



**MS ENGINEERING COLLEGE BANGALORE**

(An ISO 9001:2015 Certified Institution)

(Affiliated to Visvesvaraya Technological University Belgaum and approved by AICTE, New Delhi)  
NAVARATHNA AGRAHARA, SADAHALLI POST, BANGALORE- 562 110, Tel: 080-3252 9939, 3252 957

# CARBON NEUTRALITY



# M S ENGINEERING COLLEGE BANGALORE

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NAVARATHNA AGRAHARA, SADAHALLI POST, BANGALORE- 562 110, Tel: 080-3252 9939, 3252 957



M. S. ENGINEERING COLLEGE  
BENGALURU

Title: Green Audit & Carbon Neutrality Report

Year s	Total CO <sub>2</sub> Emmision/Year	Total CO <sub>2</sub> Neutralized/ Year	Total Savings	Environmental Survey	EnvironMental Audit	Building Audit
2011	2,23,949 kg/year	9,63,100 kg	7,339,100 kg	1. Energy Lights Appliances 2. Transporatation 3. Air Quality 4. Hazardous Materials 5. Solid waste 6. Paper	1. Energy Lights Appliances 2. Heat 3. Windows 4. Hazardous Materials 5. Solid waste 6. Composting 7. Paper 8. Environment al policy 9. Ethical Investing	1.Solid waste 2. Air Quality 3. Hazardous Materials 4.Paper 5.Water 6.Environmental Building Policy
2012	2,27,949 kg/year	9,63,100 kg	7,35,151 kg			
2013	2,32,949 kg/year	9,63,100 kg	7,30,151 kg			
2014	2,37,949 kg/year	9,63,100 kg	7,25,151 kg			
2015	1,89,258 kg/year	9,63,100 kg	7,73,842 kg			
2016	2,21,976 kg/year	9,63,100 kg	7,41,124 kg			



*Devi*

*[Signature]*  
Head of the Department  
Computer Science & Engineering  
M.S. Engineering College  
Bangalore-562 110



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	<b>M.S. Engineering College Bangalore</b>	Date: 6/06/2016
	Title: CO <sub>2</sub> Emission	

### • Calculation of CO<sub>2</sub> emissions

Fuel type	Kg of CO <sub>2</sub> per unit of consumption
Grid electricity	43 per kWh
Natural gas	3142 per tonne
Diesel fuel	2.68 per litre
Petrol	2.31 per litre
Coal	2419 per tonne
LPG	1.51 per litre

### • CO<sub>2</sub> EMISSION BY TRANSPORTATION VEHICLES OF THE COLLEGE

TYPE OF TYPE OF TRANSPORT	TYPE OF FUEL USED (PETROL/DIESEL)	CAPACITY IN KG/LITER	DOORAGE TRAVEL (km/day)	DISTANCE TRAVELLED YEAR	TOTAL NO. TRAVEL	PETROL/DIESEL CONSUMED YEAR	EMISSION (% OF CO <sub>2</sub> -E OF PETROL/DIESEL)	EMISSION (% OF CO <sub>2</sub> -E OF DIESEL)	TOTAL EMISSIONS OF CO <sub>2</sub> IN KG
BUS	DIESEL	3.5KM	100	20,000	02	5000	---	2.68	2*2.68*5000=26800
BUS	DIESEL	2.4KM	100	20,000	02	5000	---	2.68	2*2.68*5000=26800
BUS	DIESEL	3.5KM	100	20,000	04	2858	---	2.68	4*2.68*2858=30637
CAR	PETROL	12KM	50	10,000	12	834	2.39	---	12*2.39*834=23910
BICYCLE	PETROL	50KM	80	10,000	60	200	2.39	---	60*2.39*200=28680

Total Emission of co<sub>2</sub> in kgs=1, 38,716

### • CO<sub>2</sub> EMISSION BY BUILDING

5000 square feet gives 500kf co<sub>2</sub>/year

construction size	Total co <sub>2</sub> Emission/ year	Existence of construction	Total co <sub>2</sub>
50000 sq f (Main Block)	5000 kg of co <sub>2</sub>	14 years	14*5000=70000kg
29917 (New Block)	2991 KG OF CO <sub>2</sub>	2 years	2*2991= 5982kg
72784 (Civil Block)	7278 KG OF CO <sub>2</sub>	1 years	1*7278=7278 kg

Total co<sub>2</sub> =83260kg



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	<b>M.S. Engineering College Bangalore</b>	Date: 6/06/2016
	Title CO <sub>2</sub> Emission	

### • Calculation of CO<sub>2</sub> emissions

Fuel type	Kg of CO <sub>2</sub> per unit of consumption
Grid electricity	41 per kWh
Natural gas	11.42 per tonne
Diesel fuel	2.68 per litre
Petrol	2.31 per litre
Coal	24.19 per tonne
LPG	4.51 per litre

### • CO<sub>2</sub> EMISSION BY TRANSPORTATION VEHICLES OF THE COLLEGE

TYPE OF TRANSPORT	FUEL TYPE	NO. OF VEHICLES	NO. OF TRIPS	TRIP LENGTH (KM)	FUEL CONSUMPTION (LITRE)	CO <sub>2</sub> EMISSION (KG)	NO. OF PASSENGERS	CO <sub>2</sub> EMISSION PER PASSENGER (KG)	TOTAL CO <sub>2</sub> EMISSION (KG)
BUS	DIESEL	1	100	20,000	02	5000	—	2.68	2*2.68*5000=26800
BUS	DIESEL	1	100	20,000	02	5000	—	2.68	2*2.68*5000=26800
BUS	DIESEL	1	100	20,000	04	2838	—	2.68	4*2.68*2838=30637
CAR	PETROL	126	50	10,000	12	834	2.30	—	12*2.30*834=23910
BIKE	PETROL	50	50	10,000	60	200	2.30	—	60*2.30*200=28600

