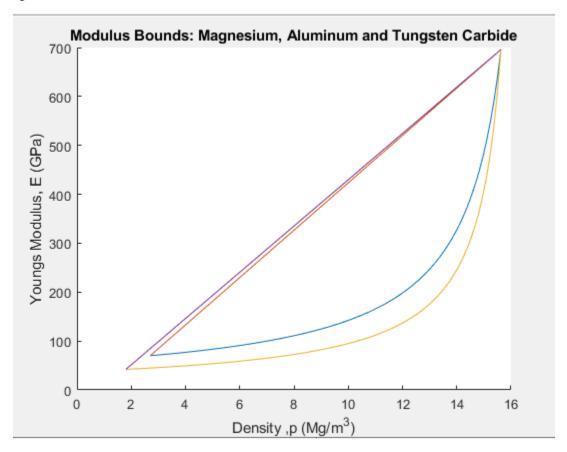
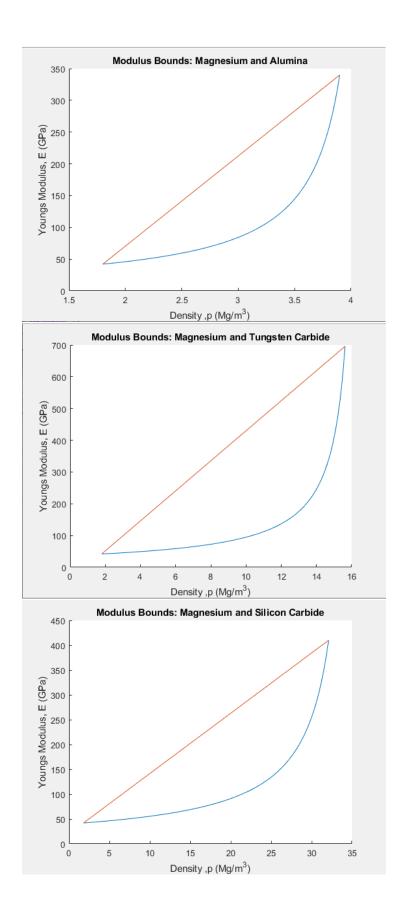
Assignment 1 Arjun Posarajah (1004881737)

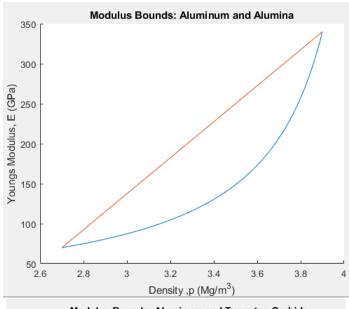
Question 2:

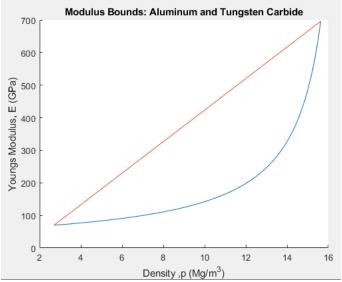


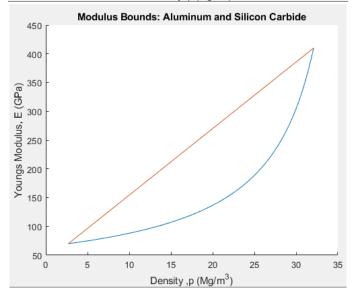
[Orange, Blue: Aluminum/Tungsten Carbide] [Purple, Yellow: Magnesium/Tungsten Carbide]

By assessing all the modulus bounds in the following graphs, the best two options were aluminum tungsten carbide and magnesium tungsten carbide. These were the best options because they had the highest young's modulus and the lowest densities meaning they are the lightest options. When comparing these two-options aluminum tungsten carbide is the better option as it has a little higher young's modulus making it stiffer with a little higher density start but with the same higher young's modulus/density point.









MATLAB Code:

