

SIKSHA 'O' ANUSANDHAN UNIVERSITY, BHUBANESWAR
CURRICULUM FOR M.TECH PROGRAMME
(ELECTRICAL ENGG.)
SPECIALIZATION: POWER ELECTRONICS & DRIVES

1st Semester				2nd Semester			
Theory		L.T.P.	Credit	Theory		L.T.P.	Credit
MELT-501	Power Electronics Converter - I	4-0-0	4	MELT -504	Power Electronics Converter - II	4-0-0	4
MELT-502	Machine Analysis	4-0-0	4	MELT-505	Electric Drives	4-0-0	4
MELT-503	Advanced Control Theory -I	4-0-0	4				
	Dept. Elective - I (Any One)				Dept. Elective - II (Any two)		
MELT -601	Power Quality	3-0-0	3	MELT-603	Modeling and Simulation of Power Electronic Devices	3-0-0	3
MELT- 602	Transducer Technology	3-0-0	3	MELT-604	Power System Dynamics	3-0-0	3
	Allied Dept. Elective - I			MELT-605	AI application in Power Systems Allied Dept. Elective - II (any one)		
MAET-614	Advanced Microprocessor and Micro Controllers	3-0-0	3	MCDT-502	Optimization Techniques	3-0-0	3
			18	MENT-613	Advanced DSP	3-0-0	3
							17
	Practicals/ Sessionals				Practicals/ Sessionals		
MELP -501	Power Electronics Lab	0-0-3	2	MELP-503	Machine Drive Lab	0-0-3	2
MELP-502	Advanced Machine Lab			MELP-504	Elective Lab. (DSP)	0-0-3	2
	Comprehensive Viva	0-0-3	2	MELP-505	Seminar	0-0-3	2
	Audit .Communicative English			MELP-506	Comprehensive Viva	0-0-3	2
			4				8
	Total Credit		22		Total Credit		25
3rd Semester				4th Semester			
Theory		L.T.P.	Credit	Theory		L.T.P	Credit
MELT-506	HVDC Power Transmission & Facts	4-0-0	4	MELP-510	Project & Dissertation		20
	Dept. Elective -III (Any One)			MELP-511	Comprehensive Viva-Voce		2
MELT-606	Renewable Energy Sources	3-0-0	3				
MELT-607	Advanced Control Theory -II	3-0-0	3				
			7		Total Credit		22
	Practicals/ Sessionals						
MELP-507	Seminar	0-0-3	2				
MELP-508	Project		10				
MELP-509	Comprehensive Viva Voce	0-0-3	2				
			9				
	Total Credit		21				

Computer Science & Engineering

1st Semester				2nd Semester			
Theory		L-T-P	Credit	Theory		L-T-P	Credit
MCST501	Dept. Core-I Mathematical Foundations for Computer Science	3-1-0	4	MCST503	Dept. Core-IV Advanced Operating System	3-1-0	4
MCST501	Dept. Core-II Advanced Computer Architecture	3-1-0	4	MCST504	Dept. Core-V Object Oriented Software Engineering	3-1-0	4
MCST502	Dept. Core-III Advanced Design and Analysis of Algorithms	3-1-0	4		Dept. Elective 2	3-0-0	3
	Departmental Elective 1	3-0-0	3		Dept. Elective 3	3-0-0	3
	Allied Dept. Elective 1	3-0-0	3		Allied Dept. Elective 2	3-0-0	3
			18				17
	<i>Practicals / Sessionals</i>				<i>Practicals / Sessionals</i>		
MCSP501	Data structures and Algorithms Lab	0-0-3	2	MCSP503	Operating System Lab	0-0-3	2
				MCSP504	Software Engineering Using UML	0-0-3	2
MCSP502	Network and Simulation Lab	0-0-3	2	MCSP505	Seminar – I	0-0-3	2
	Total Credit		22	MCSP506	Comprehensive Viva-I		2
	Departmental Electives				Total Credit		25
MCST610	Advanced Computer Graphics				<i>Departmental Electives</i>		
MCST611	Mobile Communication			MCST613	Cryptography and Security		
MCST612	Natural Language Processing			MCST614	Advanced Computer Network		
MAET505	Embedded System			MCST615	Advanced Artificial Intelligence		
MAET502	VLSI Design			MCST616	Algorithms for Bio-informatics		
	Allied Dept. Electives			MCST617	Pattern Recognition		
MHST601	Project Management & Costing				<i>Allied Dept. Electives</i>		
MENT612	Adaptive Signal Processing			MCDT502	Optimization Techniques		
MCDT501	Information Theory and Coding			MPHT601	Introduction to Nano Technology		
MHST501	AUDIT: Communication Skill			MENT614	Digital Speech Processing		

SECOND YEAR (computer sc. & Engg.)