Total Emission of CO<sub>2</sub> in kgs=1, 38,716

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	<b>M.S. Engineering College Bangalore</b>	Date: 6/06/2016
	Title: CO <sub>2</sub> Emission	

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Natural gas	3142 per tonne
Diesel fuel	2.68 per litre
Petrol	2.31 per litre
Coal	2419 per tonne
LPG	1.51 per litre

### • CO<sub>2</sub> EMISSION BY TRANSPORTATION VEHICLES OF THE COLLEGE

TYPE OF TYPE OF TRANSPORT	TYPE OF FUEL USED (PETROL/DIESEL)	MILEAGE IN KM LITER	DIESEL E TRAVEL (D/HAV)	DISTANCE TRAVELLED YEAR	TOTAL NO. TRAVEL (HET)	PETROL/DIESEL FUEL CONSUMED PER YEAR	EMISSION OF PETROL (LPG/KG)	EMISSION OF DIESEL (LPG/KG)	TOTAL EMISSION OF CO <sub>2</sub> IN KGS
BUS	DIESEL	3.5KM	100	20,000	02	5000	---	2.68	2*2.68*5000=26800
BUS	DIESEL	4.4KM	100	20,000	02	5000	---	2.68	2*2.68*5000=26800
BUS	DIESEL	5.5KM	100	20,000	04	2858	---	2.68	4*2.68*2858=30637
CAR	PETROL	12KM	50	10,000	12	834	2.31	---	12*2.31*834=23919
BIKE	PETROL	50KM	50	10,000	60	200	2.31	---	60*2.31*200=28680

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## • CO<sub>2</sub> NEUTRALITY

Sl no.	Trees	Botanical name	Co <sub>2</sub> neutral/year In kg	Total no of Trees	Total Neutral of co <sub>2</sub> in kg
1	Mango	Genus Manifera	700	1000	700*1000 =700,000
2	Silver oak	Grevillea robusta	650	230	650*230 =149,500
3	Coconut	Cocosnultifera	80	350	80*350 =28,000
4	Teak wood	Tectona graodis	75	250	75*250 =18,750
5	Ashoka	Saracaaseoca	450	105	450*100 =45,000
6	Neem	Azadirachtaindica	500	25	500*25 =12,500
7	Tamarind	Tamarind indica	775	2	775*2 =1,550
8	Eucalyptus	Myrtaceae	150	50	150*50 =7,500
9	Jack fruit	Articarpushertophyllus lam	150	2	150*2 =300

Total Neutral of co<sub>2</sub> in kg =963,100 kg

Total co <sub>2</sub> Emission/year	2,21,976 kg/year
Total co <sub>2</sub> Neutralized/year	9,63,100 kg
Total Savings	7,41,124kg

  
Head of the Department  
Computer Science & Engineering  
M.S. Engineering College  
& Institute-562 110










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	<b>M.S. Engineering College Bangalore</b>	Date: 5/06/2015
	Title CO <sub>2</sub> Emission	

### • Calculation of CO<sub>2</sub> emissions

Fuel type	Kg of CO <sub>2</sub> per unit of consumption
Grid electricity	43 per kWh
Natural gas	31.42 per tonne
Diesel fuel	2.68 per litre
Petrol	2.31 per litre
Coal	2419 per tonne
LPG	1.51 per litre

### • CO<sub>2</sub> EMISSION BY TRANSPORTATION VEHICLES OF THE COLLEGE

TYPE OF TYPE OF TRANSPORT	FUEL USED	MILEAGE IN KM LITER	DISTANCE TRAVELLED PER DAY	DISTANCE TRAVELLED YEAR	TOTAL NO. TRAVEL PER YEAR	FUEL CONSUMED PER YEAR	EMISSION OF CO <sub>2</sub> PER LITRE OF FUEL	EMISSION OF CO <sub>2</sub> PER LITRE OF FUEL	TOTAL EMISSION OF CO <sub>2</sub> IN KG
BUS	DIESEL	3.5KM	100	20,000	02	5000	2.68	2.68	2*2.68*5000=26800
BUS	DIESEL	4.4KM	100	20,000	02	5000	2.68	2.68	2*2.68*5000=26800
BUS	DIESEL	5.5KM	100	20,000	02	2858	2.68	2.68	2*2.68*2858=15318
BUS	DIESEL	6.3KM	100	20,000	05	2858	2.68	2.68	5*2.68*2858=38297
CAR	PETROL	12KM	50	10,000	10	834	2.30	2.30	10*2.30*834=19120
BK1	PETROL	50KM	50	10,000	30	200	2.30	2.30	30*2.30*200=13800

Total Emission of co<sub>2</sub> in kgs=1,26,267

### CO<sub>2</sub> EMISSION BY BUILDING

construction size	Total co <sub>2</sub> Emission/ year	Existence of construction	Total co <sub>2</sub>
50000 sq f (Main Block)	5000 kg of co <sub>2</sub>	13 years	12*5000=60000 kg
29917 (New Block)	2991 KG OF CO <sub>2</sub>	1 years	1*2991= 2991kg


Total co<sub>2</sub> =62991 kg



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TYPE OF TYPE OF TRAVEL	TYPE OF FUEL USED	MILEAGE IN KM LITER	DISTANCE TRAVELLED PER DAY	DISTANCE TRAVELLED YEAR	TOTAL NO. TRAVEL PER	PETROL/DIESEL CONSUMED PER YEAR	EMISSION OF CO <sub>2</sub> OF PETROL IN KG	EMISSION OF CO <sub>2</sub> OF DIESEL IN KG	TOTAL EMISSION OF CO <sub>2</sub> IN KG
BUS	DIESEL	3.5KM	100	20,000	02	5000	-----	2.68	2*2.68*5000=26800
BUS	DIESEL	4.4KM	100	20,000	02	5000	-----	2.68	2*2.68*5000=26800
BUS	DIESEL	5.5KM	100	20,000	02	2858	-----	2.68	2*2.68*2858=15318
BUS	DIESEL	6.3KM	100	20,000	02	2858	-----	2.68	5*2.68*2858=38297
CAR	PETROL	12KM	50	10,000	10	834	2.39	-----	10*2.39*834=19932
BIKE	PETROL	50KM	50	10,000	40	200	2.39	-----	40*2.39*200=19120

