



GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

STATE PROJECT COORDINATION UNIT

(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	LI-FI DATA TRANSFER TECHNIQUES
Course Code	EC/2020/006
Course Duration	40 Hours
Minimum Eligibility Criteria	10 th /+2 /ITI/Diploma/Graduate
Pre-requisites (if any)	-
Course Objectives	<p>Training module has been designed for the participants to</p> <ul style="list-style-type: none"> Understand the LIFI and WIFI system Understand the environment related issues while implementing LIFI communication Understand the LIFI application in AC and DC systems
Course Outcomes	<p>At the end of training, the trainees will be able to</p> <ul style="list-style-type: none"> Differentiate LIFI and WIFI Realize the effect of LIFI implementation in criteria environments Experiment the LIFI techniques in AC and DC systems.
Expected Job Roles	WiFi System Programmer

TEACHING AND SCHEME OF EXAMINATION

Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
EC/2020/006	LI-FI DATA TRANSFER TECHNIQUES	Theory	16	10	20	3 Hours
		Practical	24	40	80	
		Total	40	50	100	

EC/2020/006 - LI-FI DATA TRANSFER TECHNIQUES
DETAILED SYLLABUS

Unit No	Modules	No.of.Hours	
		Theory	Practical
I	Introduction To Li- Fi	10 Hours	
1.1	Introduction to Li-Fi system	06	04
1.2	Architecture of Li-Fi		
1.3	Working of LI-Fi		
1.4	Comparison between Li-Fi, Wi-Fi and other Radio communication technologies		
II	Advancements and Applications of Li- Fi	15 Hours	
2.1	Application of LI-Fi, Security	05	10
2.2	Dense urban Environment		
2.3	EMI sensitive environments		
2.4	Underwater communication		
2.5	Safety environments, Intelligent transportation system		
2.6	Connectivity, Sensitive data, Indoor Navigation		
2.7	Comparison between current and future wireless technologies		
III	Practical :Li - Fi Based Experiments	15 Hours	
3.1	Li-Fi based speed efficient	05	10
3.2	Temperature control system, Efficiency fire control system		
3.3	DC light control system, AC lamp turn ON and OFF control system		
3.4	DC Motor control system- Tube light control system		
3.5	Speed efficiency mine safety monitoring system.		
3.6	Intruder sense system using Li-Fi technology.		
Total Theory / Practical Hours		16	24
Total hours			40

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	PC/LAPTOP
2	Li—Fi Wireless Equipments
3	Connectors, Routers

SOFTWARE REQUIREMENT

NIL

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Wireless and Mobile Communication	Upenadalal, Manok K. Shukla	Oxford University Press, 2009
2	Compressed Sensing in LIFI and WIFI Networks	MalakBensl Mohamed Gado, Doaa	-
3	LIFI Technology for Indoor Access	Mohamed Gado, DoaaAbd El- Moghith	-
4	Emerging wireless Communication and Network Technologies	Karm Veer Arya, Robin Singh Bhadoria Narendra S.Chaudhari	Springer
5	Big dataanalytics for sensor network collected intelligence	Hui-Huang Chuan-Yu Chang, ChingHeisen Hsu	Morgan Kaufmann

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the CIICP Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the CIICP Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training, certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnics.

END EXAMINATION

ALLOCATION OF MARKS

S.NO	Description	Max. Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Objective and Circuit Diagram	20
	b)Procedure and Connections / Execution	20
	c)Result and Viva	20
	d)Record	20
Total Marks		100

THEORY MODEL QUESTION PAPER

EC/2020/006 LI-FI DATA TRANSFER TECHNIQUES

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)

20x1= 20 Marks

1. What is LI-FI?
2. Write the abbreviation for LI-FI.
3. Write any two features of LI-FI.
4. What is the IEEE standard for LI-FI system?
5. What are the major components used in LI-FI architecture?
6. Compare the average operation speed of LI-FI and WI-FI.
7. Compare the topologies used in LI-FI and WI-FI.
8. Compare the efficiency of LI-FI and WI-FI system.
9. What is the coverage area of LI-FI system?
10. Compare the power consumption of LI-FI and WI-FI system.
11. Write about the security level in LI-FI system.
12. What is the frequency range of radio frequencies?
13. What are the classifications of radio frequencies?
14. Write any two disadvantages of Radio communication.
15. Write any two advantages of LI-FI system.
16. Write any two applications of LI-FI system.
17. How LI-FI is used in EMI sensitive environments?
18. How LI-FI is used in intelligent transportation system?
19. Write about the role of LI-FI in under water communication.
20. How LI-FI is used in indoor environment?
21. What is the speed of Bluetooth and IrDA wireless technologies?
22. What is the speed of Wi-Gig and LI-FI?
23. How LI-FI is used in Temperature control system?
24. How LI-FI is used in fire control system?
25. Draw the block diagram of Intruder sense system using Li-Fi technology.