ARASU ENGINEERING COLLEGE

KUMBAKONAM

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY

COURSE OUTCOMES & PROGRAM OUTCOMES

UG- REGULATIONS – 2017

HOD **PRINCIPAL**

DEPARTMENT

Vision

To be in the forefront of Computer Science and Engineering by producing competing professional with innovative skills, moral values and societal concerns with a commitment towards building a strong nation.

Mission

- To impart quality education through continuous Teaching- Learning process, including interdisciplinary areas that extend the scope of Computer Science.
- To develop the problem solving skills, analytical and collaborative learning ability of the students to be ready to deal with cutting edge technologies worldwide.
- To inculcate strong ethical values and spirit of social commitment among students.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

- Graduates will have an ability to work on different domains of computational technologies including multidisciplinary and will adapt to the emerging trends.
- Graduates will have successful career in the software and exhibit team spirit, problem solving, management skills and life-long learning ability.
- Graduates will practice their professions conforming toward ethical values and sociable policies.

PROGRAM OUTCOMES (POs)

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

1. **Problem Solving Skills:**

To design and develop quality software for scientific and business applications pertaining to Algorithms, Database, Networks, Artificial Intelligence, Cloud computing and Data Analytics.

2. **Innovative System Development:**

To adapt and enhance knowledge continuously in modern tools and technologies like Mobile Application Development, Cloud, Cyber Security, Machine learning and open source platform to meet the industry needs.

SEMSTER-I

Course Name: C101 (HS8151/ Communicative English)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C101.1	Comprehend the passages through asking and answering questions.
C101.2	Participate effectively in informal conversation, general reading and free writing.
C101.3	Develop vocabulary and Grammatical skills in language
C101.4	Read different genres of texts, analyze them critically and evaluate the ideas as well as the method of presentation
C101.5	Write different types of writing such as narration, description, exposition and argument effectively.

CO-PO -PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C101.1	2	-	-	-	-	1	-	1	2	3	1	2	-	-
C101.2	1	-	-	-	-	1	-	1	2	3	1	2	-	-
C101.3	2	-	-	-	-	1	-	1	2	3	1	2	-	-
C101.4	1	-	-	-	-	-	-	1	2	3	1	2	1	-
C101.5	1	1	-	-	-	-	-	1	2	3	1	3	1	-
C101	1	1	-	-	-	1	-	1	2	3	1	2	1	-

Course Name: C102 (MA8151 – Engineering Mathematics - I)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C102.1	Make use of both the limit definition and rules of differentiation to differentiate functions.
C102.2	Apply differentiation to solve maxima and minima problems.
C102.3	Evaluate integrals both by using Riemann sums and the Fundamental Theorems of Calculus.
C102.4	Apply integration to compute multiple integrals, area, volume integrals, in polar coordinates, in addition to change of order and change variables. Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
C102.5	Understand and apply various techniques in solving differential equations.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	3	3	1	-	3	-	-	-	-	-	-	2	2	-
C102.2	3	3	-	-	3	-	-	-	-	-	-	1	2	-
C102.3	3	3	-	-	3	-	-	-	-	-	-	1	2	-
C102.4	3	3	1	-	3	-	-	-	-	-	-	1	2	-
C102.5	3	3	1	-	3	-	-	-	-	-	-	2	2	-
C102	3	3	1	-	3	-	-	-	-	-	-	1	2	-

Course Name: C103 (PH8151/Engineering Physics)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C103.1	Explain the basics of properties of matter and its applications
C103.2	Acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics,
C103.3	Gain Adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers
C103.4	Understand knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes,
C103.5	Outline the basics of crystals, their structures and different crystal growth techniques

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C103.1	3	3	2	-	2	-	-	-	-	-	1	1	1	1
C103.2	3	3	2	-	2	-	-	-	-	-	1	1	1	1
C103.3	3	3	2	2	2	-	-	-	-	-	1	1	1	1
C103.4	3	3	1	2	2	-	-	-	-	-	1	1	1	1
C103.5	3	3	2	2	2	-	-	-	-	-	1	1	1	1
C103	3	3	2	2	2	-	-	-	-	-	1	1	1	1

Course Name: C104 (CY8151/Engineering Chemistry)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C104.1	Understand the requirements of boiler feed water, related problems and interpretation of water treatment techniques
C104.2	Study the adsorption of molecules on catalysts and kinetics of surface reactions.
C104.3	Understand the basic concepts of phase rule and its applications to various systems and appreciate the purpose and significance of alloys.
C104.4	Gain knowledge on types of fuels, calorific value calculations, manufacture of solid, liquid and gaseous fuels.
C104.5	Understand the principles and generation of energy using different energy storage devices.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C104.1	3	2	1	-	-	-	1	-	-	-	-	1	-	-
C104.2	3	2	1	-	-	-	-	-	-	-	-	1	-	-
C104.3	3	1	1	-	-	-	-	-	-	-	-	1	1	-
C104.4	3	2	1	-	-	-	-	-	-	-	-	1	-	-
C104.5	3	1	2	-	-	-	2	-	-	-	-	2	1	-
C104	3	2	1	-	-	-	2	-	-	-	-	1	1	-

Course Name: C105 (GE8151/Problem solving and Python Programming)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C105.1	Understand the logic and develop algorithmic solutions to simple computational problems.
C105.2	Demonstrate programs using simple datatypes, statements and expressions.
C105.3	Explain control flow and functions concept in Python for solving problems.
C105.4	Understand how to represent compound data using lists, tuples and dictionaries..
C105.5	Discuss file concepts, exception handling, modules and packages in Python programming.

CO-PO -PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C105.1	3	3	1	-	-	-	-	-	-	-	2	1	3	2
C105.2	3	3	1	-	2	-	-	-	-	-	2	1	3	2
C105.3	3	3	1	-	2	-	-	-	-	-	2	1	3	2
C105.4	3	3	1	-	2	-	-	-	-	-	2	1	3	2
C105.5	3	3	1	1	2	-	-	-	-	-	2	1	3	3
C105	3	3	1	1	2	-	-	-	-	-	2	1	3	2

Course Name: C106 (GE8152/ Engineering Graphics)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C106.1	Familiarize with fundamentals and standards of Engineering graphics
C106.2	Perform freehand sketching of basic geometrical constructions and multiple views of objects.
C106.3	Show orthographic projections of lines and plane surfaces.
C106.4	Draw projections and solids and development of surfaces.
C106.5	Visualize and to project isometric and perspective sections of simple solids.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	1	-	-	-	-	-	-	-	-	1	-	2	-	-
C106.2	2	-	1	-	-	-	-	-	-	1	-	2	-	-
C106.3	2	-	-	-	-	-	-	-	-	1	-	1	-	-
C106.4	3	1	-	-	-	-	-	-	-	1	-	2	-	-
C106.5	3	1	-	-	-	-	-	-	-	1	-	1	-	-
C106	2	1	1	-	-	-	-	-	-	1	-	2	-	-

Course Name: C107 (GE8161/Problem solving and Python programming Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C107.1	Write, test, and debug simple Python programs.
C107.2	Solve problems using conditional and looping statements.
C107.3	Develop Python programs by defining functions and calling them.
C107.4	Implement python program for representing compound data,using lists, tuples and dictionaries.
C107.5	Develop Python programs for reading and writing from/to files.

CO-PO- PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C107.1	3	2	2	-	2	-	-	1	2	1	-	2	3	3
C107.2	3	2	2	-	2	-	-	1	2	1	-	2	3	3
C107.3	3	2	2	-	2	-	-	1	2	1	-	2	3	3
C107.4	3	2	2	-	2	-	-	1	2	1	-	1	3	3
C107.5	3	2	2	1	2	-	-	1	2	1	-	1	3	3
C107	3	2	2	1	2	-	-	1	2	1	-	2	3	3

Course Name: C108 (BS8161/Physics and Chemistry Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C108.1	Apply principles of optics and sound to evaluate engineering properties of material.
C108.2	Determine the Young's Modulus, Thermal conductivity & Specific resistance of the materials.
C108.3	Acquire practical skills in the determination of water quality parameters through volumetric and instrumental analysis
C108.4	Gain practical knowledge in the determination of composition of metal through volumetric and instrumental analysis
C108.5	Acquire practical skills in the determination of qualitative and quantitative analysis of acids through volumetric and instrumental analysis

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C108.1	3	3	2	-	-	-	-	2	2	1	-	-	2	1
C108.2	3	3	2	-	-	-	-	2	2	1	-	-	1	1
C108.3	3	3	1	-	-	-	-	2	2	1	-	-	1	2
C108.4	3	3	2	-	-	-	-	2	2	1	-	-	1	1
C108.5	3	3	2	-	-	-	-	2	2	1	-	-	2	2
C108	3	3	2	-	-	-	-	2	2	1	-	-	1	1

SEMSTER-II

Course Name: C109 (HS8251-Technical English)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C109 .1	Listen, speak, read and write short technical articles, journals and newspapers.
C109 .2	Understand longer technical texts to interpret charts and graphs.
C109.3	Develop technical presentations by using sequence words.
C109 .4	Write job application letter, resume preparation with email etiquette.
C109.5	Participate in Group Discussion, Writing reports and minutes of meeting.