Total Emission of CO<sub>2</sub> in kgs=1,26,267

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4	Teak wood	Tectona graodis	75	250	75*250 =18,750
5	Asboka	Saracansoca	450	105	450*100 =45,000
6	Neem	Azadirachtaindica	500	25	500*25 =12,500
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Total Neutral of co<sub>2</sub> in kg =963,100 kg

Total co <sub>2</sub> Emission/year	1,89,258 kg/year
Total co <sub>2</sub> Neutralized/year	9,63,100 kg
Total Savings	7,73,842 kg

  
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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit: College Building	
Date: 1.6.2016	Organization: MSEC
Name: Ravi Shankar	Contact number: 9449191908
Auditor:- Madhusudhan Reddy Savitha S C Vasanth Kumar Shiva Kumar P	Contact Email: michelmadhu@gmail.com savisumusc@gmail.com san5432155@gmail.com skptpr2012@gmail.com

### Energy

Ask	Type of heating used	Solar Heater	
	Regulations about heating system		
	Building Temperature	22°C	
	Consider Bio-Fuel		Yes <input checked="" type="checkbox"/> No
	Primer cooling technique		<input checked="" type="checkbox"/> Fans AC
	Amount of electricity used last year	: 257448 KWh	

**Investigate** Type of light bulb  fluorescent  Incandescence  Compact fluorescent  
How are bulbs disposed of

Lights on unnecessarily (sunny, night time) Yes  No  
Conditions of the ducts:

Inappropriate position of windows doors Yes  No

### Air Quality

Ask Air circulation / air exchange equipment  Yes No

Equipment serviced / maintained regularly  Yes No

Building-wide scent free policy Yes  No

Pets permitted in college Yes  No

**Investigate** No. of Plants Yes  No

### Hazardous Materials

Ask Cleaning products used in building

If non-toxic  
Disposal of cleaning products



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How much more would you consider paying for less toxic products?  
0% 5% 10% 15% 25 %

Paint type  
Environmental concern influence purchasing of building maintenance  
Materials. Not At All Sometimes  Most of the Time Always

## Solid Waste

Ask Encourage recycling  Yes No  
How often is waste removed?  
Cost

Offer composting  Yes No  
How could compost be disposed of?

Investigate No.of recycling bins in common areas

## Paper

Ask How much more would you be willing to pay for recycled paper products?  
0% 5% 10% 15% 25 %

Investigate Recycling option in the investigate washrooms  Yes No

Opt for recycled paper towel  Yes No

## Water

Ask Amount of water used last year  
X\_ Does the amount vary from month to month  Yes No  
% Highest months

X\_ Has the amount increased in the last few years  Yes No

Water reduction strategies that are in place

Water disposal methods of the cleaning staff

Investigate Low-flow toilets / toilet displacement devices being used  Yes No  
Leak faucets, toilets, pipes

X\_ If Yes %  
Yes  No

## Environmental Building Policy

Ask Maintenance practices used to ensure maximum life span of tools, supplies,  
building parts etc.,  
Interest for an urban garden

Yes  No

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N  
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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit: College	
Date	1.6.2016
Name	Ravi shankar
Auditor:-	Madhusudhan Reddy Savitha S C Vasanth Kumar Shiva Kumar P
Organization:-	MSEC
Contact number	9449191908
Contact Email:-	michelmadhu@gmail.com savisumusc@gmail.com san5432155@gmail.com skptpr2012@gmail.com

### Energy Light

Types of light fixtures installed

Sl.	Fixtures	No.s
1	Florescent Tubes	1345
2	Compact Florescent Tubes	100

Average No. of Hours / day lights ON: - 6 Hrs

Are all these hours are necessary Yes  No

Hours of unnecessary light use 0

### Appliances

No. of Printers 62

No. of hours / day on 1 Necessary  Yes No

No. of faxes 1

No. of hours / day on 6 Necessary  Yes No

No. of Computers 578

No. of hours / day on 3 Necessary Yes  No

Equipment serviced / maintained regularly  yes No

### Heat

AC Yes  No

No. of hours / day on Necessary Yes  No

Temperature comfortable to work in 22 °C

Fan f fans

No. of hours / day on 6 Necessary  Yes No

Prefer fans to AC  Yes No

Know how to properly control radiator  Yes No



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<b>Windows</b>	Windows properly sealed	Yes	√ No
	If No we are not using AC		
	Primary light source (when possible)	√ Yes	No
	Primary cooling technique	Yes	√ No
	Use of radiant energy as source of heat	√ Yes	No

## Hazardous Materials

How much more would you consider paying for less-toxic products?

0% 5% 10% 15% 25 %

Photocopier toner  
How is it disposed of: by sending to refilling

√ Yes No

Use batteries

√ Yes No

Rechargeable

√ Yes No

How are they disposed of by regular maintenance and replacement?

## Solid waste

Do a waste audit now!

