Sacred Heart College (Autonomous), Tirupattur District

Department: B.Sc. Computer Science

1.2.1 List of New Courses

B. Sc. Computer Science

Sem	Part	Subcode	Subtitle	Hours	Credits
1	I	LT114	Tamil – I	5	3
	II	LE115AT	English –I	5	2
	III	AM114C	Allied Mathematics -I	6	5
	III	CS120	Problem Solving Techniques	3	3
	III	CS121	Web Development Using HTML	4	4
	IV	VE105A/B	Christian Religion –I / Value Education –I	2	1
	IV	SK104	Communication Skills	2	1
	IV	CE103	Communicative English –I	-	1
	II	LE115AP	English Lab –I	-	1
	III	PCS108	Practical -I: Web Development Using HTML	3	2
2	I	LT214	Tamil –II	5	3
	II	LE215AT	English –II	5	2
	III	AM214C	Allied Mathematics –II	6	5
	III	CS221	Digital Computer Fundamentals	3	3
	III	CS222	Programming Using C	4	4
	IV	VE205A/B	Christian Religion –II / Value Education –II	2	1
	IV	SK204	Leadership Skills	2	1

	IV	CE203	Communicative English –II	-	1
	II	LE215AP	English Lab –II	-	1
	III	PCS212	Practical -II: Programming Using C	3	2
3	I	LT312	Tamil –III	5	3
	II	LE309T	English –III	5	2
	III	AP309B	Allied Physics for Computer Science I	4	3
	III	CS322	Computer Organization And Architecture	3	3
	III	CS323	Data Structures and Algorithms Using C	4	4
	IV	VE306	Human Rights	2	1
	IV	SK304	Technical Skills	2	1
	III	PCS309	Practical -III: Data Structures And Algorithms Using C	3	2
	II	LE309P	English Lab –III	-	1

Sem	Part	Subcode	Subtitle	Hours	Credits
4	I	LT411P / SS	Tamil -IV :Poem / Short Story	5	3
	II	LE409T	English –IV	5	2
	III	AP409B	Allied Physics For Computer Science II	4	3
	III	CS422	Software Engineering	3	3
	III	CS423	Relational Database Management Systems	4	4
	IV	VE406	Environmental Science	2	1
	IV	SK404	Employability Skills	2	1
	III	PAP409B	Allied Physics Practical's for Computer Science	2	1
	III	PCS412	Practical -IV: Relational Database Management Systems	3	2
	II	LE409P	English Lab –IV	-	1
	V	CO-SHE	Co-Curricular – Groups and Movements	-	2
	V	CO-DED	Co-Curricular – Outreach	-	2
5	III	CS540	Programming Using Java	4	4
	III	CS541	Web Development Using XML	4	4
	III	CS542	Programming Using PHP	3	3
	III	CS4543	Operating Systems	4	4
	III	CS544 A / B / C /D	Elective I : Computer Graphics / Data Mining And Warehousing / Decision Support System / Software Testing And Quality Assurance	4	4
	III	PCS515	Practical -V :Programming Using Java	3	2
	III	PCS516	Practical -VI :Web Development Using XML	3	2
	III	PCS517	Practical -VII :Programming Using PHP	3	2
	III		Non Major Elective -I	2	1
6	III	CS633	Mobile Applications Development	4	4
	III	CS634	Linux and Shell Programming	4	4
	III	CS635	Programming Using Python	3	4
	III	CS636	Microprocessor Using 8086/88	4	4

	III	CS637 A / B / C /D	Elective II :Computer Networks / Software Project Management / Security Systems / Cognitive Computing	4	4
	III	PCS627	Practical - VIII :Mobile Applications Development	3	2
	III	PCS628	Practical -IX :Programming Using Python	3	2
	III	PCS629	Practical -X :Linux and Shell Programming/Microprocessor Using 8086/88	3	2
	III	PCS630J	Project Work	-	4
	III		Non Major Elective II	2	1

