R. R. Institute of Technology

Since 1993

Affiliated to VTU Belgaum and Approved by AICTE, New Delhi, Recognised by Govt. of Karnataka,
Accredited by NAAC with 'B+'
Raja Reddy Layout, Chikkabanavara, Bengaluru – 560 090

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmesofferedbytheinstitutionarestatedanddisplayedonwebsiteand attainmentof POs and COsareevaluated

New programmes/courses introduced during the Academic year

http://vtu.ac.in/382017schemesyllabus/
http://vtu.ac.in/pdf/cbcs/201819/syllabus.pdf
http://vtu.ac.in/pdf/cbcs/201819/scheme.pdf

Programmes in which Choice Based Credit System (CBCS)/Elective course system implemented at the affiliated Colleges (if applicable) during the Academic year.

http://vtu.ac.in/382017schemesyllabus/
http://vtu.ac.in/pdf/cbcs/201819/syllabus.pdf
http://vtu.ac.in/pdf/cbcs/201819/scheme.pdf
https://vtu.ac.in/b-e-scheme-syllabus/#menu05

PKM Educational Trust ®

R.R. Institute of Technology

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Department of Computer Science & Engineering

List of Program Outcomes (Pos)

PO1	**Engineering Knowledge:** Apply knowledge of mathematics and science, with fundamentals of Computer Science & Engineering to be able to solve complex engineering problems related to CSE.
PO2	**Problem Analysis:** Identify, Formulate, review research literature and analyse complex engineering problems related to CSE and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3	**Design/Development of Solutions:** Design solutions for complex engineering problems related to CSE 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.
PO4	**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.
PO5	**Modern Tool Usage:** Create, Select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to computer science related complex engineering activities with an understanding of the limitations.
PO6	**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 CSE professional engineering practice.
PO7	**Environment and Sustainability:** Understand the impact of the CSE professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics:** Apply Ethical Principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary Settings.
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large such as able to comprehend and with write effective reports and design documentation, make effective presentations and give and receive clear instructions.
PO11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.
PO12	**Life-Long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning the broadest context of technological change.

Head of Department
Department of Computer Science & Engg
R.R. Institute of Technology
Hesaraghatta Main Road
Chikkabanavara, Bangalore

Program Educational Objectives (PEO's)

PEO 1:	Proficient to recognize contemporary issues and provide solutions using broad knowledge of computer science.
PEO 2:	Ability to plan, analyze, design, evolve project implementing capabilities and skills in IT industry.
PEO 3:	Drive to adapt new computing technologies lifelong to acquire professional greatness.
PEO 4:	Possess professional, ethical, social responsibilities, communicational skills and team work needed for a successful professional career.

Program Specific Outcomes (PSO's)

PSO 1:	Apply the software practice, principals to design and analysis of complex computer based system
PSO 2:	Design implements and validate system and application software to the various societal needs

25/9/2021
Head of Department
Department of Computer Science & Engg.
R.R. Institute of Technology
Hesaraghatta Main Road
Chikkabanavara, Bangalore

Program Educational Outcomes (PEO's)

PEO 1	**PREPARATION** Prepare students to apply concepts of mathematics, science and computing to Electrical and Electronics Engineering. Provide strong foundation in mathematical, scientific and engineering fundamentals necessary to professional and ethical responsibilities to meet the real world problems. An ability to expand knowledge to understand the impact of engineering solutions in a global, environmental and societal context, analyze, formulate and solve engineering problems.
PEO 2	**CORE COMPETANCE** To provide thorough knowledge in Electrical and Electronics Engineering fields which includes theoretical knowledge and practical knowledge on various experiments regarding Motors, Generators, Transformers. It also includes the hands on programming sessions for Digital Signal Processing and Control system. It also includes practical knowledge of Electronic
PEO 3	**DESIGN COMPETANCE** To prepare students to design and develop multidisciplinary and innovative systems and present appropriate engineering experience in designing and conducting experiments as well as analyzing the significance of the experimental data.
PEO 4	**PROFESSIONALISM** To communicate technical knowledge, ethical values for professional development of the student to solve complex problems and to work in multi-disciplinary ambience, whose solutions lead to significant societal benefits.

Program Specific Outcomes (PSO's)

PSO 1	To be able to apply modern techniques and tools to solve the problems related to electrical and electronic applications.
PSO 2	To be able to analyze and conduct investigations on complex engineering activities to arrive at valid conclusions.
PSO 3	To have expertise on communication on research projects, design documentation and seminars to the knowledgeable engineering community, and also understand the complex problems presented by experts.

HOD

HOD OF ELECTRICAL & ELECTRONICS ENGINEERING
R.R. Institute of Technology
Hesaraghatta Main Road
Chikkabanavara, Bangaluru - 560090

Department of Civil Engineering

New PSOs (2021-2022)

PSO 1	**Will have the ability to communicate, visualize, design, analyse and estimate in civil engineering projects to meet societal requirements**
PSO 2	**Will be able to demonstrate professional integrity, an appreciation of ethical, environmental, regulatory issues related to civil engineering projects**
PSO 3	**Will be capable to test, evaluate suitability of soil, water, cement, steel and other construction materials**

Earlier PSOs (2015-2021)

PSO 1	**An ability to produce graduates who will perform well in engineering profession as competent professionals using contemporary technical knowledge, professional and communication skills.**
PSO 2	**An ability to produce graduates who pursue higher education and show intellectual curiosity for life- long learning and work in multi-disciplinary environments embedded with ethical values and social responsibilities**

PEOs

PEO 1	**The graduate will be able to carry out site investigations and to find solution for emerging problems with technical feasibility in construction projects considering environment and economic aspects**
PEO 2	**The graduate will able to develop the ability to learn, understand and implement latest techniques, software tools, materials and equipments in projects for the benefit of the society**
PEO 3	**The graduate will be able to carry out leadership and business skills to implement project at the state and the national level to generate employments and wealth to the nation**

HOD

HOD Civil Engg.
R.R. INST. OF TECHNOL
Chikkabanavara, Bangalore - 560 090

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Since 1993

Internal Quality Assurance Cell

2021 SCHEME COURSE OUTCOME

I SEMESTER P-CYCLE

COURSE NAME: C 101 CALCULUS AND DIFFERENTIAL EQUATIONS 21MAT11	
C101.1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
C101.2	Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian.
C101.3	Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods
C101.4	Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations.
C101.5	Test the consistency of a system of linear equations and to solve them by direct and iterative methods
COURSE NAME: C 102 Engineering Physics 21PHY12	
C102.1	Interpret the types of mechanical vibrations and their applications, the role of Shock waves in various fields.
C102.2	Demonstrate the quantisation of energy for microscopic system.
C102.3	Apply LASER and Optical fibers in opto electronic system.
C102.4	Illustrate merits of quantum free electron theory and applications of Hall effect.
C102.5	Analyse the importance of XRD and Electron Microscopy in Nano material characterization
COURSE NAME: C 103 BASIC ELECTRICAL ENGINEERING 21ELE13	
C103.1	Analyse basic DC and AC electric circuits.
C103.2	Explain the working principles of transformers and electrical machines
C103.3	Explain the concepts of electric power transmission and distribution of power
C103.4	Understand the wiring methods, electricity billing, and working principles of circuit protective devices and personal safety measures
COURSE NAME: C 104 ELEMENTS OF CIVIL ENGINEERING AND MECHANICS 21CIV14	
C104.1	Understand the various fields of civil engineering
C104.2	Compute the resultant of a force system and resolution of a force.
C104.3	Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces.
C104.4	Locate the centroid and compute the moment of inertia of regular and built-upsections.
C104.5	Analyze the bodies in motion.
COURSE NAME: C 105 Engineering Visualization 21EVN15	
C105.1	Understand and visualize the objects with definite shape and dimensions
C105.2	Analyze the shape and size of objects through different views
C105.3	Develop the lateral surfaces of the object
C105.4	Create a 3D view using CAD software.
C105.5	Identify the interdisciplinary engineering components or systems through its graphical representation
COURSE NAME: C 106 ENGINEERING PHYSICS LABORATORY 21PHYL16	
C106.1	Understand the measuring techniques
C106.2	Operate different instruments and be capable to analyse the experimental results.
C106.3	Construct the circuits and their analysis
COURSE NAME: C 107 BASICELECTRICALENGINEERINGLABORATORY 21ELE17	

