



**III YEAR V SEMESTER BSc MPCs SYLLABUS**

**SRI RAMAKRISHNA DEGREE COLLEGE (AUTONOMOUS)**

**NANDYAL**

### **UNIT -I**

Organometallic Compounds classification of organometallic Compounds on the basis of bond type, Concept Definition of hapticity of organometallic ligands. Metalcarbonyls: 18 electron rule, electron count of mononuclear, polynuclear and substituted metalcarbonyls of 3d series. General methods of preparation of mono and binuclear carbonyls of 3d series.  $\pi$ -acceptor behaviour of carbon monoxide. Synergic effects (VB approach) - (Molecular orbital diagram of CO can be referred to for synergic effect to IR frequencies) Classification of organometallic Compounds on the basis of bond type.

### **UNIT – II**

#### **Carbohydrates**

Occurrence, classification and their biological importance, Monosaccharides: Constitution and absolute configuration of glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose, Haworth projections and conformational structures; Inter conversions of aldoses and ketoses; Killiani-Fischer synthesis and Ruff degradation; Disaccharides – Elementary treatment of maltose, lactose and sucrose. Polysaccharides – Elementary treatment of starch.

#### **UNIT- III Amino acids and proteins**

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 protein of maltose, lactose and sucrose. Polysaccharides – Elementary treatment of starch.

#### **UNIT -IV Heterocyclic Compounds**

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

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

## **Nitrogen Containing Functional Groups**

### **Nitrohydrocarbons 3h**

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

### **Amines: 11h**

Introduction, classification, importance and general methods of preparation.

Properties : Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. Distinction between Primary, secondary and tertiary amines using Hinsberg's method and nitrous acid.

Discussion of the following reactions with emphasis on the mechanistic pathway: Gabriel Phthalimide synthesis, Hoffmann-Bromamide reaction, Carbyl amine reaction, Mannich reaction, Hoffmann's exhaustive methylation, Hofmann- elimination reaction and Cope elimination.

Diazonium Salts: Preparation and synthetic applications of diazonium salts preparation of arenes, haloarenes, phenols, cyano and nitro compounds. Coupling reactions of diazonium salts (preparation of azo dyes).

### **UNIT- V Photochemistry**

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- bromide reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions-energy transfer processes (simple example)

### **Thermodynamics**

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 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. energies-Criteria Third law of thermodynamics Spontaneous and non- spontaneous processes, Helmholtz and Gibbs equation for spontaneity.

**SRI RAMAKRISHNA DEGREE (AUTONOMOUS) COLLEGE, NANDYAL**  
**MODEL PAPER**  
**SECOND YEAR B.Sc., DEGREE EXAMINATION SEMESTER-IV**  
**CHEMISTRY COURSE -IV: INORGANIC, ORGANIC PHYSICAL CHEMISTRY**  
Time: 3 hours Maximum Marks: 70

**PART-A**

Answer any **FOUR** of the following questions. Each carries **FIVE** marks **4 X 5 = 20M**

1. Describe the 18 electron rule of mono nuclear and polynuclear metal carbonyls with suitable examples.
2. What are epimers and anomers. Give examples.
3. Discuss about iso electric point and zwitter ion.
4. Discuss the Paul-Knorr synthesis of five membered heterocyclic compounds.
5. Explain Tautomerism shown by nitro alkanes
6. Discuss the basic nature of amines.
7. Write the differences between thermal and photochemical reactions.
8. Derive heat capacities and derive  $C_p - C_v = R$

**PART- B**

Answer **ALL** the questions. Each carries **TEN** marks **5 X 10 = 50M**

9 (a). What are organometallic compounds? Discuss their Classification on the basis of type of bonds with examples.

**(or)**

(b). Discuss the general methods of preparations of mono bi-nuclear carbonyls of 3d series.

10 (a). Discuss the constitution, configuration and ring size of glucose. Draw the Haworth and Conformational structure of glucose.

**(or)**

(b). (i) Explain Ruff's degradation.

(ii) Explain Kiliani- Fischer synthesis.

11.(a). What are amino acids? Write any three general methods of preparation of amino acids.

**(or)**

(b). Discuss the aromatic character of Furan, Thiophene and Pyrrole

12.(a). Write the mechanism for the following.

(i) Nef reaction

(ii) Mannich reaction

**(or)**

(b).(i) Explain Hinsberg separation of amines.

