Study & Evaluation Scheme

of

Bachelor of Science (Mathematics)

[Applicable w.e.f. Academic Session 2011-12 till revised]

(With amendments in BAS603, BAS604, as approved on 5th November, 2012 and 5th January 2013.

TEERTHANKER MAHAVEER UNIVERSITY

N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001

Website: www.tmu.ac.in

TEERTHANKER MAHAVEER UNIVERSITY

(Established under Govt. of U. P. Act No. 30, 2008)
Delhi Road, Bagarpur, Moradabad (U.P)

Study & Evaluation Scheme
of
Bachelor of Science (Hons)-Mathematics
SUMMARY

Programme : B.Sc.(Hons)- Mathematics

Duration : Three year full time (Six Semesters)

Medium : English

Minimum Required Attendance : 75 %

Credit :

Maximum Credit : 160

Minimum credit required for the degree : 156

Assessment :

Internal	External	Total
30	70	100

Internal Evaluation (Theory Papers)

Class Test I	Class Test II	Assignment(s)	Other Activity (including attendance)	Total
10 Marks	10 Marks	5 Marks	5 Marks	30 Marks

Evaluation of Practical :

Internal	External	Total
50	50	100

Evaluation of Seminar/Viva

Internal	External	Total
100	-	100

Duration of Examination :

External	Internal
3 hrs.	1 ½ hrs

To qualify the course a student is required to secure a minimum of 40 % marks in aggregate including the semester end examination and teachers continuous evaluation.(i.e. both internal and external).

A candidate who secures less than of 40% of marks in a course shall be deemed to have failed in that course. The student should have at least 50% marks in aggregate to clear the semester. In case a student has more than 40% in each course, but less than 50% overall in a semester, he/she shall re-appear in courses where the marks are less than 50% to achieve the required aggregate percentage of 50% in the semester.

Question Paper Structure

1. *The question paper shall consist of eight questions. Out of which first question shall be of short answer type (not exceeding 50 words) and will be compulsory. Question No. 1 shall contain 8 parts representing all units of the syllabus and students shall have to answer any five (weightage 4 marks each).*
2. *Out of the rest seven questions, students shall be required to attempt any five questions. There will be minimum one and maximum two questions from each unit of the syllabus. The weightage of Question No. 2 to 8 shall be of 10 marks each.*

Study and Evaluation Scheme
Course: B.Sc. (Hons.) Mathematics

Semester I

S. No.	Subject Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS101	Basic Physics-I	3	2	0	4	30	70	100
2	BAS104	Algebra & Matrices	3	2	0	4	30	70	100
3	BAS105	Trigonometry & Differential Calculus	3	2	0	4	30	70	100
4	BAS106	Fundamentals of Physical Chemistry	3	2	0	4	30	70	100
5	BHM101	Foundation English-I	2	0	2	3	30	70	100
6	BAS151	Basic Physics-I Lab	0	0	4	2	50	50	100
7	BAS156	Physical Chemistry Lab	0	0	4	2	50	50	100
8	BGP101	Discipline & General Proficiency	0	0		1	100	-	100
		Total	**14**	**8**	**10**	**24**	**350**	**450**	**800**

Semester II

S. No.	Subject Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS204	Vector calculus & Geometry	3	2	0	4	30	70	100
2	BAS205	Integral Calculus	3	2	0	4	30	70	100
3	BAS206	Basic Physics-II	3	2	0	4	30	70	100
4	BAS207	Fundamental of Inorganic Chemistry	3	2	0	4	30	70	100
5	BHM201	Foundation English-II	2	0	2	3	30	70	100
6	BAS256	Basic Physics-II Lab	0	0	4	2	50	50	100
7	BAS257	Inorganic Chemistry Lab	0	0	4	2	50	50	100
8	BGP201	Discipline/ General	0	0	0	1	100	0	100
		Proficiency							
		Total	**14**	**8**	**10**	**24**	**350**	**450**	**800**

Semester III

S. No.	Subject Code	Subject	Periods			Credit	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS301	Numerical Analysis	3	2	0	4	30	70	100
2	BAS302	3D-Solid Geometry	3	2	0	4	30	70	100
3	BAS303	Basic Physics-III	3	2	0	4	30	70	100
4	BAS304	Fundamentals of Organic Chemistry	3	2	0	4	30	70	100
5	BCS301	Fundamentals of Computers	3	2	0	4	30	70	100
	BAS309	Environmental Science							
6	BHM301	Professional Writing	2	0	2	3	30	70	100
7	BAS353	Basic Physics-III Lab	0	0	4	2	50	50	100
8	BAS354	Organic Chemistry Lab	0	0	4	2	50	50	100
9	BCS351	Fundamentals of Computers Lab	0	0	4	2	50	50	100
	BAS359	Environmental Science Lab							
10	BGP301	Discipline/ General Proficiency	0	0		1	100	-	100
		Total	**17**	**10**	**14**	**30**	**430**	**570**	**1000**

Semester IV

S.N.	Subject Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS401	Ordinary Differential Equations	3	2	0	4	30	70	100
2	BAS402	Real Analysis	3	2	0	4	30	70	100
3	BAS403	Algebra	3	2	0	4	30	70	100
4	BCS 402	Discrete Mathematics	3	2	0	4	30	70	100
5	BCS401	Fundamentals of Computer	3	2	0	4	30	70	
	BAS409	Environmental Science							100
6	BHM401	Technical Communication	2	0	2	3	30	70	100
	BCS451	Fundamentals of Computers Lab							

7	BAS459	Environmental Science Lab	0	0	4	2	50	50	100
8	BGP402	Discipline/ General Proficiency	0	0	0	1	100		100
		Total	**17**	**10**	**6**	**26**	**330**	**470**	**800**

Semester V

S.N.	Subject Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS501	Statistics	3	2	0	4	30	70	100
2	BAS502	Partial Differential Equations	3	2	0	4	30	70	100
3	BAS503	Complex Analysis	3	2	0	4	30	70	100
4	BAS504	Operation Research	3	2	0	4	30	70	100
5	BAS505	Dynamics	3	2	0	4	30	70	100
6	BCS501	C Programming	2	1	0	2	30	70	100
7	BHM 501***	Technical Writing	2	0	2	3	30	70	100
8	BCS551	C Programming Lab	0	0	4	2	50	50	100
9	BGP501	Discipline/ General Proficiency	0	0		1	100	-	100
		Total	**19**	**11**	**6**	**28**	**360**	**540**	**900**

Note: * Effective from academic year 2012-13**

Semester VI

S.N.	Subject Code	Subject	Periods			Credits	Evaluation Scheme		
			L	T	P		Internal	External	Total
1	BAS601	Differential Geometry and Tensor	3	2	0	4	30	70	100
2	BAS602	Hydrodynamics	3	2	0	4	30	70	100
3	BAS603	Mathematical Modeling	3	2	0	4	30	70	100
4	BAS604	Graph theory	3	2	0	4	30	70	100
5	BAS605	Applied Statistics	3	2	0	4	30	70	100
6	BHM 601	Communication Technique	2	0	2	3	30	70	100
7	BAS699	Project /Viva-voce	0	0	8	4	50	50	100
8	BGP601	Discipline/ General Proficiency	0	0		1	100	-	100
		Total	**17**	**10**	**10**	**28**	**330**	**470**	**900**

L – Lecture **1L= 1Hr**

T- Tutorial **1T= 1 Hr**

P- Practical **1P=1Hr**

C-Credits
1C=1Hr of theory
1C= 2 Hr of Practical

B.Sc. Maths (Hons) –Semester I
BASIC PHYSICS-I

Course Code: BAS-101	L	T	P	C
	3	2	0	4

Unit I **(Lectures 08)**

Conservation of Energy and Linear Momentum

Mechanics of a particle, work-energy theorem. Conservative and non-conservation forces and their examples. Conservation force as negative gradient of potential energy. Center of mass of a system of particles. Conservation of linear momentum and energy. Systems of variable mass, single and multistage rockets. Elastic and inelastic collisions.

Unit II **(Lectures 08)**

Rotational Dynamics

Rigid body motion. Rotation motion, torque and angular momentum. Moment of inertia and its calculations for disc, cylinder, spherical shell and solid sphere, Body rolling down on and inclined plane. Fly wheel, Motion of Top.

Unit III **(Lectures 08)**

Motion under Central Forces

Concept of central force. Kepler's laws of planetary motion. Gravitational law, Gravitational Potential and fields due to spherical shell and solid sphere. Gravitational potential energy and escape velocity. Two particle central force problem and reduced mass. Motion of planets and satellites.

Unit IV **(Lectures 08)**

Properties of Matter:

Elasticity, small deformations, Hooke's law, Elastic constants and relation among them. Beam supported at the ends, cantilever.

Streamline and turbulent flow, equation of continuity, viscosity, Poiseulie's law critical velocity, Reynolds's number.

Surface tension and surface energy, pressure on a curved liquid surface

Unit V (Lectures 08) Nuclear Physics

Nuclear Forces, Binding Energy, Liquid Drop Model, Fission, Nuclear Reactors, Fusion and Energy Processes in Stars, Controlled Thermonuclear Reactions.

Text Books:

1. "Mechanics", D S Mathur; Khanna Publications
2. "Mechanics", Goldstein; New Age Publications.

*** Latest editions of all the suggested books are recommended.**

Semester I
ALGEBRA AND MATRICES

Course Code: BAS-104	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Matrices and determinants, Elementary row and column transformation, Linear transformations, Rank of matrix.

Unit II **(Lectures 08)**

Consistency of linear system of equations, Linear dependence and independence, Hermitian and skew Hermitian matrices, general form of matrices.

Unit III **(Lectures 08)**

Inverse of matrix by elementary operations, Solutions of simultaneous equations, Characteristic equation, Caley-Hamilton theorem (without proof), Eigen values and eigen vectors, Diagonalization.

Unit IV **(Lectures 08)**

Sets, Relations, Functions, Binary operations, permutation, Groups and subgroup its elementary properties.

Unit V **(Lectures 08)**

Isomorphism and Homomorphism of Groups, Caley's theorem, Order of an element, Rings, Fields and integral domains.

Text Books:

1. "Matrices" by Dr. J.K.Goel and K.P.Gupta, Students Friends & Co.
2. "Modern Algebra" by A. R. Vashisth, Krishana Prakshan Mandir

Reference Books:

1. "Matrices" by Shanti Narain, S Chand &Co.
2. "Matrices" by N. Saran and J. K. Goyal, Pragati Prakashan
3. "Modern algebra" by I N Herstein, Wiley Eastern Ltd.
4. "Modern algebra" by Surjeet Singh and Qazi Zameesuddin, Vikash Publishing House Pvt Ltd.
5. "Modern algebra" by D. C. Agarwal and H. N Nigam, Shiksha Sahitya Prakshan
6. "Modern algebra" by Harsh Swaroop Sharma and H. S. Seth, Ram Prashad & Sons
7. "Elements of Matrices" by Dr. M. Ray and S.S. Sethi Ram Prasad &Sons.
8. "Matrices" by A.R. Vashistha, Krishna Prakashan Mandir.

*** Latest editions of all the suggested books are recommended.**

Semester I
TRIGONOMETRY & DIFFERENTIAL CALCULUS

Course Code: BAS-105	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Circular and hyperbolic functions of complex quantities, Separation of real and imaginary parts of trigonometric, logarithmic, and exponential functions.

