

# **HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)**

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## **Ph.D. Course Work Syllabus**

### **BIOTECHNOLOGY**

**Session 2018-19**

**School of Studies in Biotechnology**  
**Syllabus for Ph.D. Course Work in Biotechnology**  
**(2017– 18)**  
**One Semester**

There will be two papers; each with 100 marks maximum.

**Paper – I : Research Methodology, Advanced Tools & Techniques, Quantitative Data Analyses and Computer Fundamentals**

**Paper – I : Review of Literature & Seminar**

<b>Paper – I : Research Methodology Advanced Tools &amp; techniques, Quantitative Data Analyses and Computer Fundamentals</b>		<b>Maximum Marks</b>
<b>A</b>	<b>Research Methodology</b> Essential steps in research: Identification, Selection of objectives, Research design: - Components, importance of literature collection, citation & indexing. Research ethics, IPR, Experimental error and control, Research Report Presentation- table, Figure, Formatting and typing	25.0
<b>B</b>	<b>Advanced Tools &amp; Techniques</b> Electrophoresis, HPLC, Microscopy, PCR, Biosensors: Types, Application of biosensor, Protein sequencing, DNA sequencing, Radioisotope Techniques	25.0
<b>C</b>	<b>Quantitative Data Analysis</b> Measures of variability: Standard Deviation, Standard Error, Coefficient of Variation, Correlation and Regression, Test of Significant: t-test, chi- square test, Frequency distribution: Binomial and normal distribution	25.0
<b>D</b>	<b>Computer Fundamentals</b> Computer Application, Application of Software, Internet and Biotechnology, Fundamental of Bioinformatics, Biological databases and Biotechnology	25.0
<b>Paper – II: Review of Literature &amp; Seminar</b>		<b>Maximum Marks</b>
<b>A</b>	<b>Review of Literature- Writing review of literature in the area of the proposed Ph.D. program</b>	50.0
<b>B</b>	<b>Seminar – Based on the review of literature</b>	50.0

**Note:**

1. There will be FOUR units (A,B,C & D) of 25 marks each. The pattern will include both objective (multiple – choice questions) and subjective (short answer, using 50 to 100 words) questions.
2. The candidate should obtain 50% or more marks to qualify in the course work examination. Each answer paper will be assessed by two examiners independently.