C107.1	Verify KCL and KVL and maximum power transfer theorem for DC circuits.
C107.2	Compare power factors of different types oflamps.
C107.3	Demonstrate the measurement of the impedance of an electrical circuit and power consumed by a3-phase load.
C107.4	Analyse two-wayand three-way control of lamps.
C107.5	Explain the effects of open and short circuits in simple circuits.
C107.6	Interpret the suitability of earth resistance measured.
COURSE NAME: C 108 Communicative English21EGH18	
C108.1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
C108.2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
C108.3	To impart basic English grammar and essentials of language skills as per present requirement.
C108.4	Understand and use all types of English vocabulary and language proficiency.
C108.5	Adopt the Techniques of Information Transfer through presentation.
COURSE NAME: C 109 Scientific Foundations of Health 21SFH19	
C109.1	To understand Health and wellness (and its Beliefs)
C109.2	To acquire Good Health & It's balance for positive mindset
C109.3	To inculcate and develop the healthy lifestyle habits for good health.
C109.4	To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
C109.5	To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the campus.
C109.6	To positively fight against harmful diseases for good health through positive mindset.
I SEMESTER C CYCLE	
COURSE NAME: C 101 CALCULUS AND DIFFERENTIAL EQUATIONS 21MAT11	
C101.1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
C101.2	Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian.
C101.3	Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods
C101.4	Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations.
C101.5	Test the consistency of a system of linear equations and to solve them by direct and iterative methods
COURSE NAME: C 102 ENGINEERING CHEMISTRY 21CHE12	
C102.1	Discuss the electrochemical energy systems such as electrodes and batteries.
C102.2	Explain the fundamental concepts of corrosion, its control and surface modification methods namely electroplating and electroless plating
C102.3	Enumerate the importance, synthesis and applications of polymers. Understand properties and application of nanomaterials.
C102.4	Describe the principles of green chemistry, understand properties and application alternative fuels..
C102.5	Illustrate the fundamental principles of water chemistry, applications of volumetric and analytical instrumentation
COURSE NAME: C 103 PROBLEM-SOLVING THROUGH PROGRAMMING 21PSP23	
C103.1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts.
C103.2	Apply programming constructs of C language to solve the real world problem
C103.3	Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting

C103.4	Explore user-defined data structures like structures, unions and pointers in implementing solutions
C103.5	Design and Develop Solutions to problems using modular programming constructs using functions
COURSE NAME: C 104 BASIC ELECTRONICS & COMMUNICATION ENGINEERING 21ELN14	
C104.1	Describe the concepts of electronic circuits encompassing power supplies, amplifiers and oscillators
C104.2	Present the basics of digital logic engineering including data representation, circuits and the microcontroller system with associated sensors and actuators.
C104.3	Discuss the characteristics and technological advances of embedded systems
C104.4	Relate to the fundamentals of communication engineering spanning from the frequency spectrum to the various circuits involved including antennas
C104.5	Explain the different modes of communications from wired to wireless and the computing involved
COURSE NAME: C 105 ELEMENTS OF MECHANICAL ENGINEERING 21EME15	
C105.1	Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations.
C105.2	Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities
C105.3	Apply the skills in developing simple mechanical elements and processes
COURSE NAME: C 106 ENGINEERING CHEMISTRY LABORATORY 21CHEL16	
C106.1	Determine the pKa and coefficient of Viscosity of a given organic liquid.
C106.2	Estimate the amount of substance present in the given solution using Potentiometer Conductometric and Colorimetric.
C106.3	Determine the total hardness and chemical oxygen demand in the given solution by volumetric analysis method
C106.4	Estimate the percentage of Nickel, copper and Iron in the given analyse solution by titration method.
C106.5	Demonstrate flame photometric estimation of sodium & potassium and the synthesis of nanomaterials by Precipitation method.
COURSE NAME: C 107 COMPUTER PROGRAMMING LABORATORY 21CPL17	
C107.1	Define the problem statement and identify the need for computer programming
C107.2	Make use of C compiler, IDE for programming, identify and correct the syntax and syntactic errors in programming
C107.3	Develop algorithm, flowchart and write programs to solve the given problem
C107.4	Demonstrate use of functions, recursive functions, arrays, strings, structures and pointers in problem solving.
C107.5	Document the inference and observations made from the implementation.
COURSE NAME: C 108 Communicative English21EGH18	
C108.1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
C108.2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
C108.3	To impart basic English grammar and essentials of language skills as per present requirement.
C108.4	Understand and use all types of English vocabulary and language proficiency.
C108.5	Adopt the Techniques of Information Transfer through presentation.
COURSE NAME: C 109 INNOVATION and DESIGN THINKING 21IDT19	
C109.1	Appreciate various design process procedure
C109.2	Generate and develop design ideas through different technique
C109.3	Identify the significance of reverse Engineering to Understand products
C109.4	Draw technical drawing for design ideas

2021 SCHEME
II SEMESTER P-CYCLE

COURSE NAME: C 201 ADVANCED CALCULUS AND NUMERICAL METHODS 21MAT21	
C201.1	Apply the concept of change of order of integration and change of variables to evaluate multiple integrals and their usage in computing the area and volume.
C201.2	Illustrate the applications of multivariate calculus to understand the solenoidal and irrotational vectors and also exhibit the inter dependence of line, surface and volume integrals
C201.3	Formulate physical problems to partial differential equations and to obtain solution for standard practical PDE's
C201.4	Apply the knowledge of numerical methods in modelling of various physical and engineering phenomena.
C201.5	Solve first order ordinary differential equations arising in engineering problems.
COURSE NAME: C 202 Engineering Physics 21PHY22	
C202.1	Interpret the types of mechanical vibrations and their applications, the role of Shock waves in various fields.
C202.2	Demonstrate the quantisation of energy for microscopic system.
C202.3	Apply LASER and Optical fibers in opto electronic system.
C202.4	Illustrate merits of quantum free electron theory and applications of Hall effect.
C202.5	Analyse the importance of XRD and Electron Microscopy in Nano material characterization
COURSE NAME: C 203 BASIC ELECTRICAL ENGINEERING 21ELE23	
C203.1	Analyse basic DC and AC electric circuits.
C203.2	Explain the working principles of transformers and electrical machines
C203.3	Explain the concepts of electric power transmission and distribution of power
C203.4	Understand the wiring methods, electricity billing, and working principles of circuit protective devices and personal safety measures
COURSE NAME: C 204 ELEMENTS OF CIVIL ENGINEERING AND MECHANICS 21CIV24	
C204.1	Understand the various fields of civil engineering
C204.2	Compute the resultant of a force system and resolution of a force.
C204.3	Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces.
C204.4	Locate the centroid and compute the moment of inertia of regular and built-up sections.
C204.5	Analyze the bodies in motion.
COURSE NAME: C 205 Engineering Visualization 21EVN25	
C205.1	Understand and visualize the objects with definite shape and dimensions
C205.2	Analyze the shape and size of objects through different views
C205.3	Develop the lateral surfaces of the object
C205.4	Create a 3D view using CAD software.
C205.5	Identify the interdisciplinary engineering components or systems through its graphical representation
COURSE NAME: C 206 ENGINEERING PHYSICS LABORATORY 21PHYL26	
C206.1	Understand the measuring techniques
C206.2	Operate different instruments and be capable to analyse the experimental results.
C206.3	Construct the circuits and their analysis
COURSE NAME: C 207 BASICELECTRICALENGINEERINGLABORATORY 21ELE27	
C207.1	Verify KCL and KVL and maximum power transfer theorem for DC circuits.
C207.2	Compare power factors of different types of lamps.
C207.3	Demonstrate the measurement of the impedance of an electrical circuit and power consumedbya3-phase load.
C207.4	Analyse two-way and three-way control of lamps.

