

***2.3.2 Teachers use ICT enabled tools for effective teaching-learning process.***

Shri. Dr. R. G. Rathod Arts & Science College, Murtizapur

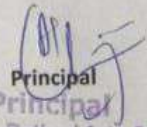
Department of Physics

Details of ICT Facilities

Sr. No.	Name of Item	Quantity
01	Desktop PC	02
02	LCD Projector	01
03	Internet & LAN	01
04	USB HDD	01
05	Printer	01
06	UPS	01

  
Head  
HEAD

Department of Physics  
Shri. Dr. R. G. Rathod Arts & Science  
College, Murtizapur

  
Principal  
Principal




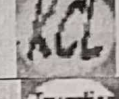
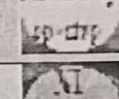
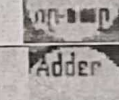

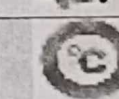
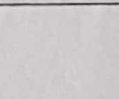
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College, Murtizapur, Dist. Akola

**Shri. Dr. R. G. Rathod Arts & Science College, Murtizapur**

**Department of Physics**

**List of e-Content Developed & Use by Teachers**

Teachers and the Students of the department developed Simulation Software of Physics Practical's "Virtual Physics Lab", the CD of the software is available with department and the details of the software is as follows:

Sr. No.	Name of Software	Year/Semester	S/W Icons
1.	To study Ohm's Law.	I-Year/II-Semester	
2.	To determine the value of Resistance by Color Code Method.	I-Year/II-Semester	
3.	To verify Kirchhoff's Voltage Law (KVL).	I-Year/II-Semester	
4.	To verify Kirchhoff's Current Law (KCL).	I-Year/II-Semester	
5.	OP-Amp as an Inverting Amplifier.	II-Year/III-Semester	
6.	OP-Amp as a Non-Inverting Amplifier.	II-Year/III-Semester	
7.	OP-Amp as an Adder.	II-Year/III-Semester	
8.	To study various Crystal Structures.	III-Year/VI-Semester	
9.	To find the Values of Resistivity and Temp. Coefficient of Solids at Room Temperature.	III-Year/VI-Semester	



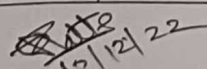
**Shri. Dr. R. G. Rathod Arts & Science College, Murtizapur, Dist. Akola**

