```
% Find the fourier series of a stair step function
N = 99;
n_vec = [-N:N];
T0 = 2;
Omega0 = pi;
% the Fourier series coefficients
Cn = zeros(size(n_vec));
% odd indexed component
Cn(1:2:end) = 2./(j*n_vec(1:2:end)*pi);
% even indexed component
Cn(2:2:end) = 0;
dt = 0.01;
t = [-3:dt:3];
xt = 0;
for m = 1:length(n_vec)
 xt = xt + Cn(m)*exp(j*n_vec(m)*Omega0*t);
end
```