BIJU PATNAIK UNIVERSITY OF TECHNOLOGY, ODISHA

ROURKELA

Curriculum and Syllabus

Of

B.Tech(*Electrical & Electronics Engg.)* from the Batch 2018-19

Semester (3rd)

Director, Curriculum Development
Biju Patnaik University of Technology, Odisha
Rourkela

Third Semester							
Theory							
Sl No	**Category**	**Course Code**	**Course Title**	**L-T-P**	**Credit**	**University Marks**	**Internal Evaluation**
1	BS	RMA3A001	Mathematics - III	3-0-0	3	100	50
2	ES	ROP3B001	Object Oriented Programming Using JAVA	3-0-0	3	100	50
3	HS	REN3E001 / ROB3E002	Engineering Economics / Organisational Behaviour	3-0-0	3	100	50
4	PC	REC3C001	Analog Electronic Circuits	3-0-0	3	100	50
5	PC	REE3C002	Network Theory	3-0-0	3	100	50
6	MC*	RES3F001	Environment Science	3-0-0	0	—	100 (Pass mark is 37)
				Total Credit (Theory)	15		
				Total Marks		**500**	**250**
Practical							
1	PC	REC3C201	Analog Electronic Circuits Lab.	0-0-3	2		100
2	PC	REE3C202	Network Theory Lab.	0-0-3	2		100
3	ES	ROP3B201	OOP Using JAVA Lab.	0-0-3	2		100
4	PSI	RIP3H201	Evaluation of Internship - I	0-0-3	1		100
				Total Credit (Practical)	**7**		
				Total Semester Credit	**22**		
				Total Marks			**400**

***Mandatory Non-Credit Courses (MC) result will be reflected with Pass (P) / Fail (F) grade. Thus the grade obtained will not be affecting the grade point average. However it shall appear on the grade sheet as per AICTE rule.**

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3rd Semester	RMA3A001	MATHEMATICS – III	L-T-P 3-0-0	3 CREDITS

Module-I (10 Hours)

Solution of Non-linear equation in one variable (Bisection, Secant, Newton Rapson Method, Fixed Point Iteration method). Numerical Solutions of system of Linear equations (Gauss-Seidel, Successive Over Relaxation, Doolittle method, Crouts method, Choleskys Method).
Interpolation: Newton's forward and backward interpolation, Newton divided difference interpolation, Lagrange Interpolation.

Module-II (8 Hours)

Numerical Differentiation, integration and Solution of Differential Equations: Numerical Differentiation, The trapezoidal rule, The Simpson's rule, Gauss Integration formulas. Solution of ordinary differential equation: Euler's method, Improvement of Euler's method, Runge-Kutta methods, multi step methods, Methods for system and higher order ordinary differential equations.

Module-III (8 Hours)

Sample Space, Probability, Conditional Probability, Independent Events, Bayes' Theorem, Random variables, Probability distributions, Expectations, Mean and variance, Moments.

Module-IV (9 Hours)

Bernoulli Trials, Binomial, Poisson, Hyper Geometirc Distribution, Uniform., Exponential and Normal distribution, Bivariate Distributions.

Module-V (10 Hours)

Correlation and Regression Analysis, Rank Correlation, Maximum Likely hood estimate, Method of Moments, Confidence intervals mean and variance of a Normal Distribution, p-value. Testing of hypothesis: test for goodness of fit, Test for single mean and variance of a Normal Distribution.

Books:

1. E. Kreyszig," Advanced Engineering Mathematics:,Tenth Edition, Wiley India
2. S.Pal and S.C. Bhunia, "Engineering Mathematics" Oxford University Press
3. Jay L. Devore, "Probability and Statistics for Engineering and Sciences", Seventh Edition, Thomson/CENGAGE Learning India Pvt. Ltd
4. R. E. Walpole, R. h. Myers, S. L. Myers, K. E. Ye; "Probability and Statistics, Pearson".
5. R. L. Burden, J. D. Faires, " Numerical Analysis, Cenage Learning India Pvt. Ltd"
6. B.V.RAMANA,"Higher Engineering Mathematics"Tata Magraw Hill

3rd Semester	ROP3B001	OBJECT ORIENTED PROGRAMMING USING JAVA	L-T-P 3-0-0	3 CREDITS

Module-I (10 Hrs)

Chapter 1-: An introduction to programming.

