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ಸಂ. ಗುವಿಗು/ವಿಮವಿ/ಬಿಓಎಸ್/2014-15/ 527 ದಿನಾಂಕ:25/4/14

ಅಧಿಸೂಚನೆ

ವಿಷಯ: ಭೌತಶಾಸ್ತ್ರ ಸ್ನಾತಕೋತ್ತರ ಪ್ರಾಯೋಗಿಕ ಪಠ್ಯಕ್ರಮ ಪರಿಷ್ಕರಿಸಿ ಜಾರಿಗೊಳಿಸಿದ ಬಗ್ಗೆ.

ಉಲ್ಲೇಖ: 1) ಸ್ನಾತಕೋತ್ತರ ಅಧ್ಯಯನ ಮಂಡಳಿಯ ಸಭೆಯ ನಿರ್ಣಯ-1 ದಿನಾಂಕ: 22.11.2013.
2) ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಗೊತ್ತುವಳಿ ಸಂಖ್ಯೆ-17 ದಿನಾಂಕ: 29.01.2014.
3) ಕುಲಪತಿಗಳ ಅನುಮೋದನೆ ದಿನಾಂಕ: 09.04.2014.

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ದಿನಾಂಕ: 29.01.2014 ರಂದು ಜರುಗಿದ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ಗೊತ್ತುವಳಿ ಸಂಖ್ಯೆ-17 ನ್ನು ಅನುಷ್ಠಾನಗೊಳಿಸುತ್ತ, ಭೌತಶಾಸ್ತ್ರ ಸ್ನಾತಕೋತ್ತರ ಪ್ರಾಯೋಗಿಕ ಪಠ್ಯಕ್ರಮ ಪರಿಷ್ಕರಿಸಿ, 2014-15 ನೇ ಸಾಲಿನಿಂದ ಅನ್ವಯವಾಗುವಂತೆ ಜಾರಿಗೊಳಿಸಲಾಗಿದೆ.

ಮೇಲಿನ ವಿಷಯವನ್ನು ಸಂಬಂಧಪಟ್ಟ ಶಿಕ್ಷಕರ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳ ಗಮನಕ್ಕೆ ತರಲು ಸೂಚಿಸಲಾಗಿದೆ. ಪಠ್ಯಕ್ರಮದ ವಿವರಣೆಯನ್ನು ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್‌ಸೈಟ್ www.gulbargauniversity.ac.in ದಿಂದ ಪಡೆಯಬಹುದು.

22/4/14
ಕುಲಸಚಿವರು
ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ

ಗೆ,
ಮುಖ್ಯಸ್ಥರು, ಭೌತಶಾಸ್ತ್ರ ಅಧ್ಯಯನ ವಿಭಾಗ, ಗು.ವಿ.ಗುಲಬರ್ಗಾ.

ಪ್ರತಿ:

1) ಡೀನರು, ವಿಜ್ಞಾನ ನಿಕಾಯ, ಗು.ವಿ.ಗುಲಬರ್ಗಾ ರವರ ಮಾಹಿತಿಗಾಗಿ.
2) ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ), ಗುಲಬರ್ಗಾ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಗುಲಬರ್ಗಾ ರವರ ಮಾಹಿತಿಗಾಗಿ.
3) ಭೌತಶಾಸ್ತ್ರ ಸ್ನಾತಕೋತ್ತರ ಕೋರ್ಸು ಹೊಂದಿರುವ ಕಾಲೇಜಿನ ಪ್ರಾಂಶುಪಾಲರಿಗೆ ಮಾಹಿತಿಗಾಗಿ.
4) ಮುಖ್ಯಸ್ಥರು, ವಿಶ್ವವಿದ್ಯಾಲಯ ಗಣಕ ಕೇಂದ್ರ, ಗು.ವಿ.ಗುಲಬರ್ಗಾ ಇವರಿಗೆ ಪಠ್ಯಕ್ರಮದ ಪ್ರತಿಯನ್ನು ಲಗತ್ತಿಸಿ ಕಳುಹಿಸಲಾಗುತ್ತಿದ್ದು, ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್ ಸೈಟ್ ನಲ್ಲಿ ಪ್ರಕಟಿಸಲು ತಿಳಿಸಲಾಗಿದೆ.
5) ಕುಲಪತಿಗಳ ಆಪ್ತ ಕಾರ್ಯದರ್ಶಿ / ಕುಲಸಚಿವರ ಆಪ್ತ ಸಹಾಯಕರ ಮಾಹಿತಿಗಾಗಿ.

