Master of Engineering - ME (Embedded Systems)

Course Name : Database Programming in Java

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Course Code : ESD 5133

Academic Year : 2024 - 25

Semester : I

Name of the Course Coordinator : Dr. SATHYENDRANATH MALLI

Name of the Program Coordinator : Dr. DINESH RAO

Course File

Signature of Program Coordinator Signature of Course Coordinator

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Program Education Objectives (PEOs)

The overall objectives of the Learning Outcomes-based Curriculum Framework (LOCF) for **ME (Embedded Systems)**, program are as follows.

PEO No.	Education Objective
PEO 1	Enable to draw upon fundamental and advanced knowledge to apply analytical and computational approaches to solve technological problems in embedded systems..
PEO 2	Introduce state of art technologies in the area of embedded systems and inculcate ethical practices to make industry-ready professionals.
PEO 3	Promote scientific and societal advancement through research and entrepreneurship.

Program Outcomes (POs)

By the end of the postgraduate program in **ME (Embedded Systems)**, graduates will be able to:

PO1	An ability to independently carry out research /investigation and development work to solve practical problems.
PO2	An ability to write and present a substantial technical report/document.
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
PO4	Ability to develop and implement embedded systems requirements based on theoretical principles and practical knowledge.
PO5	Ability to demonstrate knowledge of the underlying principles and evaluation methods for analyzing and decision-making.

1. Course Plan

1.1 Primary Information

Course Name : Database Programming in Java [ESD 5133]

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L-T-P-C : 3-0-0-3

Contact Hours : 36 Hours

Pre-requisite : Basic Programming Knowledge

Core/ PE/OE : Elective - 1

1.2 Course Outcomes (COs)

CO	At the end of this course, the student should be able to:	No. of Contact Hours	Program Outcomes (PO's)	BL
CO1	Analyze the object-oriented programming concepts	2	PO3, PO4	L3
CO2	Examine the various core java concepts	16	PO3, PO4	L3
CO3	Appraise the various techniques used to develop a user interface (UI) application	6	PO3, PO4, PO5	L2
CO4	Analyze the concepts of JDBC and SQL	12	PO3, PO4	L3

1.3 Assessment Plan

Components	Mid semester examination	Flexible Assessments (2 - 3 in number)	End semester/ Makeup
Duration	90 minutes	To be decided by the faculty.	180 minutes
Weightage	0.3	0.2	0.5
Typology of questions	Applying; Analyzing and Evaluating.	Applying; Analyzing. Evaluating.	Applying; Analyzing; Evaluating.
	Answer all 5 questions of 10 marks each.	Assignment: Solving problems	by Answer all 10 full questions of

Pattern   Each question may have 2 to 3 parts of   applying, analyzing and evaluating   10 marks each. Each question

3/4/5/6/7 marks.   Generative AI use cases.   may have 2 to 3 parts of

[To be decided by the faculty.]   3/4/5/6/7 marks.

Schedule   As per academic calendar.   Assignment submission: November   As per academic calendar.

2024

Topics   Introduction to OOP's concepts, Core Java

covered   Concepts, Database concepts

1.4 Lesson Plan

L. No.	TOPICS	Course Outcome Addressed
L0	Course delivery plan, Course assessment plan, Course outcomes, Program outcomes, CO-PO mapping, reference books	
L1	Introduction to OOP's concepts	CO1
L2	Definition of class, object, encapsulation, inheritance, and polymorphism	CO1
L3	Introduction to Java language - evolution of the language, features of Java language	CO2
L4	Discussion on basic structure of java program. Setting a path to executing an application	CO2
L5	Java language structure - Data types	CO2
L6	Java language structure - Control statements	CO2
L7	Java language structure - Operators	CO2
L8	Definition of class and object concepts, Discussion on defining a class includes components such as variables, methods	CO2
L9	Understanding the concept of constructor	CO2

L10 Concepts of static and non-static which are applied to variables and methods. CO2

L11 Concepts of Inner classes CO2

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L12 Introduction to Inheritance. Implementation of an application using inheritance in java CO2

L13 Concepts of method overriding and method overloading CO2

L14 Discussion on the mechanism called dynamic method dispatch (run-time polymorphism) CO2

