CURRICULUM
&
ACADEMIC REGULATIONS

POST-GRADUATE PROGRAMME

M.Tech. in Computer Applications in Industrial Drives

(2021-2023)

Department of Electrical and Electronics Engineering

The National Institute of Engineering

Mysuru-570 008

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION

The department will be an internationally recognized center of excellence imparting quality education in electrical engineering for the benefit of academia, industry and society at large.

MISSION

M1: Impart quality education in electrical and electronics engineering through theory and its applications by dedicated and competent faculty

M2: Nurture creative thinking and competence leading to innovation and technological growth in the overall ambit of electrical engineering

M3: Strengthen industry-institute interaction to inculcate best engineering practices for sustainable development of the society

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: Graduates will be competitive and have a successful career in automated electric drive industry and other organizations

PEO2: Graduates will excel as academicians and contribute to research and development

PEO3: Graduates will demonstrate leadership qualities with professional standards for sustainable development of society

PROGRAM OUTCOMES

Students graduating from M.Tech - CAID of department of Electrical & Electronics Engineering shall have the ability to:

PO1: Independently carry out research / investigation and development work to solve practical problems in the field of Industrial Drives Engineering.

PO2: Write and present a substantial technical report/document.

PO3: Demonstrate a degree of mastery in the field of Industrial Drives Engineering in a technologically changing scenario.

PO4: Demonstrate managerial and financial skills.

PO5: Demonstrate concern for the safety and environment for sustainable development of society.

LIST OF COURSES OFFERED AS PER CATEGORY

Core – Theory			MCD2E301	CMOS VLSI Design	(3-0-0) 3
AEM1C01	Applied Engineering Mathematics	(4-0-0) 4	MCD2E302	High Frequency Switching Power Supplies	(3-0-0) 3
MCD1C02	Power Electronic Devices and Circuits	(4-2-0) 5	MCD2E303	MEMS & Microsystems	(3-0-0) 3
			MCD2E304	Finite Element Method of Electric machine analysis	(3-0-0) 3
			MCD2E305	Electric Vehicle Technology	(3-0-0) 3
MCD1C03	DSP Architecture and Applications	(4-2-0) 5	MCD2E401	Virtual Instrumentation using LabVIEW	(2-0-2) 3
MCD1C05	Control Systems	(3-2-0) 4	MCD2E402	Internet of Things	(3-0-0) 3
MCD1CRM	Research Methodology	(2-0-0) 2	MCD2E403	Design of Control Systems	(3-0-0) 3
MCD2C01	Power Electronic Applications to Drives	(4-2-0) 5	MCD2E404	Digital Control Systems	(3-0-0) 3
MCD2C02	Computer Control of Electric Drives	(4-2-0) 5	MCD2I01	Industry Driven Elective	(2-0-0) 2
MCD2C03	Embedded Systems	(4-0-0) 4	MCD3MXX	MOOC Elective (Department Specific/ Management)	(3-0-0) 3
MCD2C04	PLC and HMI	(3-2-0) 4	MCD3MXX	MOOC open Elective (from other departments)	(2-0-0) 2
Core –Lab			**Project, Seminar, etc.**		
MCD1L01	Drives Lab – I	(0-0-2)1	MCD3C02	Seminar/Paper Presentation	(0-0-0) 1
MCD2L01	Drives Lab – II	(0-0-2)1	MCD3C03	Internship	(0-0-0) 5
			MCD3CXX	Project Phase-1	(0-0-0) 8
			MCD4C01	Project Phase-2	(0-0-0) 15
Electives					
MCD1E104	Industrial Automation & Robotics	(3-0-0) 3			
MCD1E102	Wireless Sensor Networks	(3-0-0) 3			
MCD1E103	Special Electrical Machines	(3-0-0) 3			
MCD1E201	Process Control and Instrumentation	(3-0-0) 3			
MCD1E202	Real Time Operating Systems	(3-0-0) 3			
MCD1E203	Automotive Electronics	(3-0-0) 3			

SUGGESTED PLAN OF STUDY (For Regular Students)