CO-PO -PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109 .1	2	1	-	2	-	-	-	1	1	3	2	2	1	2
C109 .2	2	1	-	2	-	-	-	1	1	3	2	2	1	2
C109.3	2	1	-	1	-	-	-	1	1	3	2	2	1	2
C109 .4	2	1	-	1	-	-	-	1	1	3	1	2	1	-
C109.5	2	1	-	1	-	-	-	1	2	3	2	2	1	1
C109	2	1	-	1	-	-	-	1	1	3	2	2	1	2

Course Name: C110 (MA8251/Engineering Mathematics - II)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C110.1	Understand and apply the Eigen values and Eigen vectors, diagonalization of a matrix, symmetric matrices, positive definite matrices and similar matrices.
C110.2	Simplify and solve the problem using Gradient, divergence and Curl of a vector point function and related identities. Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
C110.3	Simplify and solve the Analytic functions, conformal mapping and complex integration.
C110.4	Solve the ability to integrate knowledge and ideas of complex integration.
C110.5	Understand and apply the Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C110.1	3	3	-	-	-	-	-	-	-	-	-	3	3	2
C110.2	3	3	-	-	-	-	-	-	-	-	-	3	3	1
C110.3	3	3	-	-	-	-	-	-	-	-	-	3	3	1
C110.4	3	3	-	-	-	-	-	-	-	-	-	3	3	1
C110.5	3	3	-	-	-	-	-	-	-	-	-	3	3	2
C110	3	3	-	-	-	-	-	-	-	-	-	3	3	1

Course Name: C111 (PH8252/ Physics for Information Science)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C111.1	Gain Knowledge on Classical and quantum electron theories, and energy band structures
C111.2	Explain the basics of semiconductor physics and its applications in various devices
C111.3	Understand the magnetic properties of materials and their applications
C111.4	Analyse the functioning of optical materials for optoelectronics
C111.5	Understand basics of quantum structures and demonstrate how it is applied in spintronics and carbon electronics

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C111.1	3	2	2	-	-	-	-	-	-	-	1	1	1	1
C111.2	3	2	2	-	-	-	-	-	-	-	1	1	1	1
C111.3	3	2	2	-	-	-	-	-	-	-	1	1	1	1
C111.4	3	3	2	-	-	-	-	-	-	-	1	1	1	1
C111.5	3	2	2	-	-	-	-	-	-	-	1	1	1	1
C111	3	2	2	-	-	-	-	-	-	-	1	1	1	1

Course Name: C112 (BE8255/Basic Electrical, Electronics and Measurement Engineering)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C112.1	Understand and analyze the Electric circuit laws.
C112.2	Explain the basic operation of electric machines.
C112.3	Understand analyze and apply the different energy sources, protective devices, renewable sources and common domestic loads.
C112.4	Demonstrate the Working principle of Various electronic devices.
C112.5	Understand the measurement and metering for electric circuits and Transducers.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C112.1	3	3	2	-	-	-	2	-	-	-	-	2	2	-
C112.2	3	1	1	-	-	-	2	-	-	-	-	2	2	-
C112.3	3	3	1	-	-	-	2	-	-	-	-	2	2	-
C112.4	3	1	1	-	-	-	2	-	-	-	-	2	2	-
C112.5	3	1	1	-	-	-	2	-	-	-	-	2	2	-
C112	3	3	2	-	-	-	2	-	-	-	-	2	2	-

Course Name: C113 (GE8291/Environmental Science and Engineering)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C113.1	Acquire knowledge on the nature and facts about environment, ecosystem and biodiversity
C113.2	Find and implement scientific, technological, economic and political solutions to environmental problems, pollution control and to serious environmental disasters
C113.3	Infer availability of natural resources, and waste management dynamic processes and understand the features of the earth's interior and surface
C113.4	Appreciate the importance of environment by assessing its impact on the human world
C113.5	Create awareness about Human population, HIV/AIDS, women and child welfare and the role of IT in environment and human health.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C113.1	2	-	2	-	-	-	2	1	-	-	-	2	-	-
C113.2	3	-	2	-	2	-	2	1	-	-	2	2	1	-
C113.3	3	-	2	-	2	-	2	1	-	-	2	2	1	-
C113.4	2	-	2	-	-	2	3	3	-	-	-	2	1	1
C113.5	2	-	1	-	2	1	1	-	-	-	-	2	-	-
C113	2	-	2	-	2	2	2	2	-	-	2	2	1	1

Course Name: C114(CS8251/ Programming in C)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C114.1	Develop simple applications in C using basic concepts.
C114.2	Design and implement applications using arrays and strings.
C114.3	Develop and implement applications using functions and pointers.
C114.4	Build applications using structures,arrays,pointers and linked list.
C114.5	Design applications using sequential and random access file processing.

CO-PO -PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C114.1	3	2	3	-	1	-	-	1	1	1	-	3	3	3
C114.2	3	3	3	-	2	-	-	1	1	1	-	2	3	2
C114.3	3	3	3	-	2	-	-	1	1	1	-	2	3	2
C114.4	3	3	3	-	3	-	-	1	1	1	-	2	3	2
C114.5	3	3	2	-	2	-	-	1	2	1	-	2	3	3
C114	3	3	3	-	2	-	-	1	1	1	-	2	3	2

Course Name: C115 (GE8261/Engineering Practices Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C115.1	Demonstrate the fabrication of carpentry components and pipe connections including plumbing works.
C115.2	Understand how to make use of welding equipments to join the structures and models using sheet metal works
C115.3.	Illustrate on centrifugal pump, air conditioner, operations of smithy, foundary and fittings.
C115.4	Explain the basic home electrical works and appliances.
C115.5	Elaborate on the basic electronic components, gates and soldering practices.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C115.1	3	-	3	-	-	-	-	-	1	1	-	2	1	-
C115.2				-	-	1								
C115.3.	3	2	2	-	-	1	-	-	1	1	-	2	1	-
C115.4	3	1	1	-	-	1	-	-	1	1	-	2	1	-
C115.5	3	2	-	-	-	-	-	-	1	1	-	1	1	-
C115	3	2	2	-	-	1	-	-	1	1	-	2	1	-

Course Name: C116 (CS8261/C Programming Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C116.1	Develop simple applications in C using basic constructs.
C116.2	Write C program using arrays and strings.
C116.3.	Design and develop simple applications in C using functions and recursions.
C116.4	Make use of pointers and structures to build complex applications.
C116.5	Design and develop interactive applications using file processing.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C116.1	3	3	3	-	-	-	-	1	1	1	-	3	3	3
C116.2	3	3	3	-	-	-	-	1	1	1	-	2	3	2
C116.3.	3	3	3	-	-	-	-	1	1	1	-	2	3	2
C116.4	3	3	3	-	-	-	-	1	1	1	-	2	3	2
C116.5	3	3	3	-	-	-	-	2	1	1	-	2	3	3
C116	3	3	3	-	-	-	-	1	1	1	-	2	3	2

SEMSTER-III

Course Name: C201(MA8351 /Discrete Mathematics)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C201.1	Extend the knowledge of the Logical and Mathematical concepts needed to test the logic of a program.
C201.2	Understanding and identifying the basic concepts of Combinatorics.
C201.3	Understanding and identifying the basic concepts of graph theory and its applications.
C201.4	Familiarize the applications of algebraic structures.
C201.5	Understand the concepts and significance of lattice Boolean algebra.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C201.1	3	3	1	-	1	-	-	-	-	-	-	2	3	1
C201.2	3	3	1	-	-	-	-	-	-	-	-	1	3	2
C201.3	3	3	1	-	1	-	-	-	-	-	-	2	3	2
C201.4	3	3	1	-	-	-	-	-	-	-	-	1	3	2
C201.5	3	3	2	-	1	-	-	-	-	-	-	2	3	2
C201	3	3	1	-	1	-	-	-	-	-	-	2	3	2

Course Name: C202(CS8351 /Digital Principles and System Design)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C202.1	Understand and design digital circuits using simplified Boolean Functions.
C202.2	Analyze design combinational circuits for a given function using logic gates.
C202.3	Analyze, design and implement synchronous sequential circuits for a given application.
C202.4	Analyze, design and implement Asynchronous sequential circuits for a given application.
C202.5	Understand memory and programmable logic devices.

CO-PO -PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	3	3	3	-	-	-	-	-	-	-	-	-	3	1
C202.2	3	3	3	-	-	-	-	-	-	-	-	-	3	-
C202.3	3	3	3	-	-	-	-	-	-	-	-	-	3	-
C202.4	3	3	3	-	-	-	-	-	-	-	-	-	3	-
C202.5	3	3	3	-	-	-	-	-	-	-	-	-	3	1
C202	3	3	3	-	-	-	-	-	-	-	-	-	3	1

Course Name: C203 (CS8391/Data Structures)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C203.1	Understand and Implement Linked List ADT
C203.2	Design and Implement the operations of Stack & Queue
C203.3	Understand, Implement and Apply Tree Data Structure
C203.4	Design, Implement and Apply Graph Data Structure
C203.5	Analysis, Design and Implement varies Searching, Sorting and Hashing Techniques

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C203.1	3	2	3	-	2	-	-	-	-	-	-	3	3	1
C203.2	3	2	3	-	2	-	-	-	2	-	-	3	3	2
C203.3	3	2	3	-	2	-	-	-	2	-	-	3	3	3
C203.4	3	2	3	-	2	-	-	-	2	-	-	3	3	3
C203.5	3	3	3	-	2	-	-	-	2	-	-	3	3	3
C203	3	2	2	-	2	-	-	-	2	-	-	3	3	3

Course Name: C204 (CS8392/ Object Oriented Programming)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C204.1	Understand OOPS concept and develop simple java program
C204.2	Develop Java program with inheritance and interface
C204.3	Construct Java application using file exception handling and IO stream
C204.4	Explain the concept of multithreading and generic classes with simple java application
C204.5	Design and develop interactive Java programs using components of Swing