GULBARGA UNIVERSITY GULBARGA

M.Sc PHYSICS REVISED PRACTICAL SYLLABUS (CBCS)

EFFECTIVE FROM THE ACADEMIC YEAR 2014-15

GULBARGA UNIVERSITY, GULBARGA

M.Sc Physics (CBCS)

(Effective from 2014-2015)

Teaching and Evaluation Scheme

Sem.	Course Code	Title of the Paper	Credits	Teaching hours/week	Semester End Exam.		Internal Assessment		Total Max. marks
					Duration	Max. marks	Duration	Max. marks	
I	HCT1.1	Classical mechanics	4	4	3 hrs	80	1 hr	20	100
	HCT1.2	Electrodynamics	4	4	3 hrs	80	1 hr	20	100
	HCT1.3	Introductory Quantum Mechanics	4	4	3 hrs	80	1 hr	20	100
	SCT1.1	Mathematical Physics	4	4	3 hrs	80	1 hr	20	100
	SCT1.2	Applied Physics	4	4	3 hrs	80	1 hr	20	100
	HCP1.1/1.2	Practical 1.1	4	4	4 hrs	80	2 hrs	20	100
	SCP1.1/1.2	Practical 1.2	4	4	4 hrs	80	2 hrs	20	100
Total			24			480		120	600

In the beginning of the Semester I, the Department will notify the actual Soft core course that it wants to offer depending on the availability of staff and facility,. Accordingly, the students will be allotted Soft core course.

Sem.	Course Code	Title of the Paper	Credits	Teaching hours/week	Semester End Exam.		Internal Assessment		Total Max. marks
					Duration	Max. marks	Duration	Max. marks	
II	HCT2.1	Basic Nuclear Physics	4	4	3 hrs	80	1 hr	20	100
	HCT2.2	Basic Solid State Physics	4	4	3 hrs	80	1 hr	20	100
	SCT2.1	Atomic & Molecular Physics	4	4	3 hrs	80	1 hr	20	100
	SCT2.2	Plasma Physics	4	4	3 hrs	80	1 hr	20	100
	OET2.1	Elementary concepts in Physics	4	4	3 hrs	80	1 hr	20	100
	OET2.2	Modern Physics	4	4	3 hrs	80	1 hr	20	100
	HCP2.1/2.2	Practical 2.1	4	4	4 hrs	80	2 hrs	20	100
	SCP2.1/2.2	Practical 2.2	4	4	4 hrs	80	2 hrs	20	100
	OEP2.1/2.2	Practical 2.3	2	4	4 hrs	40	2 hrs	10	50
Total			26			520		130	650

In the beginning of the Semester II, the Department, will notify the actual Soft core and Open elective courses that it wants to offer depending on the availability of staff and facility. Accordingly, the students will be allotted Soft Core and Open elective courses.

Sem.	Course Code	Title of the Paper	Credits	Teaching hours/week	Semester End Exam. Duration	Semester End Exam. Max. marks	Internal Assessment Duration	Internal Assessment Max. marks	Total Max. marks
III	HCT3.1	Electronics & Instrumentation	4	4	3 hrs	80	1 hr	20	100
	HCT3.2	Mathematical Physics II	4	4	3 hrs	80	1 hr	20	100
	SCT3.1	Solid State Physics I/ Materials Physics I/ Nano Physics I	4	4	3 hrs	80	1 hr	20	100
	SCT3.2	Nuclear Physics I/Energy Physics I/ Biophysics I	4	4	3 hrs	80	1 hr	20	100
	OET3.1	Mechanics	4	4	3 hrs	80	1 hr	20	100
	OET3.2	Radiation Physics	4	4	3 hrs	80	1 hr	20	100
	HCP3.1/3.2	Practical 3.1	4	4	4 hrs	80	2 hrs	20	100
	SCP3.1/3.2	Practical 3.2	4	4	4 hrs	80	2 hrs	20	100
	OEP3.1/3.2	Practical 3.3	2	4	4 hrs	40	2 hrs	10	50
Total			26			520		130	650

In the beginning of the Semester III, the Department will notify the actual Soft core courses that it wants to offer depending on the availability of staff and facility. Accordingly, the students will be allotted Soft Core courses.