What are the 4 main waste streams

√ No

√ correct Incorrect

Do you sort your waste

Yes √ No

Do you collect refundable

Yes √ No

How do you dispose of outdated technology?  
By upgrading

√ correct Incorrect

**Composting** Do you compost

√ Yes No

Would you compost if removed were offered

Yes √ No

Willing to contribute to compost removal costs

Yes √ No

Willing to take compost home

√ Yes No

## Paper

Strategies to reduce waste

√ E-mail,

√ Centrally posted memo



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## Environment Purchasing Policy

Look to reuse / buy used  Yes  No

Consider the environmental consequences purchases  Yes  No

How much more you consider paying for more environmentally sound products

0%  5%  10%  15%  25 %

Consider environmental reputation when choosing where to buy  Yes  No

## Ethical Investing

Company / organization have investments  Yes  No

Environmental practice of the company affect choice to invest  Yes  No

Would you like to receive your tips sheet and audit results by E-mail  Yes  No



*Doyle*

*[Handwritten signature]*





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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit College Survey	
Date 5.6.2016	Organization:- MSEC
Name :- Ravi Shankar.	Contact number: 9449191908
Auditor:- Madhusudhan Reddy G R Savitha S C Vasanth Kumar Shiva Kumar P	Contact Email:- michelmadhu@gmail.com savisumuse@gmail.com san5432155@gmail.com skptpr2012@gmail.com

### Energy

#### Lights

1. How many lights fixtures are there in your college:- 1345  
a. Do you have any dimmer switches? Yes  No  
b. If Yes, how many? \_\_\_\_\_

#### Appliances

2. Do you use energy-efficient (Energy star) college equipment?  Yes No  
a. What? \_\_\_ CFL \_\_\_ 84 No's

#### Transportation

3. Do you have college bus?  Yes No  
a. If yes, how many number of buses? . 8  
b. Number of km/liter:-

SL.	No. of Buses	Km/ liter
1	4	6.3
2	2	3.5
3	1	4.4
4	1	5.5

4. What is the age of bus

SL.	No. Of Buses	Age (years and months)
1	4	4.7
2	2	4
3	2	5.10



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5. a. Do you live close enough to walk / bike / in-line skate to work?  Yes  No  
b. If so, do you?  Yes  No  
c. Were you aware of the bike rack in the basement? Yes  No

## Air Quality

6. a. How would you rate the air quality in the building as a whole?  
Circle one; 1 being poor, 5 being excellent?

1 2 3  4 5

- b. How would you rate the air quality in your college?  
Circle one; 1 being poor, 5 being excellent?

1 2 3  4 5

7. Do you adhere to a scent-free policy? Yes  No

8. How many plants do you have in your college?

## Hazardous Materials

9. a. Do you have an college photocopier?  Yes  No  
b. If so, where do you keep it? **Xerox room**

## Solid Waste

10. a. Do you consider the amount of packaging when you buy for your college?  
 Yes  No

b. Why or why not? \_\_

11. Do you reuse college supplies /furniture?  Yes  No

12. a. Do you bring a lunch to work?  Yes  No

- b. Do you use re-usable containers?  Yes  No

- c. Do you eat out for lunch?  
If so, would you consider bringing a container with you for take-out?  
for take-out and/or coffee mug

- d. Do you bring your own coffee mug:  Yes  No

- i. to work?  Yes  No

- ii. to the coffee shop? Yes  No



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## Paper

13 How much paper would you use in a month? 5 Reams

14 a. Do you recycle your paper?

Yes  No

b. Do you make double-sided copies?

Yes  No

c. Do you opt for vegetable based inks for large scale print jobs?

Yes  No

d. Do you reuse one-sided paper?

Yes  No

e. Do you use recycled paper?

Yes  No

f. Do you use post-consumer recycled paper?

Yes  No

g. Do you recycle newspaper?

Yes  No

h. Would you be interested in boycotting junk-mail?

Yes  No

i. Do you encourage (fellow) employees to use technology to reduce paper used when possible?

Yes  No

How? By using latest technology, by using e-mail

Shiva kumar

Shiva

Shiva

Vaishu kumar e

Vaishu



Shiva

Head of the Department  
Computer Science & Engineering  
M.S. Engineering College  
Bangalore-562 110



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	<b>M S ENGINEERING COLLEGE BANGALORE</b> Green Audit Report
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MSEC Environmental Audit Electronics & Communication Engineering Department : Survey	
Date: 6/6/2016	Organization:- MSEC
Name :- Dr. Behana	Contact number:
Auditor:- Savittha S.C	Contact Email:- saw.kum.ute@gmail.com

## Energy

### Lights

1. How many lights fixtures are there in your department ?  
a. Do you have any dimmer switches? Yes  No   
b. If Yes, how many? \_\_\_\_\_

### Appliances

2. Do you use energy-efficient (Energy-star) college equipment? Yes  No   
a. What?

APPLIANCES	NUMBERS
Fluorescent tubes	118

### Air Quality

3. a. How would you rate the air quality in the building as a whole?  
Circle one: 1 being poor, 5 being excellent?

1 2 3  4 5

- b. How would you rate the air quality in your college?  
Circle one: 1 being poor, 5 being excellent?

1 2 3  4 5

4. Do you adhere to a scent-free policy? Yes  No

5. How many plants do you have in your department? • Yes  No

### Hazardous Materials

6. a. Do you have an department photocopier? Yes  No   
b. If so, where do you keep it?



## Solid Waste

7. a. Do you consider the amount of packaging when you buy for your college? Yes  No
- b. Why or why not? \_\_
8. Do you reuse college supplies /furniture? Yes  No
9. a. Do you bring a lunch to work? Yes  No
- b. Do you use re-usable containers? Yes  No
- c. Do you eat out for lunch? Yes  No
- If so, would you consider bringing a container with you for take-out?  
for take-out and/or coffee mug Yes  No
- d. Do you bring your own coffee mug:  
i. to work? Yes  No   
ii. to the coffee shop? Yes  No

## Paper

10. How much paper would you use in a month? \_ 1 Ream
11. a. Do you recycle your paper? Yes  No
- b. Do you make double-sided copies? Yes  No
- c. Do you opt for vegetable based inks for large scale print jobs? Yes  No
- d. Do you reuse one-sided paper? Yes  No
- e. Do you use recycled paper? Yes  No
- f. Do you use post-consumer recycled paper? Yes  No
- g. Do you recycle newspaper? Yes  No
- h. Would you be interested in boycotting junk-mail? Yes  No
- i. Do you encourage (fellow) employees to use technology to  
reduce paper used when possible?  
How? By using latest technology E-mail Yes  No