	%%Magnesium and Alumina		%%Magnesium and Tungsten Carbide		%%Magnesium and Silicon Carbide	
	vf=[0:0.01:1] pf=3.9; pm=1.8; Em=42; Ef=340;	: %vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material	vf=[0:0.01:1]; pf=15.63; pm=1.8; Em=42; Ef=696;	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material</pre>	vf=[0:0.01:1]; pf=32.1; pm=1.8; Em=42; Ef=410;	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Efm=youngs matrix material %Ef=youngs reinforcing material</pre>
	%Reuss Bound Er= (((vf/Ef)+((1-vf)/Em)).^-1);		<pre>%Reuss Bound Er= (((vf/Ef)+((1-vf)/Em)).^-1);</pre>		*Reuss Bound Er= (((vf/Ef)+((1-vf)/Em)).^-1);	
	Er= (((VI/EI)	+((1-vf)/Em)).^-1);	Er= (((VI/EI)+	((1-VI)/Em)).~-1);	Er= (((VI/EI)+	·((I-VI)/Em)).~-1);
	%Voigt Bound		%Voigt Bound		%Voigt Bound	
	Ev=(vf*Ef)+((1-vf)*Em);		Ev=(vf*Ef)+((1-vf)*Em);		Ev=(vf*Ef)+((1-vf)*Em);	
	*Density		%Density		*Density	
	p=(vf*pf)+((1-vf)*pm);		p=(vf*pf)+((1-vf)*pm);		p=(vf*pf)+((1-vf)*pm);	
	8.Cu.u.b		%Graph		%Graph	
	%Graph hold on		*Graph hold on		hold on	
			plot(p,Er)		plot(p,Er)	
	plot(p,Er)		plot(p,Ev)		plot(p,Ev)	
<pre>plot(p,Ev) title('Modulus Bounds: Magnesium and Alumina');</pre>		title('Modulus Bounds: Magnesium and Tungsten Carbide');		title('Modulus Bounds: Magnesium and Silicon Carbide');		
<pre>xlabel('Density ,p (Mg/m^3)')</pre>		xlabel('Density ,p (Mg/m^3)')		<pre>xlabel('Density ,p (Mg/m^3)')</pre>		
		s Modulus, E (GPa)')	ylabel('Youngs Modulus, E (GPa)')		ylabel('Youngs Modulus, E (GPa)')	
	hold off	o Hoddido, D (ord),	hold off		hold off	
	11040		1020 011			
8	%Aluminium and	Alumina	%%Aluminium and	l Tungsten Carbide	%%Aluminium and	Silicon Carbide
	rf=[0:0.01:1];	%vf=Volume Fraction of reinforcing material	vf=[0:0.01:1];	%vf=Volume Fraction of reinforcing material	vf=[0:0.01:1];	%vf=Volume Fraction of reinforcing material
V	rf=[0:0.01:1]; f=3.9;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material	vf=[0:0.01:1]; pf=15.63;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material	vf=[0:0.01:1]; pf=32.1;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material
F	rf=[0:0.01:1]; of=3.9; om=2.7;	*vf=Volume Fraction of reinforcing material *bpf=density of reinforcing material *ppm=density of the matrix material	vf=[0:0.01:1]; pf=15.63; pm=2.7;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material	vf=[0:0.01:1]; pf=32.1; pm=2.7;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material
V F	rf=[0:0.01:1]; of=3.9; om=2.7; im=70;	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material
V F	rf=[0:0.01:1]; of=3.9; om=2.7; im=70;	*vf=Volume Fraction of reinforcing material *bpf=density of reinforcing material *ppm=density of the matrix material	vf=[0:0.01:1]; pf=15.63; pm=2.7;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material
I I I I	rf=[0:0.01:1]; of=3.9; om=2.7; im=70;	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70;	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70;	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material
E E	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; reuss Bound	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material
E E	rf=[0:0.01:1]; rf=3.9; pm=2.7; pm=70; rf=340; recuss Bound r= (((vf/Ef)+(<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material
E E	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; recuss Bound r= (((vf/Ef)+(<pre>twf=Volume Fraction of reinforcing material twf=Volume Fraction of reinforcing material twf=density of the matrix material twf=Youngs matrix material twf=Youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound Er= (((vf/Ef)+	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound	%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material
E E	rf=[0:0.01:1]; rf=3.9; pm=2.7; pm=70; rf=340; recuss Bound r= (((vf/Ef)+(<pre>twf=Volume Fraction of reinforcing material twf=Volume Fraction of reinforcing material twf=density of the matrix material twf=Youngs matrix material twf=Youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vf/Ef)+	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; *Reuss Bound Er= (((vf/Ef)+(<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-l);</pre>
F E E	rf=[0:0.01:1]; rf=3.9; rf=3.9; rm=2.7; rm=70; rf=340; re=(((vf/Ef)+(vVoigt Bound v=(vf*Ef)+((1-	<pre>twf=Volume Fraction of reinforcing material twf=Volume Fraction of reinforcing material twf=density of the matrix material twf=Youngs matrix material twf=Youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70); Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1-	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Rews Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1-	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-l);</pre>
	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; Reuss Bound rr= (((vf/Ef)+(VOigt Bound rv=(vf*Ef)+((1- representations)); records and records are records and records are recor	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