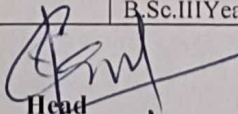
**Department of Physics**


**Power Point Presentations**

**List of Presentations:**

S.N.	Presentation Title	Class/Year/semester	Presentation Developed By
1.	Laser & Its Applications	B.Sc.II Year(IV-Semester)	Dr. S.S.Kawar
2.	Geometrical Optics & Interference	B.Sc.II Year(IV-Semester)	Dr. S.S.Kawar
3.	Fiber Optics	B.Sc.II Year(IV-Semester)	Dr. S.S.Kawar
4.	Solar Cell	B.Sc.II Year(IV-Semester)	Dr. S.S.Kawar
5.	Non-Conventional Energy Resources	B.Sc.II Year(IV-Semester)	Dr. S.S.Kawar
6.	Nanotechnology & Its Opportunities	B.Sc.III Year(VI-Semester)	Dr. S.S.Kawar
7.	Crystallography	B.Sc.III Year(VI-Semester)	Dr. S.S.Kawar
8.	Semiconductor	B.Sc. II Year (III Semester)	Dr. S.S.Kawar
9.	Gravitation	B.Sc. I Year (I Semester)	Dr. S.S.Kawar
10.	Introduction to Quantum Mechanics	B.Sc. III Year (V Semester)	Dr. S.S.Kawar
11.	Career Counseling	For All	Dr. S.S.Kawar
12.	Career Guidance	For All	Dr. S.S.Kawar
13.	Career Opportunities after Graduation	For All	Dr. S.S.Kawar
14.	Kinetic Theory of Gases	B.Sc.I Year(II-Semester)	Dr. T. R. Tatte
15.	Thermodynamics	B.Sc.I Year(II-Semester)	Dr. T. R. Tatte
16.	Polarization	B.Sc.II Year(IV-Semester)	Dr. T. R. Tatte
17.	Superconductivity	B.Sc.III Year(VI-Semester)	Dr. T. R. Tatte
18.	Diffraction	B.Sc.II Year(IV-Semester)	Dr. T. R. Tatte
19.	Nanotechnology	B.Sc.III Year (VI-Semester)	Dr. T. R. Tatte
20.	Simple Harmonic Motion	B.Sc.I Year (I-Semester)	Dr. T. R. Tatte
21.	Solid State Electronic Devices	B.Sc.II Year (III-Semester)	Dr. T. R. Tatte
22.	Special Theory of Relativity	B.Sc.II Year(III-Semester)	Dr. T. R. Tatte
23.	Laser & Maser	B.Sc.II Year(IV-Semester)	Dr. A. S. Dive
24.	Laser	B.Sc.II Year(IV-Semester)	Dr. A. S. Dive
25.	Liquification of gases	B.Sc.I Year(II-Semester)	Dr. A. S. Dive
26.	Fiber Optics	B.Sc.II Year(IV-Semester)	Dr. A. S. Dive
27.	Solids	B.Sc.III Year(VI-Semester)	Dr. A. S. Dive
28.	Network Theorem	B.Sc.I Year(II-Semester)	Mr. V. S. Pawar
29.	Carbon Nanotube	For All	Mr. V. S. Pawar
30.	Neutron Diffraction (Diffraction techniques)	For All	Mr. V. S. Pawar
31.	Renewable Energy Sources	B.Sc.II Year (IV-Semester)	Mr. V. S. Pawar
32.	Earthquake	B.Sc.II Year (III-Semester)	Mr. V. S. Pawar
33.	Elasticity	B.Sc.I Year (I-Semester)	Mr. V. S. Pawar
34.	Atomic Physics: Vector Atom Model	B.Sc.III Year (V-Semester)	Mr. V. S. Pawar
35.	Nuclear Physics	B.Sc.III Year(V-Semester)	Mr. V. S. Pawar

  
Incharge

  
Head  
Department of Physics

  
Principal  
**Shri. Dr. R. G. Rathod Arts & Science  
College, Murtizapur, Dist. Akola**

Date : 10/12/2022

SHRI DR. R. G. RATHOD ARTS & SCIENCE COLLEGE,  
MURTIZAPUR

DEPARTMENT OF BOTANY

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## TEACHING AND LEARNING

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### ICT

#### ICT – TOOLS FOR TEACHING AND LEARNING

S.N.	ICT – Tools
1	Animated videos
2	PPTs
3	You-tube topic-wise lectures
4	Web links
5	Video lectures Google meet
6	ICT TOOLS: LCD projector
7	ICT TOOLS: Computer system
8	ICT TOOLS: Broad-band internet connection

  
Head

Dept. of Botany  
Shri. Dr. R. G. Rathod  
Art's and Science College  
Murtizapur, Dist. Akola





Principal  
Shri. Dr. R. G. Rathod Arts & Science  
College, Murtizapur, Dist. Akola

SHRI DR. R. G. RATHOD ARTS & SCIENCE COLLEGE,  
MURTIZAPUR

DEPARTMENT OF BOTANY

EQUIPMENT'S LIST - DEPT. OF BOTANY

EQUIPMENT'S LIST

S.N.	Equipment	Company	Quantity
1	Centrifuge machine	Remi. R-8C	01
2	Hot Air Oven	INSIF INDIA	01
3	Digital pH-meter	INSIF ELECTRONICS	01
4	Electronic Weighing machine	WENSER	01
5	Magnetic Stirrer Hot plate	INSIF INDIA	01
6	Autoclave	BIO-TECHNIQUE INDIA	01
7	Stereo Microscope	MAGNUS- OLYMPHUS	01
8	Compound microscope	06, MSW, 10- OLYMPHUS	16
9	Dissecting microscope	03,MSW. 10, DICO.	13
10	LCD projector	01, BENQ	01
11	Computer system	01, DEL	01
12	Broad-band internet connection	-	01