3 rd Semester				4 th Semester			
Theory		L-T-P	Credi t	Theory		L-T-P	Credit
	Dept. Core-VI	3-1-0	4	MCSP510	Project		20
MCST505	Database Engineering			MCSP511	Comprehensive Viva-Voce-III		2
	Departmental Elective - 4	3-0-0	3				
	<i>Practicals / Sessionals</i>						
MCSP507	Project	0-0-3	10				
MCSP508	Seminar-II	0-0-3	2				
MCSP509	Comprehensive Viva-Voce-II		2				
	Total Credit		21			Total Credit	22
	<u>Departmental Electives</u>						
MCST618	Data Warehousing and Data Mining						
MCST619	Digital Image Processing						
MCST620	Advanced Compiler Construction						
MCST621	Parallel Algorithms						
MCST622	E-Governance						

**INSTITUTE OF TECHNICAL EDUCATION &
RESEARCH**

**CURRICULUM FOR M.TECH. PROGRAMME IN
ELECTRONICS & TELECOMMUNICATION ENGG.**

(SPECIALIZATION: TELECOMMUNICATION SYSTEM ENGG.)

1st Semester				2nd Semester			
Subject code	Theory	Contact Hrs	Credits	Subject code	Theory	Contact Hrs	Credits
MENT- 501	1. Departmental Core -I Digital Communication Technique	3-1-0	4	MENT-504	1. Departmental Core - IV Optical Communication Techniques	3-1-0	4
MENT- 502	2. Departmental Core-II Information Theory and Coding	3-1-0	4	MENT-505	2. Departmental Core -V Mobile Cellular Communication	3-1-0	4
MENT- 503	3. Departmental Core-III Electromagnetic Engineering	3-1-0	4		3. Dept. Elective- II	3-0-0/ 3-1-0	3/ 4
	4. Dept. Elective- I	3-0-0/ 3-1-0	3/ 4		4. Dept. Elective- III	3-0-0/ 3-1-0	3/ 4
	5.Allied Dept. Elective- I	3-0-0/ 3-1-0	3/ 4		5. Allied Dept. Elective-II	3-0-0/ 3-1-0	3/ 4
	AUDIT : Communication Skills						
18/20				17/20			
Subject code	Sessional	Contact Hrs	Credits	Subject code	Sessional	Contact Hrs	Credits
MENP - 501	Core Lab. - I Advanced Digital Communication Technique Lab.	0-0-3	2	MENP - 502	Core Lab-II Communication System and Simulation Lab.	0-0-3	2
	Elective - Lab.- I	0-0-3	2		Elective Lab - II/Micro/Mini Design Project	0-0-3	2
					Seminar - I	0-0-3	2
					Comprehensive Viva-Voce - I	---	2
Total Credits			22/24	Total Credits			25/28

3 rd Semester				4 th Semester			
Subject code	Theory	Contact Hrs	Credits	Subject code	Sessionals / Practicals	Contact Hrs	Credits
MENT - 506	1. Department Core - VI Advances in Wireless Communication	3-1-0	4	MENP - 506	Project & Dissertation		20
	2. Dept. Elective-IV	3-0-0/ 3-1-0	3/ 4	MENP - 507	Comprehensive Viva Voce - III	---	02
			7/8				
Subject code	Sessionals / Practicals	Contact Hrs	Credits				
MENP - 503	Project - I		10				
MENP - 504	Seminar - II	0-0-3	2				
MENP - 505	Comprehensive Viva Voce - II		2				
Total Credits			21/22	Total Credits			22

List of Dept. Electives (I, II, III & IV)

