SCHEME OF INSTRUCTION & EXAMINATION
B.E.II YEAR (CSE) (Autonomous)

COMPUTER SCIENCE & ENGINEERING

Semester-II

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Syllabus Ref-No.</th>
<th>SUBJECT</th>
<th>Scheme of Instruction</th>
<th>Scheme of Examination</th>
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<td></td>
<td>Per periods</td>
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<td>Microprocessors and Interfacing</td>
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<td>CS 252 UE</td>
<td>OOP using Java</td>
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<td>Programming Languages</td>
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<td>EC 272 UE</td>
<td>Digital Electronics</td>
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<td>6</td>
<td>CE 151 UE</td>
<td>Environmental Studies</td>
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PR A C T I C A L S

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<th>Duration</th>
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<td>1</td>
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<td>Microprocessors Lab</td>
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<td>Java Programming Lab</td>
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TOTAL

| 24 | 6 | - | 550 | 200 | 28 |
B.E. II Year (Computer Science & Engineering) - II Semester

CS 251 UE

MICROPROCESSORS & INTERFACING

<table>
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UNIT -I
8085 Architecture: Introduction to microprocessors and microcontrollers, 8085 Processor Architecture, Internal operations, Instructions and timings. Programming the 8085 - Introduction to 8085 instructions, Addressing modes and Programming techniques with Additional instructions.

UNIT-II

UNIT-III

UNIT-IV
UNIT – V

Suggested Reading:

B.E. II Year (Computer Science & Engineering) — II Semester

CS 252 UE

**OBJECT ORIENTED PROGRAMMING USING JAVA**

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<th>Credits</th>
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<td>4 Periods per week</td>
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**UNIT -I**

Object oriented system development: understanding object oriented development, understanding object oriented concepts, benefits of object oriented development.

Java programming fundamentals: Introduction, overview of Java, data types, variables and arrays, operators, control statements, classes, methods, inheritance, packages and interfaces.

**UNIT -II**

Exceptional handling, multithreaded programming, I/O basics, reading console input and output, reading and writing files, print writer class, string handling.

**UNIT -III**

Exploring java.lang, collections overview, collection interfaces, collection classes, iterators, random access interface, maps, comparators, arrays, legacy classes and interfaces, string tokenizer, bitset, date, calendar, observable timer.

**UNIT -IV**

Java I/O classes and interfaces, files, stream and byte classes, character streams, serialization.

**UNIT -V**

GUI and event programming: Applet class, event handling, delegation event model, event classes, event listener interfaces.

Customizing frame windows, GUI programming basics, text related GUI components, layout managers, effective use of nested panels, other GUI components, menus and handling mouse events.
Suggested Reading:

With effect from Academic Year 2012-13

B.E. II Year (Computer Science & Engineering) — II Semester

CS 253 UE

PROGRAMMING LANGUAGES

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<th>Item</th>
<th>Details</th>
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<td>Credits</td>
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UNIT -I


UNIT -II

Names, Binding, Type Checking and Scopes: Names, Variables, The Concept of Binding, Type Checking, Strong Typing, Type Compatibility, Scope, Scope and Lifetime, Referencing Environments, Named Constants.

Data Types: Primitive Data Types, Character String Types, User-Defined Ordinal Types, Array Types, Associative Arrays, Record Types, Union Types, Pointer and Reference Types.

Expressions and Assignment Statements: Arithmetic Expressions, Overloaded Operators, Type Conversions, Relational and Boolean Expressions, Short-Circuit Evaluation, Assignment Statements, Mixed-Mode Assignment.

UNIT -III


Abstract Data Types: The Concept of Abstraction, Introduction to Data Abstraction, Design Issues for Abstract Data Types, Language Examples, Parameterized ADT, Encapsulation Constructs, Naming Encapsulation.

UNIT -IV
Concurrency: Subprogram level Concurrency, Semaphores, Monitors, Message Passing, Ada Support for Concurrency, Java Threads, C# Threads, Statement-Level Concurrency.

Exception Handling and Event Handling: Introduction to Exception Handling, Exception Handling in Ada, C++ and Java, Introduction to Event Handling, Event Handling with Java.

UNIT -V


Scripting Languages: Key concepts, Case Study: Python (From the Suggested Reading No.2)

Suggested Reading:

DIGITAL ELECTRONICS

With effect from Academic Year 2012-13

B.E. II Year (Computer Science & Engineering) — II Semester

EC 272 UE

Objectives:
- To understand the number systems and conversions between them.
- To study the properties for Boolean algebra and simplification of Boolean equations using K-maps.
- To study the digital circuits, classifications and their applications.
- To learn about different types of memories and how they are programmed.
- To study the basic applications of digital electronics like digital clock, frequency counter etc.

UNIT-I

UNIT-II
UNIT-III
**Sequential circuits:** Flip-flops-RS, D, JK and JK Master slave. Debounce circuits.
**Registers:** Serial-in Parallel-out, Serial-in Serial-out, Parallel-in Serial-out, Parallel-in Parallel-out.
**Counters:** Asynchronous and synchronous counters, decade counters, ring counters. Design of synchronous counters using excitation tables.

UNIT-IV
**Basic computer Organization:** Instruction codes, Computer registers, Timing and control, Instruction cycle, Input-output Configuration, Interrupt cycle.
Introduction to microprocessors and microcontrollers.