Sem.	Course Code	Title of the Paper	Credits	Teaching hours/week	Semester End Exam. Duration	Semester End Exam. Max. marks	Internal Assessment Duration	Internal Assessment Max. marks	Total Max. marks
IV	HCT4.1	Statistical Mechanics	4	4	3 hrs	80	1 hr	20	100
	HCT4.2	Quantum Mechanics II	4	4	3 hrs	80	1 hr	20	100
	SCT4.1	Solid State Physics II/ Materials Physics II/ Semiconductor Physics and devices	4	4	3 hrs	80	1 hr	20	100
	SCT4.2	Nuclear Physics II/Energy Physics II/ Biophysics II	4	4	3 hrs	80	1 hr	20	100
	HCP4.1/4.2	Practical 4.1	4	4	4 hrs	80	2 hrs	20	100
	SCP4.1/4.2	Practical 4.2	4	4	4 hrs	80	2 hrs	20	100
	HCMP4.3	Project	6	6	--	120*	2 hrs	30	150
Total			26			520		130	650

*(72 marks for project report + 48 marks for Viva-Voce)

Total credits to be earned during entire M.Sc(Physics): 24+26+26+26=102

SYLLABUS FOR M.SC (SEMESTER I) PHYSICS PRACTICAL COURSES

HCP 1.1/1.2: Practical 1.1
(Optics, Electronics and General Lab experiments)

1.Calibration of spectrometer using Talbot's band.
2. Diffraction Haloes: Size of Lycopodium particles.
3. Wavelength of laser by using grating element.
4. Determination of h/e using photocell.
5. Excitation and ionization potentials.
6. e/m by Millikan's oil drop method
7. Determination of resonance frequency of LCR series and parallel ciruits.
8. Cathode Ray Oscilloscope and measurement of AC and DC voltages
9. Basic and their derived Logic gates withVerification of their Truth-Tables.
10. Inverting and Non- inverting Op-amp by IC-741.
11. Voltage Comparator using Op-amp by IC-741.
12. Schmitt Trigger using Op-amp by IC-741.
13. Computation 1
14. Computation 2
15. Computation 3
16. Computation 4

SCP 1.1/1.2: Practical 1.2
(Solid State Physics, Materials Physics and Nuclear Physics Lab experiments)

1. Determination of interplanar spacing using X-ray powder pattern
2. Measurement of resistivity of a Semiconductor by four probe method
3. Specific heat of metals
4 .Determination of Debye's temperature of Lead or Tin
5. Determination of activation energy of point defects in metals
6. Magnetoresistance of a metal/semiconductor
7. G M Counter Characteristics.
8. Dead time of G M Counter.
9. Inverse square law for nuclear radiation.
10.. Attenuation of beta rays.
11. Analysis of stopping power and energy Loss
12. Alpha Scattering cross-section analysis
13. Computation 1
14. Computation 2
15. Computation 3
16. Computation 4

Note: New experiments shall be added to the list as and when developed

SYLLABUS FOR M.SC (SEMESTER II) PHYSICS PRACTICAL COURSES

Paper HCP 2.1/2.2: Practical 2.1
Optics, Electronics and General lab experiments:

1. Analysis of line spectra using Hartman's Formula.
2. Determination of wavelength sodium light using Michelson's interferometer.
3. Determine the wavelength of He-Ne laser light by single slit diffraction method.
4. Absorption coefficient of a solution using photovoltaic cell
5. Study on optical fibers
6. Study of summing and difference amplifier circuits using Op-Amp
7. Study of differentiator integrator circuits using Op-Amp
8. Study of voltage to current conversion using Op-Amp
9. Study of current to voltage conversion using Op-Amp
10. Study of RC-phase shift oscillator using Op-Amp
11. Timer circuit using IC 555
12. Study of Flip-Flops.
13. Absorption coefficient of a solution using photovoltaic cell
14. Study on optical fibers
15. Computation 1
16. Computation 2

Paper SCP 2.1/2.2: Practical 2.2
Solid State, Materials Physics and Nuclear Physics Lab experiments

1. Ultrasonic velocity in solids
2. Thermoelectric power of a metal
3. Thermoelectric power of a semiconductor
4. Thermistor characteristics
5. Curie temperature of a ferromagnetic Material
6. Magnetic Susceptibility of liquid by Quinke's method
7. Energy gap of semiconductor diode
8. Attenuation of gamma rays.
9. Determination of half- life of potassium
10. Study of scintillation detector
11. Gamma ray spectrum using Scintillation Detector
12. Study of beta ray spectrum.
13. Spectral response analysis of Solid State detector
14. Computation 1
15. Computation 2
16. Computation 3

Paper OET 2.1/2.2: Practical 2.3

1. Optics/General Lab experiments
2. Nuclear & Energy Lab experiments.
3. Solid State & Materials Physics Lab experiments
4. Electronics Lab experiments

Note: New experiments shall be added to the list as and when developed.

