

## Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

New Scheme of Examination as per AICTE Flexible Curricula

**II Semester (Group A)**

**Bachelor of Technology (B.Tech.)**

**W.E.F. JULY 2018**

**GROUP A: (CS, IT, EE, EX, EI, FT, AT, MI, BT, & BM)**

S.No	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/Assignment	End Sem.	Lab work & Sessional					
1.	BT201	BSC-3	Engineering Physics	70	20	10	30	20	150	2	1	2	4
2.	BT202	BSC-4	Mathematics-II	70	20	10	-	-	100	3	1	-	4
3.	BT203	ESC-4	Basic Mechanical Engineering	70	20	10	30	20	150	3	-	2	4
4.	BT204	ESC-5	Basic Civil Engineering & Mechanics	70	20	10	30	20	150	3	-	2	4
5.	BT205	ESC-6	Basic Computer Engineering	70	20	10	30	20	150	3	-	2	4
6.	BT206	HSMC-2	Language Lab & Seminars	-	-	-	30	20	50	-	-	2	1
7.	BT107	DLC-1	Internship-I (60 Hrs Duration) at the Institute level	To be completed during first/second semester. Its evaluation/credit to be added in third semester.									
			<b>Total</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>150</b>	<b>100</b>	<b>750</b>	<b>14</b>	<b>2</b>	<b>10</b>	<b>21</b>

1 Hr Lecture	1 Hr Tutorial	2 Hr Practical
1 Credit	1 Credit	1 Credit

**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
**New Scheme Based On AICTE Flexible Curricula**  
**B. Tech. First Year**

**Branch- Common to All Disciplines**

<b>BT204</b>	<b>Basic Civil Engineering &amp; Mechanics</b>	<b>3L-0T-2P</b>	<b>4 Credits</b>
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**Course Contents:**

**Unit I Building Materials & Construction**

Stones, bricks, cement, lime, timber-types, properties, test & uses, laboratory tests concrete and mortar Materials: Workability, Strength properties of Concrete, Nominal proportion of Concrete preparation of concrete, compaction, curing.

Elements of Building Construction, Foundations conventional spread footings, RCC footings, brick masonry walls, plastering and pointing, floors, roofs, Doors, windows, lintels, staircases – types and their suitability

**Unit II Surveying & Positioning:**

Introduction to surveying Instruments – levels, theodolites, plane tables and related devices.

Electronic surveying instruments etc. Measurement of distances – conventional and EDM methods, measurement of directions by different methods, measurement of elevations by different methods. Reciprocal leveling.

**Unit III Mapping & sensing:**

Mapping details and contouring, Profile Cross sectioning and measurement of areas, volumes, application of measurements in quantity computations, Survey stations, Introduction of remote sensing and its applications.

**Engineering Mechanics**

**Unit IV**

Forces and Equilibrium: Graphical and Analytical Treatment of Concurrent and non-concurrent Co- planner forces, free Diagram, Force Diagram and Bow's notations, Application of Equilibrium Concepts: Analysis of plane Trusses: Method of joints, Method of Sections. Frictional force in equilibrium problems

**Unit – V**

Centre of Gravity and moment of Inertia: Centroid and Centre of Gravity, Moment Inertia of Area and Mass, Radius of Gyration, Introduction to product of Inertia and Principle Axes.

Support Reactions, Shear force and bending moment Diagram for Cantilever & simply supported beam with concentrated, distributed load and Couple.

**Reference Books:**

1. S. Ramamrutam & R.Narayanan; Basic Civil Engineering, Dhanpat Rai Pub.
2. Prasad I.B., Applied Mechanics, Khanna Publication.
3. Punmia, B.C., Surveying, Standard book depot.
4. Shesha Prakash and Mogaveer; Elements of Civil Engg & Engg. Mechanics; PHI
5. S.P, Timoshenko, Mechanics of structure, East West press Pvt.Ltd.
6. Surveying by Duggal – Tata McGraw Hill New Delhi.
7. Building Construction by S.C. Rangwala- Charotar publications House, Anand.
8. Building Construction by Grucharan Singh- Standard Book House, New Delhi
9. Global Positioning System Principles and application- Gopi, TMH
10. R.C. Hibbler – Engineering Mechanics: Statics & Dynamics.
11. A. Boresi & Schmidt- Engineering Mechines- statics dynamics, Thomson' Books
12. R.K. Rajput, Engineering Mechanics S.Chand & Co.

### **List of suggestive core Experiments:**

Students are expected to perform minimum ten experiments from the list suggested below by preferably selecting experiments from each unit of syllabus.

1. To perform traverse surveying with prismatic compass, check for local attraction and determine corrected bearings and to balance the traverse by Bowditch's rule.
2. To perform leveling exercise by height of instrument of Rise and fall method.
3. To measure horizontal and vertical angles in the field by using Theodolite.
4. To determine (a) normal consistency (b) Initial and Final Setting time of a cement Sample.
5. To determine the workability of fresh concrete of given proportions by slump test or compaction factor test.
6. To determine the Compressive Strength of brick.
7. To determine particle size distribution and fineness modulus of coarse and fine Aggregate.
8. To verify the law of Triangle of forces and Lami's theorem.
9. To verify the law of parallelogram of forces.
10. To verify law of polygon of forces
11. To find the support reactions of a given truss and verify analytically.
12. To determine support reaction and shear force at a given section of a simply Supported beam and verify in analytically using parallel beam apparatus.
13. To determine the moment of inertia of fly wheel by falling weight method.
14. To verify bending moment at a given section of a simply supported beam.