Let $f(x)$ be a continuous function with period $2\pi$ and $E_n$ be the set of equidistant nodal points situated in the interval $0 \leq x < 2\pi$, that is
\[
\xi_0 + 2\pi j/(2n + 1) \quad (j = 0, 1, \ldots, 2n), \quad (\text{mod. } 2\pi)
\]
where $\xi_0$ is any real number. Then the trigonometric polynomial of order $n$ coinciding with $f(x)$ on $E_n$ is
\[
I_n(x,f) = \frac{1}{2\pi} \int_0^{2\pi} f(t)D_n(x - t) \, d\omega_{2n+1}(t),
\]
where $D_n(x)$ is the Dirichlet kernel and $\omega_{2n+1}(t)$ is a step function which is associated with $E_n$. (We shall refer to A. Zygmund [4, Chap. X] these notations and fundamental properties of trigonometric interpolation.) We denote the Fourier expansions of (1) by
\[
I_n(x,f) = \sum_{k=-n}^{n} c_k^{(n)} e^{ikx}
\]
\[
c_k^{(n)} = \frac{1}{2\pi} \int_0^{2\pi} f(t)e^{-ikt} \, d\omega_{2n+1}(t).
\]
The $\{c_k^{(n)}\}$ are called the $k$-th Fourier-Lagrange coefficients and for a fixed $k$, $c_k^{(n)}$ is an approximate Riemann sum for the integral defining Fourier coefficient $c_k$ of $f(x)$, that is
\[
c_k = \frac{1}{2\pi} \int_0^{2\pi} f(t)e^{-ikt} \, dt.
\]
Let us denote the partial sums of (1) by
\[
I_{n,m}(x,f) = \sum_{k=-m}^{m} c_k^{(n)} e^{ikx} \quad (m \leq n),
\]
in particular
\[
I_n(x,f) = I_{n,n}(x,f).
\]