



List of Revised Courses

Department : Information Technology

Programme Name : B.Tech.

Academic Year : 2024-25

List of Revised Courses

Sr. No.	Course Code	Name of the Course
01.	ITUETT2	DATABASE MANAGEMENT SYSTEMS
02.	ITUELT2	DATABASE MANAGEMENT SYSTEMS LAB
03.	ITUFLT1	MICROPROCESSOR & MICROCONTROLLER LAB



Minutes of Meetings (MoM) of Board of Studies (BoS)

Academic Year : **2024-25**

School : **School of Engineering & Technology**

Department : **Information Technology**

Date and Time : **12-07-2024, 02:00PM**

Venue : **Smart Class Room G-14 [Hybrid Mode]**

❖ PROJECT (ITUFPV1) - B.Tech. 6th Semester

The meeting ended with a vote of thanks by Head of the Department.


Dr. Rohit Raja
BoS Chairman

(Consent Taken Through
Mail)
Prof. Apurva Desai Professor
Veer Narmad South Gujrat
University

(Consent Taken Through
Mail)
Ms. Ashwini Jha
Software Developer
Persistent


Mr. Pankaj Chandra
Member, BoS


Mr. Agnivesh Pandey
Invited Member


Mr. Sunel Ahamed
Invited Member


Mr. Deepak Kant Netam
Invited Member


Mr. Anand Prakash Rawal
Invited Member


Dr. Amit Kumar Dewangan
Invited Member


Mrs. Aradhana Soni
Invited Member

गुरु घासीदास विश्वविद्यालय
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)
कोनी, बिलासपुर - 495009 (छ.ग.)



Guru Ghasidas Vishwavidyalaya
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)
Koni, Bilaspur - 495009 (C.G.)

Scheme and Syllabus



**SCHEME FOR EXAMINATION
B.TECH (FOUR YEAR) DEGREE COURSE
THIRD YEAR, INFORMATION TECHNOLOGY
SEMESTER V
EFFECTIVE FROM SESSION 2024-25 (NEP)**

EFFECTIVE FROM SESSION 2024-25 (NEP)									
SL. NO.	SUBJECT CODE	SUBJECTS	PERIODS/ WEEK			EVALUATION SCHEME			CREDITS
			L	T	P	IA	ESE	TOTAL	
THEORY									
1	ITUET11	MACHINE LEARNING	3	0	0	40	60	100	3
2	ITUET12	DATABASE MANAGEMENT SYSTEMS	3	1	0	40	60	100	4
3	ITUET13	FORMAL LANGUAGE & AUTOMATA THEORY	3	0	0	40	60	100	3
4	ITUETKX	DEPARTMENT ELECTIVE-III	3	0	0	40	60	100	3
5	ITUETKX	DEPARTMENT ELECTIVE-IV	3	0	0	40	60	100	3
PRACTICAL									
1	ITUETL1	MACHINE LEARNING LAB	0	0	3	25	25	50	1.5
2	ITUETL2	DATABASE MANAGEMENT SYSTEMS LAB	0	0	3	25	25	50	1.5
3	ITUETPV1	MINI PROJECT - II	0	0	4	50	50	100	2
TOTAL CREDITS									21
IA- INTERNAL ASSESSMENT, ESE-END SEMESTER EXAMINATION, L-LECTURE, T-TUTORIAL, P-PRACTICAL									

(Signatures of faculty members)



LIST OF DEPARTMENT ELECTIVE-III

1	ITUETK1	DIGITAL IMAGE PROCESSING
2	ITUETK2	SOFTWARE TESTING & QUALITY MANAGEMENT
3.	ITUETK3	SOFT COMPUTING

LIST OF DEPARTMENT ELECTIVE-IV

1	ITUETK4	WIRELESS SENSOR NETWORK
2	ITUETK5	HUMAN COMPUTER INTERFACE
3.	ITUETK6	NETWORK SECURITY

[Handwritten signatures and initials]



SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
ITUETT2	3	1	0	4 HOURS	40	60	4

Database Management Systems

Course Objectives:

1. To understand the basic concepts and the applications of database systems.
2. To master the basics of SQL and construct queries using SQL.
3. To provide overview of database programming and procedural languages
4. To provide the concepts and algorithms for building database management systems.
5. To provide overview of transaction management, database recovery and security.