Unit II **(Lectures 08)**

Gregory's series, summation of series, Expansion of Functions .

Unit III **(Lectures 08)**

Successive differentiation, Leibnitz theorem (without proof), Euler's theorem, Mean value theorems, tangent and normal, maxima and minima, limit and its properties.

Unit IV **(Lectures 08)**

Mac Laurin's and Taylor's expansion of functions, errors and approximation, Asymptotes and curvature of curves in Cartesian and polar coordinates, Partial differentiation.

Unit V **(Lectures 08)**

Tracing of curves in Cartesian, parametric and polar coordinates (conics, asteroid, hypocycloid, Folium of Descartes, Cycloid, Circle, Cardioids, Lemniscates, equiangular spiral), Jacobian, Indeterminate forms, Envelop and Evolutes

Text Books:

1. "Differential Calculas" by Gorakh Prasad, Pothishala Pvt Ltd.
2. "Trigonometry" by A. K. Saxena, Aeykay Prakashan.Bareilly

Reference Books:

1. ""Trigonometry" by J. C. Sharma, P. H. Sharma, Students Friends & Co.
2. "Trigonometry" by A.R. Vashistha and R. K. Gupta, Krishna Prakashan Mandir.
3. "Differential Calculus" by N. Pishkunor, Peace Publishers Moscow
4. "Differential Calculus" by M. Ray, Shiv Lal Agarwal &Co Agra.
5. "Differential Calculus" by Khalil Ahmed, Anamya Publication, New Delhi
6. "Differential Calculus" by A. K. Saxena, Aeykay Publication

*** Latest editions of all the suggested books are recommended.**

Semester I
FUNDAMENTALS OF PHYSICAL CHEMISTRY

Course Code: BAS-106	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Gaseous state: Deviation of real gases form the equation of state for an ideal gas, Vander Waals and Virile equation of state, critical phenomena, principle of corresponding states, equation for reduced state, Liquifaction of gases, distribution of molecular speed, collisions between molecules in a gas, mean free path, specific heat of gases.

Unit II **(Lectures 08)**

Phase rule and its application: Equilibrium between liquid, solid and vapours of a pure substance, Clausius-Clapeyron equation and its applications. Number of components, phases and degrees of freedom, phase rule and its applications simple systems with one (water and sulphur) and two components (lead-silver, salt hydrates), Distribution law, its modifications, limitations and application.

Unit III **(Lectures 08)**

First law of thermodynamics and their applications, thermodynamic system, states and processes work, heat and internal energy, zeroth law of thermodynamics, various types of work done on a system in reversible and irreversible process, Calorimetry and thermodynamistry, enthalpy, changes in various physical and chemical process, second law of thermodynamics and its applications.

Unit IV **(Lectures 08)**

Absorption of light, laws of photochemistry quantum yield, the excited state and its decay by rediative, nonradiative and chemical pathways, simple photochemical reactions.

Unit V **(Lectures 08)**

Colloids, the colloidal state, preparation and purification of colloids and their characteristic properties, lyophilic and lyophobic colloids and coagulation, protection of colloids, gels, emulsions, surfactants and micelles.

Text Books:

"Physical Chemistry" by Puri Sharma and Pathania.

Reference Books:

"Physical Chemistry" by Borrow

*** Latest editions of all the suggested books are recommended.**

Semester I
FOUNDATION ENGLISH - I

Course code: BHM101

(Common with EHM101/BPH105/BED105/BAL101/AR107/BFS106/BCA106/BBA106/ BCH106/ BFA103)

L	T	P	C
2	0	2	3

Course Contents: Unit I

Functional Grammar: Patterns & Parts of speech Subject, Predicate, Noun, Pronoun, Adjective, Adverb, Verb, Verb phrases, Conjunction, Interjection. **(10 Hours)**

Unit II

Vocabulary: Word formation, Prefix, Suffix, Compound words, Conversion, Synonyms, Antonyms, Homophones and Homonyms, How to look up a dictionary. **(10 Hours)**

Unit III

Communication: Meaning & importance of communication, Barriers to effective communication, Channels of communication, Language as a tool of communication.

(10 Hours)

Unit IV

Requisites of Sentence writing: Fragmented sentences, A good sentence, expletives, Garbled sentences, Rambling sentences, Loaded sentences, Parallel Comparison, Squinting construction, Loose & periodic sentences. **(10 Hours)**

Text Books:

1. Martin & Wren - *High School English Grammar & Composition*, S.Chand & Co. Delhi.
2. Lewis Norman - *Word Power made easy*, W.R.Goyal. Publication & Distributors Delhi.
3. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.

Reference Books:

1. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.
2. Mohan Krishna & Banerji Meera, *Developing Communication Skills* – Macmillan India Ltd. Delhi.
3. Rosen Blum M., *How to Build Better Vocabulary* – Bloomsbury Publication. London.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Semester I
BASIC PHYSICS-I LAB

Course code: BAS-151	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

LIST OF EXPERIMENTS

Note: Select any ten experiments from the following list

1. To determine Ionisation potential of a gas (Soft valve)
2. To determine Plank‟s constant.
3. To determine the Ionization Potential of mercury.
4. To plot the V-I characteristic of the Solar cell by Characteristics apparatus
5. To determine Moment of inertia of a Flywheel.
6. To determine Young's Modulus in case of Uniform bending using Scale, telescope and optic lever.
7. To determine Young‟s Modulus in case of Cantilever using Pin and Microscope
8. To determine Modulus of Rigidity by using Torsion pendulum .
9. To determine Viscosity by the Capillary flow (Radius using Mercury pellet) .
10. To determine Surface tension by usingCapillary rise (Radius using Vernier microscope).
11. To verify Bernoulli‟s theorem
12. To determine the frequency of A.C. mains by means of a sonometer.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)
Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)
The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

PHYSICAL CHEMISTRY LAB

Course code: BAS-156	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

1. To determine the surface tension of the given liquid by drop number method.
2. To determine the viscosity of a given liquid at room temperature by using Oswald's viscometer (Densities to be determined).
3. To study coefficient of iodine between carbon tetra chloride and water.
4. To study the adsorption of acetic acid on dispersed charcoal.
5. To determine the integral enthalpy of solution of CuSO4.5H2O.
6. To determine the reaction rate constant of acid catalyzed hydrolysis of ester- titrimetry.
7. To find out the rate constant for the inversion of cane sugar in acid medium and to show that inversion follows the first order kinetics.
8. To study the kinetics of acetone-iodine reaction.
9. To determine the rate of reaction of iodine with hydrogen peroxide (H2O2) at room temperature (clock reaction).
10. To determine the enthalpy of neutralization of hydrochloric acid with sodium hydroxide.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

<table>
<tr><td colspan="3">PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)</td><td rowspan="2">ATTENDANCE (5 MARKS)</td><td rowspan="2">QUIZ (5 MARKS)</td><td rowspan="2">VIVA (10 MARKS)</td><td rowspan="2">TOTAL INTERNAL (50 MARKS)</td></tr>
<tr><td>EXPERIMENT (10 MARKS)</td><td>FILE WORK (10 MARKS)</td><td>VIVA (10 MARKS)</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester I/II/III/IV/V/VI
DISCIPLINE & GENERAL PROFICIENCY

Course code: BGP101/BGP201/BGP301/BGP401/BGP501/BGP601

L	T	P	C
0	0	0	1

There shall be continuous evaluation of the student on the following broad parameters:

1. Observance of dress code.

2. Participation in Conferences /Workshops / Seminars.

3. Attendance in guest lectures, invited talks and special technical sessions organized from time to time.

4. Participation in community projects including NCC and NSS.

5. Exhibiting team spirit in different activities of the University and College organized from time to time.

6. Observance of rule &regulations in the College/University.

7. Behaviour in hostel mess and hostel.

8. Performance and awards received in different events (sports/ co-curricular activities) organized at College / University and other level.

9. General behaviour

The above is an indicative list of parameters on which the students shall be continuously evaluated. The college may evaluate the student on the specific parameters by informing them through a notice displayed on the notice board before evaluation. There shall be no external examination for this course; however the marks shall be included for calculation of cumulative Performance Index (CPI).

Semester II
VECTOR CALCULUS AND GEOMETRY

Course code: BAS-204	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Scalar and vector product, multiple product of vectors, simple geometrical application of plane straight line and spheres

Unit II **(Lectures 08)**

Differentiation and Integration of vectors, gradient divergence and curl operators, Gauss divergence theorem, Stoke and Green's theorem (without proof), simple applications.

Unit III **(Lectures 08)**

2-dimensional coordinate geometry. Tracing of conics, Polar equations of conics

Unit IV **(Lectures 08)**

(3- dimensional coordinate geometry). System of coordinates in three dimensions, Straight lines in symmetrical and nonsymmetrical forms, coplanar lines, Shortest distance between two skew lines, Equation of plane in different forms, Intersection of three planes, Volume of tetrahedron.

Unit V **(Lectures 08)**

Equation of Sphere, tangent plane, Radical plane, Equation of cylinder, enveloping cylinder, rigid circular cylinder, tangent plane with given vertex and given conic, enveloping, rigid circular cone, tangent planes.

Text Books:

1. "Co ordinate Geometry of 2D" by P.K. Jain and Khalid Ahemad, Wiley Eastern Co
2. "Analytic Solid Geometry" by A.R Vashisth and S. C. Agarwal, Krishana Prakahan Mandir
3. "Vector Analysis" by H. S. Sharma and G. C. Sharma, Students Friends & Co.

Reference Books:

1. "Co ordinate Geometry of 2D" by S. L. Loney, Maemillan and Co
2. "Co ordinate Geometry of 2D" by S. C. Gupta, B. M. L. Tiwari and P.C. Jain, Pragati Prakashan
3. "Co ordinate Geometry of 2D" by N. Saran and R. S. Gupta, Pothishala Pvt Ltd.
4. "Co ordinate Geometry of 2D" by A. K. Saxena, Aeykay Publication Bareilly
5. "Co ordinate 3D Geometry" by R. J. T Bell, Maemillan & Co.
6. "Co ordinate 3D Geometry" by Gorakh Prasad and H. C. Gupta, Pothishala Pvt Ltd.
7. "Co ordinate Geometry of 3D" by S. C. Mittal and S. K. Mittal, Pragati Prakashan
8. "Co ordinate Geometry of 3D" by P. K. Jain and Khalid Ahemad, New Age International New Delhi
9. "Vector Analysis" by M. R. Speegel, Schaum Publishing Co .New Delhi
10. "Vector Analysis" by Shanti narayan, S Chand & Co
11. "Vector Analysis" by N. Saran and S. N. Nigam, Pothishala Pvt Ltd

*** Latest editions of all the suggested books are recommended.**

Semester II

INTEGRAL CALCULUS

Course code: BAS-205	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Definite integration (Miscellaneous Examples), integration as the limit of sum, Reduction Formula.

Unit II **(Lectures 08)**

Multiple integration, Beta and gamma functions and applications, length of curves, Areas bounded by the curves.

Unit III **(Lectures 08)**

Drichlet's integral, Volume and surfaces of revolutions

Unit IV **(Lectures 08)**

Differential equation of first order and first degree, Differential equation of first order but not of first degree. Miscellaneous differential equations.

