LESSON PLAN

Type	Code		L-T-P	Credits	Marks
	CORE COURSE-IX	**Database System**	3-1-0	4	100
Topic Objective		The objective of this course is to introduce the basic concepts of database management with SQL(Structure Query Language)for database operation			
Prerequisites		Basic analytical, mathematical concept and data bade concept			
Lecture Scheme		Regular lectures (classroom/virtual class with computer/Smartphone) with use of ICT as and when required, lectures are planned to be interactive with focus on problem solving activities.			

Evaluation Scheme

Internal Assessment			Written Assessment	Total
Assignment(s)	Unit Test	Mid-Term (Written)	End-Term	
0	0	30	70	100

University Syllabus

Unit No	Topics	Hours
Unit-1	Databases and Database Users, Database System Concepts and Architecture, Data Modelling using the Entity-Relationship(ER) Model, The Enhanced Entity-Relationship (EER) Model	08
Unit-2	Relational Model: The Relational Data Model and Relational Database Constraints, The Relational Algebra and Relational Calculus.	08
Unit-3	Relational Database Design by ER- and EER-to-Relational Mapping, SQL-99: Schema Definition, Constraints, Queries, and Views, Introduction to SQL Programming Techniques.	08
Unit-4	Functional Dependencies and Normalization for Relational Databases, Relational Database Algorithms and Further Dependencies, Practical Database Design Methodology and use of UML Diagrams.	08
Unit-5	Disk Storage, Basic File Structures, and Hashing, Indexing Structures for Files, Algorithms for Query Processing and Optimization, Physical Database Design and Tuning.	08
	Total (Hours)	40

Text Books:

1. 1. R. Elmasri, S.B. Navathe, “Fundamentals of Database Systems”, 6/e, Pearson Education, 2010 2. A. Silberschatz, H.F. Korth, S. Sudarshan, “Database System Concepts” 6/e, McGraw Hill, 2010 3. R. Ramakrishanan, J. Gehrke, “Database Management Systems”, McGraw-Hill 4. C. Coronel, S. Morris, & P. Rob, “Database Principles (Fundamentals of Design, Implementation, and Management), 9/e, Cengage Learning.
   OR: https://onlinecourses.nptel.ac.in/noc20_cs64/

Type	Code	LESSON PLAN Programming Using C++	L-T-P	Credits	Marks
Lecture No	Unit No		3-1-0	4	75
Lecture 1	1	**Topic:** Databases and Database Users **Ref:** OR1: https://dev.mysql.com/doc/			
Lecture 2	1	**Topic:** Database System Concepts and Architecture **Ref:** OR2: https://www.postgresql.org/docs/			
Lecture 3	1	**Topic:** Database System Concepts and Architecture **Ref:** OR3: https://docs.microsoft.com/en-us/sql/sql-server/?view=sql-server-ver15			
Lecture 4	1	**Topic:** Database System Concepts and Architecture **Ref:** OR4: https://docs.oracle.com/en/database/oracle/oracle-database/index.html			
Lecture 5	1	**Topic:** Data Modelling using the Entity-Relationship(ER) Model **Ref:** OR5: https://docs.mongodb.com/			
Lecture 6	1	**Topic:** Data Modelling using the Entity-Relationship(ER) Model **Ref:** OR6: https://www.w3schools.com/sql/			
Lecture 7	1	**Topic:**, The Enhanced Entity-Relationship (EER) Model **Ref:** OR6: https://www.w3schools.com/sql/			
Lecture 8	1	**Topic:** The Enhanced Entity-Relationship (EER) Model **Ref:** OR6: https://www.w3schools.com/sql/			
Lecture 9	2	**Topic:** The Relational Data Model **Ref:** OR7: https://sqlzoo.net/			
Lecture 10	2	**Topic:** The Relational Data Model **Ref:** OR7: https://sqlzoo.net/			
Lecture 11	2	**Topic:** Relational Database Constraints **Ref:** OR7: https://sqlzoo.net/			
Lecture 12	2	**Topic:** Relational Database Constraints **Ref:** OR7: https://sqlzoo.net/			
Lecture 13	2	**Topic:** Relational Database Constraints **Ref:** OR7: https://sqlzoo.net/			
Lecture 14	2	**Topic:** The Relational Algebra and Relational Calculus. **Ref:** OR7: https://sqlzoo.net/			
Lecture 15	2	**Topic:** The Relational Algebra and Relational Calculus. **Ref:** OR7: https://sqlzoo.net/			
Lecture 16	2	**Topic:** The Relational Algebra and Relational Calculus. **Ref:** OR7: https://sqlzoo.net/			
Lecture 17	3	**Topic:** The Relational Algebra and Relational Calculus. **Ref:** OR8: https://www.coursera.org/learn/database-management			
Lecture 18	3	**Topic** The Relational Algebra and Relational Calculus. **Ref:** OR8: https://www.coursera.org/learn/database-management			
Lecture 19	3	**Topic:** Relational Database Design by ER- and EER-to-Relational Mapping. **Ref:** OR8: https://www.coursera.org/learn/database-management			
Lecture 20	3	**Topic:** Relational Database Design by ER- and EER-to-Relational Mapping **Ref:** OR8: https://www.coursera.org/learn/database-management			