Unit 1: Database system architecture: Data Abstraction, Data Independence, Data Definition Language (DDL), Data Manipulation Language (DML), Data models: Entity-relationship model, network model, relational and object oriented data models, integrity constraints, data manipulation operations.

Unit 2: Relational query languages: Relational algebra, Tuple and domain relational calculus, SQL3, DDL and DML constructs, Open source and Commercial DBMS - MYSQL, ORACLE, DB2, SQL server. Relational database design: Domain and data dependency, Armstrong's axioms, Normal forms, Dependency preservation, Lossless design. Query processing and optimization: Evaluation of relational algebra expressions, Query equivalence, Join strategies, Query optimization algorithms.

Unit 3: Storage strategies: Indices, B-trees, hashing. Transaction processing: Concurrency control, ACID property, Serializability of scheduling, Locking and timestamp based schedulers, Multi-version and optimistic Concurrency Control schemes, Database recovery.

Unit 4: Database Security: Authentication, Authorization and access control, DAC, MAC and RBAC models, Intrusion detection, SQL injection.

Unit 5: Advanced topics: Object oriented and object relational databases, Logical databases, Web databases, Distributed databases, Data warehousing and data mining.

Suggested books:

1. "Database System Concepts", 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan. McGraw-Hill.

Suggested reference books

1. "Principles of Database and Knowledge - Base Systems", Vol 1 by J. D. Ullman, Computer Science Press.
2. "Fundamentals of Database Systems", 5th Edition by R. Elmasri and S. Navathe, Pearson Education.
3. "Foundations of Databases", Reprint by Serge Abiteboul, Richard Hull, Victor Vianu, Addison-Wesley.

Course Outcomes:

1. To construct an Entity-Relationship (E-R) model from specifications and transform it to a



SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
ITUET2	0	0	3	3 HOURS	25	25	1.5

Database Management Systems Lab

Course Objectives:

This course is designed to enable the students to:

1. Ability to acquire skills in using SQL commands for data definition and data manipulation.
2. To design database schema for a given application and apply normalization.
3. Learn SQL basics for data definition and data manipulation.
4. Ability to develop solutions for database applications using procedures, cursors and triggers.
5. Ability to develop database applications for Industrial orientation.

S.No.	Experiments
1	Concept design with E-R Model.
2	Relational Model.
3	Normalization.
4	Practicing DDL commands.
5	Practicing DML commands.
6	Querying (using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.).
7	Queries using Aggregate functions, GROUP BY, HAVING and Creation and dropping of Views.
8	Triggers (Creation of insert trigger, delete trigger, update trigger).
9	Procedures.
10	Usage of Cursors.

TEXT BOOKS:

1. Database Management Systems, Raghurama Krishnan, Johannes Gehrke, Tata Mc Graw Hill, 3rd Edition
2. Database System Concepts, Silberschatz, Korth, McGraw Hill, V edition.

REFERENCES BOOKS:

1. Database Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate, Pearson Education.
3. Introduction to Database Systems, C.J. Date, Pearson Education.
4. Oracle for Professionals, The X Team, S. Shah and V. Shah, SPD.
5. Database Systems Using Oracle: A Simplified guide to SQL and PL/SQL, Shah, PHI.
6. Fundamentals of Database Management Systems, M. L. Gillenson, Wiley Student Edition.

Course Outcomes:

At the end of this course the student can answer how to:

1. Design database schema for a given application and apply normalization.
2. Ability to formulate queries using SQL DML/DDI/DCL commands.
3. Apply the normalization techniques for development of application software to realistic problems.
4. Practice various triggers, procedures, and cursors using PL/SQL.
5. Apply normalization techniques for refining of databases.