Different types of programming languages, Description of Compiler and Interpreter, Advantage of Object Oriented Programming, Object Oriented Programming, Features of Object Oriented Programming.

Chapter 2-: Introduction to Java.

What is Java?, Why Java?, History behind Java, Different versions of Java, Difference between C/C++ and Java, Features of Java, First Java Program, Prerequisites Before start writing a java program, Writing the program, Compiling the program, How Java program compiles?, Executing the program, How Java program executes?, What is JVM and its significance in executing a program?, Architecture of JVM.

Chapter 3-: Understanding First Program and a step forward, Understanding every term of the program, Java Tokens, Datatypes, Operators, What are Operators?, Different types of Operators, Typecasting, Control Structures and Arrays, Different types of control structures, Conditional Statements, Loops/ Iterators, Jumping Statements, Java Arrays, Multidimensional Arrays, Taking Input from keyboard, Command Line Arguments, Using Scanner Class, Using Buffered Reader class.

Module-II: (08 Hrs.)

Chapter 1-: Introduction to Classes and Objects.

Classes, Methods, Objects, Description of data hiding and data encapsulation, Constructors, Use of static Keyword in Java, Use of this Keyword in Java, Array of Objects, Concept of Access Modifiers (Public, Private, Protected, Default).

Chapter 2-: Inheritance

Understanding Inheritance, Types of Inheritance and Java supported Inheritance, Significance of Inheritance, Constructor call in Inheritance, Use of super keyword in Java, Polymorphism, Understanding Polymorphism, Types of polymorphism, Significance of Polymorphism in Java, Method Overloading, Constructor Overloading, Method Overriding, Dynamic Method Dispatching.

Chapter 3-: String Manipulations.

Introduction to different classes, String class, String Buffer, String Builder, String Tokenizer, Concept of Wrapper Classes, Introduction to wrapper classes, Different predefined wrapper classes, Predefined Constructors for the wrapper classes. Conversion of types from one type (Object) to another type (Primitive) and Vice versa, Concept of Auto boxing and unboxing.

Module-III: (09 Hrs.)

Chapter 1:-Data Abstraction

Basics of Data Abstraction, Understanding Abstract classes, Understanding Interfaces, Multiple Inheritance Using Interfaces, Packages, Introduction to Packages, Java API Packages, User-Defined Packages, Accessing Packages, Error and Exception Handling, Introduction to error and exception, Types of exceptions and difference between the types, Runtime Stack Mechanism, Hierarchy of Exception classes, Default exception handling in Java, User defined/Customized

Exception Handling, Understanding different keywords (try, catch, finally, throw, throws), User defined exception classes, Commonly used Exceptions and their details.

Chapter 2:-Multithreading

Introduction of Multithreading/Multitasking, Ways to define a Thread in Java, Thread naming and Priorities, Thread execution prevention methods. (yield(), join(), sleep()), Concept of Synchronisation, Inter Thread Communication, Basics of Deadlock, Demon Thread, Improvement in Multithreading, Inner Classes, Introduction, Member inner class, Static inner class, Local inner class, Anonymous inner class.

Module-IV: (10 Hrs.)

Chapter 1:-IO Streams (java.io package)

Introduction, Byte Stream and Character Stream, Files and Random Access Files, Serialization, Collection Frame Work (java.util), Introduction, Util Package interfaces, List, Set, Map etc, List interfaces and its classes, Setter interfaces and its classes.

Chapter 2:-Applet

Introduction, Life Cycle of an Applet, GUI with an Applet, Abstract Window Toolkit (AWT), Introduction to GUI, Description of Components and Containers, Component/Container hierarchy, Understanding different Components/Container classes and their constructors, Event Handling, Different mechanisms of Event Handling, Listener Interfaces, Adapter classes.

Module-V: (08 Hrs.)

Chapter 1:-Swing (JFC)

Introduction Diff b/w awt and swing, Components Hierarchy, Panes, Individual Swings Components JLabel, JButton, JTextField, JTextArea.

Chapter 2:-JavaFX

Getting started with JavaFX, Graphics, User Interface Components, Effects, Animation, and Media, Application Logic, Interoperability, JavaFX Scene Builder 2, Getting Started with scene Builder.

Working with scene Builder.

Books :-

1. Programming in Java. Second Edition. OXFORD HIGHER EDUCATION. (SACHIN MALHOTRA/SAURAV CHOUDHARY)
2. CORE JAVA For Beginners. (Rashmi Kanta Das), Vikas Publication
3. JAVA Complete Reference (9th Edition) Herbalt Schelidt.

