



Dr. M. Sundararaj M.E, Ph.D
Head

13/02/2022

Ref No:Cir/Aero/2022/018

CIRCULAR

This is to intimate the students that Value Added Program titled “Energy Conservation & Audit ” is scheduled to be conducted from 18.02.2022 . The course will be for a duration of 30 hours and will be conducted during weekends. Further Details can contact the Course Coordinator Mrs.Divyabharathi Assistant Professor Department of aeronautical Engineering.

Copy to:

1. Copy to All school of Engineering
2. Copy to Dean Engineering
3. Copy to Pro-VC
4. Copy to Office
5. Copy to IQAC



M. Sundararaj
HOD/Aero

Dr. M. SUNDARARAJ, M.E., Ph.D.,
HOD
Department of Aeronautical Engineering
Bharath Institute of Higher Education & Research
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)
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Department of Aeronautical Engineering

Value Added Course

Energy Conservation & Audit

List of students Registered on 18.02.2022

SNO	Reg NO	Name of the Student
1	U15AE003	AMUTHAN A
2	U15AE006	BANDARU KOTA NAGENDRA SURESH
3	U15AE010	DASARI RUFUS
4	U15AE015	ERLA NAVEEN KUMAR
5	U15AE019	ISHANT DUBEY
6	U15AE024	KUSUNURI JYOTHI SAI PAVAN
7	U15AE030	NINGKHANRIN N G
8	U15AE032	PAVULURI MOHITH CHOWDARY
9	U15AE035	RAVILLA VISHNU VARADHAN NAIDU
10	U15AE043	SWATHITH K S
11	U15AE042	SHIVA SHANKAR V N
12	U15AE048	BIKASH BORADO
13	U15AE053	PALLEKONDU SIRISHA
14	U15AE057	DIVYA C
15	U15AE058	SOBIN RAJ M
16	U15AE059	SANTHOSH RAJ K
17	U15ME004	ABISHEK AHI
18	U15ME005	ADHAV KRISHNA
19	U15ME002	ABHISHEK KUMAR
20	U15ME003	ABISHEK
21	U15ME014	ALLAPURAM AKHIL BALANARAYANA REDDY
22	U15ME019	ANKIT PAL
23	U15ME016	AMBATI ADI ESWAR REDDY
24	U15ME026	ARVINDH
25	U15ME035	BADAGALA
26	U15ME031	ASWIN
27	U15ME032	ATHKEM NARENDRA GOUD
28	U15ME036	BALAJI
29	U15ME038	BALAMURALIDHARAN
30	U15ME039	BASAVA GANESH REDDY
31	U15ME044	BODDA
32	U15ME045	BUDDANAGARI RAGHAVENDER REDDY
33	U15ME047	DASARI SURYA RAMANJANEYULU
34	U15ME051	DHANUSH NARAYANAN
35	U15ME052	DINESH
36	U15ME054	DONGA MANI BHASKAR
37	U15ME055	DONTHINA MOHAN VENKAT

38	U15ME056	DUVVARAPU
39	U15ME057	ESAKKI
40	U15ME058	ESWAR
41	U15ME059	FEHATH BASHA
42	U15ME090	KAITHEPALLI PAVAN KUMAR
43	U15ME218	SAMEER
44	U15ME510	GERSHOM SATHYADEV
45	U15ME511	BONAM SHANMUKA
46	U15ME516	VISHAL S
47	U15ME519	PRAVEEN KUMAR
48	U15ME520	ADITHYA
49	U15ME521	SAJJATH
50	U15ME522	AJAY



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Bharath

INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as deemed to be university under section 3 of UGC Act 1956, vide notification No.F-9-52000-U-3)

Department of Aeronautical Engineering

Value Added Course

Energy conversion and Audit

Objective :

The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning outcomes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

- Identify the demand supply gap of energy in Indian scenario.
- Carry out energy audit of an industry/Organization.
- Draw the energy flow diagram of an industry and identify the energy wasted or a waste stream.
- Select appropriate energy conservation method to reduce the wastage of energy
- Evaluate the techno economic feasibility of the energy conservation technique adopted.

Course Co-ordinator: Mrs.Divyabharathi

COURSE LAYOUT

SNO	Date	Course Content	Duration	Instructor
1	18.02.2022 (FN)	Energy Audit Methodology and recent trends. General Philosophy, need of Energy Audit and Management, EC Act, Definition and Objective of Energy Management,	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER
2	18.02.2022 (AN)	General Principles of Energy Management. Energy Management Skills, Energy Management Strategy.	3 Hours	Mr.R.Sabarish Assistant Professor Department of Mechanical Engineering BIHER
3	19.02.2022 (FN)	Economics of implementation of energy optimization projects, it's constraints, barriers and limitations, Financial Analysis: Simple Payback, IRR, NPV, Discounted Cashflow;	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER
4	19.02.2022 (AN)	Energy Audit Methodology and recent trends. Report-writing, preparations and presentations of energy audit reports, Post monitoring of energy conservation projects, MIS,	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER

