



Government Degree College for Women (Autonomous)
Begumpet, Hyderabad-500016

Affiliated to Osmania University, Re-Accredited with 'B+' Grade by NAAC



CHOICE BASED CREDIT SYSTEM (CBCS)

DEPARTMENT OF ELECTRONICS

SYLLABUS MODEL PAPERS AND

BOARD OF STUDIES MINUTES

2021-22

AGENDA FOR THE BOARD OF STUDIES MEETING FOR THE YEAR 2021-22

The Board of studies meeting of the Faculty of PHYSICS, GDCW, Begumpet, Hyderabad-16 was held on 7-10-21 at Department of Physics, Osmania University, Hyderabad under the Guidance of Dr.Ch.Kanchana Latha, Head of the Department Physics to discuss and resolve the following agenda:.

1. Approval of syllabus of Semester V and VI programme for the Academic year 2021-22 under CBCS.
2. Approval of Examination pattern.
3. Approval of Panel of Examiners.
4. Any other matter with the permission of the chairperson.

Roll Call: The following members were present:

Sl.No.	Name & Designation	Status	Signature
1.	Dr.Ch. Kanchana Latha, Assistant Professor of Physics, Head, Department of Physics, Government Degree College for Women, Begumpet, Hyderabad	Chairperson, Board of Studies, Department of Physics, Osmania University, Hyderabad	<i>Ch.Kanchana</i> HEAD Departments of Physics Govt. Degree College for Women (A) Begumpet, Hyderabad-500 016. (T.S.)
2.	Dr. J.LAKSHMAN NAIK, Professor of Physics, Osmania University, Hyderabad	University Nominee, Osmania University, Hyderabad	<i>J.Lakshman Naik</i>
3.	Smt. G. Savitri, Assistant Professor, Head, Department of Physics, Pingle Govt. Degree College, Kakatiya University, Warangal	Member	<i>G. Savitri</i> Goparaju Savitri, M.Sc. Assistant Professor in Physics Government Degree & PG College Warangal
4.	Sri M. Naveen, Assistant Professor of Physics, Sri Chaitanya Deemed University, Warangal	Member	<i>M. Naveen</i> Sri Chaitanya Deemed to be University Kishanpura, Hanamkonda, Warangal (U) 505 001 (T.S.) India
5.	Dr. K. Sundara Murthy, Assistant Professor of Physics, Government Degree College for Women, Begumpet, Hyderabad	Member	<i>K. Sundara Murthy</i>
6.	Smt. N. Anitha, Lecturer in Physics, Government Degree College for Women, Begumpet, Hyderabad	Member	<i>N. Anitha</i>
7.	Ms. Ch. Mounika, 16011085468009 M.Sc.(Physics), @St.Pious X Degree and PG College for Women	Member	<i>Ch. Mounika</i>

Ch. Kanchana
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

Government Degree College for Women, Begumpet, (Autonomous), Hyderabad
Composition of the Board of Studies

1.	Chairperson, Board of Studies, Department of Physics, Osmania University, Hyderabad	Dr.Ch. Kanchana Latha, Assistant Professor of Physics, Head, Department of Physics, Government Degree College for Women, Begumpet, Hyderabad
2.	One person to be nominated by the Vice-Chancellor from a panel of six recommended by the Principal	Dr. J.Laxman Naik, Professor of Physics, Head, Department of Electronics, Osmania University, Hyderabad
3.	Two subject experts from outside parent University to be nominated by Academic Council	Smt. G.Savithri, Assistant Professor of Physics, Head, Department of Physics, Pingle Govt Degree College, Kakatiya University, Warangal
		Sri A.Naveen, Assistant Professor of Physics, Sri Chaitanya Deemed University, Warangal
4.	The entire faculty of each specialization Visiting faculty	Dr. K. Sundara Murthy, Assistant Professor of Physics, Government Degree College for Women, Begumpet, Hyderabad Smt. N. Anita, Lecturer in Physics, Government Degree College for Women, Begumpet, Hyderabad
		Dr.M.Ghanshyam Krishna Professor of Physics, University of Hyderabad
5.	One Post Graduate Meritorious Alumnus to be nominated by Principal, The Chairman, Board of Studies may with approval of the Principal of the College	Ms. Ch. Mounika, 16011085468009 M.Sc.(Physics), @St.Pious X Degree and PG College for Women
6.	Experts from outside the College, whenever special courses of studies are to be formulated	Dr.Y.Aparna Professor of Physics. Member,Secretary,TSCOST,AP

Goparaju
CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad-500007



G. Savitri
Goparaju Savitri, M.Sc
 Assistant Professor in Physics
 Government Degree & PG College

Mounika

Ch. Kanchana
HEAD
 Departments of Physics
 Govt. Degree College for Women
 Begumpet, Hyderabad-500 016.

MINUTES

Min-1/SEP 2021: It was resolved to Reapprove the Structure of Credits for Semester-I and II, Semester III and IV of the Physics programme as given by the Department of Physics, Osmania University for the Academic year 2021-22 under CBCS.

Min-2/SEP 2021: It was resolved to approve the syllabus of Semester V and VI of the Physics programme of the Department of Physics, Osmania University for the Academic Year 2021-22 under CBCS.