C207.5	Explain the effects of open and short circuits in simple circuits.
C207.6	Interpret the suitability of earth resistance measured.
COURSE NAME: C 208 Professional Writing Skills in English 21EGH28	
C208.1	To understand and identify the Common Errors in Writing and Speaking
C208.2	To Achieve better Technical writing and Presentation skills.
C208.3	To read Technical proposals properly and make them to Write good technical reports.
C208.4	Acquire Employment and Workplace communication skills.
C208.5	To learn about Techniques of Information Transfer through presentation in different level
COURSE NAME: C 209 INNOVATION and DESIGN THINKING 21IDT29	
C209.1	Appreciate various design process procedure
C209.2	Generate and develop design ideas through different technique
C209.3	Identify the significance of reverse Engineering to Understand products
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2021 SCHEME

II SEMESTER C -CYCLE

COURSE NAME: C 201 CALCULUS AND DIFFERENTIAL EQUATIONS 21MAT11	
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COURSE NAME: C 202 ENGINEERING CHEMISTRY 21CHE22	
C202.1	Discuss the electrochemical energy systems such as electrodes and batteries.
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C202.3	Enumerate the importance, synthesis and applications of polymers. Understand properties and application of nanomaterials.
C202.4	Describe the principles of green chemistry, understand properties and application alternative fuels..
C202.5	Illustrate the fundamental principles of water chemistry, applications of volumetric and analytical instrumentation
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C203.1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts.
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COURSE NAME: C 204 BASIC ELECTRONICS & COMMUNICATION ENGINEERING 21ELN24	
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C205.1	Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations.
C205.2	Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities
C205.3	Apply the skills in developing simple mechanical elements and processes
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C206.2	Estimate the amount of substance present in the given solution using Potentiometer Conductometric and Colorimetric.
C206.3	Determine the total hardness and chemical oxygen demand in the given solution by volumetric analysis method
C206.4	Estimate the percentage of Nickel, copper and Iron in the given analyte solution by titration method.
C206.5	Demonstrate flame photometric estimation of sodium & potassium and the synthesis of nanomaterials by Precipitation method.
COURSE NAME: C 207 COMPUTER PROGRAMMING LABORATORY 21CPL27	
C207.1	Define the problem statement and identify the need for computer programming
C207.2	Make use of C compiler, IDE for programming, identify and correct the syntax and syntactic errors in programming
C207.3	Develop algorithm, flowchart and write programs to solve the given problem
C207.4	Demonstrate use of functions, recursive functions, arrays, strings, structures and pointers in problem solving.
C207.5	Document the inference and observations made from the implementation.
COURSE NAME: C 208 Communicative English21EGH28	
C208.1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
C208.2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
C208.3	To impart basic English grammar and essentials of language skills as per present requirement.
C208.4	Understand and use all types of English vocabulary and language proficiency.
C208.5	Adopt the Techniques of Information Transfer through presentation.
COURSE NAME: C 209 Scientific Foundations of Health 21SFH29	
C209.1	To understand Health and wellness (and its Beliefs)
C209.2	To acquire Good Health & It's balance for positive mindset
C209.3	To inculcate and develop the healthy lifestyle habits for good health.
C209.4	To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
C209.5	To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the campus.
C209.6	To positively fight against harmful diseases for good health through positive mindset.

HOD-BS

Professor & Head
Department of Basic Sciences
R.R. Institute of Technology
Bangalore 560 090

COURSE NAME: C 201 TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES (21MAT31)	
C201.1	To solve ordinary differential equations using Laplace transform.
C201.2	Demonstrate Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
C201.5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.
COURSE NAME: C 202 DATA STRUCTURES AND APPLICATIONS(21CS32)	
C202.1	Identify different data structures and their applications.
C202.2	Apply stack and queues in solving problems.
C202.3	Demonstrate applications of linked list.
C202.4	Explore the applications of trees and graphs to model and solve the real-world
C202.5	Make use of Hashing techniques and resolve collisions during mapping of key value
COURSE NAME: C 203 ANALOG AND DIGITAL ELECTRONICS(21CS32)	
C203.1	Design and analyze application of analog circuits using photo devices, timer IC, power supply and regulator IC and op-amp.
C203.2	Explain the basic principles of A/D and D/A conversion circuits and develop the
C203.3	Simplify digital circuits using Karnaugh Map, and Quine-McClusky Methods
C203.4	Explain Gates and flip flops and make us in designing different data processing circuits, registers and counters and compare the types.
C203.5	Develop simple HDL programs
COURSE NAME: C 204 COMPUTER ORGANIZATION AND ARCHITECTURE(21CS34)	
C204.1	Explain the organization and architecture of computer systems with machine instructions and programs
C204.2	Analyze the input/output devices communicating with computer system
C204.3	Demonstrate the functions of different types of memory devices
C204.4	Apply different data types on simple arithmetic and logical unit
C204.5	Analyze the functions of basic processing unit, Parallel processing and pipelining
COURSE NAME: C 205 OBJECT ORIENTED PROGRAMMING WITH JAVA LABORATORY (21CSL35)	
C205.1	Use Eclipse/NetBeans IDE to design, develop, debug Java Projects.
C205.2	Analyze the necessity for Object Oriented Programming paradigm over structured programming and become familiar with the fundamental concepts in OOP.
C205.3	Demonstrate the ability to design and develop java programs, analyze, and interpret object oriented data and document results.
C205.4	Apply the concepts of multiprogramming, exception/event handling, abstraction to develop robust programs.
C205.5	Develop user friendly applications using File I/O and GUI concepts.
COURSE NAME: C 20381 MASTERING OFFICE(21CSL381)	
C20381.1	Know the basics of computers and prepare documents, spreadsheets, make small presentations with audio, video and graphs and would be acquainted with internet.
C20381.2	Create, edit, save and print documents with list tables, header, footer, graphic, spellchecker, mail merge and grammar checker
C20381.3	Attain the knowledge about spreadsheet with formula, macros spell checker etc
C20381.4	Demonstrate the ability to apply application software in an office environment
C20381.5	Use Google Suite for office data management tasks

COURSE NAME: C 2036 Social connectivity & responsibility (21SCR36)	
C2036.1	Understand social responsibility
C2036.2	Practice sustainability and creativity
C2036.3	Showcase planning and organisation skills
COURSE NAME: C 2037 Constitutions of India and Professionals Ethics(21CIP37)	
C2037.1	Analyse the basic structure of Indian Constitution.
C2037.2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution.
C2037.3	know about our Union Government, political structure & codes, procedures.
C2037.4	Understand our State Executive & Elections system of India.
C2037.5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

HOD- CSE

Department of Computer Science
R.R. Institute of Tech
Hesaraghatta Main Road
Chikkabanavara Bangalore

ECE DEPARMENT

COURSE NAME: C 201 TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES (21MAT31)	
C201.1	To solve ordinary differential equations using Laplace transform.
C201.2	Demonstrate Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
C201.5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.
COURSE NAME: C 202 Digital System Design Using Verilog	
C202.1	Simplify Boolean functions using K-map and Quine-McCluskey minimization technique.
C202.2	Analyze and design for combinational logic circuits.
C202.3	Analyze the concepts of Flip Flops (SR, D, T and JK) and to design the synchronous sequential circuits using Flip Flops.
C202.4	Model Combinational circuits (adders, subtractors, multiplexers) and sequential circuits using Verilog descriptions.
COURSE NAME: C 203 Basic Signal Processing	
C203.1	Understand the basics of Linear Algebra
C203.2	Analyse different types of signals and systems
C203.3	Analyse the properties of discrete-time signals & systems
C203.4	Analyse discrete time signals & systems using Z transforms
COURSE NAME: C 204 Analog Electronic Circuits	
C204.1	Understand the characteristics of BJTs and FETs for switching and amplifier circuits.
C204.2	Design and analyze FET amplifiers and oscillatorswith different circuit configurations and biasing conditions.
C204.3	Understand the feedback topologies and approximations in the design of amplifiers and oscillators.
C204.4	Design of circuits using linear ICs for wide range applications such as ADC, DAC, filters and timers.