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C204.1	3	3	3	2	3	-	-	-	-	1	3	3	3	3
C204.2	3	3	3	2	2	-	-	-	-	2	2	2	3	3
C204.3	3	3	3	2	2	-	-	-	-	2	2	2	3	3
C204.4	3	3	3	2	2	-	-	-	-	2	2	2	3	3
C204.5	3	3	3	2	1	-	-	-	-	2	2	1	3	3
C204	3	3	3	2	2	-	-	-	-	2	2	2	3	3

Course Name: C205 (EC8395/Communication Engineering)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C205.1	Describe the concepts of analog modulation systems
C205.2	Illustrate pulse communication techniques
C205.3	Summarize the concepts of digital modulation systems.
C205.4	Implement the information and source coding techniques.
C205.5	Explain the methods of multiple access in communication systems.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C205.1	3	3	1	-	-	-	-	-	-	-	-	-	3	2
C205.2	3	3	1	-	-	-	-	-	-	-	-	-	3	3
C205.3	3	2	-	-	-	-	-	-	-	-	-	-	3	3
C205.4	3	3	2	-	-	-	-	-	-	-	-	-	3	3
C205.5	3	2	1	-	-	-	-	-	-	-	-	-	3	3
C205	3	3	1	-	-	-	-	-	-	-	-	-	3	3

Course Name: C206 (CS8381/Data structures Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C206.1	Implement stack ,Queue and list ADTs using arrays.
C206.2	Implement stack ,Queue and list ADTs using Linear list.
C206.3	Implement tree and graph ADTs.
C206.4	Understand and implement searching and sorting algorithms.
C206.5	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C206.1	3	2	3	-	-	-	-	-	-	-	1	2	3	3	3
C206.2	3	2	3	-	-	-	-	-	-	-	1	2	3	3	3
C206.3	3	3	3	-	-	-	-	-	-	-	2	1	3	3	3
C206.4	3	3	3	-	-	-	-	-	-	-	2	1	3	3	3
C206.5	3	3	3	-	-	-	-	-	-	-	2	1	3	3	3
C206	3	3	3	-	-	-	-	-	-	-	2	1	3	3	3

Course Name: C207 (CS8383/ Object oriented programming Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C207.1	Build array build concept for developing for real-world applications in java
C207.2	Design and implement Java program for simple application that makes use of classes, packages, functions and interface
C207.3	Implement simple java program with array, list and exception
C207.4	Implement Java program with multi thread concept and generic programs
C207.5	Design and develop interactive application in Java using file processing and event handling

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C207.1	3	3	3	-	-	-	-	2	2	1	-	3	3	3
C207.2	3	3	3	-	-	-	-	2	2	1	-	2	3	3
C207.3	3	3	3	-	-	-	-	2	2	1	-	2	3	3
C207.4	3	3	3	-	-	-	-	2	2	1	-	2	3	3
C207.5	3	3	3	-	-	-	-	2	2	1	-	2	3	3
C207	3	3	3	-	-	-	-	2	2	1	-	2	3	3

Course Name: C208 (CS8382/Digital Systems Laboratory)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C208.1	Design and implementation of combinational circuits using basic gates.
C208.2	Design and implement combinational circuits using MSI devices.
C208.3	Design and implement shift-registers, synchronous and asynchronous counters.
C208.4	Design and simulate combinational and sequential circuits using HDL.
C208.5	Design and implementation of a simple digital system.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C208.1	3	1	2	-	-	-	-	1	1	1	-	2	1	-
C208.2	3	2	2	-	-	-	-	1	1	1	-	1	2	-
C208.3	3	2	2	-	-	-	-	1	1	1	-	1	1	-
C208.4	3	2	2	-	-	-	-	1	1	1	-	1	2	-
C208.5	3	2	2	-	-	2	-	1	1	1	-	2	2	2
C208	3	2	2	-	-	2	-	1	1	1	-	1	2	2

Course Name: C209 (HS8351/Interpersonal Skills /Listening & Speaking)

At the end of the course, the student will be able to:

Course Code	Course Outcome
C209.1	Develop Listening and Speaking skills.
C209.2	Enhance their English Language skills required for the successful undertaking of academic studies with primary emphasison academic speaking and listening skills
C209.3	Provide guidance and practice in basic general and classroom conversation and to engage in specific academic Listening skills
C209.4	Improve general and academic listening skills.
C209.5	Make effective presentations

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C209.1	2	2	-	-	-	-	-	1	2	3	-	2	1	1
C209.2	2	2	-	-	-	-	-	1	2	3	-	2	1	2
C209.3	2	2	-	-	-	-	-	1	2	3	-	2	1	2
C209.4	2	2	-	-	-	-	-	1	2	3	-	2	1	2
C209.5	2	2	-	-	-	-	-	1	3	3	-	2	1	2
C209	2	2	-	-	-	-	-	1	2	3	-	2	1	2

SEMSTER-IV

Course Name: C210 (MA8402/Probability and Queueing Theory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C210.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
C210.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C210.3	Apply the concept of random processes in engineering disciplines. Acquire skills in analyzing queueing models.
C210.4	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner.
C210.5	Understand the significance of advanced queueing models.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C210.1	3	3	1	-	3	-	-	-	-	-	-	2	3	1
C210.2	3	3	1	-	3	-	-	-	-	-	-	1	3	2
C210.3	3	3	1	-	3	-	-	-	-	-	-	2	3	1
C210.4	3	3	2	-	3	-	-	-	-	-	-	2	3	1
C210.5	3	3	2	-	3	-	-	-	-	-	-	2	3	2
C210	3	3	1	-	3	-	-	-	-	-	-	2	3	1

COURSE NAME: C211 (CS8491/Computer Architecture)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C211.1	Understand and explain the basics structure of computers, operations and instructions.
C211.2	Design and interpret arithmetic and logical operations of computer.
C211.3	Illustrate the pipelined execution and design a control unit.
C211.4	Discuss parallelism and multicore architectures.
C211.5	Elaborate the memory technologies and I/O interfaces.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C211.1	3	2	1	-	-	-	-	-	-	1	1	2	3	1
C211.2	3	2	2	-	-	-	-	-	-	1	1	2	3	1
C211.3	3	3	2	-	-	-	-	-	-	1	1	2	3	2
C211.4	3	3	2	-	-	-	-	-	-	1	1	2	3	1
C211.5	3	3	2	1	-	-	-	-	-	1	1	2	3	2
C211	3	3	2	1	-	-	-	-	-	1	1	2	3	1

COURSE NAME: C212 (CS8492/ Database Management Systems)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C212.1	Understand and explain the basics of Database Management Systems, Relational Database and SQL queries.
C212.2	Design and develop Database Management Systems using ER model and Normalization.
C212.3	Elaborate transaction processing and concurrency control.
C212.4	Compare the various storage implementation techniques of Databases and analyse query processing.
C212.5	Discuss the advanced Database Management Systems and their applications.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C212.1	3	1	3	1	-	1	-	-	1	-	2	2	3	3
C212.2	3	2	1	1	-	1	-	-	1	-	2	2	3	1
C212.3	3	1	1	1	-	-	-	-	1	-	2	2	3	3
C212.4	3	2	1	1	-	-	-	-	1	1	2	2	3	1
C212.5	3	2	2	1	2	1	-	2	1	1	2	2	1	3
C212	3	2	1	1	2	1	-	2	1	1	2	2	3	3

COURSE NAME: C213 (CS8451/Design and Analysis of Algorithms)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C213.1	Analyze and design algorithms for various computing problems.
C213.2	Critically analyze and apply the brute-force and divide & conquer algorithm for a given problem.
C213.3	Apply dynamic programming and greedy techniques for solving computational problem.
C213.4	Examine iterative techniques for different problems and infer solutions.
C213.5	Identify the limitations of algorithmic power of various computing problem.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C213.1	3	3	2	2	-	-	-	-	-	-	-	2	3	-
C213.2	3	3	1	1	-	-	-	-	-	2	-	2	3	2
C213.3	3	3	1	2	-	-	-	-	-	1	-	2	3	2
C213.4	3	3	1	1	-	-	-	-	-	-	-	3	3	-
C213.5	3	3	2	2	-	-	-	-	-	2	-	3	3	2
C213	3	3	1	2	-	-	-	-	-	1	-	2	3	1

COURSE NAME: C214 (CS8493/ Operating Systems)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C214.1	Explain the basic concepts and functions of operating systems.
C214.2	Analyze various CPU scheduling algorithms and Discuss Multi threading, process synchronization and deadlocks.
C214.3	Compare and Contrast various memory management schemes.
C214.4	Understand and Explain file systems and I/O management.
C214.5	Perform administrative task on Linux servers and compare iOS and Android OS.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C214.1	3	3	1	-	1	-	-	2	-	1	-	2	3	3
C214.2	3	3	1	2	1	-	-	2	-	1	2	2	3	3
C214.3	3	3	1	-	2	-	-	2	-	1	2	2	3	3
C214.4	3	3	2	-	3	1	-	2	2	1	2	2	3	3
C214.5	3	3	3	2	3	1	-	2	2	1	2	2	3	3
C214	3	3	2	2	2	1	-	2	2	1	2	2	3	3

COURSE NAME: C215 (CS8494/Software Engineering)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C215.1	Understand and explain the various phases in software project and basics of Agile technology
C215.2	Analyze and discuss the concept of requirement engineering
C215.3	Apply systematic procedure for software design and deployment
C215.4	Perform the various software testing and maintenance.
C215.5	Elaborate the management of project schedule and estimate the required cost and effort

