

હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ

પરિપત્ર ક્રમાંક- ૨૮૧ / ૨૦૧૧

વિષય : બી.એસસી.-ભૌતિકશાસ્ત્ર ના સેમેસ્ટર/ સીબીસીએસ/ ગ્રેડીંગ પેટર્નના સેમેસ્ટર-૧ અને ૨ ના નવા અભ્યાસક્રમમાં સુધારાઓ અંગે..

આ યુનિવર્સિટી સંલગ્ન સાયંસ કોલેજોના આચાર્યશ્રીઓને જણાવવાનું કે, જૂન-૨૦૧૧થી અમલમાં આવેલ બી.એસસી.-ભૌતિકશાસ્ત્રના સેમેસ્ટર/ સીબીસીએસ/ ગ્રેડીંગ પેટર્નના સેમેસ્ટર-૧ અને ૨ ના નવા અભ્યાસક્રમમાં ભૌતિકશાસ્ત્ર વિષયની અભ્યાસ સમિતિના ચેરમેનશ્રી ધ્વારા સૂચવવામાં આવેલ સામેલ પરિશિષ્ટ પ્રમાણેના સુધારાઓની નકલ અમલ સારૂ આ સાથે મોકલી આપવામાં આવે છે. જેની સંબંધિતોને જાણ કરવા વિનંતી છે.

આ બાબતની અધ્યાપકશ્રીઓ તથા વિદ્યાર્થીઓને આપના સ્તરેથી જાણ કરવા વિનંતી છે.

  
કુલસચિવવતી

બિડાણ : ઉપર મુજબ.

નં.-એકે/અસ/૬૭૪૦ /૨૦૧૧  
યુનિવર્સિટી રોડ, પો.બો. નં.- ૨૧  
પાટણ. -૩૮૪૨૬૫. (ઉ.ગુ.)  
તારીખ : ૭/૧૦/૨૦૧૧

- પ્રતિ,
૧. સંલગ્ન સાયંસ કોલેજોના આચાર્યશ્રીઓ
  ૨. ડો.બી.એલ.પૂજાણી (ડીનશ્રી-વિજ્ઞાન વિદ્યાશાખા) શ્રીએસ.એમ.પંચાલ સાયંસ કોલેજ, કોલેજ કેમ્પસ, તલોદ, જિ.- સાબરકાંઠા
  ૩. પરીક્ષા નિયામકશ્રી, હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ (પાંચ નકલ)
  ૪. ગ્રંથપાલશ્રી, હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ.
  ૫. ઈન્ચાર્જશ્રી, કોમ્પ્યુટર(રીઝલ્ટ) સેન્ટર, હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ. તરફ પરિણામ તથા વેબ સાઈટ અર્થે.
  ૬. પ્રવેશ પ્રશાખા (એકેડેમિક), હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ.
  ૭. મુખ્ય હિસાબી અધિકારીશ્રી (મહેકમ), હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સિટી, પાટણ. તરફ-પરિપત્રની ફાઈલ અર્થે.



HEMCHANDRACHARYA  
NORTH GUJARAT UNIVERSITY  
PATAN-384 265



U.V.-B (CGPA) Accredited (State University)

૧

## U.G. (B. Sc.) Programme

CBCS :: Semester :: Grading Pattern

With effect from: June 2011

**Faculty**



**Subject**

**Physics**

**B.Sc.**

**Semesters: I & II**

**Total Pages: 1 to 21**

Submitted on

Date: 30/06/2011

Page 1 of 21

જાણી: ૨૫/૦૬/૨૦૧૧

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.Sc. Programme with 144 credits

CBCS-Semester-Grading Pattern

w.e.f. June-2011

General Pattern/Scheme of study components along with credits for Science faculty.