5	25.02.2022 (FN)	Case-studies / Report studies of Energy Audits. Guidelines for writing energy audit report, data presentation in report, findings recommendations, impact of renewable energy on energy audit recommendations. Instruments for Audit and Monitoring Energy and Energy Savings, Types and Accuracy. Case studies of implemented energy cost optimization projects in electrical utilities as well as thermal utilities.	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER
6	25.02.2022 (AN)	Electrical Distribution and Utilization: Electrical Systems, Transformers loss reductions, parallel operations, T & D losses, P.F. improvements, Demand Side management (DSM), Load Management, Harmonics & its improvements,	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER
7	01.03.2022 (FN)	Energy efficient motors and soft starters, Automatic power factor Controllers, Variable speed drivers, Electronic Lighting ballasts for Lighting, LED Lighting, Trends and Approaches. Study of 4 to 6 cases of Electrical Energy audit and	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER
8	01.03.2022 (AN)	(Power factor improvement, Electric motors, Fans and blowers, Cooling Towers, Industrial/Commercial Lighting system, etc.)	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER

9	02.03.2022 (FN)	<p>Thermal Systems : Boilers- performance evaluation, Loss analysis, Water treatment and its impact on boiler losses, integration of different systems in boiler operation. Advances in boiler technologies, FBC and PFBC boilers, Heat recovery Boilers- it's limitations and constraints. Furnaces- Types and classifications, applications, economics and quality aspects, heat distributions, draft controls, waste heat recovering options, Furnaces refractory- types and sections. Thermic Fluid heaters, need and applications, Heat recovery and its limitations. Insulators- Hot and Cold applications, Economic thickness of insulation, Heat saving and application criteria. Steam Utilization Properties, steam distribution and losses, steam trapping,</p>	3 Hours	Mr.R.Sabarish Assistant Professor Department of Mechanical Engineering BIHER
10	02.03.2022 (AN)	<p>System Audit of Mechanical Utilities: Pumps, types and application, unit's assessment, improvement option, parallel and series operating pump performance. Energy Saving in Pumps & Pumping Systems. Bloomers (Blowers) types & application, its performance assessment, series & parallel operation applications & advantages. Energy Saving in Blowers Compressors, types & applications, specific power consumption, compressed air system, & economic of system changes. Energy Saving in Compressors & Compressed Air Systems Cooling towers, its types and performance assessment & limitations, water loss in cooling tower. Energy Saving in Cooling Towers .Study of 4 to 6 cases of Energy Audit & Management in Industries (Boilers, Steam System, Furnaces, Insulation and Refractory, Refrigeration and Air conditioning, Cogeneration, Waste Heat recovery etc.)Study of Energy Audit reports for various Industries and Organizations</p>	3 Hours	Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER

BOOKS AND REFERENCES

1	Guide Books no. 1 to 4 for National Certification Examination for Energy Managers and Energy Auditors, Bureau of Energy Efficiency (BEE), Bureau of Energy Efficiency (A Statutory body under Ministry of Power, Government of India) (Fourth Edition 2015)
2	India – The Energy Sector; Henderson, P. D.; University Press, Delhi, 2016 ISBN: 978-0195606539
3	Energy Management Handbook Turner, W. C. ; Fairmount Press, 2012 ISBN 9781304520708
4	Energy Management and Conservation Sharma, K. V., Venkateshaiah; P. I K International Publishing House Pvt. Ltd; 2011 ISBN 9789381141298
5	Principles of Power System Mehta ,V. K. S. Chand &Co.New Delhi 2016 ISBN 9788121905947



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Participant Feedback Form

(On course completion)

Date 02/03/2022

Course Energy Conservation & Audit

Student Name (optional) Sajiath

Student ID (optional) U15ME521

a) Helpful and knowledgeable staff:

Very satisfied Satisfied Somewhat satisfied Not satisfied

b) Staff friendliness:

Very satisfied Satisfied Somewhat satisfied Not satisfied

c) Ease of registration:

Very satisfied Satisfied Somewhat satisfied Not satisfied

2. Is there anything we can improve with our registration process?

.....

B. The Training Facility

3. How satisfied were you with the training facility on the follow

a) Cleanliness of facility:

Very satisfied Satisfied Somewhat satisfied Not satisfied

b) Comfort of training room:

Very satisfied Satisfied Somewhat satisfied Not satisfied

4. Is there anything we can improve with any of the above?

More ppt's & videos

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Participant Feedback Form

(On course completion)

Date ..02-03-2022.....

CourseEnergy Conservation and Audit.....

Student Name (optional)C. Divya.....

Student ID (optional)UISAE057.....

a) Helpful and knowledgeable staff:

Very satisfied Satisfied Somewhat satisfied Not satisfied

b) Staff friendliness:

Very satisfied Satisfied Somewhat satisfied Not satisfied

c) Ease of registration:

Very satisfied Satisfied Somewhat satisfied Not satisfied

2. Is there anything we can improve with our registration process?

.....Can make it online process.....

B. The Training Facility

3. How satisfied were you with the training facility on the follow

a) Cleanliness of facility:

Very satisfied Satisfied Somewhat satisfied Not satisfied

b) Comfort of training room:

Very satisfied Satisfied Somewhat satisfied Not satisfied

4. Is there anything we can improve with any of the above?

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Department of Aeronautical Engineering

Certificate OF PARTICIPATION

THIS IS CERTIFY THAT
NINGKHANRIN N G

has undertaken 50 Hours course on "**Energy Conservation & Audit**"
Organized by Department of Aeronautical Engineering, BIHER from 18.02.2022
to 02.03.2022.

Convenor

HOD/Aero



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BHARATH INSTITUTE OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF AERONAUTICAL ENGINEERING

Department of Aeronautical Engineering

Value Added Course

Energy conversion and Audit



Our Instructor " Mr.M.Manavalan Assistant Professor Department of Mechanical Engineering BIHER" is Handling the session to our registered participants on Energy Audit Methodology and recent trends