Unit III: Marketing Research & Types of Research Design (8 Hours)
Nature and Scope of Marketing Research, Marketing Research process, Exploratory, Descriptive and Conclusive Research
Unit IV: Data collection & Ethical Research (10 Hours)
Sample design and field work, Data coding, Data analysis, Use of statistical software for hypotheses testing, Ethical considerations.

Practicals - (60 Hours)

- Data collection and Coding
- Marketing Research Case studies
- Data analysis of the already existing products based on surveys
- Innovation projects based on data collection and marketing reseach

Essential/ recommended readings:

- Assael, H. (2009). *Consumer behaviour and marketing action*. New Delhi: Cengage Learning.
- Blackwell, R. D., Miniard, P. D., & Engle, J. F. (2009). *Consumer behaviour*. USA: Thomson-South Western.
- Evans, M., Jamal, A., &Foxall, G. (2009). *Consumer behaviour* (2nd ed.). New Jersey: John Wiley & Sons.
- Malhotra, N.,& Dash, S. (2015*). Marketing Research: An Applied Orientation* (6th ed.).
  New Delhi: Pearson.
- Burns, A. C., Veeck, A.F. &Bush, R. F. (2017). *Marketing Research* (8thed.). New Delhi: Pearson.
- Churchill, G., Iacobucci, D., & Israel, D. (2010). *Marketing Research: A South Asian Perspective*. Delhi: Cengage

GENERIC ELECTIVES (GE-5)
V. 4.2. Circuit Analysis and Synthesis

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Circuit Analysis and Synthesis, GE 5, V. 4.2	**4**	**2**	**0**	**2**	**12th Pass**	**NIL**	**Physics/ Electronics Faculty of CIC**

Learning Objectives

This module is designed to enable the students with skills (i) for analyzing an electronic circuit and (ii) to synthesis a circuit based on practical needs. All necessary theoretical inputs are explained in details to achieve the said objective. Module also explains the calculation methods to determine voltages, currents, power factors and other attributes of electrical circuits.

Learning Outcomes

After completing the course the students will be able to

- understand difference between various types of electric circuits like DC and AC Circuits with Resistors in series and parallel and understanding related basic laws like Ohm's Law, Kirchhoff's laws
- understand various circuit analysis methods like Mesh current and node voltage method of analysis for D.C and A.C. circuits, Network reduction and network theorems for dc and ac circuits, voltage and current division, source transformation, star delta conversion, Thevenins and Norton's Theorem, Superposition Theorem, Maximum power transfer theorem, Reciprocity Theorem
- learn about resonance and coupled L, C, R circuits: Series, parallel resonance and their frequency response, Quality factor and Bandwidth, Tuned circuits, Single tuned circuits- Transient response for DC circuits, Transient response of RL, RC and RLC Circuits
- learn about characterization of two port networks in terms of Z, Y and h parameters.

Syllabus

Unit I: Basic circuits analysis - Ohm's Law - Kirchoffs laws - DC and AC Circuits - Resistors in series and parallel circuits -Mesh current and node voltage method of analysis for D.C and A.C. circuits - Phasor Diagram - Power, Power Factor and Energy **(10 Hours)**

Unit II: Network reduction and network theorems for dc circuits - voltage and current division, source transformation - star delta conversion - Thevenins and Nortons Theorem – Superposition Theorem - Maximum power transfer theorem - Reciprocity Theorem - Resonance and coupled circuits – Series, parallel resonance and their frequency response - Quality factor and Bandwidth, Characterization of two port networks in terms of Z,Y and h parameters. **(10 Hours)**

Unit III: Tuned circuits - Single tuned circuits, Transient response for DC circuits - Transient response of RL, RC and RLC Circuits **(10 Hours)**

Practicals - (60 Hours)

- Verification of nodal voltage and mesh current methods for solving circuits.
- Verification of important network theorems.
- Study of the response of the first order R-C and R-L circuits.
- Study of the response of a series and a parallel RLC circuits.

Essential/recommended readings

- Linear circuits: analysis and synthesis - Ayyagari Ramakalyan, Oxford University Press, 2005,
- Linear circuit analysis - Chi Kong Tse, Addison-Wesley, 1998

GENERIC ELECTIVES (GE-5)
V. 4.3. Genes to Genomes

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Genes to Genomes, GE-5, V.4.3.	4	2	0	2	12th Pass	NIL	Biology Faculty CIC

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Learning Objectives

This module is designed to:

- Introduce students to the basics of genetics and genome biology
- Introduce students to genome sequencing analysis.
- Introduce students to population genetics.

Learning outcomes

After studying this course, the students will be able to:

- Comprehend the basis of the inheritance of characters from simple to complex
- Understand and analyze population-based inheritance patterns
- Generate and analyze Pedigree charts and family trees for inherited diseases

Syllabus