Part/Class	Course	Study Component	Instruction Hrs/Week	Examination			Credit
				Integral	Unit Exam	Total	
Sem -I B.Sc.	<b>Semester-I</b>						
	<b>Core Compulsory (CC) Course</b>						
	CC-I-1	Core Course-I (Paper-1)	4	30	70	100	4
	CC-II-1	Core Course-II (Paper-1)	4	30	70	100	4
	CC-III-1	Core Course-III (Paper-1)	4	30	70	100	4
	<b>Practical Core (PC) Course</b>						
	PC-I-1	Practical Core Course-I (Paper-1)	4		50	50	2
	PC-II-1	Practical Core Course-II (Paper-1)	4		50	50	2
	PC-III-1	Practical Core Course-III (Paper-1)	4		50	50	2
	<b>Foundation Course (FC)</b>						
	FC-1	Foundation (Compulsory) course (Generic) - English (L.L.)	2	30	70	100	2
	<b>Elective Course (E)</b>						
	EG-1	Elective (Generic) Course -I	2		50	50	2
	ES-1	Elective (Subject) Course -I	2		50	50	2
			<b>30</b>	<b>120</b>	<b>530</b>	<b>650</b>	<b>24</b>
Sem-II B.Sc.	<b>Semester-II</b>						
	<b>Core Compulsory (CC) Course</b>						
	CC-I-2	Core Course-I (Paper-1)	4	30	70	100	4
	CC-II-2	Core Course-II (Paper-1)	4	30	70	100	4
	CC-III-2	Core Course-III (Paper-1)	4	30	70	100	4
	<b>Practical Core (PC) Course</b>						
	PC-I-2	Practical Core Course-I (Paper-1)	4		50	50	2
	PC-II-2	Practical Core Course-II (Paper-1)	4		50	50	2
	PC-III-2	Practical Core Course-III (Paper-1)	4		50	50	2
	<b>Foundation Course (FC)</b>						
	FC-2	Foundation (Compulsory) course (Generic) - English (L.L.)	2	30	70	100	2
	<b>Elective Course (E)</b>						
	EC-2	Elective (Generic) Course -II	2		50	50	2
	ES-2	Elective (Subject) Course -II	2		50	50	2
			<b>30</b>	<b>120</b>	<b>530</b>	<b>650</b>	<b>24</b>

## Corrections in Syllabus

There are few corrections in UG B.Sc. CBCS Physics syllabus of Sem -I & II

(Effective from June-2011)

Corrections are as under:

Page-1

Correction in 14th line

Total pages: 1 to 21 instead of 1 to 23

Page-13

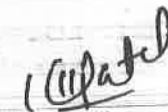
Correction in 4<sup>th</sup> line

CC PHY-201 instead of CC PHY-103

Replacement of pages:

Pages: - 5, 12 and 17 to 23 by new pages 5, 12 and 17 to 21.

Date: 03/10/2011



(K.K. Patel)

Chairman

B.O. S. Physics, HNGU-Patan

Corrected syllabus is attached here with.

LABORATORY EXPERIMENTS

1. Damping coefficient, Relaxation and quality factor in the damped motion of a simple Pendulum.
2. M.I. of a Fly wheel.
3. Verification of Steafan's law using A.C.Source.
4. Arrangement of Spectrometer for parallel rays using Schuster method and clibration of spectrometer.
5. Refractive index of liquid using convex lens.
6. Study of Resonator.
7. Determination of the capacity 'c' of condenser.
8. Study of the series resonance with frequency variation.
9. P-N Junction diode as Half Wave Rectifier (i) Without filter (ii) With Series inductor Filter (iii) With Shunt Capacitor Filter. Calculation of percentage of regulation.
10. V-I characteristics of Zener diode and its use as Voltage regulator.
11. Verification of Thevenin's theorem.
12. Characteristics of common Emitter Transistor.

