GOVERNMENT DEGREE COLLEGE GAJWEL

# DEPARTMENT OF PHYSICS DEPARTMENTAL PROFILE



Government Degree College, Gajwel

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#### BRIEF HISTORY OF THE DEPARTMENT:

- The Department of Physics was established in the year 1997.
- B.Sc. course with two combinations was started with M.P.C., and M.P.Cs.
- English is the medium of instruction for both the Groups.
- Physics lab was started then with a budget of around Rs.10,000.
- Only 14 to 20 students were admitted in Physics course.
- Now the lab is enriched with nearly 15 lakh rupees worth equipment.
- Physics course is in high demand in the area. Now with the permitted intake of 60 each in M.P.C. and M.P.Cs. combinations.

#### STRENGTH OF THE DEPARTMENT:

- The department has three spacious laboratories equipped with many sophisticated instruments that are more sufficient to the undergraduate students and also possessed with all the advanced practical material like Microprocessor, stepper motor, digital electronic devices, digital dual trace oscilloscope etc.,
- The Department is capable to start a PG course in Physics with a Specialization in Electronics.
- The sincere and dedicated academic staff members have been the pillars of the department, who have played key roles in the overall development of the College in general and department in particular. They have been continuously guiding students in achieving academic excellence and improvement in their overall personality.
- The department has dedicated and qualified lecturers who are committed to render relentless service to the students in grooming their bright career ahead.
- Department feel privileged to proclaim that, because of its perpetual efforts and inspiring talks, many of our college students have opted Physics at their PG level education and they have settled in higher positions by grabbing opportunities available.

#### VISION OF THE DEPARTMENT:

- The primary aim of the department is to provide high quality learning environment in physics, preparing bright undergraduates who will push frontiers of knowledge in physics and its related disciplines through scholarly activities.
- Introduction of PG course.
- Establishing departmental level Career guidance cell.
- To motivate its faculty for Minor Research Projects (MRPs) initially and then encourage them to go for Ph.D. program.
- Planning for a special coaching to our students for M.Sc. Physics entrance examinations of prestigious universities like the IITs, Central Universities etc. and other employment examinations, wherein physics as its core subject to test.

#### MISSION OF THE DEPARTMENT:

The mission of the department is to inspire, prepare, and empower students to succeed in the ever changing world.

#### **Best practices:**

- In order to improve the II year physics results, Dr. K. Padmavathi, the then lecturer in physics introduced a cash prize Rs. 500/- each for four students who topped in annual examinations from the year 2006-07 which was continued till 2012 and is being continued by us too.
- Dr. K. Padmavathi has also announced a gold medal from 2006-07 year onwards for the student who would excel outstanding performance in physics and that is being awarded on every annual day of the college.

#### **DETAILS OF THE SUCCESSIVE TEACHING FACULTY**

S.No.	Name of the faculty	Qualifications	Period
1.	Sri. P. Malla Reddy	M.Sc	1997-2012
2.	Dr. Anthony Raju	M.Sc., Ph.D	2001
3.	Dr. P. BalaBhaskar	M.Sc., Ph.D	2000-2012
4.	Dr. K. Padmavathi	M.Sc., Ph.D	2002-2012
5.	Smt. Kanchanalatha	M.Sc., NET, M.Phil	2011
6	Smt. K. Haritha	M.Sc., B.Ed., APSET	2013-2018
7	Smt. Ch. Varalaxmi	M.Sc., APSET	2013-2018
8	Sri. V. Veera Reddy	M.Sc., APSET	2013-2018
9	Sri. B. Narsimha	M.Sc., B.Ed., SET	2018 – 2019
10	Smt. M. Bhavani	M.Sc., B.Ed., NET; (Ph.D).	2018 to till date

#### FUNDS FOR THE DEPARTMENT:

The funding for the development of the department is from:

- 1. Government of Telangana State.
- 2. Fee collected from the students.
- 3. Under different schemes of the UGC.

### DETAILS OF COURSES OFFERED WITH PHYSICS:

SI. No.	Course Combination	Medium	Permitted
			Strength
1	B.Sc (Maths, Physics, Chemistry)	English	60
2	B.Sc (Maths, Physics, Computer Science)	English	60

#### DETAILS OF THE TEACHING STAFF:

Sl. No.	Name of the Faculty	Designation	Qualification	Experience
1	Smt. M. Bhavani	Assistant Professor	M.Sc., B.Ed., NET; (Ph.D).	3 yrs as contract faculty + 8yrs as Government Degree College Lecturer

#### DETAILS OF THE NON-TEACHING STAFF:

SI. No.	Name of the staff	Designation	Qualification	Experience
1	Zareena Begam	Attender	Tenth Fail	25 years