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C215.1	3	1	2	1	1	-	-	-	-	1	1	2	3	2
C215.2	3	3	2	1	-	1	-	-	-	1	1	-	3	2
C215.3	3	1	2	1	2	1	1	-	-	1	2	-	3	1
C215.4	3	1	3	1	1	2	1	1	1	2	2	2	3	1
C215.5	3	2	3	1	2	2	2	1	1	2	3	3	3	2
C215	3	2	2	1	2	2	1	1	1	1	2	2	3	2

COURSE NAME: C216(CS8481/ Database Management Systems Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C216.1	Execute data definitions and data manipulation commands using SQL.
C216.2	Design applications to test Nested and Join Queries
C216.3	Construct PL/SQL programs using functions, procedures, triggers and exception handling.
C216.4	Design and implement real word applications using ER model and normalization techniques.
C216.5	Design and implement real life database applications using Front-End Tools.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C216.1	3	1	1	-	-	-	-	-	1	1	2	2	3	1
C216.2	3	2	2	1	-	-	-	-	1	1	2	2	3	2
C216.3	3	1	2	1	2	-	-	-	1	1	2	2	3	1
C216.4	3	1	2	-	2	-	-	-	1	1	2	2	3	1
C216.5	3	1	2	1	2	-	-	3	1	1	2	3	3	3
C216	3	1	2	1	2	-	-	3	1	1	2	2	3	2

COURSE NAME: C217(CS8461/ Operating Systems Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C217.1	Examine various Unix commands and shell programming.
C217.2	Implement various CPU scheduling algorithm and compare their performance.
C217.3	Implement Semaphores, Deadlock avoidance and Deadlock detection Algorithms.
C217.4	Design and Implement process creation and IPC.
C217.5	Examine various Memory Management and File Management techniques.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C217.1	3	3	1	-	-	-	-	-	-	-	-	2	3	3
C217.2	3	3	3	2	1	-	-	2	-	1	1	2	3	3
C217.3	3	3	3	3	1	-	-	2	-	1	2	2	3	3
C217.4	3	3	3	2	1	-	-	2	-	1	1	2	3	3
C217.5	3	3	3	2	1	1	-	2	1	1	1	2	3	3
C217	3	3	3	2	1	1	-	2	1	1	1	2	3	3

COURSE NAME: C218 (HS8461/Advanced Reading and Writing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C218.1	Develop the ability to write paragraphs and essays
C218.2	Demonstrate thereason using graph organizers and infer from graphs
C218.3	Analyze the element of the good essay
C218.4	Write job application with convincing proposal
C218.5	Constructive thinking in various professional contexts.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C218.1	1	2	-	-	-	-	-	1	2	3	-	2	1	1
C218.2	1	2	-	-	-	-	-	1	2	3	-	2	1	2
C218.3	1	2	-	-	-	-	-	1	2	3	-	2	1	2
C218.4	1	2	-	-	-	-	-	1	2	3	-	2	1	2
C218.5	1	2	-	-	-	-	-	2	3	3	-	2	1	2
C218	1	2	-	-	-	-	-	1	2	3	-	2	1	2

SEMSTER- V

COURSE NAME: C301(MA8551/ Algebra and Number Theory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C301.1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems.
C301.2	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
C301.3	Demonstrate accurate and efficient use of advanced algebraic techniques.
C301.4	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the statements proven by the text.
C301.5	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C301.1	3	3	-	-	3	-	-	-	-	-	-	2	3	1
C301.2	3	3	2	-	3	-	-	-	-	-	-	2	3	2
C301.3	3	3	-	-	3	-	-	-	-	-	-	1	3	1
C301.4	3	3	-	-	3	-	-	-	-	-	-	1	3	2
C301.5	3	3	1	-	3	-	-	-	-	-	-	2	3	1
C301	3	3	2	-	3	-	-	-	-	-	-	2	3	1

COURSE NAME: C302 (CS8591/Computer Networks)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C302.1	Understand and explain 8086 Microprocessor.
C302.2	Illustrate 8086 System Bus Structure for Multiprocessor Configuration.
C302.3	Infer the functions of various I/O interfacing ICs.
C302.4	Understand and explain 8051 Microcontroller.
C302.5	Design and analyze the various Microcontroller systems.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	3	2	2	-	-	-	-	-	-	-	-	-	2	-
C302.2	3	3	1	-	-	-	-	-	-	-	-	-	2	-
C302.3	3	2	1	-	-	-	-	-	-	-	-	-	1	-
C302.4	3	2	2	-	-	-	-	-	-	-	-	-	2	1
C302.5	3	3	3	-	-	-	-	-	-	-	-	-	3	1
C302	3	2	2	-	-	-	-	-	-	-	-	-	2	1

COURSE NAME: C303 (EC8691/ Microprocessors and Microcontrollers)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C303.1	Understand and explain 8086 Microprocessor.
C303.2	Illustrate 8086 System Bus Structure for Multiprocessor Configuration.
C303.3	Infer the functions of various I/O interfacing ICs.
C303.4	Understand and explain 8051 Microcontroller.
C303.5	Design and analyze the various Microcontroller systems.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C303.1	3	2	2	-	-	-	-	-	-	-	-	-	2	-
C303.2	3	3	1	-	-	-	-	-	-	-	-	-	2	-
C303.3	3	2	1	-	-	-	-	-	-	-	-	-	1	-
C303.4	3	2	2	-	-	-	-	-	-	-	-	-	2	1
C303.5	3	3	3	-	-	-	-	-	-	-	-	-	3	1
C303	3	2	2	-	-	-	-	-	-	-	-	-	2	1

COURSE NAME: C304 (CS8501/ Theory of Computation)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C304.1	Understand the Automata Fundamentals.
C304.2	Construct automata and regular expressions for any pattern.
C304.3	Generate Context Free Grammar for PDA and languages.
C304.4	Propose computational solutions using Turing Machine.
C304.5	Compare and Contrast decidability or undecidability of various problems.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C304.1	3	2	2	1	-	-	-	-	-	1	1	3	2	2
C304.2	3	2	2	1	-	-	-	-	-	1	-	3	1	2
C304.3	3	3	2	1	-	-	-	-	-	1	-	3	1	3
C304.4	3	2	3	2	-	-	-	-	-	1	2	3	1	3
C304.5	3	3	3	2	-	-	-	-	-	1	2	3	1	3
C304	3	2	2	1	-	-	-	-	-	1	2	3	1	3

COURSE NAME: C305(CS8592/ Object Oriented Analysis and Design)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C305.1	Explain object modeling and software design with UML diagram.
C305.2	Design software applications using OO concepts with static UML diagram.
C305.3	Identify various scenarios based on software requirements.
C305.4	Transform UML based software design into pattern based design using design patterns.
C305.5	Understand and apply the various testing methodologies for OO software.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C305.1	3	1	3	-	-	-	-	-	1	1	2	-	3	-
C305.2	3	2	3	-	-	-	-	-	1	1	2	-	3	2
C305.3	3	2	3	-	-	-	-	-	1	1	2	-	3	2
C305.4	3	2	3	-	2	-	-	-	2	1	2	-	3	2
C305.5	3	2	3	-	2	-	-	-	2	1	2	-	3	2
C305	3	2	3	-	1	-	-	-	1	1	2	-	3	2

COURSE NAME: C306S (OAN551 / Sensors And Transducers)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C306S.1	Understand the concept measuring technology and identify signal types of sensors.
C306S.2	Apply the various sensors in the automotive and mechatronics applications.
C306S.3	Understand and apply the force and magnetic heading sensors.
C306S.4	Explain the basic principle of optical, smart and leaser sensors.
C306S.5	Implement the DAQ systems with different sensors for real time applications.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C306S.1	3	1	1	-	-	1	1	-	1	-	1	2	1	2
C306S.2	3	1	1	-	-	1	1	-	1	-	1	1	1	1
C306S.3	3	2	1	-	-	1	2	-	1	-	1	1	1	1
C306S.4	3	2	1	-	-	1	1	-	1	-	1	1	1	1
C306S.5	3	1	3	1	2	1	2	1	1	-	2	2	1	2
C306S	3	1	1	1	2	1	1	1	1	-	1	1	1	1

COURSE NAME: C306A (OCE551 / Air Pollution and Control Engineering)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C306A.1	Understand of the nature and characteristics of air pollutants and its effects.
C306A.2	Identify meteorological factors influencing air pollution and wind characteristics.
C306A.3	Design stacks and particulate air pollution control devices to meet applicable standards
C306A.4	Understand control of gaseous contaminants and select control equipments for gaseous air pollutants.
C306A.5	Show how to ensure quality, control and preventive measures for noise pollution and indoor air pollution.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C306A.1	2	-	2	-	-	-	2	-	-	-	-	2	-	-
C306A.2	2	2	3	-	-	-	2	-	-	-	-	1	-	-
C306A.3	3	2	3	-	1	-	2	-	-	-	-	1	1	-
C306A.4	3	2	2	-	1	-	2	-	-	-	-	1	1	-
C306A.5	2	2	3	-	-	-	2	-	-	1	-	2	-	-
C306A	2	2	3	-	1	-	2	-	-	1	-	1	1	-