Sacred Heart College (Autonomous), Tirupattur District

Department: B.Sc. Computer Science

1.2.1 List of New Courses

S. No.	Course Code	Course Name
1.	CS322	Computer Organization And Architecture
2.	CS423	Relational Database Management Systems

Syllabus

Semester III

Computer Organization And Architecture

[SEMESTER-III] **[3:0:3-50:50]**

COMPUTER ORGANIZATION AND ARCHITECTURE

1. Learning Objectives

- To understand the basics of ComputerOrganization.
- To know the relationship between computer instruction and the Machine codeexecution.
- To know about the various types of CPU Organization and Addressing Modes.
- To recognize the need of interface between CPU and Input / Outputdevices.
- To think critically, independently, and quantitatively about Computer Memory.

2. Blue Print of the Question Paper

Section	I-Unit	II-Unit	III-Unit	IV-Unit	V-Unit
Section-A	1-2	3-4	5-6	7-8	9-10
Section-B	11.a)Theory (OR) b) Theory	12.a)Theory (OR) b) Theory	13.a)Theory (OR) b) Theory	14.a)Theory (OR) b) Theory	15.a) Theory (OR) b) Theory
Section-C	16.Theory	17. Theory	18. Theory	19.Theory	20. Theory

3. Course Outline

Unit I. Computer Organization and Design

Instruction Codes - Computer Registers - Computer Instructions – Timing and Control – Instruction Cycle - Memory Reference Instructions.

Unit II. Programming the Basic Computer

Introduction - Machine language - Assembly language - The assembler - Program loops - Programming arithmetic and logical operation – Subroutines - Input-output programming.

Unit III. Central Processor Unit

Introduction – General Register Organization – Stack Organization – Instruction Formats – Addressing Modes.

Unit - IV: Input / Output Organization

Peripheral Devices – I/O interface – Asynchronous Data Transfer – Modes of Transfer - Direct Memory Access .

Unit - V: Memory Organization

Memory Hierarchy – Main Memory - Associative Memory – Cache Memory – Virtual Memory.

4. Teaching Resources

i. Text

1. Morris Mano M. "Computer System Architecture". New Delhi**:** Prentice Hall of India Private Limited, 2011

Unit- I : Ch. 5.1 –5.6

Unit- II : Ch. 6.1 –6.8

Unit- III : Ch. 8.1 –8.5

Unit- IV : Ch. 11.1 – 11.4 & 11.6

Unit- V : Ch. 12.1, 12.2 & 12.4 -12.6

ii. References

1. William Stallings. "Computer Organization and Architecture". 8th edition. Pearson Publication, 2010

2. Morris Mano. "Digital Login and Computer Design". New Delhi: Prentice Hall of India Private Limited, 2001.

iii. Web References

(i) Online Tutorial

1. www.onlinevideolecture.com/computer.../computer-architecture
2. www.computer-pdf.com/architecture/
3. www.tutorialspoint.com/computer_logical_organization

(ii) Online Quiz

1. https://www.pritee.org/index.php/knowledge-base-articles/computer-organisation-and-architecture/30-computer-organization-and-architecture-quiz-1
2. https://www.geeksforgeeks.org/computer-organization-and-architecture-gq/
3. https://www.sanfoundry.com/1000-computer-organization-architecture-questions-answers/

5. Learning Outcomes

- Study basic computer organization, design andmicro-operations.
- Prepare machine code from the instructions
- Understand CPU organization and different types of addressing modes.
- Understand how the Input/ Output devices communicate with the computer
- Learn various methods and techniques of memoryorganizatio

Semester IV

Relational Database Management Systems

SEMESTER-IV] **[4:0:0:4-50:50]**

RELATIONAL DATABASE MANAGEMENT SYSTEMS

1. **LearningObjectives**
   - To understand the basic principles of Databases and DataModels.
   - To know about the Relational Data Structures and Relational Algebra.
   - To understands the concepts of Functional Dependency and Normalization.
   - To learn the features and to write Queries usingSQL.
   - To explore the organization and to acquire skills in developing programs usingPL/SQL.

