

# M. Tech. Energy Management (Regular)

Eligibility Graduate Degree in Engineering or M Sc. Physics with minimum 55% marks  
 Duration 4 Semesters  
 Seats 18

## First Semester:

Code	Title	Credits (L-T-P)	Hours	Faculty
<b>CORE COURSES</b>				
EN7A-701	Solar Energy: Fundamentals, Devices and Systems	4 (3-1-0)	64	SPS
EN7A-702	New & Renewable Energy, Sources and Technologies	4 (3-1-0)	64	RNS
EN7A-703	Water and Waste Water: Pollution & Control Technologies	4 (3-1-0)	64	RC
EN7A-704	Heat Transfer and Energy Conservation Laboratory	3 (0-0-3)	48	SPS
EN7A-705	Energy & Environment Software Application	3 (0-0-3)	48	DV
EN7A-706	Field Visit	1 (0-0-1)	16	SPS/RNS/RC
EN7A-707	Seminar	2		SPS/RNS/RC
<b>ELECTIVE COURSES</b>				
EN7A-708	Electrical Power Generation, Instrumentation, Measurements, Transmission and Distribution	3 (2-1-0)	48	VF
EN7A-709	Comprehensive Viva-vice	4		
	Total Credit	28		

## Second Semester:

Code	Title	Credits (L T P)		
<b>CORE COURSES</b>				
EN7A-710	Engineering Thermodynamics, Heat Transfer and Process Integration	4 (3-1-0)	64	SPS
EN7A-711	Air and Noise Pollution: Effects and Control Technologies	4 (3-1-0)	64	RC
EN7A-712	Bio and Solid Waste Management	4 (3-1-0)	64	RNS
EN7A-713	Green Building Technologies	4 (3-1-0)	64	SPS
EN7A-714	Solar Thermal and Photo - Voltaic Laboratory	3 (0-0-3)	48	DV
<b>ELECTIVE COURSES</b>				
EN7A-715	Energy Modeling and Project Management	3 (0-0-3)	48	RNS
EN7A-716	Comprehensive Viva-vice	4		
	Total Credit	26		

## Third Semester:

Code	Title	Credits (L T P)		
<b>CORE COURSES</b>				
EN7A-801	Energy Management (Thermal System)	4 (3-1-0)	64	SPS
EN7A-802	Energy Management (Electrical System)	4 (3-1-0)	64	DV
EN7A-803	Efficient Lighting: Sources, Systems and Design Aspects	4 (3-1-0)	64	DV
EN7A-804	Biomass and Environmental laboratory	3 (0-0-3)	48	RNS/RC
EN7A-805	Minor Project	4 (0-0-4)	64	SPS/RNS/RC
<b>ELECTIVE COURSES</b>				
EN7A-806	Sustainable development, Environmental Auditing and Environmental Impact Assessment	3 (0-0-3)	46	RC
EN7A-807	Comprehensive Viva-vice	4		
	Total Credit	26		

## Fourth Semester:

Code	Title	Credits (L T P)		
<b>CORE COURSES</b>				
EN7A-808	Major Project	12 (0-0-12)		
EN7A-809	Comprehensive Viva-vice	4		
	Total Credit	16		

**SCHOOL OF ENERGY & ENVIRONMENTAL STUDIES**  
**Devi Ahilya Vishwavidayala,**

**M.Tech. (Energy Management) for Working Executives**  
**Curriculum:**

**First Semester:**

Code	Title	Credits (L-T-P)
<b>CORE COURSES</b>		
EX-701	Solar Energy: Fundamentals, Devices and Systems	4 (3-1-0)
EX-702	Engineering Thermodynamics, Heat Transfer and Process Integration	4 (3-1-0)
EX-703	Water and Waste Water: Pollution & Control Technologies	4 (3-1-0)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
*EX-704	<a href="#">Energy conservation and Waste Heat Recovery</a>	4 (3-1-0)
*EX-705	<a href="#">Design Of Photovoltaic Systems</a>	4 (3-1-0)
<b>ELECTIVE GENERIC:</b>		
EX-801	Minor Project-I	4 (0-0-8)
	Comprehensive Viva-vice	4
	Total Credit	24

\* Available on NPTEL Online Courses for session July –Dec. 2018. Need to be registered before 30<sup>th</sup> July and 6th Aug. 2018 respectively.