Unit V **(Lectures 08)**

Linear differential equation of second order with constant coefficient, Linear differential equation of other types.

Text Books:

1. "Integral Calculus" by Gorakh Prasad, Pothishala Pvt. Ltd.
2. "Integral Calculus" by M. Ray, Shiv Lal Agarwal & Co Agra
3. "Integral Calculus" by P. V. Pishkuno, Peace Publishers Mascow

Reference Books:

1. "Integral Calculus" by Shanti Narayan and P.K Mittal, S.Chand & Company Ltd
2. "Integral Calculus" by Brahmanand, B. S. Tyagi, and B. D. Sharma, Kedarnath Ram Nath.
3. "Integral Calculus by" Shani Narayan, S.Chand & Company Ltd

*** Latest editions of all the suggested books are recommended.**

Semester I
BASIC PHYSICS-II

Course code: BAS-206	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

FIELDS: Vector and scalar fields, gradient, divergence and curl (Cartesian coordinates only), Gauss's theorem and Stokes' theorem (Statements only).

Unit II **(Lectures 08)**

ELECTROMAGNETIC THEORY: Gauss's law in integral and differential form, electric potential and relation with E, capacitance and electric energy density, dielectrics, three electric vectors, dielectric susceptibility, boundary conditions on E and D. Ampere's law in integral and differential form, applications, Hall effect, three magnetic vectors magnetic permeability and susceptibility, boundary conditions on B and H

Unit III **(Lectures 08)**

Electro-magnetics:

Faraday's law in integral and differential form, continuity equation for charge, displacement current, Maxwell's equations in free space, electromagnetic wave equation for plane waves in dielectric medium and free space, relation between E, B and k, Pointing vector.

Unit IV **(Lectures 08)**

PHYSICAL OPTICS: Interference: two-beam interference, interference in thin films and wedge-shaped layers, reflection and anti-reflection coatings, applications of interferometry: Newton's rings, Michelson's interferometer.

Diffraction: Fraunhofer diffraction by single slit, double slit and grating, limit of resolution, Rayleigh criterion and Fresnel diffraction.

Unit V **(Lectures 08)**

Polarization: polarization of light, Malus's law, Brewster's law, double refraction), analysis of linearly and circularly polarized light, Fresnel's Theory.

Lasers And Applications: Spontaneous and Stimulated Emission, Einstein's A and B Coefficients, Laser: Population-Inversion, Properties of laser radiation, Ruby & He-Ne Lasers, Applications of Lasers-Elementary Ideas of Holography and Fiber Optics.

Reference

1. Mathew N.O. Sadiku, Elements of Electromagnetics, Oxford Univ. Press (2001).
2. A. Ghatak ,Optics, 3rd edition, Tata McGraw Hill (2005).
3. Resnick, Halliday and Krane, Physics Part-I & II, 5th edition, John Wiley (2002).
4. M. R. Srinivasan, Physics for Engineers, New Age International (1996).

*** Latest editions of all the suggested books are recommended.**

Semester II
FUNDAMENTALS OF INORGANIC CHEMISTRY

Course code: BAS-207	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 09)**

Dual nature of matter and idea of De Broglie matter waves and equations, Wave mechanical model, Heisenberg uncertainty principal, Schrodinger wave equation, quantum numbers shapes of s, p, d orbitals, Aufbau and Pauli exclusion principles, Hund's multiplicity rule, electronic configuration of elements.

Unit II **(Lectures 08)**

Atomic and ionic redii, ionizationenergy, election affinity and electronegative-definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour, chemical bonding, ionic solids

Unit III **(Lectures 07)**

Disintegration theory, group displacement law, rate of disintegration, half life period, average life period, disintegration series, Radioactive equilibrium, Artificial radioactivity, types of nuclear reactions, Nuclear fission and fusion, application of radioactivity.

Unit IV **(Lectures 08)**

Arrhenius, Bronsted Lowry and Lewis and Usanovich concepts of acids and bases, Classification of acid and bases as hard and soft pearson's HSAB concept, acid-base strength and hardness and softness, Symboiosis, theoretical basis of hardness and softness, electronegativity and hardness and softness.

Unit V **(Lectures 08)**

Definition of Organometallic chemistry, nomenclature and classification of organometallic compounds, Preperation propertiesbonding application of alkyls and aryls of Li, Al, Hg, Sn, and Pb, a brief account of metal-ethylenic complexes and homogeneous hydrogenation monoculear carbonyls and the nature of bonding in metal carbonyls.

Text Books:
Inorganic Chemistry "Puri Sharma & Kalia"

Reference Books:
"Inorganic Chemistry" by J. D Lee.

*** Latest editions of all the suggested books are recommended.**

Semester-II

FOUNDATION ENGLISH - II

Course code: BHM201
(Common with EHM201/BPH206/BBA206/BCA206/AR207/BCH206/ BFA203)

L	T	P	C
2	0	2	3

Unit I

Functional Grammar: Articles, Preposition, Tenses: Functions, Synthesis, Transformation, Spotting errors and correction of sentences. **(10 Hours)**

Unit II

Pre- Requisites of Technical written Communication: One word substitution, Spelling rules, Words often confused & misused, Phrases. **(10 Hours)**

Unit III

The Structure of sentences/ clauses: Adverb clause, Adjective clause, Noun clause. Sentences: Simple, Double, Multiple and complex, Transformation of sentences: simple to complex & vice versa, simple to compound & vice-versa, Interrogative to assertive & to negative & vice-versa. **(10 Hours)**

Unit IV

Technical Communication: Nature, Origin and Development, Salient features, Scope & Significance, Forms of Technical Communication, Difference between Technical Communication & General writing, Objective Style vs. Literary Composition. **(10 Hours)**

Text-Books:

1. Wren & Martin, *High School English Grammar & Composition* – S. Chand & Co. Delhi.
2. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.
3. Mitra Barum K., *Effective Technical Communication* – O.U.P. New Delhi. 2006.
4. Better Your English- A Workbook for 1st year Students- Macmillan India, New Delhi.

Reference Books:

1. Horn A.S., *Guide to Patterns & Usage in English* – O.U.P. New Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Semester II
BASIC PHYSICS-II LAB

Course code: BAS-256

L	T	P	C
0	0	4	2

LIST OF EXPERIMENTS

Note : Select any ten experiments from the following list

1. To determine the wavelength of Sodium light by Newton's rings.
2. To determine the wavelength of Sodium light by Fresnel's biprism.
3. To determine the specific rotation of the cane sugar solution with the help of Polarimeter.
4. To study the forward characteristics of a light emitting diode.
5. To determine the resolving power and dispersive power by a prism.
6. To determine the resolving power of grating.
7. To study the elliptically polarised light.
8. To determine slit width using He-Ne laser.
9. To determine the Flashing & Quenching of Neon bulb.
10. To determine the Resolving power of a telescope
11. To determine the wavelength of the sodium lamp by Michelson interferometer.
12. To determine the wave form and frequency of a given signal using C.R.O.

Evaluation of Practical Examination:

Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester-II
INORGANIC CHEMISTRY LAB

Course code: BAS-257

L	T	P	C
0	0	4	2

LIST OF EXPERIMENTS

1. Determination of strength of given HCL solution by titrating against N/10 Standard sodium hydroxide solution.
2. Determination of temporary and permanent hardness in water sample using EDTA as standard solution.
3. Determination of free chloride content in the given water sample by Mohr's method.
4. To determine the Ferrous content in the given sample of Iron ore by titremetric analysis against standard K2Cr2O7 using K3Fe (CN)6 as an external indicator.
5. Determination of Equivalent weight of Iron by the chemical displacement Method (equivalent weight of copper is 63.5).
6. To synthesis copper ammonia complex.
7. To prepare tris (thiourea) copper (I) sulphate complex.
8. Group test of given inorganic sample.
9. To determine the concentration **of** $_{KMnO4\ solution}$ spectrophotometrically.
10. To determine the element (N, S and halogens) in given inorganic samples.
11.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

\

Semester III

NUMERICAL ANALYSIS

Course code: BAS-301	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Calculus of finite differences, Finite differences and difference formulae operators E, , , properties and relation between operators, difference table, Factorial Notation.

Unit II **(Lectures 08)**

Interpolation with equal intervals and Unequal Intervals; Newton Gregory Forward and Backward Formula, Newton's divide difference Formula, Lagrange's Interpolation Formula, Hermit Interpolation formulas using differences. Different interpolation methods, curve fittings use of calculus of finite difference, divided difference. Newton's formula of unequal intervals, Lagranges interpolation formula for unequal intervals. Iterative Methods.

Unit III **(Lectures 06)**

Central difference formulae, Gaussian formula Bessel's and Strling formula, Gauss Evertt formula.

Unit IV **(Lectures 08)**

Numerical differentiation and Integration, derivative using forward and backward difference interpolation formula, Trapezoidal Formulae, Simposon's Formula, Cotes formula.

Unit V **(Lectures 10)**

Numerical solution of first order differential equation using Kutta & Runge Kutta method and solution of algebraic and Transcedental Equations using Newton Raphson method & Graff's squaring method.

Text Books:

1. Numerical analysis", by Burden, Cengage Learning
2. "Numerical Analysis" by B. S. Grewal, Khanna Publishing
3. "Numerical Analysis" by Pradeep Niyosi, Tata Mcgraw Hell

Reference Books:

1. "Numerical Analysis" by P.P. Gupta and Sanjay Gupta, Krishana Prakashan Mandir
2. "Numerical Analysis" by S.S. Sastry, Prentice Hall Of India.
3. "Introduction to Numerical Analysis" by C. E. Froberg, Addition –Welly Publishing Co.

*** Latest editions of all the suggested books are recommended.**

Semester III
3-D SOLID GEOMETRY

Course code: BAS-302	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 09)**

Standard form of equation of surfaces, Central Conicoids, direction plane, Tangent line and directior sphere and normal, Tangent Line & Plane

Unit II **(Lectures 10)**

Central Conicoid, Ellipsoid, Hyperboloid of 1 sheet and 2 sheet, Tangent plane etc;

Unit III **(Lectures 07)**

Generating lines; Hyperboloid of one sheet and Hyperbolic Paraboloid,

Unit IV **(Lectures 06)**

Paraboloid, Tangent and Normal Planes, parabolid.

Unit V **(Lectures 08)**

Reduction of 2nd degree equation to standard forms, Reduction of General form _ x_ +__y_+__z_=_ to standard form and _ x_ +__y_ =2_z etc..

Text Books:

1. "Co ordinate Geometry of 3D" by S. C. Mittal and S. K. Mittal Pragati Prakashan.
2. "Co ordinate Geometry of 3D" by P. K. Jain and Khalid Ahemad, New Age International
3. "Analytic Solid Geometry" by A.R Vashisth and S. C. Agarwal, Krishina Prakashan Mandir

Reference Book

1. "Co ordinate 3D Geometry" by R. J. T Bell, Maemillan India Ltd.
2. "Co ordinate 3D Geometry" by Gorakh Prasad and H. C. Gupta, Pothishala Pvt. Ltd.

