I M.Sc(CS)		PCS703S
SEMESTER – I	ADVANCED JAVA PROGRAMMING	HRS/WK – 4
CORE – 3		CREDIT – 4

Objectives:

- ❖ This course provides an in-depth knowledge of Advanced Java language and programming.
- ❖ Implementing Java components
- ❖ Practicing RMI, JDBC
- ❖ Ability to understand Multithreading

COURSE OUTCOMES (COs):

After learning this course, the students should be able to expose

CO1: Ability to gain knowledge on fundamentals of java and clear
view on Objectand Classes.

CO2: Ability to apply knowledge on problems exhibiting packages,
Interfaces,Exceptions, Multithreading

CO3: Ability to connect to database and working with AWT

CO4: Ability to access networks and to work with TCP/IP and UDP

CO5: Ability to apply basic Servlets and RMI methods.

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific Outcome

SEMESTER I	COURSE CODE:					COURSE TITLE: ADVANCED JAVA PROGRAMMING					HOURS: 4	CREDITS: 4
COURSE OUTCOME	PROGRAMME OUTCOME(PO)					PROGRAMME SPECIFIC OUTCOME(PSO)					MEAN SCORE OF CO	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	3.5	
CO1	2	3	3	4	4	4	4	4	3	4		
CO2	3	4	3	4	3	4	4	3	3	4	3.5	
CO3	4	4	3	3	4	4	4	3	4	4	3.7	
CO4	4	4	3	3	3	5	5	3	4	4	3.8	
CO5	4	4	3	3	3	5	4	3	4	4	3.7	
Mean Overall Score											3.6	

**Result: The Score of this Course
is 3.6(High)**

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome
and ProgrammeSpecific Outcome

UNIT-I [**12**Hrs]

INTRODUCTION TO JAVA: Features of Java - Data types – Variables –Operators – Arrays – Classes – Objects – Constructors - Overloading method - String class – Inheritance - Overriding Method – Using super - Abstract class - Packages – Access protection.

UNIT-II [**13**Hrs]

MULTITHREADING: Packages - Access protection- Importing packages – Interfaces – Exception handling –Throw and throws - Thread – Multithreading.

UNIT-III [**12** Hrs]

AVA DATABASE: Java Database-Working with windows using AWT Classes – AWT Controls – Layout Managers and menus- Swing- Introduction to Swing- Swing Architecture- Examples for Swing-JDBC/ODBC driver-MSACCESS connection-A complete example.

UNIT-IV [**11**Hrs]

NETWORKING: Sockets - Inet Address - IP Address - Port number - Client/Server computing - TCP/IP - TCP client – server handling multiple clients -UDP-UDP Server-UDP Client-Multithreaded clients.

UNIT- V [**12**Hrs]

SERVLETS AND RMI: Servlet architecture-HTML support - Servlet Installation - Servlet API Distributed computing – RMI architecture - parameter in RMI - RMI Client-side callbacks
- Installing RMI systems - serializing remote objects.

TEXT BOOKS:
1. "Advanced Java Programming", Jeffrey C. Rice, Irving Salisbury-McGraw Hill-1997.
2. "JAVA: How to program", Paul J. Deitel, Harvey Deitel, Prentice Hall publication, tenthedition, 2014.

REFERENCE BOOK:

1. "JAVA: Complete reference" ,Herbert Schildt, McGraw Hill ,Ninth Edition,2017

I M.Sc (C.S)	INTERNET OF THINGS	EPCS15
SEMESTER –I		HRS/WK-4
ELECTIVE – 1A		CREDIT-3

Objectives:

1. About Internet of Things where various communicating entities are controlled and managed for decision making in the application domain.

2. Enable students to learn the Architecture of IoT and IoT Technologies

3. Developing IoT applications and Security in IoT, Basic Electronics for IoT, ArduinoIDE, Sensors and Actuators Programming NODEMCU using Arduino IDE.

Course Outcomes (COs):

CO1: Understand about IoT,its Architecture and its Applications
CO2. Understand basic electronics used in IoT & its role
CO3. Develop applications with C using Arduino IDE
CO4. Analyze about sensors and actuators
CO5. Design IoT in realtime applications using today's internet & wireless technologies

Relationship Matrix Course Outcome, Programme Outcome and Programme Specific Outcome

SEMESTER I	COURSE CODE:					COURSE TITLE: INTERNET OF THINGS					HOURS: 4	CREDITS: 3
COURSE OUTCOMES	**PROGRAMME OUTCOMES(PO)**					**PROGRAMME SPECIFIC OUTCOMES(PSO)**					**MEAN SCORE OF CO'S**	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	3	3	4	4	3	4	4	3	4	4	3.6	
CO2	4	4	4	4	4	3	4	3	3	4	3.7	
CO3	4	4	3	3	4	4	4	3	4	4	3.7	
CO4	4	4	3	3	4	4	3	4	4	3	3.6	
CO5	4	4	4	3	3	4	4	4	4	4	3.8	
Mean Overall Score											3.7	

Result: The Score of this Course is 3.7(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme SpecificOutcome

UNIT-I INTRODUCTION   [12 Hrs]

Introduction to IoT: Evolution of IoT – Definition & Characteristics of IoT - Architecture of IoT– Technologies for IoT – Developing IoT Applications – Applications of IoT – Industrial IoT – Security in IoT

UNIT-II BASIC ELECTRONICS FOR IoT   [12 Hrs]
Basic Electronics for IoT: Binary Calculations– Logic Chips –Microcontrollers – Multipurpose Computers – Electronic Signals – A/D and D/A Conversion – Pulse Width Modulation.