IT1   CO1 & CO2

L15 Concepts of abstract class and final class CO2

L16 Interface and package CO2

L17 Exception handling in java CO2

L18 Introduction to IO Streams CO2

L19 Discussion on AWT components, and types of layout managers to build a window based CO3

  application

L20 Steps for developing window based applications (UI) CO3

L21 Introduction to swing package CO3

L22 Event handling concepts CO3

L23 Discussion on event delegation model CO3

L24 Steps for developing menu driven applications CO3

L25 Introduction to database concepts. Discussion on characteristics and advantages of database

CO4

L26 Definition of various data models, discussion on database overall systems CO4

L27 Definition of schema. Discussion on three tier schema architecture CO4

L28 Introduction to JDBC. Types of JDBC drivers CO4

L29 Steps to connect database using JDBC CO4

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L30 Introduction to SQL CO4

L31 Discussion on various SQL statements as part of data definition language CO4

IT2   CO3 & CO4

L32 SQL statements associated with Data manipulation language CO4

L33 Discussion on ordered by, group by, and having clauses CO4

L34 Discussion on views, stored procedure CO4

L35 Steps to implement transaction CO4

L36 Database normalization CO4

1.5 References

- 1. "JAVA 2 The Complete Reference" Patrick Naughton and Herbert Schildt -VII Edition, Tata McGraw Hill.

- 2. "Database Programming with JDBC and Java" George Reese, O'Reilly, 2nd Edition

- 3. "Fundamentals of Database systems, Third Edition". Author: Elmasri and Navath

- 4. "Database system Concepts, Third Edition",Author: Abraham Silberschatz (Bell Laboratories), Henry F. Korth(Bell Laboratories) and S. Sudarshan (Indian Institute of Technology, Bombay, Publishers: The McGraw-Hill Companies, Inc.

1.6 Other Resources (Online, Text, Multimedia, etc.)

- 1. Web Resources: Blog, Online tools and cloud resources.

- 2. Journal Articles.

1.7 Course Timetable

  1 st Embedded Systems   Lecture Hall: LG1 LH2

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  9-10 10-11 11-12   12-1 1-2 2-3 3-4 4-5

MON

Day		
TUE	DBPJ	DBPJ LAB
WED		
THU	DBPJ	
FRI		
SAT	DBPJ	

1.8 Assessment Plan

CO No.	CO Name	Mid semester (Max. 50)	Assignment (Max. 20)	End Semester (Max. 100)	CO wise Weightage
CO1	Analyze the object-oriented programming concepts	10	8	10	0.11
CO2	Examine the various core java concepts	30	5	40	0.44
CO3	Appraise the various techniques used to develop a user interface (UI) application		2	20	0.16
CO4	Analyze the concepts of JDBC and SQL	10	5	30	0.29
	Marks (weightage)	0.3	0.2	0.5	1.0

Note:

- In-semester Assessment is considered as the Internal Assessment (IA) in this course for 50 marks, which includes the performances in class participation, assignment work, class tests, mid-term tests, quizzes etc.

- End-semester examination (ESE) for this course is conducted for a maximum of 100 and the same will be scaled down to 50.

- End-semester marks for a maximum of 50 and IA marks for a maximum of 50 are added for a maximum of 100 marks to decide upon the grade in this course.

Weightage for CO1 = (mid semester marks for CO1 / 1.6666 + Assignment marks for CO1/1.0 +

ESE marks for CO1 / 2)/100

1.9 Assessment Details

The assessment tools to be used for the Current Academic Year (CAY) are as follows:

Sl. No.	Tools	Weightage	Frequency	Details of Measurement (Weightage/Rubrics/Duration, etc.)
1	Internal Test	0.3	1	- Performance is measured using internal test attainment level. - Reference: question paper and answer scheme. - Each internal test is assessed for a maximum of 50 marks and scaled down to 40 marks.
2	Assignments	0.2	2	- Performance is measured using assignments/quiz attainment level. - Assignments/quiz are evaluated for a maximum of 10 marks.
3	End semester	0.5	1	- Performance is measured using ESE attainment level. - Reference: question paper and answer scheme. - ESE is assessed for a maximum of 100 marks and scaled down to 50 marks.

1.10 Course Articulation Matrix

CO	PO1	PO2	PO3	PO4	PO5
CO1		Y	Y		
CO2		Y	Y	Y	
CO3		Y	Y		
CO4		Y	Y		
Average Articulation Level		*	*	*	