Min-3/SEP 2021: It was resolved to approve the Examination Pattern as mentioned below:

(B.Sc PHYSICS) of First year, Second year and Final year for Semester I, II, III, IV, V & VI)

MAX. MARKS: 100 (40 Internal + 60 External)

(A) Internal Assessment (Max 40 Marks)

- | | |
|---------------------|------------|
| a) Internal Written | : 20 Marks |
| b) 4MCQ's | : 10 Marks |
| c) Seminar | : 5 Marks |
| d) Assignments | : 5 Marks |
| Total | : 40 Marks |

Note: Average marks of two internal written tests will be considered.

(B) External Assessment (Max.60 marks) [Pass mark: 24] [Time: 2 ½ Hrs]

Part-A

I. Answer any five of the following questions (5 x 4m = 20 marks)

(Any five of the eight questions given)

Part-B

II. Answer the following Questions (5 x 8 m= 40 marks)

(Five questions with internal choice for each unit)

Minute-4 / Sep 2021: It was resolved to approve the Panel of Examiners

D. J. Sankar
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

G. Santhi
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Ch. J. Sankar
HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500016. (T.S.)



CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16
(An autonomous college of Osmania University)

Re-Accredited by NAAC with "B" Grade

Faculty of ELECTRONICS

STRUCTURE OF B.Sc Course w.e.f the academic year 2021-2022

B.Sc(MPC,MPCS,MPS)PROGRAMME

**THIRD YEAR
SEMESTER:V**

S. NO	CODE NO	TITLE OF THE PAPER	HPW	CREDITS	EXAM DURATION	MAX MARKS
1	ELS5	English (First Language)	3	3		
2	SLS5	Second Language	3	3		
3	GE	a)Renewable Energy Resources	4	4	3 hours	100
4	3311	Mathematics-V	(4T+3P)	5	2 ½ hours	60 E+40I=100
5	3311	ELECTRONICS-V	(4T+3P)	5	2 ½ hours	50 E+35p+15I=100
6	3311	Comp.science-V	(4T+3P)	5	2 ½ hours	60 E+40I=100
		Total	27	25		

SEMESTER:VI

S.N O	CODE NO	TITLE OF THE PAPER	HPW	EXAM DURATION	MAX MARKS	CREDITS
1	ELS6	English (First Language)	3	3		
2	SLS6	Second Language	3	3		
3	PR	Research Methodology and Project Report/CORE PAPER	2T+4R	4	1 ½ hours	40E+10I+35R+15V.V
4	3311	Mathematics-VI	(4T+3P)	5	2 ½ hours	60 E+40I=100
5	3311	ELECTRONICS -VI	(4T+3P)	5	2 ½ hours	50 E+35p+15I=100
6	3311	Comp.science-VI	(4T+3P)	5	2 ½ hours	60 E+40I=100
		Total	27	25		

ELS: English Language Skill; SLS: Second Language Skill; AEC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T: Theory; P: Practical; I: Internal Exam U: University Exam; PR: Project Report; VV: Viva-Voce Examination.

[Signature]
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

[Signature]
HEAD
Departments of Physics
Govt. Degree College for Women
Begumpet, Hyderabad-500 016. (I.S.)

[Signature]

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1.	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report /CORE PAPER	1	4	4
7	PHYSICS (T+P)	30	5	30
	TOTAL	50		150
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Goparaju
CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.

G. Savitri
Goparaju Savitri, M.Sc
 Assistant Professor in Physics
 Government Degree & PG College



A
Moulik

Ch. K. ...
HEAD
 Departments of Physics
 Govt. Degree College for Women (A)
 Begumpet, Hyderabad-500 016. (T.S.)

CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.

Proposed Scheme for B.Sc., (Credits)
w.e.f. 2019-20

Courses		No. of Papers	Total Credits	Credits for each paper/ Semester					
				B.Sc.					
				I	II	III	IV	V	VI
Core Courses DSC	Optional-1	4	20	5	5	5	5	-	-
	Optional-2	4	20	5	5	5	5	-	-
	Optional-3	4	20	5	5	5	5	-	-
Elective Courses DSE	Optional-1	2	10	-	-	-	-	5	5
	Optional-2	2	10	-	-	-	-	5	5
	Optional-3	2	10	-	-	-	-	5	5
Language	English (First Language)	5	20	4	4	3	3	3	3
	Second Language	5	20	4	4	3	3	3	3
Ability Enhancement Compulsory Course AECC	Environmental Science/Basic Computer Skills	1	2	2	-	-	-	-	-
	Basic Computer Skills/ Environmental Science	1	2	-	2	-	-	-	-
Skill Enhancement Course SEC	SEC1	1	2	-	-	2	-	-	-
	SEC2	1	2	-	-	2	-	-	-
	SEC3	1	2	-	-	-	2	-	-
	SEC4	1	2	-	-	-	2	-	-
Generic Elective GE	Open Stream	1	4	-	-	-	-	4	-
Project Work/Optionals		1	4	-	-	-	-	-	4
Total Credits in each semester				25	25	25	25	25	25
Total Credits in UG				150					
Credits under Non-CGPA		NSS/NCC /sports/ Extracurricular	6	Upto 6 (2 in each year)					
		Summer Internship	4	Upto 4 (2in each, after I& II years)					

Goparaju
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Ch. K. Reddy
HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)



M. Ravindra

Phone Number: 90009
73306
87905
84658
70937
87905
630199
789306
949287
630234
934710
814374
951588
799366
739609
779927
709531

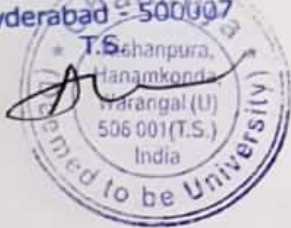
PROGRAMME SPECIFIC OBJECTIVES

- PSO 1 To possess leadership and management skills with best professional, ethical practices and social concern.
- PSO 2 To interact professionally with others in the workplace and to function effectively as an individual and in a group.
- PSO 3 To demonstrate quality skills so as to speak, listen and present effectively the acquired technical knowledge to a range of audience.
- PSO 4 To utilize project management skills and principles of finance and economics in the construction of hardware and software systems with business objective.