SYLLABUS FOR M.SC (SEMESTER III) PHYSICS PRACTICAL COURSES

HCP 3.1/3.2: Practical 3.1
General Optics and Electrocnics laboratory experiments

1. Sodium doublet separation using Michelson Interferometer
2. Refractive Index and thickness of the film using Michelson Interferometer.
3. Determination of Lycopodium powder particle size by hollow method.
4. Wavelength of Laser beam using double slit interference pattern method
5. Absorption spectra of Iodine vapour.
6. Refractive index and thickness of glass plate using laser
7. Analysis of emission band spectrum of PN (Phospozene) molecule.
8. CE transistor amplifier
9. Logic gates using ICS
10. Half adder and Half subtracter
11. Full adder and full subtracter
12. A/D converter
13. Computation 1
14. Computation 2
15. Computation 3
16. Computation 4

SCP 3.1/3.2: Practical 3.2
Solid State, Materials Physics and Nuclear Physics Laboratory experiments

1. Determination of Fermi energy of a metal.
2. Phase transition of Pb-Sn system.
3. Conductivity of glass.
4. Determination of structure factor
5. Magnetic susceptibility of Gouy's method.
6. Hall effect by Vander Paw method
7. Hall effect by regular method
8. Spectral response analysis of scintillation detector
9. Analysis of electron scattering and estimation of nuclear size.
10. Determination of rest mass energy of electron from gamma ray spectrum.
11. Multi channel analysis of gamma ray spectrum.
12. Beta spectrum using scintillation detector.
13 Study of solar cell
14. Solar spectrum and determination of solar constant
15. Computation 1
16. Computation 2

OEP 3.1/3.2: Practical 3.3

1. Experiment in Solid state laboratory.
2. Experiment in Optics/General laboratory.
3. Experiment in Nuclear laboratory.
4. Experiment in Electronics laboratory.

Note: New experiments shall be added to the list as and when developed.

SYLLABUS FOR M.SC (SEMESTER IV) PHYSICS PRACTICAL COURSES

HCP 4.1/4.2: Practical 4.1
General Optics and Electronics laboratory experiments

1. Wavelength of laser beam by single slit diffraction method.
2. Wavelength of laser beam by diffraction due to engraving on vernier calipers
3. Velocity of light by Kerr cell method
4. Determiation of numerical aperture by an optical fibre.
5. Thickness of thin wire (or hair) by using laser.
6. Calibration constant of deviation spectrometer
7. RC coupled transistor CE amplifier.
8. Fixed voltage regulation using IC 7812 or 7912
9. Variable voltage regulation using IC 723 or 8085
10. Study of counters and shift registers
11. D/A converter.
12. Study of microprocessor
12. Study of Multiplexer
13. Computation 1
14. Computation 2
15. Computation 3
16. Computation 4

SCP 4.1/4.2: Practical 4.2
Solid state, Materials Physics and Nuclear Physics Laboratory experiments

1. Electron-phonon coupling constant by measuring resistivity and Debye's temperature.
2. Electron spin resosnance.
3. Study of creep.
4. Determination of yield point and yield strength.
5. Intensity calculations for X-ray powder pattern
6. Analysis of Mossbauer spectrum.
7. Patterson function for simple crystal structure.
8. Study of coincidence circuits.
9. Study of Bremsstrahlung radiation
10. Analysis of n-p and p-p scattering parameters.
11. Nuclear structure analysis.
12. Analysis of beta spectrum by multi channel analyzer
13. Study of solar panels.
14. Positron annihilation and angular correlation of annihilation photons
15. Analysis of nuclear reaction cross section.
16. Computation 1
17. Computation 2
18. Computation 3
19. Computation 4

Note: New experiments shall be added to the list as and when developed.

*Paper HCMP4.3: PROJECT for six credits remains as it is. Number of credits for the Project are 06 and maximum marks for which it shall assessed are 150 (=120+30)