COURSE NAME: C307(EC8681/Microprocessors and Microcontrollers Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C307.1	Write and execute Assembly Language Programming (ALP) for fixed point and floating point arithmetic operation
C307.2	Design and execute ALP for interfacing different I/O with processors.
C307.3	Write ALP for generate waveforms using microprocessors.
C307.4	Develop & demonstrate program using 8051 Microcontrollers.
C307.5	Execute 8086 & 8051 programs using Microsoft Macro Assembler (MASM) software.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C307.1	3	2	3	-	-	-	-	1	2	2	-	2	2	-
C307.2	3	3	3	-	-	-	-	2	2	2	-	1	2	-
C307.3	3	2	3	-	-	-	-	1	2	2	-	1	2	1
C307.4	3	2	3	-	-	-	-	1	2	2	-	2	2	-
C307.5	3	3	3	-	-	-	-	1	2	2	-	2	2	2
C307	3	2	3	-	-	-	-	1	2	2	-	2	2	2

COURSE NAME: C308 (CS8582/Object Oriented Analysis and Design Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C308.1	Perform OO analysis and design for a given problem specification
C308.2	Identify and map basic software requirements in UML mapping.
C308.3	Design and implement OO concepts for different applications.
C308.4	Test the compliance of the software with the SRS.
C308.5	Deploy the solutions for better manageability and provide scope for improvability.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C308.1	3	3	2	-	3	-	-	1	2	2	2	-	3	1
C308.2	3	3	3	-	3	2	-	1	2	2	2	2	3	1
C308.3	3	3	3	-	3	2	-	1	2	2	2	2	3	1
C308.4	3	3	3	-	3	2	-	1	2	2	2	2	3	1
C308	3	3	3	-	3	2	-	1	2	2	2	2	3	1

COURSE NAME: C309 (CS8581/ Networks Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C309.1	Implement and UDP and TCP with using socket programming.
C309.2	Create application such as DNS and file transfer simulate using UDP and TCP.
C309.3	Compare the performance of different transport layer protocols using simulation tools.
C309.4	Evaluate the performance of different routing protocols using simulation tools.
C309.5	Design and Implementation error correction code in communication networks.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C309.1	3	1	2	-	-	-	-	1	1	1	-	2	3	2
C309.2	3	1	2	-	-	-	-	1	1	1	-	1	3	1
C309.3	3	3	1	-	2	-	-	1	1	1	-	2	3	1
C309.4	3	3	2	-	2	-	-	1	1	1	-	2	3	1
C309.5	3	1	1	-	2	-	-	1	1	1	-	2	2	1
C309	3	2	2	-	2	-	-	1	1	1	-	2	3	1

SEMSTER- VI

COURSE NAME: C310 (CS8651/ Internet Programming)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C310.1	Construct a basic website using HTML and Cascading Style Sheets.
C310.2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
C310.3	Design and Develop server side programs using Servlets and JSP
C310.4	Create simple web pages using PHP and XML.
C310.5	Apply AJAX and web services to develop interactive web applications

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C310.1	3	2	2	-	2	1	-	2	1	1	-	2	2	2
C310.2	3	2	2	-	2	1	-	2	1	1	-	2	2	3
C310.3	3	3	2	-	2	1	-	2	2	1	-	2	2	2
C310.4	3	3	2	-	2	1	-	2	2	1	-	2	2	3
C310.5	3	3	2	-	2	1	-	2	2	1	-	2	2	3
C310	3	3	2	-	2	1	-	2	2	1	-	2	2	3

COURSE NAME: C311 (CS8691 / Artificial Intelligence)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C311.1	Understand and displaying artificial intelligence and problem solving approach to AI problem
C311.2	Illustrate appropriate search strategy for any AI problem
C311.3	Analyse the representation of knowledge in solving AI problem
C311.4	Analysis the different software agents to solve a given problem
C311.5	Design and develop application for NLP using AI techniques

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C311.1	3	2	2	1	-	-	-	-	-	1	1	-	3	1
C311.2	3	2	2	1	-	-	-	-	-	1	1	-	3	1
C311.3	3	2	2	2	-	-	-	-	-	1	1	-	3	2
C311.4	3	3	2	2	1	-	-	-	-	1	2	-	3	2
C311.5	3	2	2	2	1	-	-	-	-	1	2	-	3	2
C311	3	2	2	2	1	-	-	-	-	1	1	-	3	2

COURSE NAME: C312 (CS8601 / Mobile Computing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES (COs)
C312.1	Explain the basics of mobile computing.
C312.2	Illustrate the generations of telecommunication systems in wireless networks.
C312.3	Discuss the mobile IP and analyse the various routing protocol for a given Ad- hoc network.
C312.4	Understand and explain Mobile Transport and Application layer protocols.
C312.5	Develop a mobile application using android/blackberry/ios/Windows SDK.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C312.1	3	2	1	-	-	-	-	1	-	1	1	2	3	1
C312.2	3	1	1	-	-	-	-	1	-	1	-	-	2	1
C312.3	3	3	2	3	-	-	-	1	-	1	1	-	3	1
C312.4	3	2	1	-	-	-	-	1	-	1	-	-	3	3
C312.5	3	3	2	3	3	-	-	2	2	1	3	2	3	3
C312	3	2	1	3	3	-	-	1	2	1	2	2	3	2

COURSE NAME: C313 (CS8602 / Compiler Design)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C313.1	Understand the phases of compiler and Design a lexical analyzer for a sample language.
C313.2	Apply different parsing algorithms to develop the parsers for a given grammar.
C313.3	Demonstrate syntax-directed translation.
C313.4	Understand Run time environment and Design a simple code generator.
C313.5	Implement code optimization techniques and analyze efficient Data flow Algorithm.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C313.1	3	1	1	-	2	-	-	1	-	1	-	1	3	2
C313.2	3	2	2	1	2	-	-	1	-	1	2	1	3	2
C313.3	3	2	2	-	-	-	-	1	-	1	-	1	3	1
C313.4	3	1	1	-	-	-	-	1	-	1	-	1	3	1
C313.5	3	3	2	1	2	-	-	1	-	1	1	1	3	2
C313	3	2	2	1	2	-	-	1	-	1	2	1	3	2

COURSE NAME: C314 (CS8603 / Distributed Systems)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C314.1	Elucidate the foundations and issues of distributed systems.
C314.2	Explain the message ordering and snapshots regading algorithms.
C314.3	Compare and contrast distributed mutual exclusion and deadlock detection algorithms.
C314.4	Describe the agreement protocols and fault tolerance mechanisms in distributed systems.
C314.5	Illustarate P2P computing and distributed shared memory.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C314.1	3	2	1	-	-	-	-	-	-	1	2	1	3	2
C314.2	3	2	1	-	-	-	-	-	-	1	1	-	2	1
C314.3	3	3	2	-	-	-	-	-	-	1	1	-	2	1
C314.4	3	2	2	-	-	-	-	-	-	1	1	-	2	2
C314.5	3	3	1	-	-	-	-	-	-	1	2	1	3	2
C314	3	2	1	-	-	-	-	-	-	1	1	1	2	2

COURSE NAME: C315B (IT8076/ Software Testing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315B.1	Design test cases for a software development by using different domains.
C315B.2	Identify and apply suitable test strategies for various applications.
C315B.3	Prepare test planning based on the document.
C315B.4	Analyze and apply test management strategies.
C315B.5	Applying test metrics and measurements.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C315B.1	3	3	2	2	1	-	-	-	2	-	2	-	2	2
C315B.2	3	2	2	2	1	-	-	-	2	-	2	-	2	3
C315B.3	3	2	2	2	1	-	-	-	2	-	2	-	2	2
C315B.4	3	2	2	2	1	-	-	-	2	-	2	-	2	2
C315B.5	3	3	2	2	2	-	-	-	2	-	2	-	2	3
C315B	3	2	2	2	1	-	-	-	2	-	2	-	2	2

COURSE NAME: C316 (CS8661 / Internet Programming Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C316.1	Design and Develop Web pages using HTML/XML and style sheets.
C316.2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
C316.3	Implement dynamic web pages using server side scripting.
C316.4	Create web applications using PHP programming
C316.5	Apply AJAX and web services for developing real world applications

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C316.1	3	2	1	-	2	-	-	2	2	1	1	2	3	1
C316.2	3	2	1	-	2	-	-	2	2	1	1	1	3	2
C316.3	3	2	1	-	2	-	-	2	3	1	1	1	3	2
C316.4	3	2	2	-	2	-	-	2	3	1	2	1	3	2
C316.5	3	2	2	-	2	-	-	2	3	1	2	2	3	2
C316	3	2	1	-	2	-	-	2	3	1	1	1	3	2

COURSE NAME: C317 (CS8662 / Mobile Application Development Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C317.1	Develop mobile applications using GUI and Layouts
C317.2	Design and Develop mobile applications using Event Listener
C317.3	Analyze design and implement mobile applications using Databases
C317.4	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS
C317.5	Analyze and create concepts own mobile app for simple needs

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C317.1	3	2	1	-	3	1	-	2	1	1	-	1	2	3
C317.2	3	3	1	-	3	1	-	2	1	1	-	1	2	3
C317.3	3	3	1	-	3	1	-	2	1	1	-	2	2	3
C317.4	3	3	2	-	3	1	-	2	1	1	-	1	2	3
C317.5	3	3	3	-	3	2	2	2	3	1	2	3	2	3
C317	3	3	2	-	3	1	2	2	1	1	2	2	2	3

