Andhra Pradesh State Council of Higher Education

B.Sc. Chemistry Syllabus under CBCS

w.e.f. 2015-16 (revised in April 2016)

Structure of Chemistry Syllabus Under CBCS

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS
I	I	I	Inorganic and Organic Chemistry	100	03
			Practical – I	50	02
	II	II	Physical and General Chemistry	100	03
			Practical – II	50	02
II	III	III	Inorganic and organic Chemistry	100	03
			Practical – III	50	02
	IV	IV	Spectroscopy and Physical Chemistry	100	03
			Practical – IV	50	02
III	V	V	Inorganic ,Organic and Physical Chemistry	100	03
			Practical – V	50	02
		VI	Inorganic ,Organic and Physical Chemistry	100	03
			Practical – VI	50	02
	* Any one Paper from VII A, B and C	VII (A)*	Elective	100	03
			Practical - VII A	50	02
		VII (B)*	Elective	100	03
			Practical - VII B	50	02
		VII (C)*	Elective	100	03
			Practical - VII C	50	02
	** Any one cluster from VIII, A, B and C	VIII (A)**	**Cluster Electives - I :**	100	03
			VIII-A-1	100	03
			VIII-A-2	100	03
			VIII-A-3	50	02
				50	02
				50	02
		VIII (B)**	**Cluster Electives - II ::**	100	03
			VIII-B-1	100	03
			VIII- B-2	100	03
			VIII-B-3	50	02
				50	02
	VI			50	02
		VIII (C)**	**Cluster Electives - III ::**	100	03
			VIII-C-1	100	03
			VIII-C-2	100	03
			VIII-C-3	50	02
				50	02
				50	02

SEMESTER-VI

PAPER – VIII-A-3 : ANALYSIS OF DRUGS, FOODS , DAIRY PRODUCTS & BIO-CHEMICAL ANALYSIS

45 hrs (3 h / w)

UNIT- I

Analysis of the following drugs and pharmaceuticals preparations:
(Knowledge of molecular formula, structure and analysis)
Analysis of anlgesics and antipyretics like aspirin and paracetamol
Analysis of antimalerials like choloroquine .
Analysis of drugs in the treatment of infections and infestations :Amoxycillin., chloramphenicol, metronidazole, penicillin, tetracycline, cephalexin(cefalexin).
Anti tuberculous drug- isoniazid.

UNIT - II

Analysis of the following drugs and pharmaceuticals preparations:
(Knowledge of molecular formula, structure and analysis)
Analysis of antihistamine drugs and sedatives like: allegra, zyrtec(citirizine), alprazolam, trazodone, lorazepem, ambien(zolpidem), diazepam,

UNIT - III

Analysis of anti epileptic and anti convulsant drugs like phenobarbital and phenacemide.
Analysis of drugs used in case of cardiovascular drugs:atenolol, norvasc(amlodipine),
Analysis of lipitor(atorvastatin) a drug for the preventin of productin of cholesterol.
Analysis of diuretics like: furosemide (Lasix), triamterene
Analysis of prevacid(lansoprazole) a drug used for the prevention of production of acids in stomach.

UNIT - IV

Analysis of Milk and milk products: Acidity, total solids, fat, total nitrogen, protenines,lactose, phosphate activity, casein, choride. Analysis of food materials- Preservatives: Sodium carbonate, sodium benzoate sorbic acid Coloring matters, - Briliant blue FCF, fast green FCF, tertrazine, erytrhosine , sunset yellow FCF.
Flavoring agents - Vanilla , diacetyl, isoamyl acetate, limonene, ethylpropionate , allyl hexanoate and Adulterants in rice and wheat, wheat floo0r, sago,coconut oil, coffee powder, tea powder, milk..

UNIT - V

Clinical analysis of blood:Composition of blood,clinical analysis,trace elements in the body.Estimation of blood chlolesterol,glucose,enzymes,RBC & WBC ,Blood gas analyser.

REFERENCE BOOKS :

1.F.J.Welcher-Standard methods of analysis,
2.A.I.Vogel-A text book of quantitative Inorganic analysis-ELBS,
3.F.D.Snell & F.M.Biffen-Commercial methods of analysis-D.B.Taraporavala & sons,
4.J.J.Elving and I.M.Kolthoff- Chemical analysis - A series of monographs on analytical chemistry and its applications -- Inter Science- Vol I to VII.,

5.Aanalytical Agricultrual Chemistry by S.L.Chopra & J.S.Kanwar -- Kalyani Publishers

6. Quantitative analysis of drugs in pharmaceutical formulations by P.D.Sethi, CBS Publishers and Distributors, New Delhi
7. G.Ingram- Methods of organic elemental micro analysis- Chapman and Hall.,
8. H.Wincciam and Bobbles (Henry J)- Instrumental methods of analysis of food additives.,
9. H.Edward-The Chemical analysis of foods;practical treatise on the examination of food stuffs and the detection of adulterants,
10. The quantitative analysis of drugs- D.C.Garratt-Chapman & Hall.,
11. A text book of pharmaceutical analysis by K.A.Connors-Wiley-International.,
12. Comprehensive medicinal chemistry-Ed Corwin Hansch Vol 5,Pergamon Press.,

I. LABORATORY COURSE – VIII

Practical Paper – VIII-A-1: (at the end of semester VI) **30 hrs (2 h / W)**

1. Preparation of Aspirin
2. Preparation of Paracetamol
3. Preparation of Acetanilide
4. Preparation of Barbutiric Acid
5. Preparation of Phenyl Azo β-naphthol

II. LABORATORY COURSE – VIII

Practical Paper – VIII-A-2 (at the end of semester VI)

30 hrs (2 h / W)

1.Green procedure for organic qualitative analysis: Detection of N, S andhalogens

2.Acetylation of 1^0 amine by green method: Preparation of acetanilide

3. Rearrangement reaction in green conditions: Benzil-Benzilic acid rearrangement
4. Electrophilic aromatic substitution reaction: Nitration of phenol
5. Radical coupling reaction: Preparation of 1,1-bis -2-naphthol
6. Green oxidation reaction: Synthesis of adipic acid
7. Green procedure for Diels Alder reaction between furan and maleic anhydride

List of Reference Books

1. Green Chemistry Theory and Practice. P.T.Anatas and J.C. Warner
2. Green Chemistry V.K. Ahluwalia Narosa, New Delhi.
3. Real world cases in Green Chemistry M.C. Cann and M.E. Connelly
4. Green Chemistry: Introductory Text M.Lancaster: Royal Society of Chemistry (London)
5. Green Chemistry: Introductory Text, M.Lancaster
6. Principles and practice of heterogeneous catalysis, Thomas J.M.,Thomas M.J., John Wiley
7. Green Chemistry: Environmental friendly alternatives R S Sanghli and M.M Srivastava, Narosa Publications

VII-A-3 Practical:- Project Work

B.Sc. Chemistry Revised Syllabus under CBCS

w.e.f. 2020-21

Structure of Chemistry Core Syllabus under CBCS

YEAR	SEMESTER	COURSE	TITLE	MARKS	CREDITS
I	I	I	Inorganic and Physical Chemistry	100	03
			Practical – I Analysis of SALT MIXTURE	50	02
	II	II	Organic and General Chemistry	100	03
			Practical – IIVolumetric Analysis	50	02
II	III	III	Organic Chemistry and Spectroscopy	100	03
			Practical – IIIOrganic preparations and IR Spectral Analysis	50	02
	IV	IV	Inorganic, Organic and Physical Chemistry	100	03
			Practical – IVOrganic Qualitative analysis	50	02
		V	Inorganic and Physical Chemistry	100	02
			Practical-V Course Conductometric and Potentiometric Titrimetry	50	02

SEMESTER – I

Course I (Inorganic &Physical Chemistry) 60 hrs. (4h/w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of p-block elements
2. Explainthe differencebetweensolid,liquidandgasesintermsof intermolecularinteractions.
3. Applytheconceptsofgasequations,pHandelectrolyteswhilestudyingotherchemistrycourses.

INORGANIC CHEMISTRY 24 h

UNIT –I

Chemistry of p-block elements **8h**

Group 13: Preparation & structure of Diborane, Borazine

Group 14: Preparation, classification and uses of silicones

Group 15: Preparation & structures of Phosphonitrilic halides $\{(PNCl_2)_n$ where n=3, 4

Group 16: Oxides and Oxoacids of Sulphur (structures only)

Group 17: Pseudohalogens, Structures of Interhalogen compounds.

UNIT-II

1. Chemistry of d-block elements: **6h**

Characteristics of d-block elements with special reference to electronic configuration, variable valence, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states.

2. Chemistry of f-block elements: **6h**

Chemistry of lanthanides - electronic structure, oxidation states, lanthanide contraction, consequences of lanthanide contraction, magnetic properties. Chemistry of actinides - electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

3. Theories of bonding in metals: **4h**

Valence bond theory andFree electron theory, explanation of thermal and electrical conductivity of metals based on these theories, Band theory- formation of bands, explanation of conductors, semiconductors and insulators.

PHYSICAL CHEMISTRY **36h**

UNIT-III

Solidstate **10h**

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Miller indices, Definition of lattice point, space lattice, unit cell. Bravais lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Powder method. Defects in crystals. Stoichiometric and non-stoichiometric defects.

UNIT-IV

1. Gaseous state **6h**

van der Waal's equation of state. Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. Relationship between critical constants and vander Waal's constants. Lawof corresponding states. Joule- Thomson effect. Inversion temperature.

2.Liquid state **4h**

Liquid crystals,mesomorphicstate. Differences between liquid crystal and solid/liquid. Classification of liquid crystals into Smectic and Nematic. Application of liquid crystals as LCD devices.

UNIT-V

Solutions, Ionic equilibrium& dilute solutions

1. Solutions **6h**

Azeotropes-HCl-H_2O system and ethanol-water system. Partially miscible liquids-phenol-water system. Critical solution temperature (CST), Effect of impurity on consulate temperature. Immiscible liquids and steam distillation.Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law.

2. **Ionic equilibrium** **3h**

Ionic product, common ion effect, solubility and solubility product. Calculations based on solubility product.

3. Dilute solutions **7h**

Colligative properties- RLVP, Osmotic pressure, Elevation in boing point and depression in freezing point. Experimental methods for the determination of molar mass of a non-volatile

solute using osmotic pressure, Elevation in boing point and depression in freezing point. Abnormal colligative properties. Van't Hoff factor.

Co-curricular activities and Assessment Methods

1. ContinuousEvaluation:Monitoringtheprogressof student'slearning
2. ClassTests,WorksheetsandQuizzes
3. Presentations,ProjectsandAssignmentsandGroupDiscussions:Enhancescriticalthinking skillsand personality
4. Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

1. Principles of physical chemistry by Prutton and Marron
2. Solid State Chemistry and its applications by Anthony R. West
3. Text book of physical chemistry by K L Kapoor
4. Text book of physical chemistry by S Glasstone
5. Advanced physical chemistry by Bahl and Tuli
6. Inorganic Chemistry by J.E.Huheey
7. Basic Inorganic Chemistry by Cotton and Wilkinson
8. A textbook of qualitative inorganic analysis by A.I. Vogel
9. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
10. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004).
11. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
12. Barrow,G.M.PhysicalChemistry

SEMESTER – II

Course II – (Organic & General Chemistry) 60 hrs (4h/w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understandandexplainthedifferentialbehaviorof organiccompoundsbasedonfundamental conceptslearnt.
2. Formulatethemechanismoforganicreactionsby recallingandcorrelatingthefundamentalproperties ofthereactantsinvolved.
3. LearnandidentifymanyorganicreactionmechanismsincludingFreeRadical Substitution, Electrophilic AdditionandElectrophilicAromaticSubstitution.
4. Correlateanddescribethestereochemicalpropertiesoforganiccompoundsand reactions.

ORGANIC CHEMISTRY **36h**

UNIT-I

RecapitulationofBasicsofOrganicChemistry

Carbon-Carbon sigma bonds (Alkanes and Cycloalkanes) **12h**

General methods of preparation of alkanes- Wurtz and WurtzFittig reaction, Corey House synthesis, physical and chemical properties of alkanes, Isomerism and its effect on properties, Free radical substitutions; Halogenation, concept of relative reactivity v/s selectivity. Conformational analysis of alkanes (Conformations, relative stability and energy diagrams of Ethane, Propane and butane).General molecular formulae of cycloalkanes and relative stability, Baeyer strain theory, Cyclohexane conformations with energy diagram, Conformations of monosubstituted cyclohexane.