## B.Sc.PHYSICS SYLLABUS UNDER CBCS SCHEME SCHEME OF INSTRUCTION

SEMESTER	PAPER(THEORY AND PRACTICAL)	INSTRUCTIONS Hrs/week	MARKS	CREDITS
	Paper-I: Mechanics	4	100	4
I -SEM	Practicals-I: Mechanics	3	50	1
	Paper-II:- Waves and Oscillations	4	100	4
II -SEM	Practicals-II: Waves and Oscillations	3	50	1
	Paper-III: Thermodynamics	4	100	4
III -SEM	Practicals-III: Thermodynamics	3	50	1
	Paper-IV: Optics	4	100	4
IV –SEM	Practicals-IV: Optics	3	50	1
	Paper-V: Electromagnetism	3	100	3
	Practicals-V: Electromagnetism	3	50	1
V –SEM	Paper-VI: Elective – I Solid state physics/ Quantum Mechanics and Applications	3	100	3
	Practicals-VI: Elective – I Solid state physics/ Quantum Mechanics and Applications	3	50	1
	Paper-VII: Modern Physics	3	100	3
	Practicals-VII: Modern Physics Lab	3	50	1
VI -SEM	Paper-VIII: Elective – II Basic Electronics/ Physics of Semiconductor Devices	3	100	3
	Practicals-VIII: Elective-II Basic Electronics/ Physics of Semiconductor Devices	3	50	1

#### BSC PHYSICS PROGRAM SPECIFIC OUTCOMES:

- To understand the basic laws and explore the fundamental concepts of physics.
- To understand the concepts and significance of the various physical phenomenon.
- To carry out experiments to understand the laws and concepts of Physics.
- To apply the theories learnt and the skills acquired to solve real time problems.
- To acquire a wide range of problem solving skills, both analytical and technical and to apply them.
- To enhance the student's academic abilities, personal qualities and transferable skills this will give them an opportunity to develop as responsible citizens.
- To produce graduates who excel with the competencies and values required for leadership to serve a rapidly evolving global community.
- To motivate the students to pursue PG courses in reputed institutions.
- This program introduces students to the methods of experimental physics. Emphasis will be given on laboratory techniques specially the importance of accuracy of measurements.
- Providing a hands-on learning experience such as in measuring the basic concepts in properties of matter, heat, optics, electricity and electrostatics.

Department of Physics is enriched with sufficient lab equipment as mentioned below.

- ✓ Cathode Ray Oscilloscope
- ✓ Diffraction Grating
- ✓ Heating efficiency of a Electric Kettle experiment setup
- ✓ Sonometer teak wood with 2 bridge and 3 wires
- Energy gap of a semiconductor with two meters
- ✓ 8086 Microprocessor kit with LCD version
- ✓ Hall effect experiment set up
- ✓ Polarimeter Half-Full Adder
- ✓ Newton Ring Apparatus
- ✓ Kirchoff law board with Power Supply
- ✓ P-N Junction diode
- ✓ Zener diode characteristics
- Transistor Characteristics
- ✓ Fly wheel
- ✓ Photo cell
- ✓ Travelling microscopes
- ✓ Digital logic trainer kit
- ✓ Pulfritchrefractometer
- ✓ Bar pendulum and simple pendulums
- ✓ e/m by Thomson method- set up
- ✓ Solar cell apparatus
- ✓ Thermistor Boards
- ✓ Fresnel's Biprism arrangement
- ✓ Boy's Method arrangement
- ✓ Lee's experiment set up
- ✓ Newton laws of colling set up

In addition to all these equipments, we have consumable items such as resistors, patch cards, , prisms, aspiratory bottles, stop-clocks, meter scales, rubber corks, mercury, copper and brass wires, resistance boxes, fuses, ICs, reading lenses, thermometers, watch glasses, LED's, capillary tubes, diodes, transistors, soldering materials, dry cells, bulbs, cubes, needles, droppers, sodium and mercury lamps etc..

#### Other Departmental core organs:

- ➤ . Departmental Library
- Coaching for M.Sc Physics entrance
- ➤. Carrier Guidance

#### **DEPARTMENTAL ASSOCIATION ACTIVITIES:**

The department of Physics organizes a wide range of activities throughout the year.

- Field trips
- Subject Quiz Competitions
- Project works
- Arrangement of Extension and guest Lectures
- Organizing workshops

#### Student Centric Activities:

These are the student centric activities, which make them to be more passionate in the field of Physics.