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	<b>M S ENGINEERING COLLEGE BANGALORE Green Audit Report</b>
---	---

MSEC Environmental Audit Electronics & Communication Engineering Department	
Date: 06-06-2016	Organization:- MSEC
Name :- Dr. Rehana	Contact number:
Auditor:- Sawitha.S.c	Contact Email:- Sawithamul.c@gmail.com

## Energy Light

Types of light fixtures installed

Sl.	Fixtures	No.s
1	Florescent Tubes	118
2	Compact Florescent Tubes	

Average No. of Hours / day lights ON :- 6 Hrs

Are all these hours are necessary Yes  No

Hours of unnecessary light use 0

## Appliances

No. of Printers 3

No. of hours / day on Necessary  Yes  No

No. of faxes

No. of hours / day on Necessary Yes  No

No. of Computers 126

No. of hours / day on Necessary Yes  No

Equipment serviced / maintained regularly  Yes  No

## Heat

AC Yes  No

No. of hours / day on Necessary Yes  No

Temperature comfortable to work in 22 °C

Fan of fans  Yes  No





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	No. of hours / day on Necessary	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Prefer fans to AC	Yes <input checked="" type="radio"/>	No <input type="radio"/>
	Know how to properly control radiator	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Windows	Windows properly sealed	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	If No we are not using AC Primary light source (when possible)	Yes <input checked="" type="radio"/>	No <input type="radio"/>
	Primary cooling technique	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Use of radiant energy as source of heat	Yes <input type="radio"/>	No <input checked="" type="radio"/>
<b>Hazardous Materials</b>			
	How much more would you consider paying for less-toxic products 0% <input checked="" type="radio"/> 5% 10% 15% 25 %		
	Photocopier toner How is it disposed of: Maintenance Refillery & Replacment	Yes <input checked="" type="radio"/>	No <input type="radio"/>
	Use batteries	Yes <input checked="" type="radio"/>	No <input type="radio"/>
	Rechargeable	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Solid waste	How are they disposed of Replacment		
	Do a waste audit now !		
	What are the 4 main waste streams <input checked="" type="radio"/> No <input type="radio"/> correct <input type="radio"/> incorrect		
	Do you sort your waste	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Do you collect refindables	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	How do you dispose of outdated technology By upgrading		
Composting	Do you compost <input checked="" type="radio"/> correct <input type="radio"/> incorrect		
	Would you compost if removed were offered	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Willing to contribute to compost removal costs	Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Willing to take compost home	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Paper	Strategies to reduce waste <input checked="" type="checkbox"/> E-mail. <input checked="" type="checkbox"/> Centrally posted memo & Circulars	Yes <input type="radio"/>	No <input checked="" type="radio"/>

---

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**Environment Purchasing Policy**

Look to reuse / buy used  Yes No

Consider the environmental consequences purchases  Yes No

How much more you consider paying for more environmentally sound products

0% 5% 10%  15% 25 %

Consider environmental reputation when choosing where to buy  Yes No

**Ethical Investing**

Company / organization have investments  Yes No

Environmental practice of the company affect choice to invest  Yes No

Would you like to receive your tips sheet and audit results by E-mail  Yes No



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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit Building-	
Date 06/06/2016	Organization:- MSEC
Name :- Dr. Rehana	Contact number:
Auditor:- Savitha.s.c	Contact Email:- Savithumul.c@gmail.com

### Energy Ask

Type of heating used  
Regulations about heating system

Building Temperature 35 °C

Consider Bio-Fuel Yes  No

Primary cooling technique  Fans  AC

### Investigate

Type of light bulb  fluorescent  Incandescence  Compact fluorescent

How are bulbs disposed of

Lights on unnecessarily (sunny, night time) Yes  No

Conditions of the ducts:

Inappropriate position of windows doors Yes  No

### Air Quality Ask

Air circulation / air exchange equipment Yes  No

Equipment serviced / maintained regularly  Yes  No

Building-wide scent free policy Yes  No

Pets permitted in college Yes  No

### Investigate

No. of Plants Yes  No

### Hazardous Materials

Ask Cleaning products used in building

If non-toxic



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Disposal of cleaning products *By Drain*

How much more would you consider paying for less toxic products  
0% 5% 10%  15% 25%

Paint type *plaque Emulsion inside wall*

Environmental concern influence purchasing of building maintenance materials

Not At All Sometimes  Most of the Time Always

**Solid Waste Ask**

Encourage recycling  Yes No

How often is waste removed *periodical*  
Cost

Offer composting Yes  No

How could compost be disposed of

**Investigate**

No. of recycling bins in common areas Yes  No

**Paper Ask**

How much more would you be willing to pay for recycled paper products  
0% 5% 10%  15% 25%

**Investigate**

Recycling option in the investigate washrooms Yes  No

Opt for recycled paper towel Yes  No

**Water Ask**

Amount of water used last year *9140 K-L*  
x\_ Does the amount vary from month to month  Yes No

$\frac{1}{4}$  Highest months *Feb-May Aug-Nov*  
x\_ Has the amount increased in the last few years  Yes No

Water reduction strategies that are in place

Water disposal methods of the cleaning staff *Drain*

**Investigate**  Low-flow toilets / toilet displacement devices being used  Yes No

Leak faucets, toilets, pipes  
x\_ If Yes %  Yes  No

**Environmental Building Policy Ask**

Maintenance practices used to ensure maximum life span of tools, supplies, building parts etc.,

Interest for an urban garden  Yes  No

Head  
Department of  
Electronics & Communication Engineering

*[Handwritten signatures]*



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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit Computer Science and Engineering Department : Survey	
Date 06/06/2016	Organization:- MSEC
Name :- Malatesh S H	Contact number: 9535235020
Auditor:- Rashmi U B	Contact Email:- Rashmiub.mandya@gmail.com

### Energy

#### Lights

1. How many lights fixtures are there in your department?  
a. Do you have any dimmer switches?  Yes  No  
b. If Yes, how many? 100

#### Appliances

2. Do you use energy-efficient (Energy star) college equipment?  
a. What? Yes  No

APPLIANCES	NUMBERS
Fluorescent tubes	100

#### Air Quality

3. a. How would you rate the air quality in the building as a whole?  
Circle one: 1 being poor, 5 being excellent?