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3rd Semester	ROP3B201	OOP USING JAVA LAB.	L-T-P 0-0-3	2 CREDITS

JAVA programs on:

1. Introduction, Compiling & executing a java program.
2. Data types & variables, decision control structures: if, nested if etc.
3. Loop control structures: do, while, for etc.
4. Classes and objects.
5. Data abstraction & data hiding, inheritance, polymorphism.
6. Threads, exception handlings and applet programs
7. Interfaces and inner classes, wrapper classes, generics

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3rd Semester	REN3E001	ENGINEERING ECONOMICS	L-T-P 3-0-0	3 CREDITS

Module - I (08 hours)

Engineering Economics- Nature, Scope, Basic problems of an economy, Micro Economics and Macro Economics.
Demand - Meaning of demand, Demand function, Law of Demand and its exceptions, Determinants of demand, Elasticity of demand & its measurement (Simple numerical problems to be solved), Demand Forecasting – Meaning
Supply-Meaning of supply, Law of supply and its exception, Determinants of supply, Elasticity of supply, Determination of market equilibrium (Simple numerical problems to be solved).

Module - II (08 hours)

Production - Production function, Laws of returns: Law of variable proportion, Law of returns to scale
Cost and Revenue Concepts - Total Costs, Fixed cost, Variable cost, Total revenue, Average revenue and Marginal revenue, Cost-Output Relationships in the Short Run, and Cost-Output Relationships in the Long Run, Analysis of cost minimization.

Module III (08 hours)

Market - Basic understanding of different market structures, Determination of equilibrium price under perfect competition (Simple numerical problems to be solved), Break Even Analysis-linear approach (Simple numerical problems to be solved).

Module - IV (12 hours)

Time Value of Money- Interest - Simple and compound, nominal and effective rate of interest, Cash flow diagrams, Principles of economic equivalence.
Evaluation of Engineering Projects-Present worth method, Future worth method, Annual worth method, Internal rate of return method, Cost benefit analysis for public projects.
Depreciation- Depreciation of capital assert, Causes of depreciation, Methods of calculating depreciation - Straight line method, Declining balance method, SOYD method, After tax comparison of project.

Module –V (06 Hours)

Inflation-Meaning of inflation, types, causes, measures to control inflation.
National Income-Definition, Concepts of national income, Method of measuring national income.
Banking -Commercial bank, Functions of commercial bank, Central bank, Functions of Central Bank.

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Books:

1. Principles of Economics by Deviga Vengedasalam and Karaunagaran Madhavan, Oxford
2. Riggs, Bedworth and Randhwa, "Engineering Economics", McGraw Hill Education India
3. C. S. Park, Contemporary Engineering Economics, 6th Edition, Pearson Education, 2015.
4. Engineering Economy by William G.Sullivan, Elin M.Wicks, C. Patric Koelling, Pearson
5. R.Paneer Seelvan, " Engineering Economics", PHI
6. Ahuja,H.L., "Principles of Micro Economics" , S.Chand & Company Ltd
7. Jhingan,M.L., "Macro Economic Theory"
8. Macro Economics by S.P.Gupta, TMH

Course Outcomes of Engineering Economics

At the end of the course the engineering graduates will be able to

1. **Remembering** : Define the basic concept of micro and macro economics, engineering economics and their application in engineering economy.

2. **Understanding** : Evaluate numerically the effects of changes in demand and supply on price determination of products and services.

3. **Analyze :** the macroeconomic environment and financial systems of the country and its impact on business, society and enterprise.

4. **Develop :** the ability to account for time value of money using engineering economy factors and formulas.

5. **Apply:** knowledge of mathematics, economics and engineering principles to solve engineering problems and to analyze decision alternatives in engineering projects considering upon depreciation, taxes and inflation.

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3rd Semester	ROB3E002	ORGANISATIONAL BEHAVIOUR	L-T-P 3-0-0	3 CREDITS

Objectives:

1. To develop an understanding of the behavior of individuals and groups inside organizations
2. To enhance skills in understanding and appreciating individuals, interpersonal, and group process for increased effectiveness both within and outside of organizations.
3. To develop theoretical and practical insights and problem-solving capabilities for effectively managing the organizational processes.

