Five Years Integrated M.Sc. (IT) – Semester 8
Lesson Planning
060010816 – Internet of Things

UNIT	Sub Unit	No. of Lecture	Topics	Reference Chapter/ Additional Reading	Methodology to be used	Evaluation Parameters
1		**7**	**Introduction**			
	1.1	1	Introduction: definition & characteristics of IoT	AV, #1, Page no – 20 – 24	Chalk and Talk + Slides	**Unit Test 1**
	1.2	2	Physical design of IoT	AV, #1, Page no – 24 – 30	Chalk and Talk + Slides	
	1.3		Logical design of IoT	AV, #1, Page no – 31 – 38	Chalk and Talk	
	1.4	2	IoT enabling Technologies	AV, #1, Page no – 38 – 42	Chalk and Talk	
	1.5	2	IoT levels & Deployment Templates	AV, #1, Page no – 42 – 50	Chalk and Talk + Slides	
2		**7**	**Domain specific IoT**			
	2.1	1	Home automation	AV, #2, Page no – 54 – 56	Chalk and Talk	
	2.2	1	Cities	AV, #2, Page no – 56 – 59	Chalk and Talk + Slides	
	2.3, 2.4	1	Environment	AV, #2, Page no – 59 - 61	PowerPoint Presentation	
			Energy	AV, #2, Page no – 61 – 64	PowerPoint Presentation	
	2.5	1	Retail	AV, #2, Page no – 64 – 65	Chalk and Talk + Slides	
	2.6	1	Logistics	AV, #2, Page no – 65 – 68	PowerPoint Presentation	
	2.7	1	Agriculture	AV, #2, Page no – 68 – 69	PowerPoint Presentation	
	2.8, 2.9	1	Industry	AV, #2, Page no – 69 – 71	Chalk and Talk + Slides	
			Health and Lifestyle	AV, #2, Page no – 71 – 73	Chalk and Talk + Slides	
3		**6**	**IoT Platforms Design Methodology**			

	3.1	1	Introduction	AV, #5, Page no – 113	Chalk and Talk + PowerPoint Presentation	
	3.2	5	IoT Design Methodology: 1. Purpose & requirement specification 2. Process specification 3. Domain Model specification 4. Information Model specification 5. Services specification 6. IoT level specification 7. Functional View specification 8. Operational View specification 9. Device and Component Integration 10. Application Development	AV, #5, Page no – 114 – 127	Chalk and Talk + PowerPoint Presentation	**Unit Test 1**
4		**7**	**Starting with Devices**			
	4.1	1	Understanding IoT devices	AH, #5, Page no – 88	PowerPoint Presentation	**Unit Test 2**
	4.2	1	Electronics: sensors, actuators, etc	AH, #5, Page no – 89 – 100	PowerPoint Presentation + Chalk and Talk	
	4.3	2	Arduino boards: open source hardware, configuration, GPIO, pin diagram	AH, #5, Page no – 100 – 111	PowerPoint Presentation + Chalk and Talk	
	4.4	3	Raspberry Pi: concept, microprocessor, pin diagram	AH, #5, Page no – 111 – 129	PowerPoint Presentation + Chalk and Talk	
5		**6**	**Programming IoT devices**			
	5.1	1	IDEs, demo applications	Net reference – www.arduino.cc/examples	PowerPoint Presentation	**Unit Test 2**
	5.2	2	Basic programming: variables, conditions, loops, I/O	Net reference – www.arduino.cc/examples	PowerPoint Presentation	
	5.3	2	Start up: LED blink, basic switch input, sensors, servo and stepper motor, GSM	Net reference – www.arduino.cc/examples	PowerPoint Presentation	

	5.4	2	Serial port data communication	Net reference – www.arduino.cc/examples	Chalk and Talk	
6	**7**		**Prototyping and Prototyping the Physical Design**			
	6.1	1	Breadboard and sketching, familiarity and prototyping	AH, #6, Page no – 64 – 69	PowerPoint Presentation	
	6.2	2	Circuit designing on breadboard, and PCB etching	Net reference www.arduino.cc/examples	PowerPoint Presentation	
	6.3	1	Prototyping and production, Open Source verses Close Source	AH, #6, Page no – 75 – 83	PowerPoint Presentation	
	6.4	1	Preparation, sketch, iterate and explore	AH, #6, Page no 148 – 152	Chalk and Talk	
	6.5	1	Physical designing with : laser cutting, 3D printing, CNC milling	AH, #6, Page no 152 – 168	PowerPoint Presentation	
	6.6	1	Concept M2M, difference and similarity between M2M and IoT	AV, #3 Page no 75 – 80	PowerPoint Presentation	

References

1.	Internet of things – A hands on approach – Arshdeep Bahga, Vijay Madisetti [AV], Universities Press
2.	Designing the Internet of Things – Adrian McEwen, Hakim Cassimally [AH], Wiley.