PSO 5 To substantiate contemporary knowledge and technological developments by being a continuous learner.

Sanjiv

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007



G. Santhi

Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Ch. K. Reddy

HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)

M. N. S.

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

Programme Outcomes

PO 1 Domain Expertise:

- Acquire comprehensive knowledge and skills.
- Make use of the knowledge in an innovative manner.
- Effectively apply the knowledge and skills to address various issues.

PO 2 Modern equipment Usage

- Use ICT effectively.
- Access, retrieve and use authenticated information.
- Access, retrieve and use authenticated information. Have knowledge of software applications to analyze data.

PO 3 Computing Skills and Ethics

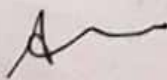
- Develop rationale and scientific thinking process.
- Use technology intelligently for communication, entertainment and for the benefit of mankind.
- Ensure ethical practices throughout ones endeavors for the wellbeing of human race.

PO 4 Complex problem Investigation & Solving

- Predict and analyze problems.
- Frame hypotheses.
- Investigate and interpret empirical data.
- Plan and execute action.

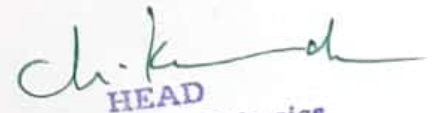
PO 5 Perform effectively as Individuals and in Teams

- Work efficiently as an individual




G. Savitri

Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College



HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (I.S.)


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007



- Cooperate, coordinate and perform effectively in diverse teams/groups.
- Prioritize common interest to individual interest.

PO 6 Efficient Communication & Life Skills

- Express thoughts in an effective manner
- Listen, understand and project views in a convincing manner.
- Decide appropriate media to share information
- Develop skills to present significant information clearly and concisely to interested groups.

PO 7 Environmental Sustainability

- Understand sensibly the Environmental challenges.
- Think critically on environment sustainability measures.
- Propagate and follow environment friendly practices.

PO 8 Societal contribution

- Render service for the general good of the society.
- Involve voluntarily in social development activities at Regional, National, global levels.
- Have own pride in volunteering to address societal issues viz: calamities, disasters, poverty, epidemics.
- Be a patriotic citizen to uphold the values of the nation

PO 9 Effective Project Management

- Identify the goals, objectives and components of a project and decide the appropriate time of completion.
- Plan, organize and direct the endeavors of teams to achieve the set targets in time.
- Be competent in identifying opportunities and develop strategies for contingencies.

[Handwritten Signature]
CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.



[Handwritten Signature]
Goparaju Savitri, M.Sc
 Assistant Professor in Physics
 Government Degree & PG College

[Handwritten Signature]
HEAD
 Departments of Physics
 Govt. Degree College for Women (A)
 Begumpet, Hyderabad-500 016. (T.S.)

OSMANIA UNIVERSITY
B.Sc. ELECTRONICS SYLLABUS
SCHEME OF INSTRUCTIONS
UNDER CBCS (w.e.f 2016-2017 academic year onwards)

Year	Semester	Title of the Paper[Theory and Practical]	Instructions Hrs/week	Number of Credits	Marks
1 st Year	I Sem	Paper – I : Circuit Analysis	4	4	100
		Practical – I : Circuit Analysis Lab	3	1	25
	II Sem	Paper – II : Electronic Devices	4	4	100
		Practical – II : Electronic Devices Lab	3	1	25
2 nd Year	III Sem	Paper – III : Analog Circuits	4	4	100
		Practical – III : Analog Circuits Lab	3	1	25
	IV Sem	Paper – IV : Linear Integrated circuits and basics of Communication	4	4	100
		Practical – IV : Linear Integrated Circuits and basics of communication Lab	3	1	25
3 rd Year	V Sem	Paper –V : Digital Electronics	3	3	75
		Practical – V : Digital Electronics Lab	3	1	25
		Paper – VI : Discipline Specific Elective – i. 8085 Microprocessor and applications ii. Electronic Instrumentation	3	3	75
		Practical – VI : i. 8085 Microprocessor and applications Lab ii. Electronic Instrumentation Lab	3	1	25
	VI Sem	Paper – VII : Digital Communication	3	3	75
		Practical – VII : Digital Communication Lab	3	1	25
		Paper – VIII : Discipline Specific Elective – II: i. 8051 Micro Controller and applications ii. Digital System Design using VHDL	3	3	75
		Practical – VIII : Elective-II : i. 8051 Micro Controller and applications Lab ii. Digital System Design using VHDL Lab	3	1	25

Total Credits: 36

Ch. K. ...
HEAD
 Departments of Physics
 Govt. Degree College for Women (A)
 Begumpet, Hyderabad-500 016. (T.S.)

G. Santw...

Poparaju Savitri, M.Sc
 Assistant Professor in Physics
 Government Degree & PG College

...
CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.

...