Lecture 21	3	**Topic:** SQL-99: Schema Definition **Ref:** OR8: https://www.coursera.org/learn/database-management
Lecture 22	3	**Topic:** Constraints **Ref:** OR8: https://www.coursera.org/learn/database-management
Lecture 23	3	**Topic:** Queries **Ref:** OR8: https://www.coursera.org/learn/database-management
Lecture 24	3	**Topic:** View & Introduction to SQL Programming Techniques. **Ref:** OR8: https://www.coursera.org/learn/database-management
Lecture 25	4	**Topic:** Functional Dependencies and Normalization for Relational Databases **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 26	4	**Topic:** Functional Dependencies and Normalization for Relational Databases **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 27	4	**Topic:** Relational Database Algorithms and Further Dependencies **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 28	4	**Topic:** Relational Database Algorithms and Further Dependencies **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 29	4	**Topic:** Practical Database Design Methodology **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 30	4	**Topic:** Practical Database Design Methodology **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 31	4	**Topic: U**se of UML Diagrams.. **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 32	5	**Topic:** Disk Storage, Basic File Structures **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 33	5	**Topic:** Hashing **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 34	5	**Topic:** Indexing Structures for Files **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 35	5	**Topic:** Indexing Structures for Files **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 36	5	**Topic:** Algorithms for Query Processing and Optimization, **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 37	5	**Topic:** Algorithms for Query Processing and Optimization, **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 38	5	**Topic:** Introduction to secondary memory, Magnetic Hard Disks. **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 39	5	**Topic:** Physical Database Design and Tuning. **Ref:** OR6: https://www.w3schools.com/sql/
Lecture 40	5	**Topic:** Physical Database Design and Tuning. **Ref:** OR6: https://www.w3schools.com/sql/

LESSON PLAN

Type	Code	MICROPROCESSOR	L-T-P	Credits	Marks
CS	CC-10		3-1-0	4	100
Topic Objective		To provide solid foundation on the fundamentals of microprocessors and applications, interfacing the external devices to the processor according to the user requirements thus, enabling to create novel products and solutions for real time problems.			
Prerequisites		Experience of programming in object code, such as Python or C. Basic Boolean algebra (AND, OR, XOR, NOT)			
Lecture Scheme		Regular lectures (classroom /virtual class with Laptop/Desktop/Smartphone) with use of ICT, lectures are planned to be interactive with focus on problem solving activities.			

Evaluation Scheme

Internal Assessment			Written Assessment	Total
Assignment(s)	Unit Test	Mid-Term (Written)	End-Term	
0	0	30	45	100

University Syllabus

Unit No	Topics	Hours
Unit-1	An Introduction to Processor Design: Processor architecture and organization, Abstraction in hardware design, MU0 - a simple processor, Instruction set design, Processor design trade-offs ,The Reduced Instruction Set Computer, Design for low power consumption .The ARM Architecture: The Acorn RISC Machine, Architectural inheritance, The ARM programmer's model, ARM development tools .	10
Unit-2	ARM Assembly Language Programming: Data processing instructions, Data transfer instructions, Control flow instructions, writing simple assembly language programs. ARM Organization and Implementation: Pipeline, Types, 3-stage pipeline ARM organization, 5-stage pipeline ARM organization, ARM instruction execution, ARM implementation, The ARM coprocessor interface.	10
Unit-3	The ARM Instruction Set: Introduction, Exceptions, Conditional execution , Branch and Branch with Link (B, BL),Branch, Branch with Link and exchange (BX, BLX) , Software Interrupt (SWI) ,Data processing instructions, Multiply instructions, Single word and unsigned byte data transfer instructions , Half-word and signed byte data transfer instructions, Multiple register transfer instructions , Status register to general register transfer instructions ,General register to status register transfer instructions , Coprocessor instructions. Coprocessor data operations, Coprocessor data transfers, Coprocessor register transfers, Breakpoint instruction (BRK - architecture v5T only), unused instruction space, Memory faults, and ARM architecture variants.	10

