



**Mahavir Education Trust's**  
**SHAH & ANCHOR KUTCHHI ENGINEERING COLLEGE**  
Chembur, Mumbai - 400 088  
**UG Program in Electronics & Telecommunication Engineering**  
**Academic Year:- 2018-19**

**Semester - VI**

Unique Course Number: 4.ECC601 Course Name: Microcontrollers and Applications

Unique CO Number	Course Outcome (CO) Statement
4.ECC6011	Describe architecture of 8051 and ARM7 microcontrollers.
4.ECC6012	Explain Instruction set of 8051 and ARM7 microcontrollers.
4.ECC6013	Write Assembly language and Embedded C program for 8051 and ARM7 microcontrollers.
4.ECC6014	Illustrate Interfacing of various peripheral devices to 8051 and ARM7 microcontrollers.
4.ECC6015	Compare between 8051 and ARM7 microcontrollers
4.ECC6016	Develop an applications by using Microcontrollers

Unique Course Number: 5.ECC602 Course Name: Computer Communication Networks

Unique CO Number	Course Outcome (CO) Statement
8.ECC6021	To enumerate the layers of OSI and TCP/IP protocol suite and function of each layer.
8.ECC6022	To understand the different LAN topologies and protocols in Ethernet technologies
8.ECC6023	To understand data link protocols, sliding window protocols and design issues
8.ECC6024	To learn multiple access protocols and perform basic configurations on Ethernet switches
8.ECC6025	To understand network layer protocols and the skills of sub-netting and inter-networking.
8.ECC6026	To analyze the traffic flow and demonstrate the knowledge of transport protocols.



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Unique Course Number: 5.ECC603      Course Name: Antenna & Radio Wave Propagation

Unique CO Number	Course Outcome (CO) Statement
5.ECC6031	Illustrate basic antenna parameters like radiation pattern, directivity and gain
5.ECC6032	Analyze the field equations for the basic radiating elements like linear wire antenna and loop antenna.
5.ECC6033	Design linear and planar antenna arrays using isotropic and directional Sources.
5.ECC6034	Interpret and analyze different aperture antenna.
5.ECC6035	Design special types of antennas like microstrip, reflector antenna
5.ECC6036	Detect and analyze radio wave propagation through different atmospheric conditions

Unique Course Number: 3.ECC604      Course Name: Image Processing & Machine Vision

Unique CO Number	Course Outcome (CO) Statement
3.ECC6041	To understand the fundamentals of Digital Image Processing
3.ECC6042	To demonstrate understanding of the basic concepts of two-dimensional transform concepts
3.ECC6043	To understand the Image Enhancement in the Spatial Domain and Frequency Domain.
3.ECC6044	To evaluate the methodologies for image restoration and morphology.
3.ECC6045	To evaluate the methodologies for image segmentation and region Identification.
3.ECC6046	To understand the classification techniques in Machine Vision



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Unique Course Number: 4.ECCDLO6021

Course Name: Digital VLSI Design

Unique CO Number	Course Outcome (CO) Statement
4.ECCDLO60211	Realize logic circuits with different design styles.
4.ECCDLO60212	To understand operation of memory, storage circuits and data path elements.
4.ECCDLO60213	Implement different arithmetic circuits using VLSI design
4.ECCDLO60214	Demonstrate an understanding of system level design issues such as protection, clocking, and routing.
4.ECCDLO60215	Design digital circuits using HDL language.
4.ECCDLO60216	Learn the RTL design techniques and methodologies

Unique Course Number:8.ECCDLO6023

Course Name: Database Management System

Unique CO Number	Course Outcome (CO) Statement
8.ECCDLO60231	Understand the features of database management systems and Relational database.
8.ECCDLO60232	Describe data models and schema in DBMS.
8.ECCDLO60233	Explain & use design principles for logical design of databases, including the E-R method and normalization approach.
8.ECCDLO60234	Explain the basic concepts of relational algebra.
8.ECCDLO60235	Understand the concepts of constraints, views, basics of SQL and construct queries using SQL.
8.ECCDLO60236	Explain basic issues of transaction processing and concurrency control.



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Unique Course Number:4.ECL601 Course Name: Microcontrollers & Applications Laboratory

Unique CO Number	Course Outcome (CO) Statement
4.ECL6011	Install and operate different IDE software for 8051and ARM7 Microcontrollers
4.ECL6012	Install and operate simulations software for 8051and ARM7 Microcontrollers
4.ECL6013	Use instructions set of 8051 for writing Assembly Language Program (ALP).
4.ECL6014	Use instructions set of ARM7 for writing Assembly Language Program (ALP).
4.ECL6015	Write embedded C program of 8051 and ARM7 to demonstrate the interfacing of peripherals
4.ECL6016	Develop mini project based on 8051 microcontroller

Unique Course Number 8.ECC6021 Course Name: Computer Communication Networks Lab

Unique CO Number	Course Outcome (CO) Statement
8.ECL6021	To have good knowledge of different LAN topologies, networking devices/cables and protocols
8.ECL6022	To have a good knowledge of troubleshooting connectivity problems in a host.
8.ECL6023	To have a good knowledge of Configuring routers implementing static and dynamic routing protocols such as RIP, OSPF and BGP.
8.ECL6024	To demonstrate knowledge of programming for network communications.
8.ECL6025	To learn to simulate and analyze computer networks.
8.ECL6026	Mini-Project



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Unique Course Number 5.ECC603 Course Name: Antenna & Radio Wave Propagation Lab

Unique CO Number	Course Outcome (CO) Statement
5.ECL6031	Differentiate different types of antenna
5.ECL6032	Measure antenna radiation pattern
5.ECL6033	Design and interpret different antenna parameters
5.ECL6034	Design directional and linear array antenna using MATLAB
5.ECL6035	Design and interpret microstrip antenna
5.ECL6036	Illustrate high gain directional aperture antenna

Unique Course Number 3.ECC6041 Course Name: Image Processing & Machine Vision Lab

Unique CO Number	Course Outcome (CO) Statement
3.ECL6041	To have good knowledge of basics of Digital Image Processing
3.ECL6042	To have a good knowledge of implementing transforms on images
3.ECL6043	To have a good knowledge of spatial and frequency domain processing for enhancement
3.ECL6044	To learn about Image Morphology
3.ECL6045	To study thresholding and segmentation of images for Machine Vision
3.ECL6046	To study the classification techniques in Machine Vision



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Unique Course Number:4.ECLDLO6021    Course Name: Digital VLSI Design Laboratory

Unique CO Number	Course Outcome (CO) Statement
4.ECLDLO60211	Design layouts using lambda based rules
4.ECLDLO60212	Realize logic circuits with different design styles.
4.ECLDLO60213	Implement memory circuits.
4.ECLDLO60214	Implement different arithmetic circuits
4.ECLDLO60215	Simulate and synthesize digital circuits using HDL language.
4.ECLDLO60216	Understand the RTL design techniques

Unique Course Number:8.ECLDLO6023    Course Name: Database Management System LAB

Unique CO Number	Course Outcome (CO) Statement
8.ECLDLO60231	Utilize the knowledge of basics of SQL to create the database and table structures using DDL and DML commands.
8.ECLDLO60232	Apply different constraints to created table using SQL.
8.ECLDLO60233	Use their knowledge of SQL query to write nested and correlated queries.
8.ECLDLO60234	Apply aggregate operators, views, joins and triggers to write SQL queries.
8.ECLDLO60235	Identify how data is represented in the relational model and create relations using SQL.
8.ECLDLO60236	Design and implement mini-project.