Government Degree College for Women, Begumpet, (Autonomous)

Hyderabad
Department of Electronics
Electronics -SEMESTER V, VI

MODULE:

THEORY: Max.Marks:100

Split

End Semester: 60M

Internal Assesment: 40M

Signature

G. Santhi

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007



Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Signature

HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)

Signature

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

Government Degree College for Women (Autonomous) Begumpet, Hyderabad

**Model Question Paper for B.Sc III Year
(Semester V and VI)**

Time: 2 ½ hrs

Max Marks: 60

Section-A

Note: Answer any 5 of the following – Each question carries 4 Marks
Marks

5 X 4=20

- Q1 Unit I
- Q2 Unit I
- Q3 Unit II
- Q4 Unit II
- Q5 Unit III
- Q6 Unit III
- Q7 Unit IV
- Q8 Unit IV

Section-B

Note: Answer all the questions –Each question carries 10 Marks

4 X 10=40 Marks

- Q9 a) Unit-I
or
b) Unit I
- Q10 a) Unit-II
Or
b) Unit-II
- Q11 a) Unit-III
Or
b) Unit-III
- Q12 a) Unit-IV
Or
b) Unit-IV

[Signature]
HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)

[Signature]
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

[Signature] G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College



Government Degree College for Women (Autonomous), Begumpet, Hyderabad

Pattern of Examination

Internal and Semester Evaluation pattern for FINAL year is given here under:

Internal Assessment

- Two Internals of **20 Marks** each. Average of the two Internals is considered for computation of marks
10 Marks for Unit-wise exams (20 Objective type Questions X ½ Mark = 10 Marks)
5 Marks for Seminar and Group discussion on the course, Internships, Jignasa study projects and workshops conducted by MOU'S, certificate course (Agastya foundation (MOU))
5 Marks for Assignment, Science fairs and PPT presentations on field visits and Out Reached Programmes organized by neighbouring colleges.
- Internal exam consists of **20 Marks**
In **Section A** (Two short answer Questions of 5 marks to be answered out of 4 (2 X 5M=10M))
In **Section-B** (One question is to be answered with **Internal choice** and carries **10 M**)
- Internals shall be held at the end of every **9th week** and **14th week** of each semester
- The duration of the Internals shall be **45 minutes**

Semester Examination

Semester Exams will be conducted in October and April of every year

- 60 marks are allotted for Each paper per semester
- Section-A (5 Questions out of 8 Questions have to be attempted – Each Question carries (4 Marks-5 X 4M = 20M))
- Section-B (4 Questions with Internal choice are to be attempted- Each question carries (10 M- 4 X 10M=40 M))

Resolved to accept the above Pattern of Examinations for B.Sc I , II and III Year

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad (T.S.)

SEMESTER - V

CHAPMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500073

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16
(An Autonomous College of Osmania University)

DEPARTMENT OF ELECTRONICS

B.Sc III YEAR (ELECTRONICS)CBCS

SEMESTER – V

GE – BASIC ELECTRONICS

Applicable from the academic year 2021-22 onwards

GENERIC ELECTIVE

Basic Electronics

Course Objectives:

- To analyze the behaviour of semiconductor diodes in Forward and Reverse bias.
- To design of Half wave and Full wave rectifiers.
- To explore V-I characteristics of Bipolar Junction Transistor in CB, CE & CC configurations.
- To acquire knowledge for application of **Electronics** for Sustainable developments

Course Outcomes: Students will be

- Able to learn about forward biased and reversed biased circuits.
- Able to plot the V-I Characteristics of diode and transmission.
- Able to design combinational logic circuits and PLDs.

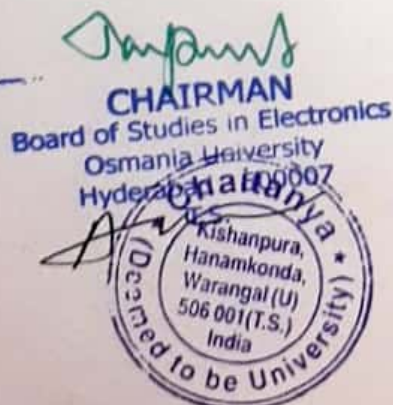
Unit-I:

Units and Definitions: SI units, Electric charge, Electric field, Electric potential, Potential difference, Voltage, EMF.

Resistors: Concept of resistance, V-I relation in resistor, ohm's law & its limitations, types of resistors & their properties & uses, Colour Codes, Combination of resistors in series and parallel.

Capacitors: concept of capacitance, V-I relation in capacitor, energy stored in capacitance, types of capacitors & their properties & uses, Colour Codes, Combination of capacitors in series and parallel.

Inductors: Concept of inductance, V-I relation in inductor, energy stored in inductors, mutual inductance & coefficient of coupling, types of inductors & uses, Colour Codes, Combination of inductors in series and parallel.



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

[Signature]
HEAD
Departments of Physics
Gov. Degree College for Women (A)
Begurpet, Hyderabad-500016. (T.S.)

Unit-II:

Simple Circuits: Concepts of impedance & admittance, network definition, circuit elements, branch, lumped & distributed network, mesh & node, concepts of voltage & current both ideal & practical. Passive networks: kirchoff's voltage (KVL), kirchoff's current law (KCL).

Unit-III:

The concept of basic semi conductor, P-Material, N-material, formation of PN junction, Formation of PN junction, Depletion region, Junction capacitance, forward bias, reverse bias, Diode equation (no derivation) and its interpretation, Effect of temperature on reverse saturation current, V-I characteristics and simple applications of i) Junction diode, ii) Zener diode, iii) Tunnel diode and iv) Varactor diode, Zener diode as voltage regulator.


Rectifiers: Rectifiers-half wave, full wave and bridge rectifiers, Efficiency, Ripple factor, regulation, harmonic components in rectified output.