UNIT-II

Carbon-CarbonpiBonds(AlkenesandAlkynes) **12h**

Generalmethodsofpreparation,physicaland chemicalproperties.Mechanism ofE1,E2,E1cbreactions,SaytzeffandHoffmanneliminations, Electrophilic Additions,mechanism(Markownikoff/Antimarkownikoff addition) with suitableexamples,„*syn*and*anti*-addition;additionofH_2,X_2, HX. oxymercuration-

demercuration, hydroboration-oxidation,ozonolysis,hydroxylation, Diels Alderreaction,1,2-and1,4-additionreactionsinconjugateddienes.

Reactionsofalkynes;acidity,electrophilic andnucleophilicadditions,hydrationtoformcarbonyl compounds,Alkylationof terminalalkynes.

UNIT-III

Benzene and its reactivity **12h**

Concept of aromaticity, Huckel's rule - application to Benzenoid (Benzene, Naphthalene) and Non - Benzenoid compounds (cyclopropenylcation, cyclopentadienyl anion and tropyliumcation)

Reactions - General mechanism of electrophilic aromatic substitution, mechanism of nitration, Friedel- Craft's alkylation and acylation. Orientation of aromatic substitution - ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and Phenolic). Orientation of (i) Amino, methoxy and methyl groups (ii) Carboxy, nitro, nitrile, carbonyl and sulphonic acid groups (iii) Halogens

(Explanation by taking minimum of one example from each type)

GENERAL CHEMISTRY **24 h**

UNIT-IV

1. Surface chemistry and chemical bonding

Surface chemistry **6h**

Colloids- Coagulation of colloids- Hardy-Schulze rule. Stability of colloids,Protection of Colloids, Gold number.

Adsorption-Physical and chemical adsorption, Langmuir adsorption isotherm, applications of adsorption.

2. Chemical Bonding **6h**

Valence bond theory, hybridization, VB theory as applied toClF_3,$Ni(CO)_4$, Molecular orbital theory -LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules (N_2, O_2, CO and NO).

3. HSAB **2h**

Pearson's concept, HSAB principle & its importance, bonding in Hard-Hard and Soft-Soft combinations.

UNIT-V

Stereochemistry of carbon compounds **10h**

Molecular representations- Wedge, Fischer, Newman and Saw-Horse formulae.

Optical isomerism: Optical activity- wave nature of light, plane polarised light, optical rotation and specific rotation.

Chiral molecules- definition and criteria(Symmetry elements)- Definition of enantiomers and diastereomers – Explanation of optical isomerism with examples- Glyceraldehyde, Lactic acid, Alanine, Tartaric acid, 2,3-dibromopentane.

D,L, R,S and E,Z- configuration with examples.

Definition of Racemic mixture – Resolution of racemic mixtures (any 3 techniques)

Co-curricular activities and Assessment Methods

ContinuousEvaluation:Monitoringtheprogressof student'slearning

ClassTests,WorksheetsandQuizzes

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Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

Theory:

Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd. (PearsonEducation).

Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

Eliel, E. L. &Wilen, S. H. Stereochemistry of Organic Compounds; Wiley: London, 1994.

Kalsi, P. S. Stereochemistry Conformation and Mechanism; New Age International, 2005.

Practical:

(b). (i) Explain the acidity of 1-alkynes
(ii) How will you prepare acetaldehyde and acetone from alkynes?
(iii) Write alkylation reaction of terminal alkne.

11.(a). Define Huckel rule of aromatic compounds. What are benzenoid and non-benzenoid aromatic compounds? Give examples.

(or)

(b). Explain the mechanisms of Nitration and Friedel-Craft's alkylation of Benzene.

12.(a). (i) Define Hardy-Schulze rule & Gold number.
(ii) Differentiate Physisorption& Chemisorption. Explain Langmuir adsorption isotherm.

(or)

(b). Construct the Molecular Orbital diagram for O_2 and NO and explain their bond order and magnetic property.

13.(a). Define racemic mixture. Explain any two techniques for resolution of racemic mixture.

(or)

(b). (i) Define Optical activity and Specific rotation.
(ii) Draw the R- & S- isomers of Alanine, Glyceraldehyde.
(iii) Write the E- & Z- isomers of 2-butene.

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SEMESTER - III

Course III (ORGANICCHEMISTRY&SPECTROSCOPY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understandpreparation,propertiesandreactionsofhaloalkanes,haloarenesand oxygencontaining functionalgroups.
2. Usethesyntheticchemistrylearntinthiscoursetodofunctionalgroup transformations.
3. Toproposeplausiblemechanismsforanyrelevantreaction

ORGANIC CHEMISTRY **34h**

UNIT – I

1. ChemistryofHalogenatedHydrocarbons: **6h**

Alkylhalides:Methodsofpreparationandproperties,nucleophilicsubstitutionreactions–S_N1,$S_N2$and$S_N$imechanismswithstereochemicalaspectsandeffectofsolventetc.;nucleophilics ubstitutionvs.elimination, Williamson's synthesis.

Arylhalides:Preparation(includingpreparationfromdiazoniumsalts)andproperties,nucleophilic aromatic substitution;S_NAr,Benzynemechanism.

Relativereactivityofalkyl,allyl,benzyl,vinylandarylhalidestowardsnucleophilicsubstitut ionreactions.

2. Alcohols &Phenols **6h**

Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, BouvaeltBlanc Reduction; Oxidationofdiolsbyperiodicacidandleadtetra acetate,Pinacol-Pinacolonerearrangement;

Phenols:Preparationandproperties;Acidityandfactorseffectingit, Ringsubstitution reactions, Reimer–Tiemannand Kolbe's–Schmidt Reactions, Fries and Claisenrearrangements with mechanism;

UNIT-II

CarbonylCompounds **10h**

Structure,reactivity,preparationandproperties;

Nucleophilicadditions,Nucleophilicaddition-eliminationreactionswithammoniaderivatives

MechanismsofAldolandBenzoincondensation, Claisan-Schmidt, Perkin, CannizzaroandWittigreaction,Beckmannhaloformreactionand BaeyerVilligeroxidation,α-substitutionreactions,oxidationsandreductions(Clemmensen, wolf –kishner, with $LiAlH_4$ &$NaBH_4$).

Additionreactionsof α,β-unsaturatedcarbonylcompounds:Michaeladdition.

Activemethylenecompounds: Keto-enoltautomerism.Preparationandsyntheticapplicationsofdiethyl malonateandethylacetoacetate.

UNIT-III

CarboxylicAcidsand their Derivatives **12h**

General methods of preparation, physical properties and reactions of monocarboxylic acids, effect of substituentsonacidicstrength.Typicalreactionsofdicarboxylicacids,hydroxyacidsandunsaturatedacids.

Preparationandreactionsofacidchlorides,anhydrides,estersandamides;

Comparativestudyofnucleophilicsubstitutionatacylgroup-Mechanism ofacidicandalkalinehydrolysisof esters,Claisencondensation,Reformatskyreactions and Curtiusrearrangement

Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation by Schimdt reaction, Arndt-Eistert synthesis, halogenation by Hell- Volhard- Zelinsky reaction.

SPECTROSCOPY **26 h**

UNIT-IV

MolecularSpectroscopy: **18h**

Interactionofelectromagneticradiationwithmoleculesandvarioustypesof spectra;

Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.

Vibrationalspectroscopy: Classicalequationofvibration, computationofforceconstant, Harmonic and anharmonic oscillator, Morsepotential curve,vibrational degreesoffreedom forpolyatomic molecules, modesofvibration. Selection rules for vibrational transitions, Fundamentalfrequencies, overtones and hotbands.

Electronic spectroscopy: Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. bathochromic and hypsochromic shifts.Beer-Lambert's law and its limitations.

Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT-V **8h**

Application of Spectroscopy to Simple Organic Molecules

Application of visible, ultraviolet and Infrared spectroscopy in organic molecules.

Application of electronic spectroscopy and Woodward rules for calculating λ_{max} of conjugated dienes and α,β – unsaturated compounds.

Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).

Co-curricular activities and Assessment Methods

ContinuousEvaluation:Monitoringtheprogressof student'slearning

ClassTests,WorksheetsandQuizzes

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Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

1. A Text Book of Organic Chemistry by Bahl and Arunbahl
2. A Text Book of Organic chemistry by I L FinarVol I
3. Organic chemistry by Bruice
4. Organic chemistry by Clayden
5. Spectroscopy by William Kemp
6. Spectroscopy by Pavia
7. Organic Spectroscopy by J. R. Dyer
8. Elementary organic spectroscopy by Y.R. Sharma
9. Spectroscopy by P.S.Kalsi
10. Spectrometric Identification of Organic Compounds by Robert M Silverstein, Francis X Webster
11. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
12. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. &Tatchell, A.R. Practical Organic Chemistry, 5th Ed. Pearson (2012)

SEMESTER - IV

CourseV(INORGANIC &PHYSICAL CHEMISTRY) 60 hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand concepts ofboundaryconditionsandquantization,probabilitydistribution,mostprobablevalues, uncertainty andexpectationvalues
2. Applicationofquantizationtospectroscopy.
3. Varioustypesofspectraandtheiruseinstructuredetermination.

INORGANIC CHEMISTRY **26 h**

UNIT –I

Coordination Chemistry **12 h**

IUPAC nomenclature of coordination compounds, Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Valence Bond Theory (VBT): Inner and outer orbital complexes. Limitations of VBT, Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of crystal field splitting energy, Spectrochemical series, Comparison of CFSE for Octahedral and Tetrahedral complexes, Tetragonal distortion of octahedral geometry,Jahn-Teller distortion, square planar coordination.

UNIT –II

1. InorganicReactionMechanism: **4h**

Introductiontoinorganicreactionmechanisms.Conceptofreaction pathways,transitionstate,intermediateand activatedcomplex. Labile and inert complexes, ligand substitution reactions - SN^1 and SN^2,Substitutionreactionsinsquare planar complexes,Trans-effect,theoriesoftranseffect and its applications

2. Stability of metal complexes: **2h**

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

BioinorganicChemistry: **8h**

Metalionspresentinbiologicalsystems,classificationofelementsaccordingtotheiractioninbiological system.Geochemical effectonthedistributionofmetals,Sodium/K-pump,carbonicanhydraseand carboxypeptidase.

Excessanddeficiencyofsometracemetals.Toxicityofmetalions(Hg,Pb,CdandAs), reasonsfortoxicity,Useof chelatingagentsinmedicine,Cisplatinasananti-cancerdrug. Ironanditsapplicationinbio-systems,Haemoglobin,Myoglobin.Storageandtransferof iron.

PHYSICAL CHEMISTRY **34 h**

UNIT-III

1 .Phase rule

6hConcept of phase, components, degrees of freedom. Thermodynamic derivation of Gibbs phase rule. Phase diagram of one component system - water system, Study of Phase diagrams of Simple eutectic systems i) Pb-Ag system, desilverisation of lead ii) NaCl-Water system, Congruent and incongruent melting point- Definition and examples for systems having congruent and incongruent melting point , freezing mixtures.

UNIT-IV

Electrochemistry **14h**

Specific conductance, equivalent conductance and molar conductance- Definition and effect of dilution. Cell constant. Strong and weak electrolytes,Kohlrausch's law and its applications, Definition of transport number,determination of transport number by Hittorf's method. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only), Application of conductivity measurements- conductometric titrations.

Electrochemical Cells- Single electrode potential, Types of electrodes with examples: Metal-metal ion, Gas electrode, Inert electrode, Redox electrode, Metal-metal insoluble salt- salt anion. Determination of EMF of a cell, Nernst equation, Applications of EMF measurements - Potentiometric titrations.

Fuel cells- Basic concepts, examples and applications

UNIT-V

ChemicalKinetics: **14 h**

The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction, Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only).Enzyme catalysis- Specificity,

factors affecting enzyme catalysis, Inhibitors and Lock & key model. Michaels- Menten equation- derivation, significance of Michaelis-Menten constant.

Co-curricular activities and Assessment Methods

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Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

1. . Text book of physical chemistry by S Glasstone
2. Concise Inorganic Chemistry by J.D.Lee
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
4. Advanced physical chemistry by Gurudeep Raj
5. Principles of physical chemistry by Prutton and Marron
6. Advanced physical chemistry by Bahl and Tuli
7. Inorganic Chemistry by J.E.Huheey
8. Basic Inorganic Chemistry by Cotton and Wilkinson
9. A textbook of qualitative inorganic analysis by A.I. Vogel
10. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
11. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004).
12. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
13. Barrow,G.M.PhysicalChemistry

SEMESTER - IV

CourseV **LABORATORY COURSE** **30**hrs (2 h / w)

Practical-Course -VConductometric and Potentiometric Titrimetry **50 M**

(or)

(b). Write the preparation and any three synthetic applications of diethyl malonate.