Unit-4	Thumb Instruction Set: The Thumb bit in the CPSR, The Thumb programmer's mode, Thumb branch instructions, Thumb software interrupt instruction , Thumb data processing instructions , Thumb single register data transfer instructions, Thumb multiple register data transfer instructions, Thumb breakpoint instruction, Thumb implementation ,Thumb applications . Architectural Support for System Development. The ARM memory interface, The Advanced Microcontroller Bus Architecture (AMBA), The ARM reference peripheral specification, Hardware system prototyping tools, The ARMulator.	10
	Total (Hours)	40

Text Books:

1. R. Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085", Prentice Hall, 2014.
2. M.A. Mazidi, R.D. McKinlay, J.G. Mazidi, "The 8051 Microcontroller: A Systems Approach", Pearson, 2013.

Type	**CC-10**	**LESSON PLAN**	**L-T-P**	**Credits**	**Marks**
Lecture No	Unit No	**MICROPROCESSOR**	3-1-0	4	100
Lecture01	1	**Topic:** An Introduction to Processor Design, Evolution of processor **Ref:** https://www.dsl-ltd.co.uk/processor-design/			
Lecture 02	1	**Topic:** Processor design **Ref:** https://www.dsl-ltd.co.uk/processor-design/			
Lecture 03	1	**Topic:** Processor architecture and organization **Ref:**https://www.slideshare.net/VinitRaut8/processor-organization-and-architecture			
Lecture04	1	**Topic:** Abstraction in hardware design **Ref:** https://study.com/academy/lesson/hardware-abstraction-definition-purpose.html			
Lecture 05	1	**Topic:** Introduction to MU0 - a simple processor, Components of MU0 processor **Ref:** https://www.cs.man.ac.uk/~pjj/cs1001/arch/node2.html			
Lecture 06	1	**Topic:** MU0 processor instruction sets, MU0 logic design, Data path design **Ref:**https://www.jaroeducation.com/blog/data-path-design-in-computer-architecture/			
Lecture 07	1	**Topic:** RTL design, Instruction set design, Instruction types, Addressing modes **Ref:** https://home.adelphi.edu/~siegfried/cs371/371l10.pdf			
Lecture 08	1	**Topic:** Processor design trade-offs ,The Reduced Instruction Set Computer **Ref:**https://www.geeksforgeeks.org/computer-organization-risc-and-cisc/&sclient=gws-wiz-serp			
Lecture 09	1	**Topic:** Design for low power consumption .Introduction to ARM Architecture **Ref:** https://ebooks.inflibnet.ac.in/csp13/chapter/introduction-to-arm-processor			
Lecture 10	1	Topic: The Acorn RISC Machine ,Architectural inheritance **Ref:**https://courses.cs.washington.edu/courses/cse474/18wi/pdfs/lectures/03-arm_overview.pdf			
Lecture 11	2	**Topic:** The ARM programmer's model, ARM development tools **Ref:**https://courses.cs.washington.edu/courses/cse474/18wi/pdfs/lectures/03-arm_overview.pdf			

