Pseudo-Code for LDLT Updating
(m stands for the rank-m update; m=1 for our ME implementation)

```
Procedure { NewL NewD } = LDLTUP { L,D,omg,m } /* omg replaces D[1:m,1:m] */
  n=rows(L); n1-n-m; M1=Omg; D2[m+1:n,m+1:n]; B = zeros(n1,m);
  L22 = L[m+1:n,m+1:n]; z = (inv(L22))*L[m+1:n,1:m]; NewL=eye(n1);
  NewD = zeros(n1,n1);
  if n1<=m;
      newL = eye(n1); newD = z[1:n1,.]*omega*((z[1:n1,.])')+D2;
  else;
      for i(1,n1,m);
         if i+m-1<=n1;
            t = M1*((z[i:i+m-1,.])');
            NewD[i:i+m-1,i:i+m-1] = D2[i:i+m-1,i:i+m-1] +z[i:i+m-1,.]*t;
            Dinv = inv(NewD[i:i+m-1,i:i+m-1]); B[i:i+m-1,.]=((t*Dinv)');
            M1 = M1-t*Dinv*t';
            if i<n1-m+1;
               if i!=n1-m;
                  newL[i+m:i+2*m-1,1:i+m-1]=z[i+m:i+2*m-1,.]*((b[1:i+m-1,.])');
               elseif i==n1-m;
                  newL[i+m,1:i+m-1]=z[i+m,.]*((b[1:i+m-1,.])');
               endif;
            endif;
         elseif i==n1;
            t = M1*((z[i,.])'); NewD[i,i] = D2[i,i] +z[i,.]*t;
         endif;
      endfor;
  endif;
  return(L22*newL,newD);
```