

**COURSE OUTCOMES OF ALL SYLLABUSES OF B. Tech. FIRST YEAR, RGPV,
BHOPAL**

1. Subject: Engineering Chemistry

Subject Code: BT 101

Course Outcomes:

The concepts developed in this course will aid in quantification of several concepts in chemistry that have been introduced at the 10+2 levels in schools. Technology is being increasingly based on the electronic, atomic and molecular level modifications. Quantum theory is more than 100 years old and to understand phenomena at nanometer levels; one has to base the description of all chemical processes at molecular levels. The course will enable the student to:

1. Analyse microscopic chemistry in terms of atomic and molecular orbital's and intermolecular forces.
 2. Rationalise bulk properties and processes using thermodynamic considerations.
 3. Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular w.e.f. July 2018 energy levels in various spectroscopic techniques
 4. Rationalise periodic properties such as ionization potential, electro-negativity, oxidation states and electro-negativity.
 5. List major chemical reactions that are used in the synthesis of molecules. Practical List
- NOTE: At least 8 of the following core experiments must be performed during the session

2. Subject: MATHEMATICS-I

Subject Code: BT 102

Course Objectives:

The objective of this course is to familiarize the prospective engineers with techniques in calculus, multivariate analysis and linear algebra. It aims to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling more advanced level of mathematics and applications that they would find useful in their disciplines. More precisely, the objectives are:

1. To introduce the idea of applying differential and integral calculus to notions of curvature and to improper integrals. Apart from some applications it gives a basic introduction on Beta and Gamma functions.
2. To introduce the fallouts of Rolle's Theorem that is fundamental to application of analysis to Engineering problems.
3. To develop the tool of power series and Fourier series for learning advanced Engineering Mathematics.
4. To familiarize the student with functions of several variables that is essential in most branches of engineering.
5. To develop the essential tool of matrices and linear algebra in a comprehensive manner.

3. Subject: English for Communication

Subject Code: BT 103

The student will acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.

4. Subject: Basic Electrical & Electronics Engineering

Subject Code: BT 104

The final outcome of the subject will result into an enhancement in understanding the basic concepts of Core Electrical Engineering subjects. The topics covered under this subject will help to enhance the basic understanding of Electrical machines and power systems and basic electronics.

5. Subject: Engineering Graphics

Subject Code: BT 105

1. Introduction to engineering design and its place in society
2. Exposure to the visual aspects of engineering design
3. Exposure to engineering graphics standards
4. Exposure to solid modeling
5. Exposure to computer-aided geometric design
6. Exposure to creating working drawings
7. Exposure to engineering communication

6. Subject: Manufacturing Practices

Subject Code: BT 106

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

1. Understanding different manufacturing techniques and their relative advantages/disadvantages with respect to different applications.
2. Selection of a suitable technique for meeting a specific fabrication need.
3. Acquire a minimum practical skill with respect to the different manufacturing methods and develop the confidence to design & fabricate small components for their project work and also to participate in various national and international technical competitions.
4. Introduction to different manufacturing methods in different fields of engineering.
5. Practical exposure to different fabrication techniques.
6. Creation of simple components using different materials.
7. Exposure to some of the advanced and latest manufacturing techniques being employed in the industry.

7. Subject: Engineering Physics

Subject Code: BT 201

To provide fundamental concepts and knowledge of Engineering Physics base of modern physics along with comparative studies of classical physics and help students develop the skills that are integral to the process of various disciplines of application of sciences. This course provides a coherent framework for understanding basics of Physics and Engineering physics and prepares students for their upper-level subjects in the field of Engineering

8. Subject: Basic Mechanical Engineering

Subject Code: BT 203

This course introduces students to mechanical engineering and its sub-domains. Students are expected to learn about scope, current and future trends, jobs, innovations & research opportunities in the field of mechanical engineering. Course content will be covered through lectures, assignments, case-studies, presentations, documentaries and field visits. **Subject:** Basic Civil Engineering & Mechanics

9. Subject Code: BT 204

COURSE OBJECTIVE: This course introduces students to civil engineering and its sub-domains. Students are expected to learn about scope, current and future trends in infrastructure industry, jobs, innovations & research opportunities in the field of civil engineering. Course content will be covered through lectures, assignments, case-studies, presentations, documentaries and field visits.

10. Subject: Basic Computer Engineering

Subject Code: BT 205

The concepts developed in this course will aid in quantification of several concepts in Basic Computer. Technology is being increasingly based on the latest computer languages and application. Students will enhance their knowledge of hardware and software of the computer.

11. Subject: Language Lab and Seminars

Subject Code: BT 206

Course objective:

This course intends to impart practical training in the use of English Language for Communicative purposes and aims to develop students' personality through language Laboratory

12. Subject: MATHEMATICS-II

Subject Code: BT 202

Course Objective:

The objective of this course is to familiarize the prospective engineers with techniques in Ordinary and partial differential equations, complex variables and vector calculus. It aims to equip the students to deal with advanced level of mathematics and applications that would be essential for their disciplines. More precisely, the objectives are:

1. To introduce effective mathematical tools for the solutions of ordinary and partial differential equations that model physical processes.
2. To introduce the tools of differentiation and integration of functions of complex variable is used in various techniques dealing engineering problems.
3. To acquaint the student with mathematical tools available in vector calculus needed various field of science and engineering.