Module-I: **(06 Hrs.)**

Fundamentals of OB: Definition, scope and importance of OB, Relationship between OB and the individual, Evolution of OB, Theoretical framework (cognitive), behavioristic and social cognitive), Limitations of OB.

Module-II: **(12 Hrs.)**

Attitude: Importance of attitude in an organization, Right Attitude, Components of attitude, Relationship between behavior and attitude, Developing Emotional intelligence at the workplace, Job attitude, Barriers to changing attitudes.
Personality and values: Definition and importance of Personality for performance, The Myers-Briggs Type Indicator and The Big Five personality model, Significant personality traits suitable to the workplace (personality and job – fit theory), Personality Tests and their practical applications.
Perception: Meaning and concept of perception, Factors influencing perception, Selective perception, Attribution theory, Perceptual process, Social perception (stereotyping and halo effect).
Motivation: Definition & Concept of Motive & Motivation, The Content Theories of Motivation (Maslow's Need Hierarchy & Herzberg's Two Factor model Theory), The Process Theories (Vroom's expectancy Theory & Porter Lawler model), Contemporary Theories – Equity Theory of Work Motivation.

Module-III: **(10 Hrs.)**

Foundations of Group Behavior: The Meaning of Group & Group behavior & Group Dynamics, Types of Groups, The Five – Stage Model of Group Development.
Managing Teams: Why Work Teams, Work Teams in Organization, Developing Work Teams, Team Effectiveness & Team Building.
Leadership: Concept of Leadership, Styles of Leadership, Trait Approach Contingency Leadership Approach, Contemporary leadership, Meaning and significance of contemporary leadership, Concept of transformations leadership, Contemporary theories of leadership, Success stories of today's Global and Indian leaders.

Module-IV: **(08 Hrs.)**

Organizational Culture : Meaning & Definition of Organizational Culture, creating & Sustaining Organizational Culture, Types of Culture (Strong vs. Weak Culture, Soft Vs. Hard Culture & Formal vs. Informal Culture), Creating Positive Organizational Culture, Concept of Workplace Spirituality.

Module-V: **(09 Hrs.)**

Organizational Change: Meaning, Definition & Nature of Organizational Change, Types of Organizational Change, Forces that acts as stimulants to change.
Implementing Organizational Change : How to overcome the Resistance to Change, Approaches to managing Organizational Change, Kurt Lewin's-Three step model, Seven Stage model of Change & Kotter's Eight-Step plan for Implementing Change, Leading the Change Process, Facilitating Change, Dealing with Individual & Group Resistance, Intervention Strategies for Facilitating Organizational Change, Methods of Implementing Organizational Change, Developing a Learning Organization.

Books:

1. Understanding Organizational Behaviour, Parek, Oxford
2. Organizational Behaviour, Robbins, Judge, Sanghi, Pearson.
3. Organizational Behaviour, K. Awathappa,HPH.
4. Organizational Behaviour, VSP Rao, Excel
5. Introduction to Organizational Behaviour, Moorhead, Griffin, Cengage.
6. Organizational Behaviour, Hitt, Miller, Colella, Wiley

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3rd Semester	REC3C001	Analog Electronic Circuits	L-T-P 3-0-0	3 CREDITS

MODULE – I **(12 Hours)**

MOS Field-Effect Transistor: Principle and Operation of FETs and MOSFETs; P-Channel and N-Channel MOSFET; Complimentary MOS; V-I Characteristics of E- MOSFET and D-MOSFET; MOSFET as an Amplifier and as a Switch.
Biasing of BJTs: Load lines (AC and DC); Operating Points; Fixed Bias and Self Bias, DC Bias with Voltage Feedback; Bias Stabilization; Examples.
Biasing of FETs and MOSFETs: Fixed Bias Configuration and Self Bias Configuration, Voltage Divider Bias and Design

MODULE – II **(12 Hours)**

Small Signal Analysis of BJTs: Small-Signal Equivalent-Circuit Models; Small Signal Analysis of CE, CC, CB amplifiers. Effects of R_S and R_L on CE amplifier operation, Emitter Follower; Cascade amplifier, Darlington Connection and Current Mirror Circuits.
Small Signal Analysis of FETs: Small-Signal Equivalent-Circuit Model, Small Signal Analysis of CS, CD, CG Amplifiers. Effects of R_{SIG} and R_L on CS Amplifier; Source Follower and Cascaded System.