1 2 3  4 5

- b. How would you rate the air quality in your college?  
Circle one: 1 being poor, 5 being excellent?

1 2 3  4 5

4. Do you adhere to a scent-free policy? Yes  No

5. How many plants do you have in your department? Yes  No

#### Hazardous Materials

6. a. Do you have an department photocopier?  
b. If so, where do you keep it? Yes  No



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## Solid Waste

7. a. Do you consider the amount of packaging when you buy for your college?  Yes  No  
b. Why or why not? *To avoid damage & Breakages*
8. Do you reuse college supplies / furniture?  Yes  No
9. a. Do you bring a lunch to work?  Yes  No  
b. Do you use re-usable containers?  Yes  No  
c. Do you eat out for lunch?  Yes  No  
If so, would you consider bringing a container with you for take-out?  
for take-out and/or coffee mug  Yes  No
- d. Do you bring your own coffee mug:  
i. to work? Yes  No  
ii. to the coffee shop? Yes  No

## Paper

10. How much paper would you use in a month? *1 Reame*
11. a. Do you recycle your paper?  Yes  No  
b. Do you make double-sided copies?  Yes  No  
c. Do you opt for vegetable based inks for large scale print jobs? Yes  No  
d. Do you reuse one-sided paper?  Yes  No  
e. Do you use recycled paper?  Yes  No  
f. Do you use post-consumer recycled paper? Yes  No  
g. Do you recycle newspaper? Yes  No  
h. Would you be interested in boycotting junk-mail? Yes  No  
i. Do you encourage (fellow) employees to use technology to reduce paper used when possible?  
How? *By using latest technology*  Yes  No






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	<b>M S ENGINEERING COLLEGE BANGALORE Green Audit Report</b>
---	---

MSEC Environmental Audit Computer Science and Engineering Department	
Date <u>06/06/2016</u>	Organization:- MSEC
Name:- <u>Malatesh SH</u>	Contact number: <u>9535235020</u>
Auditor:- <u>Rashmi U.B</u>	Contact Email:- <u>Rashmiub.mandya @ gmail.com</u>

### Energy Light

Types of light fixtures installed

Sl.	Fixtures	No.s
1	Florescent Tubes	100
2	Compact Florescent Tubes	-

Average No. of Hours / day lights ON :- 6 Hrs

Are all these hours are necessary

Yes  No

Hours of unnecessary light use 0

### Appliances

No. of Printers 10

No. of hours / day on 1 Necessary

Yes  No

No. of faxes 0

No. of hours / day on Necessary

Yes  No

No. of Computers 276

No. of hours / day on 3 Necessary

Yes  No

Equipment serviced / maintained regularly

Yes  No

### Heat

AC

Yes  No

No. of hours / day on Necessary

Yes  No

Temperature comfortable to work in 22°C

Fan of fans

Yes  No



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	No. of hours / day on Necessary	Yes	<input checked="" type="radio"/> No
	Prefer fans to AC	<input checked="" type="radio"/> Yes	No
	Know how to properly control radiator	Yes	<input checked="" type="radio"/> No
<b>Windows</b>	Windows properly sealed	Yes	<input checked="" type="radio"/> No
	If No Primary light source (when possible)	<input checked="" type="radio"/> Yes	No
	Primary cooling technique	Yes	<input checked="" type="radio"/> No
	Use of radiant energy as source of heat	Yes	<input checked="" type="radio"/> No
<b>Hazardous Materials</b>			
	How much more would you consider paying for less-toxic products 0% 5% 10% 15% 25%		
	Photocopier toner How is it disposed of:	By sending to refilling <input checked="" type="radio"/> Yes No	
	Use batteries	<input checked="" type="radio"/> Yes	No
	Rechargeable	<input checked="" type="radio"/> Yes	No
<b>Solid waste</b>	How are they disposed of	By regular maintenance & replacement <input checked="" type="radio"/> correct <input type="radio"/> incorrect	
	Do a waste audit now!		
	What are the 4 main waste streams	<input checked="" type="radio"/> No	
	Do you sort your waste	Yes	<input checked="" type="radio"/> No
	Do you collect refindables	Yes	<input checked="" type="radio"/> No
	How do you dispose of outdated technology By upgrading	<input checked="" type="radio"/> correct	<input type="radio"/> incorrect
<b>Composting</b>	Do you compost	Yes	<input checked="" type="radio"/> No
	Would you compost if removed were offered	Yes	<input checked="" type="radio"/> No
	Willing to contribute to compost removal costs	Yes	<input checked="" type="radio"/> No
<b>Paper</b>	Willing to take compost home	Yes	<input checked="" type="radio"/> No
	Strategies to reduce waste E-mail, Centrally posted memo		



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	<b>M S ENGINEERING COLLEGE BANGALORE</b> <b>Green Audit Report</b>
---	---

MSEC Environmental Audit Building- CSE DEPT.	
Date 06/06/2016	Organization:- MSEC
Name - Malatesh S.H	Contact number: 9535235020
Auditor:- Rashmi U.B	Contact Email:- Rashmiub.Mandya@gmail.com

