant available literature on the subject is given at the end.

A part of chapters II and IV is accepted for publication. The results of remaining chapters are communicated for publication.

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