C204.5	Understand the power electronic device components and its functions for basic power electronic circuits.
COURSE NAME: C 205 Analog and Digital Electronics Lab	
C205.1	Design and analyze the BJT/FET amplifier and oscillator circuits.
C205.2	Design and test Opamp circuits to realize the mathematical computations, DAC and precision rectifiers.
C205.3	Design and test the combinational logic circuits for the given specifications.
C205.4	Test the sequential logic circuits for the given functionality.
C205.5	Demonstrate the basic electronic circuit experiments using SCR and 555 timer.
COURSE NAME: C 20382AEC (Analog Electronic Circuits) Lab	
C20381.1	Understand the circuit schematic and its working.
C20381.2	Study the characteristics of different electronic devices.
C20381.3	Design and test simple electronic circuits as per the specifications using discrete electronic components
C20381.4	Compute the parameters from the characteristics of active devices.
C20381.5	Familiarize with EDA software which can be used for electronic circuit simulation.
COURSE NAME: C 2036SOCIAL CONNECT & RESPONSIBILITIES	
C2036.1	Understand social responsibility
C2036.2	Practice sustainability and creativity
C2036.3	Showcase planning and organisation skills

HOD-ECE

MECHANICAL ENGINEERING DEPARTMENT

COURSE NAME: C 201 TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES (21MAT31)	
C201.1	To solve ordinary differential equations using Laplace transform.
C201.2	Demonstrate Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
C201.5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.
COURSE NAME: C 202 Metal Casting Forming & Joining Process	
C202.1	Select appropriate primary manufacturing process and related parameters for obtaining initial shape and size of components.
C202.2	Design and develop adequate tooling linked with casting, welding and forming operations
C202.3	Appreciate the effect of process parameters on quality of manufactured components
C202.4	Demonstrate various skills in preparation of molding sand for conducting tensile, shear and compression tests using Universal sand testing machine
C202.5	Demonstrate skills in preparation of forging models involving upsetting, drawing and bending operations.
C202.6	Demonstrate skills in preparation of Welding models.
COURSE NAME: C 203 Material Science and Engineering	
C203.1	Understand the atomic arrangement in crystalline materials and describe the periodic arrangement of atoms in terms of unit cell parameters.

C203.2	Understand the importance of phase diagrams and the phase transformations.
C203.3	Know various heat treatment methods for controlling the microstructure.
C203.4	Correlate between material properties with component design and identify various kinds of defects.
	Apply the method of materials selection, material data and knowledge sources for computer-aided selection of materials
COURSE NAME: C 204 Thermodynamics	
C204.1	Describe the fundamental concepts and principles of engineering thermodynamics.
C204.2	Apply the governing laws of thermodynamics for different engineering applications
C204.3	Analyse the various thermodynamic processes, cycles and results
C204.4	Interpret and relate the impact of thermal engineering practices to real life problems.
COURSE NAME: C 205 Machine Drawing and GD&T	
C205.1	Interpret the Machining and surface finish symbols on the component drawings.
C205.2	Apply limits and tolerances to assemblies and choose appropriate fits for given assemblies
C205.3	Illustrate various machine components through drawings
C205.4	Create assembly drawings as per the conventions.
COURSE NAME: C 20381Introduction to Python	
C20381.1	Demonstrate proficiency in handling of loops and creation of functions.
C20381.2	Identify the methods to create and manipulate lists, tuples and dictionaries
C20381.3	Discover the commonly used operations involving regular expressions and file system
C20381.4	Examine working of PDF and word file formats
COURSE NAME: C 2036SOCIAL CONNECT & RESPONSIBILITIES	
C2036.1	Understand social responsibility
C2036.2	Practice sustainability and creativity
C2036.3	Showcase planning and organisation skills

HOD-ME

HOD of Mechanical Engineering
R.R. Institute of Technology
Hesaraghatta Main Road,
Ch ikkabanavara, Bangalore - 90

EEE DEPARTMENT

COURSE NAME: C 201 Transform Calculus, Fourier Series And Numerical Techniques	
C201.1	To solve ordinary differential equations using Laplace transform.
C201.2	Demonstrate the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
C201.5	Determine the extremals of functional using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.
COURSE NAME:C202Analog Electronic Circuits and Op – Amps	
C202.1	Obtain the output characteristics of clipper and clamper circuits
C202.2	Design and compare biasing circuits for transistor amplifiers & explain the transistor switching.
C202.3	Explain the concept of feedback, its types and design of feedback circuits
C202.4	Design and analyse the power amplifier circuits and oscillators for different frequencies

C202.5	Design and analysis of FET and MOSFET amplifiers
C202.6	Demonstrate the application of Op-amps.
COURSE NAME: C 203 Electric Circuit Analysis	
C203.1	Understand the basic concepts, basic laws and methods of analysis of DC and AC networks and reduce the complexity of network using source shifting, source transformation and network reduction using transformations.
C203.2	Solve complex electric circuits using network theorems.
C203.3	Discuss resonance in series and parallel circuits and also the importance of initial conditions and their evaluation.
C203.4	Synthesize typical waveforms using Laplace transformation.
C203.5	Solve unbalanced three phase systems and also evaluate the performance of two port networks
COURSE NAME: C 204 Transformers and Generators	
C204.1	Understand the construction and operation of 1-phase, 3-Phase transformers, and Autotransformer.
C204.2	Analyze the performance of transformers by polarity test, Sumpner's Test, phase conversion, 3-phase connection, and parallel operation.
C204.3	Understand the construction and working of AC and DC Generators.
C204.4	Analyze the performance of the AC Generators on infinite bus and parallel operation
C204.5	Determine the regulation of AC Generator by Slip test, EMF, MMF, and ZPF Methods
COURSE NAME: C 205 Electrical Machines Laboratory – 1	
C205.1	Evaluate the performance of transformers from the test data obtained.
C205.2	Connect and operate two single phase transformers of different KVA rating in parallel.
C205.3	Connect single phase transformers for three phase operation and phase conversion.
C205.4	Compute the voltage regulation of synchronous generator using the test data obtained in the laboratory.
C205.5	Evaluate the performance of synchronous generators from the test data and assess the performance of synchronous generator connected to infinite bus.
COURSE NAME: C 20382Circuit Laboratory using Pspice	
C20382.1	Analyse in an intelligent manner, think better, and perform better.
COURSE NAME: C 2036SOCIAL CONNECT & RESPONSIBILITIES	
C2036.1	Understand social responsibility
C2036.2	Practice sustainability and creativity
C2036.3	Showcase planning and organisation skills

HOD-EEE

HOD OF ELECTRICAL & ELECTRONICS ENGINEERING
R R Institute of Technology
Hesaraghatta Main Road,
Chikkabanavara, Bengaluru - 560090

PRINCIPAL

PRINCIPAL
R.R. INSTITUTE OF TECHNOLOGY
Chikkabanavara, Bangalore - 560 090.