- Student seminars
- Conducting slip-tests
- Giving Assignments
- Group Discussions
- Remedial Classes

## **STUDENT SEMINARS**

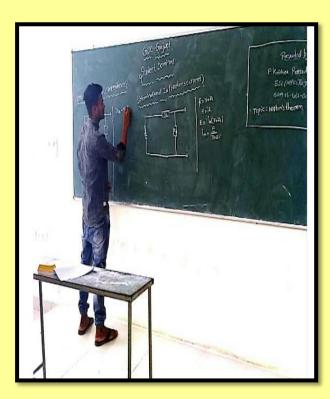


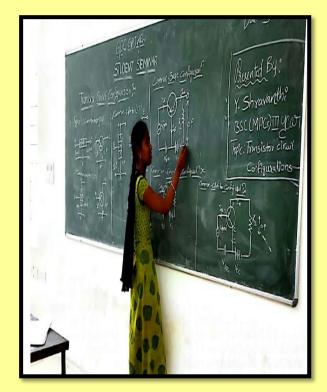


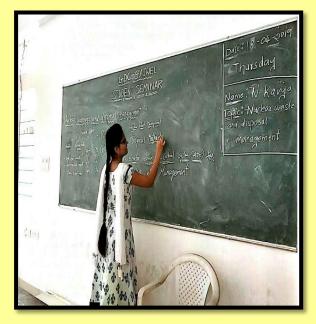




#### **STUDENT SEMINARS**



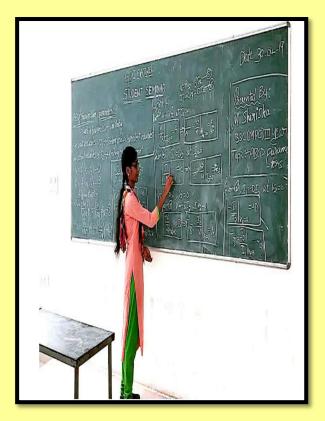






## **STUDENT SEMINARS**







#### EXPERIMENTS OF PHYSICS AT COLLEGE LABORATORY





Celebrations of the birth anniversaries of SIR. C.V. RAMAN AND MADAM CURIE





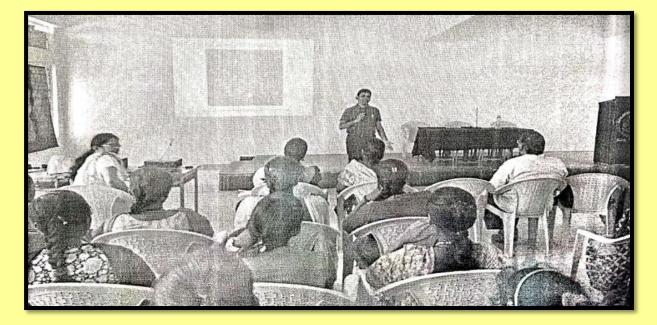


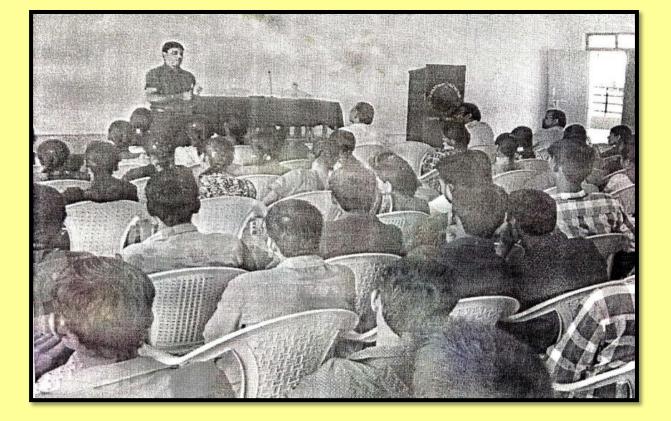
Conducted Science Expo -Students of Physics have explained the Experiments to all the faculty members of our college.



Extension Lecture delivered by Dr. K. Gururaj, Scientific Officer Grade E, Kalpakkam

#### **Topic:** THE QUANTUM WORLD OF CATS, DICE AND THE MOON





Department of Physics organised a *field trip* to NGRI (National Geophysical Research Institute), Hyderabad to BSC(MPC&MPCs) students on the open day i.e., 26-09-2015 which being the foundation day of CSIR.