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Note:- ગ્રુપ - I & II merge થઈ છે.  
શિક્ષણ & યંત્રણે Sem-II ની કોઈ પણ વાત

2

**Unit - I**

**(a) Mechanics of a single particle & of particles:**

Motion of a particle subjected to a resistive force 3.3(d) [1 to 5], mechanics of a system of particle(3.5), Motion of a system with variable mass(3.6)

**(b) Motion in a central force field & Pendulum:**

(i) Equivalent one body problem(5.1), Motion in central force field(5.2) General features of the motion(5.3), Motion in a inverse square law force field (5.4) Equation of the orbit(5.5). Kapler's law of planetary motion (5.6)

(ii) Compound Pendulum (6.4), Bar-Pendulum (6.9)

**Basic reference: For (a) & (b)(i)**

Introduction To Classical Mechanics By R.G. Takwale & P.S.Puranik (Tata McGraw-Hill Publishing Company Ltd.)

**Basic reference: For (b)(ii)**

Elements of Properties of Matter By D.S.Mathur (S.Chand & Company Ltd.)

**Other reference:**

1.Mechanics & Electrodynamics By Brij lal, N.Subrahmanyam & Jivan

Seshan -(S.Chand & Co.)

2.Classical Mechanics by Goldstain (Narosa Pub.)

**LABORATORY EXPERIMENTS**

1. Bar Pendulum : Determination of 'K' and 'g'
2. Melde's Experiment.
3. Find out Refractive index of prism using spectrometer.
4. To determine the ratio of magnetic moments of two magnets by using vibrational magnetometer.
5. To determine the magnetic moment of a given Bar magnet using deflection magnetometer in Gauss A and B position.
6. Determination of self inductance 'L' of Inductor.
7. Study of parallel resonance with frequency variation.
8. Study of transformer.
9. P-N Junction diode as Full Wave Rectifier (i) Without filter (ii) With Series inductor Filter (iii) With Shunt Capacitor Filter. Calculation of percentage of regulation.
10. Bridge Rectifier (i) Without filter (ii) With Series inductor Filter (iii) With Shunt Capacitor Filter. Calculation of percentage of regulation.
11. Verification of Maximum power transfer theorem.
12. Decay of Potential across condenser.

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Note : ગ્રામ - I & II ને મેચ કરવું.  
અહીંની યજ્ઞાલય  
Sem - III ની બંધુકાલ.

9

**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**CBCS - Semester - Grading Pattern**

**List of Elective (Subject) Courses for Sem-I & II**

(in force from June 2011)

1. Instrumentation Measurement and analysis
2. Nuclear Energy
3. Electronic circuit elements and Energy Sources

**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**CBCS - Semester - Grading Pattern**

**B. Sc. :: PHYSICS :: SEMESTER-I & II**

**ES PHY-01**

(in force from June 2011)

**Instrumentation Measurement and analysis**

**UNIT-I:**

**Vernier Calipers:** Introduction, Theory, Figure, Description of the instrument, Detail study of Least count, Errors, Positive error, negative error, Determination of magnitude of positive and negative errors.

**Micrometer Screw:** Introduction, Theory, Figure, Description of the instrument, Definition of pitch and its determination, study of least count, Meaning of the error and explanation of positive and negative errors. Determination of positive and negative errors. Method of taking observation with the help of Micrometer Screw.

**Spherometer :** Introduction, Theory, Figure, Description of the instrument, To determine the pitch of the screw, To determine the least count of the spherometer, Zero error, Derivation of the formula for the radius of curvature of a curved surface.

**UNIT-II**

**Wheastone Bridge:** Introduction, Theory with figure, The figure of meter bridge used in laboratory, construction of Meter bridge.

**Post-Office box:** Introduction, Theory, Circuit Diagram, Theoretical Circuit diagram, explanation of working with necessary formula.

**Construction of Galvanometer:** Introduction, Theory, Sensitivity and Figure of Merit of Galvanometer.

**Spectrometer:** Introduction, Construction and explanation of three main parts of Spectrometer, Mercury Discharge lamp, Sodium Discharge lamp, The adjustment, leveling and the method of recording the observation of Spectrometer.