*R. G. Rathod*  
Head  
Dept. of Botany  
Shri. Dr. R. G. Rathod  
Art's and Science College  
Murtizapur, Dist. Akola




*(Signature)*  
Principal  
Shri Dr. R. G. Rathod Arts & Science  
College, Murtizapur, Dist. Akola

# DEPARTMENT OF BOTANY

## Department of Botany: (Establishment: 2001-02)

1	Centrifugal Machine	01
2	Digital pH Meter	01
3	Digital Electronic Balance	01
4	Magnetic Stirrer with Hot-plate	01
5	Hot Air Oven	01
6	Autoclave	01
7	Compound Microscope	01
8	Dissecting Microscope	01
9	Herbarium Cabinet	01
10	LCD Projector	16
11	Computer with Internet connectivity (ICT facility)	13
12	Olympus Stereo Research Microscope with Camera	01

  
 Head  
 Dept. of Botany  
 Shri. Dr. R. G. Rathod  
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 Murtizapur, Dist. Akola

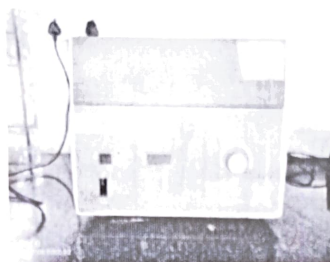


# DEPARTMENT OF BOTANY

Department of Botany: (Establishment: 2001-02)



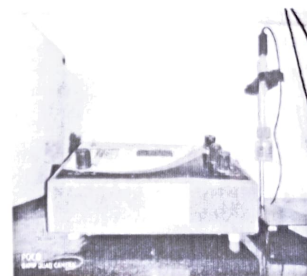
Hot Air Oven



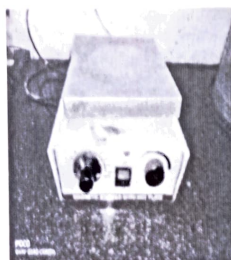
Centrifuge



Auto-clave



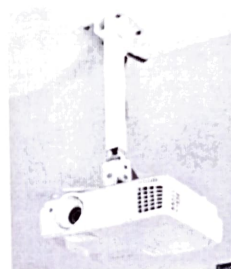
pH Meter



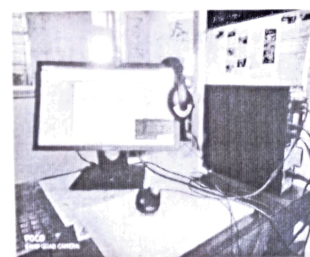
Magnetic stirrer



RESEARCH MICROSCOPE



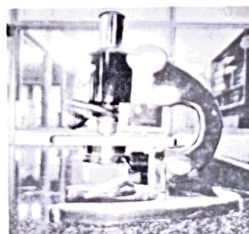
LCD PROJECTOR



COMPUTER SYSTEM



DISSECTING  
MICROSCOPE



COMPUND MICROSCOPE



**SHRI Dr. R. G. RATHOD ARTS & SCIENCE COLLEGE, MURTIZAPUR DIST. AKOLA.**  
**DEPARTMENT OF ZOOLOGY**  
**AVAILABLE POWER POINT PRESENTATIONS LIST**