#### Students forming a queue at the entrance of NGRI



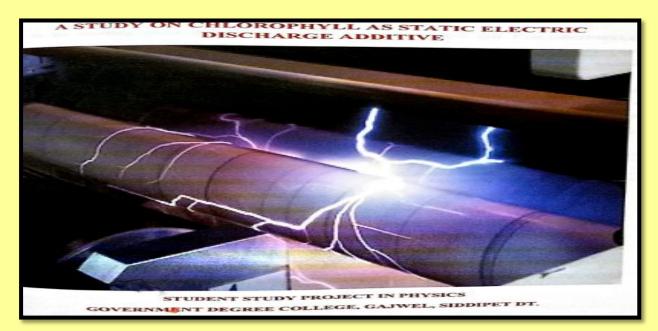
**FIELD TRIP:-** We have taken students for awareness programme conducted by SHAR Scientists as part of world space week celebraions at SIDDIPET.





#### **PROJECT WORK**

"A study on Chlorophyll as static electric discharge additive" carried out by Ms. P. Nagalaxmi, Ms. V. Roja, Mr.P. Praveen, Mr. K. Karunakar under the Guidance of Mr. V. Veera Reddy, Assistant Professor of Physics, Government Degree College, Gajwel, Siddipet Dist.







#### Achieved Second prize in JIGNASA state level competitions in the year 2017-18



Quiz competion was conducted for BSC I, II & III students. & III BSC students won the competition.

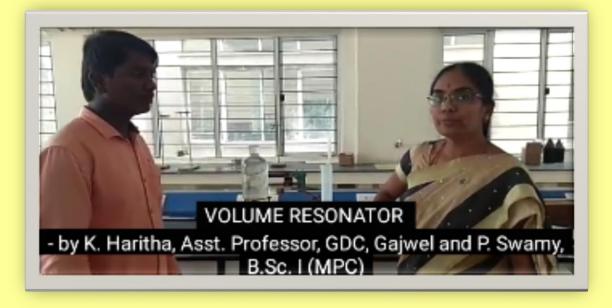


Rubeena, student of BSC Physics has delivered a talk on T-SAT live channel through "Student as a teacher program" in the academic year 2016-17



Smt. K.Haritha, Assistant Professor of Physics,has uploaded experiment of B.Sc First year to college you tube channel- VOLUME RESONATOR through

linkhttps://www.youtube.com/watch?v=sUxWcxserWg



Smt. Ch. Varalaxmi, Assistant Professor of Physics, has delivered a lecture on Central Forces in LIVE session with T-SAT NIPUNA channel.



Organized one day state level workshop on "NETWORK THEOREMS AND LOGIC GATES BY USING DISCRETE COMPONENTS"







Hands on experience- Participants doing experiments of Network Theorems and Logic Gates by using discrete components



Certificate Distribution to participants

#### Press coverage about one statelevel workshop by Department of Physics



#### **INNOVATIVE PRATICES:**

Introduced virtual laboratory in the department and enable students to understand various technical concepts and to provide practical knowledge to them.



Arranged Special invited talk on **"SAFETY ISSUES OF NUCLEAR RADIATION"** by Dr. B. Venkatraman, Director, Outstanding Scientist, Health Safety and Environment Group, Senior Professor, Indira Gandhi Center for Atomic Research (IGCAR)- Kalpakkam, Tamilnadu