**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**CBCS - Semester - Grading Pattern**

**B. Sc. :: PHYSICS :: SEMESTER-I & II**

**ES PHY-02**

(in force from June 2011)

**Nuclear Energy**

**UNIT-I**

Mechanism of Nuclear Fission, Fission Cross sections, Fission reactors, Fission Rate & reactor Power, Fission neutrons and gamma rays, prompt neutrons, delayed neutrons, fission gamma rays, Fission products, Amounts and activities of fission products, Fission-product activity after shutdown, Heat generation after shutdown

**UNIT-II**

Nuclear Fusion – Thermonuclear reactions – Energy production in stars.  
Fundamental interactions & elementary particles, Strong, Weak & Electromagnetic interactions.

**Books:**

- Nuclear Physics : Theory and Experiments, R. Roy and B.P. Nigam, Wiley Eastern.
- Physics of Nuclei and Particles, P. Marmier and E. Sheldon, Vol.1, Academic Press
- Physics of the Nucleus, M.A. Preston Addison Wesley

**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**CBCS - Semester - Grading Pattern**

**B. Sc. :: PHYSICS :: SEMESTER-I & II**

**ES PHY-03**

(in force from June 2011)

**Electronic circuit elements And Energy Sources**

**UNIT- I PASSIVE CIRCUIT ELEMENT**

**(a) RESISTOR**

Generals(6.1).Resistor type, Wire wound resistor, Carbon composition resistor, Carbon film resi. , Cermete film resi. , Metal film resi., Power resi. , Value tolerance , Variable resistor , Potentiometer and Rheostats , Fusibal resi. , Resistor color , Resi. Colour band , Resi under ten ohm , Resi. Troubles .. Checking resistor with ohmmeter.

**(b) INDUCTOR**

Inductor , Comparison of different coils , Inductance of an inductance , Another definition of inductance, Mutual inductance, Coefficient of coupling, Variables inductors ,Inductor in series and parallel without M . Series combination with m , Stray inductance , Energy storage magnetic field, DC Resistance of coils ,

**(c) CAPACITOR**

Capacitors , Capacitor connect to battery , Capacitance , Fators controlling capacitance , Type of Capacitors , Fixed Capacitor , Variable capacitors , Voltage rating of capacitors , Stray circuit cap. Likage resistance , Troubles Capa. , Chacking capa. With ohm meter ,

**UNIT—II ENERGY SOURCES**

**(a) CELLS AND BATTERY**

Primary and Secondary cells and Batterys , Voltage and current of cell , Cell life , Different type of dry cells , Carban zink cell , Alkaline cell , Manganese alkaline cell , Nickal cadmium cell , , Mercury cell , Silver oxide cell ,Lead acide cell , Battery rating , Testing dry cell , Photo electric cell , Solar cell

**(b) TRANSFORMER**

Transformer working , Transformer impedance, Can a Trans. Operate on DC , RF Shilding , Auto Transformer

Book- Basic Electronics by B. L. Tharaja , Pub. S. Chand & Compny 3<sup>rd</sup> Edition

20

**HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN**

**CBCS - Semester - Grading Pattern**  
**List of Elective (Generic) Courses**  
 (in force from June 2011)

Credits-2

<b>Elective (Generic) Course</b>	
<b>Semester-I</b>	
Computer Skill-1	National Ethics
Human Society and Ethics	Indian Culture and Heritage
Society an Technology	Stress management
Indian Constitution	
<b>Semester-II</b>	
Environment science	Disaster management
<b>Semester-III</b>	
Computer Skill-II	Cultural heritage of Gujarat
Value Oriented education	Human resource development
Personality Development	
<b>Semester-IV</b>	
Basic computer applications	Presentation skills
Social ethics	Indian knowledge system
First aid and emergency care	
<b>Semester-V</b>	
Gandhi and phylosophy	Library - a learning resource center
Indian religions	Handling of household equipments
Indian history	E-marketing (Telemarketing)
Indian geography	
<b>Semester-VI</b>	
Fundamental rights and duties	Hospitality
Vedic sciences	international relations
Indian Tribal Culture	

21 ઉચ્ચ નિર્ણય ફેરવે છે