### Energy

**Ask** Type of heating used  
Regulations about heating system

Building Temperature 25°C

Consider Bio-Fuel Yes  No

Primary cooling technique  Fans  AC

**Investigate** Type of light bulb  fluorescent  Incandescence  Compact fluorescent

How are bulbs disposed of Replacement

Lights on unnecessarily (sunny, night time) Yes  No

Conditions of the ducts:

Inappropriate position of windows doors Yes  No

### Air Quality

**Ask** Air circulation / air exchange equipment Yes  No

Equipment serviced / maintained regularly  Yes  No

Building-wide scent free policy  Yes  No

Pets permitted in college Yes  No

**Investigate** No. of Plants Yes  No

### Hazardous Materials

**Ask** Cleaning products used in building

If non-toxic water & Detergent



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## Disposal of cleaning products

How much more would you consider paying for less toxic products

0% 5% 10% 15% 25%

## Paint type

Environmental concern influence purchasing of building maintenance materials

Not At All Sometimes Most of the Time Always

**Solid Waste**  
Ask

Encourage recycling

Yes  No

How often is waste removed

Regularly

Cost

10-15 thousand / month

Offer composting

Yes  No

How could compost be disposed of

It is reused

**Investigate**

No. of recycling bins in common areas

Yes  No

**Paper**

Ask

How much more would you be willing to pay for recycled paper products

0% 5% 10% 15% 25%

**Investigate**

Recycling option in the investigate washrooms

Yes  No

Opt for recycled paper towel

Yes  No

**Water**

Ask

Amount of water used last year

90 k litres

x\_ Does the amount vary from month to month

Yes  No

% Highest months

Feb-May Aug-NOV

x\_ Has the amount increased in the last few years

Yes  No

Water reduction strategies that are in place

Water disposal methods of the cleaning staff

drain

**Investigate**

Low-flow toilets / toilet displacement devices being used

Yes  No

Leak faucets, toilets, pipes

Yes  No

x\_ If Yes - %

## Environmental Building Policy

Ask

Maintenance practices used to ensure maximum life span of tools, supplies, building parts etc.,

Yes  No

Interest for an urban garden

Yes  No

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[Signature]  
Head of Department  
Computer Science & Engineering  
M.S. Engineering College  
Bangalore-562 110  
6/6/16



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MSEC Environmental Audit College Survey	
Date 5.6.2015	Organization:- MSEC
Name :- Ravi Shankar,	Contact number: 9449191908
Auditor:- Madhusudhan Reddy G R Savitha S C Vasanth Kumar Shiva Kumar P	Contact Email:- michelmadhu@gmail.com savisumusc@gmail.com san5432155@gmail.com skptpr2012@gmail.com

## Energy

### Lights

1. How many lights fixtures are there in your college:- 1345  
a. Do you have any dimmer switches? Yes  No   
b. If Yes, how many? \_\_\_\_\_

### Appliances

2. Do you use energy-efficient (Energy star) college equipment?  Yes  No  
a. What? \_\_\_ CFL \_\_\_ 84 No's

### Transportation

3. Do you have college bus?  Yes  No  
a. If yes, how many number of buses? 11  
b. Number of km/liter:-

SL.	No. of Buses	Km/ liter
1	5	6.3
2	2	3.5
3	2	4.4
4	2	5.5

4. What is the age of bus

SL.	No. Of Buses	Age (years and months)
1	5	4.7
2	4	4
3	2	5.10



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5. a. Do you live close enough to walk / bike / in-line skate to work?  Yes  No  
b. If so, do you?  Yes  No  
c. Were you aware of the bike rack in the basement? Yes  No

## Air Quality

6. a. How would you rate the air quality in the building as a whole?  
Circle one; 1 being poor, 5 being excellent?

1 2 3  4 5

- b. How would you rate the air quality in your college?  
Circle one; 1 being poor, 5 being excellent?

1 2 3  4 5

7. Do you adhere to a scent-free policy? Yes  No  
8. How many plants do you have in your college?

## Hazardous Materials

9. a. Do you have an college photocopier?  Yes  No  
b. If so, where do you keep it? Xerox room

## Solid Waste

10. a. Do you consider the amount of packaging when you buy for your college?  
 Yes  No

b. Why or why not? \_\_

11. Do you reuse college supplies /furniture?  Yes  No

12. a. Do you bring a lunch to work?  Yes  No

- b. Do you use re-usable containers?  Yes  No

- c. Do you eat out for lunch?  
If so, would you consider bringing a container with you for take-out? Yes  No

- d. Do you bring your own coffee mug?  
i. to work?  Yes  No

- ii. to the coffee shop?  Yes  No

Yes  No





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## M S ENGINEERING COLLEGE BANGALORE Green Audit Report

MSEC Environmental Audit: College	
Date 5.6.2015	Organization:- MSEC
Name Ravi shankar	Contact number 9449191908
Auditor:- Madhusudhan Reddy Savitha S C Vasanth Kumar Shiva Kumar P	Contact Email:- michelmadhu@gmail.com savisumusc@gmail.com san5432155@gmail.com skptpr2012@gmail.com

### Energy Light

Types of light fixtures installed

Sl.	Fixtures	No.s
1	Florescent Tubes	1345
2	Compact Florescent Tubes	100

Average No. of Hours / day lights ON:- 6 Hrs

Are all these hours are necessary Yes  No

Hours of unnecessary light use 0

### Appliances

No. of Printers 62

No. of hours / day on 1 Necessary  Yes No

No. of faxes 1

No. of hours / day on 6 Necessary  Yes No

No. of Computers 578

No. of hours / day on 3 Necessary Yes  No

Equipment serviced / maintained regularly  yes No

### Heat

AC Yes  No

No. of hours / day on Necessary Yes  No

Temperature comfortable to work in 25 °C

Fan f fans

No. of hours / day on 6 Necessary  Yes No

Prefer fans to AC  Yes No

Know how to properly control radiator  Yes No



# M S ENGINEERING COLLEGE BANGALORE

(An ISO 9001:2015 Certified Institution)