(ii) Discuss any three synthetic applications of diazonium salts.

13.(a). What is quantum yield? Explain the photochemical combination of Hydrogen- Chlorine and Hydrogen - Bromine.

**(or)**

(b). Define entropy. Describe entropy changes in the reversible and irreversible process.

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**SRI RAMAKRISHNA DEGREE(AUTONOMOUS)COLLEGE,NANDYAL**

**SEMESTER - IV CHEMISTRY SYLLABUS PAPER- V**

**(INORGANIC&PHYSICALCHEMISTRY)**

**INORGANIC CHEMISTRY**

**UNIT –I**

**2 h**

**Coordination Chemistry**

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. Applications of crystal field theory.

**UNIT –II**

**1. Inorganic Reaction Mechanism:**

**4h**

Introduction to inorganic reaction mechanisms. Concept of reaction pathways, transition state, intermediate and activated complex. Labile and inert complexes, ligand substitution reactions -  $SN^1$  and  $SN^2$ , Substitution reactions in square planar complexes, Trans-effect, theories of trans effect 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.

**Bioinorganic Chemistry: 8h**

Metal ions present in biological systems, classification of elements according to their action in biological system.

Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, Use of chelating agents in medicine, Cisplatin as an anti-cancer drug. Iron and its application in bio-systems, Haemoglobin, Myoglobin. Storage and transfer of iron.

## **PHYSICAL CHEMISTRY**

**34 h**

### **UNIT-III**

#### **1 .Phase rule**

Explanation of the terms phase, component and 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 .

### **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- Onsager'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**

#### **Chemical Kinetics:**

**14h**

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 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. (Qualitative treatment only). Enzyme catalysis-Specificity, factors affecting enzyme catalysis, Inhibitors and Lock & key model. Michaelis-Menten equation- derivation, significance of Michaelis-Menten constant.

SRI RAMAKRISHNA DEGREE (AUTONOMOUS) COLLEGE, NANDYAL  
MODEL PAPER  
SECOND YEAR B.Sc., DEGREE EXAMINATION  
SEMESTER-IV

**CHEMISTRY COURSE V: INORGANIC PHYSICAL CHEMISTRY**

**Time: 3 hours**

**Maximum Marks:70**

**PART- A**

**Answer any FOUR of the following questions. Each carries FIVE marks 4 X 5 = 20M**

1. Write note on Jahn-Teller distortion.
2. Explain Labile; inert complexes.
3. Explain Job's method for determination of composition of complex.
4. Explain Thermodynamic derivation of Gibb's phase rule.
5. Explain any two conductometric titrations.
6. Write note on Fuel Cells with examples and applications.
7. What is enzyme catalysis? Write any three factors effecting enzyme catalysis.
8. Derive Michaels- Menten equation.

**PART- B**

**Answer ALL the questions. Each carries TEN marks 5 X 10 = 50M**

9 (a). Explain Valence Bond theory with Inner and Outer orbital complexes. Write limitations of VBT.

**(or)**

(b). Define CFSE. Explain the factors effecting the magnitude of crystal field splitting energy.

10 (a). Explain Trans effect. Explain the theories of trans effect and write any two applications of trans effect.

**(or)**

(b). (i) Write the biological functions of Haemoglobin and Myoglobin.

(ii) Write note on use of chelating agents in medicines

11.(a). Define Phase rule and terms involved in it. Explain phase diagram of Pb-Ag system.

**(or)**

(b). (i) Explain phase diagram for NaCl-water system.

(ii) Explain briefly about Freezing mixtures.

12.(a). Define Transport number. Write experimental method for the determination of transport number by Hittorf method

**(or)**

(b).(i) Define single electrode potential.

(ii) Explain four types of electrodes with examples.

13.(a). Explain general methods for determination of order of a reaction.

**(or)**

(b). Explain Collision theory and Activated complex theory of bimolecular reactions.