UNIT-IV:


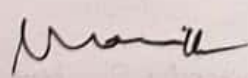
Bipolar Junction Transistor (BJT) : PNP and NPN transistors, current components in BJT (I_E , I_B , I_C , I_{CO}), BJT static characteristics (Input and Output). Early effect, CB, CC, CE configurations of transistor and bias conditions (cut off, active, and saturation regions)

Text Books:

- 1) Basic Electronics-Bernard Grob 10th edition (TMH)
- 2) Circuit Analysis-P.Gnanasivam Pearson Education
- 3) Circuit and Networks-A. Sudhakar& S. Pallri (TMH)
- 4) Electronic Devices and circuits-Millman and Halkias (TMH)
- 5) Principles of Electronics-V.K.Mehta&Rohit Mehta
- 6) Electronic Devices and Circuits-Allen Moltershed (PHI)
- 7) Basic Electronics and Linear Circuits-Bharghava U
- 8) Electronic Devices and Circuits-Y.N.Bapat
- 9) Electronic Devices and Circuits-Mithal.


HEAD
Departments of Physies
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007

G. Santhos



GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16

(An Autonomous College of Osmania University)

DEPARTMENT OF ELECTRONICS

B.Sc III YEAR (DIGITAL ELECTRONICS)CBCS

SEMESTER – V

DSE 3311 – DIGITAL ELECTRONICS

Applicable from the academic year 2021-22 onwards

MAX MARKS: 60 E+40I=100 HPW: 7(T+P) NO. Of Credits:5(T+P)

Objective: To make the students acquire the knowledge of digital Electronics.

COURSE OUTCOMES

After completion of the course the student is able to:

- 1. Imbibe conceptual knowledge of Electronics.
- 2. Differentiate methods of analog and digital Electronics
- 3. Apply digital Electronics to daily appliances.
- 4. Demonstrate mastery of various Gates and applications.

B.Sc. ELECTRONICS SYLLABUS

B.Sc. III YEAR, Semester - V

Paper - V: Digital Electronics (DSE-I)

Total number of hours : 60

No of hours per week: 4

Credits : 4

UNIT-I

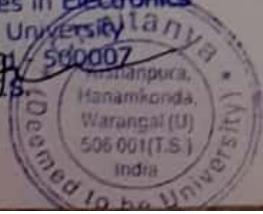
Number system and Logic gates: Conversions of Binary, octal, Decimal & hexadecimal number systems, Binary addition and subtraction (1's and 2's complement methods).

Logic gates- OR, AND, NOT, XOR, NAND, NOR gates and their Truth tables - Design of basic gates using the Universal gates-NAND and NOR gates, Half adder, Full adder and parallel adder logic circuits. Logic families and their characteristics - TTL, CMOS and ECL logic circuits.

UNIT-II

Boolean algebra and Combinational logic circuits: Boolean algebra-Laws and identities, De Morgan's Theorems, Simplification of Boolean expressions using Boolean identities- Reduction of Boolean expressions using Karnaugh Maps - Sum of Products (SOP) representation (up to four variables). Multiplexer, De-Multiplexer, Decoder (3 to 8) and Encoder (8 to 3).

Chik
HEAD
Departments of Physics
Govt. Degree College for Women
Begumpet, Hyderabad-500 007

Sarpanth
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad-500 007


G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Nanna

UNIT-III

Sequential logic circuits: Flip-flops - SR, D, JK, T and Master-Slave JK (Registers- Shift Registers - SISO, SIPO, PISO and PIPO Registers)

Counters : 4-bit Asynchronous (Ripple) counter, Modulo-N counter, synchronous counter, Up/down counters - ripple counter IC 7493 - Decade counter IC 7490 - working, truth tables and timing diagrams.

UNIT-IV

Introduction to 8085 Microprocessor & its architecture: Architecture of 8085 microprocessor - CPU - Timing & Control Unit - Instruction cycle, Fetch Cycle, Execute cycle (Timing diagram), Machine cycle and clock states. Interrupts - Hardware and Software. Address space partitioning - Memory mapped I/O & I/O mapped I/O.

Instruction set of 8085 microprocessor: Classification - Data transfer operations, Arithmetic operations, logical operations, Branch control operations and stack, I/O and Machine control operations. Stack and Subroutines, Addressing modes.

Books Recommended:

1. Digital Principles and Applications - Malvino & Leach - TMH.
2. Digital Principles and Applications - Ronald J. Tocci - Pearson Education
3. Text book of Electronics Bsc III year (vol.111) - Telugu Akademi
4. Digital Fundamentals - F. Loyd & Jain - Pearson Education
5. Fundamentals of Digital Circuits - Anand Kumar - PHI
6. Digital Electronics Principles and Integrated circuits - Maini - Wiley India.
7. Digital Electronics - Gothman

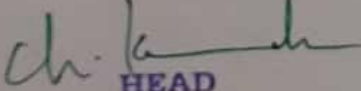
B.Sc. ELECTRONICS SYLLABUS

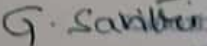
B.Sc. III YEAR, Semester - V Practical

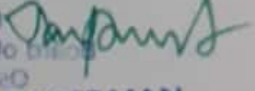
Paper-V: Digital Electronics Lab

No. of hour per week : 3

1. Verification of truth tables of AND, OR, NOT, NAND, NOR, EXOR Gates using IC 74XX series.
2. Construction of basic gates using NAND and NOR gates.
3. Construction of Half Adder using gates. Verification of truth table.
4. Construction of Full Adder using gates and verification of truth table.
5. Verification of truth tables of flip flops: RS, D, and JK using IC's.
6. Construction of binary counters 7493


HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)


G. Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007



Simulation experiments:

1. 4bit parallel adder using Full adders.
2. Decade counter using JK flip flops.
3. Up/Down counters using JK flip flops.
4. Up/down counter using 74193
5. Multiplexer/DeMultiplexer
6. Encoder.