Department of Civil Engineering

21 Scheme COs

TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES 21MAT 31

CO1	**To solve ordinary differential equations using Laplace transform.**
CO2	**Demonstrate the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.**
CO3	**To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations**
CO4	**To solve mathematical models represented by initial or boundary value problems involving partial differential equations**
CO5	**Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.**

Geodetic Engineering 21CV32

CO1	**Execute survey using compass and plane table**
CO2	**Find the level of ground surface and Calculation of area and volumes**
CO3	**Operate theodolite for field execution**
CO4	**Estimate the capacity of reservoir**
CO5	**Interpret satellite imageries**

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STRENGTH OF MATERIALS 21CV33

CO1	Evaluate the behaviour when a solid material is subjected to various types of forces (namely Compressive, Tensile, Thermal, Shear, flexure, Torque, internal fluid pressure) and estimate stresses and corresponding strain developed.
CO2	Estimate the forces developed and draw schematic diagram for stresses, forces, moments for simple beams with different types of support and are subjected to various types of loads
CO3	Evaluate the behaviour when a solid material is subjected to Torque and internal fluid pressure and estimate stresses and corresponding strain developed
CO4	Distinguish the behaviour of short and long column and calculate load at failure & explain the behaviour of spring to estimate deflection and stiffness
CO5	Examine and Evaluate the mechanical properties of various materials under different loading conditions

Earth Resources and Engineering 21CV34

CO1	Apply geological knowledge in different civil engineering practice.
CO2	Students will acquire knowledge on durability and competence of foundation rocks, and confidence enough to use the best building materials.
CO3	competent enough to provide services for the safety, stability, economy and life of the structures that they construct
CO4	Able to solve various issues related to ground water exploration, build up dams, bridges, tunnels which are often confronted with ground water problems
CO5	Intelligent enough to apply GIS, GPS and remote sensing as a latest tool in different civil engineering for safe and solid construction.

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COMPUTER AIDED BUILDING PLANNING AND DRAWING 21CVL35

CO1	Prepare, read and interpret the drawings in a professional set up.
CO2	Know the procedures of submission of drawings and Develop working and submission drawings for building.
CO3	Plan and design of residential or public building as per the given requirements.

Personality Development and Soft skills (AEC) 21CV383 C

CO1	Develop effective communication skills (spoken and written) and effective presentation skills. Actively participate in group discussion / meetings / interviews and prepare & deliver presentations
CO2	Conduct effective business correspondence and prepare business reports which produce results.
CO3	Develop an understanding of and practice personal and professional responsibility.
CO4	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

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Fire Safety in Buildings 21CV385

CO1	Understand types of fire, combustion process and fire resistance
CO2	Plan for fire safety and design of lifts
CO3	Design flow network in buildings
CO4	Design of electrical systems and maintenance
CO5	Perform health evaluation of buildings and suggest remedies

Constitution of India and Professional Ethics (CIP) 21CIP37/47

CO1	Have constitutional knowledge and legal literacy
CO2	Understand Engineering and Professional ethics and responsibilities of Engineers.

21KSK39/49baLake Kannada

CO1	To understand the necessity of learning of local language for comfortable life.
CO2	To Listen and understand the Kannada language properly.
CO3	To speak, read and write Kannada language as per requirement.
CO4	To communicate (converse) in Kannada language in their daily life with kannada speakers.
CO5	To speak in polite conservation.

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DISPLAY OF PO's PSO's

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution are stated and displayed in website of the institution (to provide the weblink)

https://www.rrit.ac.in/mechanical.php
https://www.rrit.ac.in/civil.php
https://www.rrit.ac.in/computer-science.php
https://www.rrit.ac.in/electrical.php
https://www.rrit.ac.in/electronics.php
https://www.rrit.ac.in/information-science.php

PKM Educational Trust (R)

Since 1993

R R Institute of Technology

Department of Civil Engineering

Program Outcomes (POs)

PO 1	Engineering knowledge : Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 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.
PO 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.
PO 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
PO 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.
PO 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.
PO 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.
PO 8	Ethics : Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and team work : Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 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.
PO 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.
PO 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.

PKM Educational Trust (R)

Since 1993

R R Institute of Technology

Department of Civil Engineering

VISION:

To become a premier department by producing technically competent Civil Engineers who can meet the needs of Industry, Society and Environment.

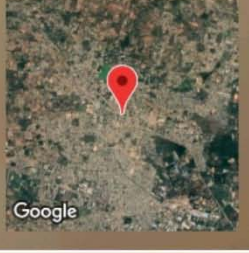
MISSION:

- To reinforce Technical skills set among students through innovative teaching learning processes, industrial visits and project works.
- To develop competent, ethically strong, environmentally and socially responsible civil engineers.
- To develop industry institute relationship to promote technical training, consultancy, research and development among faculty members and students.

Program Education Objectives (PEO'S)

PEO1	The graduate will be able to carry out site investigations and to find solutions for emerging problems with technical feasibility in construction projects considering environment and economic aspects.
PEO2	The graduate will be able to develop the ability to learn, understand and implement latest techniques, software tools, materials and equipments in projects for the benefit of the society
PEO3	The graduate will be able to carry out leadership and business skills to implement projects at the state and the national level to generate employments and wealth to the nation.

Civil Engineering, R R I T ,RR nagar, karna...



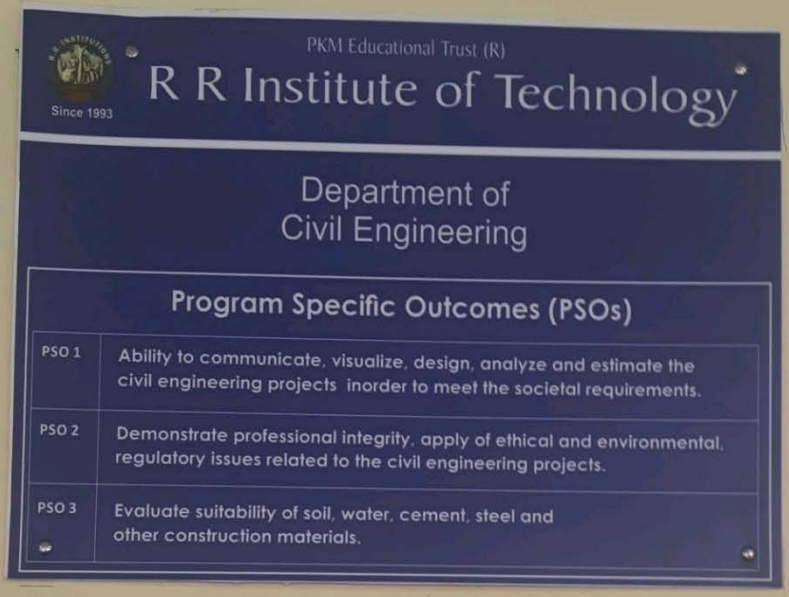
Longitude 77.5105° E

Latitude 13.0712° N

30° C

Monday, 2023, May, 22

10:57



Civil Engineering, R R I T ,RR nagar, karna...

Longitude 77.5105° E

Latitude 13.0712° N

30° C

Monday, 2022, May, 22

10:59

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Lesson Plan

College Name: R.R.Institute of Technology	**Academic year :2021-2022**
Programme :B.E	**Semester : V sem**
Subject Name :Technological Innovation management & Entrepreneurship	**Subject Code :18ES51**
Total contact hours :40 hours	**IA Marks: 40**
Faculty Name :Dr.Sunitha H D **Signature :**	**Reviewed by :Mrs.Anshu Deepak** **Signature :**

Significance of the Subject:

Entrepreneurial development today has become very significant in view of its being a key to economic development. The objectives of industrial development, regional growth and employment generation depends upon entrepreneurial development. Entrepreneurs are thus the seeds of industrial development, and the fruits of industrial development are greater employment opportunities to unemployed youth, increase in per capita income, higher standard of living and increased individual saving, revenue to the department in the form of income tax, sales tax, import and export duties and balanced regional development

Course Objective:

- Understand basic skills of management
- Understand the need for Entrepreneurs and their skills
- Identify the management functions and social responsibilities
- Understand the ideation process, creation of business model, feasibility study an sources of funding

Course Outcomes: On completion of this course ,students are able to:

CO1:	Understand the fundamental concepts of M & E and opportunities in order to set up a business
CO2:	Describe the functions of managers, entrepreneurs and their social responsibilities
CO3:	understand the components in developing a business plan
CO4:	Awareness about various sources of funding and institutions supporting entrepreneurs
CO5:	Survey on Indian Entrepreneurs, Case studies- presentation and report