COURSE NAME: C318 (CS8611 / Mini Project)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C318.1	Identify and formulate the problem statement by acquiring domain knowledge.
C318.2	Analyze the literature and categorize executable project modules.
C318.3	Choose the tools for designing and implementing project modules.
C318.4	Design and implement the various project modules.
C318.5	Integrate the various modules, perform testing and deploy in real world environment.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C318.1	3	3	3	1	-	2	-	1	3	2	3	2	3	3
C318.2	3	3	3	1	-	2	-	1	3	2	3	2	3	3
C318.3	3	3	3	1	-	1	-	2	3	2	3	2	3	3
C318.4	3	3	3	3	3	1	-	2	3	2	3	2	3	3
C318.5	3	3	3	3	3	2	2	2	3	2	3	2	3	3
C318	3	3	3	2	3	2	2	2	3	2	3	2	3	3

SEMSTER- VII

COURSE NAME: C401 (MG8591/ Principles of Management)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C401.1	Understand the management principles for effective business organization.
C401.2	Develop a Strategic planning and analyze the Decision making steps and process.
C401.3	Prepare Organization chart and Understand the Human Resource Management.
C401.4	Develop their leadership qualities and Effective Communication.
C401.5	Illustrate Controlling Strategies and productivity problems.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C401.1	2	-	-	-	-	-	-	1	2	2	3	2	-	1
C401.2	2	2	2	1	-	-	-	1	2	2	3	2	-	1
C401.3	2	-	-	-	-	-	-	1	2	2	3	2	-	1
C401.4	2	-	-	-	-	2	-	1	2	2	3	2	-	1
C401.5	2	-	1	-	-	1	-	1	2	2	3	2	-	1
C401	2	2	2	1	-	2	-	1	2	2	3	2	-	1

COURSE NAME: C402 (CS8792 / Cryptography and Network Security)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C402.1	Understand and explain the fundamentals of networks security, security architecture, threats and vulnerabilities
C402.2	Apply the different cryptographic operations of symmetric cryptographic algorithms
C402.3	Apply the different cryptographic operations of public key cryptography
C402.4	Discuss the various message Authentication techniques to simulate different applications.
C402.5	Interpret various Security practices and System security standards.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C402.1	3	1	1	-	-	1	-	1	-	1	-	2	1	2
C402.2	3	2	3	1	1	2	-	2	-	1	1	2	3	3
C402.3	3	2	3	1	1	2	-	2	-	1	1	2	3	2
C402.4	3	2	2	1	2	1	-	1	-	1	1	1	3	2
C402.5	3	2	1	-	-	1	1	1	-	1	-	1	2	2
C402	3	2	3	1	1	1	-	1	-	1	1	2	3	2

COURSE NAME: C403 (CS8791 / Cloud Computing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C403.1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.
C403.2	Illustarte the key enabling technologies that help in the development of cloud.
C403.3	Design and develop the cloud architecture by analyzing different services and storage.
C403.4	Identify the security challenges and resource mangement in cloud and propose solution.
C403.5	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C403.1	3	2	1	-	-	-	-	-	-	-	-	-	2	3
C403.2	3	2	1	-	-	-	-	-	-	-	-	-	2	3
C403.3	3	3	2	-	-	-	-	-	-	-	-	-	3	3
C403.4	3	3	3	1	-	-	-	1	2	1	2	1	3	3
C403.5	3	3	3	1	-	1	-	2	3	1	3	2	3	3
C403	3	3	2	1	-	1	-	2	3	1	3	2	3	3

COURSE NAME: C404W (OME752 / Supply Chain Management)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C404W.1	Discuss the goals of a supply chain and explain the impact of supply chain decisions.
C404W.2	Identify the key factors of supply chain management and design a distribution network.
C404W.3	Analyze the role of transportation in supply chain and identify the various routing strategies
C404W.4	Illustrate the source planning, co-ordination and built strategic partnership in supply chain
C404W.5	Create an e-business application by integrating Information Technology with logistics in supply chain.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C404W.1	1	2	1	-	-	1	1	1	-	1	2	2	-	2
C404W.2	1	2	2	-	-	1	1	1	-	1	2	1	-	2
C404W.3	1	2	2	-	-	1	2	1	-	1	2	2	-	2
C404W.4	1	2	2	1	-	1	1	1	2	1	2	2	-	2
C404W.5	2	2	3	1	2	2	2	2	2	1	2	2	2	2
C404W	1	2	2	1	2	1	1	1	2	1	2	2	2	2

COURSE NAME: C405A (CS8091/ Big Data Analytics)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405A.1	Explain the basic concepts of BDAs and develop applications using HDFS, mapreduce.
C405A.2	Illustrate the different machine learning algorithm for clustering and classification.
C405A.3	Design and develop applications by different data mining algorithms and recommendation concepts.
C405A.4	Perform analytics on data streams and implement real time applications.
C405A.5	Demonstrate NOSQL databases and visualization.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C405A.1	3	1	2	-	3	2	-	1	1	1	1	2	3	3
C405A.2	3	2	3	2	3	1	-	1	2	1	2	1	3	3
C405A.3	3	2	3	2	3	2	-	1	2	1	2	2	3	3
C405A.4	3	2	3	1	3	1	-	1	2	1	2	1	3	3
C405A.5	3	2	2	1	3	1	-	1	2	1	2	1	3	3
C405A	3	2	3	2	3	1	-	1	2	1	2	2	3	3

COURSE NAME: C406K (CS8088 / Wireless Adhoc & Sensor Network)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406K.1	Identify issues and challenges in the design of wireless adhoc and sensor network and understand the basic concept
C406K.2	Explain the transport layer protocol and qos for adhoc network
C406K.3	Analyse Mac and routing protocol in wsn
C406K.4	Explain the transport layer protocol and QS for wireless sensor network
C406K.5	Identifying and understand the security issues in adhoc sensor network

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C406K.1	3	2	1	1	-	-	-	1	-	1	2	1	2	2
C406K.2	3	3	1	1	-	-	-	1	-	1	2	2	2	2
C406K.3	3	3	1	1	1	-	-	1	-	1	2	1	1	2
C406K.4	3	2	1	1	1	-	-	1	-	1	2	1	2	2
C406K.5	3	3	1	1	1	-	1	1	-	1	2	2	2	2
C406K	3	3	1	1	1	-	1	1	-	1	2	1	2	2

COURSE NAME: C407 (CS8711 / Cloud Computing Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C407.1	Understand and configure various virtualization tools such as Virtual box, VMWARE workstations.
C407.2	Design and deploy a web application in PaaS environment.
C407.3	Simulate a cloud environment to implement new schedulers.
C407.4	Demonstrate how to install and use a generic cloud environment that can be used as a private cloud.
C407.5	Design and manipulate large datasets in a parallel environment

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C407.1	3	3	3	1	3	-	-	-	3	-	-	1	2	3
C407.2	3	3	3	1	3	-	-	-	3	-	-	1	2	3
C407.3	3	3	3	1	3	-	-	2	3	-	2	2	3	3
C407.4	3	3	3	2	3	2	-	2	3	-	2	2	3	3
C407.5	3	3	3	2	3	1	-	2	3	-	-	1	3	3
C407	3	3	3	1	3	2	-	2	3	-	2	1	3	3

COURSE NAME: C408 (IT8761 / Security Laboratory)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C408.1	Design and develop symmetric key algorithms to solve the problems.
C408.2	Design and develop public key encryption algorithms.
C408.3	Implement various message authentication algorithms.
C408.4	Develop a signature scheme using Digital signature standard.
C408.5	Demonstrate the network security system using open source tools.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C408.1	3	3	3	1	2	2	-	1	1	-	1	1	2	2
C408.2	3	3	3	1	2	2	-	1	1	-	1	1	2	2
C408.3	3	3	3	2	2	2	-	1	1	-	1	1	2	2
C408.4	2	2	3	1	2	1	--	1	1	-	1	1	1	2
C408.5	3	3	3	2	3	2	-	1	1	-	1	1	2	2
C408	3	3	3	2	2	2	-	1	1	-	1	1	2	2

SEMESTER VIII

COURSE NAME: C409G (GE8076 / Professional Ethics In Engineering)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409G.1	Expose the awareness on professional ethics and human values.
C409G .2	Illustrate the moral issues and models of professional roles.
C409G .3	Experiment with social issues and provide balanced outlook on law.
C409G .4	Explain the responsibilities, rights and assess the safety & risk.
C409G .5	Criticize the global issues in multinational corporations and realise corporate social responsibilities.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C409G.1	3	1	2	-	3	2	-	1	1	1	1	2	3	3
C409G..2	3	2	3	2	3	1	-	1	2	1	2	1	3	3
C409G.3	3	2	3	2	3	2	-	1	2	1	2	2	3	3
C409G.4	3	2	3	1	3	1	-	1	2	1	2	1	3	3
C409G.5	3	2	2	1	3	1	-	1	2	1	2	1	3	3
C409G	3	2	3	2	3	1	-	1	2	1	2	2	3	3

COURSE NAME: C410A (CS8080 / Information Retrieval Techniques)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C410A.1	Explain the basics of IR and various search interfaces.
C410A.2	Illustrate the various models and evaluate the retrieval performance.
C410A.3	Design and implement machine learning algorithms for text classification and clustering.
C410A.4	Discuss the search engine architecture, and different ranking algorithms.
C410A.5	Design and implement recommendation system for real world applications.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C410A.1	3	1	1	-	1	1	-	1	-	1	-	2	1	1
C410A.2	3	2	3	1	2	-	-	1	1	1	2	1	2	3
C410A.3	3	2	3	2	3	1	1	2	2	1	2	2	2	3
C410A.4	3	1	1	-	1	1	-	2	1	1	2	2	2	3
C410A.5	3	2	2	1	2	2	1	2	2	1	2	2	2	3
C410A	3	2	2	1	2	1	1	2	2	1	2	2	2	3

COURSE NAME: C411 (CS8811 / Project Work)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C411.1	Identify and formulate the problem statement by acquiring domain knowledge.
C411.2	Analyze the literature and categorize executable project modules.
C411.3	Choose the tools for designing and implementing project modules.
C411.4	Design and implement the various project modules.
C411.5	Integrate the various modules, perform testing and deploy in real world environment.