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**SRI RAMA KRISHNA (AUTONOMOUS )DEGREE COLLEGE ,NANDYAL**  
**ZOOLOGY SYLLABUS FOR IV SEMESTER**  
**PAPER – IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND**  
**EMBRYOLOGY**

**Max. Marks: 70**

UNIT I Animal Physiology - I

- 1.1 Process of digestion and assimilation
- 1.2 Respiration - Pulmonary ventilation, transport of oxygen and CO<sub>2</sub>
- 1.3 Circulation - Structure and functioning of heart, Cardiac cycle
- 1.4 Excretion - Structure and functions of kidney urine formation, counter current Mechanism

UNIT II Animal Physiology - II

- 2.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers
- 2.2 Muscle contraction - Ultra structure of muscle, molecular and chemical basis of muscle contraction
- 2.3 Endocrine glands - Structure, functions of hormones of pituitary and pancreas

UNIT III Cellular Metabolism – I (Biomolecules)

- 3.1 Carbohydrates - Classification of carbohydrates. Structure of glucose
- 3.2 Proteins - Classification of proteins. General properties of amino acids
- 3.3 Lipids - Classification of lipids

UNIT IV Cellular Metabolism – II

- 4.1 Carbohydrate Metabolism - Glycolysis, Krebs cycle, Glycogen metabolism, Gluconeogenesis
- 4.2 Lipid Metabolism –  $\beta$ -oxidation of palmitic acid
- 4.3 Protein metabolism-Transamination, Deamination and Urea Cycle

Unit – V Embryology

- 5.1 Gametogenesis
- 5.2 Fertilization
- 5.3 Types of eggs
- 5.4 Types of cleavages



**SRI RAMA KRISHNA (AUTONOMOUS ) DEGREE COLLEGE ,NANDYAL**  
**ZOOLOGY MODEL PAPER FOR IV SEMESTER**  
**ZOOLOGY - PAPER - IV**  
**ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY**  
**Time: 3 hrs** **Max. Marks: 70**

**SECTION-A**

**Answer any FOUR of the following**

**Draw labeled diagrams wherever necessary**

**5x4=20**

1. Assimilation
2. Cardiac cycle
3. Counter current Mechanism
4. Action potentials
5. Parathyroid gland
6. Structure of glucose
7.  $\beta$ -oxidation of palmitic acid
8. Types of eggs

**SECTION-B**

**II. Answer any FIVE of the following**

**5x10=50**

**Draw labeled diagrams wherever necessary**

9. A) Explain the transport of oxygen and CO<sub>2</sub>.

**OR**

B) Explain the working of heart.

10. A) Explain the origin and propagation of Nerve impulse

**OR**

B) Describe the Hormonal control of reproduction in a mammal

11. A) Describe the Enzymes Classification and Mechanism of Action

**OR**

B) Describe the Classification of carbohydrates.

12. A) Write an essay on Carbohydrate Metabolism

**OR**

B) Explain the Protein metabolism.

13. A) Explain the Gametogenesis

**OR**

B) Write an essay on Development of Frog upto formation of primary germ layers.

**SRI RAMA KRISHNA (AUTONOMOUS) DEGREE COLLEGE, NANDYAL**  
**ZOOLOGY SYLLABUS FOR SEMESTER - IV**  
**COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

**Max. Marks: 70**

Unit – I Immunology – I (Overview of Immune system)

- 1.1 Introduction to basic concepts in Immunology
- 1.2 Innate and adaptive immunity,
- 1.3 Cells of immune system
- 1.4 Organs of immune system

Unit – II Immunology – II (Antigens, Antibodies, MHC and Hypersensitivity)

- 2.1 Antigens: Basic properties of antigens, B and T cell epitopes, haptens and adjuvants; Factors influencing immunogenicity
- 2.2 Antibodies: Structure of antibody, Classes and functions of antibodies
- 2.3 Hypersensitivity – Classification and Types

Unit – III Techniques

- 3.1 Animal Cell, Tissue and Organ culture media: Natural and Synthetic media,
- 3.2 Cell cultures: Establishment of cell culture (primary culture, secondary culture, types of cell lines; Protocols for Primary Cell Culture); Organ culture; Cryopreservation of cultures
- 3.3 Stem cells: Types of stem cells and applications
- 3.4 Hybridoma Technology: Production & applications of Monoclonal antibodies (mAb)

Unit-IV Applications of Animal Biotechnology

- 4.1 Genetic Engineering: Basic concept, Vectors, Restriction Endonucleases and Recombinant DNA technology
- 4.2 Gene delivery: Microinjection, electroporation, biolistic method (gene gun), liposome and viral-mediated gene delivery
- 4.3 Manipulation of reproduction in animals: Artificial Insemination, In vitro fertilization, super ovulation, Embryo transfer, Embryo cloning

Unit - V

- 5.1. PCR: Basics of PCR.
- 5.2 DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing
- 5.3 Fermentation: Different types of Fermentation and Downstream processing; Agriculture