Note: Student has to perform minimum of Six experiments

1. Lab manual for Electronic Devices and Circuits - 4th Edition. By David A Bell - PHI
2. Basic Electronics - A Text Lab Manual-Zbar, Malvino, Miller.

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16
(An autonomous college of Osmania University)
Re-Accredited by NAAC with "B" Grade
Faculty of Physics

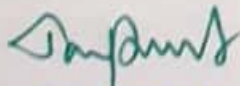
B.Sc III YEAR (DIGITAL ELECTRONICS) CBCS

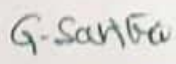
SEMESTER-V DSE 3311 – DIGITAL ELECTRONICS (Question paper pattern)
Applicable from the academic year 2021-22

Max.Marks :100(60E+40I)Time: 2 ½ Hrs

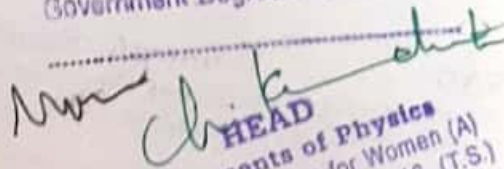
I.	Internal Assessment:40 Marks
Written	: 20 Marks
Assignment	: 5 Marks
Seminar	: 5 Marks
MCQ's	: 10Marks
(Objective)	
Total	: 40 Marks

Note: Average marks of two Internal written test will be considered.


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.


Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College




HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016, (T.S.)

Model Question Paper for B.Sc III Year

Time: 2 ½ hrs

Section-A

Max Marks: 60

Note: Answer any 5 of the following – Each question carries 4 Marks

5 X 4 = 20

- Q1 Unit I
- Q2 Unit I
- Q3 Unit II
- Q4 Unit II
- Q5 Unit III
- Q6 Unit III
- Q7 Unit IV
- Q8 Unit IV

Section-B

Note: Answer all the questions – Each question carries 10 Marks

4 X 10 = 40 Marks

Q9 a) Unit-I
or
b) Unit I

Q10 a) Unit-II
Or
b) Unit-II

Q11 a) Unit-III
Or
b) Unit-III

Q12 a) Unit-IV
Or
b) Unit-IV

Ch. K. ...
HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 010. (T.S.)

Jayaram
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad-500007
T.S.

M. ...
G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College



Government Degree College for Women (Autonomous), Begumpet, Hyderabad

Pattern of Examination

Internal and Semester Evaluation pattern for second semester is given here under:

Internal Assessment

- e) Two Internals of **20 Marks** each. Average of the two Internals is considered for computation of marks
10 Marks for Unit-wise exams (20 Objective type Questions X $\frac{1}{2}$ Mark = 10 Marks)
5 Marks for Seminar and Group discussion on the course, Internships, Jignasa study projects and workshops conducted by MOU'S, certificate course (Agastya foundation(MOU))
5 Marks for Assignment, Science fairs and PPT presentations on field visits and Out Reached Programmes organized by neighboring colleges.
- f) Internal exam consists of **20 Marks**
In **Section A** (Two short answer Questions of 5 marks to be answered out of 4 (2 X 5M=10M))
In **Section-B** (One question is to be answered with **Internal choice** and carries **10 M**)
- g) Internals shall be held at the end of every **9th week** and **14th week** of each semester
- h) The duration of the Internals shall be **45 minutes**

Semester Examination

Semester Exams will be conducted in October and April of every year

- d) 60 marks are allotted for Each paper per semester
- e) Section-A (5 Questions out of 8 Questions have to be attempted – Each Question carries (4 Marks-5 X 4M = 20M))
- f) Section-B (4 Questions with Internal choice are to be attempted- Each question carries (10 M- 4 X 10M=40 M))

Resolved to accept the above Pattern of Examinations for B.Sc II , Year

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007

[Signature]

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
* Skishanpura,
Hanamkonda,
Warangal (U)
506 001(T.S.)
India
Osmania University

[Signature]

G. Savitri

Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

[Signature]

HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)

SEMESTER - VI

CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16
(An Autonomous College of Osmania University)

DEPARTMENT OF ELECTRONICS

B.Sc III YEAR (PROJECT)CBCS

SEMESTER – VI

**PR/PAPER IN LIEU OF PROJECT: RESEARCH METHODOLOGY & PROJECT REPORT
/DIGITAL SYSTEM DESIGN USING VHDL**

Applicable from the academic year 2021-22 onwards

MAX MARKS: 60 THESIS + (30Presentation + 10Viva-voce=40 P) =100 marks

HPW: 2T+4R

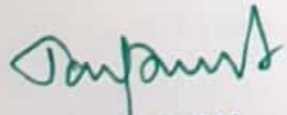
NO. Of Credits: 5(T+P)

Objective: To introduce the basics of conducting research in Electronics.

COURSE OUTCOMES

After completion of the course the student is able to:

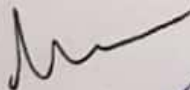
1. Understand some basic concepts of research and its methodologies .
2. Identify appropriate research topics.
3. Select and define appropriate research problem and parameters.
4. Prepare a project proposal (to undertake a project).
5. Organize and conduct research (advanced project) in a more appropriate manner.
6. Write a research report and thesis.
7. Write a research proposal (grants)



CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.