CO-PO-PSO CORRELATION LEVEL MATRIX:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C411.1	3	3	3	1	-	2	-	1	3	2	3	2	3	3
C411.2	3	3	3	1	-	2	-	1	3	2	3	2	3	3
C411.3	3	3	3	1	-	1	-	2	3	2	3	2	3	3
C411.4	3	3	3	3	3	1	-	2	3	2	3	2	3	3
C411.5	3	3	3	3	3	2	2	2	3	2	3	2	3	3
C411	3	3	3	2	3	2	2	2	3	2	3	2	3	3

LIST OF ELECTIVES

SEMESTER VI
ELECTIVE - I

COURSE NAME: C315A (CS8075 / Data Warehousing and Data Mining)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315A.1	Design a Data warehouse system and perform business analysis with OLAP tools.
C315A.2	Apply suitable pre-processing and visualization techniques for data analysis
C315A.3	Apply frequent pattern and association rule mining techniques for data analysis
C315A.4	Apply appropriate classification and clustering techniques for data analysis

COURSE NAME: C315C (IT8072 / Embedded Systems)
At the nd of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315C.1	Describe the architecture and programming of ARM processor.
C315C.2	Explain the concepts of embedded systems
C315C.3	Understand the Concepts of peripherals and interfacing of sensors.
C315C.4	Capable of using the system design techniques to develop firmware

COURSE NAME: C315D (CS8072/ Agile Methodologies)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315D.1	Realize the importance of interacting with business stakeholders in determining the requirements for a software system
C315D.2	Perform iterative software development processes: how to plan them, how to execute them.
C315D.3	Point out the impact of social aspects on software development success.
C315D.4	Develop techniques and tools for improving team collaboration and software quality.
C315D.5	Perform Software process improvement as an ongoing task for development teams.
C315D.6	Realize the importance of interacting with business stakeholders in determining the requirements for a software system

COURSE NAME: C315F (CS8077 / Graph Theory And Applications)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315F.1	Understand the basic concepts of graphs, and different types of graphs
C315F.2	Understand the properties, theorems and be able to prove theorems.
C315F.3	Apply suitable graph model and algorithm for solving applications.

COURSE NAME: C315G (IT8071 / Digital Signal Processing)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315G.1	Perform mathematical operations on signals.
C315G.2	Understand the sampling theorem and perform sampling on continuous-time signals to get discrete time signal by applying advanced knowledge of the sampling theory.
C315G.3	Transform the time domain signal into frequency domain signal and vice-versa.
C315G.4	Apply the relevant theoretical knowledge to design the digital IIR/FIR filters for the given analog specifications.

COURSE NAME: C315H (GE8075/ Intellectual Property Rights)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C315H.1	Ability to manage Intellectual Property portfolio to enhance the value of the firm.

SEMESTER VII
ELECTIVE - II

COURSE NAME: C405B (CS8082 / Machine Learning Techniques)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405B.1	Differentiate between supervised, unsupervised, semi-supervised machine learning approaches
C405B.2	Discuss the decision tree algorithm and indentity and overcome the problem of overfitting
C405B.3	Discuss and apply the back propagation algorithm and genetic algorithms to various problems
C405B.4	Apply the Bayesian concepts to machine learning
C405B.5	Analyse and suggest appropriate machine learning approaches for various types of problems

COURSE NAME: C405C (CS8092 / Computer Graphics and Multimedia)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405C.1	Design two dimensional graphics.
C405C.2	Apply two dimensional transformations.
C405C.3	Design three dimensional graphics.
C405C.4	Apply three dimensional transformations.
C405C.5	Apply Illumination and color models.
C405C.6	Apply clipping techniques to graphics.
C405C.7	Understood Different types of Multimedia File Format
C405C.8	Design Basic 3d Scenes using Blender

COURSE NAME: C405D (IT8075 / Software Project Management)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405D.1	Understand Project Management principles while developing software.
C405D.2	Gain extensive knowledge about the basic project management concepts, framework and the process models.
C405D.3	Obtain adequate knowledge about software process models and software effort estimation techniques.
C405D.4	Estimate the risks involved in various project activities.
C405D.5	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project management principles.
C405D.6	Learn staff selection process and the issues related to people management

COURSE NAME: C405E (CS8081 / Internet of Things)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405E.1	Explain the concept of IoT.
C405E.2	Analyze various protocols for IoT.
C405E.3	Design a PoC of an IoT system using Rasperry Pi/Arduino
C405E.4	Apply data analytics and use cloud offerings related to IoT.
C405E.5	Analyze applications of IoT in real time scenario

COURSE NAME: C405F (IT8074 / Service Oriented Architecture)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405F.1	Understand XML technologies
C405F.2	Understand service orientation, benefits of SOA
C405F.3	Understand web services and WS standards
C405F.4	Use web services extensions to develop solutions
C405F.5	Understand and apply service modeling, service oriented analysis and design for application development
C405F.6	Understand XML technologies

COURSE NAME: C405G (GE8077 / Total Quality Management)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C405G.1	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.

SEMESTER VII
ELECTIVE - III

COURSE NAME: C406H (CS8083/ Multi-core Architectures and Programming)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406H.1	Describe multicore architectures and identify their characteristics and challenges.
C406H.2	Identify the issues in programming Parallel Processors.
C406H.3	Write programs using OpenMP and MPI.
C406H.4	Design parallel programming solutions to common problems.
C406H.5	Compare and contrast programming for serial processors and programming for parallel processors.

COURSE NAME: C406I (CS8079 / Human Computer Interaction)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406I.1	Design effective dialog for HCI
C406I.2	Design effective HCI for individuals and persons with disabilities.
C406I.3	Assess the importance of user feedback.
C406I.4	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.
C406I.5	Develop meaningful user interface.

COURSE NAME: C406J(CS8073 / C# and .Net Programming)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406J.1	Write various applications using C# Language in the .NET Framework.
C406J.2	Develop distributed applications using .NET Framework.
C406J.3	Create mobile applications using .NET compact Framework.

COURSE NAME: C406L (CS8071/ Advanced Topics on Databases)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406L.1	To develop in-depth understanding of relational databases and skills to optimize database performance in practice.
C406L.2	To understand and critique on each type of databases.
C406L.3	To design faster algorithms in solving practical database problems.
C406L.4	To implement intelligent databases and various data models.

COURSE NAME:C406M (GE8072/ Foundation Skills inIntegrated Product Development)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406M.1	Define, formulate and analyze a problem
C406M.2	Solve specific problems independently or as part of a team
C406M.3	Gain knowledge of the Innovation & Product Development process in the Business Context
C406M.4	Work independently as well as in teams
C406M.5	Manage a project from start to finish

COURSE NAME: C406N (GE8074 / Human Rights)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406N.1	Engineering students will acquire the basic knowledge of human rights.

COURSE NAME: C406O (GE8071 / Disaster Management)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C406O.1	Differentiate the types of disasters, causes and their impact on environment and society
C406O.2	Assess vulnerability and various methods of risk reduction measures as well as mitigation.
C406O.3	Draw the hazard and vulnerability profile of India, Scenarious in the Indian context, Disaster damage assessment and management

SEMESTER VIII

ELECTIVE - IV

COURSE NAME: C409A (EC8093 / Digital Image Processing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409A.1	Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms.
C409A.2	Operate on images using the techniques of smoothing, sharpening and enhancement.
C409A.3	Understand the restoration concepts and filtering techniques.
C409A.4	Learn the basics of segmentation, features extraction, compression and recognition methods for color models.

COURSE NAME: C409B (CS8085/ Social Network Analysis)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409B.1	Develop semantic web related applications.
C409B.2	Represent knowledge using ontology.
C409B.3	Predict human behaviour in social web and related communities.
C409B.4	Visualize social networks.

COURSE NAME: C409C (IT8073/ Information Security)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409C.1	Discuss the basics of information security
C409C.2	Illustrate the legal, ethical and professional issues in information security
C409C.3	Demonstrate the aspects of risk management.
C409C.4	Become aware of various standards in the Information Security System
C409C.5	Design and implementation of Security Techniques.

COURSE NAME: C409D (CS8087 / Software Defined Networks)
At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409D.1	Analyze the evolution of software defined networks
C409D.2	Express the various components of SDN and their uses
C409D.3	Explain the use of SDN in the current networking scenario
C409D.4	Design and develop various applications of SDN

COURSE NAME: C409E (CS8074 / Cyber Forensics)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409E.1	Understand the basics of computer forensics
C409E.2	Apply a number of different computer forensic tools to a given scenario
C409E.3	Analyze and validate forensics data
C409E.4	Identify the vulnerabilities in a given network infrastructure
C409E.5	Implement real-world hacking techniques to test system security

COURSE NAME: C409F (CS8086/ Soft Computing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
C409F.1	Apply suitable soft computing techniques for various applications.
C409F.2	Integrate various soft computing techniques for complex problems.

SEMESTER VIII
ELECTIVE - V

COURSE NAME: C410B (CS8078 / Green Computing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410B.1	Acquire knowledge to adopt green computing practices to minimize negative impacts on the environment.
410B.2	Enhance the skill in energy saving practices in their use of hardware.
410B.3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.
410B.4	Understand the ways to minimize equipment disposal requirements .