	rf=[0:0.01:1]; rf=3.9; rf=3.9; rm=2.7; rm=70; rf=340; re=(((vf/Ef)+(vVoigt Bound v=(vf*Ef)+((1-	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70); Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1-	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Rews Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1-	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
E E E E E E E E E E E E E E E E E E E	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; Reuss Bound rr= (((vf/Ef)+(VOigt Bound rv=(vf*Ef)+((1- representations)); records and records are records and records are recor	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-1); -vf)*Em);</pre>	<pre>vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; Recuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v))</pre>	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
	rf=[0:0.01:1]; rf=3.9; rf=3.9; rm=2.7; rm=70; rf=340; re=(((vf/Ef)+(voice Bound voice(vf*Ef)+((1-vipensity) re=(vf*pf)+((1-vipensity))	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l); -vf)*Em);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v %Graph	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; re=(((vf/Ef)+(rvoigt Bound rv=(vf*Ef)+((1- representatival) re=(vf*pf)+((1-v) representatival) re=(rf*pf)+((1-v) representatival) referable	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v %Graph	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l); </pre> <pre>vf) *Em);</pre> <pre>ff) *pm);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; %Reuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v %Graph hold on	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
	rf=[0:0.01:1]; rf=3.9; rf=3.9; rm=2.7; rm=70; rf=340; Recuss Bound r= (((vf/Ef)+((vf/Ef)+((1-vf/Ef)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70]; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1- %Graph hold on	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-1); -vf)*Em);</pre>	<pre>vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; RReuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1- %Graph hold on plot(p,Er)</pre>	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %pm=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>
	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; Reuss Bound rr= (((vf/Ef)+(Voigt Bound rv=(vf*Ef)+((1-v) representativ=(rf*pf)+((1-v)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vx/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1- %Graph hold on plot(p,Er) plot(p,Ev)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l); .vf)*Em);</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; *Reuss Bound Er= (((vf/Ef)+(*Voigt Bound Ev=(vf*Ef)+((1- *Density p=(vf*pf)+((1-v *Graph hold on plot(p,Er) plot(p,Ev)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-1); vf)*Em);</pre>
	rf=[0:0.01:1]; rf=3.9; rm=2.7; rm=70; rf=340; Reuss Bound rr= (((vf/Ef)+(Voigt Bound rv=(vf*Ef)+((1-v) representativ=(rf*pf)+((1-v)	<pre>tvf=Volume Fraction of reinforcing material typf=density of reinforcing material typm=density of the matrix material typm=density material (1-vf)/Em)).^-1); vf)*Em); f)*pm);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vx/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1- %Graph hold on plot(p,Er) plot(p,Ev)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-l); vf)*Em);</pre> <pre>%f)*pm);</pre> <pre>Bounds: Aluminium and Tungsten Carbide');</pre>	vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; *Reuss Bound Er= (((vf/Ef)+(*Voigt Bound Ev=(vf*Ef)+((1- *Density p=(vf*pf)+((1-v *Graph hold on plot(p,Er) plot(p,Ev)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-l); vf)*Em);</pre> <pre>%F) *Pm);</pre> Bounds: Aluminium and Silicon Carbide');
	rf=[0:0.01:1]; rf=3.9; rf=3.9; rm=2.7; rm=70; rf=340; re=(((vf/Ef)+(voigt Bound re=(vex=f)+((1-vex=f)+((1-vex=f)+((1-vex=f)+(<pre>tvf=Volume Fraction of reinforcing material typf=density of reinforcing material typm=density of the matrix material typm=density material (1-vf)/Em)).^-1); vf)*Em); f)*pm);</pre>	vf=[0:0.01:1]; pf=15.63; pm=2.7; Em=70; Ef=696; %Reuss Bound Er= (((vf/Ef)+ %Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1-v) %Graph hold on plot(p,Er) plot(p,Ev) title('Modulus xlabel('Density)	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material ((1-vf)/Em)).^-1); -vf)*Em);</pre> <pre>/vf)*pm);</pre> <pre>Bounds: Aluminium and Tungsten Carbide');</pre> <pre>/v , p (Mg/m^3)')</pre>	<pre>vf=[0:0.01:1]; pf=32.1; pm=2.7; Em=70; Ef=410; Recuss Bound Er= (((vf/Ef)+(%Voigt Bound Ev=(vf*Ef)+((1- %Density p=(vf*pf)+((1- %Graph hold on plot(p,Er) plot(p,Er) plot(p,Ev) xlabel('Density xlabel('Density</pre>	<pre>%vf=Volume Fraction of reinforcing material %pf=density of reinforcing material %pm=density of the matrix material %Em=youngs matrix material %Ef=youngs reinforcing material (1-vf)/Em)).^-l); vf)*Em);</pre> <pre>%F) *Pm);</pre> Bounds: Aluminium and Silicon Carbide');