SL NO.	SUBJECT CODE	SUBJECT	L-T-P	CREDITS
1.	MENT - 607	Communication And Computer Network Design	3-0-0	3
2.	MENT - 608	Antenna & Propagation	3-0-0	3
3.	MENT - 609	Satellite Communication	3-0-0	3
4.	MENT - 610	Microwave Plumbing	3-0-0	3
5.	MENT - 611	RF & Microwave Communication Systems	3-0-0	3
6.	MENT - 612	Adaptive Signal Processing	3-0-0	3
7.	MENT - 613	Advanced DSP Techniques	3-0-0	3
8.	MENT - 614	Digital Speech Processing	3-0-0	3
9.	MENT - 615	Digital Image Processing	3-0-0	3
10.	MENT - 616	Soft Computing	3-0-0	3
11.	MENT - 617	Evolutionary Computing Techniques	3-0-0	3
12.	MAET - 502	Digital VLSI design	3-1-0	4
13.	MAET - 504	Logic Synthesis and Optimization	3-0-0	3
14.	MAET - 505	Embedded Systems	3-1-0	4
15.	MAET - 610	Introduction to Nanotechnology	3-0-0	3
16.	MAET - 615	VLSI Signal Processing	3-0-0	3

List Elective Labs (I & II)

SL NO.	SUBJECT CODE	SUBJECT	L-T-P	CREDITS
1.	MENP - 603	Advanced DSP Lab	0-0-3	2
2.	MENP - 604	Microprocessor & Microcontroller Lab	0-0-3	2
3.	MENP - 605	Digital Image Processing Lab	0-0-3	2
4.	MENP - 606	Speech Processing Lab	0-0-3	2
5.	MAEP -607	VLSI Design & Simulation Lab	0-0-3	2
6.	MAEP - 502	Embedded Systems Lab	0-0-3	2

List of Allied Dept. Electives (I & II)

SL NO.	SUBJECT CODE	SUBJECT	L-T-P	CREDITS
1.	MCDT503	Computational Methods in Engineering	3-0-0	3
2.	MCST 620	Operating Systems	3-0-0	3
3.	MCST621	Software Engineering	3-0-0	3
4.	MCST 622	Internet & Web Technology	3-0-0	3
5.	MCST 619	Pattern Recognition Engineering	3-0-0	3

First Year (Computer Sc. & Data Processing)

1 st Semester				2 nd Semester			
Theory		L-T-P	Credit	Theory		L-T-P	Credit
MCST506	Dept. Core-I Principle of Programming Language	3-1-0	4	MCST508	Dept. Core-IV Architecture and Operating System	3-1-0	4
MCST507	Dept. Core-II Theory of Computation	3-1-0	4	MCST509	Dept. Core-V Database Management System	3-1-0	4
MCST502	Dept. Core-III Advanced Design and Analysis of Algorithms	3-1-0 3-0-0	4		Dept. Elective 2 & 3 (Any Two)	6-0-0	6
	Departmental Elective 1		3		Allied Dept. Elective 2	3-0-0	3
	Allied Dept. Elective 1	3-0-0	3				17
	<i>Practicals / Sessionals</i>		18		<i>Practicals / Sessionals</i>		
MCSP512	Programming Language Lab	0-0-3	2	MCSP503	Operating System Lab	0-0-3	2
				MCSP513	Database Management Lab	0-0-3	2
MCSP501	Data structure and Algorithm Lab	0-0-3	2	MCDP501	Seminar - I	0-0-3	2
				MCDP502	Comprehensive Viva-I		2
	Total Credit		22		Total Credit		25
	Departmental Electives				<i>Departmental Electives</i>		
MCST623	Computer Network			MCST613	Cryptography and Security		
MCDT602	Advanced Computational Techniques			MCDT603	Simulation and Modeling		
MCST610	Advanced Computer Graphics			MCDT604	Algorithmic Graph Theory		
MCST624	Information System Design			MCST625	Internet Technology		
				MCST616	Algorithm for Bio-informatics		
				MCST617	Pattern Recognition		
	Allied Dept. Electives						
MENT616	Soft Computing			MCDT502	<i>Allied Dept. Electives</i>		
MCDT505	Markov Process and Decision Theory.			MMET504	Optimization Techniques		
MHST501	AUDIT: Communication Skill				Computational Fluid Dynamics and Heat Transfer.		