*** Latest editions of all the suggested books are recommended.**

Semester III
BASIC PHYSICS-III

Course code: BAS-303

L	T	P	C
3	2	0	4

Unit I **(Lectures 08)**

Special Theory Of Relativity: Postulates, Galilean Transformations, Lorentz Transformations, Length Contraction, Time Dilation, Velocity Addition, Mass Change and Einstein's Mass Energy Relation.

Unit II **(Lectures 08)**

Quantum Mechanics: Wave Particle Duality, De Broglie Waves, Davisson and Germer's Experiment, Uncertainty Principle, Physical Interpretation of Wave Function and its Normalization.

Schrodinger Equation in One Dimension and its Application (particle in one dimensional potential box)

Unit III **(Lectures 08)**

Capacitors: Spherical capacitor, Cylindrical capacitor, Parallel plate capacitor, Energy in Electrostatic field, Dielectrics: polar and non- polar Three electric vectors: Electric field vector, Polarization Vector and Displacement Vector, dielectric susceptibility, boundary conditions on E and D

Unit IV **(Lectures 08)**

Biot-Savart's Law: Calculation of B for - Straight current carrying conductor & Solenoid; Ampere's circuital Law and its applications.

B-H Hysteresis and its application, Comparison between diamagnetic, paramagnetic and ferromagnetic materials, Langevin's Theory of dia-magnetism

Unit V **(Lectures 08)**

Electro-magnetic Induction, Faraday's law, Lenz's law, Self Inductance, Mutual Inductance, Reciprocity Theorem, Study of LCR circuits with d.c. and a.c. sources (both series and parallel), Phase impedance Conditions for resonance and its graphical interpretation, Q-factor, Power factor, wattless current, Transformer and its magnetic susceptibility

Text Book

1. Engineering Physics by V S Yadav, TMH

*** Latest editions of all the suggested books are recommended.**

Semester III
FUNDAMENTALS OF ORGANIC CHEMISTRY

Course code: BAS-30	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Hybridization, bond lengths and bond angles, bond energy, vander waals integrations, resonance, hyper-conjugation, aromaticity inductive and field electrometric, hydrogen bonding.

Curved arrow notation, drawing election movements with arrows, halfheaded and double headed arrows hemolytic and hetrolytic bond breaking

Unit II **(Lectures 08)**

Concept of isomerism, Types of isomerism, optical isomerism, Geometrical isomerism, conformational isomerism, Newman projection, Alkenes, dienes and alkynes

Unit III **(Lectures 08)**

Alcohols:

Monohydric alcohol: Nomenclature, methods of formation by reduction of alcohals, , Ketones, carboxylic acid and esters, Hydrogen bonding, Acidic nature, Reaction of alcohals, dihydrid alcohals, trihydric alcohols, phenols

Unit IV **(Lectures 08)**

Ether and Epoxides, Nomenclature of ethers and methods of their formation physical properties, chemical reactions-cleavege and autoxidation, Ziesel's method, Aldehyde and Ketones, Nomenclature and structure of the carbonyl group.

Unit V **(Lectures 08)**

Organometallic Compounds

Organomagnesium compounds the Grignard reagents-formation, structure and chemical reactions.

Organozinc Compounds: Formation and chemical reactions.
Organolithium: Compounds formation and chemical reactions

Text Books:

"Organic Chemistry" by Bahel & Bahel.

Reference Books:

"Organic Chemistry" by Morrison & Boid

*** Latest editions of all the suggested books are recommended.**

Semester III/IV
FUNDAMENTALS OF COMPUTERS

Course code: BCS-301/BCS-401	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Objective: The objective is to know the fundamentals of computer.

Course Contents:

Unit I **(Lecture 08)**

Concepts in Computer Application: Definition of Electronic Computer, History, Generations, Characteristic and Application of Computers, Classification of Computers, Functional Component of Computer: CPU, I/O devices, Type of Memory & Memory Hierarchy, Firmware and Human ware.

Unit II

Programming Language Classification & Number System: Generation of Languages, Introduction to 4GLs.Translators: Assembler, Compiler, and Interpreter. Number System: Decimal, Octal, Binary and Hexadecimal &their Conversions. Various Codes: BCD, ASCII and EBCDIC and Gray Code.

Unit III

Concepts in Operating System, Office Tools and Data Management: Elementary Concepts in Operating System, textual Vs GUI Interface, Introduction to DOS, MS Windows, MS office Tools, MS WORD, MS EXCEL, MS Power Point.

Unit IV

Data Communication & Networks: Basic Concepts in Computer Networks, Networking of computers- Introduction of LAN and WAN, Network Topologies.

Internet and Web Technologies: Hypertext Markup Language, DHTML, WWW, Gopher, FTP, Telnet, Web Browsers, Net Surfing, Search Engines, Email.

Unit V **(Lectures 08)**

IT Industry Trends: Careers and Applications in India Basic Awareness of NICNET and ERNET. Application of IT to Areas like E Commerce, electronic governance, Multimedia, and Entertainment.

Information Representation: Introduction to Information representation in Digital Media, Text, image, graphics, Animation, Audio, Video etc., Introduction to JPEG, MPEG, MHEG, MP3 & AVI.

Text Books

1. Sinha P.K., Computer Fundamemtals
2. Yadav, D S, *Foundations of IT*, New Age, Delhi
3. Rajaraman, *Introduction to Computers*, Prentice-Hall India

Reference Books

1. Peter Nortans, *Introduction to Computers*, TME
2. Leon & Leon, *Fundamental of Information Technology*, Vikas Publishing
3. Lehngart, *Internet 101*, Addison Wesley

Semester III/IV
ENVIRONMENTAL SCIENCE

Course code: BAS-309/BAS-409	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Objective: To create awareness among students about environment protection

Unit I **(Lectures 08)**

General: Definition, Scope, Segments of Environment and its Multidisciplinary Nature, Some Major Environmental Problems, Definition and Scope of Ecology.

Unit II **(Lectures 08)**

Ecology And Environment: Concept of an Ecosystem- its components and functions, Trophic Levels- Producer, Consumer and Decomposer, Energy Flow in an Ecosystem, Biogeochemical Cycles, Food Chain, Food Web and Ecological Pyramid

Unit III **(Lectures 08)**

Air pollution: Various segments of Atmosphere and their Significance, Sources and Effects of Air Pollution, Classification of Air Pollutants, Stationary and Mobile Sources of Air Pollution, Photochemical Smog, Acid Rain, Global Warming (Greenhouse Effect), Ozone Layer - Its Depletion and Control Measures, El-Nino.

Unit IV **(Lectures 08)**

Water pollution: Water Resources of the Earth and Indian Scenario, Point and non-Point sources of Water Pollution, Treatment of Water Pollution, Eutrophication, Bio-Diversity-Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Deforestation- causes and effects, Biogeoraphical Classification of India.

Unit V **(Lectures 08)**

Soil pollution-Sources and Consequences, Noise, Thermal - sources and consequences, Sustainable Development, Dams and Reservoirs- Their Benefits and Problems, Solid Wastes - Pollution, Treatment & Disposal, Environment Conservation Movement in India (Chipko Movement, Appiko Movement), Bioremediation, Biological Magnification

Text Books:

1. "Environmental Chemistry", De,A.K., New Age Publishers Pvt. Ltd.
2. "Introduction to Environmental Engineering and Science", Masters,G.M., Prentice Hall India Pvt.Ltd.
3. "Fundamentals of Ecology", Odem,E.P., W.B.Sannders Co.

Reference Books:

1. "Biodiversity and Conservation", Bryant,P.J., Hypertext Book
2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I.K. Publication

*** Latest editions of all the suggested books are recommended.**

Semester-III
PROFESSIONAL WRITING

Course code: BHM301
(Common with EHM 301/BBA306/BCA305/AR307/BCH306/BFA303)

L	T	P	C
2	0	2	3

Course Contents:

Unit I
Functional Grammar: Active and passive voice, Conditional sentences, Syntax, Concord, Common errors. (**10 Hours)**

Unit II
Requisites of Paragraph writing: Structure of Paragraph, Coherence & Unity, Development of paragraph, Inductive order, Deductive order, Spatial order, Linear, Chronological orders, Expository writing, and Argumentative writing, Factual description of objects, process, experiments. (**10 Hours)**

Unit III
Précis Writing: Techniques of Précis writing, Writing a précis. (**10 Hours)**

Unit IV
Comprehension skills: Role of listening, Reading comprehension; Reasons for poor comprehension, Improving comprehension skills. (**10 Hours)**

Text Books:
1. Ruther Ford A., *Basic Communication Skills* – Pearson Education, New Delhi.

References Books:
1. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.
2. Mohan Krishna & Banerji Meera, *Developing Communication Skills* – Macmillan India Ltd. Delhi.

NOTE:
This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Semester III
BASIC PHYSICS-III LAB

Course code: BAS-353	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

LIST OF EXPERIMENTS

Note : Select any ten experiments from the following list

1. To study the PN junction characteristic Apparatus
2. To determine the High resistance by Leakage method.
3. To determine the Energy Band gap by four probe method.
4. To study the Magnetic field using Stewart and Gee's apparatus.
5. To determine the internal resistance of a Laclanche cell by using potentiometer.
6. To convert a galvanometer into voltmeter of a given range.
7. To determine the specific resistance of a given wire by using Carey Foster's bridge.
8. To verify Stefan's law by electrical method.
9. To calibrate a voltmeter with a potentiometer.
10. To calibrate an ammeter with a potentiometer.
11. To draw the B-H curve.
12. To determine the magnetic susceptibility of given Para magnetic materia

Evaluation of Practical Examination:

Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester III
ORGANIC CHEMISTRY LAB

Course code: BAS-354	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

1. To detect the functional groups in organic compounds.
2. To detect elements (N, S and halogens) in organic compounds.
3. To prepare Aspirin.
4. To prepare methyl orange.
5. To prepare phenolphthalein.
6. To synthesize p-nitroanaline from acetanilide.
7. To determine the ion exchange capacity of the given ion exchange.
8. To find pout the Rf values and identify amino acids present in a given mixture by thin layer chromatography.
9. To find out the saponification value of a given oil.
10. To prepare the phenol formaldehyde resin.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester III/IV
FUNDAMENTALS OF COMPUTERS LAB

Course code: BCS-351/BCS-451

L	T	P	C
0	0	4	2

LIST OF EXPERIMENTS:

1. Fundamentals of computer system, with its functional components.
2. Create a formatted WORD document.
3. Create a WORD document using different fonts.
4. Create a table & perform operations in it.
5. Create a WORD document, using the functions page set up, & page preview, and then print that document.
6. Implement Mail Merge.
7. Collect the information of any company & perform the below operation in it:

(a) Insert the data into Row/Column of Excel, worksheet

(b) Create a worksheet in Excel, perform alignment, text wrapping & sort the data.

8. Collect the information of any company & perform the below operation in it:

(a) Generate the graph in Excel.

(b) Create a Hyperlink to a word document.

(e) Create a worksheet using the functions- page set up, print preview & then print the worksheet.