11.(a). Explain acid and base hydrolysis reaction of esters with mechanism.

(or)

(b). Explain the mechanisms of Curtius rearrangement & Arndt –Eistert reaction.

12.(a). (i) Write a note on vibrational degrees of freedom for polyatomic molecules.
(ii) Explain different modes of vibrations & selection rules in IR spectroscopy.

(or)

(b).(i) Define Bathochromic shift. Explain the effect of conjugation in U.V. spectroscopy.
(ii) Discuss the principle of NMR spectroscopy.

13.(a). Write Woodward-Fieser rules for calculating λmax for conjugated dienes and α,β – unsaturated carbonyl compounds , and apply them for one example each.

(or)

(b).(i) What is Fingerprint region. Explain its signigicance with an example.(ii) Write IR spectral data for any one alcohol, aldehyde and ketone

SEMESTER - IV

Course IV (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Tolearnaboutthelawsofabsorptionoflightenergybymoleculesandthesubsequentphotochemical reactions.
2. Tounderstandtheconceptofquantumefficiencyandmechanismsofphotochemicalreactions.

UNIT - I

OrganometallicCompounds **8h**

Definitionandclassification oforganometallic compoundsonthebasisofbondtype,Conceptofhapticityof organicligands.Metalcarbonyls:18electronrule,electroncountofmononuclear, polynuclearandsubstituted metalcarbonylsof3dseries.Generalmethodsofpreparationofmonoandbinuclearcarbonylsof 3d series.P-acceptor behaviour of carbon monoxide. Synergic effects (VB approach) - (MO diagram of CO can be referred to for synergic effect to IR frequencies).

UNIT – II

Carbohydrates **8h**

Occurrence,classificationandtheirbiologicalimportance,Monosaccharides: Constitutionandabsolute configurationofglucoseandfructose,epimersandanomers,mutarotation,determinationofringsize ofglucose andfructose,Haworthprojectionsandconformationalstructures;Interconversions ofaldosesandketoses; Killiani-FischersynthesisandRuffdegradation; Disaccharides– Elementarytreatmentofmaltose, lactoseand sucrose.Polysaccharides–Elementarytreatmentof starch.

UNIT- III

Amino acids and proteins **6h**

Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples.

Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Gabriel Phthalimide synthesis c) strecker's synthesis.

Physical properties: Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point.

Chemical properties: General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating- peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

Heterocyclic Compounds **7h**

Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1, 4, -dicarbonyl compounds, Paul-Knorr synthesis.

Properties: Acidic character of pyrrole - electrophillic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan.

Pyridine – Structure - Basicity - Aromaticity- Comparison with pyrrole- one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

UNIT- IV

NitrogenContainingFunctionalGroups

Preparation, propertiesandimportantreactionsof nitrocompounds,aminesanddiazoniumsalts.

1. Nitro hydrocarbons **3h**

Nomenclature and classification-nitro hydrocarbons, structure -Tautomerism of nitroalkanes leading to aci and keto form, Preparation of Nitroalkanes, reactivity -halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Micheal addition and reduction.

2.Amines: **11h**

Introduction,classification,chiralityin amines (pyramidal inversion),importanceand generalmethodsofpreparation.

Properties : Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. DistinctionbetweenPrimary, secondaryandtertiaryaminesusingHinsberg'smethodandnitrousacid. Discussion of the following reactions with emphasis on the mechanistic pathway: Gabriel Phthalimidesynthesis,Hoffmann-Bromamidereaction,Carbylaminereaction,Mannichreaction,Hoffmann'sexhaustive methylation,Hofmann-eliminationreactionandCopeelimination.

Diazonium **Salts**:Preparationand syntheticapplicationsofdiazoniumsaltsincludingpreparationofarenes, haloarenes, phenols,cyanoandnitrocompounds. Couplingreactionsofdiazoniumsalts (preparationofazo dyes).

UNIT- V

Photochemistry **5h**

Difference between thermal and photochemical processes, Laws of photochemistry- Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield-Photochemical reaction mechanism- hydrogen- chlorine and hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions- energy transfer processes (simple example).

Thermodynamics **12 h**

The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule-Thomson effect- coefficient, Calculation of work for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function. Temperature dependence of enthalpy of formation- Kirchoff s equation, Second law of thermodynamics Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes. Third law of thermodynamics, Nernst heat theorem, Spontaneous and non- spontaneous processes, Helmholtz and Gibbs energies-Criteria for spontaneity.

Co-curricular activities and Assessment Methods

ContinuousEvaluation:Monitoringtheprogressof student'slearning

ClassTests,WorksheetsandQuizzes

Presentations,ProjectsandAssignmentsandGroupDiscussions:Enhancescriticalthinkingskillsand personality

Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mareloudan, Purdue Univ
4. Text book of physical chemistry by S Glasstone
6. Concise Inorganic Chemistry by J.D.Lee
7. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
8. A Text Book of Organic Chemistry by Bahl and Arunbahl
9. A Text Book of Organic chemistry by I L FinarVol I
10. A Text Book of Organic chemistry by I L FinarVol II
11. Advanced physical chemistry by Gurudeep Raj

LABORATORY COURSE -IV 30hrs(2 h / w)

Practical Course-IVOrganic Qualitative analysis **50 M**

(At the end of Semester- IV)

Andhra Pradesh State Council of Higher Education
CBCS B.A./B.Sc. **Mathematics** Course Structure
w.e.f. 2015-16 (Revised in April, 2016)

Year	Seme-ster	Paper	Subject	Hrs.	Credits	IA	EA	Total
1	**I**	I	Differential Equations & Differential Equations Problem Solving Sessions	6	5	25	75	100
	II	II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	25	75	100
2	**III**	III	Abstract Algebra & Abstract Algebra Problem Solving Sessions	6	5	25	75	100
	IV	IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	25	75	100
3	**V**	V	Ring Theory & Vector Calculus & Ring Theory & Vector Calculus Problem Solving Sessions	5	5	25	75	100
		VI	Linear Algebra & Linear Algebra Problem Solving Sessions	5	5	25	75	100
	VI	VII	**Electives: (any one)** VII-(A) Laplace Transforms VII-(B) Numerical Analysis VII-(C) Number Theory & Elective Problem Solving Sessions	5	5	25	75	100
		VIII	**Cluster Electives:** VIII-A-1: Integral Transforms	5	5	25	75	100
			VIII-A-2: Advanced Numerical Analysis	5	5	25	75	100
			VIII-A-3: *Project work* or VIII-B-1: Principles of Mechanics	5	5	25	75	100
			VIII-B-2: Fluid Mechanics VIII-B-3: *Project work* or VIII-C-1: Graph Theory VIII-C-2: Applied Graph Theory VIII-C-3: *Project work*					

1-6-112 A

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS,
SEMESTER – VI, CLUSTER – A, PAPER – VIII-A-1
Cluster Elective- VIII-A-1: INTEGRAL TRANSFORMS

60 Hrs

UNIT – 1 (12 hrs) Application of Laplace Transform to solutions of Differential Equations : -

Solutions of ordinary Differential Equations.
Solutions of Differential Equations with constants co-efficient
Solutions of Differential Equations with Variable co-efficient

UNIT – 2 (12 hrs) Application of Laplace Transform : -

Solution of simultaneous ordinary Differential Equations.
Solutions of partial Differential Equations.

UNIT – 3 (12 hrs) Application of Laplace Transforms to Integral Equations : -

Definitions : Integral Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integro Differential Equations. Application of L.T. to Integral Equations.

UNIT –4 (12 hrs) Fourier Transforms-I : -

Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform shifting property – modulation theorem.

UNIT – 5 (12 hrs) Fourier Transform-II : -

Convolution Definition – Convolution Theorem for Fourier transform – parseval's Indentify – Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Finte Fourier Transforms : -

Finte Fourier Sine Transform – Finte Fourier Cosine Transform – Inversion formula for sine and cosine Transforms only statement and related problems.

Reference Books :-

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. A Course of Mathematical Analysis by Shanthi Narayana and P.K. Mittal, Published by S. Chand and Company pvt. Ltd., New Delhi.
3. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Company Pvt. Ltd., New Delhi.
4. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
5. Integral Transforms by M.D. Raising hania, - H.C Saxsena and H.K. Dass Published by S.Chand and Company pvt. Ltd., New Delhi.

Suggested Activities:

Seminar/ Quiz/ Assignments

K CH.V.SUBBAIAH NAIDU
H.O.D of Mathematics
B.T. COLLEGE
MADANAPALLE-517 325
8331895531

B.A./B.Sc. THIRD YEAR MATHEMATICS SYLLABUS
SEMESTER – VI: PAPER – VIII-A-2
ELECTIVE – VIII-A-2: ADVANCED NUMERICAL ANALYSIS

60 Hrs

Unit – I (10 Hours)

Curve Fitting: Least – Squares curve fitting procedures, fitting a straight line, nonlinear curve fitting, Curve fitting by a sum of exponentials.

UNIT- II : (12 hours)

Numerical Differentiation: Derivatives using Newton's forward difference formula, Newton's backward difference formula, Derivatives using central difference formula, stirling's interpolation formula, Newton's divided difference formula, Maximum and minimum values of a tabulated function.

UNIT- III : (12 hours)

Numerical Integration: General quadrature formula on errors, Trapozoidal rule, Simpson's 1/3 – rule, Simpson's 3/8 – rule, and Weddle's rules, Euler – Maclaurin Formula of summation and quadrature, The Euler transformation.

UNIT – IV: (14 hours)

Solutions of simultaneous Linear Systems of Equations: Solution of linear systems – Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss-Jordan Method ,Method of factorization, Solution of Tridiagonal Systems,. Iterative methods. Jacobi's method, Gauss-siedal method.

UNIT – V (12 Hours)

Numerical solution of ordinary differential equations: Introduction, Solution by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods.

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall India (Latest Edition).
2. Numerical Analysis by G. Sankar Rao, published by New Age International Publishers, New – Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities:

Seminar/ Quiz/ Assignments

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S. V UNIVERSITY., MODEL PAPER

THIRD YEAR . B. A, B. Sc, DEGREE EXAMINATIONS

SEMISTER . IV: CHOICE BASED CREDIT SYSTEM

PARTIII, MATHEMATICS

CLUSER ELECTIVE – VII – A – 3:PROJECT WORK

(NEW SYLLABUS W. E. F. 2015 – 16) 1-6-112 C

PROJECT WORK: 100MARKS

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AP STATE COUNCIL OF HIGHER EDUCATION

ZOOLOGY COURSE STRUCTUREUNDERCBCS (w.e.f. 2015-16, Revised)

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS
I	I	I	Biology of Non-chordates	100	03
			Practical - I	50	02
	II	II	Biology of Chordates	100	03
			Practical - II	50	02
II	III	III	Cell biology, Genetics and Evolution	100	03
			Practical - III	50	02
	IV	IV	Embryology, Physiology and Ecology	100	03
			Practical - IV	50	02
III	V	V	Animal Biotechnology	100	03
			Practical - V	50	02
		VI	Animal Husbandry	100	03
			Practical - VI	50	02
	*Any one Paper from A, B and C ** Any one cluster from I, II and III	VII (A)*	Immunology	100	03
			Practical - VII (A)	50	02
		VII (B)*	Cellular Metabolism and Molecular Biology	100	03
			Practical - VII (B)	50	02
		VII (C)*	Bioinformatics	100	03
			Practical - VII (C)	50	02
	VI	Cluster VIII-A**	**Cluster Electives –VIII-A : Medical Diagnostics**		
			1. Clinical Biochemistry	100	03
			2. Haematology	100	03
			3. Clinical Microbiology	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02
		Cluster VIII-B**	**Cluster Electives –VIII-B : Aquaculture**		
			1. Principles of Aquaculture	100	03
			2. Aquaculture Management	100	03
			3. Postharvest Technology	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02
		Cluster VIII-C**	**Cluster Electives – VIII-C : Sericulture**		
			1. Gen. Sericulture, Mulberry cultivation and Management	100	03
			2. Biology of Mulberry Silkworm and Silkworm rearing Technology	100	03
			3. Silk Technology, Silk Marketing and Extension	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02

VI SEMESTER

AQUACULTURE

PRACTICAL: I

Periods : 24 **Max.Marks : 50**

Cultivable fishes

1. Identification and study of important cultivable and edible fishes - Any ten
2. Identification and study of important cultivable and edible crustaceans - Any five
3. Identification and study of common aquarium fishes – Any five
4. General description and recording biometric data of a given fish.