SECOND YEAR (Computer Sc. & Data Processing)

3 rd Semester				4 th Semester			
			Credit				Credit
Theory		L-T-P		Theory		L-T-P	
	Dept. Core-VI	3-1-0	4	MCDP506	Project		20
				MCDP507	Comprehensive Viva-Voce-III		2
MCST504	Object oriented Software Engineering						
MCDT611	Departmental Elective - 4	3-0-0	3				
	<i>Practicals / Sessionals</i>						
MCDP503	Project	0-0-3	10				
MCDP504	Seminar-II	0-0-3	2				
MCDP505	Comprehensive Viva-Voce-II		2				
	Total Credit		21			Total Credit	22
	<u>Departmental Electives</u>						
MCST618	Data Warehousing and Data Mining						
MCST619	Digital Image Processing						
MCST621	Parallel Algorithms						

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INSTITUTE OF TECHNICAL EDUCATION & RESEARCH
CURRICULUM FOR M.TECH. PROGRAMME IN
APPLIED ELECTRONICS & INSTRUMENTATION ENGG.
(SPECIALIZATION: VLSI & EMBEDDED SYSTEM.)

1st Semester				2nd Semester			
Subject code	Theory	Contact Hrs	Credits	Subject code	Theory	Contact Hrs	Credits
MAET-501	1. Departmental Core -I Semiconductor Devices, Modeling & Simulation	3-1-0	4	MAET-504	1. Departmental Core - IV Logic Synthesis And Optimization	3-1-0	4
MAET-502	2. Departmental Core-II Digital VLSI Design	3-1-0	4	MAET-505	2. Departmental Core -V Embedded System	3-1-0	4
MAET-503	3. Departmental Core-III VLSI Fabrication Technology	3-1-0	4		3. Dept. Elective- II	3-0-0/ 3-1-0	3/4
	4. Dept. Elective- I	3-0-0/ 3-1-0	3/4		4. Dept. Elective- III	3-0-0/ 3-1-0	3/4
	5. Allied Dept. Elective- I	3-0-0/ 3-1-0	3/4		5. Allied Dept. Elective-II	3-0-0 / 3-1-0	3/4
	AUDIT : Communication skill						
			18/20				17/20
Subject code	Sessional	Contact Hrs	Credits	Subject code	Sessional	Contact Hrs	Credits
MAEP-501	Core Lab. - I VLSI Design & Simulation Lab	0-0-3	2	MAEP-502	Core Lab-II Embedded System Lab.	0-0-3	2
	Elective - Lab.- I	0-0-3	2		Elective Lab - II/Micro/Mini Design Project	0-0-3	2
				MAEP-503	Seminar - I	0-0-3	2
				MAEP-504	Comprehensive Viva-Voce - I	---	2
Total Credits			22/24	Total Credits			25/28

3 rd Semester				4 th Semester			
Subject code	Theory	Contact Hrs	Credits	Subject code	Sessionals / Practicals	Contact Hrs	Credits
MAET-506	1. Department Core - VI Analog VLSI Design	3-1-0	4	MAEP-508	Project & Dissertation		20
	2. Dept. Elective-IV	3-0-0 / 3-1-0	3/4	MAEP-509	Comprehensive Voce - III	Viva	2
			7/8				
Subject code	Sessionals / Practicals	Contact Hrs	Credits				
MAEP-505	Project - I		10				
MAEP-506	Seminar - II	0-0-3	2				
MAEP-507	Comprehensive Voce - II	Viva	2				
Total Credits			21/22	Total credits			22

List of Allied Dept. Electives (I & II)

SL NO.	CODE	SUBJECT
1.	MHST 601	Project Management and Costing
2.	MCDT503	Computational Methods in Engineering
3.	MCST 620	Operating Systems
4.	MCST621	Software Engineering
5.	MCST 622	Internet & Web Technology

List of Dept. Electives (I, II, III & IV)