**Class : B.Sc. I**

<b>Class and Semester</b>	<b>Name of Teacher</b>	<b>Available PPT Unit wise</b>
<b>B. Sc. I SEM I</b>	<b>Dr. P. M. Makode</b>	<b>UNIT-I :</b> 1. Classification of Non-Chordata. 2. Phylum Protozoa: General characters. 3. Type study: Plasmodium vivax: Structure, Life-cycle. 4. Parasitic protozoan and human diseases': Malaria, Amoebiasis, Trypanosomiasis, Leishmaniasis .
		<b>UNIT-II :</b> 1. Phylum Porifera: General Characters. 2. Type study: Scypha: Habits and habitat, External features, cell types, spicules & Structure and significances of canal system. 3. Phylum Coelenterata: General Characters, 4. Type study: Metridium: Habits and habitat, External features, Gastro-vascular cavity, Mesenteries, Reproduction.
		<b>UNIT-III:</b> 1. Phylum Platyhelminthes: General Characters. 2. Type study: Fasciola hepatica: Habits and habitat, External features, Digestive, Excretory, Reproductive system and Life cycle. 3. Phylum Aschelminthes: General Characters. 4. Type study, Ascaris lumbricoides: Habits and habitat, External features, Digestive, Excretory, Reproductive system and Life cycle.
<b>B. Sc. I SEM II</b>	<b>Dr. P. M. Makode</b>	<b>UNIT-I :</b> 1. General organization of Prokaryote and Eukaryote Cell. 2. Ultra structure and functions of, Plasma membrane 3. Ultra structure types and functions of, Endoplasmic reticulum
		<b>UNIT-II :</b> 1. Ultra structure and functions of, Golgi complex 2. Ultra structure and functions of Ribosome 3. Ultra structure and functions of Mitochondria. 4. Ultra structure and functions of Lysosomes.
		<b>UNIT-III:</b> 1. Ultra structure and functions of nucleus and nucleolus. 2. Chromosome and its general organization. 3. Structure of Polytene and Lamp brush Chromosome.

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**DEPARTMENT OF ZOOLOGY**  
**AVAILABLE POWER POINT PRESENTATIONS LIST**

**Class : B.Sc. II**

<b>Class and Semester</b>	<b>Name of Teacher</b>	<b>Available PPT Unit wise</b>
<b>B. Sc. II SEM III</b>	<b>Dr. P. M. Makode</b>	<p><b>Unit I :</b>  <b>Phylum Chordata;</b>  Origin of Chordata.  <b>Protochordates:</b>– Type study: Amphioxus: Habits and habitat , External Characters - Digestive system and feeding, Excretory organs, gonads- Affinities of Amphioxus. Affinities of Agnatha:  <b>Series Pisces:</b>  Type study: <i>Scoliodon sarokawah</i> (Dogfish) – Habits and habitat, External Characters, Digestive system: alimentary canal and digestive glands, Respiratory system: respiratory organ and mechanism of respiration, circulatory System: Structure and working of Heart, major arteries and veins, Lateral line receptors, Migration in fishes-Types, causes and significance.</p>
		<p><b>Unit II : Class Amphibia:</b>  Type Study – <i>Rana tigerina</i>, Habits and habitat, external, characters. Respiratory organs- Circulatory system; Structure of Heart, major arteries and veins, urinogenital system.. Parental care in amphibia.  <b>Class Reptilia:</b>  Type study- <i>Calotes versicolor</i>- Habits and habitat, External characters, circulatory system- Structure of Heart, major arteries and veins. Urinogenital system, snake venom and anti-venom,</p>
<b>B. Sc. II SEM IV</b>	<b>Dr. P. M. Makode</b>	<p><b>Unit IV :</b>  <b>Genetic Screening and parental diagnosis:</b> - Parental, Carrier, Predictive, CVS (Chorionic Villous Sampling), Amniocentesis, Gene probe and DNA analysis. Genes in Human Heredity: - Inheritance of eye color. Skin color. Recessive genes and consanguineous marriages. Genetic counseling: - Risk of marriages in affected family. Birth control measures (male and female). Kinds of twins: - Identical, Fraternal, Siamese twins. Significance of twins study</p>
		<p><b>UNIT V : Ecology:</b> concept and scope: <b>Abiotic factors:</b>  <b>Water:</b> Properties, water problem in terrestrial and aquatic habitat.  <b>Temperature:</b> Temperature range, Temperature tolerance, Effects of temperature on animals. Homeotherms, poikilotherms. Dormancy, hibernation, aestivation &amp; diapauses.  <b>Light:</b> Spectral distribution, Biological effects of light on aquatic and terrestrial animals: Reproduction, Metamorphosis, pigmentation, vision, photokinesis, phototropism, photoperiodism, migration.  <b>Biotic factors:</b>  Intra specific and interspecific associations, Predation, parasitism, Antagonism. , commensalisms, mutualism, competition, (Gause's Principle).</p>