Semester/ Sl.No.	I	II	III	IV
1	AEM1C01	MCD2C01	MCD3MXX	MCD4C01
2	MCD1C02	MCD2C02	MCD3MXX	
3	MCD1C03	MCD2C03	MCD3C02	
4	MCD1C05	MCD2C04	MCD3C03	
5	MCD1E1XX	MCD2EXX	MCD3CXX	
6	MCD1E2XX	MCD2EXX		
7	MCD1CRM	MCD2I01		
8	MCD1L01	MCD2L01		
Total Credits	**27**	**27**	**19**	**15**

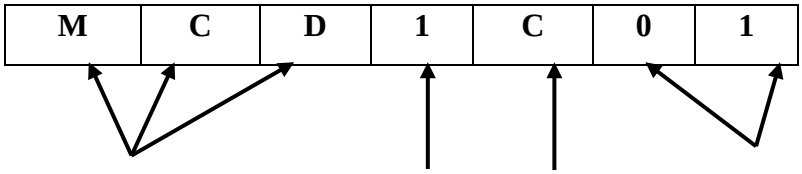
TABLE OF CREDITS TO BE EARNED BY A STUDENT

Degree Requirements:

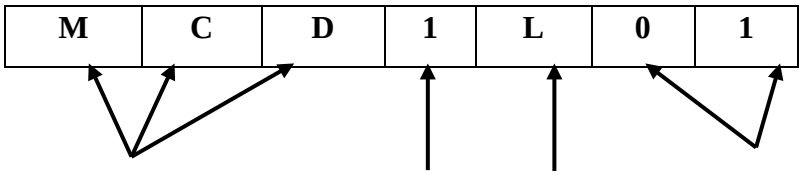
Category of courses	Minimum credits to be earned
	Regular Students
Subject of 1st to 4th Semester	
Basic science	04
Humanities and Social science core (Including MOOC Elective(Department S Specific/Management)	05
Core	34
Dept. Elective	12
Industry Driven Elective	02
MOOC open Elective(from other departments)	02
Seminar/Paper Presentation, Internship, Project, Competency Training	29
Total Credits	88