9. Create, save & print the power point presentation
10. Create a power point presentation using clipart, Word art gallery & then add transition & Animation effects.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester III/IV
ENVIRONMENTAL SCIENCE (LAB

Course code: BAS-359/BAS-459	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

List of Experiment

1. To determine total alkalinity in the given water sample.
2. To determine the temporary and permanent hardness in water sample.
3. To determine the pH of the given solution using pH meter.
4. To determine the turbidity in given water sample.
5. To determine the dissolved oxygen present in a water sample.
6. To determine the conductivity in water sample.
7. To determine the carbon-di-oxide content in polluted water sample.
8. To find chemical oxygen demand of waste water sample by potassium dichromate.
9. To determine the TDS and TSS in water sample.
10. To determine the noise level in ambient air.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester IV
ORDINARY DIFFERENTIAL EQUATIONS

Course code: BAS-401	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 10)**

Linear Equation of second order finding general solution of $\frac{d^2y}{dx^2} + P\frac{dy}{dx} + Qy = 0$ by removing first derivative; changing Independent variable; Method of Variation of parameters, Normal form and Method of operational operators.

Unit II **(Lectures 08)**

Ordinary Simultaneous linear differential Equation. Linear differential Equation of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$

Unit III **(Lectures 08)**

Pfaffian differential forms and equations. Necessary and sufficient condition for Inerrability of Pdx + Qdy + Rdz = 0

Unit IV **(Lectures 07)**

Integration in series

Unit V **(Lectures 07)**

Picards' Iteration method. Uniqueness and existence theorems.

Text Books:

1. "Differential Equation" by Zill, Cengage Learning.
2. "Differential Equation" by R. K. Gupta and J. N. Sharma, Krishana Prakashan Mandir
3. "Differential Equation" by Zafar Ahsan, Prentice Hall of India

Reference Books:

1. "Differential Equation" by M. D. Raisinghania, S .Chand & co.
2. "A Treatise on diff. Equation" by A. R. Forsyth, Macmillan & company Ltd.
3. "Introduction on Differential Equation" by D.A. Murray, Orient Longman India.

*** Latest editions of all the suggested books are recommended.**

Semester IV
REAL ANALYSIS

Course code: BAS-402	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Limits, left and right hand limit, Theorems on limit, Concept of Continuity and discontinuity, Types of continuity and discontinuity, properties of continuous function, A necessary and sufficient conditions of discontinuity, Darboux's theorem, Mean Value theorems, differentiability.

Unit II **(Lectures 08)**

Sequence of real numbers convergent and non-convergent, Sequence algebra of sequences, Theorem on limit on limit of sequence, Monotone Sequence, Real sequence, Bounded sequence, convergent sequence, Least upper bound and greatest lower bound, limit of a sequence, theorem on convergent sequence, Subsequence.

Unit III **(Lectures 08)**

Infinite Series and its convergences, Test for convergences of positive term series, comparison test, Ratio test, Cauchy's Root test, Raab's test, Logarithmic test, Integral test.

Unit IV **(Lectures 08)**

Definition existence and properties of Riemann integral of a bounded function, Darboux theorem, Condition of integrability, Integral as limit of sum, Fundamental Theorem of Calculus.

Unit V **(Lectures 08)**

Definition of uniform convergence, Cauchy's criterion for uniform convergence Weirstress test, M-test, Uniform convergence and continuity, Definition of improper integral and convergence of improper integral.

Text Books:

1. "A course of Mathematical Analysis" by Shanti Narayan, S.Chand.& Co.
2. "Mathematical Analysis" by S. C. Malik, Willy. Eastern Co.
3. "Real Analysis" by M. L. Khanna and L. S. Varshney, Jay Prakash Nath & Co.

Reference Books:

1. "Real Analysis" by P. K. Mittal, S.J.Prakashan.
2. "Real Analysis" by P. K. Gupta and Sharada Gupta, S. Chand &Co

*** Latest editions of all the suggested books are recommended.**

Semester IV
ALGEBRA

Course code: BAS-403	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 10)**
Groups, sub-groups, Costes, Lagranges theorem, permutation group, Cayley's theorem, Isomorphism of groups.

Unit II **(Lectures 10)**
Basic concepts of Rings, Subrings, Integral domain and fields

Unit III **(Lectures 08)**
Automorphism, Normaliser, Centre of a group, Syllabus theorem

Unit IV **(Lectures 06)**
Homomorphism of rings and its properties, Rings of Polynomials etc.

Unit V **(Lectures 06)**
Vector Space, properties and theorem of vector space

Text Books:
1. "Algebra" by I. N. Hertein, Wiley and Company.
2. "Modern Algebra" by Shanti Narayan, S.Chand and Company.
3. "Algebra" J. K. Goyal and K. P. Gupta, Pragati Prakashan

Reference Books:
1. "Algebra" by M. Jacobson, Banz, W.H.Erconma New Delhi.
2. "Abstract Algebra" by D. S. Malic, J. N Mordesas and M. K. Sen, Pragati Prakashan
3. "Modern Algebra" by Saran and Goyal, Pothishala Publication
4. "Modern Algebra" by A. R. Vasistha, Krishana Prakashan Mandir.

*** Latest editions of all the suggested books are recommended.**

Semester IV
DISCRETE MATHEMATICS

Course code: BCS-402

L	T	P	C
3	2	0	4

Unit 1: **(Lectures 08)**

Definition of set, countable and uncountable sets, venn diagrams, proof of some general identity of sets, relation, types of relation , composition of relation, pictorial representation of relation , equivalence relation, function , types of function, one to one, into and onto function, inverse function, composition of function, mathematical induction(simple and strong).

Unit 2: **(Lectures 08)**

Introduction to algebraic structure, properties, semi-grouped, monoid ,groups, abelion groups, properties of groups, subgroups, cyclic groups, cosets,factor group, normal subgroups, homomorphism and isomorphism of groups, ring and fields, definition and standard results.

Unit 3: **(Lectures 08)**

Posets, hass diagram of posets, isomorphism of ordered sets, well ordered sets, properties of lattice, Boolean algebra, SOP and POS form, logic gates, K-maps.

Unit 4: **(Lectures 08)**

Propositional logic, basic logic operator, truth tables, tautology, contradiction, algebra of proposition, logical implications, logical equivalence, predicates.

Unit 5: **(Lectures 08)**

Recurrence relations, generating function, graph definition, types of graphs, representation of graphs, graph coloring, chromatic number, isomorphism and homomorphism of graphs.

Text books:

Discrete mathematics by Vinaya Rawol and bhakti Raul.(Techmax publications)

Reference books:

Discrete mathematics and its applications by Kenneth H Rosen

*** Latest editions of all the suggested books are recommended.**

Semester III/IV
FUNDAMENTALS OF COMPUTERS

Course code: BCS-301/BAS-401	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Concepts in Computer Application: Definition of Electronic Computer, History, Generations, Characteristic and Application of Computers, Classification of Computers, Functional Component of Computer: CPU, I/O devices, Type of Memory & Memory Hierarchy, Firmware and Human ware.

Unit II **(Lectures 08)**

Programming Language Classification & Number System: Generation of Languages, Introduction to 4GLs.Translators: Assembler, Compiler, and Interpreter. Number System: Decimal, Octal, Binary and Hexadecimal &their Conversions. Various Codes: BCD, ASCII and EBCDIC and Gray Code.

Unit III **(Lectures 08)**

Concepts in Operating System, Office Tools and Data Management: Elementary Concepts in Operating System, textual Vs GUI Interface, Introduction to DOS, MS Windows, MS office Tools, MS WORD, MS EXCEL, MS Power Point.

Unit IV **(Lectures 08)**

Data Communication & Networks: Basic Concepts in Computer Networks, Networking of computers- Introduction of LAN and WAN, Network Topologies.

Internet and Web Technologies: Hypertext Markup Language, DHTML, WWW, Gopher, FTP, Telnet, Web Browsers, Net Surfing, Search Engines, Email.

Unit V **(Lectures 08)**

IT Industry Trends: Careers and Applications in India Basic Awareness of NICNET and ERNET. Application of IT to Areas like E Commerce, electronic governance, Multimedia, and Entertainment.

Information Representation: Introduction to Information representation in Digital Media, Text, image, graphics, Animation, Audio, Video etc., Introduction to JPEG, MPEG, MHEG, MP3 & AVI.

Text Books

1. Sinha P.K., Computer Fundamemtals
2. Yadav, D S, *Foundations of IT*, New Age, Delhi
3. Rajaraman, *Introduction to Computers*, Prentice-Hall India

Reference Books

1. Peter Nortans, *Introduction to Computers*, TME
2. Leon & Leon, *Fundamental of Information Technology*, Vikas Publishing
3. Lehngart, *Internet 101*, Addison Wesley

*** Latest editions of all the suggested books are recommended.**

Semester III/IV
ENVIRONMENTAL SCIENCE

Course code: BAS-309/BAS-409	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

General: Definition, Scope, Segments of Environment and its Multidisciplinary Nature, Some Major Environmental Problems, Definition and Scope of Ecology.

Unit II **(Lectures 08)**

Ecology And Environment: Concept of an Ecosystem- its components and functions, Trophic Levels- Producer, Consumer and Decomposer, Energy Flow in an Ecosystem, Biogeochemical Cycles, Food Chain, Food Web and Ecological Pyramid

Unit III **(Lectures 08)**

Air pollution: Various segments of Atmosphere and their Significance, Sources and Effects of Air Pollution, Classification of Air Pollutants, Stationary and Mobile Sources of Air Pollution, Photochemical Smog, Acid Rain, Global Warming (Greenhouse Effect), Ozone Layer - Its Depletion and Control Measures, El-Nino

Unit IV **(Lectures 08)**

Water pollution: Water Resources of the Earth and Indian Scenario, Point and non-Point sources of Water Pollution, Treatment of Water Pollution, Eutrophication, Bio-Diversity-Hot Spots of Biodiversity in India and World, Conservation, Importance and Factors Responsible for Loss of Biodiversity, Deforestation- causes and effects, Biogeoraphical Classification of India.

Unit V **(Lectures 08)**

Soil pollution-Sources and Consequences, Noise, Thermal - sources and consequences, Sustainable Development, Dams and Reservoirs- Their Benefits and Problems, Solid Wastes - Pollution, Treatment & Disposal, Environment Conservation Movement in India (Chipko Movement, Appiko Movement), Bioremediation, Biological Magnification

Text Books:

1. "Environmental Chemistry", De,A.K., New Age Publishers Pvt. Ltd.
2. "Introduction to Environmental Engineering and Science", Masters,G.M., Prentice Hall India Pvt.Ltd.
3. "Fundamentals of Ecology", Odem,E.P., W.B.Sannders Co.

Reference Books:

1. "Biodiversity and Conservation", Bryant,P.J., Hypertext Book
2. "Textbook of Environment Studies", Tewari, Khulbe & Tewari, I.K. Publication

*** Latest editions of all the suggested books are recommended.**

Semester-IV
TECHNICAL COMMUNICATION

Course code: BHM401
(Common with EHM 401/BPH406/BBA406/BCA406/ /BCH406/BFA403)

L	T	P	C
2	0	2	3

Course Contents: Unit I

Communication: Objectives of Communication, Need for Communication, Types of communication, written & Verbal communication, Formal and informal communication (The grapevine), upward and downward communication. **(10 Hours)**

Unit II

Business communication: Importance of written business correspondence, General principles and essentials of good commercial correspondence, Different types of commercial correspondence & their drafting, Types of Business letters, Official letters, electronic communication process. **(10 Hours)**

Unit III

Project, Thesis and Dissertation writing: Project Report, Thesis & Dissertation writing Structure of Thesis writing. **(10 Hours)**

Unit IV

Modern Technology and Communication: Globalization of Business, Role of Information Technology, Tele- communication, Internet, Tele-conferencing and Video-conferencing. **(10 Hours)**

Text Books:

1. Mishra Sunita & Muraliksishra C., *Communication Skills for Engineers* – Pearson Education, New Delhi.
2. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.
3. Chabbra T N, Business Communication, Sun India Pub. New Delhi.