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**DEPARTMENT OF ZOOLOGY**  
**AVAILABLE POWER POINT PRESENTATIONS LIST**  
**Class : B.Sc. III**

Class and Semester	Name of Teacher	Available PPT Unit wise
B. Sc. III SEM V	Dr. P. M. Makode	<p><b>Unit – IV</b>  <b>Reproductive Physiology:</b>  Estrous and menstrual cycle, hormonal control of reproduction in males and female,  Structure and physiology of mammalian Placenta.  <b>Homeostasis and conservative regulation:</b>  Osmoregulation and ionic regulation in aquatic animals.  Osmoregulation in terrestrial animals Ammonotelism, ureotelism and uricotelism.  Thermoregulation in Poikilotherms and Homeotherms.</p>
		<p><b>UNIT –V</b>  <b>Agricultural Zoology: Economic importance of Insects</b>  <b>Beneficial insects</b> – Spider, Mantis, Ladybugs, Damsel bug, Mealybug destroyer, Soldier beetle, Green lacewing, Syrphid fly, Tachinid fly, Ichneumon, Trichogramma wasp.  <b>Harmful Insects</b> –Stored food grain pests, their injuries and control Pests of,– Cotton, Sugarcane and Jowar. Damage and ControlEconomic importance of Rodents, Snakes, Owls and Bats.Apiculture - Sericulture</p>
		<p><b>Unit –VI.</b>  <b>Aquaculture</b>  Aquaculture–: definition, scope, importance and present status in India.Fresh water fish culture: types of fish ponds: Nursery, rearing and stocking, design and construction of fish pond, fertilizers used for fish development. Hatching Happas, Chinese Circular Hatchery, CIFE, Mumbai, hatching model, Induced breeding and hypophysation, Modern drugs used in fish breeding. Freshwater system: monoculture, polyculture, integrated aquaculture, cage culture, pen culture . Fish products and byproducts: Fish liver Oil, Fish body oil, Fish manure, Fish leather</p>
B. Sc. III SEM VI	Dr. P. M. Makode	<p><b>Unit – I</b>  Genetic material-definition, Experiments to prove DNA as genetic material: Griffiths transformation experiments with bacteriophage infections, Avery and co-workers experiments, and Hershey and Chase experiment.  Chemistry and types DNA(A,B,Z)Mitochondrial DNA; Chemistry, types and function of RNA: mRNA, tRNA and rRNA and Non Genetic RNA.</p>
		<p><b>UNIT –II</b>  DNA replication: semi conservative method; experiment by Messelson and Stahl. Concept of genes, one gene one enzyme hypothesis, one gene one Polypeptide theory.; A brief account of Concept and action of cistron, split genes, overlapping genes, jumping genes, Spinocerebellar ataxia.</p>
		<p><b>Unit –III</b>  Genetic code and its features, Protein synthesis transcription and processing of mRNA, translation-different steps, Gene regulation: (promoter and operator), Operon models, and Lac operon model of E.Coli. Genetic regulation in Eukaryotes-Britten Davidson Model.</p>





**Shri.Dr.R.G.Rathod Arts and Science College,MurtizapurDist.Akola**

**Department of Mathematics**

**Session (2023-24)**

**ICT Tools**

ICT Tools is used for B.Sc.and M.sc students by the department of Mathematics in the college for holistic development of the students. The following ICT tools were used by the students in the session 2023-24.

Sr.No.	ICT Tools	Quantity
01	Computer System	01
02	Printer	01
03	Projector	01
04	Laptop (personal)	02



Dr. A.S. Nimkar  
**Dr. A. S. Nimkar**  
Associate Professor & Head  
Department of Mathematics,  
Shri. Dr. R. G. Rathod Arts & Science College, Murtizapur

Place:-Murtizapur  
Date:-27/04/2024

Shri.Dr.R.G.Rathod Arts and Science College, Murtizapur



**Principal**  
Shri. Dr. R. G. Rathod Arts & Science  
College, Murtizapur, Dist. Akola