For convective-diffusive problems the following needs to be solved:
Boundary conditions for u,v and T are prescribed
Incompressible Navier-Stokes equations:
1. Continuity

$$\nabla \cdot \vec{u} = 0$$

2. Momentum

$$\frac{\partial \vec{u}}{\partial t} + \vec{u} \cdot \nabla u = -\nabla p + \nu \nabla^2 u.$$

I think these two equations have already been implemented in Sfepy Navier-Stokes equation sample.

This has to be coupled with the third equation:
Energy:

$$\frac{\partial T}{\partial t} + \vec{u} \cdot \nabla T = \alpha \nabla^2 T + SourceTerm$$

Currently it has to be done for steady state so partial differential with respect to time will disappear.

$$=> \vec{u} \cdot \nabla T - \nabla \cdot (\alpha \nabla T) = S$$

$$T = T_D \qquad in \qquad \Gamma_D$$

$$\alpha \frac{\partial T}{\partial n} = h \qquad in \qquad \Gamma_N$$

Premultiplication by a test function w

$$\int_\Omega w(\vec{u} \cdot \nabla T) d\Omega - \int_\Omega w \nabla \cdot (\alpha \nabla T) d\Omega = \int_\Omega w S d\Omega$$

After integrating by parts.
This equation in Weak form:

$$a(w, T) + c(w, T, \vec{u}) = (w, s) + (w, h)_{\Gamma_N}$$

where

$$a(w, T) = \int_\Omega \nabla w \cdot (\alpha \nabla T) d\Omega$$

$$c(w, T, \vec{u}) = \int_\Omega w(\vec{u} \cdot \nabla T) d\Omega$$

$$(w, s) = \int_{\Omega} wSd\Omega$$
$$(w, h)_{\Gamma_N} = \int_{\Gamma_N} whd\Gamma$$