Lecture 12	2	**Topic:** Introduction to ARM Assembly Language Programming, Data processing instructions **Ref:** https://www.sciencedirect.com/topics/computer-science/data-processing-instruction
Lecture 13	2	**Topic:** Data transfer instructions **Ref:**https://www.geeksforgeeks.org/data-transfer-instructions-8086-microprocessor/
Lecture 14	2	**Topic:** Control flow instructions **Ref:** https://cseweb.ucsd.edu/classes/su14/cse30-b/lectures/PI_CSE30_lecture_6.pdf
Lecture 15	2	**Topic:** writing simple assembly language programs **Ref:** https://ebooks.inflibnet.ac.in/csp13/chapter/assembly-program/
Lecture 16	2	**Topic:** ARM Organization and Implementation: Pipeline, Types, 3-stage pipeline ARM organization **Ref:**https://www.ele.uva.es/~jesman/BigSeti/ftp/Microcontroladores/ARM/Arm%20System-On-Chip%20Architecture.pdf
Lecture 17	2	**Topic:** 5-stage pipeline ARM organization **Ref:** https://www.geeksforgeeks.org/pipelining-in-arm/
Lecture 18	2	**Topic:** ARM instruction execution **Ref:** https://bodheeprep.com/tones-rc-passages-cat-exam
Lecture 19	2	**Topic:** ARM implementation **Ref:** https://slideplayer.com/slide/13160448/
Lecture 20	2	**Topic:** ARM implementation, Physical design **Ref:** https://slideplayer.com/slide/13160448/
Lecture 21	3	**Topic:** The ARM coprocessor interface **Ref:** https://www.sciencedirect.com/topics/computer-science/coprocessor
Lecture 22	3	**Topic:** The ARM Instruction Set: Introduction, Exceptions **Ref:** https://ebooks.inflibnet.ac.in/csp13/chapter/arm-instruction-set/
Lecture 23	3	**Topic:** Branch and Branch with Link (B, BL),Branch, Branch with Link and exchange (BX, BLX) , Software Interrupt (SWI) **Ref:** https://vardhaman.org/wp-content/uploads/2021/03/ES-Unit-4-ES-ARM-PROGRAMMING-MODEL.pdf
Lecture 24	3	**Topic:** Data processing instructions, Multiply instructions **Ref:** https://www.sciencedirect.com/topics/computer-science/data-processing-instruction
Lecture 25	3	**Topic:** Single word and unsigned byte data transfer instructions , Half-word and signed byte data transfer instructions **Ref:** https://www.cs.umd.edu/~meesh/cmsc311/clin-cmsc311/Lectures/lecture11/memory.pdf
Lecture 26	3	**Topic:** Multiple register transfer instructions , Status register to general register transfer instructions **Ref:** https://www.geeksforgeeks.org/register-transfer-language-rtl/
Lecture 27	3	**Topic:** Coprocessor instructions. Coprocessor data operations, Coprocessor data transfers

		Ref:https://www.sciencedirect.com/topics/computer-science/coprocessor-memory
Lecture 28	3	**Topic:** Coprocessor register transfers, Breakpoint instruction (BRK - architecture v5T only) **Ref:**https://www.sciencedirect.com/topics/computer-science/coprocessor-memory
Lecture 29	3	**Topic:** Unused instruction space, Memory faults **Ref:** https://developer.apple.com/documentation/xcode/investigating-memory-access-crashes
Lecture 30	3	**Topic:** ARM architecture variants **Ref:** https://en.wikipedia.org/wiki/List_of_ARM_processors
Lecture 31	4	**Topic:** Architectural Support for High-Level Languages: Abstraction in software design **Ref:** https://en.wikipedia.org/wiki/High-level_programming_language
Lecture 32	4	**Topic:** Floating-point data types, The ARM floating-point architecture, Expressions **Ref:** https://en.wikipedia.org/wiki/Floating-point_arithmetic
Lecture 33	4	**Topic:** Conditional statements, Loops **Ref:**https://www.nielit.gov.in/gorakhpur/sites/default/files/Gorakhpur/OLevel_2_B4_CLang_16Apr_SS.pdf
Lecture 34	4	**Topic:** Functions and procedures, Use of memory **Ref:** https://opentext.wsu.edu/psych105/chapter/8-2-how-memory-functions/
Lecture 35	4	**Topic:** Run-time environment, Examples and exercises **Ref:**
Lecture 36	4	**Topic:** Thumb Instruction Set: The Thumb bit in the CPSR, The Thumb programmer's mode **Ref:** https://www.embedded.com/introduction-to-arm-thumb/
Lecture 37	4	**Topic:** Thumb branch instructions, Thumb software interrupt instruction Thumb data processing instructions , Thumb single register data transfer instructions **Ref:**https://www.sciencedirect.com/topics/computer-science/thumb-instruction-set
Lecture 38	4	**Topic:** Thumb data processing instructions , Thumb single register data transfer instructions. Thumb multiple register data transfer instructions, Thumb breakpoint instruction **Ref:**https://www.sciencedirect.com/topics/computer-science/thumb-instruction-set
Lecture 39	4	**Topic:** The ARM memory interface, The Advanced Microcontroller Bus Architecture (AMBA) **Ref:** https://en.wikipedia.org/wiki/Advanced_Microcontroller_Bus_Architecture
Lecture 40	4	**Topic:** The ARM reference peripheral specification, Hardware system prototyping tools, The ARMulator **Ref:** https://en.wikipedia.org/wiki/Advanced_Microcontroller_Bus_Architecture

LESSON PLAN

Type	Code	HTML PROGRAMMING	L-T-P	Credits	Marks
CS	SEC-I		3-1-0	2	100
Topic Objective		To learn the basics of scripting language and html code To develop simple website and web applications.			
Prerequisites		Basic knowledge about web page, web site, server ,client, protocols.			
Lecture Scheme		Regular lectures (classroom /virtual class with Laptop/Desktop/Smartphone) with use of ICT, lectures are planned to be interactive with focus on problem solving activities.			