COURSE NUMBERING SCHEME

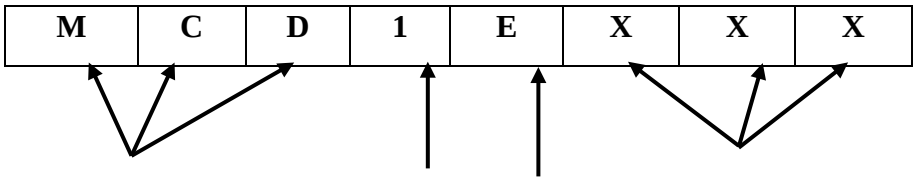
Core



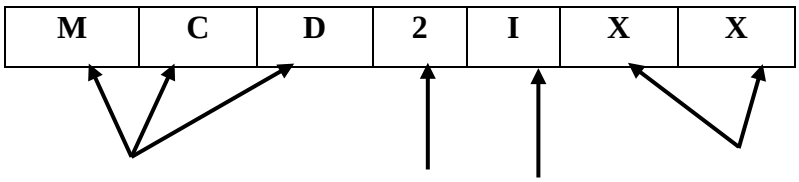
Lab



Elective



Industry Driven Elective



MOOC Elective

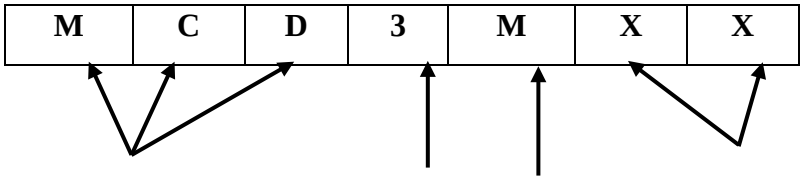


TABLE OF SCHEME AND EXAMINATION FROM 1ST TO 4TH SEMESTER

I SEMESTER

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING SCHEME OF TEACHING AND EXAMINATION I SEMESTER–M.Tech. (CAID)						
Sl. No.	**Subject Code**	**Subject**	**Teaching hours per week**			**Credits**
			L	**T**	**P**	
1.	AEM1C01	Applied Engineering Mathematics	4	0	0	04
2.	MCD1C02	Power Electronic Devices and Circuits	4	2	0	05
3.	MCD1C03	DSP Architecture and Applications	4	2	0	05
4.	MCD1C05	Control systems	3	2	0	04
5.	MCD1E1XX	Department Elective – 1	3	0	0	03
6.	MCD1E2XX	Department Elective – 2	3	0	0	03
7.	MCD1CRM	Research Methodology	2	0	0	02
8.	MCD1L01	Drives Lab – I	0	0	2	01
TOTAL			**31**			**27**

Elective – 1

Subject code	Courses	L	T	P	Credits
MCD1E104	Industrial Automation & Robotics	3	0	0	03
MCD1E102	Wireless Sensor Networks	3	0	0	03
MCD1E103	Special Electrical Machines	3	0	0	03

Elective – 2

Subject code	Courses	L	T	P	Credits
MCD1E201	Process Control and Instrumentation	3	0	0	03
MCD1E202	Real Time Operating systems	3	0	0	03
MCD1E203	Automotive Electronics	3	0	0	03

II SEMESTER

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING SCHEME OF TEACHING AND EXAMINATION II SEMESTER–M.Tech. (CAID)						
Sl. No.	**Subject Code**	**Subject**	**Teaching hours per week**			**Credits**
			L	**T**	**P**	
1.	MCD2C01	Power Electronic Applications to Drives*	4	2	0	05
2.	MCD2C02	Computer Control of Electric Drives	4	2	0	05
3.	MCD2C03	Embedded Systems	4	0	0	04
4.	MCD2C04	PLC and HMI	3	2	0	04
5.	MCD2E3XX	Department Elective -3	3	0	0	03
6.	MCD2E4XX	Department Elective -4	3	0	0	03
7.	MCD2I01	Industry Driven Elective	2	0	0	02
8.	MCD2L01	Drives Lab – II	0	0	2	01
TOTAL			**31**			**27**

Elective – 3

Subject code	**Courses**	**L**	**T**	**P**	**Credits**
MCD2E301	CMOS VLSI Design	3	0	0	03
MCD2E302	High Frequency Switching Power Supplies	3	0	0	03
MCD2E303	MEMS & Microsystems	3	0	0	03
MCD2E304	Finite element method of Electric Machine Analysis	3	0	0	03
MCD2E305	Electric Vehicle Technology	3	0	0	03

Elective – 4

Subject code	**Courses**	**L**	**T**	**P**	**Credits**
MCD2E401	Virtual Instrumentation using LabVIEW	2	0	2	03
MCD2E402	Internet of Things	3	0	0	03
MCD2E403	Design of Control Systems	3	0	0	03
MCD2E404	Digital Control Systems	3	0	0	03

* Pre-requisite: Power Electronic Devices and Circuits (Sub Code: MCD1C02)

III SEMESTER

DEPARTMENT OF ELECTRICAL AND ELECTRONI ENGINEERING SCHEME OF TEACHING AND EXAMINATION III SEMESTER–M.Tech. (CAID)						
Sl.No.	**Subject Code**	**Subject**	**L**	**T**	**P**	**Cr.**
1	MCD3M01	MOOC Elective (Department Specific/ Management))	3	0	0	3
2	MCD3M02	MOOC open Elective (from other departments)	2	0	0	2
3	MCD3C02	Seminar/Paper Presentation	0	0	0	1
4	MCD3C03	Internship	0	0	0	5
5	MCD3C04	Project Phase-1	0	0	0	8
	Total Credits					**19**

Note: MOOC Electives will be decided on the availability courses during the corresponding academic year

IV SEMESTER

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING SCHEME OF TEACHING AND EXAMINATION I SEMESTER–M.Tech. (CAID)						
Sl.No.	**Subject Code**	**Subject**	**L**	**T**	**P**	**Cr.**
1	MCD4C01	Project Phase-2	0	0	0	15
	Total Credits					**15**