Userdefined Parametrized Space Curves*

These exhibits allow to input userdefined explicitly parametrized space curves in three different ways:
1.) User Cartesian: The three Cartesian coordinate functions $x(t), y(t), z(t)$ can be entered (Of course t does not have to be arc length.)
2.) User Polar: The coordinate functions can be entered in spherical polar coordinates $r(t), \theta(t), \varphi(t)$. In particular, this allows to enter spherical curves. As usual:
$x = r \cdot \sin\theta \cdot \cos\varphi,\ y = r \cdot \sin\theta \cdot \sin\varphi,\ z = r \cdot \cos\theta.$
3.) User Cylindrical: The coordinate functions can be entered in cylindrical coordinates $r(t), \theta(t), z(t)$, with the usual convention $x = r \cdot \cos\theta,\ y = r \cdot \sin\theta,\ z = z.$
Since Cylinders are isometric to the plane, this allows to create space curves that are given on all the cylinders $r = const$ by the same intrinsic geodesic curvature data $\kappa_g(s)$.
H.K.

* This file is from the 3D-XplorMath project. Please see:
http://3D-XplorMath.org/