Diseases

1. Identification and study of fish and shrimp diseases - Using specimens / pictures
2. External examination of the diseased fish – diagnostic features and procedure.
3. Autopsy of fish – Examination of the internal organs.
4. Determination of dosages of chemicals and drugs for treating common diseases.

Pond Management

1. Water Quality -Determination of temperature, pH, salinity in the pond water sample; Estimation of dissolved oxygen, free carbondioxide, total alkalinity, total hardness, phosphates and nitrites.
2. Soil analysis – Determination of soil texture, pH, conductivity, available nitrogen, available phosphorus and organic carbon.
3. Identification and study of common zooplankton, aquatic insects and aquatic weeds – Each 5

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PRACTICAL - II

Periods :24 **Max.Marks : 50**

Nutrition

1. Identification and study of Live food organisms – Any five
2. Formulation and preparation of a balanced fish feed
3. Estimation of Proximate composition of aquaculture feeds – Proteins, carbohydrates, lipids, moisture, ash content.
4. Gut content analysis to study artificial and natural food intake.

Post harvest Technology

1. Evaluation of fish/ fishery products for organoleptic, chemical and microbial quality.
2. Preparation of dried, cured and fermented fish products, examination of salt, protein, moisture in dried / cured products, examination of spoilage of dried / cured fish products, marinades, pickles, sauce.
3. Preparation of isinglass, collagen and chitosan from shrimp and crab shell. ?
4. Developing flow charts and exercises in identification of hazards – preparation of hazard analysis worksheet, plan form and corrective action procedures in processing of fish.

PRACTICAL - III

Project Work

Visit to a fish breeding centre / fish farms and submit a project report

or

Visit to a feed manufacturing unit and submit a project report
or
Visit to a shrimp hatchery / shrimp farms and submit a project report
or
Visit to a shrimp processing unit and submit a project report

Andhra Pradesh State Council of Higher Education

Structure of B.Sc Botany under CBCS

w.e.f. 2015-16 (Revised in April, 2016)

Year	*Semester*	*Paper*	*Title*	*Hours*	*Marks*	*Credits*
I	**I**	**I**	Microbial Diversity , Algae and Fungi	**4**	**100**	**03**
			Practical –I	**2**	**50**	**02**
	II	**II**	Diversity Of Archaegoniates & Anatomy	**4**	**100**	**03**
			Practical –II	**2**	**50**	**02**
II	**III**	**III**	Plant taxonomy &Embryology	**4**	**100**	**03**
			Practical –III	**2**	**50**	**02**
	IV	**IV**	Plant physiology & Metabolism	**4**	**100**	**03**
			Practical –IV	**2**	**50**	**02**
III	**V**	**V**	Cell Biology, Genetics &Plant breeding	**3**	**100**	**03**
			Practical –V	**2**	**50**	**02**
		VI	Plant Ecology & Phytogeography	**3**	**100**	**03**
			Practical –VI	**2**	**50**	**02**
	*Any one paper from (A), (B) and (C) can be selected **VI** **Any one cluster (Set of Three Papers) from VIII-A or VIII-B can be selected	**VII (A)***	Elective	**3**	**100**	**03**
			Lab	**2**	**50**	**02**
		VII (B)*	Elective			
			Lab			
		VII (C)*	Elective			
			Lab			
		** **VIII-A**	**Cluster Elective-A** **VIII-A-1** **VIII-A-2** **VIII-A-3** **Or**	**3** **3** **3** **2** **2** **2**	**100** **100** **100** **50** **50** **50**	**03** **03** **03** **02** **02** **02**
		** **VIII-B**	**Cluster Elective-B** **VIII-B-1** **VIII-B-2** **VIII-B-3**			

Andhra Pradesh State Council of Higher Education

I B.Sc - SEMESTER- I: BOTANY SYLLABUS

w.e.f. 2015-16 (Revised in April, 2016)

Paper- I : Microbial Diversity, Algae and Fungi

Total hours of teaching 60hrs @ 4 hrs per week

UNIT- I: MICROBIAL WORLD (Origin and Evolution of Life, Microbial diversity (12hrs)

1. Discovery of microorganisms, origin of life, spontaneous, biogenesis, Pasteur experiments, germ theory of disease.
2. Classification of microorganisms – R.H. Whittaker's five kingdom concept, Carl Woese's- Domain system.
3. Brief account of special groups of bacteria- Archaebacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias and Cyanobacteria.

UNIT- II: VIRUSES (12hrs)

1. Viruses- Discovery, general account, structure& replication of –T4 Phage (Lytic, Lysogenic) and TMV, Viroids, Prions.
2. Plant diseasescaused by viruses– Symptoms, transmission and control measures (Brief account only).
3. Study of Tobacco Mosaic, Bhendi Vein clearing and Papaya leaf curl diseases.

UNIT III: BACTERIA (12hrs)

1. Bacteria: Discovery, General characteristics, cell structure andnutrition.
2. Reproduction- Asexual and bacterial recombination (Conjugation, Transformation, Transduction).
3. Economic importance of Bacteria.

UNIT –IV Algae (12hrs)

1. General account - thallus organization and reproduction in Algae.
2. Fritsch classification of Algae (up to classes only) and economic importance.
3. Structure, reproduction and life history of *Oedogonium, Ectocarpus* and *Polysiphonia.*

UNIT V: FUNGI (12hrs)

1. General characteristics and outline classification (Ainsworth).
2. Structure, reproduction and life history of *Rhizopus* (Zygomycota),*Penicillium* (Ascomycota), and *Puccinia* (Basidiomycota).
3. Lichens-Structure and reproduction; ecological and economic importance.

Suggested activity: Seminar, Quiz, debate, collection of diseased plant parts –studying symptoms and identification of pathogen, collection and study of fresh and marine Algae available in local area.

Books for Reference:

1. Oladele Ogunseitan (2008) Microbial Diversity: Form and Function in Prokaryotes Wiley- Blackwell.
2. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata Mc Graw-Hill Co, New Delhi.
3. Presscott, L. Harley, J. and Klein, D. (2005) Microbiology, 6th edition, Tata Mc Graw- Hill Co. New Delhi.
4. Fritsch F.E. (1935 The Structure & Reproduction of Algae 1945): Cambridge University Press Cambridge, U.K. Vol. I, Vol. II.
5. Smith, G.M (1955) :Cryptogamic Botany(Vol. I Algae, Fungi, & Lichens) McGraw-Hill Book Co., New York .
6. Ian Morris (1967): An Introduction to the Algae, Hutchinson, London.
7. Alexopoulos,C.J.., Mims, C.W. & Blackwell, M. (1996): Introductory Mycology John Wiley& Sons., Inc., N.Y., Chicester, Berisbane, Toronto, Singapore.
8. Webster, J (1999) : Introduction to Fungi(2nd edition) Cambridge University Press.

**Student Activities like Seminars, Assignments, Fieldwork, Study Projects, Models etc. are Part of Curriculum for all units in all papers.

I B.Sc – SEMESTER –I: BOTANY PRACTICAL SYLLABUS

Paper-I: Microbial Diversity, Algae and Fungi

Total hours of laboratory Exercises 30 hrs @ 2 per week

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1. Knowledge of Equipment used in Microbiology: Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, laminar air flow chamber and Incubator.
2. Preparation of liquid and solid media for culturing of microbes (Demonstration).
3. Study of viruses and bacteria using electron photo micrographs (TMV, Bacteriophage, HIV, Cocci, Bacillus, Spirillum bacteria).
4. Gram staining technique.
5. Study of Plant disease symptoms caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and viruses (TMV, Bhendi vein clearing and Leaf curl of Papaya),Fungi (Late blight of potato, Red rot of Sugarcane and Paddy blast).
6. Study of vegetative and reproductive structures of the following :
   a) **Cyanobacteria:** *Nostoc and Scytonema.*
   b) Algae: *Oedogonium, Ectocarpus, Polysiphonia,*
   c) Fungi: *Rhizopus, Penicillium and Puccinia* .
7. Study of plant materialinfected by Fungi (Rot of tomatoes,blue and greenmoulds of Ciitrus fruits and wheat rust(Section cutting of diseased parts of Wheat and Barberry -identification of different spores).
8. Lichens: Morphology and of anatomy of different thalli.
9. Field Visit.

I B.Sc SEMESTER -II
BOTANY PRACTICAL SYLLABUS
Paper-II: Diversity of Archaegoniates & Plant Anatomy
Total hours of laboratory Exercises 30 hrs @ 2 per week

1. Morphology (vegetative and reproductive structures) , anatomy of the following :
   Marchantia, Funaria, Lycopodium and *Pinus.*
2. Anatomy:
   a) Demonstration of double staining technique.
   b) Tissue organization in root and shoot apices using permanent slides
   c) Preparation of double staining slides
   d) Anomalous secondary structure of *Achyranthes, Boerhavia* and *Dracaena.*
   e) Anatomical study of wood in T.S., T.L.S. and R.L.S.
3. Field visits to local timber depots.

II B.Sc BOTANY - SEMESTER-III
Paper-III: PRACTICAL
Plant Taxonomy and Embryology

Total hours of laboratory Exercises 30hrs @ 2 per week

Suggested Laboratory Exercises:

1. Systematic study of locally available plants belonging to the families prescribed in theory syllabus.
2. Demonstration of herbarium techniques.
3. Structure of pollen grains using whole mounts (*Catharanthus, Hibiscus, Acacia*, Grass).
4. Demonstration of Pollen viability test using *in- vitro* germination (*Catharanthus*).
5. Study of ovule types and developmental stages of embryo sac using permanent slides /Photographs.
6. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot Embryos using permanent slides / Photographs
7. Isolation and mounting of embryo (using *Symopsis / Senna / Crotalaria*)
8. Field visits .
9. Study of local flora and submission of Field Note Book.

London 2. Grierson, D. and Convey S.N. 1989, Plant Molecular Biology, Blackie Publishers, New York.

2. Lea, P.J. and Leegood R.C. 1999, Plant Biochemistry and Molecular Biology, John Wiley and Sons, London.
3. Power C.B., 1984, Cell Biology, Himalaya Publishing Co. Mumbai
4. De. Robertis and De Robertis, 1998, Cell and Moleceular Biology, K.M. Verghese and Company .
5. Sinnott, E.W., L.C. Dunn & J. Dobshansky (1958) : Principles of Genetics (5th Edition) McGraw Hill Publishing Co., N.Y. Toronto, London.
6. Winchester, A.M. (1958) : Genetics(3rd Edition) Oxford & IBH Publishing House, Calcutta, Bombay, New Delhi.
7. Singleton, R.(1963) : Elementary Genetics, D. Van Nostrand Co., Ltd., Inc., N.Y. & Affiliated East West Press (P) Ltd., New Delhi.
8. Strickberger, M.W. (1976): Genetics(2nd Edition) MacMillan Publishing Co., Inc., N.Y., London
9. Watson, J.D. (1977): Molecular Biology of the Gene, W.A. Benjamin, Inc., Menlo Park-California, Reading-Massachusetts, London, Amsterdam, Don Mills, Ontario, Sydney.
10. Gardner,E.J & Snusted, D.P.(1984): Principles of Genetics (7thedition) John Wiley & Sons, N.Y. Chichester, Brisbane, Toronto, Singapore.
11. Lewin, B. (1985) Genes VII Wiley Eastern Ltd., New Delhi, Bombay, Calcutta, Madras, Hydrabad.
12. Allard R.W(1999): The Principles of Plant Breeding, John & Wiley and Sons.
13. Poelman J.M: Breeding Field Crops, Springer.
14. George Acquaah(2012):Principles of Plant Genetics & Breeding: Wiley-Blackwell.

III B. Sc - BOTANY SYLLABUS SEMESTER- V

Practical Paper-V: CELL BIOLOGY, GENETICS AND PLANT BREEDING

Total hours of teaching 30hrs @ 2hrs per week

Suggested Laboratory Exercises:

1. Study of the structure of cell organelles through photomicrographs.
2. Study of structure of plant cell through temporary mounts.
3. Study of various stages of mitosis using cytological preparation of Onion root tips.
4. Study of DNA packing by micrographs.

5. Study of effect of temperature & organic solvent on permeability of cell membrane.
6. Numerical problems solving Mendel' Laws of inheritance
7. Chromosome mapping using 3 point test cross data.
8. Hybridization techniques – emasculation, bagging (for demonstration only).
9. Field visit to a plant breeding research station.
10. Calorimetric estimation of DNA by diphenylamine method.