Class No	Module No & Hours as per University	Topic to be covered	Teaching aids (CT/Online/PPT)	Skill Development	Date		Blooms level	CO's	Remarks
					Planned	Completed			
1.	Module-1 (8 hrs)	Importance and definition of management, management functions	PPT	CS/PS	5/10/2021	28/9	L2	CO1	
2.		Roles of a manager, managerial skills	PPT		7/10/2021	29/9	L2	CO1	
3.		Management and administration	PPT		8/10/2021	30/9	L2	CO1	
4.		Planning- nature, importance and types	PPT		9/10/2021	1/10	L2	CO1	
5.		Types of planning and limitations	PPT		12/10/2021	7/10	L2	CO1	
6.		Decision making-meaning and importance	PPT		13/10/2021	8/10	L2	CO1	
7.		Steps in decision making	PPT		16/10/2021	21/10	L2	CO1	
8.		Revision of questions from QP			19/10/2021	22/10	L2	CO1	
9.	Module-2 (8 hrs)	Organization-meaning, importance, process, principles, span of management	PPT		21/10/2021	2/11	L2	CO2	
10.		Meaning and types of committees	PPT		22/10/2021	4/11	L2	CO2	
11.		Centralization and decentralization of authority	PPT		23/10/2021	9/11	L2	CO2	
12.		Need and importance of staffing, recruitment and selection process	PPT		26/10/2021	19/11	L2	CO2	
13.		Meaning and requirement of direction, giving orders	PPT		27/10/2021	20/11	L2	CO2	
14.		Motivation theories, meaning and importance of communication	PPT		28/10/2021	23/11	L2	CO2	
15.		Meaning and characteristics of leadership	PPT		29/10/2021	24/11	L2	CO2	
16.		Meaning and types of co-ordination and control	PPT		30/10/2021	25/11	L2	CO2	
17.		Meaning and responsibilities of business towards different groups	PPT		2/11/2021	26/11	L2	CO2	

18.		Social audit, business ethics and corporate governance	PPT		4/11/2021	29/11	L2	CO2	
19.		Definition, concept and importance of entrepreneurship	PPT		6/11/2021	30/11	L2	CO2	
20.		Classification of entrepreneurs	PPT		9/11/2021	2/12	L2	CO2	
21.		Myths of entrepreneurship and development models	PPT		13/11/2021	3/12	L2	CO2	
22.		Entrepreneurial development cycle	PPT		16/11/2021	4/12	L2	CO2	
23.		Problems faced by entrepreneurs and capacity building	PPT		17/11/2021	6/12	L2	CO2	
24.		Revision-QP			18/11/2021	8/12	L2		
25.	Module 4 (8 hrs)	Role, importance and contribution of family business in India	PPT		19/11/2021	9/12	L2	CO3	
26.		Stages of development and characteristics of family owned business	PPT		20/11/2021	10/12	L2	CO3	
27.		Various types of family business	PPT		23/11/2021	11/12	L2	CO3	
28.		Idea generation, creativity and innovation	PPT		24/11/2021	14/12	L2	CO3	
29.		Identification of business oppurtunities, market entry strategies and feasibility	PPT		25/11/2021	21/12	L2	CO3	
30.		Feasibilities- technical, managerial, location and other utilities	PPT		26/11/2021	22/12	L2	CO3	
31.		Business model-meaning, analyzing	PPT		27/11/2021	23/12	L2	CO3	
32.		Scope and need of business plan	PPT		30/11/2021	24/12	L2	CO3	
33.		Financial planning, HRM	PPT		1/12/2021	28/12	L2	CO4	
34.		Business plan formats	PPT		2/12/2021	30/12	L2	CO4	
35.		Project report- importance, preparation and presentation	PPT		3/12/2021	39/12	L2	CO4	
36.		Identification of financial sources	PPT		4/12/2021	4/1	L2	CO4	
37.		Procedure for getting license and registration	PPT		7/12/2021	6/1	L2	CO4	
38.		Importance of network analysis	PPT		8/12/2021	11/1	L2	CO3	
39.		Comparison b/w PERT and CPM	PPT		9/12/2021	11/1	L2	CO3	

40.		Advantages, limitations and differences b/w PERT and CPM	**PPT**		10/12/2021	24/1	L2		CO3		
41.		Revision			11/12/2021	24/1					

* GL: Guest Lecture/IV: Industrial Visits/CS: Case Studies/AA: Article based Assignment or Survey/SDE: Skill Development Exercises /PS: Presentations/ RP: Role Play/SG: Simulation Games/QZ: Quiz/V: Videos/PSS: Problem Solving Skills/PC: Practicals

Bloom's Taxonomy Level	
L1-Remembering L2-Understanding L3-Applying L4-Analysing L5-Evaluating L6-Creating	
Text Books:	
1	Principles Of Management-P C tripathi, P N Reddy,McGrawHill Education, 6th edition,2017
2	Entrepreneurship Development Small business enterprises-Poornima M Charantimath,pearson Eductaion, 2008
Reference Books:	
1	Essentials of Management: Harold koontz, McGraw Hill Education, 10th edition,2006

Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1											3	1		
CO2											3	1		
CO3											3	1		
CO4											3	1		
CO5									2	2	3	2		
AVg									2	2	3	2		

Curriculum Gap Analysis

Sl.No.	Curricula Gap	Action taken	Date-Month-Year	Resource Person with designation	% of students present	Relevance to POs, PSOs
1	PO1 to PO10	Survey, case studies, presentations and reports	Jan 2022	Dr.Sunitha HD Prof & HOD	100	PO9,PO10

L-tha-H·D	L-tha-H·D
Signature of Faculty	**Signature of HOD**

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Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	-	-	-	-	-	-	-	-	1
CO2	3	3	3	-	-	-	2	-	-	-	-	1
CO3	3	3	3	-	-	-	1	-	-	-	-	2
CO4	3	3	3	-	-	-	1	-	-	-	-	1
CO5	3	3	3	-	-	-	-	-	-	-	-	1

Add rows as Per number of Cos

Add Colum's as Per number of POs

Curricula Gap Analysis

Sl.No.	Curricula Gap	Action taken	Date-Month-Year	Resource Person with designation	% of students present	Relevance to POs, PSOs
1	Nil	---	---	---	---	----

Signature of Faculty	Signature of HOD

USN | 1 | R | I | | | I | S | | | |

15CS81

R. R INSTITUTE OF TECHNOLOGY, ACADEMIC YEAR: 2019
INTERNET OF THINGS TECHNOLOGY
INTERNAL ASSESSMENT–III

Time: 1.5 hrs.
Dept.: ISE

Max. Marks: 40
Date: 4/5/2019

Note: PART-A: Answer any **ONE** full question. **(08 Marks)**
PART-B: Answer any **TWO** full questions. **(16 Marks)**

Q.NO	PART-A	M	BL	CO	PO
1.	What is Arduino and why it is required? Which is the one mostly used?	8	L1	CO5	PO1
2.	Explain DS18B20 Temperature Sensor?	8	L2	CO5	PO2
Q.NO	**PART-B**	**M**	**BL**	**CO**	**PO**
3. a	Explain with a neat diagram the Arduino UNO Learning board?	8	L3	CO5	PO4
3. b	Give the structure of Arduino programming and Explain the digital and analog input/output pins and their usage in Arduino programming?	8	L4	CO5	PO3
4. a	Explain Raspberry Pi2 Model B and its GPIO in detail?	8	L3	CO5	PO4
4. b	Explain with a neat diagram the layered architecture of smart cities?	8	L3	CO5	PO4
5. a	With a diagram explain the key smart and connected cities reference architecture?	8	L2	CO5	PO1
5. b	Explain briefly any one use-case examples of a smart city?	8	L5	CO5	PO4
6. a	Explain the connection of Raspberry Pi via SSH?	8	L4	CO5	PO5
6. b	1) Write a program to check for Armstrong number using Raspberry Pi with python? 2) Write a program using DS18B22 Temperature sensor which reads & records temperature on to a terminal which is connected to Raspberry Pi?	8	L5	CO5	PO5

<<<<<<<<<< ALL THE BEST >>>>>>>>>>

8/5/19

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USN

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15CS81

R. R INSTITUTE OF TECHNOLOGY, ACADEMIC YEAR: 2019
INTERNET OF THINGS TECHNOLOGY (1st)
INTERNAL ASSESSMENT–I

Time: 1.5 hrs. Max. Marks: 40

Note: PART-A: Answer any ONE full question. (08 Marks)
PART-B: Answer any TWO full questions. (32 Marks)