SL NO.	CODE	SUBJECT
1.	MAET-607	ASIC Modeling
2.	MAET-608	VLSI & MEMS Packaging
3.	MAET-609	Micro-Electro mechanical systems
4.	MAET-610	Introduction to Nano-technology
5.	MAET-611	VLSI Physical design
6.	MAET-612	VLSI Testing & Reliability
7.	MAET-613	Low power circuits & system
8.	MAET-614	Microprocessor and Microcontroller
9.	MAET-615	VLSI signal processing
10.	MENT-612	Adaptive signal processing
11.	MENT-607	Communication And Computer Network Design
12.	MENT-614	Digital speech processing
13.	MENT-615	Digital image processing
14.	MENT-505	Mobile cellular communication
15.	MENT-616	Soft computing
16.	MENT-617	Evolutionary computing

List Elective Labs (I & Ii)

7.	MAEP-610	Microprocessor & Microcontroller Lab	0-0-3
8.	MENP-603	Advanced DSP Lab.	0-0-3
9.	MENP-605	Speech Processing Lab.	0-0-3
10.	MENP-606	Image Processing Lab.	0-0-3

INSTITUTE OF TECHNICAL EDUCATION & RESEARCH

Curriculum for M. Tech. (Thermal Engg.) Programme

1 st Semester				2 nd Semester					
Theory		Contact Hrs	Credit	Theory		Contact Hrs.	Credit		
Departmental Core				Departmental Core					
MMET501	Advance Fluid Mechanics	4-0-0	4	MMET504	Computational Fluid Dynamics and Heat Transfer	4-0-0	4		
MMET502	Advance Engineering Thermodynamics	4-0-0	4	MMET505	Convective Heat and Mass Transfer	4-0-0	4		
MMET503	Conduction and Radiation Heat Transfer	4-0-0	4	Departmental Electives					
Departmental Electives				Elective-II		3-0-0	3		
Elective-I				3-0-0	3	Elective-III			
Elective-I				3-0-0	3	Elective-III		3-0-0	3
Allied Departmental Electives				Allied Departmental Electives					
Elective - I				3-0-0	3	Elective – II		3-0-0	3
Audit Course: Communicative Skills				3-0-0	0	Sessionals			
Sessionals				MMEP503	Computational Fluid Dynamics Laboratory.	0-0-3	2		
MMEP501	Experimental Methods in Thermal Engineering	1-0-3	3	MMEP504	Micro/Mini Project	0-0-3	2		
MMEP502	Computational Lab.	0-0-3	2	MMEP505	Seminar - I	0-0-3	2		
				MMEP506	Comprehensive Viva Voce-I	0-0-0	2		
		Total	23			Total	25		
Departmental Elective-I (Any one)				Departmental Electives II & III (Any two)					
				MMET611	Theory of Combustion				
MMET607	I.C. Engine			MMET612	Two Phase Flow & Heat Transfer				
MMET608	Solar Energy			MMET613	Thermal Power Engineering.				
MMET609	Waste Heat Recovery & energy utilization			MMET614	Theory of Turbo Machines				
MMET610	Gas Dynamics			MMET615	Cryogenic Process Engineering				
				MMET616	Air Conditioning & Ventilation				
				MMET617	Micro Scale Heat Transfer				
				MMET618	Renewable Energy Sources				
Allied Departmental Elective-I (Any one)				Allied Departmental Elective-II (Any one)					
MCDT 503	Computational Methods in Engineering.			MCDT504	Modeling & Simulations				
MENT616	Soft Computing			MCDT502	Optimization Engineering				
MHST601	Project Management & Costing			MPHT601	Introduction to Nano Technology				
MCST623	Artificial Intelligence			MCET501	Environmental Pollution and Control				
3rd Semester				4th Semester					
Theory				MMEP507	Project/Dissertation	0-0-15	20		
Department Core				MMEP510	Comprehensive Viva Voce-III	0-0-0	2		
MME506	Heat Exchanger Analysis and Design	4-0-0	4			Total	22		
Departmental Elective									
Elective-III		3-0-0	3						
Sessionals									
MMEP507	Project	0-0-9	10						
MMEP508	Seminar-II	0-0-3	2						
MMEP509	Comprehensive Viva Voce-II	0-0-0	2						
		Total	21						
Departmental Elective-III (Any one)									
MME619	Finite Element and Boundary Element Methods in Engineering								
MME620	Thermal System Design								
MME621	Advance Energy Conversion								

MME622	Refrigeration Engineering				
MME623	Turbulence				