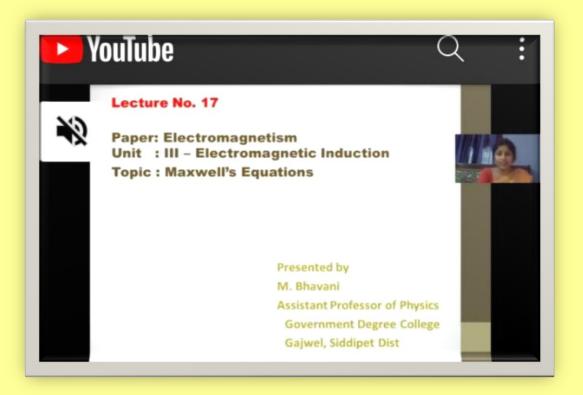


#### **TIME TABLE – DEPARTMENT OF PHYSICS**

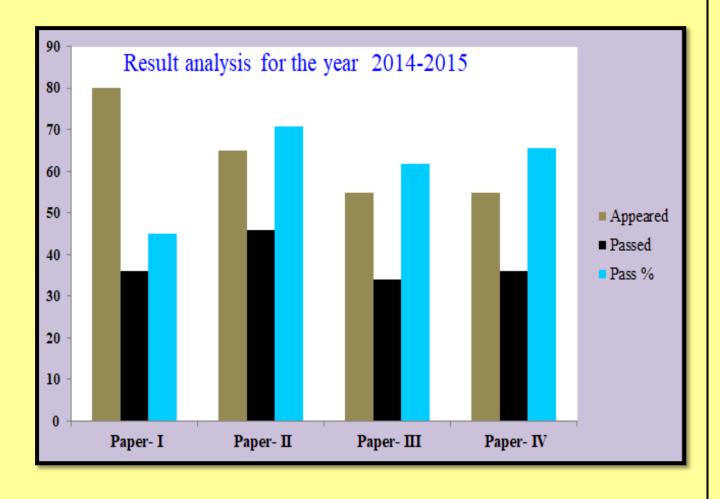
TIME	YEAR	10:00 AM TO 10:50 AM	10:50AM TO 11:40AM	11:40AM TO 12:30 NooN	12:30 Noon TO 01:20pM	01:20 PM TO 02:00 PM	02:00 PM TO 02:50 PM	02:50 PM TO 03:40 PM	03:40 PM TO 04:30 PM
PERIOD		1	II	III	IV		V	VI	VII
MONDAY	1	-				_			
	Ш				THEORY		PRACTICA	L- M <sub>2</sub>	
	Ш		PRACTICA	L-M <sub>2</sub>	THEORY	U			
TUESDAY	T	THEORY				N	PRACTICA	L-M <sub>2</sub>	
	П			THEORY					
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THURSDAY	T		THEORY			В			
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FRIDAY	1			THEORY		Α			
	П				THEORY	К			
	Ш	THEORY					PRACTICA	L-M <sub>1</sub>	
SATURDAY	1		PRACTICA	L-M <sub>1</sub>					
	П	THEORY							
	Ш	THEORY					PRACTICA	L-M <sub>2</sub>	

#### List of videos uploaded to YouTube channel

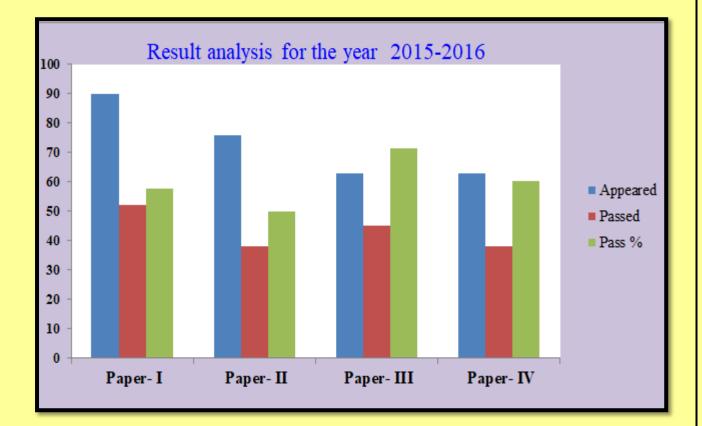
S.No	Uploaded date	Торіс	You tube /Gogle Drive Link
1	03-08-2020	Introduction – Magnetostatics	https://youtu.be/RL8dAPkvjxQ
2	04-08-2020	BiotSavart Law- Applications	https://youtu.be/IFsz_6OrSXw
3	05-08-2020	BiotSavart Law- Applications	https://youtu.be/7qu4BUifa2A
4	06-08-2020	BiotSavart Law- Applications	https://youtu.be/v2l1tXwJC6E
5	07-08-2020	Self inductance and Force in a field	https://youtu.be/lfDgMN2Z0ws
6	10-08-2020	Moving coil ballistic galvanometer	https://youtu.be/DLb_2wyeOcc
7	12-08-2020	EM damping and its correction	https://youtu.be/4rsMXtw2c
8	13-08-2020	Introduction-Electro Magnetic Induction	https://youtu.be/DbEGuIncDFI
9	14-08-2020	Maxwell Equations	https://youtu.be/QRx7EhEhkP4
10	17-08-2020	Introduction- Vectors	https://youtu.be/r6K3-ZpnfO0
11	18-08-2020	vector curl and divergence	https://youtu.be/aKL8P_1i3GQ
12	19-08-2020	vector theorems	https://youtu.be/_6Gxx0f8i0c



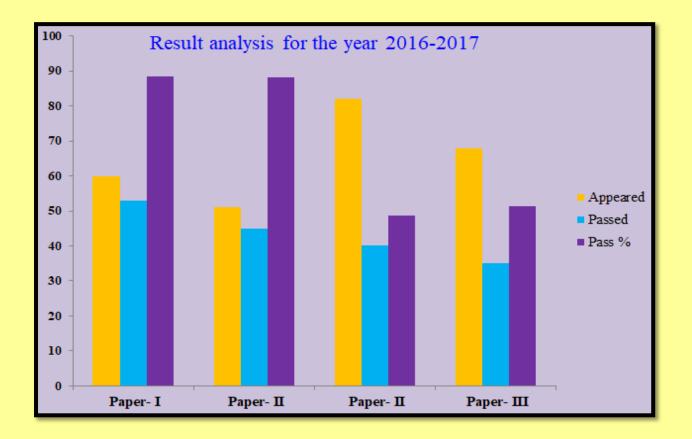
<b>RESULT ANALYSIS FOR THE ACADEMIC YEAR 2014-2015</b>					
Sl.No	Class	appeared	passed	Pass %	
1	Paper- I	80	36	45	
2	Paper- II	65	46	70.769231	
3	Paper- III	55	34	61.818182	
4	Paper- IV	55	36	65.454545	