Reference Books:

1. Mohan Krishna & Banerji Meera, *Developing Communication Skills* – Macmillan India Ltd. Delhi.
2. Mitra Barum K., *Effective Technical Communication* – O.U.P. New Delhi. 2006.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Semester III/IV
FUNDAMENTALS OF COMPUTERS LAB

Course code: BCS-351/BCS-451	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

LIST OF EXPERIMENTS

1. Fundamentals of computer system, with its functional components.
2. Create a formatted WORD document.
3. Create a WORD document using different fonts.
4. Create a table & perform operations in it.
5. Create a WORD document, using the functions page set up, & page preview, and then print that document.
6. Implement Mail Merge.
7. Collect the information of any company & perform the below operation in it:

(a) Insert the data into Row/Column of Excel, worksheet

(b) Create a worksheet in Excel, perform alignment, text wrapping & sort the data.

8. Collect the information of any company & perform the below operation in it:

(a) Generate the graph in Excel.

(b) Create a Hyperlink to a word document.

(e) Create a worksheet using the functions- page set up, print preview & then print the worksheet.

9. Create, save & print the power point presentation
10. Create a power point presentation using clipart, Word art gallery & then add transition & Animation effects.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester III/IV
ENVIRONMENTAL SCIENCE (LAB)

Course code: BAS-359/BAS-459	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

LIST OF EXPERIMENT

1. To determine total alkalinity in the given water sample.
2. To determine the temporary and permanent hardness in water sample.
3. To determine the pH of the given solution using pH meter.
4. To determine the turbidity in given water sample.
5. To determine the dissolved oxygen present in a water sample.
6. To determine the conductivity in water sample.
7. To determine the carbon-di-oxide content in polluted water sample.
8. To find chemical oxygen demand of waste water sample by potassium dichromate.
9. To determine the TDS and TSS in water sample.
10. To determine the noise level in ambient air.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester V
STATISTICS

Course code: BAS-501	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Methods of least squares, and its use for Curve Fitting and fitting of straight lines and parabola, Normal equations, Most plausible lines.

Unit II **(Lectures 08)**

Bivariate distribution, Karl's Pearson's coefficient of Correlation, Rank Correlation and Line of Regression, Proof of $-1 < r < 1$.

Unit III **(Lectures 08)**

Consistency and Association of attributes, Theory of Attributes and their combination, class frequency. Association of datas, dependent and independent attributes

Unit IV **(Lectures 08)**

Finite difference and interpolation, various methods of interpolations Newton's Gregory formula, finite difference and factorial Notation.

Unit V **(Lectures 08)**

Properties of χ^2 distribution, calculation of theortical freequences, problem of χ^2 distribution at significant level.

Text Books:

1. "Statistics" by M. Ray and H. S. Sharma, Ram prashad & Sons
2. "Statistics" by J. N. Kapoor and H. C. Saxena, S.Chand & Company
3. "Statistics" by B. D. Gupta and O. P. Gupta, Krishana Prakashan Mandir

Reference Books:

1. "Statistics" by O. P. Gupta, Kedar Nath Ram Nath
2. "Statistics" by J.K. Goyal and J. N. Sharma, Krishana Prakashan Mandir
3. "Statistics" by V. K. Kapur and S. C. Gupta, Sultan Chand & Sons

*** Latest editions of all the suggested books are recommended.**

Semester V
PARTIAL DIFFERENTIAL EQUATIONS

Course code: BAS-502	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 10)**

Partial differential equation of I order and I degree, Origin of partial differential equation, Lagranges method for P.p +Q.q = R.

Unit II **(Lectures 08)**

Partial differential equation of II order, Linear partial differential equation, its complete integral, particular integral and general solution, general solution of linear partial differential equation with constant coefficients.

Unit III **(Lectures 10)**

Monge's form of solution of form Rr + Ss + Tt = V

Unit IV **(Lectures 06)**

Classification of Partial differential Equation

Unit V **(Lectures 06)**

Application of Partial differential Equation

Text Books:

1. "Partial differential Equation" by M. D. Raisinghania, S.Chand&Company
2. "Partial differential Equation" by P. P. Gupta, G. S. Malik and S. K. Mittal, Pragati Prakshan

Reference Books:

1. "Partial differential Equation" by I. N. Sneddon, Mc graw Hill&Company
1. 2 "Partial Differential With Boundary value Problems" S Singh ,J .P.Chauhan Shikaha Sahitiya Prakasha

*** Latest editions of all the suggested books are recommended.**

Semester V
COMPLEX ANALYSIS

Course code: BAS-503	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 07)**

Analytic functions, conjugate function, Harmonic function, N.S.C. for Cauchy Remann equations, construct conjugate analytic functions.

Unit II **(Lectures 10)**

Complex Integration, Complex line integral, Cauchy integral function, Poisson integral, Lioville's theorem taylor theorem, Lorentz theorem.

Unit III **(Lectures 07)**

Zero's & Singularity, Zero's of a function, singular point, poles and different types of singularities, limiting point of zero's and poles, Weirstress theorem.

Unit IV **(Lectures 08)**

The Calculus of Residue, Residue of a pole at infinity Residue theorem Integration around unit circle, evaluation of integral $\int_{-\infty}^{\infty} f(z)\,dz$.

Unit V **(Lectures 08)**

Conformal mappings, transformation w = z2, w = z1/2 , z = c sin w

Text Books:

1. "Complex Variable" by T Pati, Pothishala Pvt Ltd
2. "Complex Variable" by J. K. Goyal and K. P. Gupta, Pragati Prakashan
3. "Complex Variable" by J. C. Chaturvedi and S.S. Seth, Student Friends & Co.

Reference Books:

1. "Complex Variable" by L. V. Alfors, Mc-GrawHill &Co,
2. "Complex Variable" by R. K. Gupta, R. V. Churchiland J. W. Browin, Mc-GrawHill &Co,
3. Complex Variable by Shanti Narayan, S.Chand &Company

*** Latest editions of all the suggested books are recommended.**

Semester V
OPERATION RESEARCH

Course code: BAS-504	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 06)**

History and Back ground of subject, Different meaning of O.R. and Phases, characteristic and Models of O.R.

Unit II **(Lectures 10)**

Linear Programming, Mathematical formation of LPP, Graphical solution of LPP, general linear programming problem, simplex methods, duality.

Unit III **(Lectures 08)**

Transportation Problem, Assignment Problem, matrix form of: Transportation Problem. Initial basic physible solution, Optimality and transportation algorithms, balanced and unbalanced transportation problem and assignment problem.

Unit IV **(Lectures 08)**

Job sequencing, Replacement model, sequencing method of two machine three machine and n amachine problem, graphic solution, Replacement of item deterioting with time, Replacement of item that fails continuously, and general replacement problem.

Unit V **(Lectures 08)**

Game Theory, two person zero sum game, sadle point maximin and minimax, game of type 2×2, $n \times 2$ game graphic solution and with dominance property.

Text Books:

1. "Operation Research" by Winston, Cengage Learning
2. "Operation Research" by S. D. Sharma, Kedarnath Ramnath&Company
3. "Operation Research" by Kanti Swroop, P. K. Gupta and Man Mohan, SultanChand & Sons

Reference Books:

1. "Operation Research" by H.A Tata, Maemillar & Company
2. "Operation Research" by P. K. Gupta and D.S. Hira, S Chand & Company
3. "Operation Research" by R. K. Gupta, Krishna Prakasha

*** Latest editions of all the suggested books are recommended.**

Semester V
DYNAMICS

Course code: BAS-505	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Kinematics in two dimensions, velocity, acceleration, angular velocity and relation between angular velocity and linear velocity, radial and transversal velocity and acceleration, tangential and normal velocity and acceleration.

Unit II **(Lectures 08)**

Rectilinear motion, Motion in a straight line with constant acceleration, simple Harmonic motion. Motion under inverse square law, Motion of a particle on a smooth vertical plane curve under gravity, simple pendulum circular motion, cycloidal motion.

Unit III **(Lectures 08)**

Constrained motion.

Unit IV **(Lectures 08)**

Central forces, differential equation of central orbit, Apse, velocity in a circle, velocity at infinity, Kapalar's law, etc, definition and properties of D'alembert's principle, general equation of a motion of a bodies.

Unit V **(Lectures 8)**

Moments of Inertia and Product of Inertia, Momental ellipsoid, and equimomental system, D'Alembert principal.

Text Books:

1. "Dynamics" by P. K. Mittal and S. D. Sharma, Pragati Prakashan
2. "Dynamics" by A. R. Vasistha and D. C Agarwal, Krishana Prakashan
3. "Dynamics of a particle" by S. L. Loney, Maemillan& Company

Reference Books:

1. "Dynamics" by M. Ray and G. C. Sharma, S.Chand & Company
2. "Dynamics" by P. K. Mittal and P. K. Shukla, S.J. Prakashan

*** Latest editions of all the suggested books are recommended.**

Semester V
'C' PROGRAMMING

Course code: BCS-501	**L**	**T**	**P**	**C**
	2	**1**	**0**	**2**

Unit I **(Lectures 08)**

Elementary data types: Definitions, data, data types, integer, character, float, string, etc., constants and variables. Declaration, statement, integer, constant, variable, integer,
expression, assignment, Boolean type, tokens, keywords, identifiers.

Unit II **(Lectures 08)**

Control Structure: While statement, if statement, else statement. Nested logic: for loop, do-while loop, loop inside a loop structure, operators and expressions.

Unit III **(Lectures 08)**

Arrays and Strings: declaration, initialization. String handling: comparison, concatenation, copy, finding length of string.

Unit IV **(Lectures 08)**

Sequence Control: user defined functions, library functions. Functions: definition, declaration, returns values and their types. Function calls. Recursion, pointers.

Unit V **(Lectures 08)**

Structure data type: Structures and union, enumerations. File and file structure: opening, closing, input/output operations on file.

Text Books

1. Balaguru Swamy E., *Programming with ANSI C*, TMH Pubilcations.
2. Yashwant Kantikar, *Let Us C*, BPB Publications.

Reference Book

1. John Pratt, *Principle of Programming Languages*, PHI Publications.

*** Latest editions of all the suggested books are recommended.**

Semester-V
TECHNICAL WRITING

Course code: BHM501
(Common with EHM 501/BPH506)

L	T	P	C
2	0	2	3

Course Contents: Unit I

Forms of Technical Communication: Report writing, Definition and characteristics, Steps towards report writing, Structure, style of Report writing, Types & forms of Reports, Presentation of Reports, Importance of Report writing. **(10 Hours)**

Unit II

Technical Paper writing: Definition and purpose, Essentials ofa good technical paper/Article, Scientific Article writing, Difference between Technicalpaper/Article and scientific article, Methods of writing technical paper & Scientific article. **(10 Hours)**

Unit III

Technical Proposal: Definition and meaning of Technical Proposal, Significance of Proposal, Characteristics of a good Proposal, Format of Proposal, Uses of Proposals.