III B. Sc – SEMESTER- V, BOTANY PRACTICAL MODEL PAPER
PAPER-V: CELL BIOLOGY, GENETICS AND PLANT BREEDING

1. Perform the Experiment **A** .Perform squash on onion root tip, prepare the slide, identify at least one division stage. Write the procedure and draw the diagram of reported stage. 1 x 15 = 15marks

2. Give the experimental protocol of the experiments **B** 1 x 10 = 10 marks

3. Solving numerical problems on Mendelian in heritance **C,D** 2x 7 1/2 =15 marks

4. Record & Viva = 10 marks

50 marks

A-Onion root squash technique
B- Estimation of DNA by diphenylamine method
C&D Numerical problems on Mendelian Inheritance.

5. Determination of minimal quadrat size for the study of herbaceous vegetation in the college campus by species area curve method
6. Study of Phytoplankton and macrophytes from water bodies.
6. Study of species diversity index of vegetation.
7. Estimation of Primary Productivity of an ecosystem
8. To study field vegetation with respect to stratification, canopy cover and composition.
9. Study of plants included in agro forestry and social forestry.
10. To locate the hotspots, phyto geographical regions and distribution of endemic plants in the map of India.
11. The following practical should be conducted in the Field/lab with the help of photo-graphs, herbarium, Floras, Red data book- Study of endangered plants species, critically endangered plants species, vulnerable plant species and monotypic endemic genera of India.

III B. Sc - SEMESTER- VI: BOTANY PRACTICAL MODEL PAPER
PAPER–VI: PLANT ECOLOGY & PHYTOGEOGRAPHY

1. Study Project under supervision	= 15 Marks
2. Record & Viva-Voce	= 10 Marks
3. Experiment **A**	= 10 Marks
4. Anatomical adaptations of **B** (Section cutting)	= 10 Marks
5. Spotters **C&D** (2x2 1/2)	= 5 Marks
	Total = 50 Marks

1. Study Project of a surrounding Ecosystem (terrestrial or aquatic)(plant diversity, animal diversity, human activity, pollution levels, restoration efforts under supervision.
2. Presentation of the project work in Q & A session.
3. **A** -determination of soil porosity/PH/percolation/retaining capacity.
4. **B**- Xerophyte/Hydrophyte anatomical adaptations.
5. **C & D**-anemometer/rain gauze/lux meter.

Paper-VII-A : Practical

Semester – VI, Paper-VII-A : Organic Farming and Sustainable Agriculture

Total hours of teaching 30 hrs @ 2 hrs per week

1. Study of different bio pesticides, weedicides, inorganic and organic fertilizers
2. Deficiency symptoms of nutrient deficiency symptoms (photographs)
3. Soil testing, liming, and fertilizing
4. Preparation of enriched Farm Yard Manure.
5. Study of composting methods.
6. Preparation of vermicompost.
7. Study of recycling of farm waste.
8. Study of methods of green manuring.
9. Study of steps in mushroom cultivation
10. Visit to urban waste recycling unit.
11. Study project report under supervision of lecturer – farm manure preparation/vermi-compost// /waste management// green manures/ mushroom cultivation / nutrient requirements of vegetables

Expected domain skills to be achieved: Performing Soil analysis, soil enrichment methods, composting procedure, recycling of wastes, use of waste materials in mushroom cultivation, understanding nutrient requirement of various crops, identifying various methods of keeping soil health

PRACTICAL MODEL PAPER

Paper-VII-(A) : Organic Farming and Sustainable Agriculture

Q1. Project report (A) **- 15 marks**

Viva-voce on study project **-05 marks**

Q2. Identify and write notes on B, C, D, and E (4x5) **-20 marks**

B- inorganic manures/bio-weedicides/bio-pesticides (photograph/ specimen)

C- Compost preparation method (photograph/instrument)

D- Green manure type (plant specimen/photograph)

E- Waste recycling method (photograph/live specimen/institute/organization)

Q4. Field report **- 05 marks**

Q5. Record **- 05 marks**

TOTAL: **50 marks**

III B. Sc - BOTANY SYLLABUS SEMESTER- VI
PAPER – VII – ELECTIVE
Paper VII-(B): Nursery, Gardening and Floriculture.
Total hours of teaching 60hrs @ 3hrs per week

Unit I: Nursery: **(12 hrs.)**

1. Definition, objectives, scope and building up of infrastructure for nursery.
2. Planning and seasonal activities - Planting - direct seeding and transplants.
3. Nursery Management and Routine Garden Operations.

Unit III: Gardening **(12 hrs.)**

1. Definition, objectives and scope - different types of gardening.
2. Landscape and home gardening - parks and its components, plant materials and design .
3. Computer applications in landscaping.
4. Gardening operations: soil laying, manuring, watering.
5. Landscaping Places of Public Importance: Landscaping highways and Educational Institutions)
6. Some Famous gardens of India.

Unit III: Propagation methods (12 **hrs.)**

1 Sowing/raising of seeds and seedlings, transplanting of seedlings. 2.Air-layering, cutting, selection of cutting ,propagule collecting season, treatment of cutting rooting medium and planting of cuttings - Hardening of plants.

3. Propagation of ornamental plants by rhizomes, corms tubers, bulbs and bulbils.

III B. Sc - BOTANY SYLLABUS SEMESTER- VI (Elective)
Practical Syllabus, Paper VII-(B): Nursery, Gardening and Floriculture
Total hours of teaching 30hrs @ 2hrs per week

1. Tools, implements and containers used for propagation and nursery techniques.
2. Propagation by cutting, layering, budding and grafting
3. Seed propagation- preparation of portable trays, seed treatments, sowing and seedling production.
4. Identification and description of annuals, herbaceous perennials, climbers, creepers, foliage and flowering shrubs, trees, palms, ferns, ornamental grasses; cacti and succulents..
5. Planning and designing of gardens, functional uses of plants in the landscape
6. Preparation of land for lawn and planting.
7. Identification of commercially important flower crops and their varieties.
8. Propagation practices in flower crops, sowing of seeds and raising of seedlings of annuals.
9. Use of chemicals and other compounds for prolonging the vase life of cut flowers.
10. Grading, packing and marketing of cut flowers.
11. Visit to commercial nurseries and commercial tissue culture laboratory
12. Study project under supervision of lecturer – nursery/ornamental flowers/ plants/lawn designing/ landscape designing

Expected domain skills to be achieved: Ability to use a variety of garden tools and implements, proficiency in layering and grafting techniques (cleft grafting and bud grafting), land scape drawings using computers, raising of healthy nurseries of flowering plants, managing vase life of cut flowers etc.

PRACTICAL MODEL PAPER

Paper-VII-(B): Nursery, Gardening and Floriculture

Q1. Project report (A) **- 15 marks**

Viva-voce on study project **-05 marks**

Q2. Identify and write notes on B, C, D, and E (4x5) **-20 marks**

B- Tool/instrument/container used in nursery

C-Seed propagation technique

D- Plant used in lawn (plant specimen/photograph)

E-ornamental flower (photograph/live specimen)

Q4. Field report **- 05 marks**

SRI VENKATESWARA UNIVERSITY : TIRUPATI

TABLE-6: B.COM (CA)- SEMESTER – VI – W.E.F. 2017-18

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam	Sem. End Exam	Teaching Hours**	Credits
1.	DSC 1 G	6.1 Advanced Cost Accounting	100	25	75	6	4
2.	DSC 2 G	6.2 Auditing	100	25	75	6	4
3.	DSC 3 G	6.3 Management Accounting	100	25	75	6	4
4.	Elective-DSC 1 H/Inter-disp./Gen. Elec.	**Cluster Electives** ***1. A e-Commerce*** 6.4 e-Payments System Practical's 6.5Tally Practical's	100 50 100 50	25 25 	75 50 75 50	5 2 5 2	4 2 4 2
5.	Elective-DSC 2 H/Inter-disp./Gen. Elec.	6.6 **Project Work:** Real time student project may be submitted	100		100	5	5
6.	Elective-DSC 3 H/Inter-disp./Gen. Elec.	**2. Computer Applications** 6.4 e-Commerce Applications 6.5 Tally Practical's (50+50) 6.6 Project work : Working on the application of Tally package in organisations/ Internship/ Projects in e- commerce companies on the Design and creation of websites					
Total			700			37	29
Grand Total							

NOTE* **OPT ONE ELECTIVE FROM THE ABOVE ELECTIVES AND THAT SHOULD BE RELEVANT TO THE ELECTIVE IN THE V SEMESTER I.E. IF TAKEN FIRST ELECTIVE IN V SEMESTER IN VI SEMESTER ALSO SHOULD SELECT FIRST ELECTIVE VISE VERSA**

***NOTE*:# PROJECT WORK EVALUATED BY THE COMMERCE EXTERNAL EXAMINER**

TALLY PRACTICAL'S SHOULD BE EVALUATED BY THE COMMERCE EXTERNAL EXAMINER

B.COM. (CA) DEGREE COURSE – III YEAR

SEMESTER – VI – PROJECT WORK

Marks: Project work–70+Viva-voce-30 marks

Objectives

1. To impart skills among the students to write a report of their choice in a given area / field.
2. To enable the students to develop necessary insights into the practical field by making use of functional knowledge of different areas attained in the previous years.

Internship

During the summer vacation, at the end of the second year, students have to undergo an internship for one month with companies and other Business organizations (including Chartered Accounting Firm).

The student should submit a brief report not exceeding 10 pages on learnings of internship and a certificate from the organization, along with the project work.

Project Work Guidelines

The students have to submit a Project report on a selected topic of their choice, selecting from the broad areas of their curriculum, guided by a Faculty member.

The students are expected to prepare a project report on a selected topic that should comprise of 50 to 80 pages. The project report is to be valued by the External Examiners suggested by the Board of Studies in Commerce. The project report is to be submitted at the college by 31st March of the year.

SRI VENKATESWARA UNIVERSITY : TIRUPATI

Table-6: B.Com (GEN); B.Com (Tax)- Semester – VI – W.E.F. 2017-18

Sl. No.	Course	Name of the subject	Total Marks	Mid. Sem. Exam	Sem. End Exam	Teaching Hours**	Credits
1.	DSC 1 G	6.1 Advanced Cost Accounting	100	25	75	6	4
2.	DSC 2 G	6.2 Auditing	100	25	75	6	4
3.	DSC 3 G	6.3 Management Accounting	100	25	75	6	4
4.	Elective-DSC 1 H/Inter-disp./Gen. Elec.	**Cluster Electives -1** ***Banking & Financial Services*** 6.4 Financial Services 6.5 Marketing of Financial Services 6.6 **Project Work#:** Working with Financial Services Firms on Documentation for Sanction of Loans and financial Services	100 100 100	25 25	75 75 100	5 5 5	4 4 5
Total			600			33	28
Grand Total							

***NOTE*: OPT ONE ELECTIVE FROM THE ABOVE ELECTIVES AND THAT SHOULD BE RELEVANT TO THE ELECTIVE IN THE V SEMESTER I.E. IF TAKEN FIRST ELECTIVE IN V SEMESTER IN VI SEMESTER ALSO SHOULD SELECT FIRST ELECTIVE VISE VERSA**

***NOTE*:# PROJECT WORK EVALUATED BY THE COMMERCE EXTERNAL EXAMINER**

TALLY PRACTICAL'S SHOULD BE EVALUATED BY THE COMMERCE BACKGROUND EXTERNAL EXAMINER

SEMESTER – VI – PROJECT WORK

Paper : 607 **Marks: Project work–70+Viva-voce-30 marks**

Objectives

1. To impart skills among the students to write a report of their choice in a given area / field.
2. To enable the students to develop necessary insights into the practical field by making use of functional knowledge of different areas attained in the previous years.

Internship

During the summer vacation, at the end of the second year, students have to undergo an internship for one month with companies and other Business organizations (including Chartered Accounting Firm).

The student should submit a brief report not exceeding 10 pages on learnings of internship and a certificate from the organization, along with the project work.

Project Work Guidelines

The students have to submit a Project report on a selected topic of their choice, selecting from the broad areas of their curriculum, guided by a Faculty member.

The students are expected to prepare a project report on a selected topic that should comprise of 50 to 80 pages. The project report is to be valued by the External Examiners suggested by the Board of Studies in Commerce. The project report is to be submitted at the college by 31st March of the year.

SRI VENKATESWARA UNIVERSITY
B.Com. COMPUTER APPLICATION
FIRST YEAR - SECOND SEMESTER
(Under CBCS W.E.F. 2020-21)

Course - 2A: FINANCIAL ACCOUNTING

(Common to B.Com (General/Computer Applications/Taxation)

Learning Outcomes:

At the end of the course the student will able to;

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

SYLLABUS

Unit-I: Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line — Written Down Value —Annuity and Depletion Method (including Problems).

