Course Outline & Syllabus for Master of Science (M.Sc.) Electronics & Instrumentation under CBCS & CGPA

Semester	Code	Title of the Course	Semester Exam	IA	Total	L	T	P	Credits
First		**Hard Core**							
	HCT 1.1	Analog and Digital Electronics	**80**	**20**	**100**	**4**	**0**	**0**	**4**
	HCT 1.2	Fundamentals of Instrumentation	**80**	**20**	**100**	**4**	**0**	**0**	**4**
	HCT 1.3	Control Systems and MATLAB	**80**	**20**	**100**	**4**	**0**	**0**	**4**
		Soft Core (Any One)							
	SCT 1.1	(a) Microcontrollers and Applications (b) MATLAB & Applications	**80**	**20**	**100**	**4**	**0**	**0**	**4**
		Practical							
	HCP 1.1	Analog and Digital Electronics Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
	HCP 1.2	Transducers and Signal Conditioners Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
	HCP 1.3	Analysis of Control Systems using MATLAB	**40**	**10**	**50**	**0**	**0**	**2**	**2**
		Soft Core (Any One)							
	SCP 1.1	(a) Microcontrollers Lab (b) MATLAB Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
		Mandatory skills							
		Communication Skills	-	-	-	-	-	-	**2**
		Total for First Semester	**480**	**120**	**600**	**16**	**0**	**8**	**26**

Semester	Code	Title of the Course	Semester Exam	IA	Total	L	T	P	Credits
Second		**Hard Core**							
	HCT 2.1	Introduction to VLSI Design	**80**	**20**	**100**	**4**	**0**	**0**	**4**
	HCT 2.2	Electrical & Electronic Instrumentation	**80**	**20**	**100**	**4**	**0**	**0**	**4**
	HCT 2.3	Advanced Microcontrollers and Embedded systems	**80**	**20**	**100**	**4**	**0**	**0**	**4**
		Soft Core (Any One)							
	SCT 2.1	(a) 'C' Language and Python Programming (b) AI in Instrumentation	**80**	**20**	**100**	**4**	**0**	**0**	**4**
		Open Elective (Any One)							
	OET 2.1	(a) Introduction to Electronic Instrumentation (b) Instrumentation for Physical and Life Sciences-I	**40**	**10**	**50**	**2**	**0**	**0**	**2**
		Practical							
	HCP 2.1	VLSI Design Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
	HCP 2.2	Electric & Electronic Instrumentation Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
	HCP 2.3	Advanced Microcontrollers and Embedded Systems Lab	**40**	**10**	**50**	**0**	**0**	**2**	**2**
		Soft Core (Any One)							
	SCP 2.1	(a) 'C' Language and Python Programming Lab (b) AI in Instrumentation LAB	**40**	**10**	**50**	**0**	**0**	**2**	**2**
		Mandatory skills							
		Computer Skills	-	-	-	-	-	-	**2**
		Total for Second Semester	**520**	**130**	**650**	**18**	**0**	**8**	**28**

Semester	Code	Title of the Course	Semester Exam	IA	Total	L	T	P	Credits
Third		**Hard Core**							
	HCT 3.1	Scientific /Analytical Instrumentation	80	20	100	4	0	0	4
	HCT 3.2	Process Instrumentation	80	20	100	4	0	0	4
	HCT 3.3	Biomedical Electronics	80	20	100	4	0	0	4
		Soft Core (Any One)							
	SCT 3.1	(a) Internet of Things (IoT) (b) Digital Signal Processors and Applications (c) Industrial components and system	80	20	100	4	0	0	4
		Open Elective (Any One)							
	OET 3.1	(a)Introduction to Microprocessors and Microcomputer (b) Instrumentation for Physical and Life Sciences-II	40	10	50	2	0	0	2
		Practical							
	HCP 3.1	Scientific /Analytical Instrumentation Lab	40	10	50	0	0	2	2
	HCP 3.2	Process Instrumentation Lab	40	10	50	0	0	2	2
	HCP 3.3	Biomedical electronics Lab	40	10	50	0	0	2	2
		Soft Core (Any One)							
	SCP 3.1	a) Internet of Things Lab (b) Digital Signal Processors and Applications Lab (c) Industrial components and system Lab	40	10	50	0	0	2	2
		Mandatory skills							
		Entrepreneurship Skills	-	-	-	-	-	-	2
		Total for Third Semester	520	130	650	18	0	08	28

4

Semester	Code	Title of the Course	Semester Exam	IA	Total	L	T	P	Credits
Fourth	HCM P 4.1	**Major Project/ Internship (400 for Project Evaluation and Dissertation +100 for Viva-voce + 100 for IA = 600 Marks)**	**500**	**100**	**600**	**0**	**0**	**24**	**24**
		IA marks distribution – Based on presentation/seminar/demonstration by the students for every month. **Internship is an extended period of work experience undertaken by the students to supplement their degree for professional development. Project work/ Internship must be carried out in the Industry/Organization/Parent Department or premier institutions like IISc, IITs or NITs. Student shall work for the project work/ Internship during the entire fourth semester (16 – 20 weeks) and submit a detailed Dissertation/ project report on the work carried out by him/her during the period to the Department for the partial fulfillment of the degree.** **The teaching staff shall guide the students in conceptualizing the project work, writing the Dissertation/ Research paper /Article and publishing in reputed journals. They shall also mentor the students by visiting the Industry/ Organization. The entire process may be Online/Offline/Hybrid mode** **University shall not bear any cost involved in carrying out the internship by students. However, students can receive any financial assistance extended by the organization. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.**							

L= Lecture, T= Tutorials, P= Practical
4 Credits of Theory = 4 Hrs of Teaching per week   2 Credits of Practical = 4 Hrs per week
OE classes shall be conducted on every Friday from 2pm to 4pm

Study Tour: An academic/ industrial study tour of duration 08-10 days may be conducted during the vacations of II or III Semesters for students at their own cost.

Outcome of the course:
1. After the completion of M.Sc. (Electronics & Instrumentation) the students will be able to design/develop/fabricate various instruments.
2. The students will acquire the skills in teaching electronics and instrumentation subjects at UG/PG level
3. The students after completion of course, they can become entrepreneurs of electronic industries
4. The Students are ready for Research in Electronic and Instrumentation and Applied fields