**Second Semester:**

Code	Title	Credits (L T P)
<b>CORE COURSES</b>		
EX-706	Air and Noise Pollution: Effects and Control Technologies	4 (2-1-1)
EX -707	Energy Management (Thermal & Electrical)	4 (2-1-1)
EX -708	New & Renewable Energy, Sources and Technologies	4 (2-1-2)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
*EX -709	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
*EX -710	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
<b>ELECTIVE GENERIC:</b>		
EX -802	Minor Project-II	4 (0-0-8)
	Comprehensive Viva-vice	4
	Total Credit	24

**Third Semester:**

Code	Title	Credits (L-T-P)
<b>CORE COURSES</b>		
EX -711	Green Building Technologies	4 (2-1-1)
EX -712	Bio and Solid Waste Management	4 (2-1-1)
EX -713	Sustainable development, Environmental Auditing and Environmental Impact Assessment	4 (2-1-1)
<b>ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online</b>		
*EX -714	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
*EX -715	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
<b>ELECTIVE GENERIC:</b>		
EN-803	Minor Project-III	4 (0-0-8)
	Comprehensive Viva-vice	4
	Total Credit	24

**Fourth Semester:**

Code	Title	Credits (L T P)
<b>CORE COURSES</b>		
EX -716	Energy Modelling and Project Management	4 (2-1-1)

EX -717	Electrical Power Generation, Instrumentation, Measurements, Transmission and Distribution	4 (2-1-1)
EX -718	Efficient Lighting: Sources, Systems and Design Aspects	4 (2-1-1)
ELECTIVE COURSES-DISCIPLINE CENTRIC (Any One) through Online		
*EX -719	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
*EX -720	<a href="#">Online Courses related to Energy and Environment</a>	4 (2-1-1)
ELECTIVE GENERIC:		
EN-804	Minor Project-IV	4 (0-0-8)
	Comprehensive Viva-vice	4
	Total Credit	24
	Grand Total Credit	96

\*Exact title of the course would be declared time to time depending upon availability of online courses

**Note: The above course contents can be modified as per requirement from time to time in accordance with University Ordinance No. 14.**

**SCHOOL OF ENERGY & ENVIRONMENTAL STUDIES**  
**Devi Ahilya Vishwavidayala,**  
**Dual Degree (B Tech-M Tech) Energy and Environmental**  
**Engineering**

**Curriculum:**

**FIRST SEMESTER:**

Code	Title	Credits (L-T-P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A-101	Applied Math- I	4 (3-1-0)	64	
EN6A -102	Applied Physics-I	4 (3-1-0)	64	
EN6A -103	Engineering Chemistry	4 (3-1-0)	64	
EN6A -104	Introduction to Programming and Data Structure	3 (0-0-3)	48	
EN6A -105	Workshop Practices-I	4 (0-0-3)	64	
<b>ELECTIVE COURSE</b>				
EN6A -106	Technical English and communication	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A-107	Comprehensive Viva-Voce	4	64	
	<b>Total Credit</b>	<b>27</b>		

**SECOND SEMESTER:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A-108	Engineering Math- II	4 (3-1-0)	64	
EN6A-109	Applied Physics-II TH.	4 (3-1-0)	64	
EN6A-110	Applied Physics-II PR.	4 (1-0-3)	64	
EN6A-111	Digital Electronics – TH.	4 (1-0-3)	64	
EN6A-112	Digital Electronics – PR.	2 (0-0-2)	32	
EN6A-113	Analog Electronics - TH	3 (0-0-3)	48	
EN6A-114	Electronics ENGG. – TH.			
EN6A-115	Electronics ENGG. – PR.			
<b>ELECTIVE COURSE</b>				
EN6A -116	Humanity (Social Science & Ethics)	4 (4-0-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -117	Comprehensive Viva-Voce	4	64	

**THIRD SEMESTER:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -201	Basics of Electrical & Electronic Engineering	4 (3-1-0)	64	
EN6A -202	Basics of Mechanical Engineering	4 (3-1-0)	64	
EN6A -203	Engineering Thermodynamics	4 (3-1-0)	64	
EN6A -204	Basics of Environmental Studies	4 (4-0-0)	64	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -205	Workshop Practices-III (AUTOCAD)	3(0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -206	Industrial Instrumentation and Measurement	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -207	Comprehensive Viva-Voce	4	64	
	<b>Total Credit</b>	<b>27</b>		

**FOURTH SEMESTER:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				

EN6A -208	Energy Engineering Fundamental	4 (3-1-0)	64	
EN6A -209	Electrical machine	4 (3-1-0)	64	
EN6A -210	Applied Power Engineering	4 (3-1-0)	64	
EN6A -211	Environmental chemistry	4 (4-0-0)	64	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -212	Workshop Practices-IV (MATLAB)	3 (0-0-3)	64	
EN6A -213	Industrial Training during Summer vacation	3(0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -214	Energy Modeling and Project Management	4(3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -215	Comprehensive Viva-Voce	4		
	Total Credit	<b>30</b>		