Unit-II: Provisions and Reserves: Meaning — Provision vs. Reserve — Preparation of Bad Debts Account — Provision for Bad and Doubtful Debts — Provision for Discount on Debtors — Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

Unit-III: Insurance claims: Meaning of Claim – Memorandum Trading A/c – Average Clause – Loss of Stock – Amount of Claim (including Problems).

Unit-IV: Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales — Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

Unit-V: Joint Venture Accounts: Joint Venture - Features - Difference between Joint- Venture and Consignment — Accounting Procedure — Methods of Keeping RecordsWne Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

Reference Books:

I. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.

2. T. S. Reddy and A. Murthy - **Financial Accounting,** Margham Publications.

3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting,** Sultan Chand.

4. SN Maheswari and SK Maheswari - **Financial Accounting,** Vikas Publications.

5. S.P. Jain & K.L **Narang,Accountancy-I,** Kalyani Publishers.

6. Tulsan, **Accountancy-I,** Tata McGraw Hill Co.

7. V.K. Goyal, **Financial Accounting,** Excel Books

8. T.S. Grewal, **Introduction to Accountancy,** Sultan Chand & Co.

9. Haneef and Mukherjee, **Accountancy-I,** Tata McGraw Hill.

10. Arulanandam and Ramana, **Advanced Accountancy,** Himalaya Publishers.

11. S.N.Maheshwari&V .L.Maheswari, **Advanced Accountancy-I,** Vikas Publishers.

12. Prof E Chandraiah, **Financial Accounting,** Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- ....,. Quiz Programs
- ....,. Problem Solving Exercises
- ....,. Co-operative learning
- ....,. Seminar
- ....,. Group Discussions on problems relating to topics covered by syllabus
- ....,. Reports on Proforma invoice and account sales
- ....,. Visit a consignment and joint venture firms (individual and Group)
- ....,. Collection of proforma of bills and promissory notes
- ....,. Examinations (Scheduled and surprise tests)
- ....,. Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY

B.Com. COMPUTER APPLICATION

FIRST YEAR - SECOND SEMESTER

(Under CBCS W.E.F. 2020-21)

Course - 2B: BUSINESS ECONOMICS

(Common to B.Com (General/Computer Applications/Taxation)

Learning Outcomes:

At the end of the course, the student will able to;

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors, such as production and costs affecting firms behaviour.
- Recognize market failure and the role of govemINESSment in dealing with those failures.
- Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships , and formulate the decision making tools to be applied for business.

Syllabus

Unit-I: Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics -Micro and Macro Economics and their Interface.

Unit-II: Demand Analysis: Meaning and Definition of Demand — Determinants to Demand —Demand Function -Law of Demand — Demand Curve — Exceptions to Law of Demand - Elasticity of Demand — Measurements of Price Elasticity of Demand

Unit — III: Production, Cost and Revenue Analysis: Concept of Production Function — Law of Variable Proportion -Law of Returns to Scale – Break Even Analysis -Advantages..

Unit-IV: Market Structure: Concept of Market — Classification of Markets -Perfect Competition — Characteristics — Equilibrium Price -Monopoly — Characteristics — Equilibrium Under Monopoly.

Unit-V: National Income: Meaning — Definition — Measurements of National Income - Concepts of National Income -Problems in Measuring National Income.

References:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics -Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Assignments
- Student Seminars
- Quiz, JAM
- Study Projects
- Group Discussion
- Graphs on Demand function and demand curves
- Leaming about markets
- The oral and written examinations (Scheduled and surprise tests),
- Market Studies
- Individual and Group project reports,
- Annual talk on union and state budget
- Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY

B.A. COMPUTER APPLICATIONS

FIRST YEAR - SECOND SEMESTER

(Under CBCS W.E.F. 2020-21)

Course – 2: E- Commerce & Web Designing

(Five units with each unit having 12 hours of class work)

Learning Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. *Remembers and states in a systematic way (Knowledge)*

1. Understand the foundations and importance of E-commerce
2. Define Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational
3. Describe the infrastructure for E-commerce
4. Discuss legal issues and privacy in E-Commerce
5. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture

B. *Explains (Understanding)*

6. Recognize and discuss global E-commerce issues
7. Learn the language of the web: HTML and CSS.

C. *Critically examines, using data and figures (Analysis and Evaluation)*

8. Analyze the impact of E-commerce on business models and strategy
9. Assess electronic payment systems
10. Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using css

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)

Use the Systems Design Approach to implement websites with the following steps:

- Define purpose of the site and subsections
- Identify the audience

- Design and/or collect site content
- Design the website theme and navigational structure
- Design & develop web pages including: CSS Style Rules, Typography, Hyperlinks, Lists, Tables, Frames, Forms, Images, Behaviours, CSS Layouts

E. Build a site based on the design decisions and progressively incorporate tools and techniques covered.

SRI VENKATESWARA UNIVERSITY

B.A. COMPUTER APPLICATIONS

FIRST YEAR - SECOND SEMESTER

(Under CBCS W.E.F. 2020-21)

Course – 2: E- Commerce & Web Designing

SYLLABUS

Unit	
I	**Unit I: Introduction:** Meaning, Nature, Concepts, Advantages, Disadvantages and reasons for Transacting Online, Types of E-Commerce, e-commerce Business Models (Introduction , Key Elements of a Business Model And Categorizing Major E-Commerce Business Models), Forces Behind e-commerce. **Technology used in E-commerce:** The dynamics of World Wide Web and Internet (Meaning, EvolutionAnd Features); Designing, Building and Launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing Vs. in-house development of a website)
II	**Unit-II: E-payment System:** Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money), Digital Signatures (Procedure, Working And Legal Position), Payment Gateways, Online Banking (Meaning, Concepts, Importance, Electronic Fund Transfer, Automated Clearing House, Automated Ledger Posting), Risks Involved in e-payments.
III	**Unit-III: On-line Business Transactions:** Meaning, Purpose, Advantages and Disadvantages of Transacting Online, E-Commerce Applications in Various Industries Like {Banking, Insurance, Payment of Utility Bills, Online Marketing, E-Tailing (Popularity, Benefits, Problems and Features), Online Services (Financial, Travel and Career), Auctions, Online Portal, Online Learning, Publishing and Entertainment} Online Shopping (Amazon, Snap Deal, Alibaba, Flipkart, etc.)
IV	**Unit-IV: Website designing** Designing a home page, HTML document, Anchor tag Hyperlinks, Head and body section, Header Section, Title, Prologue, Links, Colorful Pages, Comment, Body Section, Heading Horizontal Ruler, Paragraph, Tabs, Images And Pictures, Lists and Their Types, Nested Lists, Table Handling. Frames: Frameset Definition, Frame Definition, Nested Framesets, Forms and Form Elements. DHTML and Style Sheets: Defining Styles, elements of Styles, linking a style sheet to a HTML Document, Inline Styles, External Style Sheets, Internal Style Sheets & Multiple Style Sheets.

V **Unit V: Security and Encryption:**

Need and Concepts, E-Commerce Security Environment: (Dimension, Definition and Scope Of E-Security), Security Threats in The E-Commerce Environment (Security Intrusions And Breaches, Attacking Methods Like Hacking, Sniffing, Cyber-Vandalism Etc.), Technology Solutions (Encryption, Security Channels Of Communication, Protecting Networks And Protecting Servers And Clients)

Learning Resources (E-commerce & Web Designing)

References:

(1) E-commerce and E-business Himalaya publishers
(2) E-Commerce by Kenneth C Laudon, PEARSON INDIA
(3) Web Design: Introductory with MindTap Jennifer T Campbell, Cengage India
(4) HTML & WEB DESIGN:TIPS& TECHNIQUES JAMSA, KRIS, McGraw Hill
(5) Fundamentals Of Web Development by Randy Connolly, Ricardo Hoar, Pearson
(6) HTML & CSS: COMPLETE REFERENCE POWELL,THOMAS, McGrawHill

Online Resources:

http://www.kartrocket.com
http://www.e-commerceceo.com
http://www.fastspring.com
https://teamtreehouse.com/tracks/web-design

Practical Component:@ 2 hours/week/batch

1. Creation of simple web page using formatting tags
2. Creation of lists and tables with attributes
3. Creation ofhyperlinks and including images
4. Creation of forms
5. Creation of framesets
6. Cascading style sheets – inline, internal and external

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

MEASURABLE

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)

5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

Group Discussion

Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

B.SC. COMPUTER SCIENCE/INFORMATION TECHNOLOGY (IT) UNDER CBCS

VI SEMESTER - W.E.F.2017-18

Structure of Computer Science/Information Technology (IT) Syllabus

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
SEMESTER VI	VII (A/B/C)	**Elective-I**					
		A. Operating Systems	3	3	25	75	100
		Operating Systems Lab	3	2	0	50	50
		B. Computer Networks	3	3	25	75	100
		Computer Networks Lab	3	2	0	50	50
		C. Web Technologies	3	3	25	75	100
		Web Technologies Lab	3	2	0	50	50
	VIII Cluster – A- A1,A2 or Cluster-B- B1,B2 Or Cluster – C – C1,C2	**Elective-II(Cluster A)**					
		A1.Foundations of Data Science	3	3	25	75	100
		Foundations of Data Science Lab (through R)	3	2	0	50	50
		A2.Big Data Technology	3	3	25	75	100
		Big Data Technology Lab (Hadoop)	3	2	0	50	50
		Elective-II(Cluster B)					
		B1. Distributed Systems	3	3	25	75	100
		Distributed Systems Lab	3	2	0	50	50
		B2. Cloud Computing	3	3	25	75	100
		Cloud Computing Lab	3	2	0	50	50
		Elective-II(Cluster C)					
		C1. PHP – MySql & Wordpress	3	3	25	75	100
		PHP-MySql & Wordpress Lab	3	2	0	50	50
		C2. Advanced JavaScript : JQuery, Ajax, Angular JS & JSON	3	3	25	75	100
		Advanced JavaScript Lab	3	2	0	50	50
		Project – 2	5	5	25	75	100

III YEAR VI SEMESTER

PROJECT-2

Follow SDLC process for real time applications and develop real time application project

The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 5 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

Title

Objectives

Input and output

Details of modules and process logic

Limitations of the project

Tools/platforms, Languages to be used

Scope of future application

The Project work should be either an individual one or a group of not more than three members and submit a project report at the end of the semester. The students shall defend their dissertation in front of experts during viva-voce examinations.

Q5. Record **- 05 marks**

50 marks

III B. Sc - BOTANY SYLLABUS SEMESTER- VI
PAPER – VII – ELECTIVE
Paper VII-(C): Plant tissue culture and its biotechnological applications
Total hours of teaching 60hrs @ 3hrs per week

Unit I: PLANT TISSUE CULTURE – 1 **(12hrs)**

1. History of plant tissue culture research - basic principles of plant tissue callus culture, meristem culture, organ culture, Totipotency of cells, differentiation and dedifferentiation.
2. Methodology - sterilization (physical and chemical methods), culture media, Murashige and Skoog's (MS medium), phytohormones, medium for micro-propagation/clonal propagation of ornamental and horticulturally important plants.
3. Callus subculture maintenance, growth measurements, morphogenesis in callus culture – organogenesis, somatic embryogenesis.

UNIT-II: Plant Tissue culture -2 **(12hrs)**

1. Endosperm culture – Embryo culture -culture requirements – applications, embryo rescue technique.
2. Production of secondary metabolites.
3. Cryopreservation; Germ plasm conservation.

Unit III: Recombinant DNA technology **(12hrs)**

1. Restriction Endonucleases (history, types I-IV, biological role and application); concepts of restriction mapping.
2. Cloning Vectors: Prokaryotic(pUC 18, pBR322,Ti plasmid and Lambda phage, Eukaryotic Vectors (YAC and briefly PAC)
3. Gene cloning (Bacterial Transformation and selection of recombinant clones, PCR mediated gene cloning)

III B. Sc - BOTANY SYLLABUS SEMESTER- VI
PAPER – VII-(C) Elective
Practical Paper VII-(C): Plant Tissue Culture &Plant Biotechnology
Total hours of teaching 30hrs @ 2hrs per week

1. (a) Preparation of MS medium.

(b) Demonstration of in vitro sterilization methods and inoculation methods using leaf and nodal explants of Tobacco/ Datura/ Brassica etc.