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## Paper

13. How much paper would you use in a month? 5 Reams √ Yes No
14. a. Do you recycle your paper? √ Yes No
- b. Do you make double-sided copies? Yes √ No
- c. Do you opt for vegetable based inks for large scale print jobs? √ Yes No
- d. Do you reuse one-sided paper? Yes √ No
- e. Do you use recycled paper? √ Yes No
- f. Do you use post-consumer recycled paper? Yes √ No
- g. Do you recycle newspaper? √ Yes No
- h. Would you be interested in boycotting junk-mail? √ Yes No
- i. Do you encourage (fellow) employees to use technology to reduce paper used when possible? √ Yes No  
How? By using latest technology, by using e-mail





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	<b>M S ENGINEERING COLLEGE BANGALORE Green Audit Report</b>
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MSEC Environmental Audit: College Building	
Date 5.6.2015	Organization: MSEC
Name Ravi Shankar	Contact number: 9449191908
Auditor:- Madhusudhan Reddy Savitha S C Vasanth Kumar Shiva Kumar P	Contact Email: michelmadhu@gmail.com savisumusc@gmail.com san5432155@gmail.com skptpr2012@gmail.com

<b>Energy Ask</b>	Type of heating used	Solar Heater		
	Regulations about heating system			
	Building Temperature 22°C		Yes	√ No
	Consider Bio-Fuel		√ Fans	AC
	Primer cooling technique			
	Amount of electricity used last year : 215029 KWh			
<b>Investigate</b>	Type of light bulb	√ fluorescent	√ Incandescence	√ Compact fluorescent
	How are bulbs disposed of			
	Lights on unnecessarily (sunny, night time)		Yes	√ No
	Conditions of the ducts:			
	Inappropriate position of windows doors		Yes	√ No
<b>Air Quality Ask</b>	Air circulation / air exchange equipment		√ Yes	No
	Equipment serviced / maintained regularly		√ Yes	No
	Building-wide scent free policy		Yes	√ No
	Pets permitted in college		Yes	√ No
<b>Investigate</b>	No. of Plants		Yes	√ No
<b>Hazardous Materials Ask</b>	Cleaning products used in building			
	If non-toxic			
	Disposal of cleaning products			



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How much more would you consider paying for less toxic products?  
0% 5% 10% 15% 25 %

Paint type  
Environmental concern influence purchasing of building maintenance  
Materials. Not At All Sometimes  Most of the Time Always

**Solid Waste**  
**Ask** Encourage recycling  Yes No  
How often is waste removed?  
Cost

Offer composting  Yes No  
How could compost be disposed of?

**Investigate** No.of recycling bins in common areas

**Paper**  
**Ask** How much more would you be willing to pay for recycled paper products?  
0% 5% 10% 15% 25 %

**Investigate** Recycling option in the investigate washrooms  Yes No

Opt for recycled paper towel  Yes No

**Water**  
**Ask** Amount of water used last year  
 Does the amount vary from month to month  Yes No  
 Highest months

Has the amount increased in the last few years  Yes No

Water reduction strategies that are in place

Water disposal methods of the cleaning staff

**Investigate** Low-flow toilets / toilet displacement devices being used  Yes No

Leak faucets, toilets, pipes Yes  No  
 If Yes %

## Environmental Building Policy

**Ask** Maintenance practices used to ensure maximum life span of tools, supplies,  
building parts etc.,

Interest for an urban garden Yes  No



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**Windows**

Windows properly sealed	Yes	<input checked="" type="checkbox"/> No
If No we are not using AC		
Primary light source (when possible)	<input checked="" type="checkbox"/> Yes	No
Primary cooling technique	Yes	<input checked="" type="checkbox"/> No
Use of radiant energy as source of heat	<input checked="" type="checkbox"/> Yes	No

## Hazardous Materials

How much more would you consider paying for less-toxic products?  
0% 5% 10% 15% 25 %

Photocopier toner	<input checked="" type="checkbox"/> Yes	No
How it disposed of is: by sending to refilling	<input checked="" type="checkbox"/> Yes	No
Use batteries	<input checked="" type="checkbox"/> Yes	No
Rechargeable	<input checked="" type="checkbox"/> Yes	No
How are they disposed of by regular maintenance and replacement?		

## Solid waste

Do a waste audit now!		<input checked="" type="checkbox"/> correct	Incorrect
What are the 4 main waste streams	<input checked="" type="checkbox"/> No	Yes	<input checked="" type="checkbox"/> No
Do you sort your waste		Yes	<input checked="" type="checkbox"/> No
Do you collect refundable			
How do you dispose of outdated technology? By upgrading		<input checked="" type="checkbox"/> correct	Incorrect

## Composting

Do you compost	<input checked="" type="checkbox"/> Yes	No
Would you compost if removed were offered	Yes	<input checked="" type="checkbox"/> No
Willing to contribute to compost removal costs	Yes	<input checked="" type="checkbox"/> No
Willing to take compost home	<input checked="" type="checkbox"/> Yes	No

## Paper

Strategies to reduce waste  
 E-mail.  
 Centrally posted memo



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**Environment Purchasing Policy**  Yes  No  
Look to reuse / buy used  Yes  No  
Consider the environmental consequences purchases  
How much more you consider paying for more environmentally sound products  
0% 5% 10% 15% 25 %  
Consider environmental reputation when choosing where to buy  Yes  No

**Ethical Investing**  Yes  No  
Company / organization have investments  Yes  No  
Environmental practice of the company affect choice to invest  Yes  No  
Would you like to receive your tips sheet and audit results by E-mail  Yes  No

Shiva Kumar

Vasanth Kumar e

Chasanth Kumar

Head of the Department  
Computer Science & Engineering  
M.S. Engineering College  
Bangalore-562 110



**Principal**

M.S. Engineering College  
Navarathna Agrahara, Sadahalli Post,  
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