UNIT-V
**Memories:** Types of memories, Memory Addressing, ROM, PROM, EPROM, SRAM, DRAM, DDRAM, NVRAM, Flash memory. **Programmable Logic Devices:** PLAs, PALs, PLLs. **Applications:** Digital Clock, Frequency counter, Time measurement, Displays.

**Suggested Reading:**

B.E. II Year (Computer Science & Engineering) — II Semester

MT 251 UE

MATHEMATICS - IV

- Instruction: 4 Periods per week
- Duration of University Examination: 3 Hours
- University Examination: 75 Marks
- Sessionals: 25 Marks
- Credits: 4

Objectives:

- To introduce to the student, the expansion of periodic functions and their applications.
- To introduce the methods of forming and solving Partial differential equations and also Z-Transforms.
- To introduce basic statistical methods like curve fitting, correlation and regression.

UNIT – I
Fourier series and Fourier transforms: Fourier series, Fourier series expansions of even and odd functions, convergence of Fourier series, Fourier half range series, Fourier transforms, inverse Fourier transforms, Fourier cosine & sine transforms.

UNIT – II
Partial differential equations: Formation of first and second order partial differential equations, solution of first order equations, Lagrange’s equation, Nonlinear first order equations, Charpit’s method, higher order linear equations with constant coefficients.

UNIT-III
Application of Fourier series to linear partial differential equations: Classification of linear second order partial differential equations, separation of variables method (Fourier method), Fourier series solution of one-dimensional heat equation, one-dimensional wave equation, Laplace’s equation.
UNIT –IV

UNIT-V
Curve fitting by method of least squares, correlation and regression, types of correlations, scatter diagram, Karl Pearson’s coefficient of correlation, Spearman’s rank correlation coefficient, equal ranks, correlation factor, equations to the lines of regression.

Suggested Reading:

References:
3. Dr.M.Venkata Krishna “Probability and Statistics”.
B.E. II Year (Computer Science & Engineering) — II Semester

CE 151 UE

ENVIRONMENTAL STUDIES

Instruction 4 Periods per week
Duration of University Examination 3 Hours
University Examination 75 Marks
Sessionals 25 Marks
Credits 4

Objectives:

- To study the basic concepts, sources of water, floods and their impact on environment
- To know the ecosystems and energy resources systems
- To understand the Biodiversity concepts and their advantages
- To study the different pollutions and their impact on environment
- To know the social and environment related issues and their preventive measures

UNIT– I
Environmental Studies: Definition, scope and importance, need for public awareness.
Natural resources: Water resources; use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams:benefits and problems. Effects of modern agriculture, fertilizer-pesticide problems, water logging and salinity.

UNIT-II
Ecosystems: Concept of an ecosystem, structure and function of an ecosystem, producers, consumers and decomposers, energy flow in ecosystem, food chains, ecological pyramids, aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries).
Energy resources: Growing energy needs, renewable and non-renewable energy sources. Land Resources, land as a resource, land degradation, soil erosion and desertification.
UNIT-III
**Biodiversity:** Genetic species and ecosystem diversity, bio-geographical classification of India. Value of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity.

UNIT-IV
**Environmental Pollution:** Causes, effects and control measures of air pollution, water pollution, soil pollution, noise pollution, thermal pollution; solid and liquid waste management.

**Environment Protection Act:** Air, water, forest and wild life Acts, enforcement of environmental legislation.

UNIT-V
**Social Issues and the Environment:** Water conservation, watershed management, and environmental ethics. Climate change, global warming, acid rain, ozone layer depletion.

**Environmental Disaster Management:** Types of disasters, impact of disasters on environment, infrastructure, and development. Basic principles of disaster mitigation, disaster management, and methodology. Disaster management cycle, and disaster management in India.

**Suggested Reading:**

With effect from Academic Year 2012-13

B.E. II Year (Computer Science & Engineering) — 11 Semester

CS 281 UE

MICROPROCESSORS LAB

<table>
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<tr>
<th>Course</th>
<th>Requirement</th>
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<tr>
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PART A: 8085 Programming using Microprocessor Trainer Kit

1. Simple programming examples using 8085 instruction set. To understand the use of various instructions and addressing modes.
2. Interfacing and programming of 8255. (e.g.: traffic light controller)
3. Interfacing and programming of 8254.
4. Interfacing and programming of 8279.

PART B: 8051 Programming

1. Simple programming examples using 8051 Microcontroller
2. A/D and D/A converter interface
3. Stepper motor interface
4. Display interface
B.E. II Year (Computer Science & Engineering) — 11 Semester

CS 282 UE

JAVA PROGRAMMING LAB

<table>
<thead>
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1. A program to illustrate the concept of class with constructors, methods and overloading.
2. A program to illustrate the concept of Inheritance and Dynamic polymorphism.
3. A program to illustrate the usage of Abstract class.
4. A program to illustrate Multithreading.
5. A program to illustrate Thread synchronization.
6. A program using String tokenizer.
7. A program using Linked list class.
8. A program using Tree set class.
9. A program using Hash set and Iterator classes.
10. A program using Map classes.
11. A program using Enumeration and Comparator interfaces.
12. A program to illustrate the usage of Filter and Buffered I/O streams.
13. A program to illustrate the usage of Serialization.
14. An application involving GUI with different controls, menus and event handling.
15. A program to implement an Applet.