Evaluation Scheme

Internal Assessment			Written Assessment	Total
Assignment(s)	Unit Test	Mid-Term (Written)	End-Term	
0	0	30	70	100

University Syllabus

Unit No	Topics	Hours
Unit-1	**The Basics:** The Head, the Body, Colors, Attributes, Lists, ordered and unordered	05
Unit-2	Introduction, Relative Links, Absolute Links, Link Attributes, Using the ID Attribute to Link within a Document.	05
Unit-3	Putting an Image on a Page, Using Images as Links, Putting an Image in the Background	05
Unit-4	Creating a Table , Table Headers, Captions, Spanning Multiple Columns, Styling Table	05
Unit-5	Forms: Basic Input and Attributes, Other Kinds of Inputs, Styling forms with CSS, Where To Go From Here	05
	Total (Hours)	25

Text Books:

1. Introduction to HTML and CSS --O'Reilly

Type	Code	LESSON PLAN HTML PROGRAMMING	L-T-P	Credits	Marks
Lecture No	Unit No		3-1-0	2	100
Lecture 1	1	**Topic:** Introduction and structure of HTML, the Body and Head **Ref: https://www.w3schools.com/html/**			
Lecture 2	1	**Topic:** color attributes **Ref:** https://www.w3schools.com/html/			
Lecture 3	1	**Topic:** Introduction about List and types of List tag **Ref:** https://www.w3schools.com/html/			

Lecture 4	1	**Topic:** Ordered list , Unorder list with properties **Ref:** https://www.w3schools.com/html/
Lecture 5	1	**Topic:** Definition List **Ref:** https://www.w3schools.com/html/
Lecture 6	2	**Topic:** Introduction to link **Ref:** https://www.w3schools.com/html/
Lecture 7	2	**Topic:** Relative Links **Ref:** https://www.w3schools.com/html/
Lecture 8	2	**Topic:** Absolute Links **Ref:** https://www.w3schools.com/html/
Lecture 9	2	**Topic:** Link Attributes, **Ref:** https://www.w3schools.com/html/
Lecture 10	2	**Topic:** Using the ID Attribute to Link within a Document. **Ref:** https://www.w3schools.com/html/
Lecture 11	3	**Topic:** Image tag attributes **Ref:** https://www.w3schools.com/html/
Lecture 12	3	**Topic:** Putting an Image on a Page **Ref:** https://www.w3schools.com/html/
Lecture 13	3	**Topic:** Using Images as Links **Ref:** https://www.w3schools.com/html/
Lecture 14	3	**Topic:** Putting an Image in the Background **Ref:** https://www.w3schools.com/html/
Lecture 15	3	**Topic:** Putting an Image in the Background **Ref:** https://www.w3schools.com/html/
Lecture 16	4	**Topic:** Creating a Table **Ref:** https://www.w3schools.com/html/
Lecture 17	4	**Topic:** Table Headers **Ref:** https://www.w3schools.com/html/
Lecture 18	4	**Topic:** Captions **Ref:** https://www.w3schools.com/html/
Lecture 19	4	**Topic:** Spanning Multiple Columns **Ref:** https://www.w3schools.com/html/
Lecture 20	4	**Topic:** Styling Table **Ref:** https://www.w3schools.com/html/
Lecture 21	5	**Topic:** Basic Input and Attributes **Ref:** https://www.w3schools.com/html/
Lecture 22	5	**Topic:** Other Kinds of Inputs **Ref:** https://www.w3schools.com/html/
Lecture 23	5	**Topic:** Styling forms with CSS **Ref:** https://www.w3schools.com/html/
Lecture 24	5	**Topic:** Styling forms with CSS and properties **Ref:** https://www.w3schools.com/html/
Lecture 25	5	**Topic:** Where To Go From Here **Ref:** https://www.w3schools.com/html/