2. Study of embryo and culture, micro propagation of Banana, somatic embryogenesis, artificial seeds through photographs.
3. Construction of restriction map of circular and linear DNA from the data provided.
4. Study of methods of gene transfer through photographs: Agrobacterium-mediated, direct gene transfer by electroporation, microinjection, and micro projectile bombardment.
5. Different steps involved in genetic engineering for production of Bt. cotton, Golden rice, Flavr Savr tomato through photographs.
7. Isolation of plasmid DNA.
8. Restriction digestion and gel electrophoresis of plasmid DNA (optional)
9. Field visit to a lab involved in tissue culture
10. Study project under supervision of lecturer – tissue culture/ genetic engineering

Expected domain skills to be achieved: Ability to prepare artificial nutrient media, preparing independently, applying various sterilization procedures for media, glassware and biological materials, in vitro propagation of Banana callus, morphogenesis--s, clonal propagation methods, isolation of plasmid DNA individually and as a group.

PRACTICAL MODEL PAPER

Paper-VII-(C) : Plant Tissue Culture &Plant Biotechnology

Q1. Project report (A) - 15 marks

Viva-voce on study project -05 marks

Q2. Identify and write notes on B, C and D (3x4) -12 marks

B- Tool/instrument/container used in sterilization

C- Tool/instrument/container used in gene transfer

D- GM crops (Photographs)

2017 - 2020

B.Sc MICROBIOLOGY (CBCS) SYLLABUS

THIRD YEAR – SEMISTER-VIIIB

MBT- 801 BIOFERTILIZERS AND BIOPESTICIDES

TOTAL HOURS: 36 **CREDITS: 3**

UNIT – I **No of Hours: 10**

General account of the microbes used as biofertilizers for various crop plants and their advantages over chemical fertilizers.

Symbiotic N_2 fixers: *Rhizobium* - Isolation, characteristics, types, inoculum production and field application, legume/pulses plants

Frankia from non-legumes and characterization.

Cyanobacteria from *Azolla*, characterization, mass multiplication, Role in rice cultivation, Crop response, field application.

UNIT – II **No of Hours: 6**

Free living *Azospirillum*, *Azotobacter* - isolation, characteristics, mass inoculum production and field application.

UNIT – III **No of Hours: 6**

Phosphate solubilizing microbes - Isolation, characterization, mass inoculum production, field application

UNIT – IV **No of Hours: 7**

Importance of mycorrizal inoculum, types of mycorrhizae and associated plants, Mass inoculum production of VAM, field applications of Ectomycorrhizae and VAM.

UNIT – V **No of Hours: 7**

General account of microbes used as bioinsecticides and their advantages over synthetic pesticides.

Bacillus thuringiensis - production, Field applications.

Viruses – NPV cultivation and field applications.

MBP- 801 BIOFERTILIZERS AND BIOPESTICIDES

TOTAL HOURS: 36 **CREDITS: 2**

1. Isolation of *Rhizobium* from root nodules.

3. Isolation of phosphate solubilizers from soil

4. Staining and observation of VAM

3. A visit to biofertilizer production unit.

SUGGESTED READINGS

Agarwal SK (2005) **Advanced Environmental Biotechnology**, APH publication.

Kannaiyan, S. (2003). **Bioetchnology of Biofertilizers,** CHIPS, Texas.

Mahendra K. Rai (2005). **Hand book of Microbial biofertilizers**, The Haworth Press, Inc. New York.

Reddy, S.M. et. al. (2002). **Bioinoculants for sustainable agriculture and forestry**, Scientific Publishers.

Saleem F and Shakoori AR (2012) **Development of Bioinsecticide,** Lap Lambert Academic Publishing GmbH KG

Subba Rao N.S (1995) **Soil microorganisms and plant growth** Oxford and IBH publishing co. Pvt. Ltd. NewDelhi.

SRI VENKATESWARA UNIVERSITY

DEPARTMENT OF CT& HM (Catering Tourism & Hotel Management)

Choice Based Credit System (C.B.C.S) Syllabus and Scheme Of Examination

Course: BSc **(WITH EFFECT FROM THE ACADEMIC YEAR 2015 -2016)** **Subject: CT&HM**

FIRST YEAR									
Semester	**Part**	**Paper Code**	**Title of the Paper**	**No. of Hours**		**Credits**	**IA**	**EE**	**Total Marks (100)**
				T	**P**				
Semester I	Part 1		Language 1	4	0	4	25	75	100
			Language 2	4	0	4	25	75	100
	SK/FC		Fundamentals of Communication Skills	1	2	2	25	25	50
			Indian Heritage and Culture	1	2	2	25	25	50
	Part 2	CTHM 101	Principles of Tourism - I	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 102	Food production -I	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 103	Food Beverage Service - I	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
			Total Marks	**22**	**13**	**30**			**750**
Semester II	Part 1		Language 1	4	0	4	25	75	100
			Language 2	4	0	4	25	75	100
	SK/FC		Building Vocabulary	1	2	2	25	25	50
			Professional Life Skills - I	1	2	2	25	25	50
	Part 2	CTHM 201	Bakery	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 202	Front office - I	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 203	Accommodation Operation - I	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
			Total Marks	**22**	**13**	**30**			**750**

SECOND YEAR									
Semester	**Part**	**Paper Code**	**Title of the Paper**	**No. of Hours**		**Credits**	**IA**	**ES**	**Total Marks (100)**
				T	**P**				
Semester III	Part 1		Language 1	4	0	4	25	75	100
			Language 2	4	0	4	25	75	100
	SK/FC		Communication Practice - I	1	2	2	25	25	50
			Human Values and Ethics	1	2	2	25	25	50
	Part 2	CTHM 301	Pilgrimage Tourism and Hospitality Management - II	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 302	Food production -II	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 303	Food Beverage Service - II	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
			Total Marks	**22**	**13**	**30**			**750**
Semester IV	Part 1		Language 1	4	0	4	25	75	100
			Language 2	4	0	4	25	75	100
	SK/FC		Communication Practice - II	1	2	2	25	25	50
			Professional Life Skills - II	1	2	2	25	25	50
	Part 2	CTHM 401	Tourism Marketing -III	4	-	4	25	75	100
			Seminar	-	3	2	-	50	50
		CTHM 402	Front office - II	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 403	Accommodation Operation - II	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
			Total Marks	**22**	**13**	**30**			**750**

THIRD YEAR									
Semester	**Part**	**Paper Code**	**Title of the Paper** **INTERNSHIP/PROJECT WORK**	**No. of Hours**		**Credits**	**IA**	**ES**	**Total Marks (100)**
				T	**P**				
Semester V	Part 2		Evaluation by Hotels & Exams						
		CTHM 501	Food Production			8	100	100	200
		CTHM 502	Food & beverage Services			8	100	100	200
		CTHM 503	Front office			8	100	100	200
		CTHM 504	Accommodation Operation			8	100	100	200
		CTHM505	Seminars + Log Book			4	100	-	100
			Environmental Studies	1	2	2	25	25	50
			Total Marks	**25**	**14**	**38**			**950**
Semester VI	Part 2	CTHM 601	Food production -III	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 602	Food Beverage Service - III	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 603	Front office Management - III	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 604	Accommodation Operation - III	4	-	4	25	75	100
			Practicals	-	3	2	-	50	50
		CTHM 605	Hotel Law	4	-	4	25	75	100
			Seminar	-	3	2	-	50	50
		CTHM 606	Travel & Tour Management- IV	4	-	4	25	75	100
			Praticals	-	3	2	-	50	50
	SK		Communication Practice – III (Writing Skills)	1	2	2	25	25	50
			Total Marks	**25**	**19**	**38**			**950**
			Grand Total	**138**	**85**	**196**			**4,900**

SRI VENKATESWARA UNIVERSITY : TIRUPATI

Three-Year BCom (General)

Revised Syllabus under CBCS
(with effect from the Academic Year 2020-21)
Domain Subject: Commerce

Sl. No	Sem	Courses	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/ Week	Credits	Marks	
						Mid Sem	Sem End
1	I	1A	Fundamentals of Accounting (Gen.)	5	4	25	75
2	I	1B	Business Organization and Management (Gen.)	5	4	25	75
3	I	1C	Business Environment (Gen)	5	4	25	75

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE-YEAR B Com

(General)

Course Code: Domain Subject: Commerce

Semester-wise Syllabus under CBCS (w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen.)–Semester – I

Course : 1A - FUNDAMENTALS OF ACCOUNTING

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

Syllabus:

Unit-I – Introduction

Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

Unit-II: Subsidiary Books:

Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book
(including Problems).

Unit-III: Trial Balance and Rectification of Errors:

Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

Unit-IV: Bank Reconciliation Statement:

Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

Unit -V: Final Accounts:

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

References:

1. Ranganatham G and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications.
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications.
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.
7. V.K.Goyal, Financial Accounting, Excel Books
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications
9. Prof EChandraiah: Financial Accounting Seven Hills International Publishers

Suggested Co-Curricular Activities:

- Bridge Course for Non-commerce Students
- Practice of Terminology of Accounting
- Quiz, Word Scramble
- Co-operative learning
- Seminar
- Co-operative learning
- Problem Solving Exercises
- Matching, Mismatch
- Creation of Trial Balance
- Visit a firm (Individual and Group)
- Survey on sole proprietorship and prepare final accounts of concern
- Group Discussions on problems relating to topics covered in syllabus
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY
B.Com. GENERAL

FIRST YEAR - SECOND SEMESTER
(Under CBCS W.E.F. 2020-21)

Course – 2B: BUSINESS ECONOMICS
(Common to B.Com (General/Computer Applications/Taxation)

Learning Outcomes:

At the end of the course, the student will able to;

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors,such as production and costs affecting firmsbehaviour.
- Recognize market failure and the role of governINESSment in dealing with those failures. ➢ Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

SYLLABUS

Unit-I: Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics -Micro and Macro Economics and their Interface.

Unit-II: Demand Analysis: Meaning and Definition of Demand — Determinants to Demand —Demand Function -Law of Demand — Demand Curve — Exceptions to Law of Demand - Elasticity of Demand — Measurements of Price Elasticity of Demand

Unit — III: Production, Cost and Revenue Analysis: Concept of Production Function — Law of Variable Proportion -Law of Returns to Scale – Break Even Analysis -Advantages.

Unit-IV: Market Structure: Concept of Market — Classification of Markets -Perfect Competition — Characteristics — Equilibrium Price -Monopoly — Characteristics — Equilibrium Under Monopoly.

Unit-V: National Income: Meaning — Definition — Measurements of National Income - Concepts of National Income -Problems in Measuring National Income.

References:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics - Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Assignments
- Student Seminars
- Quiz , JAM
- Study Projects
- Group Discussion
- Graphs on Demand function and demand curves
- Learning about markets
- The oral and written examinations (Scheduled and surprise tests),
- Market Studies
- Individual and Group project reports,
- Annual talk on union and state budget
- Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY

B.Com. GENERAL

FIRST YEAR - SECOND SEMESTER

(Under CBCS W.E.F. 2020-21)

Course – 2A: FINANCIAL ACCOUNTING

(Common to B.Com (General/Computer Applications/Taxation)

Learning Outcomes:

At the end of the course the student will able to;

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

SYLLABUS:

Unit-I: Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line — Written Down Value —Annuity and Depletion Method (including Problems).

Unit-II: Provisions and Reserves: Meaning — Provision vs. Reserve — Preparation of Bad Debts Account—Provision for Bad and Doubtful Debts—Provision for Discount on Debtors — Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

Unit-III: Insurance claims: Meaning of Claim – Memorandum Trading A/c – Average Clause – Loss of Stock – Amount of Claim (including Problems).

Unit-IV: Consignment Accounts: Consignment - Features - Performa Invoice - Account Sales — Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

Unit-V: Joint Venture Accounts: Joint Venture - Features - Difference between Joint-Venture and Consignment — Accounting Procedure — Methods of Keeping Records (including Problems).