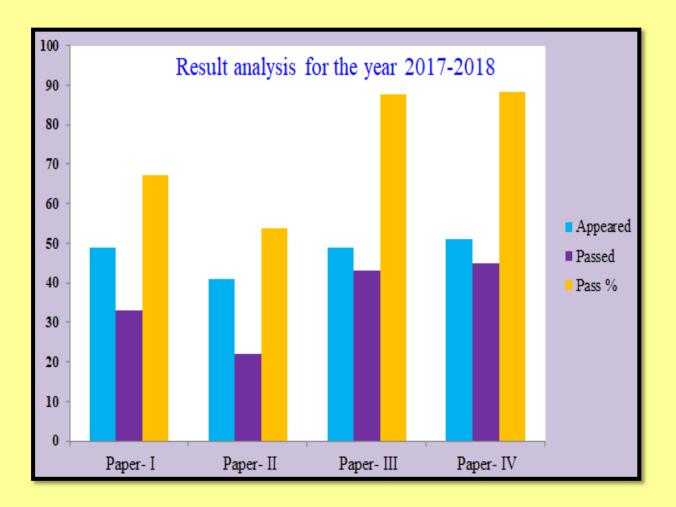
<b>RESULT ANALYSIS FOR THE ACADEMIC YEAR 2015-2016</b>					
Sl.No	Class	appeared	passed	Pass %	
1	Paper- I	90	52	57.777778	
2	Paper- II	76	38	50	
3	Paper- III	63	45	71.428571	
4	Paper- IV	63	38	60.31746	



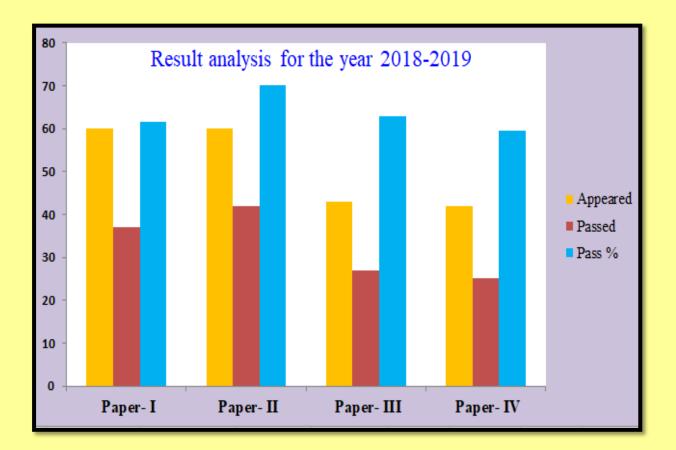
R	<b>RESULT ANALYSIS FOR THE ACADEMIC YEAR 2016-2017</b>						
SI.No	Sem/Year	Class	appeared	passed	Pass %		
1	I sem	Paper- I	60	53	88.333333		
2	II Sem	Paper- II	51	45	88.235294		
3	II Year	Paper- II	82	40	48.780488		
4	III year	Paper- III	68	35	51.470588		
	III year	Paper- IV	68	52	76.470588		



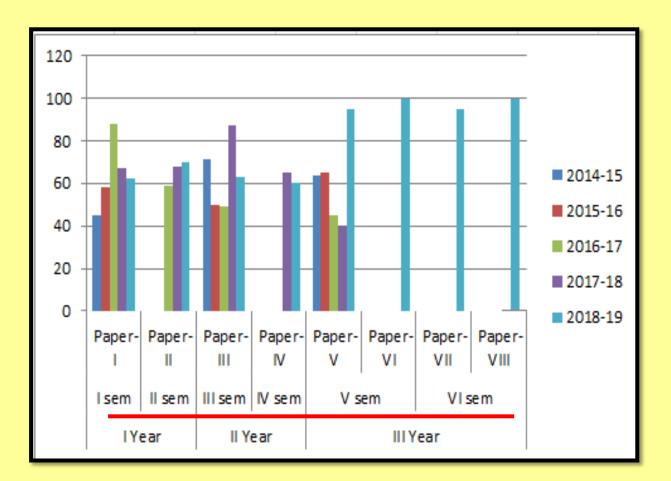
RESULT ANALYSIS FOR THE ACADEMIC YEAR 2017-2018							
Sem/Year	Class	appeared	passed	Pass %			
I sem	Paper- I	49	33	67.346939			
II Sem	Paper- II	41	22	53.658537			
III sem	Paper- III	49	43	87.755102			
IV sem	Paper- IV	51	45	88.235294			
III Year	Paper -III	75	52	69.3333333			
III Year	Paper -IV	76	32	42.1052632			



