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ON A GENERALIZED DURRMEYER OPERATORS

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1.

Durrmeyer [5] defined a new kind of modified Bernstein polynomial operators on $L_1[0,1]$, the space of Lebesgue integrable functions on [0,1], as :

$$(M_n f)(x) = (n+1)\sum_{k=0}^{n} \binom{n}{k} x^k (1-x)^{n-k} \int_0^1 \binom{n}{k} t^k (1-t)^{n-k} f(t)\, dt \quad (1)$$

The aim of this note is to present a general class of linear positive operators $(L_n)_{n\geq 1}$ of integral type. This construction contains as particular cases well-known operators introduced and studied during the time by many authors. We evaluate the order of approximation in terms of the moduli of smoothness ω, ω_2 , and indicate sufficient conditions which ensure the uniform convergence of the sequence. In the last section of this paper we apply our result to operators which represent a generalization of Stancu's operators. We mention that our estimation improves a previous result.