MODULE – III **(8 hours)**

High Frequency Response of FETs and BJTs: High Frequency equivalent models and frequency Response of BJTs and FETs; Frequency Response of CS Amplifier, Frequency Response of CE Amplifier.

MODULE – IV **(6 hours)**

Feedback amplifier and Oscillators: Concepts of negative and positive feedback; Four Basic Feedback Topologies, Practical Feedback Circuits, Principle of Sinusoidal Oscillator, Wein-Bridge, Phase Shift and Crystal Oscillator Circuits, Power Amplifier (Class A, B, AB, C).

MODULE – V **(7 hours)**

Operational Amplifier: Ideal Op-Amp, Differential Amplifier, Op-Amp Parameters, Non-inverting Configurations, Open-loop and Closed-loop Gains, Differentiator and Integrator, Instrumentation amplifier.

Books:

- *Microelectronics Circuits, Adel Sedra and Kenneth C Smith, Oxford University Press, New Delhi, 5th Edition, International Student Edition,2009. (Selected portion of Chapter 2,4, 5, 6, 8, 13, and 14)*
- *Electronic Devices and Circuits theory, R.L. Boylestad and L. Nashelsky, Pearson Education, New Delhi , 9th/10th Edition,2013. (Selected portions of Chapter 4, 5, 6, 7, 8, 9,*

10, 11, 12, and 14)

- *Milliman's Electronics Devices and Circuits, J. Milliman, C. Halkias, S. Jit., Tata McGraw Hill Education Pvt. Ltd., New Delhi, 2nd Edition,2008.*
- *Electronic Devices and Circuits, Jimmie J. Cathey adapted by Ajay Kumar Singh, Tata McGraw Hill Publishing Company Ltd., New Delhi, 3rd Edition, (For Problem Solving)*
- *Electronics Circuits Analysis and Design, Donald A. Neamen, Tata McGraw Hill Publishing Company Ltd., New Delhi, 3rd Edition,2002.*
- *Integrated Electronics: Analog and Digital Circuits and Systems, J. Milliman, C. Halkias, Tata McGraw Hill Publishing Company Ltd., New Delhi,2nd Edition.2004.*
- *Microelectronic Circuits: Analysis and Design, M.H. Rashid, PWS Publishing Company, a division of Thomson Learning Inc. India Edition.*
- *Electronic device and circuits, David A. Bell, Oxford University Press, 5thedition,2008.*
- *Electronics devices and circuits, Anil.K.Maini, Wiley India Pvt.Ltd,2009*

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3rd Semester	REC3C201	Analog Electronic Circuits Lab.	L-T-P 0-0-3	2 CREDITS

List of Experiments

(At least 10 out of 12 experiments should be done)

1. Design and simulate BJT bias circuit and compare the results.
2. *Design and simulate JEET/MOSFET bias circuit and compare the results.*
3. *Design and simulate BJT common-emitter circuit and compare D.C and A.C performance:*
4. *Design and simulate JFET/MOSFET common-emitter circuit and compare D.C and A.C performance:*
5. *Determining the frequency response of a common-emitter amplifier: low frequency, high frequency and mid frequency response and compare with simulated results.*
6. *Differential amplifiers circuits: D.C bias and A.C operation without and with current source.*
7. *Study of Darlington connection and current mirror circuits.*
8. *OP-Amp Frequency Response and Compensation.*
9. *Application of Op-Amp as differentiator, integrator, square wave generator.*
10. *Obtain the band width of FET/ BJT using Square wave testing of an amplifier.*
11. *R.C phase shift oscillator/Wien-Bridge Oscillator using OP-Amp/Crystal Oscillator.*
12. *Class A and Class B Power Amplifier.*

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3rd Semester	REE3C002	Network Theory	L-T-P 3-0-0	3 CREDITS

Course Outcomes:

At the end of this course, students will demonstrate the ability to

- Apply network theorems for the analysis of electrical circuits.
- Obtain the transient and steady-state response of electrical circuits.
- Analyse circuits in the sinusoidal steady-state (single-phase and three-phase).
- Analyse two port circuit behavior.

Module-I: **(10 Hrs.)**

Network Theorems:Superposition theorem, Thevenin theorem, Norton theorem, Maximum power transfer theorem, Reciprocity theorem, Compensation theorem. Analysis with dependent current and voltage sources. Node and Mesh Analysis. Concept of duality and dual networks.

