```
% Initial values
zeta_val = 0.15;
wp_val = 30;
w1_val = 25;
w2_val = 35;
xp_val = 16.16;
xc_val = 10.77;

while true
    % Calculate wn
    wn_val = wp_val * (1 + zeta_val^2);

    % Calculate r1 and r2
    r1_val = w1_val / wn_val;
    r2_val = w2_val / wn_val;

    % Calculate xr and n
    xr_val = xp_val * (1 - zeta_val^2 / 2);
    n_val = xr_val / xc_val;

    % Calculate zeta1 and zeta2
    zeta1_val = (1 - r1_val^2) / (2 * sqrt(n_val^2 - r1_val^2));
    zeta2_val = (r2_val^2 - 1) / (2 * sqrt(n_val^2 - r2_val^2));

    % Calculate zeta_new
    zeta_new_val = (zeta1_val + zeta2_val) / 2;

    % Check if the condition is met
    if abs(zeta_val - zeta_new_val) < 0.0001
        break;
    end

    % Update zeta
    zeta_val = zeta_new_val;
end

disp(['Final zeta: ', num2str(zeta_val)])
```