(Handwritten signatures of faculty members)



SUB CODE	L	T	P	DURATION	IA	ESE	CREDITS
ITUFLT1	0	0	3	3 HOURS	25	25	1.5

Microprocessor & Microcontroller Lab

Course Objectives:

Students will be able to.

1. To expose students to the operation of typical microprocessor (8086) trainer kit.
2. To prepare the students to be able to solve different problems by developing different programs in assembly language.
3. To develop the quality of assessing and analyzing the obtained data.
4. To understand and hands on training of Interfacing of devices.
5. To design interfacing circuits with 8086.

S.No.	Experiments with 8086 Microprocessor
1	To perform addition & subtraction of two 8 – bit hexadecimal numbers.
2	To perform addition & subtraction 16 – bit hexadecimal numbers.
3	To perform addition & subtraction 32 – bit hexadecimal numbers.
4	To perform addition & subtraction of two 8 – bit decimal numbers and store the result in DX register.
5	To perform addition & subtraction of two decimal digits n and m using ASCII code store the result in ASCII format. Where n and m are decimal number with single decimal digits.
6	To perform addition & subtraction of two decimal digits n and m using ASCII code store the result in ASCII format in CX-BX register. Where n and m are decimal number with two decimal digits.
7	To perform multiplication of n and m. Where n and m are hexadecimal numbers.
8	To perform division of 16 – bit number with 8-bit number.
9	To perform multiplication of two 8-bit numbers using ASCII code store the result in ASCII form in DX. Register.
10	To perform division of two 8-bit numbers using ASCII code store the result in ASCII form in DX register.
11	To solve Arithmetic equation $3AX+5DX+BP$ and store the result in CX register.
12	To solve Arithmetic equation $(P*Q)+(R*S)$.
13	To add only positive number from 100 data bytes.
14	To write a program to add series of 20 bytes.
15	To find positive & negative byte from 100 data bytes.
16	To find largest & smallest byte from block of data.

S.No.	Experiments with 8051 Microcontroller
1	Data transfer/exchange between specified memory locations.
2	Largest/smallest from a series.
3	Sorting (Ascending/Descending) of data
4	Addition / subtraction / multiplication / division of 8/16 bit data.
5	Sum of a series of 8 bit data.
6	Multiplication by shift and add method.

(Signatures)



7	Square / cube / square root of 8 bit data.
8	Matrix addition.
9	LCM and HCF of two 8 bit numbers.
10	Code conversion – Hex to Decimal/ASCII to Decimal and vice versa.
Interfacing experiments using 8051 Trainer kit and interfacing modules (At least two Experiments are mandatory)	
11	Time delay generation and relay interface.
12	Display (LED/Seven segments/LCD) and keyboard interface
13	ADC interface.
14	DAC interface with wave form generation.
15	Stepper motor and DC motor interface.
16	Realization of Boolean expression through port.

Reference Books:

1. IBM PC Assembly Language and Programming, P. Abel, 5th Edition, PHI/Pearson Education.
2. Introduction To Assembly Language Programming, Sivarama P.Dandamudi, Springer Int. Edition, 2003.
3. The 8088 and 8086 Microprocessors: Programming , Interfacing, Software, Hardware and Application, 4th edition, W.A. Triebel, A. Singh, N.K. Srinath, Pearson Education.

Course Outcomes:

On completion of this lab course the students will be able to:

1. Understand and apply the fundamentals of assembly level programming of microprocessors and microcontroller.
2. Work with standard microprocessor real time interfaces including GPIO, serial ports, digital-to-analog converters and analog-to-digital converters.
3. Troubleshoot interactions between software and hardware.
4. Analyze abstract problems and apply a combination of hardware and software to address the problem.
5. Design & Develop the solutions of problems using 8051 microcontroller.