(10 Hours)

Unit IV

Writing Skills: Reporting events, Writing newspaper reports, Essentials of essay writing – writing an essay of about 300 words on a given topic. Bio-Data Making, Writing of CV & Resumes, Difference between CV and Resume, Writing Job application etc. **(10 Hours)**

Text Books:

1. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.

Reference Books:

1. Monippally Matthukutty M., *Business Communication Strategies* – Tata- Mc Graw Hill Publications Company, New Delhi.
2. Mohan K. & Sharma R.C., *Business Correspondence of Report Writing* –TMH, New Delhi.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Semester V
'C' PROGRAMMING LAB

Course code: BCS-551	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

LIST OF EXPERIMENTS:

1. WAP to calculate Sum & average of N numbers.
2. WAP to convert integer arithmetic to a given number of day and month.
3. WAP to find maximum and minimum out of 3 numbers a, b & c.
4. WAP to find factorial of positive integer.
5. WAP to find sum of series up to n number, 2+5+8+……+n.
6. WAP to print all the number between 1 to 100 which are dividing by 7.
7. WAP to generate Fibonacci series up to n.
8. Write a function to calculate area of circle.
9. Write a recursive function to calculate factorial of given number.
10. WAP to find whether number is prime or not.
11. WAP to find that the enter character is a letter or digit.
12. WAP to find addition of two matrix of n*n order.
13. WAP to find multiplication of two matrix of n*n order.
14. WAP to add 6 digit numbers in even case & multiple 6 digit number in odd case.
15. WAP to find even or odd up to a given limit n.
16. WAP to find whether a given no is palindrome or not.
17. WAP to joining & Comparing the 2 string.

Evaluation of Practical Examination:
Internal Evaluation (50 marks)

Each experiment would be evaluated by the faculty concerned on the date of the experiment on a 5 point scale (two for experiment, two for file work and one for viva) which would include the practical conducted by the students and a Viva voce taken by the faculty concerned. The marks shall be entered on the index sheet of the practical file.

Evaluation scheme:

PRACTICAL PERFORMANCE & VIVA DURING THE SEMESTER (30 MARKS)			ATTENDANCE (5 MARKS)	QUIZ (5 MARKS)	VIVA (10 MARKS)	TOTAL INTERNAL (50 MARKS)
EXPERIMENT (10 MARKS)	FILE WORK (10 MARKS)	VIVA (10 MARKS)				

External Evaluation (50 marks)

The external evaluation would be done by the external faculty based on the experiment conducted during the examination.

Semester VI
DIFFERENTIAL GEOMETRY AND TENSOR

Course code: BAS-601

L	T	P	C
3	2	0	4

Unit I **(Lectures 8)**

Curves in space, space curves, are lengths, tangent plane lines, osculating plane, normal plane, unit vectors t, n, b, serret fernet formula, curvature and torsion of curves helix, osculating circle and osculation sphere.

Unit II **(Lectures8)**

Fundamentals of surfaces, definition of surface, class of a surface, regular and singular point, tangent and normal planes, fundamental form and relation between E, F, G, Fundamental magnitude of slandered surface.

Unit III **(Lectures 08)**

Envelopes and Developable surfaces, characteristics envelop, edge of regression, developable surface, envelops of a plane etc.

Unit IV **(Lectures 08)**

Contra variant & Covariant Vectors & Tensors, Contraction, Tensor algebra, Associated Vectors and Tensors.

Unit V **(Lectures 08)**

Christoffel Symbols, Tensor law of transformation, Covariant derivative of Tensors. Riemann Christoffel Tensor.

Text Books:

1. "Differential Geometry" by A. R. Vasistha and J. N. Sharma, Kedarnath Ramnath
2. "Tensor Calculus" by G. C. Sharma and S.K. Singh Laxmi Narayan Publisher Agra

Reference Books:

1. "Differential Geometry" by A.B. Chandra Moule and J. B. Chauhan, Siksha Sahitya Prakashan
2. "Differential Geometry" by P. P. Gupta and G. S. Malik, Pragati Prakashan
3. "Differential Geometry" by S. C. Mittal and D. C. Agarwal, Krishna Pracashan
4. "Differential Geometry" by T. J. Willmore Oxford University Press, New Delhi

*** Latest editions of all the suggested books are recommended.**

Semester VI

HYDRODYNAMICS

Course code: BAS-602	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Equation of continuity ,Equation of continuity in cartesion, cylindrical and polar form, acceleration of a fluid particle, boundary surfaces, Lagranges & Euler methods elation between , Lagranges & Euler methods.

Unit II **(Lectures 8)**

Equation of motion, , Lagranges & Euler's equation of motion, conservative field of force, equation of motion under impulsive force, Bournoli's Equation, Cauchy's equation.

Unit III **(Lectures 8)**

Motion in Two dimensions, stream function and current function, complex potential function, source, sink, doublet, image in two and three dimentions, Circle theorem and Blasius theorem.

Unit IV **(Lectures 8)**

Motion of sphere through infinite mass of liquid, liquid streaming pass a fixed sphere, Stoke stream function.

Unit V **(Lectures 8)**

Vortices, some theorem and properties of vortex motion, vortex line, tube filament, Rectilinear vortices, Halmotz's vorticity theorem, Vonkarman vortex theorem,

Text Books:

1. "Fluid Mechanics" by A.S. Ramsay and W. H. Besant, C.B.S. Publisher's pvt LTD. Agra
2. "Fluid Dynamics" by F. Chroltan, E.L.B.S. Van Nostrand Co.
3. "Fluid Dynamics" by J. K. Goyal and K. P. Gupta, Pragati Prakashan

Reference Books:

1. "Fluid Dynamics" by B.D. Gupta, Pragati Prakashan
2. "Fluid Dynamics" by M.D. Rai Singhania , S. Chand and Co.
3. "Fluid Dynamics" by P.P Gupta, S. Chand and Co.

*** Latest editions of all the suggested books are recommended.**

B.Sc. Maths (Hons) –Semester VI
MATHEMATICAL MODELING

Amended vide approval dated November 5 2012 and 5th January 2013.

Course Code: BAS 603	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 08)**

Mathematical Modeling and its Need, Different Techniques involve in Modelling, Classification of Mathematical Modelling and simple illustrations.

Unit II **(Lectures 08)**

Mathematical Modelling through Ordinary Differential Equation's(ODE) of First order and system of ODE's of first order, Mathematical Modelling through ODE of 2nd order, Mathematical Modelling through difference equation.

Unit III **(Lectures 08)**

Mathematical Modeling through Partial differential equations: Mass balance Equation, Momentum balance equation and variational principle, Mathematical Modeling through Directed Graph, signed Graph, Unoriented Graph and weighted diagraph.

Unit IV **(Lectures 08)**
Mathematical Modelling through Functional Integral, Delay Differential and differential difference equation.

Unit V **(Lectures 08)**
Mathematical Modelling through Calculus of variation and dynamic Programming, Mathematical Modelling through Principle and Maximum entropy principle.

Text Books:
1. "Mathematical Modeling", Frank R. Giordano, Etall Cengage learning.
2. "Mathematical Modelling" by J.N.Kapoor, Estern Willey and sons

Reference Books:
1. "Differtential Equation Model" by Eds Martin Barew and C. S. Colen
2. "Political and relative Model" by D.A. Saw and W. Flucas
3. "Discreet System Model" by W. F. Lucas & Stebe. J. Bans
4. "Life Science Model' by H.M. Robert & M. Thomson

*** Latest editions of all the suggested books are recommended.**

Semester VI
GRAPH THEORY

Amended vide approval dated November 5 2012 and 5th January 2013.

Course code: BAS-604

L	T	P	C
3	2	0	4

Unit I **(Lectures 08)**

Definition of Graph and their properties, types of graph, homomorphism, isomorphism, automorphism of graph, subgraph, Walk, trail and path, connected and disconnected graph Eular's Graph, Operation on graph.

Unit II **(Lectures 08)**

Definition of Trees, Pendent vertex, center of a tree, binary tree, spaning tree, Fundamental Circuits, Connectivity and separability, preorder and post order.

Unit III **(Lectures 08)**

Planar and dual graphs, Kuratowski's two graphs, different representations of planer graphs, detection of planarity, Geometric dual, Combinatorial dual, Thickness and Crossing.

Unit IV **(Lectures 08)**

Vectors and vector spaces, Vector space associated with a graph, Basis vectors of a graph, circuit and cut-set subspace, Orthogonal vectors and spaces, Intersection and join of w and w_s.

Unit V **(Lectures 08)**

Matrix representation of graphs, Incidence matrix, Sub matrix of $A(G)$, Circuit matrix, Fundamental circuit matrix and Rank of B, Cut-set matrix, Path matrix, Adjacency Matrix.

Text Books:

1. "Graph Theory" by Narsingh Deo, Printice Hall of India
2. "Graph Theory" by P.k.Mittal & P.K. Shukla, S. J. publication

Reference Books:

1. "Graph Theory" by S.B. Singh, Khanna book Publishing co.

*** Latest editions of all the suggested books are recommended.**

Semester VI
APPLIED STATISTICS

Course code: BAS-605	**L**	**T**	**P**	**C**
	3	**2**	**0**	**4**

Unit I **(Lectures 8)**

Statistical Quality control: General theory of control charts, causes of variation in quality, control limits, sub-grouping, summary of out of control criteria, charts for attributes np chart, pchart, c chart, Chart for variables X R and sigma charts.

Unit II **(Lectures 8)**

Time Series: Introduction, components of time series, models of time series, measurement of Trend-graphic, semi-average, least square and moving average methods, Measures of seasonal variation –Simple average, Ratio to M. A., Ratio to trend, link relative method.

Unit III **(Lectures 8)**

Demographic Methods: Sources of demographic data-census, register, adhoc survey, hospital records, demographic profile of Indian census, Rates & ratios of vital events, Measurements of mortality and life tables-crude, death rates, Infant mortality rates, death rate by cause, standardized death rate, complete life table-its main features, mortality rate and probability of dying, use of survival tables, Measurement fertility-crude birth rate, general fertility rate, total fertility rate, gross reproduction rate, net reproduction rate.

Unit IV **(Lectures 8)**

Index Number: Its definition, application of index numbers, price quantity and value relatives, link and chain relatives, problems involved in computation of index numbers, use of averages, simple and weighted aggregative and average methods, Laspeyre's Passche's, Marshall Edgeworth and Fisher's index numbers, time and factor resersal tests of index numbers, Consumer price Index.

Unit V **(Lectures 8)**

Decision Theory: Different kind of decision theory, inventory control, CPM, PERT.

Text Books:

1. "Mathematical Statistics" by S.C. Gupta, S. Chand & co.
2. "Operation Research" by D. S. Hira, S. Chand & co.

Reference Books:

1. "Operation Research" by Winston, Cengage Learning
2. "Operation Research" by H. A. Taha
3. "Statistics" by J. N. Kapoor and H. C. Saxena, S.Chand & Company.