MODULE – II **(09 Hrs.)**

Solution of First and Second order networks: Solution of first and second order differential equations for Series and parallel R-L, R-C, R-L-C circuits, initial and final conditions in network elements, forced and free response, time constants, steady state and transient state response.

MODULE – III **(09 Hrs.)**

Sinusoidal steady state analysis: Representation of sine function as rotating phasor, phasor diagrams, impedances and admittances, AC circuit analysis, effective or RMS values, average power and complex power. Three-phase circuits. Mutual coupled circuits, Dot Convention in coupled circuits, Ideal Transformer.

MODULE – IV **(08 Hrs.)**

Electrical Circuit Analysis Using Laplace Transforms: Review of Laplace Transform, Analysis of electrical circuits using Laplace Transform for standard inputs, convolution integral, inverse Laplace transform, transformed network with initial conditions. Transfer function representation. Poles and Zeros. Frequency response (magnitude and phase plots), series and parallel resonances

MODULE – V **(09 Hrs.)**

Two Port Network and Network Functions: Two Port Networks, terminal pairs, relationship of two port variables, impedance parameters, admittance parameters, transmission parameters and hybrid parameters, interconnections of two port networks.

Books:

- M. E. Van Valkenburg, "Network Analysis", Prentice Hall, 2006.
- D. Roy Choudhury, "Networks and Systems", New Age International Publications, 1998.
- W. H. Hayt and J. E. Kemmerly, "Engineering Circuit Analysis", McGraw Hill Education, 2013.
- C. K. Alexander and M. N. O. Sadiku, "Electric Circuits", McGraw Hill Education, 2004.
- K. V. V. Murthy and M. S. Kamath, "Basic Circuit Analysis", Jaico Publishers, 1999.
- Network Synthesis – M E Van Valkenburg – Pearson Education.

- Network Analysis and Synthesis – Franklin F. Kuo – Wiley Student Edition.
- Linear Circuits Analysis and Synthesis – A Ramakalyan – Oxford University Press.
- Problems & Solutions in Electric Circuit Analysis – Sivananda & Deepa – Jaico Book.
- Theory and problem of electrical circuits, Schaum's Outline Series, TMH – Joseph A. Edminister, MahmoodMaqvi.
- Electric Circuits – David A.Bell – Oxford, 7th Edition, 2015.

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3rd Semester	REE3C202	Network Theory Lab.	L-T-P 0-0-3	2 CREDITS

List of Experiments:
(At least 08 out of 10 experiments should be done)

1. Verification of Network Theorems using AC circuits. (Superposition, Thevenin, Norton, Maximum Power Transfer).
2. Study of DC and AC Transients for R-L, R-C & R-L-C circuits using storage oscilloscope.
3. Determination of circuit parameters: Open Circuit and Short Circuit parameters.
4. Determination of circuit parameters: Hybrid and Transmission parameters.
5. Frequency response of Low pass and High Pass Filters.
6. Frequency response of Band pass and Band Elimination Filters.
7. Determination of self inductance, mutual inductance and coupling coefficient of a single phase two winding transformer representing a coupled circuit.
8. Study of resonance in R-L-C series circuit using oscilloscope.
9. Study of resonance in R-L-C parallel circuit using oscilloscope.
10. Spectral analysis of a non-sinusoidal waveform.

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3rd Semester	RES3F001	ENVIORMENT SCIENCE	L-T-P 3-0-0	0 CREDIT

We as human being are not an entity separate from the environment around us rather we are a constituent seamlessly integrated and co-exist with the environment around us. We are not an entity so separate from the environment that we can think of mastering and controlling it rather we must understand that each and every action of ours reflects on the environment and vice versa. Ancient wisdom drawn from Vedas about environment and its sustenance reflects these ethos. There is a direct application of this wisdom even in modern times. Idea of an activity based course on environment protection is to sensitize the students on the above issues through following two type of activities.

(a) Awareness Activities:

i) Small group meetings about water management, promotion of recycle use, generation of less waste, avoiding electricity waste
ii) Slogan making event
iii) Poster making event
iv) Cycle rally
v) Lectures from experts

(b) Actual Activities:

i) Plantation
ii) Gifting a tree to see its full growth
iii) Cleanliness drive
iv) Drive for segregation of waste
v) To live some big environmentalist for a week or so to understand his work
vi) To work in kitchen garden for mess
vii) To know about the different varieties of plants
viii) Shutting down the fans and ACs of the campus for an hour or so

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