COURSE NAME: C410C (CS8076/ GPU Architecture and Programming)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410C.1	Describe GPU Architecture
410C.2	Write programs using CUDA, identify issues and debug them
410C.3	Implement efficient algorithms in GPUs for common application kernels, such as matrix multiplication
410C.4	Write simple programs using OpenCL
410C.5	Identify efficient parallel programming patterns to solve problems

COURSE NAME: C410D (CS8084 / Natural Language Processing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410D.1	To tag a given text with basic Language features
410D.2	To design an innovative application using NLP components
410D.3	To implement a rule based system to tackle morphology/syntax of a language
410D.4	To design a tag set to be used for statistical processing for real-time applications
410D.5	To compare and contrast the use of different statistical approaches for different types of NLP applications.

COURSE NAME: C410E (CS8001 / Parallel Algorithms)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410E.1	Develop parallel algorithms for standard problems and applications.
410E.2	Analyse efficiency of different parallel algorithms.

COURSE NAME: C410F (IT8077 / Speech Processing)

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410F.1	Create new algorithms with speech processing
410F.2	Derive new speech models
410F.3	Perform various language phonetic analysis
410F.4	Create a new speech identification system
410F.5	Generate a new speech recognition system

COURSE NAME: C410G (GE8073 **/** Fundamentals of Nano Science**)**

At the end of the course, the student will be able to:

COURSE CODE	COURSE OUTCOMES
410G.1	Will familiarize about the science of nanomaterials
410G.2	Will demonstrate the preparation of nanomaterials
410G.3	Will develop knowledge in characteristic nanomaterial

A Program level course-PO/PSO Matrix of all courses Including first year courses

Table : Program level course PO/PSO matrix (Regulation – 2017)

S. No.	NBA Course Code	Subject Code	Subject Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
1	C101	HS8151	Communicative English	1	1	-	-	-	1	-	1	2	3	1	2	1	-
2	C102	MA8151	Engineering Mathematics - I	3	3	1	-	3	-	-	-	-	-	-	1	2	-
3	C103	PH8151	Engineering Physics	3	3	2	2	2	-	-	-	-	-	1	1	1	1
4	C104	CY8151	Engineering Chemistry	3	2	1	-	-	-	2	-	-	-	-	1	1	-
5	C105	GE8151	Problem Solving and Python Programming	3	3	1	1	2	-	-	-	-	-	2	1	3	2
6	C106	GE8152	Engineering Graphics	2	1	1	-	-	-	-	-	-	1	-	2	-	-
7	C107	GE8161	Problem Solving and Python Programming Laboratory	3	2	2	1	2	-	-	1	2	1	-	2	3	3
8	C108	BS8161	Physics and Chemistry Laboratory	3	3	2	-	-	-	-	2	2	1	-	-	1	1
9	C109	HS8251	Technical English	2	1	-	1	-	-	-	1	1	3	2	2	1	2
10	C110	MA8251	Engineering Mathematics - II	3	3	-	-	-	-	-	-	-	-	-	3	3	1
11	C111	PH8252	Physics for Information Science	3	2	2	-	-	-	-	-	-	-	1	1	1	1
12	C112	BE8255	Basic Electrical, Electronics and Measurement Engineering	3	3	2	-	-	-	2	-	-	-	-	2	2	-

13	C113	GE8291	Environmental Science and Engineering	2	-	2	-	2	2	2	2	-	-	2	2	1	1
14	C114	CS8251	Programming in C	3	3	3	-	2	-	-	1	1	1	-	2	3	2
15	C115	GE8261	Engineering Practices Laboratory	3	2	2	-	-	1	-	-	1	1	-	2	1	-
16	C116	CS8261	C Programming Laboratory	3	3	3	-	-	-	-	1	1	1	-	2	3	2
17	C201	MA8351	Discrete Mathematics	3	3	1	-	1	-	-	-	-	-	-	2	3	2
18	C202	CS8351	Digital Principles and System Design	3	3	3	-	-	-	-	-	-	-	-	-	3	1
19	C203	CS8391	Data Structures	3	2	2	-	2	-	-	-	2	-	-	3	3	3
20	C204	CS8392	Object Oriented Programming	3	3	3	2	2	-	-	-	-	2	2	2	3	3
21	C205	EC8395	Communication Engineering	3	3	1	-	-	-	-	-	-	-	-	-	3	3
22	C206	CS8381	Data Structures Laboratory	3	3	3	-	-	-	-	-	-	-	2	1	3	3
23	C207	CS8383	Object Oriented Programming Laboratory	3	3	3	-	-	-	-	2	2	1	-	2	3	3
24	C208	CS8382	Digital Systems Laboratory	3	2	2	-	-	2	-	1	1	1	-	1	2	2
25	C209	HS8381	Interpersonal Skills/Listening &Speaking	2	2	-	-	-	-	-	1	2	3	-	2	1	2
26	C210	MA8402	Probability and Queueing Theory	3	3	1	-	3	-	-	-	-	-	-	2	3	1
27	C211	CS8491	Computer Architecture	3	3	2	1	-	-	-	-	-	1	1	2	3	1

28	C212	CS8492	Database Management Systems	3	2	1	1	2	1	-	2	1	1	2	2	3	3
29	C213	CS8451	Design and Analysis of Algorithms	3	3	1	2	-	-	-	-	-	1	-	2	3	1
30	C214	CS8493	Operating Systems	3	3	2	2	2	1	-	2	2	1	2	2	3	3
31	C215	CS8494	Software Engineering	3	2	2	1	2	2	1	1	1	1	2	2	3	2
32	C216	CS8481	Database Management Systems Laboratory	3	1	2	1	2	-	-	3	1	1	2	2	3	2
33	C217	CS8461	Operating Systems Laboratory	3	3	3	2	1	1	-	2	1	1	1	2	3	3
34	C218	HS8461	Advanced Reading and Writing	1	2	-	-	-	-	-	1	2	3	-	2	1	2
35	C301	MA8551	Algebra and Number Theory	3	3	2	-	3	-	-	-	-	-	-	2	3	1
36	C302	CS8591	Computer Networks	3	2	2	-	-	-	-	-	-	-	-	-	2	1
37	C303	EC8691	Microprocessors and Microcontrollers	3	2	2	-	-	-	-	-	-	-	-	-	2	1
38	C304	CS8501	Theory of Computation	3	2	2	1	-	-	-	-	-	1	2	3	1	3
39	C305	CS8592	Object Oriented Analysis and Design	3	2	3	-	1	-	-	-	1	1	2	-	3	2
40	C306S	OAN551	Sensors And Transducers	3	1	1	1	2	1	1	1	1	-	1	1	1	1
41	C306A	OCE551	Air Pollution and Control Engineering	2	2	3	-	1	-	2	-	-	1	-	1	1	-
42	C307	EC8681	Microprocessors and Microcontrollers Microcontrollers Laboratory	3	2	3	-	-	-	-	1	2	2	-	2	2	2

43	C308	CS8582	Object Oriented Analysis and Design Laboratory	3	3	3	-	3	2	-	1	2	2	2	2	3	1
44	C309	CS8581	Networks Laboratory	3	2	2	-	2	-	-	1	1	1	-	2	3	1
45	C310	CS8651	Internet Programming	3	3	2	-	2	1	-	2	2	1	-	2	2	3
46	C311	CS8691	Artificial Intelligence	3	2	2	2	1	-	-	-	-	1	1	-	3	2
47	C312	CS8601	Mobile Computing	3	2	1	3	3	-	-	1	2	1	2	2	3	2
48	C313	CS8602	Compiler Design	3	2	2	1	2	-	-	1	-	1	2	1	3	2
49	C314	CS8603	Distributed Systems	3	2	1	-	-	-	-	-	-	1	1	1	2	2
50	C315B	IT8076	Software Testing	3	2	2	2	1	-	-	-	2	-	2	-	2	2
51	C316	CS8661	Internet Programming Laboratory	3	2	1	-	2	-	-	2	3	1	1	1	3	2
52	C317	CS8662	Mobile Application Development Laboratory	3	3	2	-	3	1	2	2	1	1	2	2	2	3
53	C318	CS8611	Mini Project	3	3	3	2	3	2	2	2	3	2	3	2	3	3
54	C401	MG8591	Principles of Management	2	2	2	1	-	2	-	1	2	2	3	2	-	1
55	C402	CS8792	Cryptography and Network Security	3	2	3	1	1	1	-	1	-	1	1	2	3	2
56	C403	CS8791	Cloud Computing	3	3	2	1	-	1	-	2	3	1	3	2	3	3
57	C404W	OME752	Supply Chain Management	1	2	2	1	2	1	1	1	2	1	2	2	2	2
58	C405A	CS8091	Big Data Analytics	3	2	3	2	3	1	-	1	2	1	2	2	3	3
59	C406K	CS8088	Wireless Adhoc & Sensor Network	3	3	1	1	1	-	1	1	-	1	2	1	2	2
60	C407	CS8711	Cloud Computing Laboratory	3	3	3	1	3	2	-	2	3	-	2	1	3	3

61	C408	IT8761	Security Laboratory	3	3	3	2	2	2	-	1	1	-	1	1	2	2
62	C409G	GE8076	Professional Ethics In Engineering	3	2	3	2	3	1	-	1	2	1	2	2	3	3
63	C410A	CS8080	Information Retrieval Techniques	3	2	2	1	2	1	1	2	2	1	2	2	2	3
64	C411	CS8811	Project Work	3	3	3	2	3	2	2	2	3	2	3	2	3	3