Bibliography

The most popular books on the practical applications of Fourier theory are undoubtedly those of Champeney and Bracewell, and they cover the present ground more thoroughly and in much more detail than here. E. Oran Brigham, on the fast Fourier transform (FFT), is the classic work on the subjects dealt with in Chapter 9.

Of the more theoretical works, the 'bible' is Titchmarsh, but a more readable (and entertaining) work is Körner's. Whittaker's (not to be confused with the more prolific E. T. Whittaker) is a specialized work on interpolation, but that is a subject which is getting more and more important, especially in computer graphics.

Many writers on quantum mechanics, atomic physics and electronic engineering like to include an early chapter on Fourier theory. One or two (who shall be nameless) get it wrong! They confuse ω with ν or leave out a 2π when there should be one, or something like that. The specialist books, like those below, are much to be preferred.

Abramowitz, M. & Stegun, I. A. *Handbook of Mathematical Functions*. Dover, New York. 1965

A more up-to-date version of Jahnke & Emde, below.

Bracewell, R. N. *The Fourier Transform and its Applications*. McGraw–Hill, New York. 1965

This is one of the two most popular books on the subject. Similar in scope to this book, but more thorough and comprehensive.

Brigham, E. O. *The Fast Fourier Transform*. Prentice Hall, New York. 1974

The standard work on digital Fourier transforms and their implementation by various kinds of FFT program.

Champeney, D. C. *Fourier Transforms and Their Physical Applications*. Academic Press, London & New York. 1973

Like Bracewell, one of the two most popular books on practical Fourier transforming. Covers similar ground, but with some differences in detail.

Champeney, D. C. *A Handbook of Fourier Theorems*. Cambridge University Press, Cambridge. 1987

Herman, G. T. *Image Reconstruction from Projections*. Academic Press, London & New York. 1980

Includes details of Fourier methods (among others) for computerized tomography, including theory and applications.

Jahnke, E. & Emde, F. *Tables of Functions with Formulae and Curves*. Dover, New York. 1943

The classic work on the functions of mathematical physics, with diagrams, charts and tables of Bessel functions, Legendre polynomials, spherical harmonics etc.

Körner, T. W. *Fourier Analysis*. Cambridge University Press, Cambridge. 1988

One of the more thorough and entertaining works on analytic Fourier theory, but plenty of physical applications: expensive, but firmly recommended for serious students.

Titchmarsh, E. C. *An Introduction to the Theory of Fourier Integrals*. Clarendon Press, Oxford. 1962

The theorists' standard work on Fourier theory. Unnecessarily difficult for ordinary mortals, but needs consulting occasionally.

Watson, G. N. *A Treatise of the Theory of Bessel Functions*. Cambridge University Press, Cambridge. 1962

Another great theoretical classic: chiefly for consultation by people who have equations they can't solve, and which seem likely to involve Bessel functions.

Whittaker, J. M. *Interpolary Function Theory*. Cambridge University Press, Cambridge. 1935

A slim volume dealing with (among other things) the sampling theorem and problems of interpolating points between samples of band-limited curves.

Wolf, E. *Introduction to the Theory of Coherence and Polarization of Light*. Cambridge University Press, Cambridge. 2007

Gives more detail about material in Chapter 3, especially regarding coherence and the van Cittert–Zernike theorem.