INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DESIGN AND MANUFACTURING (IIITDM) KANCHEEPURAM

Course Title	Wearable Technologies	**Course No**				
Specialization	Integrated Product Design	**Structure (LTPC)**	2	1	0	3
Offered for	Master of Design (Semester 4)	**Status**	Core		Elective X	
Prepared by	Dr Pandiyarasan Veluswamy					
Prerequisite	None	**To take effect from**	2021 Batch			
Course Objectives	This course aims to present wearable product designers with realistic, reliable knowledge of human anatomy and function from a design perspective.					
Course Outcomes	After completing the course, students will be able to structure wearable products that enhance health, performance, safety, and pleasure.					
Contents of the course (With approximate break up of hours)	**Module 1 (6 hrs)** ● Wearables: Fundamentals, Advancements, and a Roadmap for the Future ● Human Body Diversity: Opportunity and Challenge ● Wearable Product as Mediator between Environment and Human Body ● Anthropometry and pattern grading **Module 2 (12 hrs)** ● Stability and Motion: Interactions in a Neuro-Musculo-Skeletal System ● Integumentary System: Coverage and Protection ● Wearable Electronics from Foils to Textiles: Materials, Devices, and Assembly ● Energy Harvesting at the Human Body **Module 3 (12 hrs)** ● Low-Power Integrated Circuit Design for Wearable Biopotential Sensing ● Mining Techniques for Body Sensor Network Data Repository ● Modeling Physical Activity Behavior Change ● Wireless Body Area Networks **Module 4: (12 hrs)** ● Wearable Sensors for the Monitoring of Physical and Physiological Changes in Daily Life ● Wearing Sensors Inside/ Outside of the Human Body for the Early Detection of Diseases ● Wearable and Non-Invasive Assistive Technologies Evaluation: 70% assignments/activities + 30% End Semester					
Texts & References	1. Edward Sazonov and Michael R. Neuman (2014), "WEARABLE SENSORS Fundamentals, Implementation and Applications", Elsevier, ISBN:9780124186620 2. Sahrye Cohen and Hal Rodriguez (2018), Make It, Wear It: Wearable Electronics for Makers, Crafters, and Cosplayers, McGraw-Hill Education, ISBN:9781260116151 3. Karen L. LaBat and Karen S. Ryan (2019), "Human Body - A Wearable Product Designer's Guide", CRC Press Taylor & Francis group, ISBN:9781498755719 4. Gang Wang, Chengyi Hou and Hongzhi Wang (2020), "Flexible and Wearable Electronics for Smart Clothing", Wiley, ISBN:9783527818556					