**FIFTH SEMESTER:**

Code	Title	Credits (L-T-P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -301	Water: Pollution & Control Technologies	4 (3-1-0)	64	
EN6A -302	Heat transfer and Energy Conservation	4 (3-1-0)	64	
EN6A -303	Fundamentals of Solar Engineering	4 (3-1-0)	64	
EN6A -304	Energy Scenario and Conventional Sources of Energy	4 (3-1-0)	64	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -305	Workshop Practices-V(Heat Transfer & Energy Conservation Lab)	3(0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -306	Surveying & Leveling	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -307	Comprehensive Viva-voce	4		
	Total Credit	<b>27</b>		

**SIX SEMESTERS:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -308	Renewable Energy, Sources and Technologies- I	4 (3-1-0)	64	
EN6A -309	Environmental Laws and Policies	4 (3-1-0)	64	
EN6A -310	Environmental Ecology and Microbiology	4 (3-1-0)	64	
EN6A -311	Energy Management (Thermal System)	4 (3-1-0)	64	
EN6A -312	Field Visit	2(0-0-2)	32	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -313	Workshop Practices-VI (Solar Thermal and Photo - Voltaic Laboratory)	3 (0-0-3)	64	
<b>ELECTIVE COURSE</b>				
EN6A -314	Computer Programming (C, C++, Python)	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -315	Comprehensive Viva-Voce	4	64	
	Total Credit	<b>29</b>		

**SEVENTH SEMESTER:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -401	Air & Noise Pollution: Effects and Control Technologies	4 (3-1-0)	64	
EN6A -402	Waste Water Engineering	4 (3-1-0)	64	
EN6A -403	Bio-fuel Technology	4 (3-1-0)	64	
EN6A -404	Energy Management (Electrical System)	4 (3-1-0)	64	
EN6A -405	Seminar	2(0-0-2)	32	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -406	Workshop Practices-VII (Environment Lab)	3(0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -407	Electrical Power Generation, Transmission & Distribution	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -408	Comprehensive Viva-Voce	4	64	
	Total Credit	<b>29</b>	464	

**EIGHT SEMESTERS:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -409	Renewable Energy, Sources and Technologies II	4 (3-1-0)	64	
EN6A -410	Sustainable development, Environmental Auditing and Environmental Impact Assessment	4 (3-1-0)	64	
EN6A -411	Industrial Pollution Control Technologies	4 (3-1-0)	64	
EN6A -412	Green Building Technologies	4 (3-1-0)	64	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -413	Minor Project-I	4 (0-0-4)	64	
EN6A -414	Industrial Training/ Educational Tour (minimum 4 weeks)	4 (0-0-4)	64	
EN6A -415	Workshop Practices-VIII (Biomass Laboratory)	3 (0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -416	Electric and Hybrid Electric Vehicle Technology	4 (3-1-0)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -417	Comprehensive Viva-Voce	4	64	
	Total Credit	<b>35</b>	560	

**NINTH SEMESTER:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSE</b>				
EN6A -501	Solid Waste Management	4 (3-1-0)	64	
EN6A -502	Sustainable Development and Climate Change	4 (3-1-0)	64	
EN6A -503	Efficient Lighting: Sources, Systems and Design Aspects	4 (3-1-0)	64	
EN6A -504	Refrigeration & Air Conditioning	4 (3-1-0)	64	
<b>ABILITY ENHANCEMENT COURSE</b>				
EN6A -505	Minor project-II	4 (0-0-4)	64	
EN6A -506	Workshop Practices-IX (Energy & Environment Software Application)	3(0-0-3)	48	
<b>ELECTIVE COURSE</b>				
EN6A -507	Operations Research	4 (0-0-4)	64	
<b>Comprehensive Viva-Voce</b>				
EN6A -508	Comprehensive Viva-Voce	4	64	
	Total Credit	<b>31</b>	496	

**Tenth Semester:**

Code	Title	Credits (L T P)	Hours	Faculty
<b>CORE COURSES</b>				
EN6A-509	Major Project	12 (0-0-12)	192	
<b>Comprehensive Viva- Voce</b>				
EN6A-510	Comprehensive Viva-vice	4		
	Total Credit	16		
	<b>Grand Total Credits</b>	<b>280</b>	<b>4480</b>	

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