**SRI RAMA KRISHNA (AUTONOMOUS) DEGREE COLLEGE, NANDYAL**  
**ZOOLOGY MODEL PAPER FOR V SEMESTER**  
**COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

**Time: 3 hrs Max.**

**Marks: 70**

Answer any Four of the following

Draw labeled diagrams wherever necessary

5x4=20

1. Vaccines
2. Basic properties of antigens
3. Structure of antibody
4. Protocols for Primary Cell Culture
5. Monoclonal antibodies
6. Vectors
7. Western blotting techniques
8. Fermentation

II. Answer any FIVE of the following

5x10=50

Draw labeled diagrams wherever necessary

9. A) Explain the Cells of immune system.

OR

B) Explain the Organs of immune system.

10. A) Explain the Exogenous and Endogenous pathways of antigen presentation and processing

OR

B) Describe the Classification and Types of Hypersensitivity

11. A) Describe the types of stem cells and applications of stem cell

OR

B) Describe the Natural and Synthetic culture media.

12.A) Write an essay on Gene delivery any two methods

OR

B) Explain the Manipulation of reproduction in animals any two methods

13. A) Explain the DNA fingerprinting Procedure and applications

OR

B) Write an essay on Sanger's method of DNA sequencing traditional and automated sequencing.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 6A: Web Interface Designing Technologies**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:** Students after successful completion of the course will be able to:

1. Understand and appreciate the web architecture and services.
2. Gain knowledge about various components of a website.
3. Demonstrate skills regarding creation of a static website and an interface to dynamic website.
4. Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.

**II. Syllabus:** *(Total Hours: 90 including Teaching, Lab, and Field training, Unit tests etc.)*

**Unit - I** (10 hours)

**HTML:** Introduction to web designing, difference between web applications and desktop applications, introduction to HTML, HTML structure, elements, attributes, headings, paragraphs, styles, colours, HTML formatting, Quotations, Comments, images, tables, lists, blocks and classes, HTML CSS, HTML frames, file paths, layout, symbols, HTML responsive.

**Unit – II** (10 hours)

**HTML forms:** HTML form elements, input types, input attributes, HTML5, HTML graphics, HTML media – video, audio, plug INS, you tube.

**HTML API'S:** Geo location, Drag/drop, local storage, HTML SSE.

**CSS:** CSS home, introduction, syntax, colours, back ground, borders, margins, padding, height/width, text, fonts, icons, tables, lists, position, over flow, float, CSS combinators, pseudo class, pseudo elements, opacity, tool tips, image gallery, CSS forms, CSS counters, CSS responsive.

**Unit – III** (10 hours)

**Client side Validation:** Introduction to JavaScript - What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions. Objects in JavaScript - Data and objects in JavaScript, regular expressions, exception handling. DHTML with JavaScript - Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images.

**Unit – IV** (10 hours)

**Word press:** Introduction to word press, servers like wamp, bitnami e.tc, installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.

### Unit – V (10 hours)

Working with themes-parent and child themes, using featured images, configuring settings, user and user roles and profiles, adding external links, extending word press with plug-ins. Customizing the site, changing the appearance of site using css , protecting word press website from hackers.

### III. References

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007)
2. Paul S.WangSanda S. Katila, an Introduction to Web Design plus Programming, Thomson (2007).
3. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
4. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks. Springer, 2007
5. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
6. Word press for Beginners, Dr.Andy Williams.
7. Professional word press, Brad Williams, David damstra, Hanstern.
8. Web resources:
  - a. <http://www.codecademy.com/tracks/web>
  - b. <http://www.w3schools.com>
  - c. <https://www.w3schools.in/wordpress-tutorial/>
  - d. <http://www.homeandlearn.co.uk>
9. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### IV. Co-Curricular Activities

**a) Mandatory:** (*Training of students by teacher in field related skills: (lab: 10 + field: 05) :*

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on identifying the case study to build a website, designing the format, structure, menus, submenus etc for a website and finally to build a website.
2. **For Student:** Students shall (individually) search online and visit any of the agencies like hotels, hospitals, super bazaars, organizations, etc. where there is a need for a website and identify any one case study and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Choosing a firm or business to develop a website, identifying various business entities to be included in the website, identifying menu bar and content to be placed in their websites.
3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
5. Unit tests (IE).

