



Subject: Research Project-BSCXX17406

Type of course: Research Project

Prerequisite: Basic knowledge of the relevant science subject, fundamental laboratory techniques, laboratory safety, observation, data recording, basic statistical analysis, literature search, and scientific report writing.

Rationale: Undergraduate research projects provide students with an opportunity to apply theoretical knowledge to practical problems and develop research methodology, critical thinking, problem-solving, experimental, data-analysis, communication, and scientific skills. They also prepare students for higher education and future careers in science and research.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P	C	Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
0	0	12	6	00	00	20	80	00	100

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Outcome:

After learning the course the students should be able to:	
CO1	Students will be able to identify and define a suitable scientific problem or research topic based on their subject area.
CO2	Students will be able Review scientific literature from textbooks, journals, research papers, and reliable sources to develop background knowledge.



CO3	Students will be able to formulate objectives and hypotheses and design an appropriate methodology for conducting the research project.
CO4	Students will be able to perform experiments/investigations using appropriate laboratory techniques, instruments, samples, and safety practices.
CO5	Students will be able Evaluate experimental results, identify possible sources of error, and relate findings to established scientific knowledge.

Instructional Method:

Mode of Evaluation of Research Project:

The project evaluation to be done as per the following guidelines keeping the ratio of Internal and External Viva Examination and presentation in ratio of 20:80.

The learner will work on a research project which will be supervised or guided through regular interaction (at least once a week) with the mentor/guide.

Learners will submit a research project report and defend it in front of a panel of examiners.

A panel of examiners for Project evaluation will be appointed by the Head of Department/Institute.

The project report will not be accepted if the learner does not complete the project successfully and submit a report on or before the deadline given for the project submission.

The grade for Project can be awarded only after successful completion of Term Work and Oral Presentation / viva-voce as per the schedule.

Reference Books:

- (1) *Research Methodology: Methods and Techniques* — C.R. Kothari & Gaurav Garg
- (2) *Research Methodology: A Step-by-Step Guide for Beginners* — Ranjit Kumar
- (3) *Research Methodology: A Practical and Scientific Approach* — Vinayak Bairagi & Mousami Munot
- (4) *Research Methodology in the Social Sciences* — Michael Crotty
- (6) *The Craft of Research* — Wayne C. Booth, Gregory G. Colomb & Joseph M. Williams

