## LIST OF SYMBOLS

| | |
|---|---|
| $A_n$ | Constant coefficient |
| B | Constant coefficient |
| Bi | Biot number |
| C | Constant coefficient |
| $c$ | Specific heat, kJ/[kg.K] |
| $c_p$ | Constant pressure specific heat , kJ/[kg . K] |
| $F_0$ | Fourier number |
| $h$ | Convection heat transfer coefficient, W/[$m^2$.K] |
| $I_v$ | Modified Bessel function of the first kind of order $v$ |
| $J_v$ | Bessel function of the first kind of order $v$ |
| $k$ | Thermal conductivity, [W/m.K] |
| $L$ | Length;  half thickness of a plane wall |
| $Q$ | Total heat transfer, kJ |
| R | Function of dimensionless position $\bar{r}$ |
| $r_0$ | Radius, m |
| $\bar{r}$ | Dimensionless position for cylindrical and spherical coordinates |
| $t$ | Time, s |
| $T$ | Temperature, K |
| $X$ | Function of dimensionless position $\bar{x}$ |
| $\bar{x}$ | Dimensionless position for rectangular coordinates |
| U | Function of dimensionless position and dimensionless time for sphere |
| $Y_v$ | Bessel function of the second kind of order $v$ |

**Greek Letters**

| | |
|---|---|
| $\alpha$ | Thermal diffusivity, $[m^2/s]$ |
| $\lambda$ | Constant |
| $\mu$ | Dynamic viscosity, $[N.s]/m^2$ |
| $\Gamma$ | Function of dimensionless time |
| $\rho$ | Density, $kg/m^3$ |
| $\tau$ | Dimensionless time; Fourier number |
| $\theta$ | Dimensionless temperature |

**Coordinates**

| | |
|---|---|
| x, y, z | Rectangular Coordinates |
| r, $\theta$, z | Clindrical Coordinates |
| r, $\theta$, $\phi$ | Spherical Coordinates |

**Subscripts**

| | |
|---|---|
| c | Center |
| cond | Conduction |
| conv | Convection |
| cyl | Cylinder |
| *i* | initial |
| n | Number of series |
| sph | Sphere |
| $\infty$ | Ambient condition |