### **b) Suggested Co-Curricular Activities**

1. Build a website with 10 pages for the case study identified.
2. Training of students by related industrial experts.
3. Assignments
4. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
5. Presentation by students on best websites.

## Course 6A: Web Interface Designing Technologies – PRACTICAL SYLLABUS

### V. Learning Outcomes:

On successful completion of this practical course, student shall be able to:

1. Create a basic website with the help of HTML and CSS.
2. Acquire the skill of installing word press and various plugins of Word press.
3. Create a static website with the help of Word press.
4. Create an interface for a dynamic website.
5. Apply various themes for their websites using Word press.

### VI. Practical (Laboratory) Syllabus: (30 hrs.)

#### HTML and CSS:

1. Create an HTML document with the following formatting options:

(a) Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag

2. Create an HTML document which consists of:

(a) Ordered List (b) Unordered List (c) Nested List (d) Image

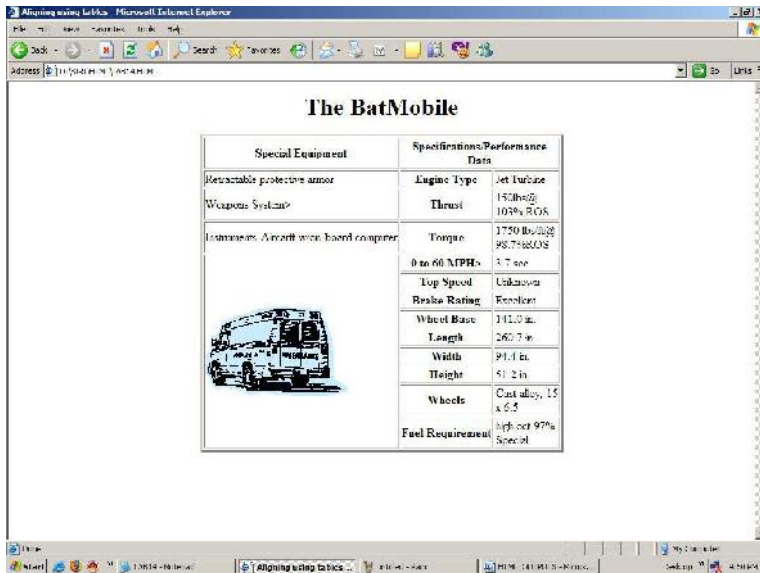
3. Create a Table with four rows and five columns. Place an image in one column.

4. Using “table” tag, align the images as follows:

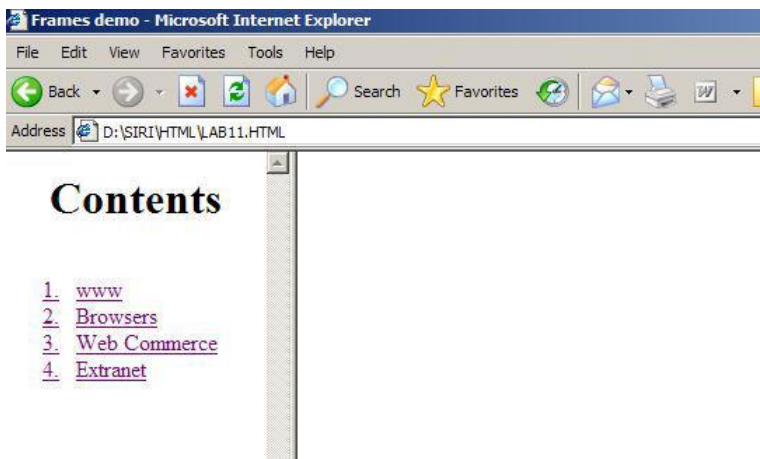


5. Create a menu form using html.
6. Style the menu buttons using css.
7. Create a form using HTML which has the following types of controls:
  - (a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
8. Embed a calendar object in your web page.

9. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
10. Create nested table to store your curriculum.
11. Create a form that accepts the information from the subscriber of a mailing system.
12. Design the page as follows:



13. Create a help file as follows:



14. Create a webpage containing your bio data (assume the form and fields).
15. Write a html program including style sheets.
16. Write a html program to layers of information in web page.
17. Create a static webpage.