RESULT ANALYSIS FOR THE ACADEMIC YEAR 2018-2019						
Sl.No	Sem/Year	Class	appeared	passed	Pass %	
1	I sem	Paper- I	60	37	61.666667	
2	II Sem	Paper- II	60	42	70	
3	III SEM	Paper- III	43	27	62.790698	
4	IV SEM	Paper- IV	42	25	59.52381	
5	V SEM	Paper- V	47	45	95.7446809	
6	V SEM	Paper- VI	47	47	100	
7	VI SEM	Paper- VII	47	45	95.7446809	
8	VI SEM	Paper- VIII	47	47	100	



COMPARATIVE RESULT ANALYSIS									
Year	SEM	Class	2014-15	2015-16	2016-17	2017-18	2018-19		
I Year	I sem	Paper- I	45	58	88	67	62		
	II sem	Paper- II			59	68	70		
	III sem	Paper- III	71	50	49	87	63		
II Year	IV sem	Paper- IV				65	60		
		Paper- V	64	65	45	40	<b>9</b> 5		
	V sem	Paper- VI					100		
		Paper- VII					95		
III Year	VI sem	Paper- VIII					100		



#### **CURRICULUM VITAE**

BHAVANI MACHA Assistant Professor of Physics bhavani.asn.physics@gmail.com 9912591007



#### **OFFICIAL ADDRESS FOR CORRESPONDENCE:**

GOVERNMENT DEGREE COLLEGE GAJWEL, SIDDIPET DISTRICT TELANGANA, INDIA – 502278

#### EDUCATIONAL QUALIFICATIONS:

S.NO.	QUALIFICATION	INSTITUTE/ UNIVERSITY	YEAR OF PASS	MARKS %
1	Ph.D (Physics)	Osmania, Hyderabad	2017-	Pursuing
2	B. Ed (Physical Science)	Deccan College of Education, Gowraram, Gajwel.	2008-09	60
3	M. Sc (Physics)	Government Degree College & PG College, Siddipet	2006-08	74
4	B. Sc (MPC)	Government Degree College, Gajwel, Medak	2003-06	87
5	Intermediate (MPC)	Nalanda Junior College, Toopran, Medak	2001-03	95.5
6	SSC	ZPGHS, Toopran, Medak	2000-01	88

#### **OTHER QUALIFICATIONS:** UGC NET - JUNE 2011

#### TECHNICAL SKILLS : MS OFFICE

#### SELECTIONS

: IVIS OFFICE

#### : As an Assistant Professor of Physics by APPSC in January 2013.

#### TEACHING & ADMINISTRATIVE EXPERIENCE:

- Worked as a Contract Degree College Lecturer at Government Degree College For Women for 3 years (14-09-2009 to 31-12-2012).
- Worked as Full Additional Charge (FAC) Principal in twice at Government Degree College for Women, Siddipet, Siddipet District.

#### **RESEARCH:**

Pursuing Ph.D (Physics) from Osmania University, Hyderabad Batch 2017 & completed Pre. Ph. D course work.

#### ORIENTATION/REFRESHER COURSES ATTENDED:

- Attended 28 days Orientation programme at MANUU, Hyderabad
- Attended 21 days Refresher course on "Material Sciences" at Osmania University, Hyderabad
- Attended 16 days Refresher course on "**Experimental Physics**" at OUCW, Hyderabad.
- Participated in the UGC-HRDC-RUSA sponsored FIP online short term (one week) course on "ICT Tools in higher Education".
- Participated in the UGC-HRDC-RUSA sponsored FIP online short term (one week) course on "SOFT SKILLS".
- Participated in the UGC-HRDC-RUSA sponsored FIP online short term (one week) course on "Communicative English for Excellence in Teaching".

#### WORKSHOPS/SEMINARS ORGANISED:

- Organized a District level workshop on "Opportunities and Challenges of young Entrepreneurs in making Bangaru Telangana", Government Degree College for Women, Siddipet.
- Organized One Day State level workshop on "NETWORK THEOREM AND COMBINATION OF LOGIC GATES BY USING DISCRETE COMPONENTS" by Department of Physics, Government Degree College, Gajwel, Siddipet District.