2. ***Blue Print of the QuestionPaper***

Section	I-Unit	II-Unit	III-Unit	IV-Unit	V-Unit
Section-A	1-2	3-4	5-6	7-8	9-10
Section-B	11.a)Theory (OR) b) Theory	12.a)Theory (OR) b) Theory	13.a)Theory (OR) b) Theory	14.a)Program (OR) b) Theory	15.a) Program (OR) b) Theory
Section-C	16.Theory	17.Theory	18.Theory	19.Program	20.Program

3. **CourseOutline**

Unit - I: **Basic Concepts and Data Models**

Basic concepts and definition – Data Dictionary – Database System – Database Administrator – File Oriented System Vs Database System: Advantage and Disadvantage. Three level Database Architecture – Data Independence – Data Model: Physical Data model - Hierarchical Data model – Network Data Model.

Unit - II: Relational Model

Structure of Relational Model – Relational Algebra - Entity Relationship Model: Basic E-R Concepts - ER Diagram Symbols.

Unit - III: Relational Database Design

Functional Dependency: Functional Dependency Diagram and Example – Full Functional Dependency. Decomposition: Lossy-Join Decomposition – Lossless-Join Decomposition. Normalization: Normalization - First Normal Form – Second Normal Form –Third Normal Form – Boyce Codd Normal Form.

Unit - IV: Structured Query Language (SQL)

Creating, Dropping and Altering Tables – Create Table – Drop Table – Alter Table – Inserting Rows – Querying the Database – Simple Select Statement Sub-Selects – Aggregate Functions – String, Number and Date Functions – SET Operations – Views – Create View – Drop View – Modifying the Database – Insert – Update – Delete Statements.

Unit - V: Procedural Language – SQL (PL/SQL)

Data Types and Variables – Program Control Statements – Null Statement – Assignment Statement – Conditional Statements – Loops – Program Structure – Anonymous Blocks – Procedures and Functions – Stored Procedures and Functions – Packages – Triggers – Database Access using Cursors.

4. Teaching Resources

i. Text

1. S.K. Singh, "Database Systems - Concept, Design and Applications", Dorling Kindersley (India) Pvt. Ltd., Second Impression,2008.

   Unit - I **:** 1.1 – 1.8(1.8.1, 1.8.2, 1.8.5, 1.8.6)& 2.3 – 2.7(2.7.3, 2.7.4, 2.7.5)

   Unit - II **:** 4.1- 4.4& 6.1 - 6.5

   Unit - III **:** 9.1 - 9.3& 10.1 – 10.4

2. RajeshkharSunderraman. Oracle 8 Programming A Primer. New Delhi :Addition - Wesley publication, 2000.

   Unit - IV **:** 2.1 – 2.6

   Unit -V **:** 4.1 – 4.8

ii. References

1. Bipin C Desai, "An Introduction to Database Systems", Galgotia Publications, New Delhi, 1999.
2. Abraham Siberscha, et al. Database System Concepts. McGraw Hill.
3. Ramez Elmasriand Navathe, Shamkant B. Fundamentals of Database Systems.Pearson Education.

iii. Web References

i) Online Tutorial

1. https://www.javatpoint.com/dbms-tutorial
2. https://www.tutorialspoint.com/dbms/index.htm
3. http://www.w3schools.com/sql/

ii) Online Quiz

1. https://www.avatto.com/computer-science/test/mcqs/questions-answers/database/71/1.html
2. https://www.geeksforgeeks.org/dbms-gq/er-and-relational-models-gq/
3. https://www.geeksforgeeks.org/dbms-gq/sql-gq/
4. https://www.geeksforgeeks.org/dbms-gq/database-design-normal-forms-gq/

5. LearningOutcomes

- Gain a good understanding of the architecture functioning of database management systems as well as associated tools and techniques.
- Implement the Entity Relationship Diagram using various E-R Diagram Symbol.
- Develop a good database design using normalization techniques.
- Understand the use of structured query language & PL/SQL, its syntax, its working and its scope.

Acquire a good understanding of database systems concepts and to be in a position to use and design databases for differentapplications.