HEAD
Departments of Physics
Govt. Degree College for Women
Begumpet, Hyderabad-500 016. (T.S.)



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16
(An Autonomous College of Osmania University)

DEPARTMENT OF ELECTRONICS

B.Sc III YEAR (ELECTRONICS) CBCS

SEMESTER – VI

DSE 3311 – 8051 MICRO CONTROLLER & APPLICATION LAB

Applicable from the academic year 2021-22 onwards

MAX MARKS: 60 E+40I=100PPW : 5NO. Of Credits: 5

Objective: To be acquaint with Digital -circuit techniques and application methods

COURSE OUTCOMES

After completion of the course the student is able to:

1. Understand various components of 8051 microcontroller.
2. Analyse and provide recommendations to improve the operations of micro controller.
3. Evaluate the Characteristics of 8051 micro controller.
4. Differentiate methods of Digital Electronics applications in circuits.

DSE ; 8051 Microcontroller and Applications

Total number of hours:60

Number of hours per week: 4

Number of credits: 4

UNIT-1

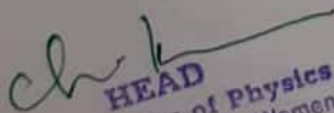
The Microcontroller 8051: Overview and block diagram of 8051. Architecture and pin diagram of 8051. Data types and directives, Memory Organisation, register banks and Stack Pointer. PSW Register, other special function registers, I/O port organization. Interrupts and Timer/Counter modules.

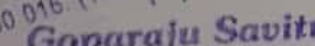
UNIT-II

Instruction set of 8051 microcontroller : Classification-Data transfer, Arithmetic, logical, Single Bit. Jump, Loop and CALL instructions and their usage. Addressing modes - Immediate, Register, Direct, Indirect, Absolute addressing, Relative addressing, Indexed Addressing and accessing memory using various addressing modes.

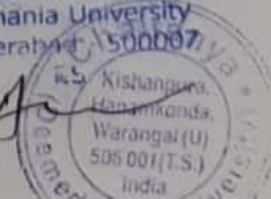
UNIT-III

Programming examples of microcontroller 8051: Addition, Subtraction, division, picking the smallest/largest number among a given set of numbers, arranging a given a set of numbers in ascending/descending order. Subroutines, I/O Programming, Bit manipulation. Accessing a specified port terminal and generating waveforms.


HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)


Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad, 500007



Timer/Counter Programming in 8051: Programming 8051 timers basic registers of timers. Timero, Timer registers. TMOD register. TCON register. Timer modes - Model, Mode2 programming. Counter mode programming. Program to generate time delay.

Unit - IV

Serial communications: Serial communication, Types, modes and protocols, Data transfer rates, serial communication program- SBUF and SCON registers, RS232 standards, Programming timer Interrupts.

Applications of Microcontroller: Displaying information on a LCD Interfacing a keyboard. Interfacing a temperature sensor, R-2R ladder Interfacing of DAC 0808 to microcontroller, successive approximation ADC, Dual slope ADC interfacing of ADC 0804 to microcontroller, Seven segment LED.

Books Recommended:

- 1) The 8051 Microcontrollers and Embedded Systems - Muhammad Ali Mazidi and Janice Gillispie Mazidi-Pearson Education Asia, 4th Reprint, 2002.
- 2) Textbook of Electronics Bsc III year (vol. III)-Telugu Akademi.
- 3) Fundamentals of Microprocessors and Microcontrollers - B.Ram.
- 4) The 8051 Microcontroller - architecture, programming and applications Kenneth).Ayala Penram International Publishing, 1995.
- 5) Microcontrollers-Theory and Applications-Ajay V.Deshmukh.
- 6) Microcontroller 8051 D KarungSagarNarosa Publications (2011)

B.Sc. ELECTRONICS SYLLABUS
B.Sc. III YEAR , Semester - VI - Practical (Elective)
8051 Microcontroller and applications Lab

No. of hours per week:3

Experiments using 8051 microcontroller:

1. ADD, SUB, DAA, Multiplication of two numbers using MUL command (later using counter method for repeated addition).
2. Division of two numbers using DIV command (later using counter method for repeated subtraction)
3. Pick out the largest/smallest number among a given set of numbers.
4. Arrange the given numbers in ascending/descending order.
5. Generate a specific time delay using timer/counter.
6. Interface ADC and a temperature sensor to measure temperature.
7. Interface DAC and generate a staircase wave form with a step duration and number of steps as variables.
8. Flash a LED connected at a specified out port terminal.
9. Interface stepper motor to rotate clock wise/anti clock wise through a given angle steps.

Experiments with Keil Software:

1. Write a program to pick out largest/smallest number among a given set of number.
2. Write a program to arrange a given set of numbers in ascending/descending order.
3. Write a program to generate a rectangular/square wave form at specified port.
4. Write a program to generate a time delay using timer registers.