#### TRAINING PROGRAMMES ATTENDED:

- Attended a four day induction workshop on **"Human Values and Professional Ethics"(HVPE)** at IIIT Gachibowli, Hyderabad.
- Attended a two day training program "NIPUNA" on nurturing young leaders in higher education at Hyderabad
- Attended oneday training program "GANANA" on MIS- orientation at Hyderabad.

#### PAPERS PRESENTED IN SEMINARS:

Government Degree College, Gajwel

- Presented a paper on "Competency mapping among College teachers- Problems & Prospects" at Government Degree College, Siddipet.
- Presented a paper at National Seminar on "Quality Assurance in Higher Education Issues and Challenges" at Kakathiya Degree College, Warangal.
- Presented a paper in National Conference on "Advances in Nano Functional Materials" at Osmania University, Hyderabad.

#### SEMINARS/WORKSHOPS ATTENDED:

- Attended One day workshop on "Research Methodology" at Government Degree College, Gajwel.
- Attended One day state level Seminar on "Emerging Information Communication Technology in teaching, learning and Research in Higher Educational Institutions" at Government Degree College, Siddipet.
- Attended a National seminar On "Impact of MGNREGS on Rural Employment" at GDC, Gajwel, Medak Dist.
- Attended One day state level workshop on "Causes, Effects and Preventive methods of Environmental Pollution- A Scientific Approach" at Government Degree College, Siddipet.
- Attended one day National Seminar on "Gender Sensitization in India, Prospects & Challenges" at Government Degree College, Gajwel.
- Attended one week online Faculty Development Program on "The use of Virtual Physics Labs- Creating Next Generation Teachers" organized by Geethanjali College of Engineering and Technology, Hyderabad.
- Attended One day National level webinar on "Online Teaching in Higher Educational Institution: Issues and Challenges" organized by Government Degree College, Gajwel, Siddipet Dist.
- Participated in the One day state level workshop on "Low cost models with simulations in Undergraduate Physics Practicals" at Government Degree College, Siddipet, Siddipet Dist.
- Participated and passed in a quiz on "Fundamentals of Physics" conducted by Department of Physics, Government Degree & PG College, Siddipet.

#### EXTENSION LECTURES DELIVERED:

- Delivered an extension lecture on "**Fundamentals of Nuclear Physics**" for BSC students at Government Degree College, Cherial, Warangal District.
- Delivered an extension lecture on "Maxwell's Equations" for BSC students at Government Degree & PG College, Siddipet.
- Delivered an extension lecture on "Magnetostatics" for BSC students at Government Degree College For Women, Gajwel, Siddipet Dist.

#### EXTRA CURRICULAR ACTIVITIES AND CO-CURRICULAR ACTIVITIES:

Government Degree College, Gajwel

Attended three months training course to get NCC commission (NCC Officer) as a Lieutenant at Gwalior, Madhya Pradesh from 15-12-2013 to 17-03-2014.

#### AWARDS/MEDALS/MERIT CERTIFICATES:

- 1. Received Prathibha Award from state Government of Andhra Pradesh to secure marks 955/1000 in Intermediate and received 10,000/- PRATHIBA scholarship per every year in graduation.
- 2. Topper in the college in BSC (93%)
- 3. Topper in the college MSC (74% with distinction)
- 4. Received NCC gold medal at Gwalior for piping the parade
- 5. Received award NCC DG's Flaque of honour at Gwalior, Madhya Pradhesh
- 6. Received best teacher award with Rs.50,000/- Cash Prize from District Collector on Telangana State Formation Day Celebrations-2017.

#### ADDITIONAL RESPONSIBILITIES AT PRESENT STATION:

- > NCC OFFFICER.
- **UGC CO-ORDINATOR**
- > INCHARGE OF AUDIO-VISUAL
- INCHARGE OF MATHEMATICS DEPARTMENT
- > INCHARGE OF COMPUTERS DEPARTMENT

HOBBIES: Reading Books STRENGTHS: Hard working, Time Management and Commitment. LANGUAGES KNOWN: Telugu, English and Hindi. PLACE: GAJWEL

I hereby very sincerely and firmly declare that the above details pertaining to me and my demeanour are true and correct to the best of my personal knowledge and belief. Further I humbly proclaim that I sole held responsible if any discrepancy found. Further I also assure and ensure you that I will surely & certainly accept any initiation by you in the future course of action in this regard.

Sd/-(BHAVANI MACHA) Assistant Professor and Head Department of Physics