**Word press:**

18. Installation and configuration of word press.
  19. Create a site and add a theme to it.
  - 20 Create a child theme
  21. Create five pages on COVID – 19 and link them to the home page. .
  22. Create a simple post with featured image.
  23. Add an external video link with size 640 X 360.
  24. Create a user and assign a role to him.
  25. Create a login page to word press using custom links
  26. Create a website for your college.
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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four -year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 7A: Web Applications Development using PHP & MYSQL**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

Students after successful completion of the course will be able to:

1. Write simple programs in PHP.
2. Understand how to use regular expressions, handle exceptions, and validate data using PHP.
3. Apply In-Built functions and Create User defined functions in PHP programming.
4. Write PHP scripts to handle HTML forms.
5. Write programs to create dynamic and interactive web based applications using PHP and MYSQL.
6. Know how to use PHP with a MySQL database and can write database driven web pages.

**II. Syllabus:** (*Total Hours: 90 including Teaching, Lab, and Field training, Unit tests etc.*)

**Unit-1:** (10 hours)

The Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output. Working with Functions: What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments.

**Unit-2:** (10 hours)

Working with Arrays: What are Arrays? Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance Working with Strings, Dates and Time: Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.

**Unit-3:** (10 hours)

Working with Forms: Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, and Working with File Uploads. Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment with Registered Users.

**Unit-4:** (10 hours)

Working with Files and Directories: Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen(), Running Commands with exec(), Running Commands with system() or passthru().

Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input.

#### **Unit-5: (10 hours)**

Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data. Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

### **III. References**

1. Julie C. Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson Education (2007).
2. Steven Holzner , PHP: The Complete Reference, McGraw-Hill
3. Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition O'reilly, 2014
4. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).
5. Web resources:
  - e. <http://www.codecademy.com/tracks/php>
  - f. <http://www.w3schools.com/PHP>
  - g. <http://www.tutorialpoint.com>
6. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### **IV. Co-Curricular Activities:**

**a) Mandatory:** (*Training of students by teacher in field related skills: (lab: 10 + field: 05)*) :

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on demonstrating various **interactive and dynamic websites** available online, addressing the students on identifying the case study to build an interactive and database driven website, forms to be used in website, database to be maintained, reports to be produced, etc.
2. **For Student:** Students shall (individually) search online and visit any of the agencies like malls, hotels, super bazaars, etc. where there is a need for an interactive and database driven website and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Choosing a firm or business to develop a website, identifying forms to be placed in the websites, back end databases to be maintained and reports to be generated and placed in the websites.
3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.

4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work:  
*Title page, student details, index page, details of place or websites visited, structure of the website and acknowledgements.*

5. Unit tests (IE).

#### **b) Suggested Co-Curricular Activities**

1. Arrange expert lectures by IT experts working professionally in the area of web content development
2. Assignments (in writing or implementing contents related to syllabus or outside the syllabus. Shall be individual and challenging)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation by students on best websites.
5. Arrange a webpage development competition among small groups of students.

### **Course 7A: Web Applications Development using PHP & MYSQL– PRACTICAL SYLLABUS**

#### **V. Learning Outcomes:**

On successful completion of this practical course, student shall be able to:

1. Write, debug and implement the Programs by applying concepts and error handling techniques of PHP.
2. Create an interactive and dynamic website.
3. Create a website with reports generated from a database.
4. Write programs to create an interactive website for e-commerce sites like online shopping, etc.

#### **VI. Practical (Laboratory) Syllabus: (30 hrs.)**

1. Write a PHP program to Display “Hello”
2. Write a PHP Program to display the today’s date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
9. Write PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add new Rows in a Table.
12. Write a PHP application to modify the Rows in a Table.
13. Write a PHP application to delete the Rows from a Table.
14. Write a PHP application to fetch the Rows in a Table.
15. Develop an PHP application to implement the following Operations

- i. Registration of Users.
  - ii. Insert the details of the Users.
  - iii. Modify the Details.
  - iv. Transaction Maintenance.
    - a) No of times Logged in
    - b) Time Spent on each login.
    - c) Restrict the user for three trials only.
    - d) Delete the user if he spent more than 100 Hrs of transaction.
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16. Write a PHP script to connect MySQL server from your website.
  17. Write a program to read customer information like cust-no, cust-name, item-purchased, and mob-no, from customer table and display all these information in table format on output screen.
  18. Write a program to edit name of customer to “Kiran” with cust-no =1, and to delete record with cust-no=3.
  19. Write a program to read employee information like emp-no, emp-name, designation and salary from EMP table and display all this information using table format in your website.
  20. Create a dynamic web site using PHP and MySQL.
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