KUMARAGURU
college of technology
character is life

B.E DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Seventh Semester

Common to ECE,EIE,MCE

U18ECE0057**:** Introduction To HMI

COURSE OUTCOMES

CO1:   Explain the applications of HMI's in various domains.

CO2:   Differentiate various communication protocols used in HMI Development.

CO3:   Describe car multimedia systems and the hardware, software evolution.

CO4:   Summarize various tools used for HMI development for automobile application.

CO5:   Explain the importance of user experience with a case study.

CO6:   Use various graphic tools and advanced techniques to create UI's.

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	What is Human Machine Interface?	CO1	[K_1]
2.	Compare CAN protocol with Flex Ray Protocol.	CO1	[K_2]
3.	List the text widget properties.	CO2	[K_1]
4.	Draw the software architecture used in Human Machine Interface.	CO2	[K_2]
5.	Mention various levels in driving automation.	CO3	[K_1]
6.	Why Framework is needed in software development?	CO6	[K_1]
7.	What is User Experience design?	CO4	[K_1]
8.	Draw the Graphics pipeline architecture.	CO4	[K_2]
9.	List the types of types of Haptic feedback.	CO5	[K_1]
10.	Differentiate AR from VR	CO5	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Explain CAN Embedded protocol with neat diagram.	8	CO2	[K_2]
	b)	Illustrate Local Interconnect Network protocol working.	8	CO2	[K_2]

12.		Summarize In-Car Entertainment functions and its development in car multimedia.	16	CO3	[K2]
13.	a)	Describe CGI framework model in Human Machine Interface.	8	CO4	[K2]
	b)	Illustrate temperature checking process with a state machine model.	8	CO4	[K3]
14.		Elucidate various process used in designing a user centre design.	16	CO6	[K2]
15.		BMW employs Unity across its automotive lifecycle for a variety of use cases, from transforming production processes with AR and VR, Suggest the elements that can parameterize this scenario.	16	CO5	[K4]
16.	a)	Outline Bluetooth pairing process in In-Vehicle Bluetooth System with suitable diagrams.	10	CO3	[K2]
	b)	Describe Bluetooth Pairing Mechanisms.	6	CO3	[K2]

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