UNIT-III PROGRAMMING USING ARDUINO   [12 Hrs]
Programming Fundamentals with C using Arduino IDE: – Basic Syntax – Data Types/ Variables/ Constant – Operators – Conditional Statements and Loops– Strings and Mathematics Library Functions.

UNIT-IV SENSORS AND ACTUATORS   [10 Hrs]
Sensors and Actuators: Analog and Digital Sensors–Interfacing temperature sensor, ultrasound Sensor and infrared (IR) sensor with Arduino– Interfacing LED and Buzzer with Arduino.

UNIT-V SENSOR DATA IN INTERNET   [12 Hrs]
Sending Sensor Data Over Internet: Introduction to ESP8266 NODEMCU WiFi Module – Using WiFi and NODEMCU to transmit data from temperature sensor to Open Source IoT cloud platform (Thing Speak).

Text Books:
1.Arshdeep Bahga, Vijay Madisetti,"Internet of Things: A Hands-OnApproach",2014. ISBN: 978-0996025515
2.Boris Adryan, Dominik Obermaier, Paul Fremantle, "The Technical Foundations of IoT", Artech Houser Publishers, 2017.

Reference Books:

1. Michael Margolis,"ArduinoCookbook",O"Reilly,2011
2. Marco Schwartz, "Internet of Things with ESP8266", Packt Publishing, 2016.
3. Dhivya Bala,"ESP8266:Step by Step Tutorial for ESP8266 IoT,Arduino NODEMCU Dev. Kit", 2018.

II M.SC (CS)	PRINCIPLES OF COMPILER DESIGN	EPCS914T
SEMESTER – III	For the students admitted in the year 2015	HRS/WK – 4
ELECTIVE – 3A		CREDIT – 3

Objectives:
To understand the Various phases of a compiler and to develop skills in designing a compiler.

COURSE OUTCOMES (COs):
CO1: Apply skills and familiarity which are applicable to a broad range of computer applications.

CO2: Design and develop a comprehensive Compiler for a given language

CO3: Implement various parsing, conversion, optimization and code generation algorithms for the design of a compiler.

CO4: Understand the concept parsing techniques

CO5: Able to understand the memory allocation with Loop Optimization and DAG

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER III	COURSE CODE: EPCS914T					COURSE TITLE:PRINCIPLES OF COMPILER DESIGN					HOURS: 4	CREDITS: 3
COURSE OUTCOMES	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)					MEAN SCORE OF CO'S	
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5		
CO1	4	4	4	4	4	4	4	4	3	3	3.8	
CO2	3	4	3	4	4	4	4	4	3	4	3.7	
CO3	3	4	3	4	3	4	4	4	3	4	3.6	
CO4	4	3	3	4	3	4	4	4	3	4	3.6	
CO5	4	4	4	4	4	4	4	4	4	3	3.7	
Mean Overall Score											3.6	

Result: The Score of this Course is 3.6(High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **High** association with Programme Outcome and Programme Specific Outcome

UNIT- I   **[11 Hrs]**
COMPILER- Phases of Compiler – Lexical Analysis – Role of Lexical analyzer –
Finite Automata – Regular Expression – From a Regular expression to an NFA ,
NFA to DFA – Design of Lexical Analyzer.

UNIT- II   **[13 Hrs]**
SYNTAX ANALYZER - CFG – Role of the Parser – CFG – Top Down Parsing –
Recursive descent parsing, predictive Parsers – Bottom up Parsing – Shift reduce, operator
precedence parsers

UNIT- III   **[12 Hrs]**
SYNTAX DIRECTED DEFINITION- Construction of Syntax trees –
Intermediate code generation – Intermediate Languages – Syntax trees, post fix
form, Three address code – Boolean expressions.

UNIT- IV

                                                                            [**12 Hrs**]

SYMBOL TABLE- contents of Symbol table – Implementation of Stack
allocation scheme –Storage allocation.

UNIT - V   **[12 Hrs]**
CODE OPTIMIZATION AND CODE GENERATION- principles sources of
optimization –loop optimization – Dag Representation of Basic blocks.
CODE GENERATION-simple code generator.

TEXT BOOK:
1. Compilers Principles,   Techniques   and   Tools Alfred V.Aho,Ravi   Sethi,
       JeffreyD.Ullman.
     Chapter 1 : (1.1,1.3), Chapter 3: (3.1,3.6,3.7,3.9), Chapter 4: (4.1,4.2,4.4 – 4.6),
     Chapter 5: (5.1,5.2), Chapter 7: (7.5), Chapter 8: (8.1,8.4)

REFERENCE BOOK:
1. Principles of Compiler Design Alfred V.Aho and Jeffrey D.Ullman.
     Chapter 9: (9.1,9.2), Chapter 10: (10.1,10.2,10.3),
     Chapter 12: (12.1,12.2,12.3), Chapter 15: (15.2,15.4,15.5,15.7)