Q.NO	PART-A	M	BL	CO	PO
1.	What is Internet of Things? Explain Genesis of IOT?	8	L1	CO1	PO1
2.	What are the IOT challenges? Explain?	8	L2	CO1	PO2
Q.NO	PART-B	M	BL	CO	PO
3. a	Compare Operational Technology and Information Technology?	10	L4	CO1	PO4
3. b	Explain IOT Architectural drivers?	6	L2	CO1	PO3
4. a	What are the architectural considerations for Wimax and Cellular Technologies?	10	L3	CO1	PO4
4. b	Explain a simplified IOT architecture with a neat diagram?	6	L2	CO1	PO4
5. a	Explain IEEE 802.15.4 MAC format?	10	L2	CO2	PO3
5. b	Write short notes on ZigBee?	6	L5	CO2	PO4
6. a	Explain different sensor types with examples?	10	L2	CO2	PO5
6. b	Explain the four characteristics of smart objects with examples?	6	L2	CO2	PO3

<<<<<<<<<< ALL THE BEST >>>>>>>>>>

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Internal test Question paper showing COs POs

15/17EC72

R. R. Institute of Technology, Academic Year: 2020-21
Department of Electronics and Communication

Date:04.01.2021
Time: 1½hr

DIGITAL IMAGE PROCESSING

Semester: VII

III Internal Assessment Test

Answer any Three Full questions

Max. Marks: 30

Q	QUESTIONS	M	BL	CO	PO
1	Write the equations from colors from HSI(hue saturation intensity) to RGB(red blue green) and conversion from RGB(red blue green) to HSI(hue saturation intensity). Or Perform Erosion and Dilation operations for morphological processing given image A and Structuring element B. 0 0 0 0 0 0 1 1 1 0 0 1 1 1 0 0 1 1 1 0 0 0 0 0 0 Structuring element 0 1 0 1 1 1 0 1 0	10	2	2	2
2					
3	Check Hit or Miss Transform for following 0 0 0 0 0 0 0 0 1 1 1 1 1 0 0 1 1 1 1 1 0 0 1 1 1 1 1 0 0 1 1 1 1 1 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 structuring element B1 = 0 0 0 / 0 1 0 / 0 1 0 B2 = 0 1 0 / 0 0 0 / 0 0 0	10	2	2	2
4	Perform opening and closing operation for given Image A & structuring element B A = [1 1 1 0 1 1 1 / 1 1 1 1 1 1 1 / 1 1 1 0 1 1 1] & B = [1 1 1 / 1 1 1 / 1 1 1]				
5	Perform Haar transform for N=4. (Or)	10	2	2	2
6	Elaborate Segmentation using Morphological Watersheds and Dam construction				

Encl:02

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Since 1993
Department of Basic Sciences

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Assistant Professor

Cordially invites all staff & students for One day Workshop on Innovation and Design Thinking

On Tuesday, 21/03/2022, 9.30 am

Venue: Seminar Hall, Main Block

CHIEF GUEST

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Jyothi Institute of Technology, Bangalore

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Chairman PKMET

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Professor & Head
Department of Basic Sciences
R.R. Institute of Technology
Bangalore 560 090

PRINCIPAL
Dr Mahendra K V

PRINCIPAL
R.R. INSTITUTE OF TECHNOLOGY
Chikkabanavara, Bangalore - 560 090

One day workshop on 'Innovation and Design Thinking'

Objectives

The main objective of One day workshop on 'Innovation and Design Thinking' is (i) to explain the concept of design thinking of product and service development (ii) to explain the fundamental concept of innovation and design thinking (iii) to discuss the methods of implementing design thinking in the real world.

Outcomes:

At the end of the workshop students will be able to

CO1:Appreciate various design process procedure

CO2:Generate and develop design ideas through different technique

CO3:Identify the significance of reverse Engineering to understand products

CO4:Draw technical drawing for design ideas

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			3	3	3							
CO2			3	3								
CO3					2		2					
CO4			3									

PO attainment

Indirect method
by referring feedback received

	PO3	PO4	PO5	PO7
CO1	3	3	3	
CO2	3	3		
CO3			2	2
CO4	3			

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Bangalore 560 090

* Course Outcomes: (Course Skill Set) of

after successfully completing the course the Student will be able to understand the topics.

① Apply the knowledge of Calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.

② Learn the notion of partial differentiation to Calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobians.

③ Solve 1st order linear / non linear ordinary differential equation analitically using standard methods

④ Demonstrate various models through higher order differential equations and their practical use

- any differential equation

⑤ test the consistency of a system of linear equation and to solve them by direct and iterative methods

* Course objectives

the goal of the course "Calculus and differential equation 21MAT11" is: ① To facilitate to students with concrete foundation of differential Calculus

② To solve 1st and higher order ordinary differential equation

RR INSTITUTE OF TECHNOLOGY
DEPARTMENT OF BASIC SCIENCE

Vision
To build a strong foundation for excellence in knowledge and spur the development of the institution to become a premier institution by igniting and nurturing enthusiasm, interest and passion, in the study of fundamental courses of physics, mathematics and chemistry and their applications in professional studies as a part of curriculum.

Mission
The department of Basic Science shall deliver the analytical and Mathem[illegible] concepts to engineering students effectively, which will enable the [illegible] of innovative and creative skills during further [illegible] design and implementation of novel engineering methods.

COURSE OUTCOMES (18MAT41)	
CO1	Use the concepts of analytic function and complex potentials to solve the problems arising in electromagnetic field theory.
CO2	Utilize Conformal transformation and complex integral arising in aerofoil theory, fluid flow visualization and image processing.
CO3	Apply discrete and continuous probability distributions in analyzing the probability models arising in engineering field.
CO4	Make use of the correlation and regression analysis to fit a suitable mathematics model for the statistical data.
CO5	Construct joint probability distributions and demonstrate the validity of testing the hypothesis.

S. Chitra

RR INSTITUTE OF TECHNOLOGY
DEPARTMENT OF BASIC SCIENCE

Vision

To build a strong foundation for excellence in knowledge and spur the development of the institution to become a premier institution by igniting and nurturing enthusiasm, interest and passion, in the study of fundamental courses of physics, mathematics and chemistry and their applications in professional studies, as a part of curriculum.

Mission

- The department of Basic Science shall deliver the analytical and Mathematical [illegible] engineering students effectively, which will enable them in the [illegible] innovative and creative skills during further studies.
- To [illegible] reasoning and analytical abilities [illegible]

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Department of Computer Science & Engineering

Assignment-1

Academic Year	2018-19
Batch	2021-22
Year/Semester	4th Year/8th Semester
Course Name	Storage Area Network
Course Code	18CS822
Name of the Instructor	Prof. Shruthi.S

Sl. No	Assignment Questions	COs
1	Briefly explain the evolution of storage technology and architecture with a neat diagram.	CO2
2	State what is Data center? Illustrate the core elements of Data center with a diagram.	CO1
3	Discuss virtualization and cloud computing in detail.	CO3
4	List and explain the Components of Disk Drive with a neat diagram	CO1
5	Illustrate the Logical Components of Connectivity with neat diagram	CO1

Course In Charge

HOD
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Department of Computer Science &
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Assignment-1

Academic Year	2021-22
Batch	2019-23
Year/Semester	3rd Year/5th Semester
Course Name	Computer Networks and Security
Course Code	18CS52
Name of the Instructor	Lakshmidevi H M

Sl. No	Assignment Questions	COs
1.	Give the principles and explain the architectures of network applications?	CO1
2.	List and Describe the two transport layer protocols in detail?	CO1
3.	Paraphrase how application processes communicate through a socket with a diagram?	CO1
4.	Discuss four Transport Services available to applications?	CO1
5.	Gather the concepts of Web and HTTP?	CO1
6.	With a general format, Brief out HTTP request and response messages?	CO1
7.	Distinguish between HTTP non-persistent and persistent connections?	CO1
8.	Indicate the DNS Message format in detail?	CO1