*** Latest editions of all the suggested books are recommended.**

Semester-VI
COMMUNICATION TECHNIQUE

Course code: BHM601
(Common with EHM601/BPH606/BBA603/BCA604/BCH606)

L	T	P	C
2	0	2	3

Course Contents:

Unit I

Oral Communication: Principles of effective oral communication, Features, Vitals of communication, Interpersonal communication, Persuasive communication. **(10 Hours)**

Unit II

Presentation Strategies: Purpose, Audience & Locale, Organizing contents, Preparing outlines. Audio- Visual aids, Body Language, Voice dynamics. **(10 Hours)**

Unit III

Listening Skills: The Listening process, Hearing & listening, Types of listening, Listening with a purpose, Barriers to listening, Telephonic conversation. **(10 Hours)**

Unit IV

Speaking Skills: Improving voice & speech, Art of public speaking, Using visual aids, Job interview being interviewed by the media, Dealing with the boss. Dealing with subordinates, How to run a meeting. **(10 Hours)**

Text Book:

1. Raman Meenakshi & Sharma Sangeeta, *Technical Communication-Principles & Practice* – O.U.P. New Delhi. 2007.

Reference Books:

1. Ruther Ford A., *Basic Communication Skills* – Pearson Education, New Delhi.
2. Mitra Barum K., *Effective Technical Communication* – O.U.P. New Delhi. 2006.

NOTE:

This syllabus has been designed to improve the oral and written communication skills of students. The faculty members should put emphasis on practical (oral) activities for generating students' interest in language learning.

*** Latest editions of all the suggested books are recommended.**

Mathematics
SEMINAR

Course code: BAS699	**L**	**T**	**P**	**C**
	0	**0**	**4**	**2**

Selection of Topic:

1. All students pursuing B.Sc. shall select and propose a topic of the seminar in the first week of the semester. Care should be taken that the topic selected is not directly related to the subjects of the course being pursued or thesis work, if any. The proposed topic should be submitted to the course coordinator.

2. The course coordinator shall forward the list of the topics to the coordinator of concerned department, who will consolidate the list including some more topics, in consultation with the faculty of the department. The topics will then be allocated to the students along with the name of the faculty guide and also forwarded to the director for approval.

3. On approval by the Director, the list shall be displayed on the notice board and the students will also be accordingly informed by the course coordinator within three weeks of the commencement of the semester.

Preparation of the Seminar

1. The student shall meet the guide for the necessary guidance for their preparation for the seminar.

2. During the next two to four weeks the student will read the primary literature related to the topic under the guidance of supervisor.

3. After necessary collection of data and literature survey, the students must prepare a report. The report shall be arranged in the sequence as per following format & lay out plan :-

a. Top Sheet of transparent plastic.

b. Top cover.

c. Preliminary pages.

(i) Title page

(ii) Certification page.

(iii) Acknowledgment.

(iv) Abstract.

(v) Table of Content.

(vi) List of Figures and Tables.

(vii) Nomenclature.

d.Chapters (Main Material).

e.Appendices, If any.

f. Bibliography/ References.

g.Evaluation Form.

h.Back Cover (Blank sheet).

i. Back Sheet of Plastic (May be opaque or transparent).

1. **Top Cover-** The sample top cover shall be as Under:

TITLE OF THE SEMINAR

NAME OF THE STUDENT WITH COURSE, STREAM, SEMESTER & SECTION.

Department of Applied Science

College of Engineering
Teerthanker Mahaveer University
Moradabad-244001

MONTH AND YEAR

2. **Title Page:-** The Title Page cover shall be as Unde

Title of the seminar

(Submitted in Partial fulfillment of the requirement for the degree of

BACHELOR O SCIENCE in

Mathematics (Hons.)

by

Name of Student in capital Letters

(Roll No.)

COLLEGE OF ENGINEERING

TEERTHANKAR MAHAVEER UNIVERSITY

N.H. 24, BAGARPUR,

MORADABAD-244001

MONTH AND YEAR

3. **Certification page:-** This shall be as under

Department of Applied Science

College of Engineering

Teerthankar Mahaveer University

Moradabad-244001

The seminar Report and Title "Name of the Topic of the Seminar." Submitted by Mr./Ms. (Name of the student) (Roll No.) may be accepted for being evaluated-

Date **Signatu**

re

Place **(Name of guide)**

Note:

For Guide If you choose not to sign the acceptance certificate above, please indicate reasons for the same from amongst those given below:

i) The amount of time and effort put in by the student is not sufficient;

ii) The amount of work put in by the student is not adequate;

iii) The report does not represent the actual work that was done / expected to be done;

iv) Any other objection (Please elaborate)

4. **Abstract:-** A portion of the seminar grade will be based on the abstract. The abstract will be graded according to the adherence to accepted principles of English grammar and according to the adherence to the format described below.

   The seminar abstract is an important record of the coverage of your topic and provides a valuable source of leading references for students and faculty alike. Accordingly, the abstract must serve as an introduction to your seminar topic. It will include the key hypotheses, the major scientific findings and a brief conclusion. **The abstract will be limited to 500 words, excluding figures, tables**

and references. The abstract will include references to the research articles upon which the seminar is based as well as research articles that have served as key background material.

5. **Table of Content:-** This shall be as under

SAMPLE SHEET FOR TABLE OF CONTENTS

TABLE OF CONTENTS		
Chapter No.	Title	Page No.
	Certificate	ii
	Abstract	iii
	Acknowledgement	iv
	List of Figures	v
	List of Tables	vi
1	Introduction	I
	1.1	
	1.2	
	1.3	
2	.....	
3	.....	
4	References/ Bibliography	
52	Evaluation Sheets	.....

6. List of Figures and Tables :- This will be as under

List of Figures and Tables - sample entries are given below:

List of Figures

Figure No.	Caption / Title	Page No.
2.1	Schematic representation of a double layered droplet . .	21
……..		
3.2	Variation in rate versus concentration . .	32

List of Tables - sample entries are given below:

List of Tables

Table No.	Caption / Title	Page No.
2.1	Thickness of a double layered droplet	. . . 22
…….		
3.2	Variation in rate versus concentration	. . . 34

(7). Main Pages- The Main report should be divided in chapters (1, 2, 3 ….. etc.) and

Structured into sections (1.1, 1.2 ……..etc) and subsections (1.2.1, 1.2.2, ….. etc).

Suitable title should be given for sections and subsections, where necessary.

Referencing style- wherever reference is given in the main pages it should have the following format.

The values of thermal conductivities for a variety of substances have been reported by Varma (1982). For polymers, however, the information is more limited and some recent reviews have attempted to fill the gaps (Batchelor and Shah, 1985).

For two authors - (Batchelor and Kapur, 1985)

For more than two authors - (Batchelor et al., 1986)

By same author/combination of authors in the same year -

(Batchelor, 1978*a*; Batchelor, 1978*b*; Batchelor et al., 1978)

(8) . Bibliography/References- In the bibliography/ references list standard formats must be used. The typical formats are given blow-

Journal articles: -
David, A.B., Pandit, M.M. and Sinha, B.K., 1991, "Measurement of surface viscosity by tensiometric methods", Chem. Engng Sci.47, 931-945.

Books: -
Doraiswamy, L.K. and Sharma, M.M., 1984, "Heterogeneous Reactions- Vol 1", Wiley, New York, *pp* 89-90.

Edited books/Compilations/Handbooks: -

Patel, A.B., 1989, "Liquid -liquid dispersions", in Dispersed Systems Handbook, Hardy, L.C. and Jameson, P.B. (Eds.), McGraw Hill, Tokyo, *pp* 165-178.

Lynch, A.B. (Ed.), 1972, "Technical Writing", Prentice Hall, London.

Theses/Dissertations: -

Pradhan, S.S., 1992, "Hydrodynamic and mass transfer characteristics of packed extraction columns", Ph.D. Thesis, University of Manchester, Manchester, U.K..

Citations from abstracts: -

Lee, S. and Demlow, B.X., 1985, US Patent 5,657,543, *Cf* C.A. *56*, 845674.

Personal Communications: -

Reddy, A.R., 1993, personal communication at private meeting on 22 October 1992 at Physics Department, Indian Institute of Technology, Delhi.

Electronic sources (web material and the like)-

For citing web pages and electronic documents, use the APA style given at:

http://www.apastyle.org/elecsource.html

(9). Evaluation Form:- Three sheets of evaluation form should be attached in the report as under.

a. Evaluation form for guide and other Internal Examiner.

b. Evaluation form for external examiners.

c. Summary Sheet.

(10). Evaluation form for Guide & Internal Examiners:-

EVALUATION SHEET

(To be filled by the GUIDE & Internal Examiners only)

Name of Candidate:
Roll No:

Class and Section:

Please evaluate out of Five marks each

S. No.	Details	Marks (5) Guide	Marks (5) Int. Exam. 1	Marks (5) Int. Exam. 2
1.	OBJECTIVE IDENTIFIED & UNDERSTOOD			
2.	LITERATURE REVIEW / BACKGROUND WORK (Coverage, Organization, Critical review)			
3.	DISCUSSION/CONCLUSIONS (Clarity, Exhaustive)			
4.	SLIDES/PRESENTATION SUBMITTED (Readable, Adequate)			
5.	FREQUENCY OF INTERACTION (Timely submission, Interest shown, Depth, Attitude)			
	Total (Out of 25)			
	Average out of 50			

Signature: Signature:
Signature:
Date: Date:
Date:

EVALUATION SHEET FOR EXTERNAL EXAMINER

(To be filled by the External Examiner only)

Name of Candidate:

Roll No:

I. For use by **External Examiner ONLY**

Please evaluate out of Ten marks each

S.No.	Details	Marks (5)
1.	OBJECTIVE IDENTIFIED & UNDERSTOOD	
2.	LITERATURE REVIEW / BACKGROUND WORK (Coverage, Organization, Critical review)	
3.	DISCUSSION/CONCLUSIONS (Clarity, Exhaustive)	
4.	POWER POINT PRESENTATION (Clear, Structured)	
5.	SLIDES (Readable, Adequate)	
	Total (Out of 50)	

Signature:

Date:

EVALUATION SUMMARY SHEET

(To be filled by External Examiner)

Name and Roll No.	Internal Examiners (50)	External Examiner (50)	Total (100)	Result (Pass/Fail)

Note:- The summary sheet is to be completed for all students and the same shall also be Compiled for all students examined by External Examiner. The Format shall be provided by the course coordinator.

(11). General Points for the Seminar

1. The report should be typed on A4 sheet. The Paper should be of 70-90 GSM.

2. Each page should have minimum margins as under-

(i) Left 1.5 inches

(ii) Right 0.5 Inches

(iii) Top 1 Inch

(iv) Bottom 1 Inch (Excluding Footer, If any)

3. The printing should be only on one side of the paper

4. The font for normal text should Times New Roman, 14 size for text and 16 size for heading and should be typed in double space. The references may be printed in Italics or in different fonts.

5. The Total Report should not exceed 50 pages including top cover and blank pages.

6. A CD of the report should be pasted/ attached on the bottom page of the report.

7. Similarly a hard copy of the presentation (Two slides per page) should be attached along with the report and a soft copy be included in the CD.

8. Three copies completed in all respect as given above is to be submitted to the guide. One copy will be kept in departmental/University Library, One will be return to the student and third copy will be for the guide.

9. The power point presentation should not exceed 30 minutes which include 10 minute for discussion/Viva.