Note: Student has to perform minimum of Six

Sampath
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

ch...
HEAD
Department of Electronics
Govt. Degree College
Jumpet, Hyderabad

GOVERNMENT DEGREE COLLEGE FOR WOMEN, BEGUMPET, HYD-16

(An autonomous college of Osmania University)

Re-Accredited by NAAC with "B" Grade

Faculty of Physics

B.Sc III YEAR (ELECTRONICS)CBCS

SEMESTER-VI

DSE 3311 -8051 MICRO CONTROLLER AND APPLICATIONS(Question paper pattern)

Applicable from the academic year 2021-22

Max.Marks :100(60E+40I)Time: 2 ½ Hrs

Internal Assessment: 40 Marks

Written : 20 Marks

Assignment : 5 Marks

Seminar : 5 Marks

MCQ's : 10Marks

(Objective)

Total : 40 Marks

Note: Average marks of two Internal written test will be considered.

Ch. K. ...
HEAD
Departments of Physics
Govt. Degree College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)

...
CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.

M. ...



G. Savitri
Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Model Question Paper for B.Sc III Year

Time: 2 ½ hrs

Max Marks: 60

Section-A

Note: Answer any 5 of the following – Each question carries 4 Marks
Marks

5 X 4=20

- Q1 Unit I
- Q2 Unit I
- Q3 Unit II
- Q4 Unit II
- Q5 Unit III
- Q6 Unit III
- Q7 Unit IV
- Q8 Unit IV

Section-B

Note: Answer all the questions – Each question carries 10 Marks

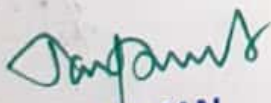
4 X 10=40 Marks

Q9 a) Unit-I
or
b) Unit I

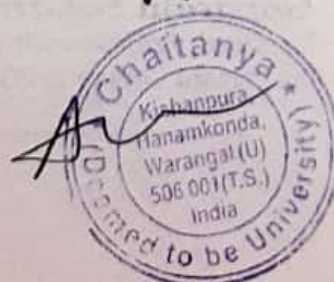
Q10 a) Unit-II
Or
b) Unit-II

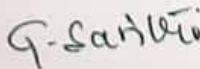
Q11 a) Unit-III
Or
b) Unit-III

Q12 a) Unit-IV
Or
b) Unit-IV


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.


HEAD
Departments of Physics
College for Women (A)
Begumpet, Hyderabad-500 016. (T.S.)




Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College

Government Degree College for Women (Autonomous), Begumpet, Hyderabad

Pattern of Examination

Internal and Semester Evaluation pattern for second semester is given here under:

Internal Assessment

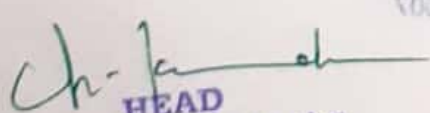
- i) Two Internals of **20 Marks** each. Average of the two Internals is considered for computation of marks
10 Marks for Unit-wise exams (20 Objective type Questions X ½ Mark = 10 Marks)
5 Marks for Seminar and Group discussion on the course, Internships, Jignasa study projects and workshops conducted by MOU'S, certificate (Agastya foundation(MOU))
5 Marks for Assignment, Science fairs and PPT presentations on field visits and Out Reached Programmes organized by neighboring colleges.
- j) Internal exam consists of **20 Marks**
In **Section A** (Two short answer Questions of 5 marks to be answered out of 4
(2 X 5M=10M)
In **Section-B** (One question is to be answered with **Internal choice** and carries **10 M**)
- k) Internals shall be held at the end of every **9th week** and **14th week** of each semester
- l) The duration of the Internals shall be **45 minutes**


Semester Examination

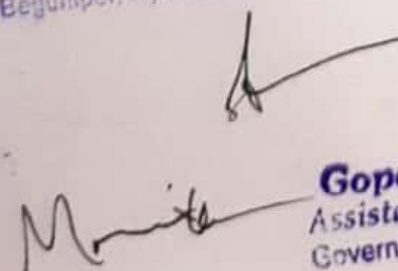
Semester Exams will be conducted in October and April of every year

- g) 60 marks are allotted for Each paper per semester
- h) Section-A (5 Questions out of 8 Questions have to be attempted – Each Question carries (4 Marks-5 X 4M = 20M)
- i) Section-B (4 Questions with Internal choice are to be attempted- Each question carries (10 M- 4 X 10M=40 M)

Resolved to accept the above Pattern of Examinations for B.Sc II Year


HEAD
Departments of Physics
Govl. Degree College for Women (A)
Begumpet, Hyderabad - 500 016. (T.S.)


CHAIRMAN
Board of Studies in Electronics
Osmania University
Hyderabad - 500007
T.S.


Goparaju Savitri, M.Sc
Assistant Professor in Physics
Government Degree & PG College



Government Degree College for Women (Autonomous) Begumpet, Hyderabad

Department of Electronics

List of panel of Examiners for Electronics

B.Sc. III year

No	SEM	Paper	Title of the Paper	Name of the Examiner	Contact No.	Designation	College
5	V	V	DIGITAL ELECTRONICS	Ms.Ch.Sirisha/(smt)Shanukhi Jyothi	9676 1819 13/7 7995 2993 9	Assistant Professor of Physics	New science college/GDC Hussainialam
6	VI	VI	8051 Micro controller A. and application lab	Dr.M.kondaiah/ Smt.Ch.sirisha	9966 5869 98/9 6761 8191 3	Assistant Professor of Physics	Gdc Kukatpally/ New science college

Sampath
CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.

CHAIRMAN
 Board of Studies in Electronics
 Osmania University
 Hyderabad - 500007
 T.S.



A

G. Savitri
Goparaju Savitri, M.Sc
 Assistant Professor in Physics
 Government Degree & PG College

ch...
HEAD

Department of Electronics
 Government Degree College
 Begumpet, Hyderabad-500 016 (T.S.)

mea