Course In Charge

HOD

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Chikkabanavara, Bangalore

Subject Name :ADVANCED CALCULUS AND NUMERICAL METHODS **Subject Code:** 21MAT21
Semester: II **Question Bank: I**
Faculty Name :Mrs.Shwetha K.R
Module 1- INTEGRAL CALCULUS

Academic Year 2021-22

Q.No	Question	CO	Marks
1	a)Evaluate : $\int_{-1}^{1}\int_{0}^{z}\int_{x-z}^{x+z}(x+y+z)dydxdz.$	CO-1	5M
	b)Prove that $\beta(m,n)=\frac{\Gamma(m)\,\Gamma(n)}{\Gamma(m+n)}$.	CO-1	5M
2	a)Find the volume of the tetrahedron bounded by the planes : $x=0,\ y=0,\ z=0,$ $\frac{x}{a}+\frac{y}{b}+\frac{z}{c}=1$	CO-1	5M
	b)Evaluate : $\int_{0}^{1}\int_{0}^{\sqrt{1-x^2}}\int_{0}^{\sqrt{1-x^2-y^2}} xyz\ dz\ dy\ dx.$	CO-1	5M
3	a)Evaluate: $\int_{0}^{1}\int_{0}^{\sqrt{1-x^2}}\int_{0}^{\sqrt{1-x^2-y^2}}\frac{dz\,dy\,dx}{\sqrt{1-x^2-y^2-z^2}}$.	CO-1	5M
	b)Evaluate: $\int_{0}^{1}\int_{0}^{\sqrt{x}} xy\ dy\ dx$	CO-1	5M
4	a)Evaluate $\iint xy\,dx\,dy$ where R is the region bounded by the coordinate axes and the line x+ y = 1.	CO-1	5M
	b)Evaluate $\int_{0}^{\infty} x^{\frac{3}{2}} e^{-x}dx$	CO-1	5M
5	a)Evaluate : $\int_{0}^{a}\int_{0}^{\sqrt{a^2-x^2}}\int_{0}^{\sqrt{a^2-x^2-y^2}}\frac{1}{\sqrt{a^2-x^2-y^2-z^2}}\,dz\,dy\,dx.$	CO-1	5M
	b)Evaluate $\iint y\,dx\,dy$ over the region bounded by the first quadrant of the ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1.$	CO-1	5M
6	a)Evaluate $\int_{0}^{\infty} x^{\frac{3}{2}}e^{-\sqrt{x}}dx$	CO-1	5M
	b)Evaluate : $\int_{0}^{a}\int_{0}^{\sqrt{a^2-x^2}}\int_{0}^{\sqrt{a^2-x^2-y^2}} xyz\,dz\,dy\,dx.$	CO-1	5M
7	a)Evaluate : $\int_{0}^{4}\int_{0}^{2\sqrt{x}}\int_{0}^{\sqrt{4x-x^2}} dy\,dx\,dz.$	CO-1	5M
	b)Find the volume of the solid bounded by the planes x =0, y = 0 , z = 0 , x+ y + z = 1.	CO-1	5M
8	a)Evaluate $\iint xy\ dx\,dy$ taken over the region bounded by $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1\ and\ \frac{x}{a}+\frac{y}{b}=1.$	CO-1	5M
	b)Show that $\Gamma(\frac{1}{2})=\sqrt{\pi}$ using the definition of $\Gamma(n)$.	CO-1	5M
9	a)Find the double integration of the area enclosed by the curve r = a(1 +Cos θ) between $\theta=0\ and \theta=\pi$.	CO-1	5M

	b)Evaluate $\int_0^{\frac{\pi}{2}} \sqrt{\cot\theta}\, d\theta$ by expressing in terms of gamma functions.	CO-1	5M
10	a)Evaluate $\int_0^2 (4-x^2)^{\frac{3}{2}}$ dx by expressing in terms of beta functions .	CO-1	5M
	b)Evaluate $\iint xy\,(x+y)\,dy\,dx$ taken over the area between $y = x^2 and y = x$	CO-1	5M
11	a)Evaluate $\iint x^2 y$ dx dy where R is the region bounded by the lines y = x, y − x = 2 and y=0.	CO-1	5M
	b)Evaluate $\int_0^{\frac{\pi}{2}} \sqrt{\tan\theta}\, d\theta$ by expressing in terms of gamma functions.	CO-1	5M
12	a)Evaluate $\int_0^{\infty} \frac{dx}{1+x^4}$ by expressing in terms of beta function .	CO-1	5M
	b)Evaluate $\iint xy\, dx\, dy$ where R is the region bounded by x- axis, ordinate $x = 2a\ and\ the\ curve\ x^2 = 4ay.$	CO-1	5M
13	a)Evaluate $\int_0^{\infty} \frac{x}{1+x^6}\, dx$ by expressing in terms of beta function .	CO-1	5M
	b)Evaluate $\iint xy\, dx\, dy$ over the positive quadrant of the circle $x^2 + y^2 = a^2.$	CO-1	5M
14	a)Evaluate $\int_0^{\infty}\int_0^{\infty} e^{-(x^2+y^2)}\, dx\, dy$ by changing to polar coordinates.	CO-1	5M
	b)Evaluate $\int_0^{\frac{\pi}{2}} Sin^{\frac{1}{2}}x\ Cos^{\frac{3}{2}}x\, dx$.	CO-1	5M
15	a)Find the area of ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ by double integration.	CO-1	5M
	b)Show that $\int_0^{\frac{\pi}{2}} \frac{d\theta}{\sqrt{Sin\theta}}\ X \int_0^{\frac{\pi}{2}} \sqrt{Sin\theta}\, d\theta = \pi.$	CO-1	5M

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Department of Basic Science

Assignment-1

Academic Year	2021-22
Branch	ISE
Year/Semester	1st Year/2nd Semester
Course Name	Advanced calculus and numerical methods
Course Code	21MAT21
Faculty Name	Chamanthi. S

MODULE 1: Integral Calculus
MODULE 2: Vector Calculus
MODULE 3: Partial differential equations

Sl. No	Assignment Questions	COs
1	Evaluate : $\int_0^a \int_0^{\sqrt{a^2-x^2}} \int_0^{\sqrt{a^2-x^2-y^2}} xyz\, dz\, dy\, dx$	CO1
2	Evaluate $\iint xy\, dx\, dy$ where R is the region bounded by x- axis, ordinate $x = 2a$ *and the curve* $x^2 = 4ay$.	CO1
3	Find the volume bounded by the cylinder $x^2 + y^2 = 4$ *and the plane* $y + z = 4$ & $z = 0$, *by using double integration.*	CO1
4	Show that $\Gamma\left(\frac{1}{2}\right) = \sqrt{\pi}$ using the definition of $\Gamma(n)$.	CO1
5	Find the directional derivative of $\emptyset = x\,2yz + 4xz\,2$ at (1,-2,-1) along 2i-j-2k.	CO2
6	If $\vec{F} = \nabla(xy^3z^2)$ find Curl F" at the point (1,-1,1).	CO2
7	By using greens theorem Evaluate $\int_c (3x^2 - 8y^2)dx + (4y - 6xy)dy$ Where C is the triangle formed by $x = 0, y = 0$ *and* $x + y = 1$.	CO2
8	Apply Stoke's theorem to evaluate $\iint curl\, \vec{F}.\hat{n}ds\, \hat{n}$ where $\vec{F} = (x^2 + y^2)\hat{i} - 2xy\hat{j}$, taken around the rectangle bounded by x=0, x=a, y= 0 & y = b.	CO2
9	a)Form PDE by eliminating arbitrary functions from $lx + my + nz = \emptyset(x^2 + y^2 + z^2)$	CO3
10	a)Form the partial differential equation by eliminating the arbitrary functions from $z = yf(x) + x\emptyset(x)$	CO3

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