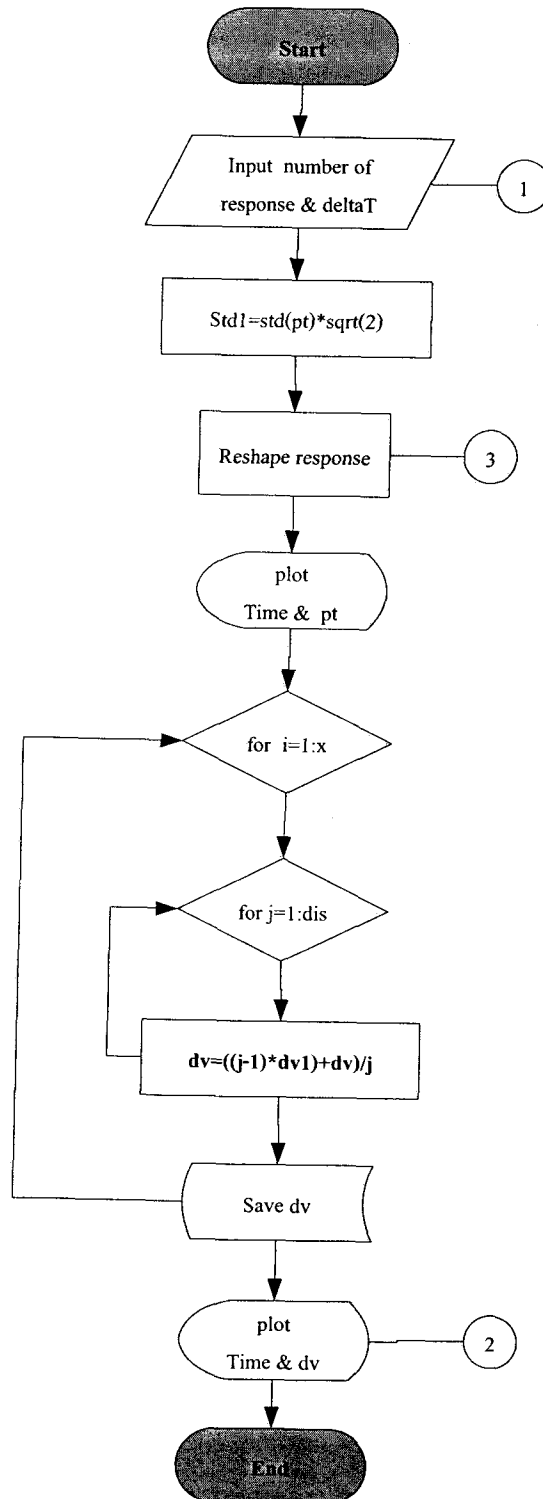


## ภาคผนวก ก.5

Flow chart โปรแกรมวิเคราะห์หาค่าผลการตอบสนองอิสระสำหรับวิธี Random decrement (Mrd.m)



โปรแกรมวิเคราะห์หาค่าผลการตอบสนองอิสระสำหรับวิธี Random decrement (Mrd.m)

```

clear;
x="";
x=inputdlg('How many is Raesponse','Input ');
x=str2double(x);

void=('Input Response');
pt=getfilevalue(void);
delt="";
delt=inputdlg('Delta of time','Input ');
delt=str2double(delt);

pt=pt(2:end);
%pt=reshape(pt,length(pt)/x,x);           %Simulate
pt=reshape(pt,x,length(pt)/x);           %project_junior
n=length(pt)-1;
t=0:delt:n*delt;

plot(t,pt),grid on;

vari=sqrt(2);
std1=std(pt)*vari;
fprintf('Standard diriveton = %10.10f\n',std1(1,1));
mean1=mean(pt);
pt=pt-(ones(size(pt))*diag(mean1));
figure(1);
for u=1:x
    subplot(x,1,u);
    plot(t,pt(:,u));grid,pause(1)
end

begin=input('Initial of data <Time,sec.> = ');
begin=begin/delt;
pt=pt(begin+1:end,:);
n=length(pt)-1;
t=0:delt:n*delt;
mean1=mean(pt);
pt=pt-(ones(size(pt))*diag(mean1));
figure(2);
for u=1:x
    subplot(x,1,u);
    plot(t,pt(:,u));grid,pause(1)
end

```

```

end

vari=sqrt(2);
%pt=(0.0176088195/std(pt(:,3))).*pt;
std1=std(pt)*vari;
for i=1:x
    fprintf('Standard diriveton = %10.10f \n',std1(1,i));
end
trigger=triggering(pt,std1);

%=====
period=10;                                %period of Random Decrement
%=====

dxx=zeros(1,size(pt,2));
lengthime=period/delt;
dxx=cell(x,1);
t=0:delt:period;
for i=1:x
    for dis=1:size(trigger,1)
        if trigger(dis,i)==0
            dis=dis-1;
            break
        end
    end
    while trigger(dis,i)+lengthime>=length(pt)
        dis=dis-1;
    end

    dv(1)=0;
    for j=1:dis
        dv=pt(trigger(j,i):trigger(j,i)+lengthime,:);
        if j==1
            dv1=dv;
        else
            dv1=((j-1)*dv1)+dv)/j;
        end
    end
    end
    dxx(i,1)={dv1};
end

for i=1:x
    figure(3+i);
    v=dxx{i,1};

```

```

    for u=1:x
        subplot(x,1,u);
        plot(t,v(:,u));
    end
end

y="";
y=inputdlg('Choose floor to save ','Input ');
y=str2double(y);
v=dxx{y,1};

if x==1
    check=1;
    for cout=2:length(v)-1
        if v(cout)>0 & v(cout+1)<v(cout) & v(cout-1)<v(cout)
            w1(check)=v(cout);
            counter(check)=cout;
            check=check+1;
            if check>=6
                break
            end
        end
    end
    end
    frequency=3/((counter(5)-counter(2))*delt);
    dampratio=log(w1(2)/w1(5))/(3*2*pi);
    fprintf('frequency = %10.3f \n',frequency);
    fprintf('dampratio = %10.3f \n\n',dampratio);

end
putfilevalue(v);
fclose('all');

```