Reference Books:

1. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.
2. T. S. Reddy and A. Murthy - **Financial Accounting**, Margham Publications.
3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting**, Sultan Chand.
4. SN Maheswari and SK Maheswari – **Financial Accounting**, Vikas Publications.
5. S.P. Jain & K.L Narang,**Accountancy-I**, Kalyani Publishers.
6. Tulsan, **Accountancy-I**, Tata McGraw Hill Co.
7. V.K. Goyal, **Financial Accounting**, Excel Books
8. T.S. Grewal, **Introduction to Accountancy**, Sultan Chand & Co.
9. Hanccf and Mukherjee, **Accountancy-I**, Tata McGraw Hill.
10. Arulanandam and Ramana, **Advanced Accountancy**, Himalaya Publishers.
11. S.N.Maheshwari&V.L.Maheswari, **Advanced Accountancy-I**, Vikas Publishers.
12. Prof E Chandraiah, **Financial Accounting**, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- ★ Quiz Programs
- ★ Problem Solving Exercises
- ★ Co-operative learning
- ★ Seminar
- ★ Group Discussions on problems relating to topics covered by syllabus
- ★ Reports on Proforma invoice and account sales
- ★ Visit a consignment and joint venturefirms(Individual and Group)
- ★ Collection of proforma of bills and promissory notes
- ★ Examinations (Scheduled and surprise tests)
- ★ Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY

B.Com. GENERAL

FIRST YEAR - SECOND SEMESTER

(Under CBCS W.E.F. 2020-21)

Course – 2C: BANKING THEORY AND PRACTICE

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the basic concepts of banks and functions of commercial banks.
- Demonstrate an awareness of law and practice in a banking context.
- Engage in critical analysis of the practice of banking law.
- Organize information as it relates to the regulation of banking products and services.
- Critically examine the current scenario of Indian Banking system.
- Formulate the procedure for better service to the customers from various banking innovations.

Syllabus:

Unit-I: Introduction:

Meaning & Definition of Bank – Functions of Commercial Banks – Credit Creation with Examples - Kinds of Banks – Central Banking Vs. Commercial Banking.

Unit-II: Banking Systems:

Unit Banking, Branch Banking, Investment Banking - Innovations in Banking – E banking - Online and Offshore Banking, Internet Banking - Anywhere Banking - ATMs – RTGS-NEFT – Mobile Banking

Unit-III: Types of Banks:

Indigenous Banking - Cooperative Banks, Regional Rural Banks, SIDBI, NABARD - EXIM bank

Unit-IV: Banker and Customer:

Meaning and Definition of Banker and Customer – Types of Customers – General Relationship and Special Relationship between Banker and Customer - KYC Norms.

Unit-V: Collecting Banker and Paying Banker:

Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker - Payment Gateways.

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE-YEAR B COM

(General)

Course Code: Domain Subject: Commerce

Semester-wise Syllabus under CBCS (w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen) – Semester – I

Course 1B: Business Organization and Management

Learning Outcomes:

At the end of the course, the student will be able to

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulatenew models of business organizations.

Syllabus:

Unit-I –Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation

Unit –II– Forms of Business Organizations: Features,Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs) Differences between Private Limited Public Limited Company

Unit-III -Company Incorporation: Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus

Unit-IV- Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management

Unit-V-Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation

Reference Books:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments
- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies through media
- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests)

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE-YEAR B COM

(General)

Course Code: Domain Subject: Commerce

Semester-wise Syllabus under CBCS (w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen) – Semester – I

Course 1C: Business Environment

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the concept of business environment.
- Define Internal and External elements affecting business environment.
- Explain the economic trends and its effect on Government policies.
- Critically examine the recent developments in economic and business policies of the Government.
- Evaluate and judge the best business policies in Indian business environment.
- Develop the new ideas for creating good business environment.

SYLLABUS:

Unit–I:Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope -Macro and Micro Dimensions of Business Environment -
Environmental Analysis.

Unit – II:Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans

Unit–III: Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI

Unit – IV:Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetisation, GST and their Impact - Political Stability - Legal Changes.

Unit–V:Global Environment : Globalization – Meaning – Role of WTO – WTO Functions - IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalisation

Suggested Readings:

1. K. Aswathappa : Essentials of Business Environment, Himalaya Publishing House
2. Francis Cherunilam : Business Environment,Himalaya Publishing House
3. Dr S Sankaran: : Business Environment, MarghamPublications
4. S.K. Mishra and V.K. Puri : Economic Environment of Business, HPH
5. Rosy Joshi and Sangam Kapoor : Business Environment, Kalyanai Publications
6. A C Fernando: Business Environment, Pearson
7. Dr V Murali Krishna, Business Environment, Spectrum Publications
8. Namitha Gopal, Business Environment, McGraw Hill

Suggested Co-Curricular Activities:

- Seminar on overview of business environment
- Debate on micro v/s macro dimensions of business environment
- Co-operative learning
- Seminar on Monetary policies of RBI
- Debate on social, political and legal environment
- Group Discussions on Global environment and its impact on business
- To learn about NITI Ayog and National Development Council
- Seminars on Economic policies like New Industrial policy, Fiscal policy etc.
- Reports on WTO,BRICS, SAARC etc.
- Examinations (Scheduled and surprise tests) on all units.

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE-YEAR DEGREE

B Com (Computer Applications)

Domain _____ **Subject: Commerce**

Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester- I

Discipline: COMPUTER APPLICATIONS

Course 1C:Information Technology

Model Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. *Remembers and states in a systematic way (Knowledge)*

1. Describe the fundamental hardware components that make up a computer's hardware and the role of each of these components
2. understand the difference between an operating system and an application program, and what each is used for in a computer
3. Use technology ethically, safely, securely, and legally
4. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems

B. *Explains (Understanding)*

5. Apply standard statistical inference procedures to draw conclusions from data
6. Retrieve information and create reports from databases
7. Interpret, produce, and present work-related documents and information effectively and accurately

C. *Critically examines, using data and figures (Analysis and Evaluation**)*

8. Analyse compression techniques and file formats to determine effective ways of securing, managing, and transferring data

9. Identify and analyse user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.
10. Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
11. Identify and analyse computer hardware, software

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity* (Creativity) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

E. Efficiently learn and use Microsoft Office applications.

Syllabus:

Course 1C :Information Technology

(Five units with each unit having 12 hours of class work)

Unit	Details
I	**Introduction:**

Computer Definition - Characteristics and Limitations of Computer Hardware - Generations of Computer, Classification of Computers, Applications of Computer, Basic Components of PC, Computer Architecture - Primary and Secondary Memories- Input and Output Devices- Operating System- Function of Operating System- Types of Operating System- Languages and its Types

II MS word:

Word Processing – Features-Advantages and Applications- Parts of Word Window-Toolbar-Creating, Saving, Closing, Opening and Editing of a Document-Moving and Coping a Text-Formatting of Text and Paragraph- Bullets and Numbering-Find and Replace - Insertion of objects-Headers and Footers- Page Formatting- Auto Correct- Spelling and Grammar- Mail Merge- Macros

III MS Excel:

Features – Spread Sheet-Workbook – Cell-Parts of a window-Saving, Closing, Opening of a Work Book – Editing – Advantages – Formulas-Types of Function-Templates – Macros – Sorting- Charts – Filtering – Consolidation – Grouping- Pivot Table

IV MS Power point:

Introduction – Starting – Parts-Creating of Tables- Create Presentation – Templates-Auto Content Wizard-Slide Show-Editing of Presentation-Inserting Objects and charts

V MS Access:

Orientation to Microsoft Access - Create a Simple Access Database - Working with Table Data - Modify Table Data - Sort and Filter Records - Querying a Database - Create Basic Queries - Sort and Filter Data in a Query - Perform Calculations in a Query - Create Basic Access Forms - Work with Data on Access Forms - Create a Report - Add Controls to a Report - Format Reports

Learning Resources (Course 1C:Information Technology)

References:

(1) P.Mohan computer fundamentals- HimalayaPublications.

(2) R.K.Sharma and Shashi K Gupta, Computer Fundamentals - Kalyani Publications

(3) Fundamentals of Computers ByBalagurusamy, Mcgraw Hill

(4) Computer Fundamentals Anita Goel Pearson India

(5) Introduction to Computers Peter Norton

(6) Fundamentals of Computers Rajaraman V Adabala N

(7) Office 2010 All-in-One For Dummies Peter Weverka

(8) MS-Office S.S. Shrivastava

(9) MS-OFFICE 2010 Training Guide Prof. Satish Jain, M. Geetha, KratikaBPB Publications

Online Resources:

https://support.office.com/en-us/office-training-center

https://www.skillshare.com/browse/microsoft-office

https://www.tutorialspoint.com/computer_fundamentals/index.htm

https://www.javatpoint.com/computer-fundamentalstutorial

https://edu.gcfglobal.org/en/subjects/office/

https://www.microsoft.com/en-us/learning/training.aspx

Practical Component: @ 2 hours/week/batch

- MS word creation of documents letters invitations etc, tables, mailmerge, animations in word, formatting text
- MS Excel performing different formulas, creating charts,macros
- MS power point slide creation, creation of animation
- MS Access creation of database, forms and reports

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

General

1. Group Discussion
2. Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE YEAR B COM

(Computer Applications)

Domain Subject: Commerce

Semester-wise Syllabus under CBCS (w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester – I

Course 1B: Business Organization and Management

Learning Outcomes:

At the end of the course, the student will be able to

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulatenew models of business organizations.

Syllabus:

Unit-I –Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation

Unit –II– Forms of Business Organizations: Features,Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company

Unit-III -Company Incorporation: Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus

Unit-IV- Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management

Unit-V-Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation

Reference Books:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments

- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies through media
- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests)

SRI VENKATESWARA UNIVERSITY : TIRUPATI

PROGRAMME: THREE-YEAR B Com

(Computer Applications)

Domain Subject: Commerce

Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester – I

Course1A: Fundamentals of Accounting

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

Syllabus:

Unit-I – Introduction

Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions –GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

Unit-II: Subsidiary Books:

Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).

Unit-III: Trial Balance and Rectification of Errors:

Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

Unit-IV: Bank Reconciliation Statement:

Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

Unit -V: Final Accounts:

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

References:

1. RanganathamG and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.
7. V.K.Goyal, Financial Accounting, Excel Books
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications
9. Prof EChandraiah : Financial Accounting Seven Hills International Publishers

Suggested Co-Curricular Activities:

- Bridge Course for Non-commerce Students
- Practice of Terminology of Accounting
- Quiz, Word Scramble
- Co-operative learning
- Seminar
- Co-operative learning
- Problem Solving Exercises
- Matching, Mismatch
- Creation of Trial Balance
- Visit a firm (Individual and Group)
- Survey on sole proprietorship and prepare final accounts of concern
- Group Discussions on problems relating to topics covered in syllabus
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

SRI VENKATESWARA UNIVERSITY, TIRUPATI

SKILL DEVELOPMENT COURSES

Science Stream
FIRST YEAR B.Sc. - FIRST SEMESTER
Under CBCS W.E.F. 2020-21

Syllabus of

PLANT NURSERY

Total 30 hrs (02h/wk), 02 Credits & Max Marks: 50

Learning Outcomes :

On successful completion of this course students will be able to;

1. *Understand the importance of a plant nursery and basic infrastructure toestablish it.*
2. *Explain the basic material, tools and techniques required for nursery.*
3. *Demonstrate expertise related to various practices in a nursery.*
4. *Comprehend knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector.*

Syllabus:

Unit-1 :Introduction to plant nursery **06 Hrs.**

1. Plant nursery: Definition, importance.
2. Different types of nurseries –on the basis of duration, plants produced, structure used.
3. Basic facilities for a nursery; layout and components of a good nursery.
4. Plant propagation structuresin brief.
5. Bureau of Indian Standards (BIS-2008) related to nursery.

Unit- 2 :Necessities for nursery **09 Hrs.**

1. Nursery beds – types and precautions to be taken during preparation.
2. Growing media, nursery tools and implements, and containers for plant nursery, in brief.
3. Seeds and other vegetative material used to raise nursery.in brief.
4. Outlines of vegetative propagation techniques to produce planting material.
5. Sowing methods of seeds and planting material.

Unit-3 :Management of nursery **09 Hrs.**

1. Seasonal activities androutine operations in a nursery.
2. Nursery management – watering, weeding and nutrients; pests and diseases.
3. Common possible errors in nursery activities.
4. Economics of nursery development, pricing and record maintenance.
5. Online nursery information and sales systems.

Suggested Co-curricular activities (6 Hrs.)

1. Assignments/Group discussion/Quiz/Model Exam.
2. Demonstration of nursery bed making.
3. Demonstration ofpreparation of media for nursery.
4. Hands on training on vegetative propagation techniques.
5. Hands on training on sowing methods of seeds and other material.
6. Invited lecture cum demonstration by local expert.
7. Watching videos on routine practices in plant nurseries.
8. Visit to an agriculture/horticulture /forest nursery.
9. Case study on establishment and success of a plant nursery.

Suggested text books/reference books :

1. Ratha Krishnan, M., et.al. (2014) *Plant nursery management : Principles and practices,* Central Arid Zone Research Institute (ICAR), Jodhpur, Rjasthan
2. Kumar, N., (1997) *Introduction to Horticulture*, Rajalakshmi Publications, Nagercoil.
3. KumarMishra, K., N.K. Mishra and Satish Chand (1994) *Plant Propagation*, John Wiley & Sons, New Jersey.